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## 13 SETTING OUT OF THE WORKS

### 13.1 GENERAL

#### 13.1.1 Scope

- 1 This Part specifies the requirements for setting out of the Works and includes locating existing services, surveying the Site and establishment of temporary bench marks.
- 2 The Engineer reserves the right to order levels to be taken at any time considered necessary for the full and proper supervision and measurement of the Works.
- 3 Related Sections and Parts are as follows:

This Section  
Part 11 ..... Engineer's Site facilities.

### 13.2 SITE INFORMATION AND INSPECTION

#### 13.2.1 Site Information

- 1 Before commencing the setting out of the Works the Contractor shall ascertain the location of all existing underground services within the Site boundary. The Contractor shall prepare a plan detailing the location of the services.
- 2 Any conflict between existing services and any part of the proposed Works shall be brought to the attention to the Engineer without delay.
- 3 Any re-work resulting from the Contractor's failure to locate and identify services shall be undertaken at the Contractor's cost.

#### 13.2.2 Site Inspection

- 1 Before commencing the setting out of the Works, the Contractor and the Engineer shall make an inspection of the Site.
- 2 Where appropriate, the Engineer shall require the Contractor to arrange for surveys to be undertaken, in conjunction with the owners or occupiers, of the condition of roads, properties, lands and crops which may be affected by the Works. Before any work affecting such roads, properties, lands or crops is commenced, the Contractor shall confirm in writing to the Engineer that the relevant survey is a true and accurate record of their condition.

### 13.3 LEVELS AND REFERENCE GRID

#### 13.3.1 Temporary Bench Marks

- 1 . The Contractor shall establish accurate temporary bench marks on permanent blocks from which the levels to which the Works are to be constructed may be transferred. The location of temporary bench marks shall be agreed with the Engineer. The level of temporary bench marks shall be related to the Qatar National Height Datum.
- 2 The Contractor shall prepare a plan detailing the location of the bench marks and temporary bench marks and keep it up to date for the duration of the Contract.
- 3 The Contractor shall protect and maintain the temporary bench marks until the Works are complete. Upon completion of the Works the Contractor shall clear away the temporary bench marks to the satisfaction of the Engineer.

- 4 The Contractor is responsible for checking the accuracy of temporary bench mark. Any re-work resulting from incorrect or inaccurate temporary bench marks shall be undertaken at the Contractor's cost.

### **13.3.2 Site Grid**

- 1 When it is a requirement of the Project Documentation, or unless otherwise notified by the Engineer, the Contractor shall establish a Site Grid. The orientation of the Site Grid shall be determined by the layout of the proposed works and as agreed with by the Engineer. Grid spacing shall be 20m in each direction unless otherwise notified by the Engineer. Grid notation shall be numerical in one direction (y-axis) and alphabetic in the other (x-axis).
- 2 The grid shall be tied to the Qatar National Grid. An existing control station related to the Qatar National grid will be indicated by the Engineer for this purpose.

## **13.4 SURVEYING**

### **13.4.1 Site Survey**

- 1 The Contractor shall provide the Site survey and the correctness of that survey shall be entirely the Contractor's responsibility.
- 2 The Site survey shall comply with the requirements of the Qatar Survey Manual as a minimum.
- 3 The Contractor shall, within 3 weeks of the date of commencement of the Works, carry out a check of the co-ordinates and levels of all permanent monuments, bench marks and survey markers used in the determination of the site survey model and proposed to be used for the setting out of the Works.

## **13.5 SETTING OUT**

### **13.5.1 Setting Out of the Works**

- 1 The Contractor shall carry out at his own cost the setting out of the Works.
- 2 The Contractor shall be responsible for:
- True and proper settings out of the Works in relation to reference data given in the Project Documentation.
  - Accurately setting out the positions, levels and dimensions of all parts of the Works.
- 3 Any delay or loss resulting from errors in the setting out of the Works shall be the responsibility of the Contractor. Setting out shall be reviewed by the Engineer before commencing the Works, but such approval shall in no way relieve the Contractor of his responsibility for the correct execution of the Work.
- 4 The Contractor shall provide measuring and recording equipment for the Engineer in accordance with the relevant provisions of Part 11 of this Section, Engineer's Site Facilities. The Contractor shall maintain all measuring and recording equipment in good working order at all times.
- 5 The Contractor shall provide all assistance which the Engineer may require for checking the setting out and taking measurements of the Works, including labour, equipment and transportation.

### **13.5.2 Setting Out of Works Sited on Private Land**

- 1 The Contractor shall notify the Engineer in writing fourteen (14) days in advance of his intention to set out any part of the Works that lies in private land.

- 2      The Contractor shall ensure that all requirements and instructions of private land owners are strictly adhered to.

**END OF PART**

ARAB ENGINEERING BUREAU