

**Annexure - D**

<b>Station Interface Matrix</b>				
<b>Item No</b>	<b>Item Description</b>	<b>Power Supply, S&amp;T, AFC ,Lift &amp; Escalators ,Rolling stock and Track work</b>	<b>Station Civil and E &amp; M Contractor</b>	<b>Remarks</b>
A	<b>Power Supply contractor</b>			
1	Connection between Secondary of Auxillary Transformer and the LowVoltage Switch Board	Power Supply contractor shall ensure that facility are available on the Transformer secondary to receive the cable	Supply, erection and conection by cable will be done by E & M	
2	Power demand	Power supply contractor shall request for the total power load in the station from Station E & M contractor and accordingly design the transformer capacity.	Station E & M contractor shall give the details of total power load of the station by collecting the load requirement from all other system -wide contractors and submit to Power Supply Contractor	
3	Space Requirement	Shall design the technical room layout including ,builders works requirement in accordance with space provision specified. Power supply contractor shall furnish room layout with equipment foot prints and equipment static and dynamic load and shall be co-operated with Station contractor	Shall incorporate, Power Supply Contractor requirements in station design and shall be co-operated with Power supply contractor.	
4	Ventilation and illumination requirement	Power supply contractor shall specify the operating temperature (ventilation), illumination parameters affiliated to ASS technical room	Station E& M contractor shall design illumination (lux level) according to ASS room specification requirements	
5	Earthing	Design the earthing for HV and LV power supply systems including building structure and request for appropriate earth bus routing in the technical room.	Station E& M contractor Shall co-ordinate with the, Power Supply E & M Contractor and design the station earthing pits and earthing bus in the technical rooms	
6	Cable Routing	Power supply contractor shall request cable containments/trunking /brackets for HV cable routing .	Station E& M contractor shall install cable trays/tunking required for all cable routings	
		Shall provide inputs to combined services drawings (CSD) for detailed cable (for duct bank/cable trays/Cable troughs/Cable shafts and etc..... ) layout/routing/Laying [HV and LV cables crossing to be avoided] within the Station and cable crossing at stations.	Shall prepare the combined services drawings(CSD) in time required for the cable layout/routing/Laying within the Station and cable crossing at stations.	
		Power supply contractor shall specify the cable routing and section needed at the interface between Viaduct and station.	Shall design the section accordingly	
	<b>Construction /Installation stage</b>			
1		Shall install the rated capacity Transformer	Shall construct the suitable solid foundation/Platform sufficiently at "out of reach of flood", and co-ordinate accordingly for civil and structure works.	
		Shall jointly check the technical rooms made ready by Civil and E&M contractor and to be confirmed.	Technical rooms should be ready with lighting, small power, fire Detection and Fire Fighting systems,CableTrays/Supports/trenches/Troughs Etc. and Shall be co-operated withPower supply	

		Shall jointly check the arrangements made ready for cable routing/Laying [HV and LV cables crossing to be avoided] within the Station and cable crossing at stations to be confirmed.	All the necessary arrangements should be made ready for the cable routing/Laying and shall be co-operated with Power supply Contractor.	
		Shall jointly check the earthing works and earth bus in the technical rooms required for High Voltage and Low Voltage power supply systems including the building structure and to be confirmed.	All the earthing works should be made ready and hand over to Power supply Contractor.	
		Power supply Contractor will incorporate in his systems of tripping and protection and shall be confirmed.	E & M Contractor will hand over all the protection and tripping systems of all other contractors in the station to, Power supply Contractor and shall be Co-operate.	
<b>B</b>	<b>Signalling and Telecom</b>			
1	Space Requirement	Shall furnish the space and mechanical load requirements of the Signal Equipment Room (SER), Communication Equipment Room (CER), Station Control Room (SCR), Telecom closets and lighting, flooring, false flooring, cable duct and vertical cable risers in the above mentioned rooms.	Shall provide preliminary design station layout showing the rooms and vertical cable risers. b) Shall Update the Station drawings to accommodate the requirements of E & M Contractor c) Shall collect the data & integrate with other users and provide it to all contractors.	Space for Signalling Equipment Room is 60 Sqm, Telecom Equipment Room 55 Sqm and for UPS 50 Sqm. UPTO raised floor E&M contractor will provide cable tray. Cable tray size will be 600x100 mm.
		Shall furnish the sizes of S & T equipments to be installed in SER, TER and SCR .	All corridors and doors shall be sized to enable equipment to be delivered to SER, TER and SCR for installation and replacements.	S&T Equipments Size will be 800x700mm. According to that contractor will provide.
2	Air Conditioning Requirements	Shall Provide the details of equipment heat generation load, number of persons and operating temperature requirement in the Signalling equipment room, Telecom equipment room ,station control room and UPS room to design VAC system.	Shall collect the detail and provide as required by the signalling and telecom contractor.	2 Precision AC 15 Tonne hot standby are required for SER and TER. Central AC required for UPS Room.
3	Cable Routing	Shall furnish the routing of the cables for S&T equipment in whole Station	Shall establish the synthesis layout for cable routing according to all the sub systems layout	Cable Duct and Cable Tray will be provided by E&M Contracot in coordinaton with System Contactor.
		a. Shall furnish the detailed drawing of main cable routing arrangements in respect of S & T cables in the station (including requirements of minimum 1 meter separation between S & T cables and HV cables). Shall furnish the details of Signal & Telecommunication cables like dimensions, weight, minimum bending radius and supporting & mounting details. b. Shall provide detailed drawing with the locations of all equipments and cables to be installed on the track. c. Shall provide detailed drawing of locations, loads, type of fixing/mounting arrangements for signalling and Telecommunication equipments to be installed on the platform, concourse and entrance levels like PA system, BID's, CCTV	a. Shall design the cable routing and cable containments in the station . b. For heavy equipments like CCTV monitors, display boards, analog clocks etc., to be mounted on walls / suspended from the roof, to integrate the fixing arrangements with the structural design.	

