

1 .Special clause for Asphalt/Cement Concrete works

The tenderer must comply following machinery with installation before quoting and should remember that the cost of installation shall be taken into account while quoting their percentage:

Particulars
Intelligent Compaction system - compatible for L&T, Escort, JCB, Greaves make Compactors
Agent Software for Compactor
Batch Mix Plant Scada Automation
Software Agent Batch Mix Plant connectivity
RMC plant Automation with SCADA
Software agent RMC plant connectivity
Vechile Tracking System with automation loading unloading Switch
Vechile Tracking System Per month Subscription charges

1. A). Asphalt/ Cement Concrete mixing Plant

The contractor shall provide hot mixing asphalt/RMC plant (min.40TPH) for all asphalt/Cement Concrete works. The hot mixing plant shall sense data like aggregate weight and temperature batches through digital sensors & logic controller. The contractor shall provide a SCADA based data reader & logging software to collect the sensed data from the logic controller & convert it into machine readable file with date and time stamp. The particular file shall contain the work identification number of the works management e-governance software the contractor shall provide the web connectivity to the asphalt mixing plant and software that will send the machine readable file generated from SCADA software to contractors web application as well as the e-governance web application of MCGM dash board.

The plant register shall be provided on the web application shall have following information

Batch ID, quantity of all aggregates, time & date, work identification number, agency name, temperatures (in case of asphalts) & any other information asked by Engineer in charge. The plant can be shared among multiple works & / or

multiple contractors. The plant register shall have all the data of for which work contractor a particular batch is processed.

1. B). Vehicle Tracking Equipments

The contractor shall provide VTS (vehicle tracking system) for all vehicles used for particular work of MCGM. The VTS shall record the latitude & longitude of the vehicles & shall send the data of the works management e-governance software of MCGM dashboard. The contractor shall provide web application that will show all vehicles of contractor on a GIS map along with the batch mixing plant. The contractor shall also provide software that will update entire mapping on the MCGM's e-governance works management system dashboard.

The VTS shall continuously send the data of vehicle latitude & longitude at every 5 seconds to the web application & dashboard.

The contractor shall provide web application i.e. integrated with MCGM's works management e-governance application system. This web application shall have software for vehicle loading & unloading for each batch. The vehicles carrying batches should show the batch details sensed through the SCADA software on GIS map.

VTS shall be made available for all types of works i.e. asphalt, concrete, earthwork or any other type as applicable as part of the terms of the contract.

1.C). Intelligent Compacting System

The contractor shall also provide intelligent compacting system on the compactor used for compaction work of MCGM. The intelligent compacting system shall have GPS, temperature sensors, accelerometer & IP-67 compliant PC fitted on the compactor. This compaction system shall also record the number of passes made by the compactor. The system shall have the mirror that shall show the compaction in the graphical form to the operator on the compactor. The contractor shall provide the real time data transferred to the web application to the monitor the compaction remotely. The contractor shall provide the web application in such a manner that it also updates the compaction data in real time on MCGM's works management e-governance application dashboard. The intelligent compacting system shall be connected with dash board system the contractor shall provide the software facility for MCGM officials to update QAP (quality assurance plan) related data for compaction through its web application that will get transferred to the intelligent compacting system to bench mark the acceptance norms for color coding, no of passes and acceptable temp & density levels.

The contractor shall provide compaction register that shall contain information related to the compaction for further analysis. The compaction register shall maintain following record RUN ID, DATE & TIME of compaction, latitude, longitude, location, temperatures (in case of asphalts), density (for soil it can be derived as a compaction measurement value) no of passes, color for temp, color for no. of passes.

The contractor shall provide web application to view the actual monitor on the compactor through web remote monitoring as a live streaming of the compaction operations.

The contractor shall provide certificate & guarantee from the manufacturer of the compactor for compatibility of the system with the compactor. If the system retrofitted to the compactor should not be old than three years.

1. D). Quality Reports

The contractor shall provide web application to record the quality reports to related to material acceptance by agency, TIPAA. The system shall have intelligent forms that will record the observations and generate quality reports & upload them to MCGM's e-governance web application dashboard.

1. E). Web Connectivity

The contractor shall provide web connectivity to all above monitoring system. Web connectivity shall have minimum 1 MBPS Internet speed & 100% availability. Software should be intelligent. In case of connectivity failure it should maintain the pending files and send them as soon as it is connected. The contractor shall make sure that the entire software and hardware solution is virus free.

Sd/-

Ch.E. (Rds.,Tr.& Br.)