

Annexure - A					
S. No.	Page No	Document Reference	Point No.	Existing Clause	Amendment
1	2	EOI Document	Last date for submission of Technical Packet against EOIs by bidders	23th May 2025 17:00 hrs	26 th May 2025 12:00 hrs
2	2	EOI Document	Opening of Technical Bid of EOIs	23th May 2025 17:30 hrs	26th May 2025 12:30 hrs
3	2	EOI Document	EMD for Per-Bid Arrangement	EMD for Per-Bid Arrangement Rs 9,36,600/-	EMD for Per-Bid Arrangement Rs 7,62,341/-
4	40	EOI Document	Annexure 12: BoQ	As per Annexure 12:BoQ of Published EOI	As Per Annexure A



Annexure A**Annexure 12: BoQ (Revised)**

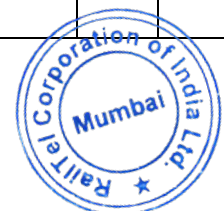
S.No.	Item Code	Item Qty	Qty Unit	Unit Rate	Basic Value
1	Description:- "Design, manufacture and supply of Hot Standby Architecture Electronic Interlocking (EI) system i.e. Distributed or Centralized as per requirement of zonal railway, complete as per RDSO specification and as per attached technical requirement & tentative approved Signalling Plans & Diagrams. This include Central Processing Equipment , Interface Equipment, All Interfacing Relays suitable for EI, In-built event Logger, interconnecting cables and Jumper wires, Required power supply converters for EI equipments, Housing for EI equipments & relay racks , fuses , screw less disconnecting type terminals, fixture mounting arrangements, Industrial grade maintenance Terminals (32" LED or higher size with UPS minimum 1 hr back up with Printer) and other necessary accessories to make the EI system functional as per approved signalling plan.All items shall be supplied as per, per functional bit/station for functioning of EI. Negative variation in functional bit not permitted and for positive variation card wise/Modules etc. breakup should furnish by tenderer. Technical Requirement- (1) No of Bits Each station. (2) Architecture-Minimum 2 out of 2 (3) Non vital I/O- can be used only for accessories where SIL-4 condition required. (4) Station less than 200 routes- RDSO/SPN/192/2019 Ver.2.0 with latest amendment. 5.Station greater than 200 routes - RDSO/SPN/203/2011 Ver1 or latest. Supply of 10% Essential spares of the EI equipments subject to minimum one of each type mainly consisting of processor, cards/ module, interface relay, DC-DC Convertors, Moxa switch, OFC Connectors, etc. Item wise detailed break up with unit and quantity to be provided in separate annexure. (The quantity involves 10% spare). Note - Rate does not include cost of VDUs and Embedded P C . Dual operator Industrial Grade VDU panel and Embedded PC will be taken separately. SAMNI (293), JAMBUSAR (174) "	467.00	Per Functional Vital Bit		
2	Description:- "Supply, Installation and Commissioning of EI VDU (Visual Display Unit, 4 K 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 incharge."				
3	Description:- "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 -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 -10Nos (4) 3 U SS rack with back panel mother	2.00	Numbers		



	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	Description:- Portable workstation for Data input & configuration with necessary software/ programs / Accessories, simulation and functional testing, diagnostics, and troubleshooting and commissioning of EI system. A suitable table and chair of a reputed make shall be supplied by the contractor. Note: The specification of the portable workstation shall be as per the Technical specification given in Annexure or higher version as approved by Engineer In-Charge. All the required software should be uploaded Licensed C D should be given along with the software. (Name of the reputed firm and technical specification shall be written in tender documents.)	2.00	Set		
5	Description:- Instruments and Tool Kits required for Trouble Shooting and repair of hardware and software for the EI system should be supplied for stations as per schedule item 1 above. This includes tools required for EI maintenance sorts of crimping, insertion, removal. General purpose tools like screwdrivers, spanners, PCB extractor, temp. Controlled soldering iron, wire cutter, nose pliers, etc. Measuring instruments with carrying case / holders/ cabinet for technicians/ J.E. for testing, Maintenance and repair at the site). Each set comprises the following - (1) Crimping tool for all types of special cable assembly used in EI system. (2) Insertion tool for all types of special cable assembly used in EI system. (3) Removal tool for all types of special cable assembly used in EI system. (4) Digital multimeter (Fluke 111 or better) (5) Steel cabinet/ Almira, Size: 1980mm height, 915 mm width and 485 mm depth (Godrej Make/Jalaram) of good quality to store tools, spare cards and documents.(6) Clamp Earth Tester. (7)Clamp Current Meter.	2.00	Set		
6	Description:- Pyrotech Workspace make New Modular Control Desk size 4102x2576 mm for provision of 02 Nos. Monitors made in "XLAT" system. (1) Table Top - The material of the working surface shall be made of thermally treated Aluminum -Trihydrate and acrylic resin material supported on minimum 25 mm thick MDF base. (2) Structure- Powder Coated Aluminum Sturdy Structure and extreme side Aesthetic Legs. The structure shall be rigid enough to withstand BIFMA X5.5: 2014 (Latest Edition). (3) Monitor Arm - UL certified monitor arm assembly shall have auto lock, push & remove feature for quick release of VESA mounts and modular arm extensions for ease in maintenance and fixing of monitor by one technician within 30 seconds without using any tools. (4) Shutters & Side Legs - Front and back shutters shall be of 18 mm Laminated MDF Board with premium finish Side leg.	2.00	Numbers		
7	Description:- 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,	2.00	Job		



