

MINISTRY OF ELECTRICITY & WATER

WATER PROJECTS SECTOR

Tender No . MEW/ 85 / 2012-2013

Construction and Maintenance of 5 Nos. R.C.
Ground Reservoirs for Fresh Water, 55 M.I.G
Capacity Each, and Annexed Works at Mutla
High (Stage-II)

وزارة الكهرباء والماء

قطاع مشاريع المياه

مناقصة رقم و ك م / 85 / 2012-2013

انشاء وانجاز وصيانة عدد 5 خزانات أرضية من الخرسانة المسلحة
للمياه العذبة سعة كل منها 55 مليون جالون إمبراطوري مع الاعمال
الملحقة بمنطقة المطلاع العالي (المرحلة الثانية)

الجزء الخامس : نطاق الأعمال



SECTION FIVE : SPECIAL TERMS & CONDITIONS

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GOVERNMENT OF KUWAIT

MINISTRY OF ELECTRICITY AND WATER

CONSTRUCTION AND MAINTENANCE OF 5 NOS. R.C. GROUND RESERVOIRS FOR FRESH WATER, 55 M.I.G CAPACITY EACH, AND ANNEXED WORKS AT MUTLA HIGH (STAGE-II)

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SCHEDULE OF RATES & BILL OF QUANTITIES

CONSTRUCTION AND MAINTENANCE OF 5 NOS. R.C. GROUND RESERVOIRS FOR FRESH WATER, 55 M.I.G CAPACITY EACH, AND ANNEXED WORKS AT MUTLA HIGH (STAGE-II)

<i>ABBREVIATIONS</i>	
No.	Number
Mt. / M.R	Metre
L.M.	Linear Metre
C.M.	Cubic Metre
S.M.	Square Metre
K.D.	Kuwaiti Dinar
Fl.	One KD. = 1000 Fils
FL.	Flanged
S.V.	Sluice Valve
B.V.	Butterfly Valve
W.O.	Washout Valve
Soc.	Socket
Sp.	Spigot
D.I.	Ductile Iron
St.	Steel
Mec.C.	Mechanical Coupling
R.C.	Reinforced Concrete
P.C.	Plain Concrete
Item	Item
L.S.	Lump Sum
Dia.	Diameter
SYT.	System
F.W.	Fresh Water
B.W.	Brackish Water

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NOTES:

1. The Tenderer should read and study carefully the 'Method of Measurement' as specified in the Contract Documents before pricing any item in the Bill of Quantities.
2. The Polyurethane Sealant shall be strictly applied in accordance to B.S. specification and manufacturer's instructions. The application of the polyurethane shall be done by well trained staff from the manufacturer or his Kuwaiti Agent, and the staff should be approved by the Engineer.
3. The quantities of earthworks & pipe laying will be remeasured and subjected to MEW recommendation for any deviation of works. Therefore contractor would not be entitled to claim such amount from BOQ unless and otherwise it will be executed.
4. The location of puddle flanges of pipe fittings shall match with civil working drawing and should be reconfirmed to MEW before placing the order.
5. All the pipelines and fittings tapping points required must be fabricated at the place of manufacturer along with fittings. See also T.I.C specifications & drawings for more details. The prices of tapping points to be included in the contract price.
6. The installation of pipes is including connection to manholes, bedding of pipes etc. (as per specification)

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5.1 GENERAL

The purpose of this section is to modify or clarify other sections of these contract documents and to provide supplemental clauses to the contract documents. The works shall be performed in accordance with the General Conditions of the Contract, the specifications, the particular specifications and conditions, technical requirements, contract drawings and all exhibits, appendices, related documents and all other written directives, orders and communications of the Engineer.

5.2 SCOPE OF WORK

The Contractor has to give priority for the submission of a comprehensive report about the direct effect of the project on the surrounding environment through one of the consultant offices approved by the Environmental Public Authority within three (3) months from the date of handing over the site. Work shall not be commenced before submission of the report to MEW.

This tender covers the following works:

Important:

One brackish water pipeline Ø800mm, which is running between underground wells no. 23 and 24 and in operation, would be interfering the reservoirs M and N, as shown in the Drawing No. W.P.D. 6397 / 10 - Diversion Of Existing Ø800mm Pipeline. Hence, before starting any excavation work for these two reservoirs, a new diversion pipeline of Ø800mm has to be laid as mentioned in BOQ No. 2, Item No. 9. After laying the pipeline, cut and connect to the existing line at tie-in points, as mentioned in the Drawing No. W.P.D. 6397 / 10 - Diversion Of Existing Ø800mm Pipeline, in order to keep the wells in running condition and remove the existing line and shift the materials to MEW stores as mentioned in the above BOQ Item. This work has to be coordinated with the concerned department.

