

Dedicated Freight Corridor Corporation of India Limited
(A Government of India Enterprise)
Addendum No. 4A Dated 11.12.2013
Addendum / Amendments to the Bidding Documents for

DESIGN AND CONSTRUCTION OF SIGNAL AND TELECOM WORKS FOR DOUBLE LINE RAILWAY INVOLVING TRAIN DETECTION SYSTEM, ELECTRONIC INTERLOCKING IN STATIONS, AUTOMATIC SIGNALLING IN BLOCK SECTIONS, TRAIN MONITORING AND DIAGNOSTIC SYSTEM, INTERLOCKING OF LEVEL CROSSING GATES, DISPATCH TELEPHONE SYSTEM, FIBER OPTIC COMMUNICATION SYSTEM, GSM(R) SYSTEM, DIGITAL ELECTRONIC EXCHANGE SYSTEM, MASTER CLOCK SYSTEM AND VIDEO SURVEILLANCE SYSTEM FOR REWARI – MAKARPURA SECTION INCLUDING TESTING AND COMMISSIONING ON DESIGN-BUILD LUMP SUM PRICE BASIS OF WESTERN DEDICATED FREIGHTCORRIDOR

SIGNALLING AND TELECOMMUNICATION WORKS CONTRACT

(Rewari – Makarpura of Phase 1)

Ref.: ICB No. ST P-5

Sl. No.	Volume	Section/ chapter	Page No.	Clause / Para No.	Item	Amendments in the Bidding Documents
233.	II	1	1	1.2.1	Employer's Requirements - General Specifications – General Information	(1) Add the words “(Except TPWS)” after ST P-5: Signal and Telecommunication, Rewari – Vadodara Section. (2) Insert the following after ST P-5: Signal and Telecommunication: “ST P-5A: Train Protection and Warning System Rewari – JNPT section”.
234.	II	2	4	2.1.1 - Definitions	Specialist Subcontractor (i)	The said Clause is modified as under: “Installation, testing & commissioning of EI/Digital Axle Counters;”
235.	II	3	8	3.3	Relevant documents	In the Clause 3.3.2 and 3.3.5, Replace the words “Employer’s Drawings” with “Reference Drawings”.
236.	II	11	66	11.8.1	Protection for Indian Railway lines	The said Clause is modified as under: “The Contractor shall design to install the temporary fencing / barricades for protection of the existing Indian Railway (IR) lines where the construction activities of all Works adjacent to the line are taking place.

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						The fencing / barricades may be movable and reusable whereas it is stable enough not to lean and infringe the structure gauge of the IR lines. The fencing pole / barricades shall be colored to enhance visual precautionary effects. The Contractor shall develop the design of the temporary fencing / barricades as part of the Technical Design and submit to the Engineer for consent.”
237.	II	13	71	13.1	Contractor's co-ordination with others - General	(3) Add the words “(Except TPWS)” after ST P-5: Signal and Telecommunication. (4) Insert the following after ST P-5: Signal and Telecommunication: “ST P-5A: Train Protection and Warning System Rewari – JNPT”.
238.	II	23	115	23.6.2	Records and reports	The said Clause is modified as under: “The format of the records shall cover all mechanical and electrical tests, provide positive identification by serial number for assemblies and sub-assemblies of the Permanent Works and show modifications to Design Documents and diagrams or "As Built" data to be certified by the Employer or the Engineer in the course of installation, testing and commissioning of the Works.”
239.	III Part 1	-	-	-	Table of Contents	Clause 5.3 on “Train Protection & Warning System (TPWS)” is deleted.
240.	III Part 1	1	1	1.1.3	General	In the fourth line of the sub-clause, the word “P-5” is replaced with “ST P-5A”.
241.	III Part 1	1	2	1.3.1	Employer's Requirements	In the third line of the sub-clause, the words “Train Protection & Warning System (TPWS)” are deleted.
242.	III Part 1	1	2	1.3.6	Employer's Requirements	The table in the Clause is revised as given in Attachment : Addm 4-5 .

