



**BID DOCUMENT FOR**

**DESIGN, SUPPLY, CONSTRUCTION, INSTALLATION, OF 2X25 KV ELECTRIFICATION, SIGNALLING AND TELECOMMUNICATION AND ASSOCIATED WORKS INCLUDING TESTING AND COMMISSIONING FOR DOUBLE TRACK ELECTRIFIED RAILWAY LINE ON DESIGN BUILD LUMP SUM BASIS FROM MUGHALSARAI TO NEW SONNAGAR AND CHIRAILAPATHU STATION (EXCLUDING NEW KARWANDIYA - NEW DURGAUTI SECTION) OF EASTERN DEDICATED FREIGHT CORRIDOR.**

**SYSTEM WORKS CONTRACT PACKAGE**

**Issued on: 26.10.2016**

Bid Document No.: HQ/SYS/EC/D-B/MGS-DGO & KWDN-CPBH-SEBN

**(Part-5)**

**Price Schedules**

**Employer:**

**DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LIMITED**

**A GOVERNMENT OF INDIA ENTERPRISE**

**Under**

**MINISTRY OF RAILWAYS  
INDIA**

## **PART – 5**

# **Price Schedules**

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### PART – 5 - Price Schedules

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### **PREAMBLE**

1. The Price Schedules shall be read in conjunction with the “Instructions to Bidders”, “General Conditions”, “Particular Conditions”, “Employer’s Requirement”, “Technical Specifications”, and “Drawings”.
2. The bidder shall quote *lump sum cost in INR for the entire project* “**DESIGN, SUPPLY, CONSTRUCTION, INSTALLATION, OF 2X25 KV ELECTRIFICATION, SIGNALLING AND TELECOMMUNICATION AND ASSOCIATED WORKS INCLUDING TESTING AND COMMISSIONING FOR DOUBLE TRACK ELECTRIFIED RAILWAY LINE ON DESIGN BUILD LUMP SUM BASIS FROM MUGHALSARAI TO NEW SONNAGAR AND CHIRAILAPATHU STATION (EXCLUDING NEW KARWANDIYA- NEW DURGAUTI SECTION ) OF EASTERN DEDICATED FREIGHT CORRIDOR.**” In schedule A. The cost shall cover all the items of the work as detailed in the “Employer’s Requirement” contained in Part-2 Section-V of the Bid document as well as conforming to all specifications and stipulations laid down in the Bid Document including all addenda/corrigenda there of till the date of submission of Bids. The lump sum cost shall be inclusive of all costs on Design, Drawings, Reports, Survey, Site Facilities, Construction Equipment, Plants, Instruments, Labour, Supervision, Materials, Erection, Testing, Maintenance, Temporary Works, Site Access, Safety, Security, Defect Rectification, Insurance, Profit, Taxes and duties, Levies, Royalties and all risks, liabilities and obligations as set out or implied in the contract.
3. Lump sum Cost shall be quoted in **Schedule A**. Apportionment of the quoted Lumpsum cost between Electrical Works, Signalling & Telecommunication and Building & structure Works is set out in Schedule B and is not negotiable. Costs are further pre-apportioned amongst cost centres and sub-centres for works of Electrical, Signalling and Telecommunication and Building & structure in Schedules C, D, E and F as indicated in respective Schedules. Stage payments shall be regulated accordingly.
4. **Important note for filling in blanks in Bid document**

Cost shall be legibly filled in with indelible ink or be type written in the space specifically provided. The person authorized to sign on behalf of the Bidder shall sign in full with the date at the bottom on all pages and at the end of schedules.

**PROPOSAL SUBMISSION SHEET**  
**(To be submitted with Financial Proposal only)**

Invitation for Bid No.: HQ/SYS/EC/D-B/MGS-DGO & KWDN- CPBH-SEBN

To:

The undersigned, declare(s) that:

- (a) I/We have examined the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) 7 and have no reservations whatsoever;
- (b) I/We offer to execute the Work in conformity with the Bidding Documents;
- (c) The total Lump-Sum price of our Bid is as per **Schedule A**;
- (d) I/We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (e) There is no tampering or change made in the bidding documents on which the bid is being submitted and if any tampering or changes are detected at any stage, we understand the bid shall be summarily rejected with forfeiture of bid security or the contract will be liable to be terminated along with forfeiture of performance security, if LOA has been issued.
- (f) I/We understand that our bid may be rejected without assigning any reason therefore and this I/We accept.

Name .....

In the capacity of .....

Signed .....

Duly authorized to sign the Bid for and on behalf of .....

Date .....

**PRICE SCHEDULE**

**Schedule A**

(Sub-clause 14.1 of GC)

Name of Work :- <b>Design, Supply, Construction, installation, of 2x25 kV Electrification, signalling and telecommunication and associated Works including testing and commissioning for double track electrified railway line on design build lump sum basis from Mughalsarai to New Sonnagar and Chirailpathu station (excluding New Karwandiya- New Durgauti section ) of Eastern Dedicated Freight Corridor.</b>			
S No.	Description of Schedule	Lump Sum cost in INR	
		In Figures	In Words
(1)	(2)	(3)	(4)
1	<b>Design, Supply, Construction, installation of 2x25 kV Electrification, signalling and telecommunication and associated Works including testing and commissioning for double track electrified railway line on design build lump sum basis from Mughalsarai to New Sonnagar and Chirailpathu station (excluding New Karwandiya- New Durgauti section ) of Eastern Dedicated Freight Corridor.</b>		
	<b>Total Amount</b>		

**Note:-**

- 1) The cost shall be filled in with indelible ink or be type written.
- 2) The above quoted cost covers all items of the work as detailed in the "Employer's Requirement" contained in Part 2 – Section –V as well as conforming to all specifications and stipulations laid down in the Bid Document including all addenda/corrigenda thereof till the date of submission of Bids.
- 3) I/We have verified and confirm that the amounts quoted in Schedule A above in figures agree with the amount quoted in words and that in event of any discrepancy in the two, the amount quoted in words shall be taken as final.
- 4) The percentage (%) of lump sum cost for stage payment of Electrical, Signalling & Telecommunication and Building & structure works shall be as given in Price Schedule (B)

**SIGNATURE OF BIDDER**

**PRICE SCHEDULE  
 Schedule – B**

Apportionment of contract price for payments of Electrical, Signal & Telecommunication and Building & Structure works

<b>SN</b>	<b>Cost centre of Works</b>	<b>Contract price as proportion of total lumpsum cost quoted in Schedule A, expressed as percent</b>
1.	Electrical Works (Schedule C)	<b>56 %</b>
2.	Signalling Works (Schedule D)	<b>36.5 %</b>
3.	Telecommunication Works (Schedule E)	<b>6 %</b>
4.	Building & Structure works (Schedule F)	<b>1.5 %</b>
	<b>Total</b>	<b>100%</b>

**NOTE:** The percentage figures as filled in table above by the Employer for the apportionment of the Contract Price for completion of the Works corresponding to the items given above, and in the subsequent Price Schedules for Cost Centres/Sub-Cost Centres are fixed and the payment will be released for different cost centre/sub-cost centres as per respective weightings of the Contract price subject to approval to this effect by the engineer. Refer Sub-Clause 14.4 – Particular Conditions of Contract for further details.

