

PART 2: EMPLOYER'S REQUIREMENTS

CHAPTER 1: INTRODUCTION & OVERVIEW

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1. INTRODUCTION & OVERVIEW

The Bangalore Suburban Transport Project (BSTP) is a vital initiative aimed at enhancing urban mobility and reducing traffic congestion in Bangalore. As part of this ambitious project, Corridors 2 and 4 will play a crucial role in providing efficient and sustainable transportation options for the city's residents.

Corridor-2, spanning 29.05 km, will feature a combination of elevated and at-grade sections. This corridor will include 16 stations, offering convenient access to various residential and commercial areas.

Corridor-4, on the other hand, will extend over a distance of 47.15 km, also incorporating both elevated and at-grade sections. This corridor will serve 24 stations, catering to a wider range of destinations within the city.

To facilitate seamless connectivity between the different corridors, the BSTP has planned interchange stations. Yelahanka in Corridor 4 will serve as an interchange point for Corridor 1, while Benniganahalli will connect Corridor 2 and Corridor 4. Additionally, Yesvantpur in Corridor 2 will provide an interchange to Corridor 1.

To support the operations of Corridors 2 and 4, a depot is being established at Soladevanahalli. This depot will play a vital role in maintaining and servicing the trains that will operate on these corridors, ensuring efficient and reliable transportation services.

The implementation of Corridors 2 and 4 is expected to significantly improve the public transportation infrastructure in Bangalore, reducing travel times, promoting sustainable commuting, and contributing to the overall development of the city.

1.1 NETWORK

1.1.1 CORRIDOR-2

Corridor-2 is 25.578 km long and consists of elevated & At-grade sections excluding Soladevanahalli depot. There are a total of 12 stations. In corridor 2, Yesvantpur & Benniganahalli are interchange stations for Corridor 1 and corridor 4 respectively. There is a depot at Soladevanahalli catering to both the corridors 2 & 4 through the interchange at Benniganahalli.

Sr No	Station Name	Chainages	Elevated/At-Grade
1	BENNIGANAHALLI	0.542	Elevated
2	KASTURI NAGAR	1.083	At grade
3	SEVANAGAR	2.880	At grade
4	BANASWADI	4.129	At grade
5	NAGAVARA	7.123	At grade
6	KANAKANAGAR	8.584	At grade
7	HEBBAL	10.925	At grade
8	MATHIKERE	15.700	Elevated
9	YESVANTPUR	18.827	Elevated

10	SHETTYHALLI	20.369	At grade
11	MYADARAHALLI	23.259	At grade
12	CHIKKABANAVARA	24.500	Elevated

1.1.2 CORRIDOR-4

The Rajanukunte to Heelalige, Corridor-4 is 46.880 km long and consists of Elevated & At-grade sections. There are a total of 19 stations. In corridor 4, Yelahanka & Benniganahalli are interchange stations for Corridor 1 & corridor 2 respectively.

Si No	Station Name	Chainages	Elevated/At-Grade
1	HEELALIGE	-0.125	At grade
2	SINGENA AGRAHARA	3.000	At grade
3	HUSKUR	5.068	At grade
4	AMBEDKAR NAGAR	7.950	At grade
5	KARMELARAM	9.626	At grade
6	BELANDUR ROAD	13.812	At grade
7	MARATHAHALLI	15.861	Elevated
8	DODDANEKUNDI	18.408	At grade
9	KAGGADASAPURA	20.700	At grade
10	BENNIGANAHALLI	22.294	Elevated
11	CHANNASADRA	24.107	At grade
12	HORAMAVU	26.174	At grade
13	HENNUR	27.582	At grade
14	THANISANDRA	30.625	At grade
15	RK HEGDE NAGAR	32.115	At grade
16	JAKKUR	33.892	At grade
17	YELAHANKA	37.233	Elevated
18	MUDDANAHALLI	42.250	At grade
19	RAJANKUNTE	45.875	At grade

S. No.	RSS Location	Corridor No	Remarks
1	Yelahanka	Corridor- 4	Tentative location at Yelahanka
2	Mathikere	Corridor- 2	At Mathikere
3	Benniganahaali	Corridor-2 & 4	Tentative location at Benniganahalli
4	Soladevanahalli Depot	Corridor - 2	At Soladevanahalli

1.2 SCOPE AND PURPOSE

Supply, Erection, Testing and Commissioning of Receiving Substation with incoming cabling from Grid Substation including 25 kV AC Traction cum 33kV Auxiliary Main Sub Stations, 25kV Overhead Equipment (FOCS), Auxiliary Power Supply and other associated works on Viaduct, At-grade & Stations including Soladevanahalli Depot and SCADA System for complete corridor 2 & 4 of BSTP and includes any modification in existing OHE/PSI if required along the alignment of C-2 and C-4.

The works to be executed under this Contract includes validation of design, transfer of technology, delivery, installation, testing, including integrated testing and commissioning, technical support, DLP, maintenance, training of Employer's staff and documentation for a complete System necessary to deliver the requirements of this Specification.

1.3 RELEVANT DOCUMENTS

This Specification should be read in conjunction with the General Conditions of Contract (GCC), the Special Conditions of Contract (SCC), the General Specification (GS), the Employers Drawings and any other document forming part of the Contract.