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243.	III Part 1	1	3	1.3.10	Employer's Requirements	In the second line of the sub-clause, the word "TPWS" is deleted.
244.	III Part 1	1	3	New Clause: 1.3.14	Employer's Requirements	Add a new Sub-clause 1.3.14 as under: "1.3.14 Name of entity proposed to be responsible for System Integration shall be submitted by the Bidder in Form IB-7, Volume I Part ½ of Bid Documents."
245.	III Part 1	1	3	1.4.2 (2)	Main Line and depot access Line	Item 2 of the said sub-clause, is modified as under: "NOT USED;"
246.	III Part 1	1	4	1.4.4(a)	Depot	In the second sentence of the sub-clause, the word "P-5" is replaced with "ST P-5A".
247.	III Part 1	2	6	2.1	Definitions: Sub-system	In the second line of the clause, the word "TPWS" is deleted.
248.	III Part 1	2	6	2.2	Abbreviations	Add new Abbreviation BCC for "Backup Control Centre".
249.	III Part 1	2	8	2.2	Abbreviations	Add new Abbreviation TBD for "To Be Decided".
250.	III Part 1	2	9	2.2	Abbreviations	Abbreviation VRLA is deleted.
251.	III Part 1	3	11	3.2.4	Design Criteria	The said clause is modified as under: "NOT USED"
252.	III Part 1	3	11	3.2.6	Design Criteria	The said clause is modified as under: "NOT USED"
253.	III Part 1	3	12	3.3.2	Design Standard	IRS Standard IRS: S93(A) at S.No. 27 is replaced with "IRS: S88; Secondary Cell – Low Maintenance".
254.	III	3	13	3.4.5	System	The said clause is modified as under:

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	Part 1				Assurance	"The Employer shall employ a third party Independent Safety Assessor (ISA) for certification of signalling system as per SIL requirements. The Contractor shall provide necessary documents and assistance to facilitate ISA's work."
255.	III Part 1	3	13	3.4.6	System Assurance	The said clause is modified as under: "The Contractor shall submit the report that the safety of TD system with Interlocking system meets SIL4 in IEC 62279 or equivalent safety level".
256.	III Part 1	4	15	4.2.2	Safety Requirements	In the first line of the clause, the words "TPWS system and" are deleted.
257.	III Part 1	4	15	4.3.4	Reliability Requirements	The said clause is modified as under: "NOT USED"
258.	III Part 1	4	16	4.5.1	Electromagnetic Compatibility (EMC) Requirements	The said Sub-clause has been modified as under: "The Contractor shall investigate the electromagnetic compatibility together with Rolling stock contractor regarding TD system in station area and Block Sections after the installation of this system. Proximity to IR's 25KV RE and its effect on DFC equipment shall also be taken into account."
259.	III Part 1	5	17	5.1 (2)	General	In the first line of the sub-clause, the words " Train Protection and Warning System (TPWS)" are deleted.
260.	III Part 1	5	17	5.1 (3) (c)	General	The said clause is modified as under: "TPWS System failures (Input to be provided by ST P-5A Contractor);
261.	III Part 1	5	17	5.1 (5)	General	In the fourth line of the clause, the following words are added after " TPWS brake applications": "(Input to be provided by ST P-5A Contractor)."
262.	III Part 1	5	18	5.3	Train Protection & Warning System (TPWS)	The said Clause and its all sub-clauses are modified as under: "NOT USED".
263.	III Part 1	5	28	5.7.8	Block sections	The said sub-clause is modified as under: "The Electronic Equipment Rooms in porta huts shall be provided with Panel air-conditioning and Battery/Power Supply Rooms of porta huts shall be provided with ventilation etc. as per modified clause 10.1 of Annexure 8."
264.	III Part 1	5	30	5.10.11	Power Supply system	The said sub-clause is modified as under: "Batteries provided with PSS shall consist of Low maintenance Lead Acid 2 Volt cells as per RDSO specification No. IRS S:88."
265.	III	5	31	5.10.23	Power Supply	The said sub-clause is modified as under:

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	Part 1				system	"NOT USED".
266.	III Part 1	5	34	5.12.3 (b)	Signage	The said sub-clause is modified as under: "NOT USED".
267.	III Part 1	6	35	6 (3)	TPWS System	The said sub-clause is modified as under: "NOT USED".
268.	III Part 1	6	36	6(5)-5	Overrun Protection system	The said sub-clause is modified as under: "NOT USED".
269.	III Part 1	7	38	7.1.2 (2 nd bulleted item)	Fail Safe Technology	In the sub-clause, bulleted item 2 "TPWS system" deleted.
270.	III Part 1	7	38	7.1.2 (4th bulleted item)	Fail Safe Technology	In the sub-clause, bulleted item 4 "Overrun Protection system" deleted.
271.	III Part 1	7	38	7.2 (1) (4th bulleted item)	Foolproof Technology	In the sub-clause, bulleted item 4 "TPWS isolation mode switch on board" deleted."
272.	III Part 1	7	39	7.6 (3)	Redundancy Technology	The said sub-clause is modified as under: "NOT USED".
273.	III Part 1	8	40	8.1	Contractor's coordination with others	The first sentence of the Clause is modified as under: "The Contractor (ST P-5 Contractor) shall interface with Other Contractors (Contractors of CT P-1, CT P-2, CT P-3, CT P-3A, EM P-4, ST P-5A, PE P-6, RS P-7, Phase 2 S&T Works and BCC(TBD) packages), Interfacing parties, relevant authorities and agencies to ensure the effective and compatible coordination of all aspects of design, installation, testing and commissioning of Works."
274.	III Part 1	8	40	8.3(v)	Physical Interfaces	The Clause is modified as under: "ST P-5/ Phase 2 S&T Contractors/ BCC(TBD) (Specific Issues)".
275.	III Part 1	8	40	8.3(vi)	Physical Interfaces	Add a new row for Appendix 7-6 for "ST P-5/ ST P-5A(Specific Issues)".
276.	III Part 1	8	41	8.4.5	Contractor's coordination with others	The Clause is modified as under: "Project Wide" for the purpose of the Appendices is defined as the complete Scope of Work to be executed under Contracts CT P-1, CT P-2, CT P-3, CT P-3A,

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						EM P-4, ST P-5, ST P-5A, PE P-6, RS P-7, Phase 2 S&T Works and BCC(TBD) including other obligations of the Employer for successful commissioning of DFC Western Corridor Phase1 .”
277.	III Part 1	9	48	9.3	Costs of Tests	(i) Sub para (1) of the said Clause is renumbered as (1) (a) and replaced by new sub para as under: “(a) All costs associated with provision of test facilities including test materials, test equipment, meters, instruments, raw materials etc. to enable carrying out of testing shall be borne by the Contractor. (ii) Add new sub para (b) & (c) after sub para 1(a) as under: “(b) Testing charges payable to RDSO or any other agency engaged by the Employer for this purpose shall be borne by the Employer. (c) Expenses of Travel, Hotel and Daily Allowance of the Employer/Engineer for inspection or witness (except cases mentioned in item (2) below) shall be borne by the Employer.” (iii) In the fourth line of sub para (2), add words “Employer or” after words “... costs incurred by the”.
278.	III Part 1	9	49	9.5(2)	Sources of equipment supply	The Clause is modified as under: “If any equipment proposed to be imported has RDSO specifications (IRS or SPN), the concerned firm shall be got approved (by RDSO) for manufacture and supply of the said equipment as per “Cross Acceptance” procedure of RDSO.”
279.	III Part 1	9	51	9.7.4 (1) (d)	Interface Protocol Tests	The said sub-clause is modified as under: “NOT USED”.
280.	III Part 1	9	51	9.7.5 (a)	Software Tests	The said clause is modified as under: “Database mapping tests for each station and Block section;”
281.	III Part 1	9	52	9.7.6 (1)	Factory Acceptance Tests	The said Clause is modified as under: “Factory Acceptance Tests of materials and equipment having RDSO specifications (IRS or SPN) or appearing in RDSO’s list of Approved Vendors shall be got done by RDSO.”
282.	III Part 1	9	53	9.7.8	Compatibility Test of TPWS	The said Clause is modified as under: “NOT USED”.
283.	III Part 1	10	55	10.3.1.2	Installation works	Add the following at the end of the Clause: “S&T Power Supply/ Battery Rooms at the stations shall be provided with

