

# **SCOPE OF WORK (SOW)**

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## 1. GENERAL

### ➤ Name of scheme:

**Upgrading STM-1 FOTE to STM-16 FOTE at Bhopal (BDTCL), Dhule (BDTCL), Indore (PG), Aurangabad (PG) and Vadodara (PG) S/s.**

## 2. SCOPE OF WORK

### ➤ The scope of work shall cover following:

Survey, planning, design, engineering, supply, testing at manufacturer's works, transportation, unloading and delivery at site including insurance & storage, supervision of erection/installation, installation of FOTE and its accessories including all associated works, splicing, termination, testing, training, and demonstration for acceptance, commissioning and documentation for the Communication System defined below:

- Supply and installation of 5 no's, STM-16 (FOTE) equipment supporting minimum five (5) directions with MSP (Multiplex Section Protection 1+1) along with necessary interfaces and cards at following Locations (1 No. FOTE at each location) and integration with existing ISTS Communication network:
  - (i)Bhopal(BDTCL)
  - (ii)Indore(PG)
  - (iii)Dhule(BDTCL)
  - (iv)Vadodara(PG)
  - (v)Aurangabad(PG)
- Supply and installation of approach cable, FODP and other accessories at Indore (PG) and Vadodara (PG) S/s.

### ➤ Proposed BoQ

S. No.	Description	Unit	BHOPAL SS (BDTCL)	INDORE SS (PG)	VADODARA SS (PG)	DHULE SS (BDTCL)	AURANGABAD SS (PG)	Qty
1	SDH EQUIPMENT (Base Equipment STM-16 MADM upto 5 MSP (1+1) PROTECTED DIRECTIONS)-BASEEQUIPMENT (COMMON CARDS, CROSS CONNECT/CONTROL CARDS, OPTICAL BASECARDS, POWER SUPPLY CARDS, POWER CABLING, OTHER HARDWARE ANDACCESSORIES	Nos.	1	1	1	1	1	5