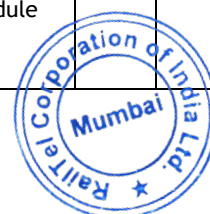
	C, & D class protection shall be provided for all EI equipment. Note - This will also cover the earthing & necessary protection of EI equipment as per details given in the scope of work of Special Condition of Contract and other requirement given in Chapter of tender document & Pre- commissioning check list of EI system.				
8	Description:- Training o f Officers f o r installation, Commissioning, Testing, and Repairs & Trouble shooting of the EI system. (Hard copies of training material/ course modules to be given to each participant).	8.00	Man-Days		
9	Description:- Training of Technician/ Jr. Engineer for installation, Commissioning, Testing, Repairs & Troubleshooting alteration, design of EI system, as per details given in Special Condition o f Contract. (Hard copies of training manuals/ course module to be given to each participant).	20.00	Man-Days		
13	Description:- 750 VA Off line UPS with battery backup 3 Hours for Failure Analysis System of reputed make as per Engineer in-charge.	2.00	Numbers		
14	Description:- Main Signal Post Tubular 140 mm Dia, 4.6 Mtr Length as per IRS: S-6/81 or Latest & RDSO Drg. No. SA-24625 (Advance).	17.00	Numbers		
15	Description:- Main Signal Post Tubular 140 mm Dia, 5.6 Mtr Length as per IRS: S-6/81 o r Latest & RDSO Drg. No. SA-24625 (Advance).	17.00	Numbers		
16	Description:- Supply Color Light Signal Accessories.				
17	Description:- Main LED Signal lighting unit working on 110v ac as per RDSO specn. No. RDSO/SPN /199/2010 rev.1.1 retrofit table in existing CLS housing (sa23002, s23024/m) Red Aspect.	34.00	Numbers		
18	Description:- Main LED Signal lighting unit working on 110 v ac as per RDSO Specn. No. RDSO/SPN/199/2010 rev.1.1 retrofit table in existing CLS housing (sa23002, s23024/m) GREEN Aspect.	17.00	Numbers		
19	Description:- Main LED signal lighting unit working on 110 v ac as per RDSO Specn. No. RDSO/SPN/199/2010rev.1.1 retrofit table in existing CLS housing (sa23002, s23024/m) Yellow Aspect.	40.00	Numbers		
20	Description:- Main LED Signal lighting unit 110 v ac for calling on signal in Railway signaling as per RDSO/SPN/153/2011 (rev. 4.1) or latest	6.00	Numbers		
21	Description:- Main LED Signal lighting unit 110 v ac for Shunt Signal in railway signaling as per RDSO/SPN/153/2011 (Rev. 4.1) or latest.	60.00	Numbers		
22	Description:- Offset brackets f o r Main Signal, made o f tubular steel, outer diameter 140 mm, thickness of pipe 4.5 mm. horizontal length of pipe 545 mm & vertical length of pipe 324 mm with fixing arrangement on Main Signal post as per Drawing No SW/554/G/R.	17.00	Numbers		
25	Description:- Non Metallic (FRP) color light signal housing multi-unit type f o r railway signalling suitable for RE area FOUR Aspects. Complete without lenses, lamps and signal transformer a s per RDSO Drg.No. SA 23001/A/M Adv. Alt- Sand 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.	2.00	Numbers		
26	Description:- Non Metallic (FRP) Junction route indicator unit 1 ways as per Drg. No. RDSO SA 23403 suitable for LED Signal Lighting Unit & as IRS: S-66/84 amndt-1 or latest.	8.00	Numbers		
27	Description:- Non Metallic (FRP) Junction route indicator unit 3 ways as per Drg. No. RDSO SA 23403 suitable for LED Signal Lighting Unit & as IRS: S-66/84 amndt-1 or latest.	2.00	Numbers		



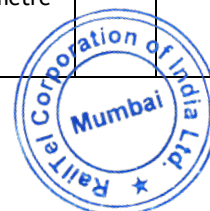
28	Description:- Non Metallic (FRP) Junction route indicator unit 4 way as per Drg. No. RDSO SA 23401 suitable for LED Signal Lighting Unit & as IRS: S-66/84 amndt-1 or latest.	7.00	Numbers		
29	Description:- Calling ON Signal Unit with Brackets & Fixing accessories. Calling On Signal Unit shall conform to RDSO Drg no 24351(Adv.) Alt1 suitable to LED Signal Lighting Unit.	6.00	Numbers		
30	Description:- "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)."	8.00	Numbers		
31	Description:- Position Light Shunt Signal Unit Complete, with offset bracket, hood, Cover etc. as per Drg. No. SA-23840 suitable for LED Signal Lighting Unit. (Supply of LED Unit is not covered in this item).	18.00	Numbers		
32	Description:- "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."	40.00	Set		
34	Description:- Supply of DC Track Circuit Accessories as follows -				
35	Description:- Hydrometer, Exide make or similar for measuring the specific gravity of Battery Graded acid with mounting stand in location Boxes.	10.00	Numbers		
36	Description:- Standard Tool kits, Test and Measuring instruments required for Installation, testing, commissioning & maintenance of HASSDAC. Kit will include all tools & measuring instruments as per ANNEXURE (Annexure shall be attached with CA).	2.00	Set		
37	Description:- "Supply of Tools Kit for Digital Axle Counter (Multi section/Single section). (MSDAC comply to the RDSO spec. No. RDSO/SPN/176/2013/Ver.3 or latest and manufacturer's specification and SSDAC comply to the RDSO/SPN/177/2012, Ver.3 or latest respectively). The tool kit shall be minimum equipped with the following equipments- (i) All mechanical tools shall be of reputed make like Taparia/Bosch etc. (ii) Digital multimeter true RMS type of make Fluke 189 or similar reputed make with probe set - 1 No. (iii) Adjustable torque wrenches 25-135 N/mtr with 13 mm and 19 mm inserts- 1 set (iv) Set of spanners screw drivers and soldering iron - 1 set (v) Dummy wheel - 1 No. (vi) Marking Jig - 1 No. (vii) Adapter card - 1 No. (viii) Extended wired socket to interface with diag No. stic plug - 1 No. (viii) Selector switch on panel base - 1 No. (ix) DAC EC card puller etc."	2.00	Set		
38	Description:- Relay, AC Immune, Plug-in-type, style "QNA1K" ACI DC Neutral line, 24 V D C 1000 Ohms 6F.6B contacts, front contacts metal to carbon and back contacts metal to carbon. Complete with plug board, retaining clip and connectors conforming to IRS: S34, IRS: S23, BRS931A. As per RDSO Specification No. STS/E/Relays/UEA (PI) Dt.30/05/97. Annexure II. The interlocking pin code CDEKY.	100.00	Numbers		
39	Description:- Miniature, Plug in Type, M to C, DC Neutral, Track relay, ACI, Style QTA2, 9 Ohm, 2F-1B contact, Code - FGHKX Spec : BRS :939-A & 966 (Appx-F2) & IRS : S-23, S-23, S-34 & 60.	50.00	Numbers		
40	Description:- Miniature, Plug in type, M to C, AC immunized, DC biased Track Relay, 2F-2B contacts, style QBAT-9 ohms. Code ABEJX Spec:- RDSO/SPN/84 Ver. 2 : IRS - S@ 45"44@IRS-S-23, IRS-S@ 45<45@ 78.	20.00	Numbers		



