## Dedicated Freight Corridor Corporation of India Limited (A Government of India Enterprise)

## Addendum 3 Dated 09.05.2014

## Addendum / Amendments to the Bid Documents for

DESIGN, CONSTRUCTION, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 2×25 kVAC 50 HZ ELECTRIFICATION, SIGNALING & TELECOMMUNICATION AND ASSOCIATED WORKS OF DOUBLE TRACK RAILWAY LINES UNDER CONSTRUCTION ON A DESIGN BUILD LIMP SUM BASIS FOR BHAUPUR – KHURJA SECTION ON EASTERN DEDICATED FREIGHT CORRIDOR

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1.	1	-	43 of 134	Clause 11	Document comprising the First Stage Technical Proposal	Add new Item ITB 11.1(j):  "In case, the Bidder wishes to replace any specialist sub-contractor(s) already approved by Employer through Pre-qualification process, the Bidder shall submit details establishing compliance of the proposed specialized sub-contractor(s) with the requirement specified in the Pre-qualification document."
2.	1	-	44 of 134	24.4	Eligibility and Qualification of the Bidder	Add at the end of the Clause 24.4 with the following:  "In case, the Bidder has proposed to replace any specialist sub-contractor(s) already approved by Employer through the Pre-qualification process, the Employer shall determine to its satisfaction that the bidder still meets the qualification criteria specified in Section III, Evaluation and Qualification Criteria.".
3.	1	-	44 of 134	Clause 27	Second Stage Bid Preparation	Add new Item ITB 27.1 (j):  "In case, the Bidder wishes to replace any specialist sub-contractor(s) already approved by Employer through Pre-qualification process / during First Stage Technical Evaluation,the Bidder shall submit the details establishing compliance of the proposed specialist sub-

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						contractor(s) with the requirement specified in the Prequalification document."
4.	1	-	47 of 134	49.3	Qualification of the Bidder	Add at the end of the Clause 49.3 with the following: "In case, the Bidder has proposed to replace any specialist sub-contractor(s) already approved by Employer through the Pre-Qualification process and/or during First Stage Technical Evaluation, the Employer shall determine to its satisfaction that the bidder still meets the qualification criteria specified in Section III, Evaluation and Qualification Criteria."
5.	1	-	48 of 134	Clause 2.2	Financial Resources	Add the following at the end of Clause 2.2:  "The Audited Financial Statements of the latest completed Financial Years (as required in paragraph 3.1 of Section III - Eligibility and Qualification criteria of Prequalification Document) are to be submitted."
6.	1	-	75 of 134	Clause 2.1(3) Annexure 1, Section III	Form CCC	Replace the Form CCC with the modified Form CCC as attached.
7.	1	-	83 & 85 of 134	Para 4.1, Section III	Form – LOB-SS	<ul> <li>(1) Replace contents of Sub Clause (c) of letter of Bid – Two Stage Bidding, Second Stage Bid in Form – LOB-SS with the following:</li> <li>"(c) Excluding the discounts offered below (if any), the price of our Bid for Contract Package 104 is [Insert Bid Price in figures] INR</li></ul>

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						134) with the following:  "(i) The percentage break up of lump sum bid price for local and foreign currencies quoted in the Letter of Bid is as follows:
						Currency A B Percentage of bid price
						Local INR currency (INR)
						Foreign currency #1
						Foreign currency #2
						Foreign currency #3
						(ii) Apportionment of Contract Price for Payment, Accordingly to Cost Centre is as follows:-
						S.No. Cost Centre Percentage of Contract Price (3)
						2.1 Electrification
						2.2 Signaling
						2.3 Telecom
						2.4 Building and Structures
						Total 100%
8.	1	-	92 of 134	Sub Clause 14.4, GC	Price Schedules	Replace the contents of the Price Schedule 2.0 – Apportionment of Contract Price for Payments

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						Accord	ing to Cost Centre		ving: clause 14.4, GC)
						S.N o. (1)	Cost Centre (2)	Percentage of Contract Price (3)	Allowed % range of Contract price (4)
						2.1	Electrical Works	58%	56%-60%
						2.2	Signalling Works	30%	28%-32%
						2.3	Telecommunic ation Works	8%	06%-10%
						2.4	Buildings and Structures	4%	02%-06%
							Total	100%	100%
						Employ completed given a permitted the concolumnted total of more apporting apporting the surface of the surfac	ercentage figures yer for the apportion of the Work above are as fixed ed to propose characteristics of the apportunity of the above are as fixed and a second to the apportunity of the	comment of the Contract of the Contract of the Employer as per his within the rare the above table as bidder do act Price in Apportionment of Contract of the payment of the Contract of the c	contract Price for ng to the items ployer. Bidder is requirement for nge indicated in e. However, the ders shall not be pendix to Bid in contract Price as all be applicable. est Centres/Sub- will be released entres as per rice. Refer Sub-

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						further details."
9.	1	-	94 of 134	Sub Clause 14.4, GC	Price Schedule 2.1 Apportionment of Contract Price for Electrical Works	Replace the contents of Column 5, Cost (4) of Price Schedule 2.1 table with the following: "Percentage as in Cost Centre 2.1 of Apportionment of Contract Price."
10.	1	-	105 of 134	Section IV, Bidding Forms, Price Schedule 2.1.9	In the table Column no. 3	In the 3 <sup>rd</sup> line and 3 <sup>rd</sup> column 2.1.9.1 is replaced by 2.1.9.2.
11.	1	-	106 of 134	Sub Clause 14.4, GC	Price Schedule 2.2 Apportionment of Contract Price for Signalling Works	Replace the contents of Column 5, Cost (4) of Price Schedule 2.2 table by the following: "Percentage as in Cost Centre 2.2 of Apportionment of Contract Price."
12.	1	-	118 of 134	Sub Clause 14.4, GC	Price Schedule 2.3 Apportionment of Contract Price for Telecommunication Works	Replace the content of Column 5, Cost (4) of Price Schedule 2.3 table by the following: "Percentage as in Cost Centre 2.3 of Apportionment of Contract Price."
13.	1	-	133 of 134	Sub Clause 14.4, GC	Price Schedule 2.4 Apportionment of Contract Price for Building Works	Replace the content of Column 6, Cost of Price Schedule 2.4 table by the following: "Percentage as in Cost Centre 2.4 of Apportionment of Contract Price."
14.	2	1	11 of 95	1.1.10	IMDs & IMSDs	Para 1.1.10 - Delete 'Crossing' before stations in 2 <sup>nd</sup> line.
15.	2	1	16 of 95	1.3.15 (8)	Incidental Works	Add the following at the end of the existing para 1.3.15 (8). "Where applicable, the Employer/Engineer shall assist the Contractor in obtaining the approval of such authorities. No claim for delay or compensation from the

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						contractor on this account shall be tenable."
16.	2	1	43 of 95	2.18.5	Minimum Temperature	Add the following:- "Minimum Temperature – -2.5° C (B1 and B2)"
17.	2	1	43 of 95	2.18.6	Minimum Temperature	Add the following:- "Minimum Temperature – -2.5° C"
18.	2	1	47 of 95	3.2.3 (2) (c)	Detailed Design	Replace contents of the Clause 3.2.3(2)(c) with the following: "Complete selection of material & equipment including specifications."
19.	2	1	95 of 95	6.5	Transfer of Technology	Add new clause 6.5 (8) as under:  "Cost of any supply/service provided by the Contractor/OEM beyond DNP/extended guarantee period (wherever applicable), shall be borne by the Employer."
20.	2	1	149 of 174	Appendix 19	Availability of land for establishing temporary construction depots.	Add the following as 1) d):  "In case spare land is available with the Employer the same can be handed over to the Contractor free of cost for the purpose of establishing temporary construction depot(s). However, whenever Employer requires this portion of land back, the same shall be handed over to the Employer with a month's notice at no extra cost/compensation to the Contractor."
21.	2	2	11 of 291	3.2.3	Computer simulation – Role of SCADA	Delete " and SCADA" from 4 <sup>th</sup> line"
22.	2	2	22 of 291	4.4.2(3) (i)	Proven Design and Cross Acceptance Criteria	Replace the last sentence of the Clause 4.4.2(3)(i) with the following: "Prototype test shall be exempted if the test was carried out in last three (3) years from one month prior to date of