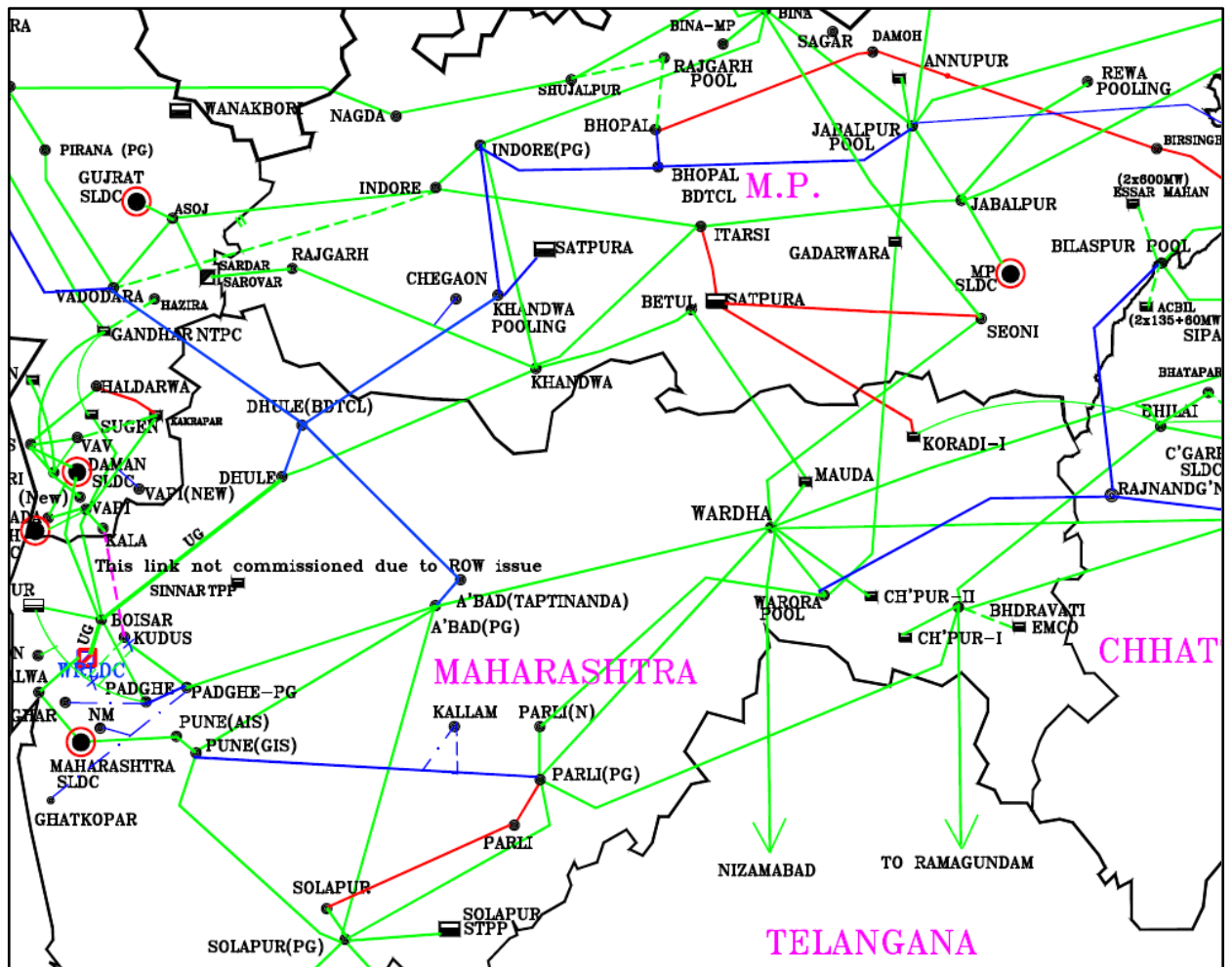
S. No.	Description	Unit	BHOPAL SS (BDTCL)	INDORE SS (PG)	VADODARA SS (PG)	DHULE SS (BDTCL)	AURANGABAD SS (PG)	Qty
	INCLUDING SUB RACKS, PATCH CORD, DDF ETC FULLY EQUIPEDEXCLUDING OPTICAL INTERFACE & TRIBUTARY CARDS							
2	SFP S16.1(for local patching)	Nos.	4	4	4	-	4	16
3	Optical Interface Card (To support minimum 175 Kms)	Nos.	-	-	2	2	-	4
4	Optical Interface Card (To support minimum 200 Kms)	Nos.	2	2	4	4	2	14
5	Tributary Interface-E1 Interface card (Min.16 Nos per card)	Set.	2	2	2	2	2	10
6	Ethernet Interface 10/100 Base T with Layer-2 switching (Min 8 Interfaces per card)	Nos.	2	2	2	2	2	10
7	TRIBUTARY INTERFACE- GIGABIT ETHERNET INTERFACES 10/100 MBPS WITH LAYER-2 SWITCHING (MINIMUM 2 NOS.)	Set.	1	1	1	1	1	5
8	Equipment Cabinets For SDH	Nos.	1	1	1	1	1	5
9	Next-Generation Firewall (NGFW)		1	1	1	1	1	5
10	DIGITAL PROTECTION COUPLER(DTPC)	Nos.	1	1	1	2	1	6
11	Equipment Cabinets For DTPC	Nos.	1	1	1	1	1	5
12	24F Fiber approach cable	Km.	1	1	1	1	1	5
13	HDPE Pipe.	Km.	1	1	1	1	1	5
14	96 Fiber FODP (with Panel)	Nos.	-	1	1	-	-	2
15	Repeater Shelter and SDH Equipment (Vadodara & Dhule link)	Set.			1			1
	Maingandatory Spare							
1	SDH EQUIPMENT (Base Equipment STM-16 MADM upto 5 MSP PROTECTED DIRECTIONS)- BASEEQUIPMENT (COMMON CARDS, CROSS CONNECT/CONTROL CARDS, OPTICAL BASECARDS, POWER SUPPLY CARDS.	Nos.	1	1	-	-	-	2
2	SFP S16.1	Nos.	1	1	-	-	-	2
3	Optical Interface Card (To support minimum 175 Kms)	Nos.	1	1	-	-	-	2

S. No.	Description	Unit	BHOPAL SS (BDTCL)	INDORE SS (PG)	VADODARA SS (PG)	DHULE SS (BDTCL)	AURANGABAD SS (PG)	Qty
4	Optical Interface Card (To support minimum 200 Kms)	Nos.	1	1	-	-	-	2
5	Tributary Interface-E1 Interface card (Min.16 Nos per card)	Set.	1	1	-	-	-	2
6	Ethernet Interface 10/100 Base T with Layer-2 switching (Min 8 Interfaces per card)	Nos.	1	1	-	-	-	2
7	TRIBUTARY INTERFACE-GIGABIT ETHERNET INTERFACES 10/100 MBPS WITH LAYER-2 SWITCHING (MINIMUM 2 NOS.)	Set.	1	1	-	-	-	2
8	DIGITAL PROTECTION COUPLER (DTPC)	Nos.	1	1	-	-	-	2
	Other Items							
1	Any additional items (MCB, E1 to Optical converter, 6F LIU, )	Nos.	1	1	1	1	1	5
2	Site Survey, Installation, Testing, Commissioning, and Dismantling of Existing Equipment.	Site	1	1	1	1	1	5
3	Integration with existing Substation FOTE System with New SDH	Site	1	1	1	1	1	5
	MISC. Items As required							
1	Repeater Station Land rentals	Site			1			1
2	repeater station O&M( Including Airconditioning, electricity wiring / switches/ MCB etc, UPS, Solar panels and inverters / batteries etc)	Site			1			1
3	Repeater station active equipments O&M for 5 years							-

**NOTE:**

1. Solution should include equipment which might be required to fulfill connectivity and not given in above BoQ.
2. Repeater station is to be considered wherever needed.
3. Space for installation at site and repeater station will be provided by BDTCL.
4. HDD or ducting or trenching of fiber from tower to shelter to be included in the scope by bidder.
5. Local content of equipment supplied minimum 65% as per notification for minimum local content.