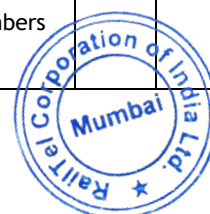
41	Description:- Relay fail safe electronic time delay device mounted on Q series relay base and cover with fixed timing of 60/120 second confirming to IRS:S:61/2000(ver.1.0) (Amdt. 3) or Latest,IRS:S:34 and IRS:S:23 (as applicable). The Interlocking code for this unit shall be AFGKY.	2.00	Numbers		
42	Description:- 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 incharge as per requirement.	30.00	Numbers		
43	Description:- "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) o f 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 the boxes. Prior approval to be taken from Engg. In charge before supply of box."	1.00	Numbers		
44	Description:- Supply o f self supported aluminum flat step ladder (conforming t o ISI) 5 ft. height. Ladder should be self- supported and it should be made up of rust proof Aluminum of Min 16 SWG. No plastic hinges/Step support should be used.	2.00	Numbers		
45	Description:- Supply of Smart Cabinet/Rack for Housing of Various S&T equipments like KLCR, Reset Box, IPS Indication Panel, CA VA Unit for FACS, SP AU for Point Reversal, Crank Handle, Quad Cable Earth Sensing Unit along with Fixing of KLCR (KLCR will be provided by Railway) as per instruction of Site Engineer, Make RITTAL, SANTEL, VERO , PRESIDENT, APC Schneider or similar reputed make.	2.00	Numbers		
46	Description:- Cable termination racks as per Drg. no. CSTE 5004, 5005, 5006 complete along with fitting arrangements and also with arrangement f o r fixing four 8-way terminal strips/ Screw less terminals on each row having 16 such rows. Supply of 8 way terminal strips/ Screw less terminals not covered under this item. Cable termination rack shall be Powder Coated.	14.00	Numbers		
47	Description:- "Supply & installation of Test board (LED, Pin tool type) for relay Room as per as per Drg.No RST/C/105 A & B."	2.00	Numbers		
49	Description:- Cartridge fuse block made of PBT as per RDSO Drg No SA-23748 Alt 4 & Spec No IRS S 75/2006 with the latest amendment. The fuse block shall be suitable for round- head type voltage fuses. This also includes the supply of equivalent n o o f N D type Fuses o f 2 A capacity a s per specification IRS S-78/92.	700.00	Numbers		
50	Description:- PPTC fuse 12V/24V/110v AC GP 16-400 (2A) for TF/TR circuit, make- Raychem, Epcos, Siemens.	200.00	Numbers		
51	Description:- Round head type non deteriorating type low voltage cartridge fuse a s per Spec No IRS/S/78/92 with latest amendments 2A/4A/6A capacity.	600.00	Numbers		
52	Description:- Fu s e a u t o changeover system f o r u s e i n 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 t o 10 Amp capacities which are in signaling circuits. The system shall have 6 cards with a monitoring arrangement of 4 fuses in one card.	4.00	Each Module		
53	Description:- " Fuse a u t o changeover system f o r u s e i n 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	24.00	Each Module		



	arrangement of 4 fuses in one card."				
54	Description:- Disconnect Terminal Block, Screwless type, as per RDSO Spec. No.RDSO/SPN/189/2004. With the latest amendments.				
55	Description:- 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.	200.00	Numbers		
56	Description:- Fire Extinguisher CO2 type (capacity 5 kg).	8.00	Numbers		
57	Description:- SMC Booklets of each station register for SMC register. (1 Register to be read as 1 Number).	24.00	Numbers		
58	Description:- Pad locks Godrej make, Hardened NavTal 7 lever, 65mm Dia with common key or similar product having same feature & technical data.	300.00	Numbers		
59	Description:- Earth Electrode as per Drg. No. CSTE / 6091.	300.00	Numbers		
61	Description:- ARA Terminal blocks with links made of PBT Spec No.s/75/2006 (Rev - 2) with latest amendments and RDSO Drg.No.SA-23741A Alt.4.	8500.00	Numbers		
62	Description:- Steel Plain Almirah with 4 adjustable slaves Size: 1980 mm height, 915 mm width and 485 mm depth. Make: Godrej Storewel Plain Large or Similar of reputed brand will be specified by Engineer in-charge.	4.00	Numbers		
63	Description:- Office Chair makes Godrej CH-7B or similar of reputed brand will be specified by Engineer in-charge.	4.00	Numbers		
64	Description:- Office Revolving Chair Godrej Make Model No.9u02r Bravo Or Similar of reputed brand will be specified by Engineer in-charge.	4.00	Numbers		
65	Description:- Office table with laminated top with three drawers on left hand side and one locker on the right hand side. Olive brown with duplicate keys. Make: Godrej Model T-9 or Similar of reputed brand will be specified by Engineer in- charge.	4.00	Numbers		
67	Description:- 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.	60.00	Numbers		
68	Description:- P V C insulated Railway Signalling multi-core Indoor Cable 60 core x 0.6mm Dia conforming to IRS:76/89 (Amd 3) or latest.	1.00	Kilometre		
69	Description:- PPVC insulated Railway Signaling multi-core Indoor Cable 1mm x 24 mm x 1 mm Dia conforming to IRS:76/89(Amd3) or latest.	2.00	Kilometre		
70	Description:- PVC insulated Railway Signaling multi-core Indoor Cable 1 mm x 40 mm x 0.6mm Dia conforming to IRS:76/89(Amd3) or latest.	1.00	Kilometre		
71	Description:- Single core multi-strand wire 0.5 sq.mm. (16 conductor each dia. 0.2mm), as per IRS 76/89 (Amd3) or latest.	2.00	Kilometre		
72	Description:- Flexible cable (Power wire), multi-strand copper conductors cross-section 1x6 Sq.mm. (85 conductors 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.	2.00	Kilometre		
73	Description:- 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.	1.00	Kilometre		



