Design, Supply, Installation, Testing and commissioning of Continuous Ambient Air Quality monitoring system, weather monitoring system and water quality monitoring system for Surat including all allied works and O&M for five years post completion

| GRAND SUMMARY SHEET | | |
|---|---|---|
| **Sr No.** | **Item Description** | **Amount (In Rs.)** |
| **1** | **Schedule A- Area Based Development (ABD Area)** | |
| A | Schedule A1 - Survey, Design, Supply, Testing, Installation and commissioning of Continuous Ambient Air Quality Monitoring Station. | |
| B | Schedule A2 - Survey, Design, Supply, Testing, Installation and commissioning of Weather Monitoring Stations | |
| C | Schedule A3- Survey, Design, Supply, Testing, Installation and commissioning of Water Quality Monitoring Instruments for field monitoring | |
| D | Schedule A4 - Supply of Water Quality Monitoring Instruments for laboratory measurement of water parameters. | |
| E | Schedule A5 - Operation and Maintenance for Period of Five Years for Ambient Air Quality Monitoring Stations. | |
| F | Schedule A6- Operation and Maintenance for Period of Five Years for Weather Monitoring Stations | |
| G | Schedule A7- Operation and Maintenance for Period of Five Years for Water Quality monitoring instruments for field monitoring. | |
| | **Total of Schedule A- (Schedule A1+ Schedule A2+ Schedule A3+ Schedule A4+ Schedule A5+ Schedule A6+ Schedule A7)** | |
| | | |
| **2** | **Schedule B- Surat Municipal Corporation (SMC)** | |
| A | Schedule B1 - Survey, Design, Supply, Testing, Installation and commissioning of Continuous Ambient Air Quality Monitoring Station. | |
| B | Schedule B2 - Survey, Design, Supply, Testing, Installation and commissioning of Weather Monitoring Station. | |
| C | Schedule B3 - Operation and Maintenance for Period of Five Years for Ambient Air Quality Monitoring Stations. | |
| D | Schedule B4 - Operation and Maintenance for Period of Five Years for Weather Monitoring Stations. | |
| | **Total of Schedule B- (Schedule B1+ Schedule B2+ Schedule B3+ Schedule B4)** | |
| | **TOTAL** | |

# Schedule A1

## Air Quality Monitoring for Area Based Development

| Sl no | Item Description | Unit | Tender Qty | Rate | Amount in INR |
|---|---|---|---|---|---|
| 1 | Design , supply , testing, installation and commissioning of Continuous ambient air quality monitoring station with proper air conditioning unit , shelter and IP protection for the measurement of various gases such as SO2, NOx, CO, CO2, PM10, PM 2.5.(refer technical spec for more details) | Nos. | 3 | | |
| 2 | Design supply testing and commissioning of UPS of suitable capacity with 30 minutes backup period | Nos. | 3 | | |
| 3 | Data acquisition system (GPRS/GSM Connectivity) for the communication of AAQMS station with the monitoring station and the central server | Nos. | 3 | | |
| 4 | Supply, installation, testing and commissioning of Client PC/workstation with 8 Gb RAM, Intel Core2 Duo, Minimum 3.6 GHz processor or better, 1TB harddisk, 22" monitor in central monitoring station with console | Nos. | 1 | | |
| 5 | Installation and Commissioning cost | LS | - | | |
| | | | | Total | - |