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									Second Stage Bid opening or later and report of the same is submitted otherwise fresh prototype test shall be carried out and certificate/report submitted."
23.	2	2	23 of 291	4.4.2(6) (a)	Proven Design Criteria	and C	Cross	Acceptance	Replace the first sentence of the Clause 4.4.2(6)(a) with the following: "Three years satisfactory performance on AC Traction System from one month prior to date of second stage bid opening."
24.	2	2	23 of 291	4.4.2(6) (c)	Proven Design Criteria	and C	Cross	Acceptance	Replace the contents of the Clause 4.4.2(6)(c) with the following: "The manufacturer should have supplied at least 50% quantity to be used in this Contract in last seven years OR they can supply, maximum two times the quantity supplied in last seven years (one month prior to date of Second Stage Bid Opening)."
25.	2	2	23 of 291	4.4.2(6) (d) (i)	Proven Design Criteria	and C	Cross	Acceptance	Replace the contents of the Clause 4.4.2(6)(d)(i) with the following: "In last three (3) years from one month prior to date of Second Stage Bid Opening or later."
26.	2	2	24 of 291	4.4.2	Proven Design Criteria	and C	Cross	Acceptance	Add new clause 4.4.2(8) as under: "The prototype test already done shall be valid only if it was done on an identical equipment (same rating), manufactured with identical components/raw material, at the same manufacturing facility and to identical Quality Standards."
27.	2	2	24 of 291	4.4.2 (6) (g) (x)	Proven Design Criteria	and C	Cross	Acceptance	Replace the contents of Clause 4.4.2 (6) (g) (x) with the following: "Extended guarantee for 3 years for indigenous equipment after expiry of defect notification period".
28.	2	2	32 of 291	5.1.1	Traction Power S	upply Sys	stem		Replace contents of Clause 5.1.1 with the following: "Traction Power Supply system shall be capable of

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						meeting the projected demand of the state TSS equipped to deal with exigencies for TSS going out of service. The alternate spare transformer. In case of failure of the TSS having spare transformer share requirement as per train operation play Feeding conditions. TSS without transformer shall have space for another transfor	rom one adjacent e TSS shall have one transformer, Il meet the traffic an in Emergency spare traction other transformer
29.	2	2	32 of 291	5.1.6	Second Failure Condition	In the first line of clause 5.1.6 "conditions" insert the following: "including failure of two conse Substations"	
30.	2	2	33 of 291	5.2.3	Table 5.2.2 Train Operation Plan	Replace contents of Table 5.2.2 - Train with the following:  Table 5.2.2: Train Operation	·
						Train Consist	Headway
						<ul> <li>(a) 1 x 9000kW / 12000 HP electric locomotive plus 63 BOXN wagons with single train loads of 6500 T(All trains in UP direction fully loaded).</li> <li>(b) In DN direction 30% Trains shall be fully loaded (6500 T) and 70 % trains shall be empty (1650 T).</li> <li>A mix of single train and double train in ratio of 2:1 shall be considered for both UP &amp; DN directions.</li> <li>The double train shall consist of two single trains with Electric locomotive in front and middle.</li> </ul>	13 Minutes

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31.	2	2	35 of 291	5.5.1	Train operations	Replace first sentence of last Para of 5.5.1(4) with the following:  "For failure of one TSS, the system shall be able to support 100% train service under normal and emergency feeding conditions."
32.	2	2	36 of 291	6.1.1	Conceptual power supply arrangement	Replace contents of the Clause 6.1.1 with the following: "Conceptual schematic power supply arrangement diagrams of typical SP/SSP are furnished in the reference drawings (Part 4)-(SSP-DFC/EC/BH-KH/TR-03, SP-DFC/EC/BH-KH/TR-04). Based on the conceptual schematic drawings, the Contractor may review, improve layouts/arrangements to effect space saving."
33.	2	2	36 of 291	6.1.2 (2) (a)	Traction Substation (TSSs)	Replace the contents of the existing Clause 6.1.2(2)(a) with the following : "Traction transformers complete with all accessories;"
34.	2	2	36 of 291	6.1.2 (2) (h)	Traction Substation (TSSs)	Replace the contents of the existing Clause 6.1.2(2)(h) with the following : "Auto transformers (if required as per design)."
35.	2	2	41 of 291	6.4.4	Lightning Arrestors	Replace the word "Surge" with "Lightning" in 2 <sup>nd</sup> line of Clause 6.4.4.
36.	2	2	43 of 291	6.7.2	Voltage unbalance	Insert the following at the bottom of Clause 6.7.2 (below table)  "The present minimum short circuit level of power utility's Grid Sub-Station is 5.3 kA at 132 kV (Three phase ground fault level). However, this shall be verified by the contractor from power utility at the time of execution."
37.	2	2	43 of	6.7.3(1)	Harmonics Generated at the PCC	Replace contents of Clause 6.7.3 (1) with the following:

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			291			shall install power factor the power factor from	and of 30 MVA, the Contractor correction device to improve 0.85 to 0.95, capable of upof 60/84/100 MVA materializes
38.	2	2	50/51 of 291	6.23.2	Capitalization of Transformer losses	Rupees" by "K=Pres in Rupees".  (ii) In formula for K <sub>traction</sub> "N <sub>T</sub> (No. of Transformers  (iii) In formula for "K <sub>auto</sub> " "N <sub>A</sub> (No. of Auto Trail  (iv) Add the following at	, "66" shall be replaced with: nsformers in service)
39.	2	2	53/ 54 of 291	7.1.5	Table 7.1.1, 7.1.2 and 7.1.3 List of proposed TSS, SP, SSP	Replace the contents of with the revised Tables at	Tables 7.1.1, 7.1.2 and 7.1.3 ttached with Addendum.
40.	2	2	55 of 291	Table 7.3-1	Salient features of Traction Transformers	Table	
						Parameter	raction Transformers  Rating
						Power Rating  Cooling  Connection Type	60 (Minimum) / 84 / 100 MVA for: - One Scott connected transformer or - Two single phase transformers connected in 'V' Connection  ONAN/ONAF/OFAF  Scott Connected / V- Connected

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						Rated Secondary Voltage	54 kV / 2X27 kV
						Rated primary Voltage	132 kV
						Highest System Voltage	145 kV
						Non- cumulative overload capacity after the transformer has reached steady temperature on continuous operation at rated power	150% rated load for 15 minutes or 200% rated load for 5 minutes
41.	2	2	56 of 291	7.3.2(1)	Location of Transformer with ONAN / ONAF rating.	:	e at the end of Clause 7.3.2(1) provided at any of the Traction
42.	2	2	69 0f 291	8.4(4)	Aerial Earth Conductor	following:	e of the Clause 8.4(4) with the or of adequate size and rating
43.	2	2	74 of 291	8.14.4	Signages for OHE	following: "Sigma strip shall be prov	Clause 8.14.4(6)(e) with the ided in fog prone areas on two ocations for easy identification
44.	2	2	80 of 291	9.2.1	LV Supply at Stations and S&T Installations	In line no 5 of Clause 9.5.5".	2.1, replace "Vol. V" with "Vol.
45.	2	2	83 of 291	10.1.2 (I)	Web based Server	Replace contents of Claus "Web based server along	se 10.1.2 (I) with the following: with Internet connection."