**Payments for supply of Material in subsequent cost centres (C, D, E & F) which is intended for installation in the Permanent Works:**

1. The Contractor shall ensure that the Materials delivered at site
  - a) are as per the specifications stipulated in the Contract;
  - b) have met all the requirements of checks, inspections & tests and
  - c) are properly stored and protected against loss/pilferage, damage and deterioration.
2. The payment for supply of materials shall be made against an Indemnity Bond, for the amount of payment claimed, in favour of the Employer and valid till these materials are installed and commissioned in the Permanent Works.
3. Supplied materials shall be deemed to be the property of the Employer. The Contractor shall not remove these from Site of Work / Store without prior approval of the Engineer.
4. Record of receipt and use of materials shall be maintained by the Contractor and made available for inspection by the Engineer/Employer as and when these may be required.
5. Stage payment will be eligible on completion of the respective stage of work and approval to this effect by the Engineer.

**PRICE SCHEDULE**  
**Schedule –C(Electrical Works)**

(Sub-clause 14.4, GC)

**Apportionment of Contract Price for Payments of Electrical Works According to  
 Cost centres**

<b>Price Schedule</b>	<b>S N</b>	<b>Cost Centre</b>	<b>Proportion of Contract Price as indicated in Schedule B</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
<b>C [Electrical Works]</b>	C1	Survey, Investigation, Studies, Design, Drawing and as Built drawings for Electrical Works	2 %
	C2	Overhead electrical works	33%
	C3	Traction Sub-station (TSS) and RSS	40%
	C4	Sectioning Post (SP)	7%
	C5	Sub-Sectioning and paralleling Posts (SSPs)	10%
	C6	General Power Supply works (E &M)	1%
	C7	SCADA works	1%
	C8	Training including Operation & Maintenance manuals	1 %
	C9	Spares, M & P and T & P for Maintenance	3 %
	C10	Integrated Testing & Commissioning	2 %
		<b>Total</b>	<b>100%</b>

**NOTE:** The proportions as indicated by the Employer in the table above are not negotiable and stage payment shall be regulated accordingly as also set out in schedules C-1 through C-10. Refer Sub-Clause 14.4 – Particular Conditions of Contract for further details.



**Price Schedule C1 (Electrical Works)**  
**Apportionment of Contract Price for Payment of Cost Centre**  
**Survey, Investigation, Studies, Design, Drawing and as Built Drawings for Electrical works.**

(Sub-clause 14.4 of GC)

Cost Centre	Item of work	Sub cost centre	Work Sub-Centre to be completed to qualify for Stage Payment	Weightage (%)	Cost	Payment procedure
<b>C1</b> [Survey, Investigation, studies, Design, Drawings and as Built drawings]	Survey, Geo-Technical investigations and Various Studies for System Design of Electrical works	C1.1	Survey for electrification work	5	2% of contract price of Electrical works	After Review / Approval with or without comments by the Engineer
		C1.2	Preliminary/basic design pertaining to Finalization of power rating of Traction Equipment, RSS equipment sizing of OHE components and other Electrical works including Earthing and Bonding and Design Manual for System Design.	30		
	Detailed Design of traction supply equipment, Overhead equipment, SCADA and E&M work.	C1.3	Detailed Design of Electrical works including Lay Out Plans, and "GOOD FOR CONSTRUCTION" Drawings			
		a)	For OHE works	20		
		b)	For traction power supply works	20		
		c)	For SCADA (Traction)	6		
		d)	For SCADA (Non-Traction)	4		
	e)	General power supply works (E&M)	5			
As Built Drawings	C1.4	As built Design, Drawings, documents and any other design compliance and document requirement	10			
			<b>TOTAL</b>	<b>100</b>		

**NOTE:**

1. Stage Payment will be eligible on completion of the respective stage of work and approval to this effect by the Engineer.

**Stage Payment Schedule C2 (Electrical Works)  
 Apportionment of Contract Price for Payment of Cost Centre  
 OHE Works.**

(Sub Clause 14.4 of GC)

Cost Centre	Item of work	Sub-cost centre	Work to be completed to qualify for Stage Payment	Weightage (%)	Cost	Payment Procedure
C2 [OHE Works]	Supply, execution and testing of OHE works	C2.1*	Supply of Contact wire at Site	17	For one TKM the apportioned price is 30% of contract price of schedule-C, Electrical works/n where n is number of TKMs	On supply of material at site as per approved BOQ duly inspected by appropriate authority and verified by the Engineer.
		C2.2*	Supply of Catenary wire at Site	17		
		C2.3*	Supply of feeder wire at site	3		
		C2.4*	Supply of steel structures and masts/portals and small part steel (SPS)	14		
		C2.5**	On completion of Foundation work	5		Review and acceptance of installation test report by the Engineer
		C 2.6	On supply & erection of Cantilever assembly	13		
		C 2.7	On completion of Wiring work inclusive of feeder wire, Arial earth wire droppers, Jumpers and cut-in insulators and Termination arrangements (ATDs).	9		
		C2.8	On supply & Erection of Section Insulators, PTFEs, Isolators, Circuit breakers, interrupters and other associated fittings, including Earthing and Bonding arrangement, caution/warning boards final adjustments	8		
		C 2.9	SED checking	1		
		C2.10	On Supply & erection of Auxiliary Transformer including cabling, change over switch	3		

Cost Centre	Item of work	Sub-cost centre	Work to be completed to qualify for Stage Payment	Weightage (%)	Cost	Payment Procedure
		C2.11	Tower wagon checking/ pantograph run , Testing and commissioning/energization of OHE System including any other item required to be supplied, installed and tested for completion of work	10		the Engineer
			TOTAL	100		

**Note-**

1. **\*Payment against materials for Works vide item Sub cost centre C2.1, C2.2, C2.3 and C2.4 above**  
 In respect of Supply of Materials by the Contractor to the site for incorporation in the Permanent Works, the Contractor shall be paid 80% of the respective sub-cost centre as per above schedule, and 20% shall be paid on Erection after completion of sub-cost centre C2.7 above.
2. **\*\*Payment against Works vide item Sub Cost centres C2.5 above**  
 The contractors shall be paid 95% after completion of foundation and 5% after completion of muff.
3. Stage payment will be eligible on completion of the respective stage of work and approval to this effect by the Engineer.
4. Payment will be made on pro-rata completion of Track Km Length (TKM) as per weightage(s) given in this schedule.

**Stage payment Schedule C3 (Electrical Works)  
 Apportionment of Contract Price for Payment of Cost Centre  
 Traction Sub Station (TSS) and RSS**

(Sub-clause 14.4, GC)

Cost Centre	Item of work	Sub-cost centre	Work to be completed to qualify for Stage Payment	Weightage (%)	Cost	Payment Procedure
<b>C 3</b> [Traction Sub-Station and RSS works]	Supply, execution and testing of traction sub station (TSS) and Receiving Sub-station (RSS)	C3.1*	Supply of 220/132kV Transformers at Site	30	43% of contract price of Electrical works	On supply of material at site as per approved BOQ duly inspected by appropriate authority and verified by the Engineer.
		C3.2*	Supply of 132/54kV Transformer at site	15		
		C3.3*	Supply of Auto Transformers at Site	12		
		C3.4*	Supply of switch gears and control gears, circuit breaker, interrupters, CT, PT, isolators etc for RSS.	7		
		C3.5*	Supply of switch gears and control gears, circuit breaker, interrupters, CT, PT, isolators, auxiliary transformers etc for TSS.	6		
		C3.6	Supply of steel structures and small parts steel.	4		Review and acceptance of installation test report by the Engineer
		C3.7	On completion of earth work, foundation work and fencing.	1		
		C3.8	On erection of Galvanized Steel structures and SPS	2		
		C3.9	On Erection of traction transformer, AT, CB, Interrupter, Isolator, CT, PT, LA & Auto transformer and control gears equipments including supply and erection of balance equipments of RSS	5		