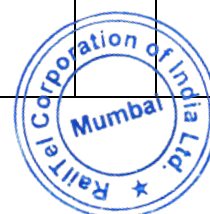
74	Description:- Flexible cable (Power wire), multi-strand copper conductor's cross section 25 Sq. mm (0.4x196) as per specn. IS 694/2010 with latest amendment, and test parameters as per IRS(S) 76/89.	1.00	Kilometre		
76	Description:- "Double Walled Corrugated (DWC) HDPE Pipe with associated collars 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 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."	600.00	Numbers		
77	Description:- Medium Class G.I. Pipes to IS: 1239 (Pt.)- 2004 or latest; 100 mm 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.	200.00	Running Metre		
78	Description:- Electrically Operated Lifting Barrier complete set suitable for 110V DC/24V DC supply with hand generator back up & motorized boom locking arrangements as per RDSO Spec. SPN/208/2012 with the latest amendment. One set consisting of 02 No.s of Barriers of length 09.76 Mtr. along with Spares & tool kit mentioned in RDSO Spec. SPN/208/2012 clause 10.1 & 10.2.	1.00	Set		
79	Description:- MS Sliding type mechanical Boom barrier assembly 11 to 12 Meter Long, movement drive mechanism, resetting & supporting stand suitable for Mechanical/ Electrical level crossing gate as an emergency arrangement as per Drg.	1.00	Set		
80	Description:- Dual tone bell/buzzer with flasher arrangement 25W horn, (Make of any ISI approved firm) working voltage as per circuit design.	2.00	Set		
81	Description:- Road warning Flasher kit for LC gate as per circuit design.	2.00	Set		
83	Description:- "Microcontroller based programmable static switching module (Auto changeover) of Reliance Electricals Make or similar, with an at a glance LCD display suitable for break-less switching between two DC supplies as per attached technical specifications."				
84	Description:- Supply of Digital Earth Resistance tester three terminal type with LED display, 1999 count, KOICO model 5600 or any reputed make approved by engineer in-charge.	2.00	Numbers		
85	Description:- Supply of Digital Insulation Tester 100V/250V/500V range of Model Rish insu 20 Make- RISHABH or MECO or similar.	2.00	Numbers		
86	Description:- Digital low current clamp meter to measure current leaks (parasitic draw down to 1 mA) and electric loads from 1mA to 100 Amp AC/DC, Voltages from 0 to 600V AC/DC, small jaw size to measure current in signalling circuit, 4 digit display. Make -Fluke, GTC/KEW, Scope or superior with better specification as mentioned with all accessories like test lead, batteries and carrying case, sample may be got approved from consignee before supply.	2.00	Numbers		
87	Description:- Digital Multimeter of Fluke 287 Industrial, True RMS with temperature, Analog bar graph, Digital display, Backlight, 1000V AC/DC, measure up to 10A, 20A for up to 30 seconds or Superior.	2.00	Numbers		



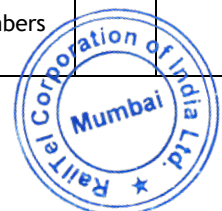
88	Description:- Professional AC/DC clamp meter 3 ¾ digit, true RMS measurement, For Measurement of DC/AC currents up to 1000A, Voltage up to 600V, resistance up to 40 M, and frequency up to 1 MHz with a set of leads & carrying case. Model - DCM39A or equivalent/ higher. Make- Motwane /Stanley /Fluke/ Megger.	2.00	Numbers		
89	Description:- Supply of Standard Tools set.	2.00	Set		
90	Description:- Road Measuring Cycle, made of Aluminum with 05 digit counter, foldable with the bag.	2.00	Numbers		
91	Description:- Supply of Cable Fault locator as per specification attached. Make- Tempo/Stanley Communication Model Sidekick Plus Kit Standard (1155-5001) or equivalent.	2.00	Numbers		
92	Description:- Supply of Microcontroller based Quad Cable Conductor's Earth Resistance Sensing Unit, for 24 nos. conductors with metering facility for one conductor at a time	10.00	Numbers		
93	Description:- Supply of SPLIT DWC pipe conforming to RDSO/SPN/204/2011 Ver. 1.1 or latest RDSO specification, Non metallic, corrugated, multiwalled, normal duty, pliable, without protection against chemical attack and Non flame propagating in 2 meter length of size 200 mm outer dia & 175 mm inner dia. (Permitted tolerance in dia = +/-2mm) (TWO half round pipe constitute one split pipe)	2000.00	Metre		
94	Description:- "High density polyethylene pipes (HDPE) of 110 mm/125 mm outer Dia, 10 mm wall thickness, along with one coupler for every 6 Mtr. As per spec. No. IS 4984:2016 with latest amendments and material grade - PE 80."	400.00	Numbers		
1	Description:- "Installation, wiring, programming, testing and commissioning of EI equipment supplied as per supply item in schedule 'A' including transportation from Consignee's depot to site. The works and materials for installation, wiring, testing and commissioning, grouting, cutting of floors, walls, refilling of the same, re-plastering, required CC/ masonry works, fixing/ placing/ laying of insulated ladders/ casing-capping/ cable trays/ RCC/GI pipes / Cables, termination of cables with lugs/ connectors, painting, / lettering are to be provided/ done by the contractor for the equipments supplied vide Item of Schedule ""A"" of this contract. This also covers the networking of built in EI Data loggers of all the stations to monitor the system to any other places where desired by Engineer-in- charge. Note: Installation shall be comply with RDSO Technical Advisory Note No STE/E/TAN/3012 dtd. 28.08.2014 or latest. Installation, wiring, programming, testing and commissioning of Operator VDU in H o t stand-by w i t h Redundancy. Any Equipments/cards/Modules required f o r H o t stand-by with Redundancy shall be supplied & Installed by the Contractor. This also include supply of one no Godrej make operator chair model PCH7001 or better , one no. of composite computer & printer table (Godrej work station table or better) for keeping MT , one no Godrej make operator chair model PCH7001 or better. Termination of indoor/ PIJF cables in relay room on relays, tag blocks, CT racks as per approved wiring diagram including alterations/ modifications a s required at site. Soldering to be done at all required termination. Dressing/ lacing of wiring shall be done neatly with help of dressing thread / plastic self-lock strip of suitable size. The tools/ equipments/ materials/ simulation boards required for testing shall be supplied / fabricated by contractor. This included replacement of modules/ cards/ LEDs/ equipments going defective during				