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						ventilation by the Civil Contractors.”
284.	III Part 1	10	57	10.3.3.	Installation of On board TPWS Equipment	The said Clause is modified as under: “NOT USED”.
285.	III Part 1	10	58	10.4.3.	Cabling	The said Clause is modified as under: “Cables and wires used in OCC and ASM office equipment shall be FRLS type.”
286.	III Part 1	14	80	14.5 (3) (a)	Training Courses	The item a) of said Clause is modified as under: “NOT USED”.
287.	III Part 1	Annex. 1	1	1.4	Scope of TMS work.	Add new Clause 1.4 as under: “Backup Control Centre (BCC) shall be provided by another Contractor.”
288.	III Part 1	Annex. 1	1	2	TMS System Architecture	Add new Sub Clause (v) as under: “Provision shall be made for automatic transfer as well as forced takeover between Main OCC & BCC. Refer Annexure 7-5 for details.”
289.	III Part 1	Annexure 1	11	9.3 (i) (a.)	Traffic Related Alarms	The said Clause is modified as under: “Failure of any Signalling gear including Electronic Interlocking, I/O controller, PSS, Axle Counter, Signal Lamp, Point Machine, Line side Electronic Unit (LEU) of TPWS (Input to be provided by ST P-5A Contractor) etc. in the entire section under scope.”
290.	III Part 1	Annex-2	3	4.1(C)(v)	System design specification	Add new Clause 1.4 as under: “Backup Control Center shall be provided by another Contractor.”
291.	III Part 1	Annexure 7-1	2	3.3	SCADA Requirements	The Sub-clause 3.5.1 to 3.5.7 of Clause 3.3 are re-numbered as 3.3.1 to 3.3.7.
292.	III Part 1	Annexure 7-2	1	1	Physical Interface between RS P- 7 & ST P-5	The said Clause is modified as under: “Interfaces between RS P-7 and ST P-5 Contracts shall include but shall not be limited to the items included in interface matrix below.”
293.	III Part 1	Annexure 7-2	2 to 8		Indicative Interface Matrix for Depot design and build contractor and other	The title of the table is modified as under” “ Annexure ‘7-2’ Cont. ” The indicative interface matrix from page 2 to 8 is replaced with the revised matrix attached herewith as Attachment : Addm 4-6.

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					designated contractors	
294.	III Part 1	Annex 7-3	6	4.19	Functional Interface	The said Clause is modified as under: “Civil Works Contractors shall liaise with ST P-5 Contractor to decide height of false ceiling and location of Air Conditioning system in Electronic Equipment Rooms and Ventilation System in Power Supply/ Battery rooms so that there is no hindrance to fixing of equipment racks.”
295.	III Part 1	Annex 7-5	1	All	Interface issues with other S&T Contractors	The Annexure is updated as Revision-2 and replaced with Attachment : Addm 4-7.
296.	III Part 1	Annex 8	4	10.1	Interface issues with other S&T Contractors	The said Clause is replaced with modified clause 10.1 and new clauses 10.2. & 10.3 added as under: 10.1 Each Porta Hut shall have two rooms one for Electronic Equipment and the other for Power Supply/ Battery System. Electronic Equipment shall be provided with Panel Air-conditioning with air-conditioning equipment in (1+1) hot standby configuration to regulate temperature of the equipment within 24+/-2 degree C. Further, these Electronic Equipment Rooms shall be provided with suitable means to maintain air circulation with (1+1) standby air-circulation system. 10.2 The Power Supply/ Battery Room of the Porta Hut shall be provided with ventilation and suitable means to regulate temperature and maintain air circulation with (1+1) standby air-circulation system. 10.3 The Panel air-conditioning and air circulation system in Porta Huts shall be provided by the ST P-5 Contractor. A suitable plan to this effect shall be submitted to the Engineer for his consent as part of the Preliminary Design.
297.	III Part 1	Annex 7-6	1	All	Interface issues with ST P-5A Contractor	Insert new Annexure 7-6 after Annexure 7-5 as given in Attachment : Addm 4-8.
298.	III Part 2	6	66	6.6.3	RDWs for phase 2	Clause 6.6.3 is replaced with “The radio dispatcher system of OCC shall be designed to provide additional capacity of atleast 10 additional radio dispatcher workstations (RDW) to meet the requirements of phase 2 of WDFC. Radio Dispatcher Workstations for phase 2 are excluded from the scope of ST P-5”
299.	III Part 2	6	37	6.1.2	Core Network & Radio Access	In addition to what has been indicated in item no. 90 of addendum no. 3 following modifications are made: In the fifth line of the clause before word “only” new sentences