Cost Centre	Item of work	Sub-cost centre	Work to be completed to qualify for Stage Payment	Weightage (%)	Cost	Payment Procedure
		C3.10	On Erection of traction transformer, AT, CB, Interrupter, Isolator, CT, PT, LA & Auto transformers, auxiliary transformers and control gears equipments including supply and erection of balance equipments of TSS	4		
		C3.11	Supply and Erection of CR panel, AFL, Bus bar, Earthing, cabling and other indoor and outdoor Electrical and civil work including PLCC	6		Review and acceptance of installation test report by the Engineer
		C3.12	Construction of control room building and its E & M work including yard lighting etc.	2		
		C3.13	Testing, commissioning and Energization of TSS & RSS including any other item required to be supplied, installed and tested for completion of work	6		
			<b>TOTAL</b>	<b>100</b>		

**Note-**

**1.\* Payment against materials for Works vide item Sub cost centre C3.1, C3.2, C3.3, C3.4 & C3.5 above**

- i) In respect of Supply of Materials by the Contractor to the site for incorporation in the Permanent Works for Sub cost centre C3.1 & C3.4, the Contractor shall be paid 80% of the respective sub-cost centre as per above schedule, and 20% shall be paid on Erection after completion of sub-cost centre C3.9 above.
  - ii) In respect of Supply of Materials by the Contractor to the site for incorporation in the Permanent Works for Sub cost centre C3.2, C3.3 & C3.5, the Contractor shall be paid 80% of the respective sub-cost centre as per above schedule, and 20% shall be paid on Erection after completion of sub-cost centre C3.10 above.
- 3.** Stage payment will be eligible on completion of the respective stage of work and approval to this effect by the Engineer.
  - 4.** Supply of items of C3.1, C3.2, C3.3, C3.4, C3.5 & C3.6 shall be as per approved BOQ. For items C3.6, payment shall be done on MT basis.

**Stage payment Schedule C4 (Electrical Works)  
 Apportionment of Contract Price for Payment of Cost Centre  
 Sectioning Posts (SP)**

(Sub-clause 14.4, GC)

Cost Centre	Item of work	Sub-cost centre	Work to be completed to qualify for Stage Payment	Weightage (%)	Cost	Payment Procedure
<b>C 4 [Sectioning posts(SP) works ]</b>	Supply, execution and testing of sectioning posts	C4.1*	Supply of Auto Transformers at site	58	7% of contract price of Electrical works	On supply of material at site as per approved BOQ duly inspected by appropriate authority and verified by the Engineer.
		C4.2*	Supply of switch gears and control gears, circuit breaker and interrupters, CT, PT, isolators, auxiliary transformers etc.	10		
		C4.3	Supply of steel structures and small parts steel.	1		
		C4.4	On completion of earth work Foundation and fencing	0.5		Review and acceptance of installation test report by the Engineer
		C4.5	On Erection of structures and SPS	0.5		
		C4.6	On Erection of Auto Transformer , CB, Interrupter, Isolator, CT, PT, LA &auxiliary transformer and control gears	10		
		C4.7	Supply and Erection of CR panel, erection of control gear, Bus bar, Earthing, cabling and other indoor and outdoor Electrical and civil work	8.5		
		C4.8	Construction of control room building and its E & M work including yard lighting etc.	1.5		
		C4.9	Testing and commissioning /Energization including any other item required to be supplied, installed and tested for completion of work	10		
			TOTAL	100		

**Note-**

- 1.\* **Payment against materials for Works vide item Sub cost centre C4.1 and C4.2 above** - In respect of Supply of Materials by the Contractor to the site for incorporation in the Permanent Works, the Contractor shall be paid 80% of the respective sub-cost centre as per above schedule, and 20% shall be paid on Erection after completion of sub-cost centre C4.6 above.
2. Stage payment will be eligible on completion of the respective stage of work and approval to this effect by the Engineer.
3. Supply of item C4.1, C4.2 and C4.3 shall be as per approved BOQ. For item C4.3, payment shall be done on MT basis.

**Stage payment Schedule C5 (Electrical Works)  
 Apportionment of Contract Price for Payment of Cost Centre  
 Sub-Sectioning and Paralleling Posts (SSPs)**

(Sub-clause 14.4, GC)

Cost Centre	Item of work	Sub-cost centre	Work to be completed to qualify for Stage Payment	Weightage (%)	Cost	Payment Procedure
<b>C 5 [Sub-Sectioning and Paralleling Posts(SSPs) works]</b>	Supply, execution and testing of sub-sectioning and paralleling posts	C5.1*	Supply of Auto Transformers at Site	54	For one SSP the apportioned price is 10% of contract price of Schedule – C, Electrical works/n where n is number of SSPs	On supply of material at site as per approved BOQ duly inspected by appropriate authority and verified by the Engineer.
		C5.2*	Supply of switch gears and control gears, circuit breaker and interrupters, CT, PT, isolators, auxiliary transformers etc.	10		
		C5.3	Supply of steel structures and small parts steel.	2		
		C5.4	On completion of earth work Foundation and fencing	2		
		C5.5	On Erection of structures and SPS	2		
		C5.6	On Erection of Auto Transformers, CB, Interrupter, Isolator, CT, PT, LA & auxiliary transformer and control gears	10		
		C5.7	Supply and Erection of CR panel, erection of control gear, Bus bar, Earthing, cabling and other indoor and outdoor Electrical and civil work	8		
		C5.8	Construction of control room building and its E & M work including yard lighting etc.	2		
		C5.9	Testing, commissioning and Energization including any other item required to be supplied, installed and tested for completion of work	10		
			<b>Total</b>	<b>100</b>		



**Note-**

1. **Payment against materials for Works vide item Sub cost centre C5.1 and C5.2 above** - In respect of Supply of Materials by the Contractor to the site for incorporation in the Permanent Works, the Contractor shall be paid 80% of the respective sub-cost centre as per above schedule, 20% shall be paid on Erection after completion of sub-cost centre C5.6 above.
2. Stage payment will be eligible on completion of the respective stage of work and approval to this effect by the Engineer.
3. Supply of item C5.1, C5.2 and C5.3 shall be as per approved BOQ. For item C5.3, payment shall be done on MT basis.
4. Payment will be made on pro-rata completion of each payment stage as per weightage(s) given in this schedule.

**Stage payment Schedule C6 (Electrical Works)  
 Apportionment of Contract Price for Payment of Cost Centre  
 General Power Supply Works (E&M)**

(Sub-clause 14.4, GC)

Cost Centre	Item of Work	Sub-cost centre	Work to be completed to qualify for Stage Payment	Weightage (%)	Cost	Payment Procedure
<b>C 6 [General Power Supply (E &amp; M) works]</b>	Supply, installation and commissioning of Power Supply materials/ Equipment along with testing and commissioning for Railway stations/cabin etc as per the specifications contained in Employer's Requirement	C6.1*	Supply of 11 kV/ 440 V transformer.	13	1% of contract price of Electrical works	On supply of material at site as per approved BOQ duly inspected by appropriate authority and verified by the Engineer.
		C6.2*	Supply of DG sets along with AMF panel etc.	8		
		C6.3	Installation of 11 kV/440 V transformer.	2		Review and acceptance of installation test report by the Engineer
		C6.4	Installation of DG sets at stations including associated work of AMF panel.	2		
		C6.5	Supply and installation of LT & HT panels	15		
		C6.6	Supply, installation and commissioning of solar system including interfacing with LT panel	5		
		C6.7	Construction & commissioning of Substation( <b>11 kV/440v</b> ), <b>DG sets</b> for Stations and Quarters, obtaining supply from <b>SEB</b> at Sub-stations, and other general electrical works at all Stations (fire detection and alarm system, automation of pumps, lighting, earthing and bonding, lightening protection system, air-conditioning, UPS etc. )	55		
			<b>Total</b>	<b>100</b>		

**Note –**

1. **\*Payment against materials for Works vide item Sub cost centre C6.1 and C6.2 above -**  
The Contractor shall be paid 80% of the respective sub-cost centre as per above schedule, 20% shall be paid on erection after completion of sub-cost centre C6.3 & C6.4 respectively..
2. Stage payment will be eligible on completion of the respective stage of work and approval to this effect by the Engineer.