## Schedule A2

### Weather Monitoring Sations for Area Based Development

| Sl no | Item Description | Unit | Tender Qty | Rate | Amount in INR |
|---|---|---|---|---|---|
| 1 | Design, supply ,testing installation and commissioning of Wind speed and wind direction sensor as a singe unit along with the necessary mounting accessories wind speed range 0-65 m/s, Accuracy +/-2% of full scale. Range of Wind direction 0-360deg. C mechanical and 0-356 deg. C electrical, Accuracy +/-3 deg.( For more details refer technical datasheet) | No's | 12 | | |
| 2 | Design, supply ,testing installation and commissioning of Air temperature and relative humidity sensor as a single unit along with the necessary mounting accessories having a temperature range of -20 to 60deg c and relative humidity range of 0-100% with an accuracy of +/-3% of full scale reading, temperature coefficient 0.04% RH/deg c, input power; 4mA at 12 | No's | 12 | | |
| 3 | Design, supply ,testing installation and commissioning of Solar radiation sensor along with the necessary mounting accessories sensitivity: 8 mV/kwatt meter2 with 100 ohm load, impedance of 100 ohm load (depends on the sensitivity) ,response time of 10 micro sec( For more details refer technical datasheet) | No's | 12 | | |
| 4 | Design, supply ,testing installation and commissioning of rainfall sensor along with the necessary mounting accessories at the suitable height with operating temp range -4 to 50 deg. C, Accuracy +/-5%**( For more details refer technical datasheet)** | No's | 12 | | |
| 5 | Design, supply ,testing installation and commissioning of barometric pressure sensor along with the necessary mounting accessories . Proof pressure 2 bar, operating temp: 0-50 deg. C, repaetability 0.2% of full scale.( For more details refer technical datasheet) | No's | 12 | | |
| 6 | Design, supply ,testing installation and commissioning of telescopic crank-up meterological tower having extended height of approx 10m, retracted height of 2 m, and having number of section 4-6. and All civil related work including foundation work & metrological tower work are in the contractor's | No's | 12 | | |
| 7 | Design, supply ,testing installation and commissioning of teleSolar panel of suitable capacity to feed power to the weather station and All civil related work including foundation work & metrological tower work are in the contractor's scope. | No's | 12 | | |
| 8 | Data acquisition system (GPRS/GSM Connectivity) for the communication of AAQMS station with the monitoring station and the central server | No's | 12 | | |
| 9 | Supply installation and commissioning of large electronic display board having size of character 9” x 7 “ (Details please check the Specification) which will show the AAQMS and WMS parameter | No's | 5 | | |
| 10 | Colour printer : LASER PRINTER, Speed(pages per minute At least 12), Resolution-1200 x 1200 dpi, Main tray capacity - At least 250 sheets, Interface - Parallel& USB, OS - Windows latest. | No | 1 | | |
| | | | **Total** | | - |

**Schedule A3**

| Water Quality Monitoring for Area Based Development | | | | | |
|---|---|---|---|---|---|
| **Sl no** | **Item Description** | **Unit** | **Tender Qty** | **Rate** | **Amount in INR** |
| | **FIELD MONITORING INSTRUMENTS** | | | | |
| 1 | Design, supply, testing , installation and commissioning of portable type pH meter along with neccessary accessories which includes installation & calibrating tools and chemicals to be installed in a mobile vehicle, shall have Sensor- Electrodes (Combined pH electrode and reference electrode) with integral temperature compensator assembly, shall Measure variable- pH and temperature, shall have Glass Electrode material & Insertion type, shall have measuring range- -2 to 20 pH, Resolution- 0.01pH & Accuracy- +/-0.02 pH. And for more details please refer technical specifications. | No. | 1 | | |
| 2 | Design, supply, testing , installation and commissioning of portable type Conductivity meter & Temperature meter along with neccessary accessories which includes installation & calibrating tools and chemicals to be installed in a mobile vehicle, shall have Sensor- Electrodes (conductive sensors) with integral temperature compensator assembly, shall Measure variable- Conductivity and temperature, shall be of dip type, shall have measuring range- 0-2000µs/cm, Accuracy- +/-1% of reading and for more details please refer technical specifications. | No. | 1 | | |
| 3 | Design, supply, testing , installation and commissioning of portable type Dissolved oxygen meter, shall have Electrochemical sensor, shall have measuring range - 0- 50 mg/l, Accuracy- +/-1% of reading, Resolution- 0.01 mg/l and for more details please refer technical specifications. | No. | 1 | | |
| 4 | Design, supply, testing , installation and commissioning of portable type Turbidity meter (nephelometer) along with neccessary accessories which includes installation & calibrating tools and chemicals to be installed in a mobile vehicle, shall have optical sensor, shall have measuring range- 0.001- 4000NTU with ratio metric principle, shall be of dip type, shall have measuring range- 0-2000µs/cm, Accuracy- +/-2% of reading and for more details please refer technical specifications. | No. | 1 | | |
| 5 | Design, supply, testing , installation and commissioning of portable type Total Organic carbon (TOC) meter along with neccessary accessories which includes installation & calibrating tools and chemicals to be installed in a mobile vehicle, shall have Infrared measurement of CO2 after oxidation method, shall have measuring range- 0-1000mg/L C , Accuracy- +/-2% of reading and for more details please refer technical specifications. | No. | 1 | | |
| | | | **Total** | | |