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					Network	“System architecture of Core Network should be latest Rel-4 based on European Telecommunication Standards Institute (ETSI) TS 103 066 Version 1.1.1. Radio Access Network (RAN), Mobile Stations (Cab Radio, OPH and GPH) should be as per latest EIRENE standards.” are added
300.	III Part 2	11	91	11.1.4	Power cable between signal porta huts and telecom porta huts	The existing clause is replaced by “EM P-4 shall provide 1 phase AC power supply from UP & Down catenaries inside signal porta huts with an automatic change over switch. Further transmission of AC power separately for the up and down catenaries from Signal Porta huts to Telecom Porta huts with a change over switch in telecom porta hut and distribution within Telecom Porta hut shall be the responsibility of ST P-5. In exceptional cases EM P-4 may provide AT power supply in telecom porta huts. In such cases ST P-5 shall transmit AT power from up & down catenaries from telecom porta huts to signal porta huts etc.”
301.	lii Part 2	15	110	15.5.4	Fiber Management System	Word “Optical Distribution Frame” is replaced by words “Fiber Management system (FMS)”
302.	lii Part 2	15	110	15.5.4.1	Fiber Management System	In the first line Word “Optical Distribution Frame” is replaced by words “Rack mounted FMS”
303.	lii Part 2	15	110	15.5.4.2	Fiber Management System	In the first line Word “Optical Distribution Frame” is replaced by words “Fiber Management system”
304.	lii Part 2	15	110	15.5.4.3	Fiber Management System	In the first line Word “Optical Distribution Frame” is replaced by words “Fiber Management system”
305.	lii Part 2	15	110	15.5.4.15	Fiber Management System	In the first line Word “Optical Distribution Frame” is replaced by words “Fiber Management system”
306.	III Part 2	15	114	15.7.4.16	Clean earth resistance	The sub clause is replaced by “The earth resistance at any point on the clean earth and that for the main earth shall not exceed 1.0 Ohm at any location and under any soil and/or climatic condition. Requirements of sub clause 15.7.4.2.1 shall however be complied.”

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307.	III Part 2	5	26	5.3.8.9 & 5.3.8.9.1 New sub- clause	OF Cable interference detection system	After clause 5.3.8.8 add new clause & sub-clause 5.3.8.9 "Optical Fiber Cable Interference Detection System" 5.3.8.9.1 "Optical Fiber Cable Interference Detection System based upon Distributed Fiber Acoustic Sensing Technology shall be deployed, which shall detect any digging activities within 5 metres radius of Optical Fiber Cable and give warning through a dedicated GUI based MMI at OCC."
308.	III Part 2	5	20	5.1.8 New sub- clause	Wi-Fi in OCC and stations	After sub-clause 5.1.7 add new sub-clause 5.1.8: "Within the OCC building complex, a Wi-Fi facility, compliant with IEEE 802.11g Standards shall be provided for WAN /LAN connectivity to users via Wireless Enabled Devices and Equipments. A minimum of 25 simultaneous users may use the Wi-Fi connectivity in OCC complex. This Wi-Fi facility shall as a minimum cover OCC Theatre(s), Equipment Rooms, conference Rooms, offices and the main entrance and exit gate(s) of the OCC complex. Similar Wi-Fi facility shall be provided at each station of WDFC. A minimum 10 simultaneous users may use Wi-Fi facility in the station covering station building, service building, IMD/sub IMD etc."
309.	III Part 2	5	20	5.2.1 (4)	Supply of WAN/LAN switches	Replace the sub-clause by "Wide Area Networking equipment consisting of redundant Layer-3 switches <u>in (1+1) Hot Standby Configuration and redundant layer 2 switches in (1+1) Hot Standby Configuration</u> at OCC, every station and as required at other locations; "
310.	III Part 2	5	24	5.3.6.8	Security of Data Networks	At the end of the clause add "Facilities shall be provided for protection against Malicious Activities on the Networks, including attacks from Viruses, Hacking, Hijacking, Snooping and other malicious events that may compromise the integrity of the Networks. It shall be possible to set individual levels of Access Rights & Permission for each User in order to control the Integrity of the Network itself and any information contained in the Network. Contractor shall submit to the Engineer for review and consent a "Global Security Plan" for the Data Network, with the details of the elements within that plan, including procedures to be adopted by the Employer."
311.	III Part 2	5	25	5.3.6.11.1, 5.3.6.11.2, 5.3.6.11.3	LAN Port requirement in OCC & stations	After sub-clause 5.3.6.11 add new sub-clauses: "5.3.6.11.1 In each station as a minimum LAN Ports terminated in RJ-45 shall be provided at the rate of 6 nos. in Station Building, 10 nos. in IMD 5 nos. in Sub IMD