In the event of a conflict between the GS and this Specification, this Specification shall prevail. In the event of a conflict between this Specification and any other standards or specification quoted herein, the requirements of this Specification shall prevail.

The order of precedence, with item a) having the highest priority, is:

- a) Particular Specification.
- b) General Specification.
- c) Indian/International Standards referenced herein.
- d) Indian Railway Standards.
- e) Indian Standards.
- f) Other International Standards.
- g) Other National Standards.

Notwithstanding the precedence specified, in the event of conflicts between Specifications the Contractor shall always immediately seek advice from the Employer/Engineer.

1.4 DESIGN SERVICES

Contractor will be responsible for checking / verification of designs as submitted by DDC from execution point of view. If any changes in the design or equipment sizing during design verification by the contractor is noticed, the same shall be intimated to the Engineer/Employer. The decision of Engineer/Employer shall be final and binding.

Vendor specific drawings / shop drawings will be in the scope of PST contractor only. The Contractor shall

thoroughly satisfy himself that the tentative capacities, ratings, layouts, protection schemes and quantities of equipment as specified herein meet the operational requirements.

Taking into account the technical and other data contained in the Bid document, the Bidder shall verify the ratings, quantities of equipment etc. as specified herein and if the bidder considers any additional equipment, equipment of higher capacities and higher ratings for the systems and subsystems or any other additions necessary for the complete, safe and reliable operation operable power supply system, bidder shall include such items in his bid, as additional items, providing all clarifications and justifications for the same.

1.5 POWER SOURCE

1.5.1 KPTCL Substation

The following GSSs of Karnataka Power Transmission Company Ltd. (KPTCL) are the Sources of Power supply to the BI-RIDE's RSSs.

Sl. No.	RSS Location	Corridor	Corridor No.
1	Mathikere	Benniganahalli - Chikkabanavara	Corridor-2
2	Benniganahalli	Benniganahalli - Chikkabanavara Heelalige- Rajankunte	Corridor-2&4
3	Yelahanka	Heelalige- Rajankunte	Corridor-4
4	Soladevanahalli Depot RSS	Depot section & Benniganahalli - Chikkabanavara	Depot-1 (C2 & C4)

Location of BRSP RSS	Supplies power to Corridors
Mathikere	Corridor-2
Benniganahalli	Corridor-2&4
Yelahanka	Corridor-4
Soladevanahalli Depot RSS	Depot-1 (C2 & C4)

Sources of Power Supply: 04 Nos. Receiving Sub-stations shall be constructed under BSTP. Power supply for traction and auxiliary services shall be availed from the following grid sub- stations at 220 kV, through cable feeders:

No.	RSS Site	Feeder 1		Feeder 2	
		Source (KPTCL)	Approx. Length	Source (KPTCL)	Approx. Length
1	Mathikere	220kV Mathikere GSS	400 meters	220kV Peenya GSS	8 km approx..
2	Benniganahalli	220kV ITI GSS	5 km approx...	220kV HAL GSS	6 km approx....

3	Yelahanka	220kV Puttenahalli GSS	1.2 km approx...	400/220kV Singanayakanahalli PGCIL GSS	6 km approx....
4	Soladevanahalli Depot RSS	220kV LILO from Nelamangla to DB pura Line	4 km approx..	400KV PGCIL substation singanayakanahalli	10 km approx
Note: The above-mentioned power sources and approx. length mentioned are indicative only. The final locations will be decided by employer upon approval of Power supply authority (KPTCL)					

1.5.2 BI-RIDE Receiving Substation

- BI-RIDE Receiving Substations are located as mentioned above. All the above, BSTP Receiving Substations (RSS), the incoming High Voltage Supply will be stepped down to: 25kV and 33 kV and 33/.415kV.
- 33kV, three phase and will be fed to the 33 kV Auxiliary Network and the Auxiliary Substations, to meet the Auxiliary power demand at stations and en-route, through an Auxiliary Main Substation (AMS), located in the same RSS premises. Outgoing feeders shall be provided as per SLD and BOQ
- 25 kV Traction supply shall be taken from RSS for feeding 25kV supply to depot and main lines. The scope of RSS contractor is to provide access to traction contractor and cable trench/trays up to boundary wall of RSS from RSS/GIS building. Outgoing feeders shall be provided as per SLD and BOQ.

1.5.3 Traction Overhead Equipment

Elevated & At Grade Sections

Supply and Erection of 25 kV Traction Overhead Equipment (OHE) of Flexible Catenary System, for 'elevated & At Grade' shall be within the scope of this Contract. The Conventional type of OHE shall be used in main line.

Depots

In addition, supply and erection of OHE in the following Metro Car Maintenance Depot (generally referred to as 'Depots'), shall also be within the scope of this Contract. In depot tramway type of OHE shall be used in all the line except Test track, Entry Exit line of Depot.

1.5.4 Auxiliary Substation

33 kV, three phase Power Supply will be fed to the 33 kV Auxiliary Network and the Auxiliary Substations, to meet the Auxiliary power demand at stations and en-route, through an Auxiliary Main Substation (AMS), located in the same premises as the RSS.

1.5.5 Supervisory control and Data Acquisition

The SCADA equipment at OCC shall control equipment of complete BSTP Corridor installed in 33 KV auxiliary network (ASS) & 25 kV switching stations (SS, SSP, SP, FP) installed in mainline and Depots & Equipment of RSS (Receiving Sub-station).