

SECTION -1

SCOPE, SPECIFIC TECHNICAL REQUIREMENT AND SCHEDULE OF ITEMS

1.1.0 SCOPE

1.1.1 The scope of work under this specification is to carry out detailed geotechnical investigation, Electrical resistivity test and Topographical Survey required for construction of 220kV Sub-station Extension at Balimela, Orissa. The Customer is M/s Orissa Hydro Power Corporation Limited. The Consultant is M/s WAPCOS.

1.1.2 The Soil Investigation along with Soil Resistivity Measurement of the substation shall generally include the following:-

- (i) The work shall include mobilization of necessary equipment, providing necessary engineering supervision and technical personnel, skilled and unskilled labour, etc. as required to carry out the entire field work as well as laboratory investigation.
- (ii) Carrying out geotechnical investigation and Electrical resistivity test.
- (iii) Analysis and interpretation of data collected and preparation of a detailed soil report including specific recommendations for the type of foundations and the safe bearing capacity for different sizes of foundations at different founding levels for the various structures of the substation.
- (iv) All the field & laboratory data shall be recorded in the proformas recommended in IS Codes/Customer approved protocols.
- (v) All work shall be carried out as per Technical Specification.
- (vi) The Bidder shall make his own arrangement for locating the coordinates and various test positions in the field (including clearance of the site at the location of test positions, if necessary) all as per the information supplied to him. The test locations shall be furnished during execution of work.
- (vii) The Bidder shall make his own arrangement for water and electricity (if required) and arrangement for putting up his man & material.
- (viii) Grass cutting/Jungle cleaning required for carrying out soil investigation work shall deemed to be included in the bidder scope.
- (ix) Bidder must visit the site before quoting the rate to have fare idea of site.
- (x) After collection of sample from bore holes, trial pits, plate load test etc shall be backfilled as per direction of Engineer-In-Charge.
- (xi) Any other work required to complete above work.

1.1.3 The Topographical Survey of the substation shall generally include the following:-

- (i) Surveying of the substation land boundary with co-ordinates of each corner points and dimension of each side by total station / GPS. Marking of locations of any permanent structure near the boundary.
- (ii) Surveying of total area of the substation land with contours.
- (iii) Verification of Input data/Existing data provided by BHEL/Customer or collection of data from any agency.

- (iv) A grid system of co-ordinates shall be established so that grid line will be parallel to the boundary of Sub-Station.
- (v) 5m x 5m grids shall be considered for spot level and at closer distances where pits, undulations etc are met. Suitable contour interval as instructed by Engineer-in-charge based on the ground profile shall be followed for contour maps.
- (vi) Preparation of the drawing in AUTOCAD showing a) all natural features like ditches and water bodies. b) all botanicals feature like trees, truncated tree. c) all man made features like existing buildings, pump house, canal, road, overhead electric lines, electric towers, electrical pylons, wells, pipe line, height of electric wire, and all other permanent structures.
- (vii) The Bidder shall make his own arrangement for locating the coordinates in the field (including clearance of site at the location of test positions, if necessary) all as per the information supplied to him and also for determining the reduced levels of these locations from nearby Rail Gate/ National Highway Authority of India (Collection of data from NHAI is in the scope of Bidder).
- (viii) Masonry pillars shall be erected at suitable places in the area to serve as bench mark for the execution of work. These bench mark shall be connected with G.T.S of any other permanent Bench mark approved by the Engineer-In-Charge. Minimum 04 bench marks and adequate number of grid pillar as per direction of Engineer-In-Charge shall be constructed in isolation area adjacent to substation area as per directions of engineer-in-charge. The reduced levels & coordinates shall be clearly marked on the bench marks.
- (ix) All the field data shall be recorded in the proforma recommended in IS Codes /CPWD/Good Standard Practices/Customer approved Field Books dually signed by Engineer-In-Charge.
- (x) Bidder should calculate the optimum quantity of Earthwork in cutting and filling using spot level method with proposed Finished Ground Level.
- (xi) The work shall include mobilization of necessary equipment, providing necessary engineering supervision and technical personnel, skilled and unskilled labour, etc. as required to carry out the entire field work.
- (xii) The Bidder shall make his own arrangement for water and electricity (if required) and arrangement for putting up his man & material.
- (xiii) Grass cutting/Jungle cleaning required for carrying out survey work, Bench mark work etc shall deemed to be included in the bidder scope.
- (xiv) Bidder must visit the site before quoting the rate to have fare idea of site.
- (xv) Any other work required to complete above work.

1.2.0 SPECIFIC TECHNICAL REQUIREMENT

- 1.2.1** The specific technical requirements for the execution of Geotechnical Investigation & Soil Resistivity Measurement shall be as per Standard Specification / I.S. Codes/ CPWD Specification/ good standard of practices necessary to fulfil the objective.

1.3.0 BILL OF QUANTITIES

- 1.3.1 The Bill of Quantity cum price schedule shall be as per Annexure-I.
- 1.3.2 The quantities indicated in the 'Bill of Quantity cum price schedule' are indicative and can vary upto any extent, even may get deleted. Contractor shall not be entitled for any claim for any such variation in the quantities.
- 1.3.3 The provision of Bill of Quantity cum price schedule, specifications and drawings shall be read in conjunction with each other and in case of conflict amongst them, the clarification shall be obtained from the Engineer-in-charge whose decision shall be final and binding.
- 1.3.4 No extra work shall be carried out without prior approval in soil resistivity measurement and geotechnical investigation.

1.4.0 DOCUMENT SUBMISSION

- 1.4.1 The contractor shall submit complete soil investigation report consisting of bore log details, test reports, earth resistivity measurement reports, ground water level, recommendation of footing type etc as per Customer Technical specification & direction of Engineer-In-Charge.