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				& 5.3.6.11.4 New sub- clauses		and 4 nos. in Station Service Building. 5.3.6.11.2 In OCC building complex as a minimum 20 nos of LAN Ports terminated in RJ-45 shall be provided 5.3.6.11.3 The actual locations of termination of LAN Ports shall be decided during design stage. <u>5.3.6.11.4 A minimum of 50% spare ports in each (1+1) switch shall be reserved for future requirements."</u>
312.	III Part 2	5	30	5.4.3.9 new sub- clause	Availability of Networking system	After sub-clause 5.4.3.8 add new sub-clause 5.4.3.9 "To meet with the required availability and protection against failures following measures for the Networks will be adopted; 1) Redundant Hardware; 2) Redundant Network Connections; 3) Circuit Redundancy and Path Diversity; 4) No single point of failure; 5) Recovery from Network Failures within 5 m sec; 6) Hot-Swap Capability; 7) Facility for upgrade of software & Firmware without any significant loss of Service"
313.	III Part 2	5	35	5.5.3.5.1.1 4 with sub items 1), 2), 3) & 4) New sub- clause	Layer-2 switch specifications	After sub-clause 5.5.3.5.1.13 add new sub-clause 5.5.3.5.1.14: " Layer-2 Access Switches shall meet the following specifications as a minimum: 1) Layer-2 Switches Shall have minimum 24 Nos. 10/100 Base-T Auto Sensing Ports with RJ45 connectors, complying with IEEE 802.3, IEEE 803.3u and IEEE 802.3ab standard, supporting Half Duplex, Full Duplex and Auto-Negotiation on each port to optimize bandwidth. 2) Shall have minimum 16 Gbps forwarding bandwidth at Layer-2 Switching Fabric, a minimum of 1000 MAC address space and 6 million packets (64 Byte packets) per second forwarding rate. 3) Shall support features such as Link Aggregation (IEEE 802.3ad), VLAN on all Ports (IEEE 802.1Q), VLAN Tagging (IEEE 802.1q), Minimum 256 VLANs, Port-Based Authentication (IEEE 802.1x), Spanning Tree Protocol (IEEE 802.1d), Rapid Spanning Tree Protocol (IEEE 802.1w), Multiple Spanning Tree Protocol (IEEE 802.1s), Dynamic Host Configuration Protocol (DHCP), RADIUS Protocol for console access restriction and authentication per RFC

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						2138 and Classification and Scheduling on all ports (IEEE 802.1p). It shall support centralized VLAN Management, so that VLANs created on the Layer-3 switches shall be propagated to all other switches automatically. 4) Layer-2 Access Switches shall meet all requirements as specified in sub-clauses 5.5.3.5.1.5, 5.5.3.5.1.6 and 5.5.3.5.1.8 to 5.5.3.5.1.12.”									
314.	III Part 2	5	8 of 40	Appendix 5 : Contract Spares	Additional items of spares	In Appendix 5 Contract Spares add item 4a, 4b & 4c <table border="1"> <tr> <td>4a</td> <td>All type of PCB cards including mother board of OFC Cable Interference Detection System</td> <td>10% of the total population for Each type for Phase I</td> </tr> <tr> <td>4b</td> <td>Layer-3 switch for data networking system</td> <td>10% of the total population for Each type for Phase I</td> </tr> <tr> <td>4c</td> <td>Layer-2 switch for data networking system</td> <td>10% of the total population for Each type for Phase I</td> </tr> </table>	4a	All type of PCB cards including mother board of OFC Cable Interference Detection System	10% of the total population for Each type for Phase I	4b	Layer-3 switch for data networking system	10% of the total population for Each type for Phase I	4c	Layer-2 switch for data networking system	10% of the total population for Each type for Phase I
4a	All type of PCB cards including mother board of OFC Cable Interference Detection System	10% of the total population for Each type for Phase I													
4b	Layer-3 switch for data networking system	10% of the total population for Each type for Phase I													
4c	Layer-2 switch for data networking system	10% of the total population for Each type for Phase I													
315.	III Part 2	5	20	5.1.7	Bandwidth for FOIS etc	Clause is replaced by “WAN shall provide sufficient bandwidth for sub systems of Master Clock, Traction Power SCADA, BMS, Vital & Safety related Signal Control Circuits and other applications such as Freight Operations Information System (FOIS), Crew Management System (CMS), Wagon Management System (WMS) etc. FOIS and WMS themselves are excluded from the scope of ST P-5. WAN shall have as a minimum 50% spare bandwidth for future requirements.									
316.	III Part 2	6	58	6.5.1.1 3)	GPRS provision	Replace the sub-clause with “The network shall be equipped to provide General Packet Radio Service (GPRS) in 3G and associated services.”									
317.	III Part 2	6	39	6.3.1.4	Data rates on GSM-R	The network shall support point-to-point and point to multipoint data communication. The network shall support data rates <u>as applicable with GPRS with 3G.</u>									
318.	III Part 2	6	39	6.3.3.3 New	RDSO' letter for numbering	At the end of the clause add new sentence “ <u>The proposed numbering plan, to the extent possible, shall be consistent with numbering plan of MTRC system of Indian Railways as issued vide RDSO's letter No. STT/WL/MTRC/503 dated 11.11.2005 copy attached at Appendix 10 and any</u>									

