



इरकॉन इंटरनेशनल लिमिटेड

नवरत्न कम्पनी
(भारत सरकार का उपक्रम)

IRCON INTERNATIONAL LIMITED

NAVRATNA COMPANY
(A Govt. of India Undertaking)



IRCON/2053/SHM/EI/Corres/24/1896

Date: 31.08.2024

To

M/s Novaline Infra Pvt. Ltd.

Junnus Patna, College Square,
Cuttack, Odisha-753003

Sub: Acceptance of takeover of M/s Thakur Enterprises (Proprietorship Firm) by M/s Novaline Infra Private Limited in connection with work of "Design, Supply, Installation, testing & Commissioning of Distributed Electronic Interlocking Signalling System covering Central Location and Four Goomties in connection with yard modification at Shalimar station of SE Railway"

Ref: 1. LOA No. IRCON/2053/SNT/ Tender/SHM EI/931 dated 09.08.2024
2. M/s Novaline Infra Pvt. Ltd. letter No. NIL dated: 10.08.2024.
3. M/s Thakur Enterprises letter No. TE/IRCON/SHM/SER/02 dated: 10.08.2024.

M/s Novaline Infra Private Limited, Junuspatna, College Square, Cuttack, Odisha—753003 have submitted the documents in proof of taken over of the running proprietorship Firm M/s Thakur Enterprises, Junus Patna, College Square cuttack, Odisha-753003 with all assets and liabilities.

It is hereby informed that the takeover of M/s Thakur Enterprises (Proprietorship firm) by M/s Novaline Infra Private Limited is accepted by IRCON.

You are requested to provide acceptance of LOA No. IRCON/2053/SNT/ Tender/SHM EI/931 dated 09.08.2024 with all terms & conditions and Contract agreement shall be signed by authorized representative of M/s Novaline Infra Pvt. Ltd.

Thanking you

For & on behalf of

IRCON International Limited

Manish
Sharma
Manish Sharma
CGM/S&T/IRCON

Digitally signed by
Manish Sharma
Date: 2024.08.31
13:52:32 +05'30'

Copy to:

1. M/s Thakur Enterprises for information & necessary action please.
2. CGM/S&T/Coordination/CO for kind information.
3. CGM/Contract Cell/CO for kind information.
4. CGM/Civil/ERO/Kolkata for kind information.
5. AGM/S&T for for information & necessary action please.
6. JGM/Fin/ERO/Kolkata for information & necessary action please.

Regional Office (East): 378, Prantik Pally, Kasba, Kolkata-700107

EPBX: (033) 4603 6269, E-mail: ro.kolkata@ircon.org

Registered Office: C-4, District Centre, Saket, New Delhi-110017, INDIA

Tel.: +91-11-26530266, FAX: +91-11-26854000, 26522000, E-mail: info@ircon.org, Web: www.ircon.org

CIN - L45203DL1976GOI008171





JAI MATADI

THAKUR ENTERPRISES

RAILWAY APPROVED CONTRACTOR

Junus Patna, College Square
Cuttack - 753 003
Tele / Fax : 0671-2201122

Email : thakur_enterprises_ctc@yahoo.com

TE/IRCON/SHM/SER/01

Dated: 09.08.2024

To
The CGM/S&T/Patna
IRCON International Limited

LOA No.: **IRCON/2053/SnT/TENDER/SHM EI/931 Dated: 09/08/2024**

Name of Work: "Design, Supply, Installation, testing & Commissioning of Distributed Electronic Interlocking Signalling System covering Central Location and Four Goomties in connection with yard modification at Shalimar station of SE Railway".

With profound thanks, we acknowledge the receipt of the above L.O.A No: IRCON/2053/SnT/TENDER/SHM EI/931 Dated: 09/08/2024. As per Para-12 we are hereby sending a signed copy of LOA with schedule.

For your kind information and necessary action Please.

Thanking you,

For THAKUR ENTERPRISES

Yours faithfully,
For Thakur Enterprises, Proprietor
(R.K. Thakur)



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IRCON INTERNATIONAL LIMITED

NAVRATNA COMPANY
(A Govt. of India Undertaking)

No: IRCON/2053/SnT/TENDER/SHM EI/931

Date: 09/08/2024

LETTER OF ACCEPTANCE (LOA)

M/s Thakur Enterprises,
Junus Patna, College Square,
Cuttak-753003 Odisha (India)
E-mail: rajivthakur100275@gmail.com

Kind Attn: Shri Rajiv Kumar Thakur

Sub: Design, Supply, Installation, testing & Commissioning of Distributed Electronic Interlocking Signalling System covering Central Location and Four Goomties in connection with yard modification at Shalimar station of SE Railway.

Ref: 1. Tender No. IRCON/2053/SnT/TENDER/SHM EI dated 17.05.2024.
2. Corrigendum No.1 dated 25.05.2024.
3. Corrigendum No.2 dated 27.05.2024.
4. Your Technical Bid Opened on 31.05.2024
5. Your Financial Bid Opened on 13.06.2024

Dear Sir,

- 1) In reference to above referred tender, your offer for subject mentioned work has been accepted by the Competent Authority at a total cost of **₹20,75,44,351.00** (Rupees Twenty Crore Seventy-Five Lakh Forty-Four Thousand Three Hundred Fifty-One only) including GST @18% and all taxes & duties.
- 2) **Bill of Quantities (BOQ)**, indicating the quantities and rates of the items included in the scope of work is enclosed as Annexure - A.
- 3) **Taxes and Duties:** For compliance refer clause no 7.0 of **Special Conditions of Contract (SCC)**.

For THAKUR ENTERPRISES

Proprietor

Manish Sharma Digitally signed by
Manish Sharma

Regional Office (East): 378, Prantik Pally, Kasba, Kolkata-700107

EPBX: (033) 4603 6269, E-mail: ro.kolkata@ircon.org

Registered Office: C-4, District Centre, Saket, New Delhi-110017, INDIA

Tel.: +91-11-26530266, FAX: +91-11-26854000, E-mail: info@ircon.org, Web: www.ircon.org

CIN - L45203DL1976GOI008171





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IRCON INTERNATIONAL LIMITED
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- 4) **Completion Period:**
The entire work shall be completed within six (06) months from the date of issue of Letter of acceptance (LOA). You have to submit detailed program for each major element of the work using modern network technique for project monitoring for approval of the engineer. For compliance refer clause 10.0 of Special Conditions of Contract (SCC).
- 5) **Defect Liability Period:**
Defect Liability Period will be 12 months from the date of issue of completion certificate by the Engineer. For compliance refer clause 11.0 of Special Conditions of Contract (SCC).
- 6) **Insurance:**
For compliance refer clause 12.0 of Special Conditions of Contract (SCC).
- 7) **Performance Guarantee & Security Deposit/Retention Money:** (As per Clause 13 of SCC & Para 16 (2) & 16 (3) of Part-II of Indian Railways Standard General Conditions of Contract April -2022).
- i. Performance Guarantee in the form of irrevocable Bank Guarantee (BG) on the Proforma annexed as **Annexure-X** from any Scheduled Bank for an amount of 5% (Five percent) of the contract value i.e. **₹1,03,77,218.00** (Rupees One Crore Three Lakh Seventy-Seven Thousand Two Hundred Eighteen only) to be submitted within 21 (Twenty-One) days from the date of issue of Letter of Acceptance (LOA) before signing of Contract Agreement and shall be valid up to 60 days beyond completion period.
 - ii. Retention money for all contracts shall be recovered from on account/ final bills of the Contractor @ 10% of gross value of each bill after adjusting EMD amount till the amount so recovered including EMD amount adds upto 5% of the contract value of the work.
 - iii. No interest shall be payable to the Contractor on the amount retained in cash towards retention money.
- 8) **Contract Agreement** shall be signed between you and IRCON INTERNATIONAL LIMITED within 28 days from the date of issue of LOA. You have to submit a non-judicial Stamp Paper of ₹100 and attend the office of CGM/S&T/Patna, IRCON INTERNATIONAL LIMITED, 378, PRANTIK PALLY, DHANMATH KASBA, KOLKATA- 700107 for Signing of Contract Agreement as per clause 16 of Special Conditions of Contract (SCC).