	testing. Necessary power supply boards with required capacity plugs, sockets, surge & lightning protection boxes shall be supplied and installed by the contractor. 230V supply shall be arranged by Railways. In case supplies are required to be extended, from Power room / relay room then same shall be extended by the contractor with his own materials such as 1X16 sq. mm wires, cables, lugs, RCC/GI pipes, insulated ladders etc. After ST/LT testing, Factory Acceptance Tests (FAT) & Square Sheet testing system should be fault free while submitting to Railways, otherwise suitable necessary action can be taken by Engineer-in-charge."				
2	Description:- Design of SIP and submission of copy (three copy) for approval.				
3	Description:- Design of ST/LT/TOC/Square sheet/RCC (Three copy) for approval.				
4	Description:- 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.				
5	Description:- "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."				
6	Description:- Design of Cable Route Plan submission of Three paper copies for approval.	2.00	Set		
7	Description:- Supply of Completion SIP in Original tracing along with Auto CAD copy in Pen Drive and Six set copies after approval.				
8	Description:- Supply of completions ST/LT/TOC in original tracing along with AutoCAD copies in Pen Drive and six set copies after approval.				
9	Description:- Supply of Circuit Diagrams consisting wiring/Logic diagram, contact analysis, fuse detail, Input/output bit chart, VDU diagram, Interface in Auto CAD in Pen Drive and Six set of Copies after approval.				
10	Description:- "Supply of diagrams 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 drawing in original tracing along with AutoCAD in Pen Drive and six set copies after approval."				
11	Description:- Supply of final Cable Route Plan as per laid cable duly measured at every 30 m 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.	2.00	Station		
12	Description:- Design and supply of cable courage 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.				
13	Description:- Design and supply SWR Diagram on standard tracing paper of 95grams for each station Corrected version of SWR plans after checked & approved by Rly's 25 Ferro copies will be supply for each of the plans.				
14	Description:- Preparation of SWR including supply of SWR booklets (25 Nos. per station).				
15	Description:- "Preparation of Cable Route Plan of buried S & T Cables using Radio Detector 8200 GS or Similar model GPS Model and DGPS for Per Trench per Km. For existing cables as per the instruction of Engineer in-charge. Submission of report in KMZ file format, Soft Copy Only."				
16	Description:- Installation, wiring, testing, and commissioning o f Data logger complete along with accessories using Contractors' own wiring & fixing materials a s per the following configuration. (It includes loading of NETWORKING software, networking o f data logger, installation o f F EP & Fault diagnosis system). The requisite communication cable/channel for networking will b e arranged by Railway. 1024 digital & 32 analog inputs/ 4096 digital & 32 analog inputs. (All the Indoor & outdoor gears wiring in cataloged included in this along with laying 230V supply cable from IPS room,12 core cable from auto change over for monitoring supplied.) Note- It included logging of all gears as per site incharge.	2.00	Set		
17	Description:- Foundation, Erection & Installation of CLS without route indicator.				
18	Description:- 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 i f 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 provisio & fixing of maintenance platform as per design given by Engineer -In-Charge at site. I t also includes supply of padlock for signal units and cable termination box. X' arms to be provided by the contractor till the signals are introduced. The Item includes cutting of Signal post i f required b y Site I n charge. 2/3/4 aspect signal unit mounted on offset bracket with junction type route indicator 1/ 2/ 3 or multilamp lamp route indicators mounted on signal post.	12.00	Numbers		
19	Description:- Fixing of Junction type Route Indication 1-Way/2-Way/3- Wayon the top of the signal post.	12.00	Numbers		
20	Description:- Fixing of Calling-on Signal/A-Sign/AG-Sign unit on signal post. The item includes fixing of Co- On signal /'A' sign/ 'AG' sign unit on signal post with bracket, hood etc. Item includes supply bracket & fixing materials etc. by the contactor. The item also includes termination of cables & wiring inside Co- On signal /'A' sign/'AG' sign unit as per standard practice. Note- This Item must be operated individually, Not to be operated in Installation/Erection of CLS.	6.00	Numbers		
21	Description:- Foundation, Erection & Installation of Shunt Signal.				
22	Description:- Erection of Position Light shunt signal on Offset bracket on main signal.	17.00	Numbers		
23	Description:- "Fixing o f Electrical Point Machine o n t he 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	30.00	Numbers		