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						<p><u>latest instructions on the subject from RDSO. Contractor may propose improvements, if any in the numbering plan bring out the benefits subject to Engineer's consent.</u></p> <p>(Attachment : Addm 4-9)</p> <p>”</p>
319.	III Part 2	4	19	4.3.4	Porta Huts air-conditioning & air-circulation system	<p>Clause 4.3.4 is replaced with</p> <p>“The Electronic Equipment Rooms at porta huts shall be provided with Panel air-conditioning and Power Supply / Battery Room at porta hut shall be provided with ventilation as per modified clauses 11.1, 11.2 & 11.3 of Appendix 7.”</p>
320.	III Part 2	2	11	2.2.3	Air-conditioning & air-circulation of Telecom equipment rooms etc at stations & OCC	<p>In the first line of the clause first word “Telecom” is replaced with the word “Electronic”</p> <p>In the first & second line words “power supply rooms for batteries and battery chargers at all stations and OCC” are replaced with the words</p> <p>“power supply / battery rooms with Ventilation at all stations”</p> <p>In the sixth line words “TER and power supply room” are replaced with words</p> <p>“Electronic Equipment Room and power supply / battery room”</p> <p>In the seventh and eighth lines words “TERs and telecom power supply rooms” are replaced with words</p> <p>“Electronic Equipment Rooms and power supply / battery rooms”</p>
321.	III Part 2	4	19	4.3.3	Air-conditioning & ventilation of TER and battery rooms at stations	<p>Clause is replaced with</p> <p>“For air-conditioning and ventilation of Electronic equipment rooms and Power supply / battery rooms respectively at each station refer to clause 2.2.3.”</p>
322.	III Part 2	Appendix 7	15 of 40	11.1 & new clauses 11.2 &	Porta Huts air-conditioning & air-circulation system	<p>Clause 11.1 of Appendix 7 is replaced with modified clause 11.1 and new clauses 11.2. & 11.3</p> <p>11.1 Each Porta Hut shall have two rooms one Electronic</p>

Sl. No.	Volume	Section/ chapter	Page No.	Clause / Para No.	Item	Amendments in the Bidding Documents
				11.3		<p>Equipment Room and the other Power Supply / Battery Room. Electronic Equipment shall be provided with Panel Air-conditioning with air-conditioning equipment in (1+1) hot standby configuration to regulate temperature of the equipment within 24+/-2 degree C. Further these Electronic Equipment Rooms shall be provided with suitable means to maintain air circulation with (1+1) standby air-circulation system</p> <p>11.2 The Power Supply / Battery Room of the Porta Hut shall be provided with ventilation and suitable means to regulate temperature and maintain air circulation with (1+1) standby air-circulation system.</p> <p>11.3 The Panel air-conditioning and air circulation system in Porta Huts shall be provided by the ST P-5 Contractor.</p>
323.	III Part 2	5	36	5.6.5	NMS spare capacity	<p>In the first line after the word “OFC” add the words “including SDH equipment, Flexible Access Multiplexers and Data Networking equipment”</p> <p>In the second line after the words “software and” add the words “50% additional”</p> <p>At the end of the clause after word “interfaces” add words “and Data Networking Equipment for phase 2.”</p>
324.	III Part 2	1	8	1.4 (1)	Provisions at BCC	In the second line of the sub-clause the word “OCC” is replaced by the word “ <u>OCC/BCC(TBD)</u> ”
325.	III Part 2	1	9	1.4 (2)	Provisions at BCC	In the fifth and sixth lines of the sub-clause the word “OCC” is replaced by the word “ <u>OCC/BCC(TBD)</u> ”
326.	III Part 2	1	9	1.4 (7)	BCC provision	In the second line of the sub-clause the word “OCC” is replaced by the word “ <u>OCC/BCC(TBD)</u> ”

