14 TEMPORARY WORKS AND EQUIPMENT

14.1 GENERAL

14.1.1 Scope

1 This Part specifies the requirements for Temporary Works required in connection with construction of the Works and temporary plant and equipment required in connection with aiding the construction of the Works. It does not include over pumping activities in respect of sewers and drains.

2 Related Parts and Sections are as follows:

Section 2 ..... Quality Assurance and Quality Control

Section 11 Health and Safety

3 Occupational Health and Safety concerning temporary works and equipment is covered in Section 11 Health and Safety

4 Quality Controlling temporary works and equipment's is covered in Section 2 Quality Assurance and Quality Control

14.2 TEMPORARY WORKS

14.2.1 Definition

1 Temporary Works (TW) means all works required for the execution, completion, maintenance and/or demolition of permanent works during construction and which will normally be removed from the site on completion. Examples include:

(a) Site establishment including temporary offices, hoardings, sign boards, access gantries workshops, fuel storage, temporary roads, bridges, barriers, welfare facilities.

(b) Stability of existing and new structures during construction or demolition, needling, temporary underpinning, façade retention.

(c) Excavation support systems, open excavations, rock cuts, dewatering.

(d) Formwork and false work systems, access scaffolding, temporary roofs, loading towers, mobile towers, temporary access cradles.

(e) Tower crane bases and ties, hoist foundations and ties, mobile crane foundations, stock piles, piling mats & foundations for crawler cranes, lifting & handling gear, cast in devices.

14.2.2 General

1 Everything used for and in connection with the Temporary Works shall be fit for the purpose, in serviceable condition and in compliance with any relevant standard.

2 The Contractor shall design his Temporary Works to be of adequate strength, stability and suitability.

3 The Contractor shall submit details of any Temporary Works proposed to the Engineer for review before commencing the work. Such details shall include, but not be limited to design calculations and drawings. The submission to the Engineer of any such details shall not relieve the Contractor of his responsibility for sufficiency of the Temporary Works or of his other duties and responsibilities under the Contract.

4 The Contractor is responsible for ensuring that Temporary Works are not in any way detrimental to existing structures in any way. Particular care shall be taken with scaffolding to avoid staining or mechanical damage to finishing.

5 The Contractor shall make safe and reinstate all areas affected by Temporary Works.

6 The Contractor is required to comply with the requirements of BS 5975:2008+A1:2011 “Code of practice for temporary works procedures and the permissible stress design of falsework”.

14.2.3 Procedure

1 The Contractor must have a formal procedure in place for the Management of all Temporary Works, commonly known as a Temporary Works Procedure. The Procedures shall comply with the requirements of BS 5975:2008+A1:2011 “Code of practice for temporary works procedures and the permissible stress design of falsework” and shall include, as a minimum, arrangements for all of the following sections:

(a) Formal Appointments

(b) Roles and Responsibilities

(c) Identification & Risk Assessment of TW

(d) TW Documentation and Records

(e) TW Design

(f) TW Management on Site

(g) Appendices to contain all Form’s templates

14.2.4 Formal Appointments

1 The Contractor shall make formal appointments of competent staff to undertake the following roles in relation to Temporary Works. A signed form of appointment between the Contractor and the appointee is required to be in place to ensure that both parties are fully aware of their duties and area of responsibility (i.e. on large project, there may be more than one TWC or TWS (see below) dealing with different area of a project).

2 Designated Individual (DI) - Responsible for establishing and implementing a procedure for the control of temporary works. It is the responsibility of the DI to appoint a Temporary Works Co-ordinator (TWC). In addition, a Temporary Works Supervisor (TWS) may be required.

3 Competent Temporary Works Coordinator (TWC) - The TWC must have attended suitable training courses and obtained the necessary competence through qualification and experience. This training should be up-to-date and appropriate to the complexity of construction project. A deputy TWC will be required. It is advisable to appoint a deputy TWC at the same time as the main TWC appointment to cover for absences. Note: It is preferable that the TWCs are not responsible for the ‘day to day’ progress of the TW work under consideration. A Temporary Works Supervisor (TWS) should be appointed to undertake this important area of work.

4 TW Supervisors (TWS) - The TWS is responsible to the TWC and should assist them in the supervision and checking of TW. In some instances where the TWC retains the duty for reviewing and inspecting temporary works, the TW Control Register must state this. The TWS must again be competent and have relevant up-to-date training and experience appropriate to the operations for which they are responsible, for example scaffold inspection course or a specific briefing by the TWC or designer.

5 TW Designers (TWD) and Temporary Works Design Checkers (TWDC) – responsible to design and check the design in accordance with BS 5975:2008+A1:2011 “Code of practice for temporary works procedures and the permissible stress design of falsework” see Section 14.2.7 or other applicable standard. TWD’s are required to comply with the Designer duties under Section 11 Part 1.1.8 Construction (Design and Management).