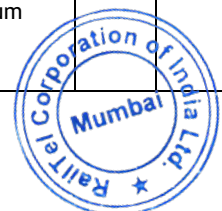
	switch extension bracket, providing insulation for switch extension bracket, fixing ground connection, adjusting opening of the switches and adjusting the point machine with crank handle. The item also includes - (i) Complete material for installation like ground-connections, switch extension brackets, 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 extent 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."				
24	Description:- 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.	30.00	Turn-out		
25	Description:- "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)."	34.00	Per Track Circuit		
26	Description:- 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.	34.00	Set		



27	Description:- Provision of Field accessories of DC Track Circuits				
28	Description:- Charging of Lead Acid Batteries (2 V 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.	100.00	Numbers		
29	Description:- "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."	200.00	Set		
30	Description:- Erection, Fitting and Rail connection of Track Lead Junction Box on two supports (M.S.angle) with contractor's fixing material and PVC jacketed wire for track lead connection including angles of size 40 x 40 x 5 mm 1200 mm length This will include drilling of holes for track lead/side connections on rail. The work shall be done as per Drg. No. S&T/Const./JHS/T 115 & instructions of Rly engineer at site.	120.00	Numbers		
31	Description:- "Supply, Installation, Testing and Commissioning of High Availability Single section digital axle counters with Dual sensor system as per RDSO/SPN/177/2012 version 3or latest. This includes The supply of High frequency web mounting type Tx coil/Rx coil, VR/PR Box duly wired, Vital relays, PR Relays, Clamp with deflector plates & hardware, Dual display reset box with auto resetting facility, Surge voltage protection devices and filter card to be mounted on din rail etc. as per OEM for complete installation & testing& commissioning of(HASSDAC) system NOTE: One set of HASSDAC system will include equipment required to monitor One Up line or One Den line of a full Block Section between two stations. Note: - "Supply of HASSDAC as per RDSO specification along with outdoor industrial grade enclosure (Approved by Railways) similar to Rattle/Pyrotech make."	2.00	Set		
32	Description:- Fixing & wiring of QNA1 / QNA1K relays for GPR Circuit in apparatus case as per Standard practice. Fixing and wiring material shall be supplied by the contractor.	80.00	Numbers		
33	Description:- Fixing of KLCR and its without this includes supply of MS sheet box for fixing of KLCR relay along with push button etc. (KLCR will be supplied by Railway).	30.00	Numbers		
34	Description:- Installation of Cable Termination Racks Assembly complete including wall supports, scaffolding, 8 way/ARA terminals /Screw less connectors, Tag blocks & other necessary accessories etc. The work shall be done as per approved plan, extant practice on WR & the instruction of Rly engineer at site.	14.00	Numbers		
35	Description:- "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."	24.00	Each Module		
36	Description:- 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.	30.00	Per Telephone		



37	Description:- 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.	8.00	Numbers		
38	Description:- 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. Soil treatment to be done as per std. practice. This item includes provision of MS Flat, Earth lead wires and Soldering of lead 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. 7 strand GI wire shall be used as earth lead wire. (Supply of earth electrode is covered in other Item).	300.00	Numbers		
39	Description:- Fixing of ARA Terminals /Screw less connectors and fuse blocks on phenolic laminated sheets and fixing by stainless steel/brass nuts & bolts. This includes provision of two additional holes on the board on either side for cable conductor entry.	2000.00	Numbers		
40	Description:- 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.	16000.00	Numbers		
41	Description:- "Painting of two coats of synthetic enamel paint over one coat of primer on the following after scraping & cleaning surface wherever necessary with contractor's own supply of paints. Wherever required contractor shall apply coating of epoxy paint also as per instructions of site-in-charge. Epoxy paint will be supplied by Railways. NOTE-The paint and primer should be from Asian Paints/ Nerolac / Dulux / Berger. The primer / enamel paints (Aluminum synthetic, black enamel, brilliant white and yellow) will be as per (IS 5660 of 1970) / (IS 2932 of 1974)."				
42	Description:- Lettering & Numbering of detail and description writing of on relay rack, relays, cable termination rack, battery & power equipments, IPS, operating panel, axle counter etc. constituting entire system with contractor's own paint and writing material. The work shall be done as per extant practice on W.R Rly & instruction of Rly engineer at site.	2.00	Station		
43	Description:- "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."	20.00	cum		
44	Description:- 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).	20.00	cum		
45	Description:- 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	30.00	cum		