**Stage payment Schedule C7 (Electrical Works)  
 Apportionment of Contract Price for Payment of Cost Centre  
 SCADA Works**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of Work</b>	<b>Sub-cost centre</b>	<b>Work to be completed to qualify for Stage Payment</b>	<b>Weight age %</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>C 7 [SCADA Works ]</b>	Supply, installation and commissioning of SCADA works as per the specifications contained in Employer's Requirement		Supply, installation and commissioning of SCADA System along with associated equipment/materials		1% of contract price of Electrical works	Lump Sum on completion of respective stage as per Weightage given in this Schedule.
		C 7.1	Traction	80		
		C 7.2	Non-Traction	20		
			Total	100		

**Note –**

1. Stage payment will be eligible on completion of the respective stage of work and approval to this effect by the Engineer.

**Stage payment Schedule C8 (Electrical Works)  
 Apportionment of Contract Price for Payment of Cost Centre  
 Training including Operation & Maintenance Manual**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of Work</b>	<b>Sub-cost centre</b>	<b>Work to be completed to qualify for Stage Payment</b>	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>C 8 [Training including Operation &amp; Maintenance Manual]</b>	Training as per Employer's Requirement	C8.1	Training of Employer's personnel and Submission of Training Manuals/reports	80	1% of contract price of Electrical works	Lump-Sum on completion of respective stage as per Weightage given in this Schedule.
	Operation & Maintenance Manual	C8.2	Submission of operation and maintenance manuals	20		
			<b>Total</b>	<b>100</b>		

**Note –**

Stage payment will be eligible on completion of the respective stage of work and approval to this effect by the Engineer.

**Stage payment Schedule C9 (Electrical Works)  
 Apportionment of Contract Price for Payment of Cost Centre  
 Spares, M&P and T&P for maintenance**

(Sub-clause 14.4 of GC)

<b>Cost Centre</b>	<b>Item of Work</b>	<b>Sub-cost centre</b>	<b>Work to be completed to qualify for Stage Payment</b>	<b>Weightage %</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>C 9 [Spares, T&amp;P and M&amp;P for maintenance as per Employers requirement]</b>	Supply of Spares, T&P and M&P for maintenance as per Employer's Requirement (Electrical Works)	C9.1	Supply of contact and catenary wire	7	3% of contract price of Electrical works	On supply of material at site as per approved BOQ duly inspected by appropriate authority and verified by the Engineer.
		C9.2	Supply of spares for OHE (Other than contact & Catenary Wire)	21		
		C9.3	Supply of Auto transformer	20		
		C9.4	Supply of spares for PSI including RSS (other than Auto transformer) and SCADA	40		
		C 9.5	Supply of T&P for OHE , PSI and SCADA	12		
		<b>TOTAL</b>	<b>100</b>			

**Note –**

- 1 Payment will be made on certification of the Engineer/Employer for various item as specified in Employer's requirement.
- 2 Above items of spares shall be delivered in good condition and shall be packed/stacked as specified and handed over to the nominated official(s) of DFCC at locations indicated by the Engineer.

**Stage payment Schedule C10 (Electrical Works)  
 Apportionment of Contract Price for Payment of Cost Centre  
 Integrated Testing and Commissioning**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of Work</b>	<b>Sub-cost centre</b>	<b>Work to be completed to qualify for Stage Payment</b>	<b>Weightage %</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>C 10 [Integrated Testing and Commissioning]</b>	Integrated Testing and Commissioning as per Employer's requirement	C10.1	After successful completion of Integrated Testing and Commissioning of Electrical works	50	2% of the Contract Price of Electrical works	Lump Sum on completion of respective stage
		C10.2	Final Taking over after OHE fit for 100 KMPH.	50		
			<b>Total</b>		<b>100</b>	

**Note- :**

1. Payment will be made on certification of the Engineer/Employer's Representative for sub-cost centres.

**Price Schedule D**  
 Apportionment of Contract Price for  
**SIGNALLING WORKS**

(Sub-clause 14.4, GC)

<b>Price Schedule</b>	<b>No.</b>	<b>Cost Centre</b>	<b>Proportion of Contract price as indicated in Schedule B</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
<b>D [Signalling Works]</b>	D1	Design and Documentation for Signalling works	<b>5%</b>
	D2	Signalling Works at 1 DFC Junction station New Sonnagar Link	<b>3%</b>
	D3	Signalling Works at 4 Junction Stations and 2 Yard alterations	<b>19%</b>
	D4	Signalling Works in Automatic Block Sections and IR connectivity	<b>44%</b>
	D5	Train Management System (TMS) and service & diagnostic system (S&D) for entire section including interface works at adjacent section	<b>15%</b>
	D6	Supply of Contract Spares and Special Tools & Test Equipments	<b>6%</b>
	D7	Integrated Testing & Commissioning and Final Taking Over	<b>4%</b>
	D8	Training	<b>1%</b>
	D9	Level Crossing Gates	<b>3%</b>
			<b>Total</b>

The proportions as indicated by the Employer in the table above are not negotiable and stage payment shall be regulated accordingly as also set out in schedules D-1 through D-9. Refer Sub-Clause 14.4 – Particular Conditions of Contract for further details.



**Price Schedule D1**

Apportionment of Contract Price for Payment of Cost Centre  
**DESIGN AND DOCUMENTATION FOR SIGNALLING WORKS**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>D1</b> [Design and Documentation for Signalling Works]	Design and Documentation	D1.1	Submission of Management Plans, Quality Assurance Plan, Site Safety Plan, Design Plan	<b>10</b>	<b>5%</b> of the Contract Price for Price Schedule D [Signalling Works]	After Review / Approval with or without comments by the Engineer
		D1.2	Submission of Preliminary Designs & Documents including RAMS	<b>20</b>		
		D1.3	Submission of Detailed Designs & Documents	<b>30</b>		
		D1.4	Submission of Construction /Installation Designs & Documents	<b>10</b>		
		D1.5	Submission of As Built Documents	<b>20</b>		
		D1.6	Submission of O & M Manuals	<b>10</b>		
			<b>TOTAL</b>	<b>100</b>		

**Note:**

1. Payment will be made on of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.

**Price Schedule D2**

Apportionment of Contract Price for Payment of Cost Centre

**SIGNALLING WORKS AT 1 DFC JUNCTION STATION NEW SONNAGAR LINK**

(Sub-clause 14.4, GC)

Cost Centre	Item of work	Sub-Cost Centre	Stage Payment (Stage to be completed to qualify for Payment of Sub-Cost Centre)	Weightage (%)	Cost	Payment Procedure
(1)	(2)	(3)	(4)	(5)	(6)	(7)
D2 [Signalling Works At 1 DFC Junction Station New Sonnagar Link]	Supply of material	D2.1	Supply of Signalling Cable, Power cable and Quad Cable	24	3 % of the Contract Price for Price Schedule D [Signalling Works]	On supply of material at site as per approved quantity duly inspected by the appropriate authority and verified by the Engineer
		D2.2	Supply of EI hardware equipment along with associated accessories	17		
		D2.3	Supply of power supply equipment and batteries along with associated accessories	3		
		D2.4	Supply of track vacancy detection hardware equipment along with associated accessories	19		
		D2.5	Supply of signals and point machines along with associated accessories	5		
		D2.6	Supply of balance indoor equipment	3		
		D2.7	Supply of balance outdoor equipment	3		
	Installation	D2.8	Laying, Termination & Testing of outdoor cables	5		Review and Acceptance of installation test report by the Engineer
		D2.9	Installation of all indoor equipment	4		
		D2.10	Installation of all outdoor equipment	4		

Cost Centre	Item of work	Sub-Cost Centre	Stage Payment (Stage to be completed to qualify for Payment of Sub-Cost Centre)	Weightage (%)	Cost	Payment Procedure
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Installation	D2.11	Installation of Earthing and Surge Protection equipment for complete works	3		Review and Acceptance of Installation Test Report by the Engineer
	Any other item	D2.12	Any other item required to be supplied, installed and tested for complete works	1		Verification/ Review/ Approval/ Acceptance by the Engineer
	System acceptance test	D2.13	Supply and installation of software and system acceptance test	9		Review and Acceptance of System Acceptance Test Report by the Engineer
			<b>TOTAL</b>	<b>100</b>		

**Note:**

1. Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer
2. Item D2.12 will be deemed to have been executed after successful integrated testing and commissioning.