Construction & maintenance of 5 nos. R.C. ground reservoirs for fresh water, 55 M.I.G. capacity each, and annexed works at Mutla High (Stage-II), including all internal and external piping and all required connections to the existing pipe lines and asphalted roads.

5.3 COMPLETION DATE AND PENALTY FOR DELAY

The period for completion of the whole works shall be Thirty Six (36) months beginning from the date of handing over of the site, which shall be within 30 days after signing the contract.

The contractor has to consider such eventualities in his rates and no claims shall be accepted for any extra cost, expenses, wages or any other charges whatsoever. The contract period shall be inclusive of all weekly rest days, holidays, and reduced working hours during

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Ramadan and any stoppage(s) due to the weather conditions. The daily working hours of the contract will be same as official working hours of Ministry.

Should the contractor fail to meet the completion date set above, he shall be liable for deduction of half percent (1/2%) of the amount of uncompleted works (which could not be used for and/or put into operation) each week of delay or part of a week thereafter up to a maximum of (10%) of the bill sum, according to Clause 3.24 in section III of the general conditions.

5.4 MAINTENANCE PERIOD

The period of maintenance will be twenty four (24) months for civil, mechanical, instrumentation and electrical works, from the date of handing over all the works under that section in a good working condition. During the maintenance period the contractor must make good all faults to the satisfaction of the Engineer, and before the retention money is released. However, in the case of water leakage where immediate remedial action is necessary, the Ministry may carry out the work and charge the contractor with cost, provided the Engineer consider such leakage to be due to faulty construction. For electrical and control works, the contractor shall be responsible to provide all necessary spare parts needed and consumable materials.

5.5 INSPECTION OF SITES AND SITE OBSTACLES

The Tenderers are advised to inspect and examine the site and its surroundings to satisfy themselves before submitting their tender as to the nature of the ground and sub-soil, the form and nature of the site, the quantities, and nature of the work and materials necessary for the completion of the works.

The Tenderer shall doubly ensure by inspection of site and the soil condition whether it is loose, semi loose, rocky or in any form, before quoting for rates. The soil exploration details given by MEW are for guidance only. It is Tenderer's sole responsibility to inspect the site and analyze the soil condition before tendering.

The Tenderer's quotation for various items must allow for any grading and leveling of temporary roads necessary for transporting supervising staffs, materials, plants, etc.... to and about the site.

They shall obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect the execution of the works and include the costs thereof in their tender.

It is hereby stressed that all information given on the tender drawings are to be considered as indicative only without guarantee of accuracy or completeness. Tenderers are advised to visit the proposed site for the project and make their own investigations and enquiries regarding the nature and details of the works, positions, sizes, number and details of all obstacles, whether hidden or not, such as culverts, overhead lines, roadways, other pipelines

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and services, etc. and also to make themselves conversant with the nature of the terrain. The contractor shall be responsible for contacting the various Government Ministries and Authorities for this purpose.

The rates given in the Schedules hereafter must include for all extra costs involved in negotiating such obstacles and no claim will be considered for additional expenses, the contractor may incur on account of obstacles of any nature. Any excavation needed to determine the exact location and levels of any obstacles shall be done by the contractor at his own expense.

5.6 QUALITY OF MATERIALS AND WORKMANSHIP AND TEST

All materials and workmanship shall be of the best quality in their class and of the respective kinds described in the contract and in accordance with the Engineer's instructions and shall be subjected from time to time to tests, as the Engineer may direct, at the place of manufacture, fabrication, on the site or at all/any of such places, see Clause (3.6) of the General Conditions (Section III). The contractor shall provide on site all necessary testing equipments that could reasonably be required on a project of this size and nature to the satisfaction of the Engineer.

5.7 CONTRACT DOCUMENT TYPING

The contractor shall type the complete contract documents, with all sections, attachments, correspondences before/after signing the contract and prefatory minutes of meeting. Six volumes A4 size, excellent type and another six volumes A1 and A3 size for contract drawings shall be provided along with soft copy (CD) for the whole contract documentation. MEW approval before start of typing is required. Contractor should submit the same during the mobilization period.

5.8 WORKING DRAWINGS

The Tender Drawings are only indicative and for information and to give a general idea about the nature of the works required. They are not guaranteed to be accurate or correct and the Contractor has to check and verify all drawings, designs, specifications and bill of quantities as well as the structures on site, if any, and shall officially comments thereon as he shall assume full responsibility for the execution thereof. Where figures are shown on the drawings, they shall take precedence over scaled distance and dimensions.