	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.				
46	Description:- "Hiring of non-AC SUV/MUV vehicle for Officer(up to 2500kms) Innova/ Hexa or similar type of vehicle including maintenance, major minor repairs, cost of lubrication, fuel, drivers and all other ancillary costs etc. complete. (2 no.s vehicle for 24 Months) ."	24.00	Month		
47	Description:- Transportation of S&T material leading up to 1 Km including Loading from Starting point, unloading & Stacking at destination.	100.00	MT		
48	Description:- Auto CAD engineer to be provided by contractor (the CV to be got approved by railway) Work of his/her given in technical specifications. He/ She will do duty in Dy. CSTE/C/office as well as in Field for making signaling drawing, Survey etc.	24.00	Man-Month		
49	Description:- Skilled man power to be provided by contractor for Engg. JCBs working to provide marking & supervisory work for the S & T cables during digging work by JCB's and repairing /restoring/jointing of cables, if damaged Cables & Joints Material will be provided by railway. While Chuna marking will be done by his/her Chuna will be provided by contractor information for deputing skilled man power for above work will be provided by Railway Engineer incharge before 24 hours from commencement of digging by JCBs. They will check cables route by Cable route tracer and will do chuna marking and will show the cables (on rough sketch) available in a small length approximate 50-100 meters of digging. Note- Minimum two man will be provided at a time including Cable jointer, they will stay whole time during JCB digging work. (The CV to be got approved by Railway).	2000.00	Man-Days		
50	Description:- "Hiring of JCB Machine (in good working condition) for leveling and dressing ground/dismantling structures including disposal of debris through dumpers etc. with contractor's labour, JCB machine, machine operator, fuel, etc. The contractor shall arrange road permit for vehicle for all the states of operation, as per instructions of engineer incharge and vehicle shall not be more than three years old."	2400.00	Hour		
51	Description:- "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."				
52	Description:- Installation of Apparatus Cases with miniature 'E' type lock on C C 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.				
53	Description:- IS 13410: Glass Reinforced Polyester Sheet Moulding Compounds (SMC) Size of Sheet - (1000x1000x8)	90.00	Numbers		
54	Description:- 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.				
55	Description:- Painting of two coats of synthetic enamel paint over one coat of primer on the following after scraping & cleaning surface wherever necessary with contractor's own supply of paints. Wherever required contractor shall apply coating of epoxy paint also as per instructions of site-in-charge. Epoxy paint will be supplied by Railways. NOTE-The paint and primer should be from Asian Paints/ Nerolac / Dulux / Berger. The primer / enamel paints (Aluminum synthetic, black enamel, brilliant white and yellow) will be as per (IS 5660 of 1970) / (IS 2932 of 1974).				
56	Description:- Lettering/ Numbering Termination particulars, equipments names etc., legibly and neatly inside location boxes. This includes supply of paints of Asian Paints/ Nerolac / Dulux / Berger make. (Full Case).	50.00	Numbers		
57	Description:- "Lettering/Numbering Termination particulars, equipments names etc., legibly and neatly inside location boxes. This includes supply of paints of Asian Paints/ Nerolac/ Dulux / Berger make. (Half Case)"	40.00	Numbers		
58	Description:- Excavation of cable trench as per cable route plan, 1 Mtr. deep and of 0.3 Mtr. to 0.6 Mtr 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.	400.00	cum		
59	Description:- 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 D W C / RCC/ G I p i p e . (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.	3000.00	cum		
60	Description:- Digging of cable trench 0.3 Mtr. Deep and 0.3 Mtr. Wide on Asphalted Platform / Road / Hard rocky area. Refilling with earth leveling of trenches & restoring the original surface of trenches.	200.00	cum		
61	Description:- "Cutting of Hard rock in trenches /Preparation of cable way/Chase 150 mm wide at the bottom and 300 mm deep in hard rock (Drg prepared by contractor & approved by Engineer In charge) for laying of S&T cables where minimum required depth not possible & which is verified and agreed by Engineer I n c h a r g e o f t h e w o r k o r h i s representative shall be made as per Drg. No RE/S&T/ALD/SK/301/85. Refilling of th same with concrete mixture of 1:3:6 from top of the cable way/ chase. Payment of concrete will be made separately through a separate item in the schedule of work."	100.00	cum		
62	Description:- Providing chase in hard rocky soil for laying of S&T cables where optimum depth (0.5m) in not possible and which is verified and agreed by engineer-in-charge. After laying of cables, it should be	200.00	Running Metre		



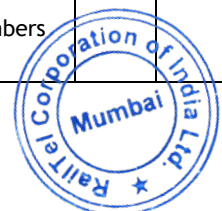
	covered with PCC work in ratio of 1:3:6.				
63	Description:- "Horizontal direction drilling/boring without damage of surface road using Auger Machine. The bore shall be 150 mm Dia & shall be done at the depth of minimum 1200 mm from the ground level. The ground level shall be considered ignoring the bank height of the bank of the road. The length of the bore shall be minimum 4 Mtr long. The HDD with or without HDPE pipe as per direction of Engineer In charge. Note- HDPE pipe supply is taken as separate item. This item also includes cable laying (HDD boring)."	2400.00	Metre		
64	Description:- "Digging of cable pit (min2x2x1m) 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."	2.00	Numbers		
65	Description:- 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.)	2000.00	Running Metre		
66	Description:- Laying and fixing of Medium class GI pipes 100 mm Dia (4.5 mm thickness) as per IS 1239 (Part 1) 2004 or latest with coupling on culverts/bridges, perforated at a distance of 20 cm or less with 10 mm Dia hole, or at any other locations as decided by Site Engineer. The GI pipe is to be filled with chattered compound. It includes supply of all material required for fixing arrangement. Contractor will also supply flexible/corrugated HDPE pipe at the end of GI pipe to protect the cables from sharp edges and sudden bends. The laying and fixing to be done as per RDSO drawings No. SDO/cable laying/011 and SDO/cable laying/012, issued vide RDSO document No. RDSO/SI/G/2010 Version 1.1 dated 04.02.2014, or latest.	200.00	Running Metre		
67	Description:- 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.	200000.00	Running Metre		
68	Description:- Supply and installation of RCC cable route marker engraved and painted on both side along the route every 50 mm and route diversion as per Drg. No 4014/00/CC4 or latest/ Stone marker.	300.00	Numbers		
70	Description:- Installation, Testing & commissioning of Block panel including UFSBI equipment as per standard practice & directive on 1:3:6 CC foundations as per drawing No CSTE 6095.	2.00	Set		
71	Description:- "Installation, testing and commissioning of electrically operated lifting barrier, complete with Casting of cement concrete foundation for pedestal and boom rest post, cabling, power supply connection & wiring with complete outdoor work as per approved drawing, wiring etc."	1.00	LC Gate		
72	Description:- Complete Indoor wiring testing & commissioning of station / LC Gate. This includes: (i) Prewiring & fixing of all base plates as per approved wiring diagram. (Supply of relay base covered in schedule 'A'. Excess quantity of base plate, if required will be supplied by Railways, prewiring of which will be done by the contactor.) (ii) Fixing of Relay groups on relay	1.00	LC Gate		



