

Jaipur Metro Rail Corporation Limited

NCB No. JP/EW/1B/E2

Addendum – 2

Summary

S.No	Part / Section / Volume	Document/Chapter	Addendum	Page no
1.	Section 4/Volume-II	Schedule of prices	Statement C of ROCS modified	1
2.	Section 4/ Volume-II	Schedule of prices	Cost Center C of ROCS modified	2
3.	Section 4/ Volume-II	Schedule of prices	Clause 1.3.3 of Explanatory notes of BOQ for ASS modified.	3
4.	Section 6 / Volume-II	Technical Specification	Clause 5.3.1.4.1 of ASS modified.	4
5.	Section 6 / Volume-II	Technical Specification	Clause 19.2 & 20.6 of ROCS Deleted and Clause 19.5.2 of ROCS modified	5,8,9,10
Drawings- Part -II volume-III				
6.	Track plan	Drawing no DMRC/JP/1B/Track Alignment	Revised drawing copy enclosed.	6
7.	Typical Sectioning scheme		Revised drawing copy enclosed	7

Statement C - BRIEF DESCRIPTION OF SECTIONS

The work of Chand Pole to Badi Chaupar

Sections	U/G Route Km in Section (Approx)	No of U/G Stations	Expected Date of ROD
Corridor- Chand Pole to Badi Chaupar			
Chand pole to Badi Choupar	2.323 km and Y siding of length 0.254 km	2	Feb'2018
Total*	2.323 km and Y siding of length 0.254 km	2	

***Bidders's shall ascertain the length of U/G corridor for providing the ROCS in particular section from the Alignment drawings. Any change up to plus/minus 250 mtr in the Alignment of the overall corridor shall not be considered as a variation.**

SECTION -- MISCELLANEOUS

Corridor - Chand Pole to Badi Chaupar

COST CENTRE C – SPARES

MILE- STONE NO.	WORK DESCRIPTION	Apportioned Amount		Country of Origin	Weeks for completion of Milestone from Commencement Date
	MILESTONE ACTIVITY	Amount in Foreign Currency	Amount in Indian Rupees		
	Obtain the "Notice of No Objection" or "Notice of No Objection Subject to ---" from the Engineer for delivery of the following in accordance with the Employer's Requirements:				
C1	Delivery to Site the spares for Section -- Chand Pole to Badi Chaupar as mentioned in chapter 18 of TS OHE Table 18.2-1				
C2	DELETED				
C3	Any other item(s) considered necessary to comply with the Scope of Work.				
	COST CENTRE TOTAL CARRIED TO SECTION SUMMARY				

This IETM shall follow the structure and format of a printed book, with indexes and table of contents that are hyperlinked into the content of the document. All figures, tables and section references shall be linked.

The data to be stored in a relational database, obtaining benefits of data integrity and removal of data redundancy. Relationships in the content that are presented as hyperlinks, are mapped directly to relations in the database scheme. The IETM shall be able to change the content dynamically based on users navigation and input through the content; the content may now be user specific.

1.3.3 Maintenance supervision

This item shall cover the Maintenance supervision for defect liability period as specified in the chapter 12 of GS of Employer's requirement.

The role of the relevant and experienced engineers will be to ensure that the maintenance during this period is carried out by the employer's staff properly and that the warranty/ guaranty obligations of the Contractor remain undiluted.

For this purpose the Contractor shall provide a Maintenance Supervision Organisation, consisting of 2 1 team deployed as follows or as mutually agreed between the Employer and the Contractor.

Each Team shall, at the minimum, contain 1 experienced Engineer, 2 1 Senior Supervisors and 3 2 skilled staff. The rates to be quoted for each team months.

Contractor shall comply all labour laws irrespective of rates quoted.

1.3.4 Integrated testing & commissioning

These items shall cover the integrated testing & commissioning as specified in the chapter 4 of TS of Employer's requirement.

As explained in Chapter 4 of TS, the integrated testing and commissioning shall be performed for each section of the corridor, after the first 15 days of operation, during which the various actuation and operation situations (putting into service, normal actuation, failure tripping etc) shall be simulated.

The Integrated Testing & Commissioning shall essentially include, but not limited to:

- Integrated testing & commissioning plan
- Tools, instruments, tackles, and documents required;
- Providing attendance to the Employer's Representative, including during inspection by statutory Authorities, Ministry of Railways and Commissioner of Railway safety.
- Carrying out the appropriate integrated testing & commissioning functions.