For THAKUR ENTERPRISES

Manish Sharma Digitally signed by
Manish Sharma

Regional Office (East): 378, Prantik Pally, Kasba, Kolkata-700107

EPBX: (033) 4603 6269, E-mail: ro.kolkata@ircon.org

Proprietor Registered Office: C-4, District Centre, Saket, New Delhi-110017, INDIA
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नवरत्न कम्पनी
(भारत सरकार का उपक्रम)

इरकॉन

IRCON INTERNATIONAL LIMITED

NAVRATNA COMPANY
(A Govt. of India Undertaking)

- 9) You have to sign the Integrity Pact at the time of signing Contract Agreement and submit a non-judicial Stamp Paper of ₹100 for signing the Integrity Pact as per para 10.0 of Instructions to tenderers.
- 10) **Terms of Payment:** As per Clause 27 of Special Conditions of Contract (SCC).
- 11) Until a formal agreement is executed, acceptance of this LOA by you shall constitute to be a binding of contract. All other terms & conditions shall be as per the Tender Documents accepted by you, which shall form an integral part of this contract and shall be binding on you.
- 12) Two copies of this LOA are being sent herewith. Kindly acknowledge receipt as a token of unconditional acceptance and return one copy of the LOA, duly signed, and stamped by your authorized representative on each page, to this office within one week of issue of this LOA.

Thanking you,

Encl:

- i) Annexure A- Bill of Quantity.
ii) Annexure I-List of Items required in TOOL KIT

For and on behalf of
Ircon International Ltd.

Manish Sharma Digitally signed by
Manish Sharma

(Manish Sharma)

Chief General Manager/S&T/Patna

For THAKUR ENTERPRISES

[Signature]
Proprietor

Copy for information and necessary action to:

1. Chief General Manager/Civil/ERO/Kolkata.
2. JGM/Fin/ERO/Kolkata

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Name of Work: Design, Supply, Installation, testing & Commissioning of Distributed Electronic Interlocking Signalling System covering Central Location and Four Goomties in connection with yard modification at Shalimar station of SE Railway.

BILL OF QUANTITY

BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
SUPPLY-Signalling Items					
A	Electronic Interlocking System				
1	Design, Supply, Installation, testing & Commissioning of Distributed Electronic Interlocking Signalling System per attached SIP no. 011023, shall be operated from Distributed EI (one central EI and Four Object controllers in Goomties) with new RCC and all materials required to commission the distributed EI as per SIP No. 011023 and SER practice shall be provided by the contractor. EI system shall be designed and supplied considering the complete requirement but not limited to:	Sys	1	6,41,13,302.26	6,41,13,302.26
a)	Microprocessor Equipment (having hot standby system provided with facility of automatic change over), other cards and assemblies/ sub assemblies at central interlocking and at End goomties.				
b)	All type of Interface Relays such as AXCTPR's, WKR, WCR/QBCA1, ECR, suitable for LED signals, Point operation of Relays, Other interface Relays like QNA1/QN1/QL1/ECR/Flasher etc to be provided as extent practice of SER and suit to 25 KV RE.				
c)	Industrial grade Operator Console 72/85" as directed by engineer-incharge as per latest RDSO guide line and technical advisory note(TAN), on line dot matrix printer with power supply etc, The furnitures like Table with cabinet/work station and chair etc required for monitoring the VDU shall be provided by the contractor as per approval of engineer incharge.				
d)	Equipment rack, Relay rack, Rack fixture mounting arrangements and accessories.				
e)	Inter connecting cables and interfacing equipments required for interfacing EI with outdoor gears, Datalogger system, MSDAC system, monitoring of power supply of IPS module, power supply indication, Guard repeater circuits etc				
f)	Optical Fibre cable along with interfacing equipment etc for indoor work.				
g)	Protective device like fuse, SP arrangements, Equipotential bonding as per RDSO guide lines at Central location and all Four Goomties.				
h)	All the consumables wiring materials fixtures, Tag Block, mounting arrangements and necessary accessories to install and make EI system functional.				
i)	Supply of software as per design for EI system conforming to RDSO spcn. No. RDSO/SPN/203/2011 Ver 1.0 or Latest to suit SIP enclosed including FAT.				
j)	Station master is to be provided with two VDU only. However SM room and equipment room may be situated into different buildings and therefore required to be provided with augmented surge protection / Optical interface by EI, OEM.				
k)	Supply of Fuse alarm system as per RDSO spcn.				
l)	Supply of Documents / Manuals (6 sets), as per RDSO Spcn. No. RDSO/SPN/203/2011 Ver 1.0 or latest.				
m)	Preparation & Submission of 'as planned' and 'as built' documents for Central EI with 4 nos Distributed Goomties for S&T work. It includes but not limited to: 1. Equivalent Circuit Application logic 2. Interface circuits 3. Selection table/Route Control Chart 4. Video Display Diagram 5. SWR&SWRD with Board 6. Power Distribution Diagram, It should be done as per extent practice of SE Railway. The documents shall be supplied as per technical specification of tender document.				
n)	Supply of 10 % spares such as Relays, group Relays, Indoor cables, wires, Tag block, cards, modules, connector/couplers, fuses, EI tools(1 sets), etc for use of complete EI system				
o)	Supply and installation of Ring earth for EI system as per BOQ item no 45 as per latest TAN and guide lines issued by RDSO.				

For THAKUR ENTERPRISES

 Proprietor

Manish
Sharma

Digitally signed by
Manish Sharma

BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
p)	Industrial grade maintenance VDU 72/85" as directed by engineer-incharge as along with furniture like table , chair, with cabinet to be provided at five locations as per approval of engineer incharge.				
q)	Power Supply arrangement including DC-AC Converter/Inverter as per latest TAN and RDSO guidelines.				
NOTE					
a)	The tenderer should indicate total cost of EI and of 10 %spares. Contractor has to supply the complete materials for the commissioning of EI as per latest Guide lines.No extra payment shall be paid to contractor to any additional items/cards/modules etc for EI commissioning.				
b)	The EI equipment offered for the complete EI system shall cater for 10 % increase in field input quantities in future. The necessary hardware shall be such that it shall be possible to incorporate 10% increase in field input quantities without requirement of any additional hardware other than Relays/cables.				
c)	The work is to be executed in one central EI and 4 no. distributed goomty as detailed in the scope of work.				
2	Supply of portable workstation to run alongwith EI configuration tools, data inputs, simulation and functional testing, diagnostic, troubleshooting & commissioning of EI System as per Technical Specification of the tender document. NOTE: Workstation should be capable of reconfiguring the system in case of any alterations in the yard or interlocking in future. Hardware configuration to be approved by IRCON before supply.	Nos	1	1,04,646.70	1,04,646.70
3	Supply of powder coated Main Cable Termination rack complete with scaffolding, fixtures & accessories including square bars for mounting 8-way terminal / WAGO - make terminal blocks, ladders, string rods, frame, base assembly, insulators, J bolt, nut/bolts & fasteners (Bakelite strips), Rack arrangement etc. as per extant practice on S. E. Rly. Rack should be made of first lass steel powder coated painting and rack manufacturer's certificate should be submitted. All runway for cables / wires shallbe provide with PVC sleeve of proper size.	Nos	12	17,251.52	2,07,018.28
4	Supply of Wago/Phoneix screwless 4 conductor disconnecting terminal suitable for copper wire of 0.5 sq mm to 4 sq mm as per RDSO/SPN/189/2004 ver 1.2. This also includes end stopper, End plate, carriage rail, marker strip etc. for the fixing of terminals.	Nos	6250	75.46	4,71,625.00
5	Supply of Universal Earth Leakage Detector 8 Channel card (4 Channel card for Monitoring 110VAC and 4 Channel card for 24V, 60V, &110V for DC) as per RDSO/SPN/256/2002 or latest amendment.	Nos	10	94,007.06	9,40,070.60
B Datalogger:					
6	Supply of Data Logger in lieu of RTUs in East Goomty-1,East Goomty 2,East Goomty-3 and West Goomty with 512 Digital & 32 Analog inputs conforming to RDSO Spec. IRS-S 99/2006 or Latest. NOTE:- The Datalogger system shall consist of four RTUs, one for each Goomty, which shall be interconnected to main Datalogger through OFC link. The fibres from 24 core signalling OFC between Object controllers and CIU shall be allocated for this purpose.	Nos	4	3,88,918.56	15,55,674.24
7	Supply of Door Proximity switches along with 2 way rigid connector for wire termination between proximity switches and Datalogger Tag blocks as per specs.	Nos	4	952.45	3,809.81
C Power Supply:					

BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
8	Supply & transportation of Large SMPS based Integrated Power Supply System (Scheme 5A-IPS) as per Specification No. RDSO/SPN/165/2012 Ver. 3.0 or latest and conforming to SE Railway Drawing No. SK/DRG/OL/SER/253, dated 23.01.19 along with a) 55 Nos. of Low Maintenance Lead Acid Batteries of 2V/200 AH as per Specification No. IRS:S-88/2004 or latest and additional five nos. of Spare Batteries per set of SMPS. b) One set of maintenance Tool Kit per IPS. c) Supply of Cables. i) Between IPS System to ASM Panel-12 Core x 1.5 sq.mm = 35 mtrs. ii) System to Battery Bank-16 sq. mm =25 mtrs. per set of IPS. NB: a) In WEST Goomty, 110V DC bus bar connection for DC DC Converters "INT" and "EXT." similar to that for other Goomtys are also required to be supplied by the firm. b) Cable between Central Relay Room and Goomties will be supplied and laid by firm.	Set	2	16,60,422.84	33,20,845.68
D	Signals				
9	Supply of FRP CLS Unit 2 Aspect (without lenses and lamps) as per RDSO Spec. no. RDSO/SPN/194/2006 Ver 2.0 or latest. This includes supply of Hand cuff Locks & signal number plate.	Nos	5	16,412.62	82,063.10
10	Supply of FRP CLS Unit 3/4 Aspect (without lenses and lamps) as per RDSO Spec. no. RDSO/SPN/194/2006 Ver 2.0 or latest. This includes supply of Hand cuff Locks & signal number plate	Nos	1	18,572.02	18,572.02
11	(a)Supply of Main Signal Post 140 mm outer dia 4.5 Mtr Length as per spec Nos IRS S 6/81 with latest amendments along with Anchor bolts.	Nos	31	13,184.94	4,08,733.29
	(b) Supply of Signal base 140 mm dia	Nos	31	6,265.80	1,94,239.80
	(c) Supply of CLS Ladder complete with platform 4.5 Mtr	Nos	31	11,535.10	3,57,588.08
12	Supply of FRP Route Indicator 1 way (without lenses and lamps) as per RDSO Spec. no. RDSO/SPN/194/2006 Ver 2.0 with latest amendments.	Nos	1	32,776.86	32,776.86
13	Supply of FRP Route Indicator 2 way (without lenses and lamps) as per RDSO Spec. no. RDSO/SPN/194/2006 Ver 2.0 with latest amendments.	Nos	8	36,007.70	2,88,061.60
14	Supply of FRP Route Indicator 4/ 5 way (without lenses and lamps) as per RDSO Spec. no. RDSO/SPN/194/2006 Ver 2.0 with latest amendments.	Nos	1	40,752.48	40,752.48
15	Supply of FRP Calling on signal (without lenses and lamps) as per RDSO Spec. no. RDSO/SPN/194/2006 Ver 2.0 with latest amendments	Nos	5	6,962.00	34,810.00
16	Supply of FRP Shunt signal Independent type complete as per RDSO Spec. no. RDSO/SPN/194/2006 Ver 2.0 or latest with steel post & CI base along with anchor bolts as per RDSO drawing (without lenses and lamps). This includes supply of Hand cuff Locks & signal number plate.	Nos	45	7,874.14	3,54,336.30
17	Supply of LED Signal Lighting Unit (Red) for Main Signals as per RDSO Specification No. RDSO/SPN/199/2010 (Rev 1.0) dated 11.04.14.	Nos	10	8,591.58	85,915.80
18	Supply of LED Signal Lighting Unit (Yellow) for Main Signals as per RDSO Specification No. RDSO/SPN/199/2010 (Rev 1.0) dated 11.04.14.	Nos	25	8,234.04	2,05,851.00
19	Supply of LED Signal Lighting Unit (Green) for Main Signals as per RDSO Specification No. RDSO/SPN/199/2010 (Rev 1.0) dated 11.04.14.	Nos	2	9,766.86	19,533.72
20	Supply of LED Signal Lighting Unit for Route Indicator as per RDSO Specification No. RDSO/SPN/153/2011 (Rev 4.1).	Nos	15	5,662.82	84,942.30
21	Supply of LED Signal Lighting Unit for Calling On Signals as per RDSO Specification No. RDSO/SPN/153/2011 (Rev 4.1).	Nos	5	6,992.68	34,963.40
22	Supply of LED Signal Lighting Unit for Shunt Signals as per RDSO Specification No. RDSO/SPN/153/2011 (Rev 4.1).	Nos	130	5,713.56	7,42,762.80
23	Supply of Calling ON Board, etc. as per Drg. No. SA 23455, RST-11445 & SA 23476-77 and SER practice.	Nos	18	6,323.63	1,13,825.34
24	Supply and fixing of protective screen of expanded metal 12 SWG of size 1200 x 1500 mm on signals as per std. practice of SER and earthing the screen with MS flat of 2"x 1/4" using GI nut bolts and washer.as per instruction at site by Engineer in charge .This includes supply of all materials including earth electrode and earthing arrangement.	Nos	4	3,701.66	14,806.64
25	Supply of Offset bracket for Colour Light Main Signal Unit to fix on post of 140 mm outside diameter as per RDSO Drawing No. SA-23080 (Adv.) Alt-1 and Specification No. IRS-S-10/78 or latest.	Nos	25	3,360.64	84,016.00

For THAKUR ENTERPRISES

(Signature)

Proprietor

Manish
Sharma

Digitally signed
by Manish
Sharma

BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
E	Point Machine (Electrical Points)				
26	Supply of Electric Point Machine Non - Trailable type to operate on 110 V DC complete with Lock and detection slides, cable termination box, as per Specification No. IRS:S-24/2002 and for Motor IRS:S-37/82, Rev 1.0, Amd.3 or latest A) 143 mm Throw with interlocking for operation of point in Railway yard as per RDSO Drawing No. RDSO/S/10800, Motor Drawing No. RDSO/S/10910 or latest. B) Ground Connection with Nylon insulation set for 143mm Stroke Point Machine, One set Comprising as per mentioned drawings:- (1) Lock Rod -Far End: RDSO/S/3367-68 Alt.1 (1 No.), (2) Lock Rod -Near End: RDSO/S/3369-70 Alt.1 (1 No.), (3) Detector Rod-Far End: RDSO/S/3363-64 (1 No.), (4) Detector Rod-Near End: RDSO/S/3365-66 (1 No.), (5) Drive Rod: RDSO/SA.8805 (1 No.), (6) Drive Lug: RDSO/S/8806(Adv.) (1 No.), (7) Switch Extension Bracket: RDSO/S/3264 Alt-3 (2 No.), (8) Lock Rod Lug: RDSO/SA/3275 (2 No.), (9) Detector Rod Lug: RDSO/SA.8811 (2 No.), (10) MS Square Head Pin with split pin (5 No.), (11) MS Square Head Bolt (M20 x 70mm) (2 No.), (12) MS Hex Nut-M20 (2 No.) & (13) MS Spring Washer B20 (2 No.). This includes supply of Set of tools as per para 20.1 (1 set with every 8 set point machine or min. 1) Junction box and two numbers of telescopic pipes of approved type shall be supplied as an integral part of the point machine as per Spec.no. IRS:S-24/2002 or latest.	Nos	34	78,980.94	26,85,351.96
27	Supply of Ground connection along with insulation suitable to above Point machine as per RDSO Drg. No. S/3361/62/63 with latest ammendment(IRS Point Machine)	No.	54	31,960.42	17,25,862.68
28	Supply of Key Lock Relay AC immunized with different ward combinations (Two extra set of ward plate for Point Machine to be supplied with each relay) of RDSO approved Make working on 60/24V DC or functional equivalent.	Nos	20	13,209.36	2,64,187.20
F	MSDAC				
29	Supply of Multi-section Digital Axle counter for <u>21 Track sections complete with 38 Counting Heads / Detection Points</u> , Central Evaluator (or Group of Evaluator), one each at West Goomty / Central location/East Goomty-1/East Goomty-2, vital relays and with Reset arrangement (LV Box, Reset Box etc.) provided at the SM room along with necessary fitting arrangements required for fixing of Counting Heads / Detection Points as per RDSO/SPN/176/2013 (Ver. 3) with latest amendments.	DP	36	3,66,980.00	1,32,11,280.00
30	Supply of Multi-section Digital Axle counter for <u>11 Track sections complete with 26 Counting Heads / Detection Points</u> , Central Evaluator (or Group of Evaluator),one each at West Goomty/Central location/East Goomty-1/East Goomty-2, vital relays and with Reset arrangement (LV Box, Reset Box etc.) provided at the SM room along with necessary fitting arrangements required for fixing of Counting Heads / Detection Points as per RDSO/SPN/176/2013 (Ver. 3) with latest amendments.	DP	64	3,66,980.00	2,34,86,720.00
G	Location Boxes				
31	Supply of Steel Apparatus case Full height as per Drawing No. SK/Drg./OL/SER /198 with lock & key ward No. will be decided by site engineer as per Specification No. IRS: S-10/78 with Rev. 8 or latest. Hylam sheets not to be supplied. This include one key & handle for each four Apparatus Case or minimum one.	Nos	120	17,118.26	20,54,191.20
32	Supply of Steel apparatus case (Half) type as per Drawing No. RE/S&T/ALD/SK/ 220/82 Alt. A and 221/82 with Alt. B with lock & key ward No. will be decided by site engineer as per Specification No. IRS:S-10/78 with Rev. 8 or latest. This include one key & handle for each four Apparatus Case or minimum one.	Nos	15	10,759.24	1,61,388.60
33	Supply of Non-Deteriorating type low voltage electric fuse for Railway signalling, fuse with cylindrical cap without indication, cylindrical fuse as per Specification No. IRS:S-78/2006 or latest. ND Fuse Cylindrical Type 4/6/10Amp.	Nos	100	63.56	6,356.19
34	Supply of Non-Deteriorating type low voltage electric fuse for Railway signalling, fuse with cylindrical cap without indication, cylindrical fuse as per Specification No. IRS:S-78/2006 or latest. ND Fuse Cylindrical Type 16 Amp.	Nos	50	64.94	3,247.18
35	Supply of PBT fuse base as per Specification No. IRS:S-75/2006 Rev.2.0 or latest as per IRS drawing No. .SA: 23748 with alt 4 or its latest amendments.	Nos	150	124.36	18,654.03