	<p>racks. (iii) Soldering of tag block terminals, dressing of wires as preapproved rack arrangements/Circuit diagrams. (iv) Wiring on bus bar, fuse base condenser, resistance etc. as per wiring diagram (v) Wiring on Relay rack to relay rack via IDF, IDF to CT rack in relay room. (vi) Wiring on panel tag block shall be repeated on tag blocks located on IDF & CT rack in relay room. (vii) Wiring between control panel room & relay room. (viii) Supply of simulation panel, which shall be separate for each station and shall be left after commissioning. (ix) Provision 200 way tag blocks for data logger and providing jumpers between voltage free terminals on relay racks and data loggers, tag block with 0.6sq mm cable. (x) Wiring between Integrated power supply and data logger tag block with one square mm /0.6 sq. mm cable as per instruction of Engineer in-charge. (xi) Wiring of key lock arrangement at SM's office/ site & Earth leakage detectors. (xii) Wiring of block instruments from CT rack to block instrument terminals and includes supply & laying of indoor cables for this purpose as per standard arrangements xiii) All wiring & wiring materials necessary to complete Station/ LC gate (Within station limit) Installation but not cover in the schedule anywhere (xiv) Writing of description on all relays & other indoor equipments</p> <p>Note: All wiring shall be done as per std. practice of Railways with neat dressing & threading. All wiring will be done as per standard practice of Railways with neat dressing & threading. Detailed testing will include functional testing, selection table, and locking table and cross sheet testing with the help of operating panel and simulation panel in the presence of railway officials to their satisfaction. A copy tested selection table, locking table and cross sheet duly signed by contractor to be submitted to field office for record. This included supply of lamps for simulation panel for testing Note- Contractor will Put sufficient Staff to carry out the testing round the clock, if desired by Railway Engineer and will ensure that any alteration which become necessary during testing are carried out & testing is repeated wherever required.</p>				
73	<p>Description:- Casting of CC foundations in the ratio of 1:3:6 for sliding boom as per Drg. Minimum 10 No.s of foundation per set shall be cast using standard size holding down bolts & nuts for erection. Item include excavation, ramming, curing and plastering 1:4 cement and sand mixture. Aggregate, cement, sand and holding down bolts & nuts to be supplied by the contractor.</p>	1.00	LC Gate		
74	<p>Description:- "Installation & commissioning of Sliding booms with E type lock and KLCR. This includes wiring of KLCR, running of cables, necessary, painting & transportation of materials from store to site. All material required to commissioning of slide booms on gate will be supplied by the contractor."</p>	1.00	Numbers		
75	<p>Description:- Supply & installation of powder-coated MS Sheet KLCR Box for LC Gates to house 2/3 KLCR.</p>	2.00	Numbers		
76	<p>Description:- "Installation, Wiring and testing of Integrated Power Supply System. This includes power distribution connection to bus bars and relay racks in the room with contractor's own wiring materials and fabrication and fixing of AC/DC power distribution board made on 8mm thick SMC sheets or any standard make with connections suitable for 32 A. Wiring to be done considering site requirement, depending upon the load with suitable wires, lugs & glands as per instructions of Engineer-in-charge. The work includes installation of ELD's, fixing & wiring of change over switch(program switch) for selection of DG set supply (DG1 & DG2) and wiring of change over switch (program switch) for</p>				



	selection of mains or DG supply. This item also includes supply & fixing of ladder along the wall for carrying power supply wires/cables from IPS room to Relay room/power room etc. Any masonry work required will be carried out by contractors own material."				
77	Description:- "Installation of LT Power Panel/Power distribution panel/ Auto Changeover Panel, power supply equipments such as Rectifiers Transformers, Battery chargers etc. including mounting on wooden planks/Hylam Sheet and complete wiring for automatic change over arrangement, mounting of Program switches on Bakelite sheet of size 300mm x 300 mm x 8 mm fitted to MS angle (size 25mm x25mm x 5mm) brackets, wiring as per requirements. Necessary wires to be supplied by Rlys, lugs & glands to be supplied by Contractor."	2.00	Lot		
78	Description:- Provision of Power supply arrangement, with contractors own Generating sets, capacity 5 KVA or above as per requirement of Station Signalling load, for testing of Signalling system i n the case of irregular Local power supply /under capacity AT,s supply system at station.{per Set/Day}.	20.00	KVA		
79	Description:- "Installation and commissioning of various classes of lightening cum surge protection device as decided by site engineer. This include supply and fixing o f any other material required to complete the installation & commissioning of lightening cum surge protection device."	30.00	Numbers		
80	Description:- Rubber Mat for Power Equipment room. (5mm thick).	10.00	Kg		
81	Description:- Installation of Microcontroller based programmable static switching module (Auto changeover).	8.00	Numbers		
83	Description:- Installation of track device (double rail contact) including digging o f 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 b e carried o u t i n accordance w i t h latest guidelines issued by Railways/RDSO preferably by Authorized representative of OEM.	125.00	Per Detection Point (DP)		
84	Description:- Installation o f Central Evaluator o f 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 b e carried out i n accordance with latest guidelines issued b y Railways/ RDSO preferably by Authorised representative of OEM.	4.00	Numbers		
85	Description:- "Provision of ferrules on Cable, As per the latest guideline of Railways, which includes all associated work like printing, identifying, fixing, etc.(POLICY NO-02/2024/latest)"	10000.00	Numbers		



86	Description:- " Supply and Installation of Solar Power system for 110volt/300AH battery bank load as IPS System. Each panel containing the following items."				
87	Description:- Installation of Microcontroller based Quad Cable Conductor's Earth Resistance Sensing Unit, for 24 nos. conductors with metering facility for one conductor at a time	10.00	Numbers		
88	Description:- Dismantling/Releasing of the existing outdoor signalling items such as CLS unit with posts alongwith base, lever frames (5 levers set), battery box with equipments, location box with equipments, block instruments, point machines, mechanical point, AFTC/DAC, Relay rack, CT Rack alongwith Relay rack. IDF with all accessories. All these unit will be counted as one no. along with their accessories. This includes the cost of transportation of released material from site to Railway Scrap Depot. (No. to be read as per Signal/Track device/Location/Point/CT Rack/RR etc)	10.00	Numbers		
1	Description:- 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".	125.00	Per Detection Point (DP)		