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46.	2	2	83 of 291	10.1.2(9)(f)	General Requirements	Replace the contents of Clause 10.1.2(9)(f) with the following: "Simulator with minimum 2 nos. consoles at OCC for training of SCADA Operators and maintenance staff."
47.	2	2	84 of 291	10.2.1(e)	Basic Design requirements	Replace contents of Clause 10.2.1(e) with the following: "SCADA system shall be self-monitoring i.e. failure of any piece of equipment down to the individual card level shall cause an alarm locally and at the OCC."
48.	2	2	84 of 291	10.2.1 (f)	Basic Design Requirement	Replace contents of Clause 10.2.1(f) with the following: "SCADA system shall incorporate hardware and software for access control features for OCC Control Room, TSS and switching stations that prevents access by unauthorized persons. The unsuccessful login/entry shall be alarmed and logged at OCC."
49.	2	2	85 of 291	10.2.1	Basic Design requirements	Insert new Clause 10.2.1 (n) as under: 'The scope shall include any additional necessary equipment and any / all equipment of higher capacities and higher ratings for the systems and sub-systems necessary for the complete, safe, reliable, operable and maintainable SCADA System.'
50.	2	2	87 of 291	10.5	Table 10.1-1	Replace the contents of Table 10.1-1 by revised Table 10.1-1 attached with Addendum.
51.	2	2	88 of 291	10.5	Provision of Video Surveillance System (CCTV)	Add the following after the Table 10.1-1:  "The Video Surveillance System shall provide effective real time video surveillance of Traction Substations for the following at OCC:  (a) Main Entrance Gate  (b) Incoming Bay Area  (c) Outgoing Bay Area

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						(d) Transformer Area  (e) Control Room Area  Traction Power Controller (TPC) at OCC Control Room shall be provided with one client PC work-station with 20" Full HD LED Colour Monitors for Viewing, Monitoring and Management of Video Surveillance data.  The scope for Video Surveillance System in Chapter 11, Part 2, Section VI, Volume 4, PS-Telecommunication Works shall also include above requirements."
52.	2	2	90 of 291	10.7 (3)	Maintainability Requirement	Replace the contents of first sentence of first Para of Clause 10.7 (3) with the following: "The SCADA system shall have a MTTR of 30 minutes excluding communication failures".
53.	2	2	96 of 291	10.10.1(2)	General	Replace contents of Clause 10.10.1(2) with the following:  "The software shall fully support Data Transfer between RTU and OCC as defined by different IEC60870-5 series of standards;"
54.	2	2	96 of 291	10.10.2 (1) (a)	Acquisition of Measurands	Replace first sentence of Clause 10.10.2 (1) (a) with the following:  "The SCADA system shall be capable of acquiring measurands i.e. analogue inputs from the TSS and SP".
55.	2	2	97 of 291	10.10.2 (3) (d)	Execution of Tele-Commands	Replace the contents of Clause 10.10.2(3) (d) with the following:  Option to abort a command shall be available with the operator till it has not been acknowledged for execution at switching stations. Any command which does not get executed within specified time (as per design) shall be automatically cancelled and confirmation to this effect communicated to operator."

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56.	2	2	108 of 291	10.10.2 (32) (c)	Safety tagging	Delete Clause 10.10.2(32)(c)
57.	2	2	110 of 291	10.10.2 (37) (c) (ii)	IT Hardware	Delete Clause 10.10.2(37)(c)(ii)
58.	2	2	111 of 291	10.10.2(38) a) (iv)	Remote Terminal Unit - General	In the fifth line of the Clause 10.10.2(38) a) (iv) replace "600 events" with "1000 events"
59.	2	2	141 of 291	Table 13.2-1	Quantity of contract spares	<ul> <li>(a) Replace contents of item description of S.No. 2 of Table 13.2-1 with the following:</li> <li>(b) "Catenary and Contact conductors, fittings, hardware, all types of jumpers and droppers". Add item no. 20 in B: PSI (TSS,SP,SSP) – Spares as under:</li> <li>20 Auxiliary Transformer 1 No.</li> <li>100 KVA</li> </ul>
60.	2	2	151 of 291	Clause 14.5.6(2)	Minimum factors of safety	Replace the contents of Clause 14.5.6(2) with the following: "Structures and SPS, in combined tension/compression and bending, shall have safety factors in compliance with the appropriate design codes."
61.	2	2	154 of 291	16.3.2 (14)	Mock Up for Training	Delete Para 16.3.2 (14).
62.	2	2	156 of 291	16.7.1 (4)	Training and transfer of Skills	Delete Clause 16.7.1 (4)
63.	2	3	11 of 223	1.5.1(3)	Scope of works	Add the following at the end of Sub-Clause 1.5.1(3):  "This shall include facility for introduction of modified automatic working during abnormal conditions such as Fog, bad weather impairing visibility etc. by converting one mid-section automatic signal in each direction and

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						in each block section into modified semi-automatic stop signal and suitably interlocking it with Home Signal of station ahead and Advance Starter of station in rear in accordance with General rules of Indian Railways."
64.	2	3	14 of 223	2.1	System Requirements - General	Add new Para (14) under Sub-Clause 2.1 as under: "The design life of Signalling sub system/equipment (except maintenance free batteries and cables) shall be minimum 15 years. The design life of Signalling cables shall be at least 25 years."
65.	2	თ	14 of 223	2.2.1(2)	Signalling sub system Requirements - General	Replace existing contents of Sub-Clause 2.2.1(2) with the following: "Facility shall also be provided for introduction of modified automatic working during abnormal conditions such as Fog, bad weather impairing visibility etc. by converting one mid-section automatic signal in each direction and in each block section into modified semi-automatic stop signal and suitably interlocking it with Home Signal of station ahead and Advance Starter of station in rear in accordance with Indian Railway (Open line) General rules 1976 sub rule (1) Clause (ba) of rule 3.12 & sub rule (3) of rule 9.01.
66.	2	3	14 of 223	2.2.1(4)	Signalling sub system Requirements-General	Replace existing contents of Sub-Clause 2.2.1(4) with the following:  "Absolute block working on single line connections between DFCCIL and IR stations shall be provided using Solid State Block proving by Axle Counter as per RDSO spec. RDSO/SPN/175/2005 or Block proving by Axle Counter using UFSBI as per RDSO spec. IRS: S105/2012. Wherever provision of Absolute Block working as described above is not feasible provision of Slot working with all necessary safety features and counters be considered."

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67.	2	3	16 of 223	2.2.3 (1) (c)	Interlocking – System requirements	Add the following at the end of Sub-Clause 2.2.3(1)(c): "The display shall be provided at all the interlocking locations, including mid-section interlocking in the block section. While the display at all interlocking will cover only area under control of that interlocking, the display at Station interlocking shall cover area up to the next (adjacent) stations on both sides."
68.	2	3	17 of 223	2.2.3(2)(e)(ii)	Interlocking Design	In 3 <sup>rd</sup> line of Sub-Clause 2.2.3(2)(e)(ii), after the word "against" add word "single".
69.	2	3	17 of 223	2.2.3(2)(e)(iv)	Interlocking Design	Delete following content under existing Sub-Clause 2.2.3(2)(e)(iv): "Detector locking when the train is passing through on turnouts."
70.	2	3	19 of 223	2.2.4(2)(a)	Train Detection - Technical requirements	Remove word 'EN' from 2 <sup>ND</sup> Line of Sub-Clause 2.2.4(2)(a).
71.	2	3	20 of 223	2.2.4(2)(f)	Train Detection - Technical requirements	Add new Clause (v) as under:  (v) The location of Evaluators, Vital relays & other MSDAC equipment and their cabling and power supply requirement shall be determined by contractor's choice of equipment and design.  (vi) The appropriate Manual resetting scheme as per Para 2.2.4(1)(g) shall be designed by the contractor.  (vii) Anything provided under this Para or elsewhere in the main document shall prevail over provisions of Appendix 5.
72.	2	3	20 of 223	2.2.4(2)(g)	Train Detection – Technical requirements	Re-number existing Para (g) under Sub-Clause 2.2.4(2) as "(g)(i)". Add a new Para (g)(ii) as under::  "(ii) A Standby Evaluator with complete programming and configuration shall be provided for every Evaluator with arrangement for switch over using a single switch.