1.3.5 Deleted

Spare parts

5.3.1.4 Insulation Gas

- 5.3.1.4.1 ~~All live conductors shall be inside SF6 gas insulating medium & in a chamber with~~ Preferably No gas handling requirement at site (prefilled at works). The joints of the busbar/panels should be of 36 kv rated voltage and type tested in assembled condition, Type test report should be provided at the time of vendor approval. The Contractor shall submit details on quantity, quality and density of SF6 gas to be used in the switchgear in accordance with IEC 60376.
- 5.3.1.4.2 The GIS shall be grouped into suitable gas compartments with each compartment fitted with a monitoring pressure gauge/sensors and a pressure relief device.
- 5.3.1.4.3 The gas shall still insulate the 33kV power frequency voltage when the SF6 gas pressure drops to 1 bar and the gas leakage rate shall be guaranteed to be less than 0.1% by mass per year.
- 5.3.1.4.4 The GIS shall be so designed that an internal arc fault in a compartment will not affect other gas compartments, and compartments for operating mechanism and protection relays. The high pressure gas or air from the GIS during an internal arc fault shall be directed or vented to a direction away from the operator. The Contractor shall provide type test reports for the internal arc test.
- 5.3.1.4.5 Internal insulation level between live parts and earth when the pressure of the gas goes to the atmospheric pressure should not be less than $1.2 \cdot 33 / 1.722$ kV.
- 5.3.1.4.6 SF6 Gas apparatus warning sign shall be provided on the GIS.
- 5.3.1.4.7 All special tools and equipment for installation, testing, commissioning, operation and maintenance of the GIS shall also be supplied by the Contractor. These include a suitable sized gas handling unit mounted on a trolley for purging, refilling and other gas works. The trolley shall be able to retain the SF6 gas purged from any gas zones of the GIS.

5.3.1.5 Switchgear Interlocking

- 5.3.1.5.1 Where a circuit breaker or other switchgear is fitted with means for mechanical or electrical operation, interlocks shall be provided so that it is impossible for the electrical and mechanical devices to operate simultaneously.
- 5.3.1.5.2 An electrical or a mechanical key interlocking system shall be provided whereby it is not possible to apply an earth to a section of the busbar until all circuit breakers which can feed that section are locked open.
- 5.3.1.5.3 The earthing devices shall be provided with interlocks to ensure correct operation in conjunction with the associated circuit breaker.
- 5.3.1.5.4 The isolators and the associated circuit breaker which are integral parts of the switchboard shall be equipped with mechanical interlocking to ensure that the isolators cannot be operated unless the associated CB is opened. For the same

20.4.3 The data to be stored in a relational database, obtaining benefits of data integrity and removal of data redundancy. Relationships in the content that are presented as hyperlinks are mapped directly to relations in the database scheme. The IETM shall be able to change the content dynamically based on user's navigation and input through the content; the content may now be user specific.

20.5 **Quantity of Manuals**

20.5.1 The Contractor shall supply Original plus five hard copies of Operating Manuals; Maintenance Manuals and Subsystems / Systems spare parts catalogue. These Manuals and Catalogue shall also be submitted in electronic interactive format.

20.5.2 The format of the electronic copies shall be proven in at least two other applications and shall allow for links between parts catalogue and maintenance instructions.