**Price Schedule D3**

Apportionment of Contract Price for Payment of Cost Centre

**SIGNALLING WORKS AT 4 JUNCTION STATIONS & 2 YARD ALTERATIONS**

(Sub-clause 14.4, GC)

Cost Centre	Item of work	Sub-Cost Centre	Stage Payment (Stage to be completed to qualify for Payment of Sub-Cost Centre)	Weightage (%)	Cost	Payment Procedure
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>D3</b> [Signalling Works at 4 Junction Stations & 2 Yard Alterations]	Supply of material	D3.1	Supply of Signalling cable, Power cable and Quad Cable	22	19 % of the Contract Price for Price Schedule D [Signalling Works]Apportionment price for 4 junction stations will be as given: a. New Sonenagar 50% of 19% b. New Ganjkhwaja 16% of 19% c. New Chirailapauthu 13% of 19%.d. New ERC-Mughalsarai 13% of 19% e. Yard Alteration at New Durgauti & New Karwandiya 8% of 19%	On supply of material at site as per approved quantity duly inspected by the appropriate authority and verified by the Engineer
		D3.2	Supply of EI hardware equipment along with associated accessories	15		
		D3.3	Supply of power supply equipment and batteries along with associated accessories	3		
		D3.4	Supply of Track Vacancy Detection hardware equipment along with associated accessories	21		
		D3.5	Supply of Signals and Point Machines along with associated accessories	3		
		D3.6	Supply of equipment for Block Proving by Axle Counter for Single line sections	1		
		D3.7	Supply of balance indoor equipment	2		
		D3.8	Supply of balance outdoor equipment	2		
	Installation	D3.9	Laying, Termination & Testing of outdoor cables	8		
		D3.10	Installation of all indoor equipment	4		
		D3.11	Installation of all outdoor equipment	4		

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
		D3.12	Installation of Earthing and Surge Protection equipment for complete works	<b>4</b>		Review and Acceptance of Installation Test Report by the Engineer
	Any other item	D3.13	Any other item required to be supplied, installed and tested for complete works	<b>1</b>		Verification/ Review/ Approval/ Acceptance by the Engineer
	System acceptance test	D3.14	Supply and installation of software and system acceptance test	<b>10</b>		Review and Acceptance of System Acceptance Test Report by the Engineer
			<b>TOTAL</b>	<b>100</b>		

**Note:**

1. Payment will be made on Prorata Completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.
2. Item D3.13 will be deemed to have been executed after successful integrated testing and commissioning.

**Price Schedule D4**  
 Apportionment of Contract Price for Payment of Cost Centre  
**SIGNALLING WORKS IN AUTOMATIC BLOCK SECTIONS AND IR CONNECTIVITY**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>D4 [Signalling Works in Automatic Block Sections and IR connectivity]</b>	<b>Supply of material</b>	D4.1	Supply of Signalling cable, Power cable and Quad Cable	<b>27</b>	<b>44% of the Contract Price for Price Schedule D [Signalling Works]</b> Stage payment will be made proportionally for the track kilometers completed by the contractor.	On supply of material at site as per approved quantity duly inspected by the appropriate authority and verified by the Engineer
		D4.2	Supply of EI hardware equipment along with associated system software and accessories	<b>10</b>		
		D4.3	Supply of power supply equipment and batteries along with associated accessories	<b>5</b>		
		D4.4	Supply of track vacancy detection hardware equipment along with associated system software and accessories	<b>20</b>		
		D4.5	Supply of signals along with associated accessories	<b>2</b>		
		D4.6	Supply of balance indoor equipment	<b>2</b>		
		D4.7	Supply of balance outdoor equipment	<b>2</b>		
	<b>Installation</b>	D4.8	Laying, Termination & Testing of outdoor cables	<b>7</b>		Review and Acceptance of installation test report by the Engineer
		D4.9	Installation of all indoor equipment	<b>6</b>		
		D4.10	Installation of all outdoor equipment	<b>5</b>		
		D4.11	Installation of Earthing and Surge Protection equipment for complete works	<b>4</b>		

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
	Any other item	D4.12	Any other item required to be supplied, installed and tested for complete works	<b>1</b>		Verification/ Review/ Approval/ Acceptance by the Engineer
	System acceptance test	D4.13	Supply and installation of software and system acceptance test	<b>9</b>		Review and Acceptance of System Acceptance Test Report by the Engineer
			<b>TOTAL</b>	<b>100</b>		

**Note:**

1. Payment will be made on prorata completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.
2. Item D4.12 will be deemed to have been executed after successful integrated testing and commissioning.

**Price Schedule D5**

Apportionment of Contract Price for Payment of Cost Centre

**TRAIN MANAGEMENT SYSTEM (TMS) AND SERVICE & DIAGNOSTICS SYSTEM (S&D)  
 FOR ENTIRE SECTION INCLUDING INTERFACE WORKS AT ADJACENT SECTION**

(Sub-clause 14.4, GC)

Cost Centre	Item of work	Sub-Cost Centre	Stage Payment (Stage to be completed to qualify for Payment of Sub-Cost Centre)	Weightage (%)	Cost	Payment Procedure
(1)	(2)	(3)	(4)	(5)	(6)	(7)
D5 [Train Management System (TMS) and Service & Diagnostics System (S&D) for entire section including interface works at adjacent section]	Supply of material	D5.1	Supply of TMS hardware equipment along with associated Cables & accessories for OCC	3	15 % of the Contract Price for Price Schedule D [Signalling Works] a.35% of 15% for MGS-DGON b. 25% of 15% for KWDN-SEBN/CPBN c. 40% of 15% for DGON-KWDN	On supply of material at site as per approved quantity duly inspected by the appropriate authority and verified by the Engineer
		D5.2	Supply of TMS hardware equipment along with associated Cables & accessories for locations other than OCC.	15		
		D5.3	Supply of power supply equipment and batteries along with associated accessories for OCC.	2		
		D5.4	Supply of video wall display system along with associated accessories for TMS and SCADA at OCC	19		
		D5.5	Supply of service and diagnostic system hardware equipment along with associated cables and accessories for OCC-Server, switches, CMU, FEP, monitors etc.	1		
		D5.6	Supply of service and diagnostic system hardware equipment along with associated cables and accessories for stations and auto location huts-Data logger, Data concentrator, HMU for battery, Power supply, signal, points and MSDAC etc.	19		
		D5.7	Supply of balance equipment for TMS	1		Review and Acceptance of Installation Test Report by the Engineer



<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
		D5.8	Supply of balance equipment for S&D system	<b>1</b>		Review and Acceptance of Installation Test Report by the Engineer
	Installation	D5.9	Installation of all TMS equipment including Video wall display system at OCC.	<b>6</b>		
		D5.10	Installation of all TMS equipment at locations other than OCC	<b>3</b>		
		D5.11	Installation of all equipment for S&D system at OCC	<b>3</b>		
		D5.12	Installation of all equipment for S&D system at stations and auto location huts	<b>6</b>		
		D5.13	Supply and installation of Earthing, surge and lightening protection equipment for complete works	<b>3</b>		
	Any other item	D5.14	Any other item required to be supplied, installed and tested for complete works within the existing scope of work.	<b>1</b>		Verification/Review / Approval/ acceptance by the Engineer
	System Acceptance Test	D5.15	Supply and installation of software and system acceptance test for TMS	<b>7</b>		Review and Acceptance of System Acceptance Test Report by the Engineer
		D5.16	Supply and installation of software and system acceptance test for S&D system.	<b>6</b>		
		D5.17	Testing and commissioning of TMS and S&D system for complete section	<b>4</b>		
			<b>TOTAL</b>	<b>100</b>		

**Note:**

1. Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.