The Contractor should submit his proposed detailed working drawings six (6) copies for all the works included in the contract, to the Engineer for approval before commencement of the construction works.

5.9 QUANTITIES

Quantities set out in the schedules are not to be used as a basis for the ordering of materials and the contractor shall make his own measurements and estimates for such purposes. The

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contractor shall be deemed to have satisfied himself as to the general accuracy of the quantities given in the bills of quantities. He shall take into his account any differences which deems to exists according to his calculation and provide for such differences in his contract price.

The contractor shall be paid according to the actual works executed as per the contract drawings, specifications and/or the written instructions of the Engineer.

5.10 CONTRACTOR'S STAFF ON SITE

The contractor must always maintain in charge for the works fully competent qualified staff of Engineers. The said staff shall be of the tenderer's own staff and not employed particularly for this contract. The suggested staff mentioned below will be considered as a minimum for each site of works.

1. One Project Civil Engineer having not less than 15 years of experience in works similar to those included in this contract. This project Engineer will be in charge of the whole works included in the contract.
2. One Assistant Project Civil Engineer having not less than 10 years of experience in works similar to those included in this contract. This project Engineer will be in charge of the whole works included in the contract.
3. Three site Civil Engineers having not less than 7 years of experience of works similar to those included in the contract.
4. One site Mechanical Engineer having not less than 7 years of experience in pipe laying and to be on site during time of construction of pipe lines. (for each site)
5. One Quality Control Engineer with not less than 10 years of experience in similar field to be at site when required.
6. One Electrical Engineer having not less than 7 years of experience in similar field to be at site when required.
7. One site Instrument Engineer, having not less than 7 years of experience in control works to be on site when required.
8. One site safety officer with not less than 7 years of experience in similar field to be at site when required.
9. Three General Foremen having not less than 15 years of experience of works similar to those included in contract.
10. One Electrical Foreman not less than 7 years of experience in similar field to be at site when required.

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The nomination of the contractor's Engineers must be approved by the Engineer in writing. The latter may require the removal and replacement of any of the contractor's staff, if he considers him unsuitable and the contractor shall remove and replace him immediately. The contractor shall pay to the Employer of the following amounts for every day of absence or delay in appointing or substituting the required staff mentioned above.

PROJECT CIVIL ENGINEER	KD.150/- PER DAY.
OTHER ENGINEERS	KD.100/- PER DAY.
GENERAL FOREMAN	KD.100/- PER DAY.
SAFETY OFFICER	KD.100/- PER DAY.
QUALITY CONTORL ENGINEER	KD.100/- PER DAY.

5.10.1 Surveyor, Foreman and Clerk

1. The contractor shall maintain, during the whole life of the contract, permanent, well experienced and efficient Two (2) surveyors and Ten (10) efficient foremen as a minimum for the site to carry out the duties and execute the works called for in the 'conditions of contract'. He shall also maintain a well experienced Lab Technician and two clerks to keep proper records of all aspects of the work and to be in charge of the receipt and issue of materials.
2. Should the contractor fail to comply with the provisions of sub-clause (a) above, he shall pay to the Employer the following amounts for every day of absence or delay in appointing or substituting the required staff.

KD. 30/-, Per day in respect of any of the SURVEYORS.
KD. 30/-, Per day in respect of any of the FOREMAN.
KD. 30/-, Per day in respect of any of the LAB TECHNICIAN.
KD. 10/-, Per day in respect of the CLERK.

Such amounts shall be deducted from the payments due to the contractor

3. The Engineer shall be at liberty to, and require the contractor to remove forthwith from the works any person employed by the contractor in or about the execution or maintenance of the work, who in the opinion of the Engineer misconducts himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by the Engineer to be undesirable and such person shall not be again employed upon the works without the written permission of the Engineer.
4. Any person so removed from the works shall be replaced as soon as possible by a competent substitute approved by the Engineer.

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5.11 RECORD DRAWINGS

At the end of the work the contractor should prepare and provide the Ministry with one (1) sets of complete drawings having a proper and approved cover showing all details of the works as executed, for checking any approval. They shall clearly show all deviations from the original drawings.

The drawings must be neatly presented to the complete satisfaction of the Employer. All text and figures to be typed and all drawings and maps to be neatly traced. MEW approved Mother print paper (Tracing paper) shall be used. Approval of Headings shall be taken.

After approving, the contractor should provide the Ministry with four (4) complete set of drawings and one set of transparent as signed and approved by the contractor. These drawings shall be a property of the Ministry, the size of the drawing sheet should be 594x841 mm. and the sets of drawings should be properly bound with good cover.