3	Passenger emergency communication	Shall furnish the locations and space requirements of passenger emergency communication and help point equipments to be installed.	Shall validate the locations of passenger emergency communication system and help point system.	To be finalised with CSD drawings
4	Access control system	Shall furnish the locations and details of access control system and Intrusion detection system.	Shall validate the locations of access control system and intrusion detection system proposed by S&T.	To be finalised with CSD drawings
5	Earthing	Shall furnish the requirements of earthing arrangement including earth impedance value for different S & T systems to be installed	Shall provide the earthing arrangement for different systems and extend it up to SER, CER and SCR accordingly and terminate in the room Earthing terminal.	Earthing arrangement will be provided by E&M Contractor for Clean Earth and Main Earth as per requirement of System Contractor.
5	BMS/SCADA system	a. Shall validate the interface design. Design the connectivity requirements from the interface device up to the SCR / OCC. b) Shall design the HMI of M&E SCADA at the SCR and OCC to meet the control and monitoring requirements of equipments installed by E & M contractor	a) Shall design the interface device for each monitored / controlled equipment, Local control panel (where applicable) for the station M & E equipment, LV power distribution, UPS, lighting systems and building management systems installed under the E & M contractor scope b) Shall advise the locations and connectivity requirements of interface devices associated with M & E equipment to be monitored / controlled by SCADA.	
6	EMI/EMC	Shall furnish the EMI / EMC levels of S & T equipments to be installed in stations.	Shall incorporate in station design and prepare a common EMI / EMC plan	as per the EN-1000-6-2, EN-1000-6-3, E50121-2000 standards
7	Power requirement	a) Shall furnish the detailed Electrical power load requirement of various S & T equipments (Normal & Emergency feeder)	Shall design the Feeder requirement with suitable protection devices at the output accordingly.	80 KVA for the Interlocking station, & 60 KVA for non-interlocking
8	Fire alarm system	Shall furnish the interface requirement with Fire alarm system.,	Shall design and incorporate the requirement of S&T, PA and security systems in the Fire alarm system	To be finalised with CSD drawings
<b>Construction /Installation stage</b>				
1		Shall verify that the requirements of lighting, false flooring (for prescribed load levels) and vertical cable risers in SER, CER, Telecom Closets and SCR are as per the requirement.	Shall provide the lighting, false flooring (for prescribed load levels) and vertical cable risers in SER, CER, Telecom Closets and SCR.	
2		Shall install all signaling and communication cables and provide the connections to individual devices.	Ensure provision of cable ducts, main cable crossing arrangements, including openings required for entry / exit arrangements for main S & T cables in the station.	
3		a) Shall arrange the mounting and fixing accessories to station contractor. b) Shall install the equipments at stations like staff protection keys, Emergency stop plungers, PIDs, PA system, clocks, CCTV cameras and Television system equipments etc.,	Shall install the mounting and fixing arrangements for heavy equipments like CCTV monitors, display boards, analogue clocks etc., during the construction as per the S & T requirements.	