BOQ Item No.	Description of Items	Unit	BOQ Qty	(Including GST @18%)	(Including GST @18%)
36	Supply of Terminal block 6-way PBT, 25mm as per Specification No. IRS-S-75/2006 Rev. 2.0 or latest as per IRS Drg. No. SA-23756 Alt-3 or its latest amendments.	Nos	5400	370.66	20,01,590.48
37	Supply of Hylam Sheet 12mm of size 4 foot x 4 foot as per specification no. IS 2036 of 1995 or latest. In case of different configuration, proportionate rate to be considered for payment purpose. Note:- In case the requirements are different from the above, proportionate payment will be done.	Nos	60	2,204.24	1,32,254.40
38	Supply of 5 Amp switch 3 pin socket, lamp holder alongwith 110V/60 watt Lamp(Anchor make).	Nos	100	546.47	54,647.22
H	LC Gate				
39	Supply of Electrically operated lifting barrier (ELB) 24V/110V DC with hand generator & boom length of 9.76 meter/32 feet confirming to IS:277 with Base metal as IS: 513 grade CR3, the boom shall be painted alternately with 300-mm bands of black and yellow colour and additionally provided with luminous stripes (reflective tape) as per RDSO Drg. No. RDSO/S 11600, complete set as per Specification No. RDSO/SPN/ 208/2012 Ver. 2 Amd.1.0 or latest. List of spares & tool kit items mentioned in Para 10 of RDSO Specification shall also be supplied.	Nos	1	2,69,040.00	2,69,040.00
40	Supply of Dual tone warning bell hooter for L.C gate 25 watt horn, working voltage 110 VAC/24V DC (both provision).	Nos	4	1,834.90	7,339.60
41	Supply of 20 Pair CT box made of 16 SWG CRC sheet with disconnection and reconnection (Wago type). The CT Box should be grey colour powder coated with terminal, washer, nut & bolt should be of brass. There shall also be locking arrangement.	Nos	4	3,534.10	14,136.40
I	Earthing				
42	Supply of Earth Electrodes as per Drawing No. SEM-2021, 19-D6, GI pipe confirming to IS:1239 of 3.0 mm thickness, 3.0 meter long, 50.0 mm diameter, 5 mm diameter drilled holes staggered at distance of 150 mm.	Nos	170	2,663.26	4,52,754.20
43	Supply of basic material to construct unit Maintenance Free Earth for Single Earth consisting as per Spec. No. RDSO/SPN/197/2016 Ver 1.0 or latest, bonding connections drawing no. SDO/ RDSO/E&B/002. (a) Copper bonded steel electrodes of 3.0 m long, 17.0 mm dia. min. with copper bonding thickness of min 250 micron and UL listed and marked -1 No. (b) Earth Enhancement compound of RDSO approved brand supplied in sealed bags of min 30-35 Kg. - 1 Nos. (c) Copper Strip of 200mm x 25mm x 6mm to exothermically welded to Earth electrode- 1no. (d) Copper Strip of 300mm x 25mm x 6mm (MEEB) - 1no. (e) Copper Strip of 150mm x 25mm x 6mm (SEEB)- 1no. It includes supply of (i) Supply of 35 Sq. mm Multi-strand Single Core PVC insulated Copper Connector as per IS:694 for connecting Main Earth Electrode to MEEB in the equipment room in duplicate.-10 m. (ii) Supply of 16 Sq. mm Multi-strand Single Core PVC insulated Copper Connector as per IS:694 for connecting MEEB to SEEB and SPDs to MEEB.-10 m. (iii) Supply of 10 Sq. mm Multi-strand Single Core PVC insulated Copper Connector as per IS:694 for connecting various equipments to SEEB- 10 m. As per RDSO spec. for Desired Earth Resistance less than 1(one) Ohms.	Set	250	17,402.64	43,50,660.00
44	Supply and Installation of Lightning Protection System Class A type, detail as follows- (1) Lightning arrester technology: Advance Early Steamer Emission. Material: High current discharge stainless steel. International standards: NFC 17- 102. (2) Mast material: FRP pipe and high-grade aluminium. Dimension: 50mm. length: 2 metres FRP pipe and 2 metres high grade aluminium mast. (3) Down conduct cable: PVC insulated copper cable. Dimension: 50 Sq. mm, length: 75mtrs (per set) Lightning strike counter number of counts: 6 digits. Current sensitivity: 1KA to 200 KA, 8/20 & 10/350 micro/Sec. induction Shunt: 0.5 micro. (4) Two (02) No. of maintenance Free Earth with all required consisting as per Specification No. RDSO/SPN/197/2016 Ver 1.0 or latest with all required copper cables and strips.	Set	2	1,41,191.72	2,82,383.44

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BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
45	Supply, Installation, testing & commissioning of Ring Earth for EI system which includes supply of all components of earthing & bonding system like earth electrode, earth enhancement material, earth pit, equipotential earth bus bar, connecting cables and tape/strips and other associated accessories in accordance with RDSO Specification No. RDSO/SPN/197/2008 or latest consisting minimum 08 Nos. of earth pits connected in a ring to achieve less than 1 Ohms earth resistance for connecting EI equipments, relay racks, panel, ower equipments as per Signal Engineering Practice. Diagram of ring earth should be supplied to IRCON for approval before execution. All related materials as recommended by RDSO in Specn. No. RDSO/197/2008 or latest, will be supplied by contractor. All connecting wires (like power cables etc) shall be supplied by the contractor.	Set	4	2,86,980.15	11,47,920.60
J	Supply of cables protection material				
46	Supply of Double Walled Corrugated (DWC) pipes (ISI mark) confirming to Spec no. IS- 14930, part-II, of length 6 meter and 120 mm outer dia. & 103.5mm inner dia. with one snap fit connector, one V end and one T coupler for underground Power / Signal/Telecom cable protection.	Km	1.5	2,11,220.00	3,16,830.00
47	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 = +/-2 mm) (TWO half round pipe constitute one split pipe)	Mtr	1500	395.30	5,92,944.69
48	Supply & installation of RFID based Electronic/Pipe route marker for S&T cable with programmable memory for saving the user specific data which can be buried at a depth range 1.5 meter. Make - Stanly/3M or similar Note: 90% payment can be done after supply of item & rest 10% after execution along with final cable route plan.4.	Nos	20	2,187.72	43,754.40
49	Supply, transportation and fixing of RCC Cable Route Marker as per Drawing SEM drawing No. 15-D1.	Nos	300	565.22	1,69,566.00
50	Supply of HDPE pipe with OD/ID 40mm/33mm, Thickness 4mm with suitable couplers, plugs, end caps, spacer, T band etc. as per Specification No. RDSO/SPN/TC/45/2013 Rev-2.0 or latest.	Mtrs	5000	55.51	2,77,547.80
K	Operational assistance to maintenance staff				
51	Supply of High back revolving chair. Model: PCH 5001T, Make: Godrej or better.	Nos	1	9,476.58	9,476.58
52	Supply of Computer chair Multipurpose chair CH-7B. Make: Godrej or better.	Nos	4	3,882.20	15,528.80
53	Supply of Steel Table with sunmica Top with storage on both sides Unitted table model T-9. Make: Godrej or better.	Nos	4	23,542.18	94,168.72
54	Supply of Storwel plain 4 shelf almirah (1980 x 915 x 485 mm). Make: Godrej or better.	Nos	2	24,905.08	49,810.16
L	Tools & Plants				
55	Supply of Signalling Tools & Plants as per Annexure-1	Set	2	1,37,053.65	2,74,107.30
M	MISCLLANEOUS				
	Fire protection & Alarm system				