➤ NETWORK DIAGRAM:



- Standard FOTE designs are to be used for various voltage levels of substation that are mentioned in Technical Specifications. the Contractor may propose customized design(s) during detailed engineering to meet the requirement.
- Installation The bill of quantities for the same is specified in the appendices accordingly. However, the actual quantities for the requirement may vary during implementation which shall be finalized after detailed survey. The Contractor has to carry out the detailed survey and collect the required data for preparation of FOTE BoQ.
- If incase ambiguity between RFP & BOQ during the project, RFP will be superseded
- All other associated works/items described in the technical specifications for a viable and fully functional communication network.
- The above scope of work is indicative and the detailed scope of work is given in the Technical Specification (Volume-II) of the Bidding Documents.

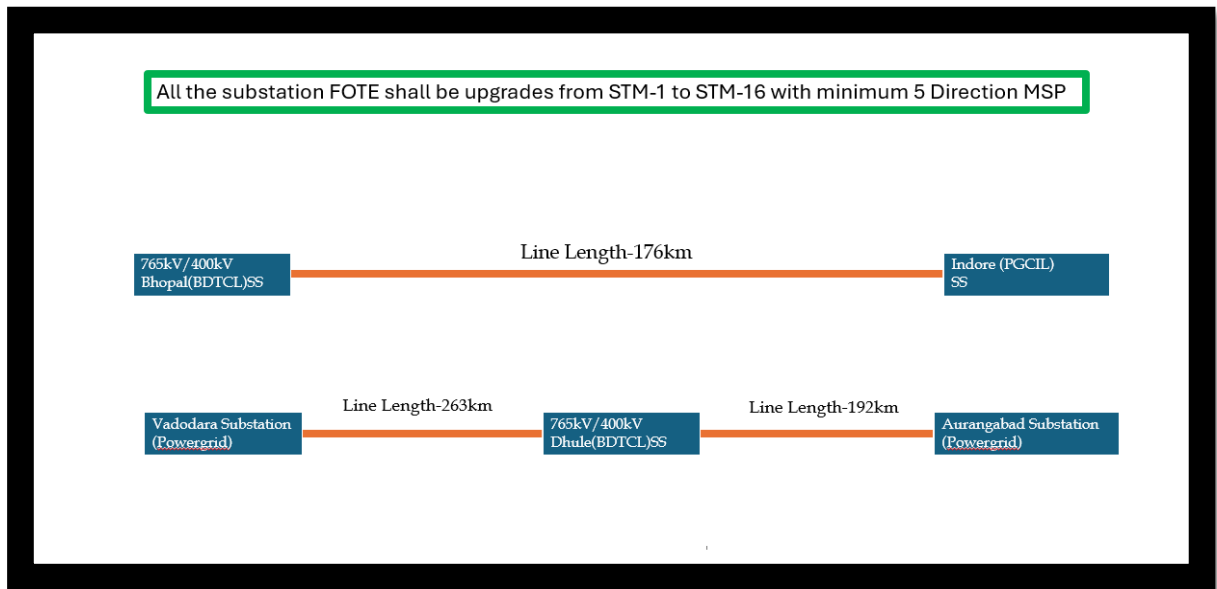
### 3. BID PRICE SCHEDULE:

The Bid Price Schedule is attached separately in Volume-III.

### 4. PHYSICAL AND OTHER PARAMETERS

- **Details of the Transmission Line** - The details of the transmission line are indicated below:

Name of Substation	Line Length (KM)
Bhopal (BDTCL) SS to Indore (PGCIL) SS	176
Vadodara (PGCIL) SS to Dhule (BDTCL) SS	263
Dhule (BDTCL) SS to Aurangabad (PGCIL) SS	192



➤ **Access to Site -**

The requisite support will be arranged to the successful Bidder to access the site/locations for performing the Scope of Work.

**5. DIFFERENT SECTIONS OF TECHNICAL SPECIFICATION**

For the purpose of scope of work, technical specification shall consist of following:

- Section - Telecom

**6. SPECIFIC REQUIREMENT**

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*----- End of Scope of Work -----*