20.5.3 The Documents Management System and Language used shall be subject to Engineer's review.

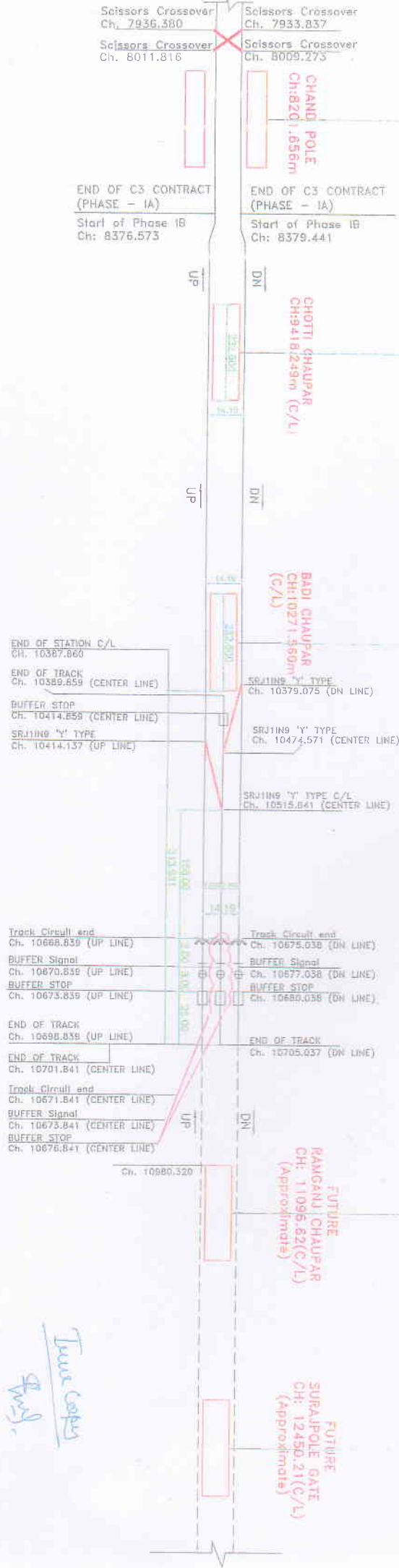
20.6 **Working model for training**

DELETED

END OF CHAPTER

AMENDED DRAWING FOR TRACK PLAN (APPENDUM-1)

EAST - WEST CORRIDOR FROM
CHANDPOLE TO BADI CHAUPAR (PHASE - I B)



LEGENDS		APPROVED BY	
1	Track	1	Designation
2	Track Circuit end	2	ESR/ESL
3	Buffer Signal	3	ESR/ESL
4	Buffer Stop	4	ESR/ESL
5	SRJING 'Y' TYPE	5	ESR/ESL
6	SRJING 'Y' TYPE C/L	6	ESR/ESL
7	Track Circuit end	7	ESR/ESL
8	BUFFER Signal	8	ESR/ESL
9	BUFFER STOP	9	ESR/ESL
10	END OF TRACK	10	ESR/ESL
11	END OF TRACK	11	ESR/ESL
12	END OF TRACK	12	ESR/ESL
13	Track Circuit end	13	ESR/ESL
14	BUFFER Signal	14	ESR/ESL
15	BUFFER STOP	15	ESR/ESL
16	END OF TRACK	16	ESR/ESL
17	END OF TRACK	17	ESR/ESL
18	END OF TRACK	18	ESR/ESL
19	Track Circuit end	19	ESR/ESL
20	BUFFER Signal	20	ESR/ESL
21	BUFFER STOP	21	ESR/ESL
22	END OF TRACK	22	ESR/ESL
23	END OF TRACK	23	ESR/ESL
24	END OF TRACK	24	ESR/ESL
25	Track Circuit end	25	ESR/ESL
26	BUFFER Signal	26	ESR/ESL
27	BUFFER STOP	27	ESR/ESL
28	END OF TRACK	28	ESR/ESL
29	END OF TRACK	29	ESR/ESL
30	END OF TRACK	30	ESR/ESL

Jai Singh
Prakash

Prakash
Jai Singh

DELTA METRO RAIL CORPORATION LTD
CHANDPOLE TO BADI CHAUPAR PHASE - I B
DATE: 12/12/2019
SCALE: 1:1000
SHEET NO: 1/1

LEGENDS	
1	Track Circuit end
2	Buffer Signal
3	Buffer Stop
4	End of Track
5	Scissors Crossover
6	SRJ1118 'Y' TYPE
7	SRJ1118 'Y' TYPE C/L
8	SRJ1118 'Y' TYPE
9	SRJ1118 'Y' TYPE C/L
10	SRJ1118 'Y' TYPE
11	SRJ1118 'Y' TYPE C/L
12	SRJ1118 'Y' TYPE
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81	SRJ1118 'Y' TYPE C/L
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83	SRJ1118 'Y' TYPE C/L
84	SRJ1118 'Y' TYPE
85	SRJ1118 'Y' TYPE C/L
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88	SRJ1118 'Y' TYPE
89	SRJ1118 'Y' TYPE C/L
90	SRJ1118 'Y' TYPE
91	SRJ1118 'Y' TYPE C/L
92	SRJ1118 'Y' TYPE
93	SRJ1118 'Y' TYPE C/L
94	SRJ1118 'Y' TYPE
95	SRJ1118 'Y' TYPE C/L
96	SRJ1118 'Y' TYPE
97	SRJ1118 'Y' TYPE C/L
98	SRJ1118 'Y' TYPE
99	SRJ1118 'Y' TYPE C/L
100	SRJ1118 'Y' TYPE