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BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
56	Supply, Installation, Testing & Commissioning of Networkable Single loop addressable Fire alarm Control panel expandable upto 2 loops & interface with GSM/LTE module working as per RDSO/SPN/217/2021 ver-3 or latest. The control panel shall be networkable to Zonal /Divisional Headquarters preferably over TCP/IP and shall have clock synchronization facility. This schedule includes supply of TCP/IP converter/ Networking card. The control panel shall have provision of Graphical software to enable remote monitoring of entire fire detection and alarm system of a station from Head Quarters. The control panel shall be designed to work on power supply of 110V/230V AC as well as on DC battery backup of adequate capacity to work upto 24 hrs. Backup. The Power supplies like batteries and chargers shall be supplied by the contractor. The Control Panel shall have means for the user to visualize and interact with the complete Automatic Fire Detection and Alarm System layout through a user-friendly software executable on a standard Windows based Personal Computer. It shall be possible to download data and extend alarms from Control Panel through suitable ports like RS485/RS232/USB/TCP/IP into a PC/Laptop available with SSE at the installation and remote location (Divisional Control room) operating on Windows platform. The software for downloading and analysing fault data shall be provided & shall be compatible with the latest windows operating system. Detection, actuation, and control system shall have provision for automatic as well as manual operation. The GSM/LTE module for interfacing with Control panel duly providing compatible SIM with SMS facility on minimum of 5 numbers (users) and all other accessories. Spares cost are also included & to be supplied as per RDSO para no. 4.15.As per approval of Engineer in charge.	Set	5	1,54,247.24	7,71,236.20
57	Supply, installation testing & commissioning of Heat and smoke multisensor with back box with integral shortcircuit isolator as per specification No.RDSO/SPN/217/2021 ver-3 or latest and required to be provided at suitable locations inside the diesel generator room, battery room, ASM room, and other S&T service rooms as directed by the Railway site Engineer. The location offixing is to be meticulously decided so that full advantage of the system is achieved. Spares cost are also included & to be supplied as per RDSO para no.4.15.As per approval of Engineer in charge.	Nos	40	4,250.36	1,70,014.40
58	Supply, Installation and Testing, commissioning of Audio Visual alarm (Hooter and strobe) with back box controlled through addressable control model. Visual Alarms (Strobe): It shall be preferably flashing type RED/WHITE Color. Audio Alarms (Hooter): It shall be preferably with Piezoelectric type sounder. The sound level shall be preferably adjustable type up to 90dB at a distance of 1m as per specification No.RDSO/SPN/217/2021 Ver - 3 or latest. Spares cost are also included & to be supplied as per RDSO para no. 4.15.As per approval of Engineer in charge.	Nos	5	8,783.92	43,919.60
59	Supply, Installation and Testing, commissioning of Analogue Addressable and resettable Manual call point with back box with integral short circuit isolator, Analogue addressable protocol having status LED for alarming & standby mode, Binary coded dip switch addressing. It shall have inbuilt fault isolator or alternate arrangement which shall isolate the Manual Call Point in case of open/short circuit fault within it as per specification No. RDSO/SPN/217/2021 ver-3 or latest. Spares cost are also included & to be supplied as per RDSO para no. 4.15.	Nos	5	6,051.04	30,255.20
60	Supply, Installation, Testing and Commissioning of Relay module with back box and all other accessories as per RDSO/SPN/217/2021 ver-3 or latest. Spares cost are also included & to be supplied as per RDSO para no. 4.15.	Nos	5	4,828.56	24,142.80
61	Supply, installation, testing & communication of Linear Heat Sensing (LHS) Interface module with all accessories for integration with main line fire alarm control panel as per RDSO specification No. RDSO/SPN/217/2021 ver-3 or latest. Spares cost are also included & to be supplied as per RDSO para no. 4.15.	Nos	5	91,103.08	4,55,515.40

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BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
62	Supply, Installation Testing and commissioning of Analogue type Linear Heat Sensing cable with required module to be integrated on main Fire Alarm Panel as per specification No. RDSO/SPN/217/2021 ver-3 or latest. Spares cost are also included & to be supplied as per RDSO para no. 4.15.	Mtr	100	522.74	52,274.00
63	Supply, Installation Testing and commissioning of FRLS/Fire Survival Circuit Integrity Cables and power cable with all accessories for connection of Fire Alarm devices specification No. RDSO/SPN/217/2021 ver-3 or latest. Spares cost are also included & to be supplied as per RDSO para no. 4.15.	Mtr	100	165.20	16,520.00
64	Supply of Desk type Electronic Magneto Telephone (DTMF) having Specification No. IRS: TC/79/2000 with amd 4.0 or latest.	Nos	10	2,866.22	28,662.20
65	Supply of OFC Joint Enclosure for straight through joint with modification for 24 fibre OFC as per TEC specification no. GR/OJC-02/02 SEP 2003 (with latest amendment) or latest. It includes jointing, splicing of optical fibre cables (24 Fibre) and testing.	Nos	10	53,951.91	5,39,519.14
66	Supply and installation of Universal thermoshrink jointing kit for derivation/ transformer joint for Jelly filled 6 quad cable conforming to RDSO Spec. no:IRS-TC- 77i2006(Rev.1)(with latest amendment). This also includes VF Transformer, excavation of cable joint pit of size 1.2m x12m x 1.0m in all types of soil for jointing of copper cables, backfilling and ramming after jointing.	Nos	20	9,127.18	1,82,543.55
N	VARIOUS TYPES OF CABLES				
67	Supply of PVC insulated armoured unscreened, underground Railway Signalling cable 12 Core1.5 sqmm (copper conductor) as per RDSO specification No. IRS: S 63/2014 (Rev 4.0) or latest.	Km	130	2,58,847.51	3,36,50,176.30
68	Supply of PVC insulated armoured unscreened, underground Railway Signalling cable 6 Core1.5sqmm (copper conductor) as per RDSO specification No. IRS: S 63/2014 (Rev 4.0) or latest.	Km	32	1,65,698.65	53,02,356.80
69	Supply of Underground Railway Jelly filled Telecom 6 Quad cable 0.9mm diameter for Signalling & Telecom installations as per Specification No. IRS: TC-30/2005 Ver.1, Amd. 5 or latest.	Km	40	3,91,484.59	1,56,59,383.60
70	Supply of 24 Fibre Armoured Optical Fibre Cable as per Specification No. IRS:TC-55/2006 Rev.1 Amd. 3 or latest.	Km	10	1,01,796.11	10,17,961.10
INSTALLATION-Signalling Items					
O	Electronic Interlocking System				
71	Training of Railway officials in installation, commissioning and testing including supply of hard copies of course modules..	Man Days	30	1,593.00	47,790.00
72	Preparation & Submission of 'as planned' and 'as built' of following documents for all outdoor drawings for outdoor signaling work, it includes but not limited to 1. Cable route plan, 2. Cable core chart, 3.Power supply arrangement, 4.Circuit route termination chart, 5.Cable termination chart in relay room and Apparatus cases, 6. Apparatus Cases wiring plan, 7. Cable Insulation chart, 8. Earth resistant chart, 9. Track circuit(AXT) Test Card, 10. Signal Lamp/LED Register, 11. Fuse Analysis chart, 12. Equipment disposition plan, 13.Terminal & contact analysis plans, 14.MSDAC Track section Plan etc. as per SE railway practice and Technical specification of Tender documents.	Station	1	1,70,973.00	1,70,973.00
73	Termination, meggering & testing of cable cores on terminals at cable termination rack. This includes all associated works of pulling out the cable from underground, peeling off insulation, dressing of cable core supported on sting rod with contractors own material. The work shall be done as per instructions of engineer at site.	Nos	10000	25.04	2,50,440.84
P	Data logger / RTU				