2. Item D5.14 will be deemed to have been executed after successful integrated testing and commissioning.

**Price Schedule D6**  
 Apportionment of Contract Price for Payment of Cost Centre  
**SUPPLY OF CONTRACT SPARES AND SPECIAL TOOLS & TEST EQUIPMENTS**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>D6 [Supply of Contract Spares and Special Tools &amp; Test equipments ]</b>	<b>Contract Spares</b>	D6.1	Supply of Contract Spares for ;		<b>6% of the Contract Price for Price Schedule D [Signalling Works]</b>	On Supply of 'Contract Spares, Special Tools & Test Equipment to the Employer as per approved list duly inspected by the appropriate authority and approved by the Engineer
		a.	Cables and wires –All types	<b>15</b>		
		b.	Electronic interlocking-Cards, Modules complete with interconnecting cables & connectors, control terminal and all other associated accessories.	<b>15</b>		
		c.	Power supply- Cards, Modules, equipment complete with interconnecting cables & connectors and all other associated accessories.	<b>5</b>		
		d	Digital axle counters- track devices, track side electronic equipment, evaluator equipment, evaluator cards .modules complete with interconnecting cables & connectors and all other associated accessories.	<b>25</b>		
		e	Signals and point machines	<b>5</b>		
		f	TMS and S&D system	<b>10</b>		

		g	Balance items/ equipment/material	5		
	Special Tools & Test equipment	D6.2	Supply of special tools and test equipment	20		
			TOTAL	100		

**Note:**

1. Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.

**Price Schedule D7**

Apportionment of Contract Price for Payment of Cost Centre  
**INTEGRATED TESTING, COMMISSIONING AND FINAL TAKING OVER**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>D7</b> [Integrated Testing, Commissioning and final taking over ]	Integrated Testing & Commissioning and Take Over	D7.1	Successful Completion of Integrated Testing & Commissioning	<b>50</b>	<b>4 % of the Contract Price for Price Schedule D [Signalling Works]</b>	Review and Acceptance of Integrated Testing & Commissioning reports by the Engineer
		D7.2	Final Taking over Certificate for the complete work	<b>50</b>		Issue of Taking over Certificate by the Engineer
			<b>TOTAL</b>			<b>100</b>

**Note:**

- 1 Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.

**Price Schedule D8**  
 Apportionment of Contract Price for Payment of Cost Centre  
**TRAINING**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>D8 [Training]</b>	Training	D8.1	Training	<b>100</b>	1 % of the Contract Price for Price Schedule D [Signalling Works]	On completion of Training as per approved Training Plan and submission of Training Manuals duly reviewed and/or approved by the Engineer
			<b>TOTAL</b>	<b>100</b>		

**Price Schedule D9**  
 Apportionment of Contract Price for Payment of Cost Centre  
**LEVEL CROSSING GATES**

(Sub-clause 14.4, GC)

Cost Centre	Item of work	Sub Cost Centre	Stage Payment (Stage to be completed to qualify for Payment of Sub-Cost Centre)	Weightage (%)	Cost	Payment procedure
D9 [Level crossing gates]	Supply of material	D9.1	Supply of LC gate material complete with power supply, batteries at LC Gates. Operating panel along with all other associated accessories for IR.	25	3% of Cost Centre D of the apportionment of Contract Price. Cost for one LC gate = (Cost D9/23)	On complete Supply of material on contractor premises at site as per approved BOQ duly inspected by the appropriate authority and verified by the engineer for Each LC gate on pro-rata basis.
		D9.2	Supply of interlocking Arrangement of LC gate along with all other associated accessories.	30		
	Installation	D9.3	Installation of equipment at LC gate	10		Review and Acceptance of installation test report by the engineer for Each LC gate on pro-rata basis.
		D9.4	Interlocking of LC gate	10		
	System Acceptance test	D9.5	Supply and installation of software and system acceptance test of interlocked LC gate.	15		Review and Acceptance of system acceptance test report by the engineer for each LC gate on pro-rata basis.
	Earthing and Surge protection	D9.6	Installation of earthing and surge protection equipment for complete works.	5		Review and Acceptance of installation test report and system acceptance test report by the engineer for Each LC gate on pro-rata basis.
	Any other item	D9.7	Any other item required to be Supplied, installed and tested for complete works.	5		Verification, Review and Approval/Acceptance by the engineer.
			TOTAL	100		

**Note:**

1. Payment will be made on pro-rata completion of each payment stage as per weightage given in this schedule subject to approval to this effect by the engineer.
2. There are 23 number of LC Gates in this section, the actual number may differ at the time of commencement of work, the payment will be done as per the actual quantity in pro-rata basis considering positive /negative variation.

<b>Price Schedule E</b>			
Apportionment of Contract Price for <b>TELECOMMUNICATION WORKS</b>			
Price Schedule	No.	Cost Centre	Proportion of Contract price as indicated in Schedule B
(1)	(2)	(3)	(4)
<b>E</b> <b>[Telecommunication Works]</b>	E1	Design and Documentation for Telecom works	<b>5%</b>
	E2	Telecom Works at 1 DFC Junction station New Sonnagar Link	<b>4%</b>
	E3	Telecom Works at 4 Junction stations	<b>16%</b>
	E4	Telecom works at Operational Control Centre (OCC)	<b>8%</b>
	E5	Telecom works in Automatic Block Sections, LC Gates & IR Connectivity	<b>51%</b>
	E6	Integrated Testing & Commissioning and Final Taking Over	<b>4%</b>
	E7	Contract Spares	<b>5%</b>
	E8	Special Tools & Test Equipments	<b>5%</b>
	E9	Training	<b>2%</b>
			<b>Total</b>

The proportions as indicated by the Employer in the table above are not negotiable and stage payment shall be regulated accordingly as also set out in schedules E-1 through E-9. Refer Sub-Clause 14.4 – Particular Conditions of Contract for further details.