Sl. No.	Volume	Section/ chapter	Page No.	Clause / Para No.	Item	Amendments in the Bidding Documents
327.	III Part 2	1	9	1.4.2.1	BCC provision	In sub items (1), (2) & (5) of the clause replace word "OCC" by the words "OCC/BCC(TBD)"
328.	III Part 2	1	9	1.4.3.1	BCC provision	In the second line of the sub-clause the word "OCC" is replaced by the word "OCC/BCC(TBD)"
329.	III Part 2	1	10	1.4.4.1	BCC provision	In the first line of the sub-clause the word "OCC" is replaced by the word "OCC/BCC(TBD)"
330.	III Part 2	1	10	1.4.5.1	BCC provision	In the third line of the sub-clause the word "OCC" is replaced by the word "OCC/BCC(TBD)"
331.	III Part 2	1	10	1.4.7 & 1.4.7.1	BCC provision	Add new sub-clause nos 1.4.7 & 1.4.7.1 1.4.7 Provisions in BCC 1.4.7.1 All works at BCC will be done by the other contractor(s), however any interface for backup systems working between OCC and BCC shall be the responsibility of ST P-5 contractor.
332.	III Part 2	-	3	-	Abbreviations	Add new Abbreviation BCC for "Backup Control Centre".
333.	III Part 2	-	6	-	Abbreviation	Add new Abbreviation TBD for "To Be Decided".
334.	III Part 2	Appendices	Appendix 8	8 General	Contractor's coordination with others	In the second line after the word "EM P-4" add the words "ST P-5A, Phase 2 S&T Works, BCC(TBD)"
335.	III Part 2	Appendices	Appendix 8	8.2(v)	Physical Interfaces	The Clause is modified as under: "ST P-5/ Phase 2 S&T Contractors / BCC (TBD) (Specific Issues)".
336.	III Part 2	Appendices	Appendix 8	8.3.5	Contractor's coordination with others	The Clause is modified as under: "Project Wide" for the purpose of the Appendices is defined as the complete Scope of Work to be executed under Contracts CT P-1, CT P-2, CT P-3, CT P-3A, EM P-4, ST P-5, ST P-5A, PE P-6, RS P-7, Phase 2 S&T Works and BCC(TBD) including other obligations of the Employer for successful commissioning of DFC Western Corridor Phase1 ."
337.	III Part 2	11	91	11.1.5	Low maintenance lead acid cells	Clause is modified as "The Battery shall consist of low maintenance lead acid 2 Volt cells as per RDSO specification No. IRS S:88."

Sl. No.	Volume	Section/ chapter	Page No.	Clause / Para No.	Item	Amendments in the Bidding Documents
338.	III Part 2	11	92	11.3.6	Low maintenance lead acid cells	In the last line of the sub-clause word "VRLA" is replaced by the word "low maintenance"
339.	III Part 2	11	92	11.3.9	Low maintenance lead acid cells	In the sub-clause word "VRLA" is replaced by the word "low maintenance"
340.	III Part 2	11	92	11.3.14	Low maintenance lead acid cells	The sub-clause is replaced by "All batteries for installation in the WDFC shall be of the Low Maintenance Lead Acid 2 Volt cells as per RDSO specification IRS S:88 with latest amendments. Low maintenance Battery cells to RDSO Specifications shall be procured from RDSO approved source only."
341.	III Part 2	Appendices	9 of 40	Appendix-5 contract spares	Item no 31 description	Replace the item by "Low Maintenance Batteries"
342.	III Part 2	6	40	6.3.4.2	Cab radio Interface with On board TPWS	Clause is replaced by "Not used."
343.	III Part 2	6	40	6.3.4.3	Cab radio Interface with On board TPWS	Clause is replaced by "Not used."