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BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
74	Installation, wiring, testing and commissioning of Data Logger/RTU as per spec. IRS: S-99/2006 with Amendment-2 or latest. This also includes but not limited to the following: 1. Supply and loading of diagnostic software for failure analysis. 2. Interface wiring between Relay Rack to Datalogger & RTU for all the digital & Analog inputs as per standard Railway practice. 3. Relay Room Door locking checking arrangement, commercial power supply monitoring arrangement. 4. Interlinking & Networking of Datalogger and RTU 5. Modification in Software & Hardware if required and networking with other Data Loggers along with fault logic design at Control Centre and for phase working. 6. Training as per Railway Practice. 7. Software programming of Datalogger to enable Preventive maintenance of all S&T assets. 8. Failure analysis, GUI of Yard Layout, extract of report in common language, accident analysis as per RDSO Guideline. 9. All installation & wiring material including supply of Relay Room Door locking checking arrangement shall be supplied by contractor & shall be procured from RDSO approved sources, wherever applicable.	Job	5	38,891.62	1,94,458.10
Q	Power Supply				
75	Installation, Wiring, Testing & commissioning of SMPS based Integrated Power Supply system confirming to RDSO Specn. No. RDSO/SPN/165/2012 (Ver. 3.0) or latest and to suit pre-commissioning Check List issued by RDSO. This includes installation & commissioning of 55 Nos., 110V Low Maintenance Lead Acid (LMLA) Stationary Battery for S&T installations as per IRS: S 88/2004 & with SMPS charger as per RDSO specification Nos. RDSO/SPN/165/2012 with latest amendments. with wooden rack for LMLA batteries, along with installation of Remote Indication Panel in SM/ASM's room. Any masonry work, if required, will be carried out by contractor's own material. The 25 sq mm wire shall be used for connecting Batteries from IPS, 16 sq. mm power cable is to be used for wiring of 110V DC, 110V AC & 60V DC (internal) and for balance power supply 10 sq. mm power cable is to be used. All connectors, wiring material, ladders, DWC pipes etc as per site requirement are to be arranged by contractor as per instructions of railway engineer at site. The contractor will provide supply & fitting of exhaust fan in IPS room & Battery Room including hole on wall (if not available), wire mesh and flap cover to protect the room against dust. This item includes transportation, loading & unloading of IPS system complete and batteries from Store to site of installation.	Nos	5	59,000.00	2,95,000.00
R	Signals				
76	Transportation, installation of 2-Aspect Signal Post for MACLS as per drawing no. Con/SK/T/12 or SEM-Drawing No. 19-D3 complete with signal units, base, ladder and other fittings, excavation of pit, erection of posts, casting concrete foundation thereof as specified in the note given in drawing, fixing of complete fittings of the signals with necessary earth screen protection arrangement including termination of cables, painting and lettering as required. Foundation Bolts of size 24 mm x 915 mm as per RDSO Drawing No. SA-116 A/M confirming to IS: 226 and IRS:S-10/78 Rev.8.	Nos	29	10,595.22	3,07,261.38
77	Transportation, installation of 3/4 - Aspect Signal Post for MACLS as per Con/SK/T/12 or SEM-Drawing No. 19-D3 complete with signal units, base, ladder and other fittings, excavation of pit, erection of posts, casting concrete foundation thereof as specified in the note given in drawing, fixing of complete fittings of the signals with necessary earth screen protection arrangement including termination of cables, painting and lettering as required. Foundation Bolts of size 24 mm x 915 mm as per RDSO Drawing No. SA-116 A/M confirming to IS: 226 and IRS:S-10/78 Rev.8.	Nos	2	11,313.84	22,627.68
78	Transportation, installation of Position light Shunt Signal as per Con/SK/T/12 or SEM Drawing No. 19-D4 complete with units, base and other fittings, excavation of pit, casting of concrete foundation thereof as per note given in drawing, fixing in complete fittings of signal including termination of cables, painting and lettering as required. Foundation Bolts of size 20 mm x 305 mm as per RDSO Drawing No. SA-110 A/M confirming to IS: 226 and IRS:S-10/78 Rev.8.	Nos	55	5,010.28	2,75,565.40

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BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
79	Transportation and fixing of Junction type Route Indicator with Route arm on the erected signal post including termination of cables, painting lettering as required. Route Indicator with Route arm One way.	Nos	9	767.00	6,903.00
80	Transportation and fixing of Junction type Route Indicator with Route arm on the erected signal post including termination of cables, painting lettering as required. Route Indicator with Route arm Two way.	Nos	8	933.38	7,467.04
81	Transportation and fixing of Junction type Route Indicator with Route arm on the erected signal post including termination of cables, painting lettering as required. Route Indicator with Route arm four way.	Nos	2	1,171.74	2,343.48
82	Transportation and fixing of LED based Stencil type route indicator (2way)/ Multilamp route indicator (LED Single/Doubledigit) on the erected signal post including termination of cables, painting lettering as required	Nos	2	3,400.76	6,801.52
83	Transportation and fixing of Calling ON Signals/ Dependent Shunt Signals /Illuminated 'A' / Illuminated 'AG' marker for MACLS on the erected signal post complete with marker including termination of cables, painting and lettering as required.	Nos	37	2,324.60	86,010.20
84	Transportation, Installation, Wiring, Testing & Commissioning of LED Signals Lamps for Main signals Lighting Unit (i.e. Red, Yellow, and Green) as per instruction of railway/Ircon Engineer at the site. Note:- LED particulars such as aspect, make, type, Sr. No. etc. to be recorded in proper register.	Nos	31	1,078.52	33,434.12
85	Transportation, Installation, Wiring, Testing & Commissioning of LED Signals Lamps for Subsidiary signals lighting unit (i.e. Route aspect, Shunt Signal, Calling on aspect, A marker etc.) as per instruction of railway/Ircon Engineer at the site. Note: LED particulars such as aspect, make, type, Sr. No. etc. to be recorded in proper register.	Nos	110	909.78	1,00,075.80
86	Supply, Transportation, installation and painting with retro reflective tape of SLB/BSLB/Legend/Stop Board etc. as per SEM Drawing No. 19-D4. This includes i) Excavation of pit of depth 900mm, width 600 mm. ii) casting in the ratio of cement concrete mixture shall be 1:3:6 iii) foundation, (iv) Erection etc. Note: Supply of sighting board by contractor to be as per SEM Drawing No. 12-D1 or specified by Railway.	Nos	15	8,382.72	1,25,740.80
87	Fixing of P/G/C/A/AG/IB Marker/Arrow marker/Signal Number plates with complete fittings as per site requirement.	Nos	18	192.34	3,462.12
S	Point Equipments (Electrical Points)				
88	Transportation and installation of Electric point machine including lubrication and MS plate fixed on concrete sleepers complete with fixing of anti-theft cover, crank handle key interlocking arrangements Junction boxes, ground connections including smithy works, insulation of MS plate on which the point machines to be fixed from the gauge tie plate involving riveting/welding of angle cleats, termination of cables, preliminary adjustment of operation of points by crank handle, wiring, painting and lettering as required. Drilling of holes for fixing of switch extended bracket and leading stretcher bar. Note:- (i) All the required nut-bolt, washer, MS-plate for anti-theft, eyelets, etc. for fixing of point machine to be supplied by contractor. (ii) All released materials shall be returned to concern Store.	Nos	80	18,208.58	14,56,686.40
89	Transportation, installation and wiring of Rotary key transmitters/KLCR on Hylam sheet board including wiring & fixing of push button bell switch on Hylam sheet of 12mm including termination, painting & lettering. The sundry materials such as Hylam sheet, push bell switch etc. to be supplied by contractor.	Nos	18	1,524.56	27,442.08
T	MSDAC Equipment				
90	Installation, wiring, Testing and commissioning of Multi-section Digital axle counter System including but not limited to: Fixing of Track Transducers on the rails, drilling of holes. Installation of Electronic Junction Box in Location Box. termination of cables and wiring. Installation of Evaluator. Fixing of relays, bus bar & fuse. installation, wiring, testing & commissioning of reset box/Line verification Box etc. RDSO check list for Installation are to be complied by Original Equipment Manufacturer's engineer.				
a	Central evaluator	Set	10	6,372.00	63,720.00

BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
b	Track side electronic Unit	DP	238	11,800.00	28,08,400.00
U	Location Boxes				
91	Execution of Apparatus Case with pit, concrete foundation, surrounding earth work, erection, installation as per Drawing No. Con/SK/T/8 and wiring as per SEM Drawing No.19-D8 or as per direction of site engineer. Fixing of Hylam sheet strip of size approx. 925mmx100mmx3mm (including supply) with hole on both side for writing & terminal description, terminals, fuse blocks, relay and other accessories for signal/track circuit, termination of cable with number embossed ferrules, bunching of cables with PVC tape, earthing of cable armour as required. Painting of the apparatus case inside and outside after clearing the surface thoroughly and first coating of anticorrosive paint and subsequent two coats of Aluminium paint outside and red oxide inside and lettering etc. This includes transportation of 25 mm/12mm Hylam sheet for shelf or as required and also includes minor modification in L/Boxes as per site requirement .The contractor shall supply of 4 no. of foundation bolts 22 mm dia. x 450 mm long with 2 flat sprer at site. The contractor will provide supply & fitting of exhaust fan in IPS room & Battery Room including hole on wall (if not available), wire mesh and flap cover				
	a) Full Apparatus Case	Nos	120	8,983.34	10,78,000.80
	b) Half Apparatus Case	Nos	15	6,905.36	1,03,580.40
92	Fixing of ARA /WAGO/Disconnect type Terminals and fuse blocks with provision of holes on hylem sheets and fixing by galvanised nuts & bolts. This includes provision of two additional holes on the hylam board on either side for cable conductor entry. The work shall be done as per Engg. at site.	Nos	10000	27.827	2,78,267.60
93	Termination, Meggering & Testing of cable cores on Disconnect Type Terminals/ARA/Fuse Blocks in the Apparatus cases. This includes all associated works of pulling out the cable from underground. The work shall be done as per Instruction of Engineer.	Nos	10000	33.90	3,39,018.72
V	LC Gate				
94	Transportation, installation, testing and commissioning of Electric lifting barrier (ELB) which includes excavation of pit, casting of foundations, fixing of pedestals, Boom rest etc., installation and wiring of control panel, booms for level crossing gate complete in all respect including provision of boom locking arrangements with fixing of boom light box, stop board boom rest and equipment of operation of gate from control panel, painting, lettering with following accessories:- (i) 2 (two) nos. lifting barriers with all accessories. (ii) 1 (one) Control panel (iii) Positive boom locking arrangements for above. (iv) Emergency crank handle attachment (v) Timer unit to adjust the time for operating the barrier (vi) Fixing of Hooters/Flashers on either side of gate barrier.	Set	1	52,882.88	52,882.88
95	Transportation, installation, testing and commissioning of Emergency Sliding Boom at LC gates which includes casting of concrete foundation (total ten numbers per gate) including surrounding earthwork, fixing of lock post, clamps, welding of channel, cutting of rail post if required as per site condition. Note-Sliding boom with Pad lock, EKT, lock shall be supplied by the railway. All other required materials shall be supplied by the contractor.	Set	1	48,532.22	48,532.22
W	Earthing				

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BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
96	Installation of Single Maintenance Free Earth pit as per RDSO Drawing No. SDO / RDSO/ E&B/001 which includes the following:-a) Digging/Auguring/Boring of single earth pit of 100mm to 125mm dia. to the depth of approx. 3 meter. b) Insertion of 3.0 meter electrode and penetrating it minimum 150 mm by pushing gently with sledge hammer where the natural soil is assumed. (c) Filling of earth pit with Earth Enhancement Compound (EEC) in slurry form and backfilling. (d) Carrying out exothermic weld connection on single earth electrode to a copper tape of 200 x 25 x 6 mm. (e) Carrying out exothermic weld connection on the copper tape of 200 x 25 x 6 mm on Earth Electrode for connecting two 35 Sq. mm cables for redundancy. (f) The exothermic welding material for bonding the earth system shall be procured from RDSO approved firms, which includes graphite modules, clamps, weld metal powders. (g) The dimension of the chamber will be of 300 x 300 x 300 mm (inside dimension) of RCC with 50mm thick and fine finish, Inspection chamber should be as per IEC 62561-5 or latest. The top RCC cover size shall be 400mmX400mmX50mm. The date of testing and earth resistance value shall be written on the cover with black base with yellow paint.	Set	250	5,989.68	14,97,420.00
97	Excavation of earth pit, placing & fixing of Earth electrode with construction of cement enclosure to SEM Drawing No. 19-D6 and drawal of 6 SWG GI/Copper cable from earth electrode to goomties, relay room, cabin, station, etc. and drawal of MS flat 35mm x 6mm for signal post/Location box shall be used as the case may be, including fixing at both ends of the wire/MS flat. This includes transportation of materials. Note: Materials such as MS flat 35mm x 6mm/Copper cable,charcoals, salt, sal ammoniac, 6 SWG GI wire, copper lugs with Steel bolts & nuts etc. shall be supplied by the contractor.	Nos	211	1,759.38	3,71,229.18
X	Cable Laying				-
98	Digging of cable pit (minimum inside size of 2m x 2m x 1m) and construction of brick wall in the pit, width of the wall shall not be less than 200mm as per instructions given by engineer in charge. It includes supply and filling of sand before and after coiling of cables, covering top of the cable pit by stones and brick masonry work for sides and thereafter plastering.	Nos	5	22,333.69	1,11,668.45
99	Excavation of trench in all kinds of soils including soft rocky area and clearing of roots of trees etc. including bailing out water and disposal of extra soil including back filling with excavated earth and ramming of trenches after cable laying for the following depth and width as specified in guidelines on signalling cable laying document no. RDSO/SIG/2010 Version 1.1.i). Depth 1.2 mtr. & width 0.5 mtr.	Km	5	78,680.04	3,93,400.20
100	Excavation of trench in all kinds of soils including soft rocky area and clearing of roots of trees etc. including bailing out waterand disposal of extra soil including back filling with excavated earth and ramming of trenches after cable laying for the following depth and width as specified in guidelines on signalling cable laying document no. RDSO/SIG/2010 Version 1.1.i). Depth 1.0 mtr. & width 0.3 mtr.	Km	15	69,727.38	10,45,910.70
101	Excavation of trench in all kinds of soils including soft rocky area and clearing of roots of trees, rocks etc. to a depth of 1 metre and width 0.3 mtr. For Track/ pucca road/platform crossing/ level crossing as per SEM Drawing No.15-D5 including supply, transportation and laying of DWC pipes (full) with collar(for jointing pipes) Inner diameter/Outer diameter:103mm/120mm to Specification No.14830(Part-2):2001 as per SEM Drawing No. 15-D4,in trench and drawing of cable through DWC pipes with collar(for jointing pipes) including back filling and ramming after cable laying as specified in Tech. Circular No. 2 of 1988 & 01/2010 issued by CSTE/SER for S&T Cables (Cable laying charges is included). This includes repairing and plastering of platform/pucca road after cable laying. Material inspection shall be done by Railway/Ircon Site Engineer.	Mtr	1500	679.68	10,19,520.00

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BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
102	Micro Tunnelling through Horizontal directional drilling (HDD) machine, preparation of sites, boring and laying of HDPE pipes of size (outer/inner diameter= 50mm/42mm) for crossing of S&T cable through HDPE pipe at bridges/culverts/track crossing/pucca road crossing, boring trench shall be minimum 3 (three) meter below the river bed and minimum 1 m at track/road/pucca road crossing area etc. This includes supply of permanently lubricated HDPE telecom ducts of equal length as per Specification No. RDSO/SPN/TC/45/2013 REVISION 2.0 with latest amendments. For each HDPE duct the following items are to be supplied as per requirement (a) End plug (b) Cable sealing plugs (c) Plastic coupler slip fit/push fit type (d) End plugs to be provided along with drum. In case the site doesn't allow to perform as per schedule, written approval must be obtained from atleast site incharge officer. Note: The boring profile should be recorded and submitted for verification of depth and length of boring. 3 HDPE pipe	Mts	7500	1,736.96	1,30,27,200.00
103	Horizontal Drilling by using manual pushing method (also called moling) at minimum depth of 1.5 meter below the formation level of earth as per decision of Engineer in charge. Boring diameter should be atleast 110mm. Note :-HDPE/GI pipe/DWC pipe (make: TATA/Jindal or better) as per site requirements will be supplied by Railway/Ircon.	Mts	100	129.80	12,980.00
104	Preparation of cable Duct 150mm wideX300mm deep for laying of cable in rocky area and refilling the duct(after cable laying) with concrete mixture of proportion 1:3:6 and grouting the ends at either side of the rocky portion using concrete mixture with contractor's own materials and excavated earth to its original condition.	Mtr	100	817.47	81,747.00
105	Supply, transportation and fixing of Galvanised Iron Pipe (make: TATA/Jindal or better) with threaded collars (for jointing pipe) of 100 mm nominal bore Specification No. IS: 1239, thickness 3.6 mm medium grade, on bridges, culverts, drain or at places as per instruction of the site Engineer including supply and transportation of materials required for fixing the pipe as per SEM Drawing No.15-D7 including drawing of cables inside the pipe with masonry work at bridge entry and exit of the culvert and curing for 72 hours and pipes are to be clamped at max. 2 meter apart with drilling of holes on the pipe at 10 cm apart for the following: S&T Cables.The Galvanized iron pipes and other materials required for fixing to be supplied by the contractor. Material inspection shall be done by Railway/Ircon Site Engineer before use. Note: This also includes dismantling of released GI Pipe/Trough and released material should be returned at concerned store.	Mtr	500	1,108.02	5,54,010.00
106	Laying of Signalling/Power/Telecom Cables of various cores in trench and meggering of main and tail cables.	Km	230	7,138.85	16,41,936.08
107	Placing of half round (Split DWC) pipe over the laid cable in open trenches in yards between Home signal to Home signal and tying pipe with cable with loose armouring	KM	5	4,631.58	23,157.88
108	Laying HDPE duct in already made trenches and through DWC/GI/RCC pipes wherever necessary	KM	5	12,838.74	64,193.68
109	Blowing/drawing of OFC cable in the HDPE pipe duct and in protective works already provided. This includes transportation, loading/unloading of OFC from the stores to the work site with care, sealing of the duct by sealing/caps plugs. This also includes testing of cable drums in the store premises before transportation and submissions of results thereof. The cable drums with unused cable at site to be returned by the contractor from site to stores depot.	KM	10	16,769.30	1,67,693.05
110	Supply and installation of Fibre Distribution Management system complete with all accessories as per RDSO spec. no. RDSO/SPN/TC/37/2000 Rev. 3 (with latest amendment) suitable for termination of two numbers of 24 fiber OFC at station/Goomties in 19" rack and splicing of fiber with pigtail as per specification. This includes testing of OFC cable. (All items required for execution of work shall be supplied by the contractor)	Nos	12	7,522.50	90,270.00