**Price Schedule E1**  
 Apportionment of Contract Price for Payment of Cost Centre  
**DESIGN AND DOCUMENTATION FOR TELECOM WORKS**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>E1 [Design and Documentation for Telecom works]</b>	<b>Management Plan</b>	E1.1	Project Management Plan, Quality Management Plan, Quality Assurance Plan, Site Safety Plan, Design Plan	<b>5</b>	<b>5 % of the Contract Price for Price Schedule E [ Telecommunication Works]</b>	After review / approval with or without comments by the Engineer
		E1.2	Reliability Plan, Maintainability Plan, Interface Management Plan, EMC Management Plan, Procurement, Manufacturing & Supply Plan, Software Support Plan, Factory Acceptance Testing Plan, Construction and Installation Management Plan, On-site Testing & Commissioning Plan	<b>5</b>		
		E1.3	Operation & Maintenance Plan, Training Plan, Spare Parts & Consumable Management Plan, Defect Liability Management Plan, Maintenance Manpower Plan, Trial Run Plan	<b>5</b>		
	<b>Design Documents</b>	E1.4	All Preliminary Design Documents including RAMS Documents	<b>10</b>		
		E1.5	All Detailed Design Documents including EMC Documents & Interface Specification for complete works.	<b>15</b>		
		E1.6	All Installation Design Documents for Complete Works	<b>15</b>		
	<b>O&amp;M Manuals</b>	E1.7	O&M Manual for Completed Works	<b>20</b>		

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
	As-Built Drawings	E1.8	As-Built Drawings for Completed Works	<b>20</b>		
	Any other document	E1.9	Balance documents required to be given as part of the Contract	<b>5</b>		
			<b>TOTAL</b>	<b>100</b>		

**Note:**

1. Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.

**Price Schedule E2**

Apportionment of Contract Price for Payment of Cost Centre

**TELECOM WORKS AT 1 DFC JUNCTION STATION NEW SONNAGAR LINK**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>E2 [Telecom Works at 1 DFC Junction station New Sonnagar Link]</b>	Supply of material	E2.1	Supply of PIJF Telephone Cables	<b>10</b>	<b>4 % of the Contract Price for Price Schedule E [Telecommunication Works]</b>	On supply of material at site as per approved quantity duly inspected by the appropriate authority and verified by the Engineer
		E2.2	Supply of OFC System Hardware along with associated accessories.	<b>15</b>		
		E2.3	Supply of Data Networking System Hardware along with associated accessories.	<b>5</b>		
		E2.4	Supply of Telephone System Hardware along with associated accessories	<b>20</b>		
		E2.5	Supply of Direct line and emergency communication system along with associated accessories	<b>5</b>		
		E2.6	Supply of Master Clock System Hardware along with associated accessories.	<b>4</b>		
		E2.7	Supply of VHF communication System Hardware along with associated accessories.	<b>2</b>		
		E2.8	Supply of 48 V DC Battery Backup System Hardware along with associated accessories.	<b>6</b>		
		E2.9	Supply of balance Indoor and Outdoor equipment.	<b>3</b>		

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
	Installation	E2.10	Installation of all Indoor equipment	6		Review and Acceptance of Installation Test Report by the Engineer
		E2.11	Installation of all Outdoor equipment	6		
		E2.12	Laying, Termination & Testing of Outdoor Telecom Cables	6		
		E2.13	Installation of Earthing and Surge Protection equipment	5		
	System Acceptance Test	E2.14	Supply and installation of software and System Acceptance Test	7		Review and Acceptance of System Acceptance Test Report by the Engineer
			<b>TOTAL</b>	<b>100</b>		

**Note:**

1. Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to the approval to this effect by the engineer.

**Price Schedule E3**  
 Apportionment of Contract Price for Payment of Cost Centre  
**TELECOM WORKS AT 4 JUNCTION STATIONS**

(Sub-clause 14.4, GC)

Cost Centre	Item of work	Sub-Cost Centre	Stage Payment (Stage to be completed to qualify for Payment of Sub-Cost Centre)	Weightage (%)	Cost	Payment Procedure
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>E3</b> [Telecom Works at4 Junction stations ]	Supply of material	E3.1	Supply of PIJF Telephone Cables	<b>9</b>	<b>16%</b> of the Contract Price for Price Schedule E [ Telecommunication Works]  The weightage for Each Junction Station i.e. New ERC-Mughalsarai, New Ganjkhwaja, New Sonnagar, New Chirailapathu will be same.	On supply of material at site as per approved quantity duly inspected by the appropriate authority and verified by the Engineer
		E3.2	Supply of OFC System Hardware along with associated accessories.	<b>13</b>		
		E3.3	Supply of Data Networking System Hardware along with associated accessories.	<b>4</b>		
		E3.4	Supply of Telephone System Hardware along with associated accessories for entire section including DGON-KWDN.	<b>20</b>		
		E3.5	Supply of Direct line and emergency communication system along with associated accessories	<b>5</b>		
		E3.6	Supply of Master Clock System Hardware along with associated accessories.	<b>4</b>		
		E3.7	Supply of VHF communication System Hardware along with associated accessories.	<b>4</b>		
		E3.8	Supply of 48 V DC Battery Backup System Hardware along with associated accessories.	<b>4</b>		
		E3.9	Supply of balance Indoor and Outdoor equipment.	<b>2</b>		

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
	Installation	E3.10	Installation of all indoor equipment	10		Review and Acceptance of Installation Test Report by the Engineer
		E3.11	Installation of all outdoor equipment	10		
		E3.12	Laying, Termination & Testing of Outdoor Telecom Cables	6		
		E3.13	Installation of Earthing and Surge Protection equipment	2		
	System acceptance test	E3.14	Supply and installation of software and System Acceptance Test	7		Review and Acceptance of System Acceptance Test Report by the Engineer
			<b>TOTAL</b>	<b>100</b>		

**Note:**

1. Telecom Works at Junction shall also include Telecom Works up to and at nearest IR Station.
2. Payment will be made on Prorata completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.

**Price Schedule E4**

Apportionment of Contract Price for Payment of Cost Centre  
**TELECOM WORKS AT OPERATIONAL CONTROL CENTRE (OCC)**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>E4 [Telecom works at Operational Control Centre (OCC)]</b>	Supply of material	E4.1	Supply of PIJF Telephone Cables	<b>5</b>	<b>8 % of the Contract Price for Price Schedule 2.2 [ Telecommunication Works]</b>	On supply of material at site as per approved quantity duly inspected by the appropriate authority and verified by the Engineer
		E4.2	Supply of OFC System Hardware along with associated software & accessories.	<b>13</b>		
		E4.3	Supply of Data Networking System Hardware along with associated software & accessories.	<b>16</b>		
		E4.4	Supply of Telephone System Hardware along with associated software & accessories.	<b>10</b>		
		E4.5	Supply of Direct line and emergency communication system along with associated accessories	<b>5</b>		
		E4.6	Supply of Master Clock System Hardware along with associated software & accessories.	<b>4</b>		
		E4.7	Supply of 48V DC Battery Backup System Hardware along with associated accessories.	<b>6</b>		
		E4.8	Supply of balance Indoor and Outdoor equipment	<b>6</b>		

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>	
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	
	Installation	E4.9	Installation of all indoor equipment	10		Review and Acceptance of Installation Test Report by the Engineer	
		E4.10	Installation of all outdoor equipment	8			
		E4.11	Installation of Earthing and Surge Protection equipment	4			
	Supply and installation	E4.12	Supply and installation of Video surveillance system hardware along with associated accessories at TSS/RSS at New Durgauti and New Karwandiya	1			
	Supply and installation	E4.13	Supply and installation of Communication equipment for traction SCADA, auxiliary SCADA system hardware along with associated accessories at all field locations and OCC.	1			
	System acceptance test	E4.14	Supply and installation of software and System Acceptance Test	11			Review and Acceptance of System Acceptance Test Report by the Engineer
			TOTAL	100			

**Note:**

1. Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to the approval to this effect by the engineer.