**Schedule A4**

**Water Quality Monitoring for Area Based Development**

| Sl no | Item Description | Unit | Tender | Rate | Amount in INR |
|---|---|---|---|---|---|
| | **Supply of LAB MONITORING INSTRUMENTS** | | | | |
| 1 | Supply of U.V.Visible Spectrometer,shall have UV visible range-340nm to 950nm, Cuvette length-1cm and for more details please refer technical specifications. | No. | 1 | | |
| 2 | Supply of Balance meter,shall be of Digital type, shall have max capacity-2kg & minimum capacity- 0.1 gm and for more details please refer technical specifications. | No. | 1 | | |
| 3 | Supply of Laminar Flow meter,and remaining all technical parameters shall be specified by the bidders. | No. | 1 | | |
| 4 | Supply of Auto cleave meter,shall have capacity 100lit and for more details please refer technical specifications. | No. | 1 | | |
| 5 | Supply of Microbiological Oven meter,shall have Size- 2cm dia. X 30 cm depth<br>Internal material- SS, temperature range- 50deg. to 130 deg. and for more details please refer technical specifications and remaining all technical parameters/accessories shall be specified & considered by the bidders. | No. | 1 | | |
| 6 | Supply of microbiological oven COD reactor (Double Block) meter,shall have temperature range- 10- 150 deg.C temperature stability- +/- 1deg.C<br>COD & TOC Output and for more details please refer technical specifications and remaining all technical parameters/accessories shall be specified & considered by the bidders. | No. | 1 | | |
| 7 | Supply of B.O.D. meter,shall have Capacity- 90lit, temperature range- 5-60deg c, temperature uniformity- +/-0.5deg.c and for more details please refer technical specifications and remaining all technical parameters/accessories shall be specified & considered by the bidders. | No. | 1 | | |
| 8 | Supply of Distillation Unit meter,shall have MOC- SS, capacity- 3-4 lit and for more details please refer technical specifications and remaining all technical parameters/accessories shall be specified & considered by the bidders. | No. | 1 | | |
| 9 | Supply of Muffle furnace meter,shall have Capacity- 20lit, temperature- upto 600 deg.C and for more details please refer technical specifications and remaining all technical parameters/accessories shall be specified & considered by the bidders. | No. | 1 | | |
| 10 | Supply of Amm.Nitrogen assembly and for more details please refer technical specifications and remaining all technical parameters/accessories shall be specified & considered by the bidders. | No. | 1 | | |
| | | | **Total** | | |

## Schedule A5

Operation and maintenance for the Ambient Air quality monitoring stations for ABD area includes manpower cost, cloud monitoring cost, comprehensive maintenance of all the instruments and calibration check

| Sr. No. | Item | Unit | Tender Qty | Rate | Amount in INR |
|---|---|---|---|---|---|
| **A1** | **O&M for AAQMS** | | | | |
| 1 | 1st year | Lumpsum | | | |
| 2 | 2nd year | Lumpsum | | | |
| 3 | 3rd year | Lumpsum | | | |
| 4 | 4th year | Lumpsum | | | |
| 5 | 5th year | Lumpsum | | | |
| | | | | Total | |

## Schedule A6

Operation and maintenance for the Weather Monitoring Stations for ABD area includes manpower cost, cloud monitoring cost, comprehensive maintenance of all the instruments and calibration check

| Sr. No. | Item | Unit | | Rate | Amount in INR |
|---|---|---|---|---|---|
| **A1** | **O&M for AAQMS** | | | | |
| 1 | 1st year | Lumpsum | | | |
| 2 | 2nd year | Lumpsum | | | |
| 3 | 3rd year | Lumpsum | | | |
| 4 | 4th year | Lumpsum | | | |
| 5 | 5th year | Lumpsum | | | |
| | | | | Total | |

# Schedule A7

Operation and maintenance for the Water quality monitoring instruments for Area based Development area includes manpower cost, Field data collection cost, comprehensive maintenance of all the instruments and calibration check

| Sr. No. | Item | Unit | Tender | Rate | Amount in |
|---|---|---|---|---|---|
| **A1** | **O&M for AAQMS** | | | | |
| 1 | 1st year | Lumpsum | | | |
| 2 | 2nd year | Lumpsum | | | |
| 3 | 3rd year | Lumpsum | | | |
| 4 | 4th year | Lumpsum | | | |
| 5 | 5th year | Lumpsum | | | |
| | | | | Total | |

## Schedule B1

### Area Ambient Air Quality Monitoring for Surat Municipal Corporation

| Sl no | Item Description | Unit | Tender Qty | Rate | Amount in INR |
|---|---|---|---|---|---|
| 1 | Design , supply , testing, installation and commissioning of Continuous ambient air quality monitoring station with proper air conditioning unit , shelter and IP protection for the measurement of various gases such as SO2, NOx, CO, CO2, PM10, PM 2.5.(refer technical spec for more details) | Nos. | 4 | | |
| 2 | Design supply testing and commissioning of UPS of suitable capacity with 30 minutes backup period | Nos. | 4 | | |
| 3 | Data acquisition system (GPRS/GSM Connectivity) for the communication of AAQMS station with the monitoring station and the central server | Nos. | 4 | | |
| 4 | Supply, installation, testing and commissioning of Client PC/workstation with 8 Gb RAM, Intel Core2 Duo, Minimum 3.6 GHz processor or better, 1TB harddisk, 22" monitor in central monitoring station with console | Nos. | 1 | | |
| 5 | Installation and Commissioning cost | LS | | | |
| | | | | Total | - |