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BOQ Item No.	Description of Items	Unit	BOQ Qty	Rate in ₹ (Including GST @18%)	Amount in ₹ (Including GST @18%)
111	Supplying and placing of one layer of standard size of 'B' grade quality bricks spreading on cables laid (minimum size of brick 200mm X 100mm X 70mm) Widthwise (Approx. 9 to 10 bricks for more than 2 cables).	Running Meter	10000	34.22	3,42,200.00
Y	Miscellaneous				
112	Provision of services during NI (Non Interlocking) of Shalimar Station. This includes provision of 4 vehicles round the clock, food packets for working staff for each shift, staying arrangements for all the officers, refreshments etc. These services shall be provided during the whole NI period Shalimar Station.	Station	1	1,98,683.07	1,98,683.07
113	Filling of earth around location boxes/signal posts.	Per Cum	300	144.46	43,337.03
Z	Painting				
114	Cleaning, scraping, Painting & lettering of all newly installed and existing gears by the contractor including supply of all materials for the work by contractor.	LS	2	53,068.27	1,06,136.54
AA	Dismantling work				
115	Dismantling and releasing of complete INDOOR equipment from stations/central EI/gooties/LC gates etc. and transportation of released materials after commissioning from the station/central EI/gooties/LC gates to the S&T store depot at KGP/SRC or to other site for reusing with contractors own transport as per direction of site Engineer. Mostb of the released INDOOR materials like-relays, relays rack, base plate, CTR, MICROLOK, IPS, Terminals, CRR, Datalogger, ELD, Block Instruments, ladders etc. are proposed to be reuse at the same Station or at other station, thus releasing to be done carefully without damaging the equipments. The quantity of released materials shall be jointly recorded by the contractor and engineer/railway representative before releasing from site.	Station/Gooties	4	57,326.95	2,29,307.78
116	Dismantling and releasing of complete OUTDOOR equipment from stations/Yard/LC gates etc. and transportation of released materials after commissioning from the station/central EI/gooties/LC gates to the S&T store depot at KGP/SRC or to other site for reusing with contractors own transport as per direction of site Engineer. Most of the released OUTDOOR materials like- LC gate materials, signals, ladders, location boxes includes batteries, relays, chargers, choke, ARA terminals, electric point machines, ground lever frame, rod run, trestle cranks compensators, detectors, HPL etc. are proposed to be reuse at the same Station or at other station, thus releasing to be done carefully without damaging the equipments. The quantity of released materials shall be jointly recorded by the contractor and engineer/railway representative before releasing from site.	Station	1	57,326.95	57,326.95
117	Shifting/ lifting of existing location boxes/ signals/Track lead boxes, junction boxes etc along with foundation to adjacent place to facilitate earth work/ clearing infringement etc at stations including IBH, LC gates etc	Station	1	32,516.21	32,516.21
118	Loading, unloading and transportation of additional/balance Signal and telecom materials after completion of work or during execution of work, to and from Railway/Ircon other stores depot to and from the site of work. Note: This does not include transportation of material from nominated depot to site and back or from site to site, which is to be done by contractor free of cost.	Per 100 Ton Km	100	696.53	69,652.80
BB	Maintenance				
119	The maintenance shall be commence from the date of opening of traffic. The contractor shall deploy at least 1- Engineer, 2- Technicians and 2 Helpers along with one vehicle round the clock for 24 hours during the entire maintenance period for maintenance of all the S&T gears in the station/Section. The contractor shall keep sufficient provision of additional engineers (at least 2 nos. as Rest giver/leave reserve) as per requirement.	Per Month	6	6,63,897.80	39,83,386.78
	Total Amount in ₹ (including GST @18%)				21,93,91,492.00
	Offered rate 5.40% below				1,18,47,140.57
	Total Accepted Amount in ₹ (including GST @18%)				20,75,44,351.00

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LIST OF ITEMS REQUIRED IN TOOL KIT

S.No.	DESCRIPTION	MAKE	SIZE	QTY
1	Non-insulated flat plier.	(Taparia /Jhalani)	200 mm.	1
2	Insulated flat plier.		125 mm.	1
3	Insulated side cutting plier.	-do-	6 inch.	6
4	Combination plier.		200 mm	2
5	Insulated striping plier.		150 mm	3
6	Insulated nuse plier.		150 mm	3
7	Monkey plier.		10 inch.	1
8	Screw Driver (Insulated).	-do-	150 x 3 mm	1
9	Screw Driverd (Insulated).	-do-	150 x 4 mm	1
10	Screw Driver (Insulated).	-do-	150 x 5 mm.	1
11	Screw Driver (Insulated).	-do-	150 x 6 mm	1
12	Screw Driver (Insulated).	-do-	150 x 8 mm	1
13	Screw Driver (Insulated).	-do-	250 x 8 mm	1
14	Screw Driver (Insulated).	-do-	250 x 10 mm	1
15	Flat coarse file with handle.		150 mm	1
16	Round fine file with handle.		150 mm	1
17	Hammer with handle.		500 Cms.	1
18	Brass Brush.			2
19	Spanner double ended.	(Taparia Jhalani)	6 x 7 mm	2
20	Spanner double ended.	-do-	8 x 9 mm	2
21	Spanner double ended.	-do-	10 x 11 mm	2
22	Spanner double ended.	-do-	12 x 13 mm	2
23	Spanner double ended.	-do-	14 x 15 mm	2
24	Spanner double ended.	-do-	16 x 17 mm	2
25	Spanner double ended.	-do-	18 x 19 mm	2
26	Spanner double ended.	-do-	20 x 22 mm	2
27	Spanner double ended.	-do-	21 x 23 mm	2
28	Spanner double ended.	-do-	24 x 26 mm	2
29	Spanner double ended.	-do-	25 x 28 mm	2
30	Spanner double ended.	-do-	27 x 32 mm	2
31	Spanner double ended.	-do-	30 x 32 mm	2
32	Hack saw frame.		6 inch.	2
33	Hack saw frame.		12 inch.	2
34	Hack saw blade.	(Miranda Make)	12 x 1/2 inch.	6
35	Hack saw blade.		6 x 1/4 inch.	6
36	Steel measuring tape.	(Frumen Make)	3 Mt.	2
37	Adjustable screw wrench.	-do-	6 inch.	2
38	Adjustable screw wrench.	-do-	12 inch.	2
39	Adjustable screw wrench.	-do-	15 inch	2
40	Bench vice, size.			2
41	Level bottle.			2
42	Soldering Iron 230V, 100W.	(Keertone Make)		1
43	Soldering Iron 230V, 65 W.	-do-		4
44	Soldering Iron 230V, 25W.			2
45	Box spanner.		5m.	2
46	Box spanner.		6mm	2
47	Box spanner.		7mm	2
48	Box spanner.		8 mm	2
49	Box spanner.		9 mm	2

S.No.	DESCRIPTION	MAKE	SIZE	QTY
50	Box spanner.		10 mm	2
51	Box spanner for OBA Terminals with plastic handle			4
52	Tap set.		3 mm	1
53	Tap set.		4 mm	1
54	Handle for tap.			1
55	Multimeter 3 and half digit	Fluke 76 or latest		4
56	Megger 500 V. DC	MOTWANE MAKE		2
57	Tool box of GI sheet 185 WC with Navtal Lock.			1
58	Crimping Tool .	3D make (CAT No. 3D-3) OR EQUIVALENT		1
59	Digital Tong meter.	MECHO MAKE 2727 OR EQUIVALENT		2
Note	If any make as mentioned above is not available in the market then the equivalent model of the item of available make may be supplied with the prior approval of Engineer-in-charge.			

For THAKUR ENTERPRISES
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Digitally signed by MALAY BHADRA
Date: 2024.10.19 15:58:23 IST
Location: eProcurement System for
Central PSUs