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						After every changeover, the track sections shall go in error state and shall have to be reset as per manual resetting procedure."
73.	2	3	21 of 223	2.2.5(1)(b)	Line side Signals	Replace contents of first sentence of Sub-Clause 2.2.5(1)(b) with the following: "All Automatic Signals and Semi Automatic Signals on main line shall have 4 aspect."
74.	2	3	26 of 223	2.2.9 (1)(b)	Control System – System requirements	Replace contents of existing Sub-Clause 2.2.9(1)(b) with the following: "There will be no Control facility (Control terminal) in the block section. The Control terminal provided with the Station Master at every Station will be used to control the Station yard and block section (part or complete), under control of the said Station Master. The display on the Control terminal shall however include not only the current state of railway under control of the Station Master but shall also include further display for the complete block sections up to the next stations on both sides."
75.	2	3	27 of 223	2.2.9(2)(a)	Control System – Technical requirements	Replace existing contents of Sub-Clause 2.2.9(2)(a) with the following:  "The Control terminal shall work on 230V± 50Hz AC power supply. It shall be provided with power back up of 4 hours, either through UPS/IPS of the Station Signaling system or by providing a separate UPS system."
76.	2	3	27 of 223	2.2.9(2)(d)	Control Systems – Technical requirements	Replace existing contents of Sub-Clause 2.2.9(2)(d) with the following:  "The Control terminal shall be connected to EI on duplicate cables, preferably OFC laid through diverse routes."
77.	2	3	31 of	2.2.11	Service and Diagnostic System – Power	In the beginning add words

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			223	(1)(i)(iii)	Supply System	<ul> <li>Presence of input supply from AT1 and AT2 on ACO</li> <li>Presence of output supply from ACO.</li> </ul>
78.	2	3	42 of 223	2.3.3(18)(m) (ix)	TMS Maintenance Terminal at OCC – Fault Diagnostics	Delete Clause 2.3.3(18)(m)(ix)
79.	2	3	71 of 223	3.1	System Performance	Replace contents of Sub Clause 3.1 with the following:  "3.1 System Performance  3.1.1 The Signalling system shall be designed as per provisions of Employer's requirements, keeping adequate safety margins. The system design shall enable safe movement of trains at a speed of 110 Kmph (100 Kmph + 10% safety margin) on the main line and 55 Kmph (50 Kmph + 10% safety margin) on the Loop lines, for 'Rolling Stock' and 'Train Operation Plan' data as per PS (Electrification), Volume 2, Clause 5.2.  3.1.2 System Safety and Operational performance shall be demonstrated by computer simulation and by performance test to the satisfaction of the Engineer."
80.	2	3	73 of 223	3.3.8	Reliability	Replace the existing contents of Sub-Clause 3.3.8 with the following: "Deleted".
81.	2	3	74 of 223	3.4.7	Maintainability	Replace the existing contents of Sub-Clause 3.4.7 with the following:  "As far as the technology permit, all vital plug-in modules shall permit hot swapping so as not to affect the normal or emergency operation of the system".
82.	2	3	74 of 223	3.4.9	Line Replacement Unit(LRU)	(A) Clause 3.4.9(1) In 2 <sup>nd</sup> line after word "point machines" add words "signals, cables and batteries"

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						(B) Clause 3.4.9 (8) Delete Clause 3.4.9 (8).
83.	2	თ	77 of 223	3.6.3	Environment	Replace the existing contents of Sub-Clause 3.6.3 with the following:  "For environment control or for improvement of reliability of specific signalling equipment or its power supply, Airconditioned rack enclosure(s) with 1+1 standby configuration for air-conditioning system shall be provided, as required."
84.	2	3	82 of 223	4.1.2(2)	National and Local standards - IRS Specification	In Sub-Clause 4.1.2(2), add in the Table, a new row after row for item "S101-90":  S105/ Block proving by Axle counter using UFSBI.
85.	2	3	90 of 223	4.3.3 (10)	Interlocking Structures	Add Para "(10)" below Para "(9)" as under: "Smoke and Fire detection system as per Part 2, Section VI, Volume 5, Chapter 12 shall be provided in Station and Auto section location Interlocking structures' Signalling Equipment rooms and the Power Supply Equipment rooms with facility of alarm generation at Station and OCC."
86.	2	3	94	4.3.5(4)	Cable core allocation	In Sub-Clause 4.3.5(4), add the following Para (e) in the end:  (e) For operation of each point/crossover a separate cable shall be used.
87.	2	3	96 of 223	4.3.5(6)(I)	Cable Termination Rack(CTR) and Location Box	Replace existing contents of Sub-Clause 4.3.5(6)(I) with the following:  "All location boxes shall be provided with 110V AC lighting arrangement with ON/OFF switch to assist maintenance/repair work undertaken during night."

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88.	2	3	100 of 223	5.2.1	Tests to be carried out	Replace first sentence of Sub-Clause 5.2.1 with the following: "Following types of tests are required to be conducted:"
89.	2	3	114 of 223	7.2.4(2)	O&M Manuals	Replace the existing contents of Sub-Clause 7.2.4(2) with the following:  "The Contractor shall submit 200 copies of O&M Manuals for distribution amongst officials responsible for Operation & Maintenance of the project section."
90.	2	3	148 of 223	4(2)(b) of Chapter 10 Appendix 3	Output Voltage Requirements- Frequency	In row for "Frequency" of Sub-Clause 4(2)(d) of Chapter 10 Appendix 3, after word "regulation" add words "(free running)"
91.	2	3	149 of 223	4(2)(d) of Chapter 10 Appendix 3	Output Voltage Requirements- Output Frequency Regulation, Stability and Slew Rate	In 2 <sup>nd</sup> line of Sub-Clause 4(2)(d) of Chapter 10 Appendix 3, replace numerals "0.5% by 1%."
92.	2	3	151 of 223	6(1) of Chapter 10 Appendix 3	Rectifier cum Charger & Sizing	In 2 <sup>nd</sup> line of Sub-Clause 6(1) of Chapter 10 Appendix 3, after word "Type", add word "/ IGBT"
93.	2	3	153 of 223	8(3) of Chapter 10 Appendix 3	Enclosures	Replace existing contents of Sub-Clause 8(3) of Chapter 10 Appendix 3 with the following: "Finish as provided by OEM"
94.	2	3	157 of 223	10 of Chapter 10 Appendix 3	Environment	Replace contents of Para 10 of Appendix 3 with the following:  "The UPS shall be designed for smooth continuous operation in the environment where it is installed. Alternatively, suitable Environment control measures shall be provided to maintain the environment within the design parameters."
95.	2	3	189 of	Annexure 4	Typical Main Cable Distribution Plan for	Add "Note" on the drawing at Annexure 4 of Chapter 10,

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			223	of Chapter 10 Appendix 4	double line (4 line) PI station	Appendix 4 as under:  "Note: The Typical Cable Distribution Plan shown here is indicative. The contractor shall prepare the Cable Core Distribution Plan that meets the cabling requirements as specified in the Employer's requirements."
96.	2	3	207 of 223	Chapter 10 Appendix 5	Guidelines for Automatic Signaling using MSDAC	Replace existing 'Note' at the beginning of Chapter 10 Appendix 5 with the following: "Note: The guidelines below are for providing relay based Automatic Signalling using MSDAC for a typical IR block section of approx. 10 Kms. These guidelines shall be used to design a suitable 'Track vacancy detection system' for automatic block signaling section (approx. 40 Kms.) of DFCCIL in accordance with Sub-Clause 2.2.4 – 'Train detection' and other provisions of the Employer's Requirements."
97.	2	3	209 of 223	4.3 of Chapter 10 Appendix 5	Location of DPs, formation of Track sections & Supervisory Track Sections (SPTs)	In 4 <sup>th</sup> line of Sub-Clause 4.3 of Chapter 10, Appendix 5, replace word "DP6" by word "DP7"
98.	2	4	7 of 171	1.3.1.2	Telecommunication System includes, but not limited to, the subsystems namely, Optical Fibre Communication System, IT Communication System, Telephone System, GSM-R based Mobile Train Radio System, VHF Communication System, Master Clock System. In addition, 48 V DC Power Supply System shall meet reliable power supply requirements of above subsystems.	Replace 'IT Communication System' with 'Data Networking System'.
99.	2	4	20 of 171	3.1.2	The System shall be so designed as to have a minimum of 15 years of Service life operating continuously. The life of all the cables including Optical Fibre cables, Jelly filled Telecom. Quad Cables, Telephone	Replace the contents of the existing Clause 3.1.2 with the following:- 'The System shall be so designed as to have a minimum of 15 years of service life operating continuously (Excluding Batteries). The life of all the

