TECHNICAL SPECIFICATIONS

A) TECHNICAL SPECIFICATIONS FOR CIVIL WORKS

1.0 : SCOPE OF WORK

This covers the technical specifications of the civil works under scope of this contract and shall be read in conjunction with other documents forming the contract; viz., General condition of contract, NIT, Special condition of contract, MOM, Field quality plan,, Bill of quantities, drawing etc.

1.1 Tender Drawings:

Drawings as listed in special condition of contract enclosed with this tender document form a part of this specification and supplement the requirement specified herein. The tender drawings are preliminary and meant for tender purpose only. These drawings provide a general idea about the work to be performed under scope of this contract and are by no means final drawings showing full range of work under the scope. Work has to be executed strictly according to `Released for construction' drawings with addition s, alterations and modifications made from time to time as required or approved by `Engineer –in-charge' and also according to any other drawings that would be released for construction progressively during the execution of the work. The submission of drawings is under the scope of the work in accordance with the technical specifications architectural, design and drawing work.

3.0 General scope of work:

The work to be performed under this specification shall also include preparation of structural fabrication drawings, reinforcement placement drawings, fabrication drawings and bar bending schedules based on drawings released for construction and getting the same approved by the Engineer –in –charge plus execution of the work including providing all labor, supervision, materials, scaffolding, power, fuel, construction equipments, tools and plants, supplies, transportations, all incidental items not shown or specified but reasonably implied or necessary for successful completion of the work including Contractor's supervision and in strict accordance with the drawings and specifications and with Inspection & Testing Standards. The nature of work shall generally involve excavation inall types of soil including dewatering, shoring, strutting and filling under and around structures, backfilling with available excavated earth and/or sand gravel mixture/sand around completed structures and pipe trenches, plinth filling, disposal of surplus soil, concreting including reinforcement and formwork, providing necessary steel embankments and other inserts, brick masonry, stone masonry, plastering and architectural surface finishes, supply and erection of doors, windows, louvers, rolling shutters and vertical and horizontal sliding doors, anti-termite treatment, miscellaneous floors, skirting, dado and wall finish, false ceiling, glass and glazing, roof insulation, waterproofing in basement structures and on roofs, water supply piping from owner's supply point to the fixtures, drainage line up to the drainage main nearest to the building and sanitary work complete with soil lines, septic tanks etc. All complete as per details and specifications.

3.1 Test of Materials / Workmanship

All tests required for all materials as per `Field quality plan ', CPWD specifications and as desired by Engineer –in-charge shall be carried out at contractor's cost. Quality of workmanship shall be as per IS codes, CPWD specifications and to the satisfaction of Engineer –in-charge. It shall be the responsibility of the contractor to facilitate the Engineer –in-charge or his authorized representative for collecting samples of all materials, carrying out the test at the approved laboratory by POWERGRID and submitting the test results.

3.2.1 Specification for work, Quality, Workmanship

The specifications are intended for general description of work, quality and workmanship. The specifications are not, however, intended to cover the minute details of the work and the work shall be executed according to relevant IS codes and latest CPWD specifications or to the recommendations of relevant American and British standards as well as the instructions of Engineer –in-charge.

Wherever reference to Indian Standard Codes and practices is made they shall be referred to the latest edition/ revision of the same, issued upto 7 days prior to the date of opening of this tender.

The tenderer is expected to get clarified doubts about the specifications etc. Before tendering in writing with the owner in respect of interpretation of any portion of these documents.

3.3 Layouts and Levels

The layouts and levels of all structures etc. Shall be made by the contractor at his own cost from general grid of plot and bench marks given by the Engineer –in-charge. The contractor shall also give all help in the form of instruments, materials and men to Engineer –in-charge for checking the detailed layout and correctness of the layout and the levels, at his own cost. But the contractor shall be solely responsible for correctness of layout and levels.

3.4 Construction method:

The tenderer shall submit Drawings, Bar Chart Schedule, List of construction equipment to be deployed and write-up to indicate in a broad outline how he intends to execute the work. These shall form part of this Tender.