## Schedule B2

### Weather Monitoring Sations for Surat Municipal Corporation

| Sl no | Item Description | Unit | Tender Qty | Rate | Amount in INR |
|---|---|---|---|---|---|
| 1 | Design, supply ,testing installation and commissioning of Wind speed and wind direction sensor as a singe unit along with the necessary mounting accessories wind speed range 0-65 m/s, Accuracy +/-2% of full scale. Range of Wind direction 0-360deg. C mechanical and 0-356 deg. C electrical, Accuracy +/-3 deg.( For more details refer technical datasheet) | No's | 28 | | |
| 2 | Design, supply ,testing installation and commissioning of Air temperature and relative humidity sensor as a single unit along with the necessary mounting accessories having a temperature range of -20 to 60deg c and relative humidity range of 0-100% with an accuracy of +/-3% of full scale reading, temperature coefficient 0.04% RH/deg c, input power; 4mA at 12 | No's | 28 | | |
| 3 | Design, supply ,testing installation and commissioning of Solar radiation sensor along with the necessary mounting accessories sensitivity: 8 mV/kwatt meter2 with 100 ohm load, impedance of 100 ohm load (depends on the sensitivity) ,response time of 10 micro sec( For more details refer technical datasheet) | No's | 28 | | |
| 4 | Design, supply ,testing installation and commissioning of rainfall sensor along with the necessary mounting accessories at the suitable height with operating temp range -4 to 50 deg. C, Accuracy +/-5%**( For more details refer technical datasheet)** | No's | 28 | | |
| 5 | Design, supply ,testing installation and commissioning of barometric pressure sensor along with the necessary mounting accessories . Proof pressure 2 bar, operating temp: 0-50 deg. C, repaetability 0.2% of full scale.( For more details refer technical datasheet) | No's | 28 | | |
| 6 | Design, supply ,testing installation and commissioning of telescopic crank-up meterological tower having extended height of approx 10m, retracted height of 2 m, and having number of section 4-6. and All civil related work including foundation work & metrological tower work are in the contractor's | No's | 28 | | |
| 7 | Design, supply ,testing installation and commissioning of teleSolar panel of suitable capacity to feed power to the weather station and All civil related work including foundation work & metrological tower work are in the contractor's scope. | No's | 28 | | |
| 8 | Data acquisition system (GPRS/GSM Connectivity) for the communication of AAQMS station with the monitoring station and the central server | No's | 28 | | |
| 9 | Supply installation and commissioning of large electronic display board having size of character 9” x 7 “ (Details please check the Specification) which will show the AAQMS and WMS parameter | No's | 5 | | |
| 10 | Colour printer : LASER PRINTER, Speed(pages per minute At least 12), Resolution-1200 x 1200 dpi, Main tray capacity - At least 250 sheets, Interface - Parallel& USB, OS - Windows latest. | No | 1 | | |
| | | | **Total** | | - |

## Schedule B3

Operation and maintenance for the Ambient Air quality monitoring stations for SMC area includes manpower cost, cloud monitoring cost, comprehensive maintenance of all the instruments and calibration check

| Sr. No. | Item | Unit | Tender Qty | Rate | Amount in INR |
|---|---|---|---|---|---|
| **A1** | **O&M for AAQMS** | | | | |
| 1 | 1st year | Lumpsum | | | |
| 2 | 2nd year | Lumpsum | | | |
| 3 | 3rd year | Lumpsum | | | |
| 4 | 4th year | Lumpsum | | | |
| 5 | 5th year | Lumpsum | | | |
| | | | | Total | |

## Schedule B4

Operation and maintenance for the Weather Monitoring Stations for SMC area includes manpower cost, cloud monitoring cost, comprehensive maintenance of all the instruments and calibration check

| | | | | | |
|---|---|---|---|---|---|
| **Sr. No.** | **Item** | **Unit** | | **Rate** | **Amount in INR** |
| **A1** | **O&M for AAQMS** | | | | |
| 1 | 1st year | Lumpsum | | | |
| 2 | 2nd year | Lumpsum | | | |
| 3 | 3rd year | Lumpsum | | | |
| 4 | 4th year | Lumpsum | | | |
| 5 | 5th year | Lumpsum | | | |
| | | | | Total | |