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					Cables, RF Cables shall not be lower than 25 Years. Life of Radio Towers / Mast shall not be less than 40 years.	cables including Optical Fibre Cables, Jelly Filled Telecom Quad Cable, Telephone Cables, RF Cables shall not be lower than 25 years. Life of Radio Towers/Mast shall not be less than 40 years.'
100.	2	4	25 of 171	4.1.1.8	Software design & development shall also be carried out during Detailed Design stage, and details shall be included in the Definitive Design Submissions for review of Engineer.	Replace 'Definitive Design' with 'Detailed Design'.
101.	2	4	25 of 171	4.1.1.13	As part of Installation Design, specified clearance as per SOD of track side equipments in mms from centre line of adjacent track(s) shall be prepared in a tabular form.	Replace 'mms' by 'millimeters'.
102.	2	4	27 of 171	4.3.2	Unless otherwise specified, all telecommunication equipment shall be designed for operation continuously in temperatures of -5C to +55C.	Replace the contents of Clause 4.3.2 with the following: "Unless otherwise specified, all indoor telecommunication equipment installations shall be designed for operation continuously in environmental temperature range of -5°C to +55°C."
103.	2	4	27 of 171	4.3.4	Telecommunication Equipment Rooms (TERs) at Auto Section Locations, LC Gates, Interfacing IR Stations, GSM-R Locations, TSSs, SPs, SSPs, IMDs, IMSDs, Staff Residential Colonies etc. shall be provided as required with Panel Air-Conditioning, with 1+1 standby for Telecom Equipments. Further these TERs shall be provided with suitable means to maintain air-circulation, with 1+1 standby. TERs at these locations are classified as 'Class-B2' under Clause 2.18 of General Specifications.	Replace 'Panel Air-Conditioning, with 1+1 standby for Telecom Equipments' by:  "Air-Conditioned Rack(s) for housing of Telecom Equipments. These Rack(s) shall have 1+1 Standby for Air-Conditioned Units".
104.	2	4	29 of	5.3.3.2	Optical fibre cables of the First Network shall	Replace the contents of the Clause 5.3.3.2 with

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			171		be terminated at Optical Distribution Frames (ODFs) in TERs at OCC, Stations and any other location as required. Employer shall hire from M/s RCIL required Optical Fibres from RCIL POP at Bhaupur (IR) to RCIL POP at Allahabad (IR). All works from/up to RCIL POPs at Bhaupur and Allahabad shall be carried out by Contractor.	following:- 'Optical fibre cables of the First Network shall be terminated at Optical Distribution Frames (ODFs) in TERs at OCC and Stations. Employer shall hire from M/s RCIL STM-16 Traffic from RCIL POP at Bhaupur (IR) to RCIL POP at Subedarganj (IR). All works from/up to RCIL POPs at Bhaupur and Subedarganj shall be carried out by Contractor.'
105.	2	4	29 of 171	5.3.3.5	All the Optical Fibre Cables shall have a minimum fibre count of 24 fibres. At least 50% of fibres within each cable shall be reserved as spares for future use	Replace the contents of the Clause 5.3.3.5 with following:- "All the Optical Fibre Cables shall have a minimum fibre count of 24 fibres. At least 25% of fibres within each cable shall be reserved as spares for future use."
106.	2	4	32 of 171	5.3.7.7	The Flexible Access Multiplex Equipment shall be provided with 1+1 Redundancy for all Channel levels (Voice, Data, etc.). Further Redundancy of Control & Power Supply Modules/Cards shall also be provided to ensure that a single failure shall not affect the availability of the Flexible Access Multiplex Equipment.	Replace the contents of the Clause 5.3.7.7 with following:- "The Flexible Access Multiplex Equipment shall be provided with 1+1 Redundancy for E1 Channel. Further 1+1 Protection for Control (if its failure results in affecting traffic) & Power Supply Modules/Cards shall be provided in Flexible Access Multiplex Equipment."
107.	2	4	33 of 171	5.3.8.1	OF Cable Interference Detection System	Delete Clause 5.3.8.1
108.	2	4	40 of 171	5.5.3.4.2	The NMS shall be equipped with a proven real-time, multi-tasking operating system to support centralised network management of the OFC equipment	Replace the contents of the Clause 5.5.3.4.2 with following:- The NMS shall be equipped with a proven real-time, multi-tasking operating system to support centralised network management of SDH & PDH equipments from OCC.
109.	2	4	42 of 171	5.3.3.9	Error in numbering of clauses	Replace Clause no. 5.3.3.9 by 6.1.3.1

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110.	2	4	42 of 171	6.1.3.1	Wide Area network (WAN) shall provide a high degree of availability by operating on an independent optical fibre ring using optical fibre cables laid along UP & Down Tracks of EDFC. Employer shall hire from RCIL required Optical fibres from RCIL PoP at Bhaupur (IR) to RCIL PoP at Allahabad (IR). All Works from / up to RCIL PoPs at Bhaupur and Allahabad shall be carried out by Contractor.	Replace the contents of the Clause 6.1.3.1 (old Clause 5.3.3.9) with following:- "Wide Area network (WAN) shall provide a high degree of availability by operating on an independent optical fibre ring using optical fibre cables laid along UP & DN tracks of EDFC. Employer shall hire from RCIL required Bandwidth from RCIL PoP at Bhaupur (IR) to RCIL PoP at Subedarganj (IR). All Works from / up to RCIL PoPs at Bhaupur (IR) and Subedarganj (IR) shall be carried out by Contractor."
111.	2	4	42 of 171	6.1.6	Ethernet Services such as Ethernet Private Line (EPL) services, Ethernet Virtual Private Line (EVPL) Services and Ethernet Local Area Network (E-LAN) shall be extended to Auto Section Location, GSM-R Locations, LC Gates, TSS, SP & SSP using EoS (Ethernet over SDH) of OFC System for meeting the requirements of other Systems within this Contract and outside this Contract as decided by Engineer.	Replace word "shall" in 2 <sup>nd</sup> line by "can".
112.	2	4	43 of 171	6.3.6	Layer-3 Services such as IPv4 Routing, Border Gateway Protocol (BGP), Intermediate System-to-Intermediate System (IS-IS), Open Shortest Path First (OPSF), Hot Standby Router Protocol (HSRP), Virtual Router Redundancy Protocol (VRRP)], IPv6 Routing, Multi-Protocol Label Switching, Label Distribution Protocol (LDP), Targeted LDP(T-LDP), Primary & Secondary Label Switched Paths, MPLS L3 VPN, Resource Reservation Protocol (RSVP), MPLS Traffic Engineering (including TE-FRR), Routed Pseudo wire, IP-VPN (RFC 2547) and Integrated Routing & Bridging shall be available on the WAN. These services shall	Delete 'Hot Standby Router Protocol (HSRP)'.

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					be implemented to cater for the communication requirements of various systems under this Contract as well as outside this Contract.	
113.	2	4	46 of 171	6.5.1.8	Switches shall support Online Software Reconfiguration to implement changes without rebooting. The OS for the switches must be modular. A certificate to this effect shall be provided by the OEM of the switch.	Replace the contents of the Clause 6.5.1.8 with following:- "Switches shall support Online Software Reconfiguration to implement changes without rebooting."
114.	2	4	46 of 171	6.5.1.10	Layer-3 Switches shall have console port with a RS-232 Interface for configuration and diagnostics purposes.	Replace word "RS-232" with "RS-232/RJ-45".
115.	2	4	47 of 171	6.5.2.11	Layer-2 Switches shall have console port with a RS-232 Interface for configuration and diagnostics purposes.	Replace word "RS-232" with "RS-232/RJ-45".
116.	2	4	48 of 171	6.5.4.1 (5)	Recovery from Network Failures within 5 m sec	Replace contents of Clause 6.5.4.1 (5) with the following:- 'Recovery from Network Failures.'
117.	2	4	48 of 171	6.5.4.1 (7)	Facility for Upgrade of Software & Firmware without any significant loss of Service.	Replace the contents of the Clause 6.5.4.1 (7) with following:- 'Facility for Upgrade of Software & Firmware without any loss of Service'.