4		Shall install the M & ESCADA system at the OCC & SCR and provide LAN connectivity up to interface device for all controlled /monitored systems installed by E&M contractor.	Shall provide, wire and connect the interface devices upto the station LAN port provided by S& T Contractor for various equipments, local control panels (where applicable) for M & E equipment, LV power distribution system, UPS system, lighting system and building management system etc., forming part of E & M Contractor.	
5		Shall install the power cables from the Emergency main distribution Board in Electrical room UPS Room and to SER / TER and extend it to the SCR, Telecom Closets etc.,	Shall Provide the Feeder and suitable protection devices at the output of emergency main distribution board.	
6		Shall verify the interfacing of fire system with PA system.	Shall install the fire alarm and control system and provide the necessary interfaces with PA system.	
<b>C</b>	<b>PSD(Platform screen door)</b>			
1		(a) Shall furnish the specification of Platform Screen Doors (PSD) like dimensions, weight and supporting & mounting details throughout stations. (b) Shall furnish the maximum load of PSD on platform edge	(a) Shall validate and find the locations of Platform Screen Doors (PSD) and design space, hanger walls / beams & necessary supports, structural and platform slab by considering the dimensions, weight and mounting details of PSD. (b) Shall collect details from PDS E & M Contractor and design the platform to accommodate PSD load requirement	
2		Shall furnish the requirements of passenger emergency escape doors track access doors.	Shall validate and find the locations of passenger emergency escape doors and track access doors.	
3		Shall furnish the installation location and method of Platform Screen Doors Local Control Panel on platform level.	Shall validate and find the locations of Platform screen doors local control panel.	
4		Shall furnish the requirement of earthing system including earth impedance value and earth bars for the PSD equipment	Shall fulfil the requirements of earthing and earth bars.	
5		Shall furnish the details of UPS power supply requirement for PSD Operation	Shall design the Feeder requirement with suitable protection devices at the output accordingly.	
	<b>Construction /Installation stage</b>			
1		Shall install the Platform Screen Doors, Emergency Escape Doors, Track access doors and Platform screen doors local control	Shall provide necessary supports to install the platform screen doors and local control panels.	
2		Shall verify the requirements of earths and earth bars.	Shall install earths and earth bars for Platform screen doors and its equipments to be installed in Stations.	
3		Shall install control panel, power and control cable according to	Shall install cable containment/ducts to install control panel, power and control cable according to plan	
<b>D</b>	<b>AFC</b>			
1	Space requirement	Provision of Rooms and Areas for Equipment Lay-out To finalise the room schedule and lay-out for AFC at stations	Shall incorporate the space and room requirements in the station Design	

2	Earthing	Provide details of earthing requirements	Incorporate the earthing scheme for AFC system as per requirement	
3	Power requirement	Provide the Electrical Power requirement in the station for AFC equipments	Shall design the power supply with suitable protection devices for AFC equipments in station	
4	Cable routing	Provide the cabling scheme for AFC system and cable routing requirement for Power and Data.	To space proof the cable routing requirement of AFC for Power and Data in the station design Provide cable Containment.	
5	Fire Alarm	(a) Shall design the AFC system to interface with fire alarm system. Shall also specify the details like type of signal, communication protocol etc, (b) Shall Design the software according to functional requirements in emergency condition	(a) Shall design the Fire Alarm system to interface with AFC system . Shall verify and accept mutually the details like type of signal, communication protocol etc, (b) Shall specify the functional requirements of AFC system operation in emergency condition	
	<b>Construction /Installation stage</b>			
		1.To check and confirm that AFC specific requirements for installation are made available. 2.To install the electric cabinet and do the cable termination. 3.To install the switches and do the data cable termination. 4.To do the internal wiring at the AFC rooms. 5.To fix the AFC equipments at AFC rooms and complete the installation .	Construct and provide civil and structural facilities required for AFC installation.	
		To confirm that the earthing provided is as per the requirement and provide earthing for the equipments	To provide earthing as per AFC requirement	
<b>E</b>	<b>Lift &amp; Escalator</b>			
1	Power requirement	Shall provide the requirements of total Electrical Power, Earthing, Cable Routing & location of the power point (Isolator) for Lifts and Escalators in the station.	Shall collect the load details and give input to power supply contractor to select the capacity of Transformer. Shall design the earthing(from earth pit to respective equipment room), Cable routing and isolators locations as per requirement.	
2	Fire alarm Interface	Shall provide the interface details of Fire alarm system for the lift & the escalator .	Shall collect the details from Lift & Escalator E & M Contractor and incorporate in the Fire Alarm system.	
	<b>Construction stage</b>			
		Shall jointly check the availability of requirement (shaft/site readiness) for Lifts and Escalators installation, like Power Supply, Earthing, Cable routing, power supply Isolator points, mounting facility, water resistant pits, access and delivery space as per the drawing (provided by Lift & Escalator Contractor) suitable for lifts & Escalators erection and confirm.	Shall provide Lift & Escalator requirements in station.	
<b>F</b>	<b>Rolling Stock</b>			