6 Recommended competence of TW Appointees:

(a) DI – Qatar registered Engineer, recognized 2 day TWC’s Course, plus 10 years as an Engineer, 5 years in TW

(b) TWC - Qatar registered Engineer, recognized 2 day TWC’s Course, plus 6 years as an Engineer, 3 years in TW

(c) TWS - Qatar registered Engineer, recognized 1 day TWS Course, plus 3 years as an Engineer, prefer experience in TW but not essential

14.2.5 Identification & Risk Assessment of TW

1 The TWC must identify all the TW on the project by involving the site team and design team. A TW Control Register must be used to record each TW item, the risk level and detail the control measures appropriate for that level of risk.

2 The TWC must assess the risk associated with each item of TW and classify them as either Low, Medium or High risk. The classification may be done in conjunction with the designer and the designer check category table below.

14.2.6 TW Documentation and Records

1 The TWC must ensure that a file record of TW information is maintained including the following:

(a) Design Brief’s

(b) Design Documents and Checks

(c) Briefing records of training for TWC’s and TWS’s

(d) Forms of Appointment for TWC’s and TWS’s

(e) Permits to Load and Unload/Strike

(f) Inspections records.

(g) And any other information related to TW.

14.2.7 TW Design

1 Design Brief: A TW Design Brief (detailing the specific requirements) should be written for each TW scheme. It should include all relevant data and appropriate drawings of the permanent works.

2 Design: The design deliverables submitted to site must be adequate to describe the designer's requirements. This will usually take the form of calculations, drawings, specifications, designer's method statement and other documents, which could include the items listed in the design brief. Any risks not eliminated by the TW design must be included in the TW design deliverables as a list of residual risks (listed on the drawings).

3 Design Check: The design check, which ensures compliance with the design brief, should in all cases be carried out by a competent person independent from those responsible for the design. Reference shall be made to the design check category table in BS 5975. The design check should be undertaken by a competent person as identified in the BS5975 design check table. The level of the design check required and hence the independence of the checking engineer is directly related to the risk classification of the TW item.

4 Competence of Temporary Works Designers (TWD) and Checkers (TWDC): To ensure a minimum level of competence for individuals that are involved with the design and design checking of TW, TWD's and TWDC's must be a Qatar registered Engineer with an Engineering degree relevant to the design discipline (i.e. Structural, Civil) and a recommended 5 years' experience of TW Design.

14.2.8 TW Management on Site

1 Risk Assessments / Method Statements: Site specific Method Statements should be prepared for the erection and dismantling of all TW. These should include any necessary 'hold' points.

2 Permits to Load and Unload: Prior to loading a permit should be signed off by a TWS (or competent person identified in the control register) to confirm that the TW has been erected in accordance with the TW drawings and Method Statement. Prior to unloading and/or dismantling a permit should be signed off by a competent person with appropriate technical knowledge and understanding of the TW to confirm that the permanent work is able to sustain the necessary loads.

3 Inspections: All TW should be routinely inspected by a TWS (or competent person identified in the control register). An inspection schedule should be completed.

14.3 TEMPORARY EQUIPMENT

14.3.1 General

1 The Contractor shall provide and maintain in good condition on the Site all plant, tools and vehicles necessary for the proper and safe execution of the Works.

2 Temporary equipment shall be fit for the purpose for which it is to be used.

3 Temporary equipment shall only be operated by personnel who are trained and qualified.

14.4 TEST CERTIFICATES FOR CRANES AND LIFTING TACKLE

14.4.1 General

1 Cranes, whether used to construct the Works or provided as part of the permanent Works, must have a current test certificate.

2 Each sling, shackle or other item of loose lifting tackle, whether used to construct the Works or provided as part of the permanent Works, must have either a current test certificate.

3 Test certificates must be issued by a competent testing authority approved by the Engineer.

4 The Contractor must have a copy of each test certificate on site available for inspection by the Engineer.

5 The following Standards and Code of Practice shall be complied with and where such documents are replaced or superseded the Contractor shall comply with the latest version:

(a) Mobile and Tower Cranes: BS 1757, BS 2799 and CP 3010.

(b) Overhead Cranes: BS 466 and BS 5744.

(c) Slings: BS 1290, BS EN 1492, ISO 4309 / 3481 Pt 2, ASME B30.9.

(d) Chain Blocks: BS 3243.

(e) Shackles: Alloy: BS 3551/ BS 6994.

(f) Chain: BS 4942 part 1 & 6.

(g) Hooks: BS 2903, ASME B30.10.

(h) Ring and link: BS 2902.

6 A monthly inspection of lifting appliances shall be carried out by a competent person employed by the Contractor. Full records of all such inspections and tests shall be kept by the Contractor in an approved form and shall be made available to the Engineer immediately upon demand. Copies of monthly inspection reports shall be submitted to the Engineer.

END OF PART