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118.	2	4	54 of 171	7.3.4.5.3	Each Station Controll on er	Direct 10 Line Conso le (30 lines)		Replace to the follow Each Station		Direct Line Console (30 lines)	10 (1 at each station)
119.	2	4	59 of 171	7.5.1.3	commissioned for	supplied, installed Administrative Tele equipped to, as a mi , the following:		Telephone In S.No. Telephone	e Ports"  4 replace "I e Ports"  Replace 'Ports	Digital Teleph	one" with "Analog one" with "Digital with 'Analog Ports
120.	2	4	59 of 171	7.5.1.8	lines with loop re	long distance sub sistance up to 2400 age of 15 K ohms; a	Ohms	Delete the	e Clause 7.5.1	.8 (2).	
121.	2	4	61 of 171	7.5.4.5	the standby mode standby unit to	utomatically changedule within 1 second become active and fee following conditions	or the start	following: "The VRS	-	simultaneous	7.5.4.5 with the recording in both
122.	2	4	64 of 171	8.1.3.4	(NSSs) of MTRC used for Ghazia also be used for Khurja Section of Sub-systems (NS Indian Railway shrequired, by the	that Network Sub-sy System of Indian R bad-Kanpur Section MTRC System of Bh f EDFC. As such N SSs) of MTRC Systeall be suitably upgra Contractor to mee Bhaupur-Khurja Sec	shall aupur- etwork em of ded, if is the	'Details of	f Network Sub	end of Clause -system (NSS) ven in Appendi	of MTRC System

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					EDFC.	
123.	2	4	66 of 171	8.2.2.2 & 8.2.2.3	8.2.2.2: The Coverage Level for an Operational Radio & General Purpose Radio is defined in terms of time and area where the minimum Signal Criteria are achieved. The level of Coverage shall be at least 955 of the time over 95% of the outdoor area of 200 metres on both sides from centre of tracks along the detours, for Operational Radio & General Purpose Radio at 1.5 metre above ground.	Delete the Clause 8.2.2.2. Clause 8.2.2.3: Add a new Clause 8.2.2.3 (4) as below: "(4) 200 meters on both sides from centre of track along Detours".
124.	2	4	72 of 171	8.2.10.7	For Station Operation Control, SCR shall be provided with a Fixed Radio Terminal with communication facilities covering the area in his jurisdiction. Contractor shall detail the functionalities and features of the proposed Fixed Radio Terminal.	Delete the Clause 8.2.10.7.
125.	2	4	73 of 171	8.2.16.3	Three party conferences between controller, Station Master and Driver/Guard with on line voice recording facility shall be provided. Similarly, real time voice recording facilities for all the controllers shall be provided.	Delete the Clause 8.2.16.3.
126.	2	4	77 of 171	8.2.19.2 (14)	It shall be possible to define emergency group lds;	Replace the contents of Clause 8.2.19.2 (14) with the following:- "Configuration of Group IDs as per IRENE FRS v 7.3.0 & SRS v 15.3.0".
127.	2	4	81 of 171	8.4.1.8 (1)	5 (Five) Sets of Cab Radio complete with power supply, battery pack, antenna and accessories;	Clause 8.4.1.8 (1): Add the following at the end the Clause: "Battery Back-up of at least 6 Hrs. shall be required".
128.	2	4	83 of	8.4.3.5	The coverage level shall also be designed to	Replace the contents of Clause 8.4.3.5 with the

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			171		provide satisfactory indoor and outdoor coverage for an operational radio & general purpose radio for all areas as specified, including indoor areas for which an extra margin should be considered. Accordingly minimum field strength of -73 dBm at 4 meter above ground in outdoor terrain shall be available.	following:- "The coverage level shall also be designed to provide satisfactory indoor and outdoor coverage in detour sections for an operational radio & general purpose radio for all areas as specified, including indoor areas for which an extra margin should be considered. Accordingly minimum field strength of -73 dBm at 4 meter above ground in outdoor terrain shall be available."	
129.	2	4	90 of 171	9.3.4	At OCC, Station, Depot and Offices, a Sub- Master Clock Unit shall receive the time information from the Central Master Clock and shall convert it into synchronization pulses for the slave clock units at those locations.		
130.	2	4	90 of 171	9.3.5	Slave Clocks shall be connected to the Master Clock Unit and the Sub-Master Clock Units. Slave Clock Schedule is as below:	1. Add a Row after SN 18 in table of Clause 9.3.5:-:  19. New Achalda IMSD 0 0 4  2. Replace 'New Tundla IMD' by 'New Tundla IMSD'.	
131.	2	4	92 of 171	9.5.1 (4)	The Master Clock Units shall have their own oscillator and be able to maintain accurate time with an accuracy of 30 milliseconds w.r.t. GPS Reference for normal duration of loss of time synchronization with GPS.	Delete the word 'normal'.     Add word '24 Hours of' before 'loss of time'.	
132.	2	4	101 of 171	11.3.3	Security Controllers shall be provided with Client PC Workstation with two LED Monitors of minimum 40" for Viewing and Monitoring. In addition, Security Controller shall be provided with one Client PC Workstation with 20" Full HD LED Colour Monitors for Viewing, Monitoring and System Management.	Replace word 'Controllers' by 'Controller'.	

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133.	2	4	101 of 171	11.3.7	Video Recording: The Video Recorder shall be capable of operation for 24 hours per day, 365 days a year. The recording shall be preferably stored for at least 30 days at HD Resolution, 12 FPS. The Video Recorder System should, however, be capable of recording at HD Resolution, 25 FPS for all Cameras. The Storage Device for recording shall be External with RAID 5 Protection.	Delete the Word 'External' in the last line.		
134.	2	4	103 of 171	11.5.2.1.1 (9)	Fixed Box Type IP Cameras shall have following technical specifications as a minimum:	Replace '1 to 1/1,00,000' with '1 to 1/10,000'		
135.	2	4	104 of 171	11.5.2.1.3	Varifocal Lenses with following minimum specifications shall be used for Fixed Box Type IP Video Cameras.  9. Vandal-Proof Arrangement - Required for Outdoor Cameras	Delete Row against SN 9.		
136.	2	4	104 of 171	11.5.2.1.4	Housing arrangement for Fixed Box Type IP Video Cameras shall be designed for both outdoor and indoor use as per requirement. The Housing shall either he integrated with the camera by the manufacturer or it shall be of same make as the camera. The housing shall protect camera and the lens combination and have the following minimum technical specifications and features:	7 Vandal Proof Required for Outdoor cameras		
137.	2	4	106 of 171	11.5.2.3 (6)	High Speed P/T/Z DOME IP Camera The camera shall meet the following minimum technical requirements:	Replace "0.1 Lux" with "0.5 Lux" in color mode. Replace "0.01 Lux" with "0.05 Lux" in Night mode (Black and White)		
138.	2	4	106 of 171	11.5.2.3 (10)	High Speed P/T/Z DOME IP Camera The camera shall meet the following	Replace '35X' by '18X' in Lens.		

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					minimum technical requirements:	
139.	2	4	108 of 171	11.5.2.8	External Storage Device with RAID 5 Protection:	Delete the Word 'External'.
140.	2	4	108 of 171	11.5.2.8.1	A separate protected Storage Device shall be provided for recording the information at OCC.	Delete the Word 'Separate'.
141.	2	4	109 of 171	11.5.2.9.6	Ethernet Output from the IP Camera shall be connected to the nearest field Switch through CAT 6 STP Cable and the field Switch shall be connected to the Central Switch on Optical fibre Cable.	Replace 'Optic fibre cable' by 'Optic fibre cable / CAT-6 cable' in last line.
142.	2	4	109 of 171	11.5.2.10.1	24 Port Layer-3 Switch complying with IEEE 802.3, IEEE 803.3u and 802.3ab Standard shall be provided at TER of OCC. This switch shall take Optic Fibre Input from all the field Switches installed in the field and shall give Ethernet port connectivity to Servers, Work Stations etc.	Replace 'Optic fibre' by 'Optic fibre / CAT-6'.
143.	2	4	112 of 171	11.6.1.22	The software shall receive all incoming events (motion detection and triggered digital input and relay output) in the system and take appropriate actions based on user-defined event/action relationships.	Delete the Clause 11.6.1.22.
144.	2	4	116 of 171	12.3.1	For high availability the Battery Backup System at each location shall include 2 numbers of SMPS based 48 V Battery Chargers in Hot Standby configuration with individual 48 V Battery Bank for each Battery Charger.	Replace the contents of the Clause 12.3.1 with the following:- "For high availability the Battery Backup System at each location shall include 2 X 100% SMPS based 48 V Battery Chargers in Load Sharing Mode with individual 48 V Battery Bank for each Battery Charger".