3.5 Storage and Handling of common building materials:

All material shall be stored by the contractor in a manner affording convenient access for identification and inspection at all time. The storage arrangement shall be subject to approval of the Engineer –in-charge. Storage of material shall be as described in IS 4082 (latest edition).

All materials shall be so stored as to prevent deterioration or intrusion of foreign matter and to ensure the preservation of their quality and fitness for work. Any material which has deteriorated or has damaged or is otherwise considered defective by the Engineer –in-charge shall not be used and shall be removed from the site immediately, failing which the Engineer –in-charge will get the material removed and cost thereof shall be realized from the contractor's dues. The contractor shall maintain up to date account of receipt, issue and balance (stock wise) of all materials. However, storage and handling procedure of some of the common building materials are explained below as a general guideline:

BRICKS:

Bricks shall not be dumped at site. They shall be stacked in regularities, even as they are unloaded, to minimize breakage and defacement of bricks. Bricks selected for different situation of use in work shall be stacked separately. Each stack shall contain equal number of bricks preferably not more than 3000.

CEMENT:

Cement shall be stored in dry enclosed shed, well away from the walls and insulated from the floor to avoid contact with moisture. Cement shall be stacked in easily countable stacks and to facilitate removal of first in first out basis. The cement bags shall be gently kept on the floor to avoid leakage of cement from the bags. Sub standard or partially set cement shall be immediately removed from the site as soon as detected. Cement stored for a period beyond 90 days shall be tested before use.

COARSE AND FINE AGGREGATE:

Aggregates shall be stored on brick soling or an equivalent platform so that they do not come in contact with dirt, clay, grass or any other injurious substance at any stage. Aggregate of different sizes shall be kept in separate and easily measurable stacks. If so desired by Engineer –in-charge aggregate from different sources shall be stacked separately with proper care to prevent intermixing.

REINFORCEMENT STEEL:

Reinforcement steel shall be stored consignment – wise and size – wise off the ground and under cover. It shall be protected from rusting, oil, grease and distortion. If directed by Engineer –in-charge, the reinforcement steel may have to be coated with cement wash before stacking to prevent scale and rust formation at no extra cost to the owner. The stacks shall be easily measurable. Only steel needed for immediate use shall be removed from the storage. Fabricated reinforcement shall be carefully stored to prevent damage, distortion, corrosion & deterioration.

MISCELLANEOUS STRUCTURAL STEEL

Measurement for Supply, fabrication, transportation and erection of all miscellaneous structural steel work for mono rails (RS joists), rails for transformers/ reactors, trusses, frame work, purlins, gratings including factory made electro forged gratings, steel tubes,built up sections along with all other steel fittings and fixtures, inserts and embedment in concrete shall be made as per drawings. The unit rate for this item shall be inclusive of cutting, grinding, drilling, bolting, welding, pre- heating of the welded joints, applying a priming coat of steel primer / anti corrosive bitumastic paint/ synthetic enamel paint etc.wherever specified (For gratings and its supports epoxy zinc phosphate primmer shall be used) setting of all types of embedment in concrete, etc. Steel required for foundation bolts & fasteners (other than towers and equipment support structures.Quantity shall be measured in Kg/MT.

MISCELLANEOUS

The work to be performed under this specification shall include providing all labour, supervision, materials, storages, inventories, all enabling works like scaffolding, watch and ward for the works, power, fuel, construction equipment, water, tools and plants, transportation, all taxes and duties, all labour welfare and safety measures, complete and all other incidental items not shown or specified, but reasonably implied or necessary for successful completion of the work including Contractor's supervision and in strict accordance with the drawings and specifications, inspection and testing standards and field quality control and testing as given in the tender documents and the complete execution of the works.

Any technical clarifications required regarding the drawings/specifications during the progress of works shall be obtained from the Engineer-in-Charge.
Employer reserves the right to inspect all the material before dispatch.

AUTHORITY TO REJECT MATERIALS:

Any material considered to be sub-standard or not up to specifications declared/certified by the Engineer-in-charge shall not be used by the contractor and shall be removed from the site immediately.

QUALITY ASSURANCE:

The **standard Field Quality Plan** of POWERGRID shall be applicable for all works. The cost of all required tests including associated expenditures shall have to be borne by the contractor.