

**Annexure-VII-4****DESIGN REQUIREMENTS**

Contractor will be responsible for the verification of designs, preparation of Shop drawings, co-coordinating with various contractors for preparing and finalizing the co-ordinated services drawings.

The Design should cover all the items pertaining to all temporary works including pre casting, handling, stacking, transportation and erection of form work and staging, in-situ work erection scheme of all structures transportation of same as required.

**CHECKING OF THE CONTRACTOR'S TEMPORARY WORKS DESIGN:** The Contractor shall, prior to commencing the construction of the Temporary Works, submit a certificate to the Engineer signed by him certifying that the Temporary Works have been properly and safely designed and checked and that the Contractor has checked the effect of the Temporary Works on the Permanent Works and has found this to be satisfactory.

The contractor will be required to have a close interface with the S&T, OHE, Track, Lift, Power supply contractor engaged by the Employer. In addition, the contractor shall have a close interface with Detailed Design consultants (DDC) and Proof consultant.

The Design responsibility Matrix:

Description	Detailed Design Consultant (DDC)	Contractor	Proof Consultant (PC)	Employer (KRIDE)/GC
Designing and issue of all Permanent Structures (Concept design, GFC, Combined services drawings etc.)	Responsible	Not Responsible	Responsible	Responsible
Designing of all the Temporary Structures	Not Responsible	Responsible	Not Responsible	Not Responsible
Construction Methodology and drawings	Not Responsible	Responsible	Not Responsible	Not Responsible
BIM integration	Responsible	Responsible	Responsible	Responsible
Preparation of As built drawings	Responsible for validation	Responsible	Responsible	Responsible

#### 1. Submission of documents (other than Design Data)

The Contractor shall submit drawings and documents, as required by the Contract, to the Engineer in accordance with any submittal schedule agreed with the Engineer. This submittal shall be made sufficiently before the Works are to be carried out to give the Engineer and the Employer reasonable time

to examine the drawings or other documents, to prepare comments and for any changes to be accommodated by the Contractor.

Where the consent of the Engineer is required, the Engineer shall notify the Contractor in writing of his decision either within such period as may expressly be stipulated in the Contract or otherwise within a reasonable time.

If the Engineer has reasonable cause for being dissatisfied with the proposals set out in the Contractor's drawings or documents, the Engineer shall, within a period of 28 days from the date of submittal, require the Contractor in writing to make such amendments thereto as the Engineer may consider necessary. The Contractor shall make and be bound by such amendments at no additional expense to the Employer and shall resubmit the amended drawings or documents for Engineer's consent.

Within 7 days of notification of the Engineer's consent the Contractor shall provide the Engineer with the type and number of sets of the relevant drawings or documents as stipulated in the Employer's Requirement.

Should it be found at any time after notification of consent that the relevant drawings or documents do not comply with the Contract or do not agree with drawings or documents in relation to which the Engineer has previously notified his consent, the Contractor shall, at his own expense, make such alterations or additions as, in the opinion of the Engineer, are necessary to remedy such non-compliance or non-agreement and shall submit all such varied or amended drawings or documents for the consent of the Engineer. No examination by the Engineer of the drawings or documents submitted by the Contractor, nor any consent of the Engineer in relation to the same, with or without amendment, shall absolve the Contractor from any of his obligations under the Contract or any liability for or arising from such drawings or documents.

The Operation and Maintenance Manuals and drawings submitted by the Contractor shall, if required, be updated by him during the Defects Liability Period and re-submitted for review by the Employer's Representative.

## **2. As-Built Documents**

The Contractor shall prepare, and keep up-to-date, a complete set of "as-built" records of the execution of the Works, showing the exact as-built locations, sizes and details of the work as executed. These records shall be kept on the Site and shall be used exclusively for the purposes of this Sub-Clause. Six copies shall be supplied to the Engineer prior to the commencement of the Tests on Completion.

In addition, the Contractor shall supply to the Engineer as-built drawings of the Works, showing all Works as executed, and submit them to the Engineer for review under Sub-Clause [Contractor's Documents]. The Contractor shall obtain the consent of the Engineer as to their size, the referencing system, and other relevant details.

Prior to the issue of any Taking-Over Certificate, the Contractor shall supply to the Engineer the specified numbers and types of copies of the relevant as-built drawings, in accordance with the Employer's Requirements. The Works shall not be considered to be completed for the purposes of taking-over under

Sub-Clause 10.1 [*Taking Over of the Works and Sections*] of GCC until the Engineer has received these documents.

### **3. Operation and Maintenance Manuals**

Prior to commencement of the Tests on Completion, the Contractor shall supply to the Engineer provisional, operation and maintenance manuals in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair the works.

The Operation and Maintenance Manuals and drawings submitted by the Contractor shall be updated by him during the Defects Liability Period and the Contractor shall re-submit the updated manuals at the end of the DLP for review and acceptance by the Engineer.

### **4. Design Error**

If errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the Contractor's Documents, they and the Works shall be corrected at the Contractor's cost, notwithstanding any consent or approval under this Clause.