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145.	2	4	117 of 171	12.3.6	There shall be no break in the 48 V DC Power Supply to the Telecommunication Systems during changeover of Load from the Working to Standby Battery Bank.	Replace the contents of Clause 12.3.6 with the following:- "There shall be no break in the 48 V DC Power Supply to the Telecommunication Systems during failure of one of the Battery Charger with Battery Bank."
146.	2	4	117 of 171	12.3.10 (9)	Fan Failure	Delete the Part '9' of Clause 12.3.10.
147.	2	4	117 of 171	12.3.10 (10)	Temperature Compensation Failure.	Delete the Part '10' of Clause 12.3.10.
148.	2	4	125 of 171	14.3.12	Portable Fire Extinguishers shall be provided in Telecom Equipment Room/Telecom Power Supply Equipment Rooms. Portable fire extinguishers shall be compliant to NFPA 10 standard and suitable for electrical equipment.	Replace the contents of Clause 14.3.12 with the following:- "Portable Fire Extinguishers shall be provided in Telecom Equipment Room/Telecom Power Supply Equipment Rooms. Portable fire extinguishers shall be compliant to NFPA 10 standard and suitable for electrical equipment.  Smoke and Fire Detection System as per details in Part 2, Section VI, Volume 5, Chapter 12, shall be provided in Telecom Equipment Rooms and Telecom Power Supply Equipment Rooms, with facility of Alarm Generation at station and OCC."
149.	2	4	172 (at the end)	Appendix – II (New one)	-	Add Appendix – II, as attached, in Part 2, Section VI, Volume 4, , giving the details of Network Sub-System (NSS) of MTRC system of Indian Railways.
150.	2	5	9 of 141	1.3 (2)	All civic amenities	Replace Clause 1.3 (2) of Part 2, Section VI, Volume 5 with the following:  i. Water supply - to be provided through Municipal supply, if not available then through bore wells/hand pumps as case may be, with construction U/G tank / OH tank for all buildings. Moreover the facility for

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						drinking water with RO system shall also be provided in all buildings including OCC and residential quarters as required by the Engineer.  ii. Sewer - to be connected to Municipal sewer, if available, or connected to septic tanks. Requirement/size of Septic Tanks shall be constructed with the approval of Site Engineer for all buildings depending on the volume/capacity required.  iii. Parking of vehicles and landscape i.e. hard & soft area shall be constructed to match with surrounding areas after approval of the Site Engineer.  iv. In the OCC Complex, firefighting requirement e.g. U/G Tank, Pump Room, Fire Hydrant etc. shall be provided as per the local Fire Dept. requirement.
151.	2	5	15 of 141	Paragraph 2.7 (6)		Replace contents of Clause 2.7 (6) with the following: "The plinth level of station buildings for Junction and crossing stations, gate lodges and S&T service buildings (SER &TER) shall be at least 300mm above the rail level."
152.	2	5	15 of 141	Paragraph 2.7 (7)		Replace contents of Clause 2.7(7) with the following: "The plinth level of residential quarters, service buildings like IMDs, IMSDs and ancillary buildings except those mentioned in Para 2.7 (6) above, shall be 900mm above the natural ground level or 600mm above HFL (High Flood Level) whichever is higher. The ceiling height of station buildings and service buildings shall be 4.2 m above floor level."
153.	2	5	18 of 141	3.5 (1)	Residential Quarters	Replace the contents of Clause 3.5(1) with the following: "It is proposed to construct 80 Type-I Quarters, 40 Type-II quarters and 40 Type-III Quarters. The indicative schematic plan for various types of quarters shall be as per Table below:"

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154.	2	5	19 of 141	3.5 (3)	DFCCIL's crossing stations or at nearest	Replace the contents of Clause 3.5 (3) with the following:					
					Indian Railway's station.	Station	IMD/ IMSD	TYPE-I	TYPE- II	TYPE- III	
						New Bhaupur Jn Station	IMSD	7	4	4	
						Kanchausi Xing	IMSD	7	3	3	
						New Acchalda Xing	IMSD	7	3	3	
						New Ekdil Xing	IMD	10	6	6	
						New Bhadan Xing	IMSD	7	3	3	
						New Makhanpur Xing	IMSD	8	3	3	
						New Tundla Jn.	IMSD	8	4	4	
						New Hathras Xing	IMSD	8	4	4	
						(Daudkhan) Jn St.	IMSD	8	4	4	
						New Khurja Jn Stn	IMD	10	6	6	
						Total		80	40	40	

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						Note: The above list is indicative only. These quarters will be located either at DFCCIL's crossing stations or at nearest Indian Railway's stations. The exact number and location shall be decided by Engineer after obtaining approval of Employer.
155.	2	5	20 of 141	3.6	OFFICES AND OPERATION CONTROL CENTRE	Replace Clause 3.6.3 by the following  "The Building shall comply 5 star Rating of BEE star rated programme and TERI GRIHA 4 star rating for green building "
156.	2	5	24 of 141	Paragraph 3.10- 6(a)	Signal Equipment Room (SCR) and Telecom Equipment Room (TER)	Replace contents of Clause 3.10-6(a) with the following: "Signalling Equipment Room (SER) and Signalling Power Supply Equipment Room shall be required to be constructed as per 'Para 4.3.3 (3)- Interlocking structures' of Part -2, Volume-3, PS- Signalling. Similarly, Telecom Equipment Room (TER) and Telecom Power Supply Equipment Room shall be constructed for housing Indoor Telecommunication equipment as per the requirements of PS-Telecommunication Works."
157.	2	5	24 of 141	3.10(5)	(5) Electrical Panel room at Junction stations, crossing stations and OCC	Delete Clause 3.10(5)
158.	2	5	26 of 141	Appendix, Table 1, Sr. No. 2	Flooring	Add the following after Polished Kota Stone and "Granite Table Top for Wash Basin."
159.	2	5	27 of 141	Appendix, Table 2, Sr. No. 2	Flooring	Add the following after Polished Kota stone and "Granite Table Top for Wash Basin."
160.	2	5	29 of	List of	Gate Lodge Dwg. No. GC/DFCC/GL/505	Part 4- Reference Document:

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			141	Drawings Table at S. No. 10		Replace Gate Lodge Drawing No. GC/DFCC/GL/505 by GC/DFCC/GL/505 (Rev1).  Any reference to Drawing No. GC/DFCC/GL/505 may be read as Drawing No. GC/DFCC/GL/505 (Rev1).
161.	2	5	36 of 141	4.8	SERVICE LIFE	Replace contents of Clause 4.8 (10) with the following: "Earth Mat 30 years"
162.	2	5	45 of 141	6.1.2(8)	Construction	Replace contents of Clause 6.1.2(8) with the following: "Breaker shall be VCB mounted on roll out truck"
163.	2	5	59 of 141	6.2.19	Automatic Power Factor Correction Capacitor	Replace the Heading by following:  " 6.2.19 Automatic Power Factor Correction Panel "
164.	2	5	77 of 141	9.6 (19)	Internal Wiring	Add the following new Clause after Clause 9.6(19): "20. Tower Wagon Shed for 8 wheelers Lighting for Tower Wagon Shed shall be done by using suitable lighting fixtures with the approval of Engineer. The pit shall be provided with Bulk Head fixtures one both sides of the pit to cover entire length. 5 amp and 15 amp sockets with switches shall be provided at interval of 5 meters. 30 amp three phase socket with four pole MCB shall also be provide at both the ends of the pit."
165.	2	5	79 of 141	9.11	Switch and Socket outlet	Replace the existing contents of Clause 9.11.1 by following:- "The contractor shall supply and install the switch and socket out lets in all the buildings taking into account functional requirements/ applications for all equipment that shall be required after obtaining approval of the Engineer.  Scale for Fittings for staff quarters has been indicated in Attachment 15.4(revised) "
166.	2	5	81 of	10.1	Scope	Add at the end of the Clause 10.1(1):