**Price Schedule E5**  
 Apportionment of Contract Price for Payment of Cost Centre  
**TELECOM WORKS IN AUTOMATIC BLOCK SECTIONS, LC GATES& IR**  
**CONNECTIVITY**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>E5 [Telecom works in Automatic Block Sections, LC Gates and IR connectivity]</b>	Supply of material	E5.1	Supply of Optic Fibre Cables	<b>22</b>	51% of the Contract Price for Price Schedule 2.2 [ Telecommunication Works] Stage payment will be made proportionally for the track kilometers completed by the contractor.	On supply of material at site as per approved quantity duly inspected by the appropriate authority and verified by the Engineer
		E5.2	'Supply of OFC System Hardware along with associated software & accessories	<b>13</b>		
		E5.3	Supply of 48 V DC Battery Backup System Hardware along with associated accessories.	<b>7</b>		
		E5.4	Supply of balance indoor & outdoor equipment	<b>4</b>		
		E5.5	Supply of Direct line and emergency communication system along with associated accessories	<b>5</b>		
	Installation	E5.6	Installation of all indoor equipment	<b>10</b>		
		E5.7	Installation of all outdoor equipment	<b>10</b>		
		E5.8	Laying, Termination & Testing of Outdoor Telecom Cables	<b>15</b>		
						Review and Acceptance of Installation Test Report by the Engineer

**Price Schedule E5**  
 Apportionment of Contract Price for Payment of Cost Centre  
**TELECOM WORKS IN AUTOMATIC BLOCK SECTIONS, LC GATES& IR**  
**CONNECTIVITY**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
	Installation	E5.9	Installation of Earthing and Surge Protection equipment	<b>5</b>		Review and Acceptance of Installation Test Report by the Engineer
	System acceptance test	E5.10	Supply and installation of software and System Acceptance Test	<b>9</b>		Review and Acceptance of System Acceptance Test Report by the Engineer
			TOTAL	100		

**Note:**

1. Telecom Works in Automatic Block Sections shall cover all Telecom Works between two adjacent Crossing Stations/ Junction Stations and shall also include Telecom Works at TSS, SP, SSP and other Buildings.
2. Payment will be made on Prorata completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.
3. This cost center includes all telecom works at Auto location huts and at LC Gates including connectivity with concerned IR Stations.

**Price Schedule E6**

Apportionment of Contract Price for Payment of Cost Centre  
**INTEGRATED TESTING & COMMISSIONING AND FINAL TAKING OVER**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>E6</b> [Integrated Testing & Commissioning and Final Taking over ]	Integrated Testing & Commissioning and Take-Over	E6.1	Successful Completion of Integrated Testing & Commissioning	<b>50</b>	<b>4% of the Contract Price for Price Schedule E</b> [[Telecommunication Works]	Review and Acceptance of Integrated Testing & Commissioning Report by the Engineer
		E6.2	Final Taking over Certificate for the complete work	<b>50</b>		Issue of Taking over Certificate by the Engineer
			TOTAL		100	

**Note:**

1. Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to the approval to this effect by the engineer.

**Price Schedule E7**  
 Apportionment of Contract Price for Payment of Cost Centre  
**CONTRACT SPARES**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>E7 [Contract Spares ]</b>	<b>Contract Spares</b>	E7.1	Supply of Contract Spares along with associated accessories for cables (OFC, Quad, Telephone)	<b>20</b>	<b>5% of the Contract Price for Price Schedule E [Telecommunication Works]</b>	On Supply of Contract Spares to the Employer as per approved list duly inspected by the appropriate authority and approved by the Engineer
		E7.2	Supply of Contract Spares along with associated accessories for Optical Fibre System (Excluding cables)	<b>20</b>		
		E7.3	Supply of Contract Spares along with associated accessories for Telephone System including Direct Line Telephone (Excluding cables)	<b>20</b>		
		E7.4	Supply of Contract Spares along with all other associated accessories for all other items	<b>40</b>		
			<b>TOTAL</b>	<b>100</b>		

**Note :**

Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.

**Price Schedule E8**  
 Apportionment of Contract Price for Payment of Cost Centre  
**SPECIAL TOOLS & TEST EQUIPMENTs**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>E8[Special Tools &amp; Test Equipments]</b>	<b>Special Tools and Test Equipment</b>	E8.1	Supply of Special Tools and Test Equipment along with all other associated accessories, Operation and Maintenance Manual and Calibration Certificate related to OFC System	<b>40</b>	<b>5 % of the Contract Price for Price Schedule E [Telecommunication Works]</b>	On supply of Special Tools & Test Equipment to the Employer as per approved list duly inspected by the appropriate authority and approved by the Engineer
		E8.3	Supply of Special Tools and Test Equipment along with all other associated accessories, Operation and Maintenance Manual and Calibration Certificate excluding OFC System	<b>60</b>		
				<b>TOTAL</b>	<b>100</b>	

**Note:**

1. Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.

**Price Schedule E9**  
 Apportionment of Contract Price for Payment of Cost Centre  
**TRAINING**

(Sub-clause 14.4, GC)

<b>Cost Centre</b>	<b>Item of work</b>	<b>Sub-Cost Centre</b>	<b>Stage Payment</b> (Stage to be completed to qualify for Payment of Sub-Cost Centre)	<b>Weightage (%)</b>	<b>Cost</b>	<b>Payment Procedure</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
<b>E9 [Training]</b>	Training	E9.1	Training	<b>100</b>	<b>2% of the Contract Price for Price Schedule E [Telecommunication Works]</b>	On completion of Training as per approved Training Plan and submission of Training Manuals duly reviewed and/or approved by the Engineer
			TOTAL	100%		

**Note:**

1. Payment will be made on completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.

<b>Price Schedule F</b> Apportionment of Contract Price for <b>BUILDING AND STRUCTURE WORKS</b> (Sub-clause 14.4, GC)			
Price Schedule	No.	Cost Centre	Proportion of Contract price as indicated in Schedule B
(1)	(2)	(3)	(4)
<b>F [Building and Structure Works]</b>	F1	Building and Structure Works	<b>100</b>
		<b>Total</b>	<b>100%</b>

The proportions as indicated by the Employer in the table above are not negotiable and stage payment shall be regulated accordingly as also set out in schedules F-1. Refer Sub-Clause 14.4 – Particular Conditions of Contract for further details.

**Price Schedule F1**  
 Apportionment of Contract Price for Payment of Cost Centre  
**BUILDING AND STRUCTURE WORKS**

(Sub-clause 14.4, GC)

Cost Centre	Item of work	Sub-Cost Centre	Stage Payment (Stage to be completed to qualify for Payment of Sub-Cost Centre)	Weightage (%)	Cost	Payment Procedure
(1)	(2)	(3)	(4)	(5)	(6)	(7)
F1 [Building and Structure Works]	Building and Civil Structure Works	F1.1	Completion of all civil works including E&M works and other S&T electrical works for the Station Building:		100% of the Contract Price for Price Schedule F Cost for one Auto Location Hut/Telehut = (Cost F1.2/30) Cost for one LC Gate Goomty = (Cost F1.3/23)	Issue of completion certificate by the engineer
		a	New ERC-Mughalsarai	4		
		b	New Ganjkhawja	10		
		c	New Sonnagar Link	5		
		d	New Chirailapathu	5		
		F1.2	Completion of all civil works for the Buildings & Structures including E&M works and other S&T electrical works for Auto location Huts/ Telehuts (30 nos.)	54		
		F1.3	Completion of all civil works for the Buildings & Structures including E&M works and other S&T electrical works for LC Gate Goomty (23 nos.)	22		
		<b>TOTAL</b>		<b>100%</b>		

**Note:**

1. Payment will be made on Pro-rata completion of each Payment Stage as per weightage given in this schedule subject to approval to this effect by the engineer.
2. For item F1.2, number of Auto location huts are 30 and for item no. F1.3, no. of LC Gates are 23. The actual number may differ at the time of commencement of work, the payment will be done as per the actual quantity in pro-rata basis considering positive /negative variation.