TYPICAL SECTIONING SCHEME (ADDENDUM-1)

Scissors Crossover
Ch. 7936.380
Scissors Crossover
Ch. 8011.816

END OF C3 CONTRACT (PHASE - IA)
Start of Phase IB
Ch: 8376.573

UP

232.600

14.19

UP

232.600

14.19

END OF STATION C/L
Ch. 10567.660
END OF TRACK
Ch. 10389.639 (CENTER LINE)
BUFFER STOP
Ch. 10414.859 (CENTER LINE)
SRJ1118 'Y' TYPE
Ch. 10414.137 (UP LINE)

SRJ1118 'Y' TYPE
Ch. 10379.075 (DN LINE)
SRJ1118 'Y' TYPE
Ch. 10474.571 (CENTER LINE)
SRJ1118 'Y' TYPE C/L
Ch. 10515.841 (CENTER LINE)

Track Circuit end
Ch. 10660.839 (UP LINE)
BUFFER Signal
Ch. 10670.839 (UP LINE)
BUFFER STOP
Ch. 10673.839 (UP LINE)

Track Circuit end
Ch. 10675.038 (DN LINE)
BUFFER Signal
Ch. 10677.038 (DN LINE)
BUFFER STOP
Ch. 10680.038 (DN LINE)

END OF TRACK
Ch. 10698.839 (UP LINE)
END OF TRACK
Ch. 10701.841 (CENTER LINE)

END OF TRACK
Ch. 10705.037 (DN LINE)

Track Circuit end
Ch. 10671.841 (CENTER LINE)
BUFFER Signal
Ch. 10673.841 (CENTER LINE)
BUFFER STOP
Ch. 10676.841 (CENTER LINE)

UP

200.000

UP

200.000

UP

200.000

UP

200.000

UP

FUTURE
RAMGANJ CHAUPAR
CH: 11086.62(C/L)
(Approximate)

FUTURE
SURAPOLE GATE
CH: 12450.21(C/L)
(Approximate)

EAST - WEST CORRIDOR FROM
CHANDPOLE TO BADI CHAUPAR (PHASE -IB)

Handwritten signatures and notes:
Date: 20/05/12
[Signature]

DELTA METRO RAIL CORPORATION LTD.
TRACK PLAN
CHANDPOLE TO BADI CHAUPAR (PHASE - IB)
DATE: 20/05/12

19 TRAINING AND TRASFER OF TECHNOLOGY

19.1 General Requirements

- 19.1.1 The Contractor shall provide comprehensive training to the Employer's staff in accordance with the requirements contained in this TS and in the GS (Chapter 10). A central training school has been planned in the Depot area for this purpose.
- 19.1.2 The training shall be carried out at such locations where the greatest benefit for trainees may be gained. This may be in India, abroad, at place of manufacture, assembly or testing, or at such other locations as may be necessary. All places of training shall be subject to review by Employer's Representative.
- 19.1.3 The training courses and/or sessions shall include system performance requirements and all major equipment and works designed, by the Contractor.
- 19.1.4 The specific objectives of each course, training facilities to be used, the qualification and experience of the training instructors and the assessment criteria shall be developed by the Contractor and submitted to the Engineer for review at least three months before any course is conducted.
- 19.1.5 Manuals to be used for training, including the manuals to the instructors and trainees, shall be delivered to the Engineer at least six months before the issue of the Substantial Completion Certificate for the Works, as required under Chapter 10 of the GS. The training manuals shall be submitted in original plus five hard copies and in electronic format.
- 19.1.6 The Contractor shall provide full-time on-Site management and co-ordination of the entire training programme to ensure the continuity of classes, and proper distribution of training materials, and be responsible for interfacing with the instructors.
- 19.1.7 The training courses shall be delivered to all relevant Employer's staff, including instructors, operation and maintenance engineering staff.
- 19.1.8 The proposed training requirements are given in Appendix K of this Specification

19.2 Mock Up for Training

DELETED

~~19.2.1 The Contractor shall install mock up equipment for system and any such facility(s) considered necessary for the training of Employer's staff in the training school.~~

~~19.2.2 The training mock up shall include but not limited to the following: -~~