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			141			"as per Attachment 15.5A"
167.	2	5	89 of 141	12.1(1)(a)(i)	Station Buildings	Add the following at the end of Clause 12.1(1)(a)(i): "Minimum of two loops shall be provided".
168.	2	5	96 of 141	13.4	Fire Fighting and Sprinkler System	Add at the end of the Chapter 13 following Clause:  "13.4 Fire Fighting and Sprinkler System  13.4.1 General  1. The contractor shall assess the fire hazard in areas other than OCC control room portion and design, supply, install, test and commission firefighting system as per local bylaws and obtain its approval from the Engineer.  2. Adequate capacity underground storage for water shall be provided and adequate number of wet risers shall be provided to cover the entire floors.  3. Basement shall be provided with sprinkler system.  4. The flow directional switch shall be connected to the Fire Control Panel with provision for alarm and addressable location.  A ring main shall be provided with required number of hydrants. Fireman hydrant shall be provided near the gate for the fire tender use."
169.	2	5	99 of 141	15.1(2)	GENERAL	Add the following text at the end of the Clause 15.1(2): "Outdoor units shall be designed on N+1 basis."
170.	2	5	101 of 141	15.3.4	Air conditioning and ventilation	Replace the heading of Clause 15.3.4 with following "15.3.4 Air Conditioning and Ventilation at Station, IMDs, IMSDs."
171.	2	5	101 of 141	15.3.4(1)	Air conditioning and ventilation	Add the following at the end of the clause 15.3.4(3) "Similar provision shall be made at the control room/ telecom equipment room at IMDs and IMSDs."

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172.	2	5	117 of 141	18.1	General	Replace contents of Clause 18.1 with the following: "The Contractor shall assess the total UPS load requirement for Traction SCADA system and obtain approval of the Engineer for final sizing of UPS.  Separate UPS shall be provided for Non-Traction SCADA system and the load shall further include 20% of the lighting load of critical areas of OCC together with BMS load and obtain approval of the Engineer for final sizing of Non-Traction SCADA UPS."
173.	2	5	122 of 141	Attachment 15.1	Typical concept plan for non-traction Power distribution system	Replace Attachment 15.1 by modified Attachment 15.1.
174.	2	5	124 of 141	Attachment 15.3	(B) Power Supply Arrangement other than S&T installation	Replace Attachment 15.3 by modified attachment 15.3
175.	2	5	125 of 141	Attachment 15.4		Replace Attachment 15.4 by modified Attachment 15.4.
176.	ധ		10 of 44	Section VIII, Particular Conditions, Sub Clause 4.4	Sub-Contractors	Replace the contents of Sub Clause 4.4 by the following:  Delete first line and replace with the following:  "The Contractor shall not subcontract Works of value more than 40% of the Accepted Contract Amount in addition to the Works for which Specialist Subcontractor(s) are named in the Contract."  Add the following at the end of the Sub-Clause:  "The Employer at his discretion may permit the replacement of specialist Subcontractors, named in the Contract, provided new specialist subcontractor(s) have required qualification."
177.	3	-	11 of 44	Section VIII, Particular Condition Sub Clause	Sufficiency of the Accepted Contract Amount	Replace the contents of Sub Clause 4.11 with the following: "DFCC project being funded by the World Bank, qualifies for exemption from payment of custom duty

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				4.11		and Excise duty on goods supplied/intended to be supplied to the Project in terms of Government of India's Customs notification no. 84/97 – customs dated 11.11.1997 and Central Excise Notification no. 108/95-CE dated 28.08.1995 (read along with all subsequent amendments) respectively, provided the goods brought in to the project are not withdrawn by the supplier or the Contractor.  Under various notifications of the Department of Excise and Customs, Government of India, goods brought in to the project funded by the International Bank of Reconstruction and Development (IBRD) and/or awarded after conducting process under the International Competitive Bidding are exempt from Customs and Excise duties and/or are eligible for Deemed Export Benefits, provided the said goods are not withdrawn by the supplier or Contractor.  The certificates required for claiming exemption of customs duty and excise duty and/or for claiming deemed export benefits on goods by the Contractor shall be issued by the Employer. The Contractor shall be solely responsible for obtaining such duty exemptions and / or deemed export benefits and in case of failure to avail such benefits for any reasons whatsoever; the Employer shall not reimburse any such duties.  The above stated certificate(s) shall be issued for the bonafide and reasonable quantities of goods to be used as input in the construction of Works, on the recommendations of the Engineer taking in to account the Work Programme [Sub-Clause 8.3 of the Conditions of Contract] and approved methodology.  Any delay in procurement of the goods as a result of any delay, in the issuing of the above mentioned certificates and/or availing the exemptions, shall not be entertained as a reason for granting any Extension of Time for Completion and/or additional cost.  No customs duty or excise duty or any tax, fee, royalty

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						etc will be reimbursed by the Employer."
178.	3	-	17 of 44	Clause 13.7	Adjustments for Changes in Legislation	Insert the words "and Services" between the words "Material" and "that" in the subparagraph d. of the Sub-Clause 13.7.
179.	4	-	-	-	Add New Item No. 6	Add new item 6 in Part 4 – Reference Document:  "6. Details of Bore Holes  (a) Details of Bore Holes in Slice No101  (b) Details of Bore Holes in Slice No102  (c) Details of Bore Holes in Slice No103"
180.	4	-	-	-	Add New Item No. 7	Add new item 7 in Part 4 – Reference Document: "7. Land Plans and Approach Road Plans for TSS, SP and SSP."
181.	4	-	-	-	Add New Item No. 8	Add new item 8 in Part 4 – Reference Document: "8. Sectional Details of RUBs, RFOs, Major Bridges and Minor Bridges."
182.	4	-	-	-	Add New Item No. 9	Add new item 9 in Part 4 – Reference Document: "9. Location Plan of Operation Control Center."
183.	4	-	-	-	Add New Item No. 10	Add new item 10 in Part 4 – Reference Document: "10. Schedule of Dimensions of Eastern Dedicated Freight Corridor (EDFC) – 2013".
184.	4	-	-	-	Add New Item No. 11	Add new item 11 in Part 4 – Reference Document: "11. List of FOBs to be constructed/ modified."
185.	4	-	26	-	Item No. 2 (2) General Power Supply Diagram	Replace General Power Supply Diagram (DWG. NO. DFC/EC/BH-KH/TR-01) of Part 4, Reference Documents with modified General Power Supply Diagram (Page 01322) No. DFC/EC/BH-KH/TR-01 (Rev. 1).

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						Any reference to Drawing No. DFC/EC/BH-KH/TR-01 may be read as Drawing No. DFC/EC/BH-KH/TR-01 (Rev. 1).
186.	4		26	-	Item No. 2 (1) Conceptual SCADA Network	Replace Conceptual SCADA Network (Dwg No. DFCX/EC/BH-KH/SCADA-01) of Part 4, Reference Documents with modified Conceptual SCADA Network (Page 01321) No. DFCX/EC/BH-KH/SCADA-01 (Rev. 1).  Any reference to Drawing No. DFCX/EC/BH-KH/SCADA-01 may be read as Drawing No. DFCX/EC/BH-KH/SCADA-01 (Rev. 1).
187.	4	1	26	-	Item No. 2 (3) Typical Indicative Layout of Traction Sub-Station (TSS)	Delete "Drawing No. DFC/EC/BH-KH/TSS/TR-02" in item No. 2 (3) of Part 4 – Reference Document.
188.	4	-	25	-	Item No. 1.3 (12) Offices and Operation Control Centre Basement Plan	Replace the existing Basement Plan Drawing No. GC/DFCC/OCC/602 (Page 01310) by the modified attached Drawing No. GC/DFCC/OCC/602 (Rev. 1).  Any reference to Drawing No. GC/DFCC/OCC/602 may be read as Drawing No. GC/DFCC/OCC/602 (Rev. 1).