- ~~a) OCS system components~~
- ~~b) Contact, messenger and aerial earth wires;~~
- ~~c) Section insulator;~~
- ~~d) Jumper and cable connections to OHE;~~
- ~~e) Rail bonds and cable rail connections of return circuits;~~
- ~~f) Circuit breakers, Interrupters and their component assemblies;~~
- ~~g) Isolators;~~
- ~~h) Pantograph of rolling Stock, Circuit Breaker, GIS, etc.~~

- ~~i) Clear photographs of various equipment such as transformers, their windings, rectifier and inverter sets;~~
- ~~j) Samples of various clamps and fitting used;~~
- ~~k) Control panel, protection schemes, earthing and bonding arrangement;~~

~~19.2.3 The Contractor shall submit full details of the training span and other mock up equipment, photographs etc. including proposed training activities and objectives, for the Engineer review.~~

~~19.2.4 The Contractor for training purposes shall also supply any special tools and equipment required to be used.~~

19.3 Training Plan

19.3.1 The Contractor shall submit a Training Plan in accordance with the requirements of the General Specification. In addition, the Training Plan shall include the following:

19.3.1.1 Details of the Contractor's ability to carry out the necessary training.

19.3.1.2 Details of the proposed approach to structuring and providing the courses required.

19.3.1.3 Course details including duration, maximum number of trainees, ratio of trainees to trainers, facilities required or available and prerequisites for attending the course.

19.3.1.4 Recommendations for additional training or alternative means by which the Employer's training objectives may be met.

19.3.2 The Training Plan shall be submitted for review by the Engineer and will be Implemented in a timeframe such that complete and comprehensive training has been received by the designated Employer's staff prior to the System Acceptance test.

19.4 Training of Employer's Training Instructors (ETI)

19.4.1 The objective of the training is to enable the Employer's Training Instructors to be competent to deliver future courses for other employees of the Employer.

19.4.2 The Contractor shall provide training to the Employer's Training Instructors on the various Systems. Aspects covered shall include, but not be limited to, the following:

- a) Configuration of the entire System, including interface with the JMRC Traction Sub Stations supply system at the in feed points;
- b) Feature and functional principles of the entire System;
- c) System design aspects including but not limited to design standards, design criteria and parameters, short-circuit and other calculations, insulation and protection co-ordination;
- d) Details of major equipment and material including but not limited to 25 kV circuit breakers, isolators, voltage and current transformers, OCS conductors, fittings, assemblies and protection relays, batteries and chargers, and cables of different types and their joints used in the System;
- e) System operation and maintenance management and procedures;
- f) Earthing and bonding arrangement, covering safety aspects of touch and step potential safety to personnel, passengers and outsiders.

19.5 Operations Staff Training

- 19.5.1 The objective of the training is to enable the Employer's operations staff to be familiar with the Systems, with focus on the operational aspects under normal and emergency conditions.
- 19.5.2 The training shall also enable the trainee to acquire full capability for identification, trouble shooting and rectification of faults in the specified duration. After classroom training ~~which includes mock ups of equipment~~, the staff shall be trained in actual operation.

19.6 Maintenance Staff Training

- 19.6.1 The objective of the training is to enable the Employer's maintenance staff and Engineering staff to be familiar with the Systems focus on the maintenance aspects of the System including but not limited to the following:-
- a) Full understanding of all the equipment, sub-systems and system, their function, maintenance and overhaul requirements.
 - b) Procedures to be followed for unscheduled maintenance and repair.
 - c) Identification of failed components and sub-systems in electronic equipment by use of special test kit as necessary.
 - d) Modification in the software to extend or modify the control, monitoring and protection functions.

19.7 Not used

19.8 Transfer of Technology

- 19.8.1 Bidder shall submit the detailed plan of transfer of technology along with MOU with suitable Indian companies or company having proven track record and working in related areas for major systems / subsystems in accordance with clause 10.7 of GS.
- 19.8.2 TOT shall be essential and shall include system assembly, installation, maintenance and software modification / customisation and training of Employer's personnel to cover the systems/ subsystems:
- Rigid OCS
 - GIS
 - Traction Power Supply equipment
- 19.8.3 TOT shall essentially include the following aspects as a minimum:
- Engineering or extensions and up gradations of the System
 - Re-engineering to suit changed traffic conditions
 - Incorporation of optional facilities
 - Change in parameters of Rolling Stock
 - Any other configuration / programmes required for maintenance / up gradation of hardware software.
- 19.8.4 The Transfer of Technology shall require involvement of Employer's personnel in each of Sub-systems during the Contract period. The sponsored engineers shall be under the