In addition to the above mentioned, the contractor should supply and deliver to the Engineer five (5) sets digitized copy for all the project's record drawings after approval.

The copy should fulfill the following requirements:

1. Saved on 5 sets of CD's and/or DVD's.
2. The data to be on (DWG) format and can be processed and edited by AUTOCAD-R2000 or latest installed on operating system Window 2000 or latest.
3. Each CD should be stuck with label. The project name, drawing number and title should be printed on the label of each CD.

One sample CD containing a drawing data and fulfilling the above requirements shall be submitted by the contractor for the Engineer's approval before the delivery of the complete set of the Digitized copy CD.

The CD shall be delivered in an approved dust-seal CD container provided with sticker having the name of the project.

The cost and expenses involved shall be included in the contract price.

5.12 CO-OPERATION/CO-ORDINATION OF WORKS WITH OTHER CONTRACTORS

It should be noted that other contractors will be working during the same period on related projects execution of gathering pipelines, overhead lines and fixing of pumps in wells. Therefore the contractor shall do his best to co- operate with other contractors without interfering with their works or obstruct their passage. Any matter of difference or dispute between him and the other contractors shall be referred by the contractor immediately to the Engineer whose decision shall be final and binding on the contractor. If the Contractor fails

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to carry out the Engineer's instructions, he will be responsible for any claims from the other contractors to the Ministry that are found due to his negligence.

5.13 NOTES REGARDING SCHEDULES OF RATES

1. The rates entered against the several items in the Schedules of Rates shall cover the execution, completion and maintenance of such items finished complete in every respect in strict compliance with the Contract Documents.
2. The rates shall also cover all costs and every kind, including but not limited to, all overhead charges, supervision, transport, profits, materials, waste and labour, the provisions, maintenance and repair of all plant, equipment and appliances of every kind, the construction and maintenance of all temporary works of every description, the performance of all services that may be required for the proper execution, completion and maintenance of the works in full and complete in accordance with the provisions of the contract documents and the undertaking and discharging of all obligations and responsibilities therein defined.
3. The general and special directions, stipulations, particulars, descriptions of workmanship and materials, etc. and all other matters in the contract documents affecting the rates shall be deemed to be reported in the following schedule of rates and the several rates shall include the same as though specifically mentioned.
4. All measurements shall be taken net, unless otherwise specified, and shall be applicable to finished work only.
5. Any item of the quantities tabulated may be increased, decreased by any ratio or even deleted as deemed by the Engineer without affecting their rates.
6. Quantities set out in the schedules hereafter are not to be used as a basis for the ordering of materials and the contractor must make his own measurements and estimates for such purposes.
7. Item of works left un priced, or work and material needed in the contract not itemized shall be deemed to be included in the price of other items of the works.
8. Prices shall include the supply and construction of all temporary buildings, mobile offices furnishing and maintaining all offices, laboratories, erecting shelters for cars and all other facilities, all as per specifications and to the satisfaction of the Engineer.
9. Persons tendering shall be deemed to have satisfied themselves before tendering as to the correctness and sufficiency of their tender for works and of the rates and prices stated in the schedules, which rates and prices shall (except in so far it is hereinafter otherwise provided) cover all their obligations under the contract and all

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matters and things necessary for the proper completion and maintenance of the works.

10. Prices given in the schedules must allow for complying in all respects with the requirements of the General, Technical and Particular Specifications.
11. The Tenderer is required to give a price for each item listed in the Schedule of Rates and Quantities. Not all items of work or material required to complete the project are listed in the schedules. The tenderer may, if he so chooses, add supplemental sheets to the schedule of rates and quantities setting forth any unlisted items of work or materials, and their price that the tenderer feels are of such importance that they should be listed. If the tenderer does not add any supplemental sheets to the schedule of rates and quantities, then the cost of any item of work not listed on schedules of rates and quantity, but which is necessary for completion of the project as shown on the drawings or required by the specification shall be deemed to have been included elsewhere in the rates quoted.
12. All materials described in the Bill of Quantities to be supplied or provided, shall be approved and tested to the satisfaction of the Engineer before fixing.
13. All works shall be carried out according to the best recognized practice and to the specification adopted by the Ministry of Electricity & Water MEW and/or Ministry of Public Works (MPW).

5.14 METHOD OF MEASUREMENTS AND PAYMENTS

5.14.1 Structural Excavation

Before work is put in hand, the Contractor and the Engineer shall together survey and take levels in the areas where the works are to be carried out, and agree to the surface levels of the materials to be excavated or built upon and such agreement shall be recorded in writing and signed by the Engineer and the Contractor.

The quantity to be paid shall be the number of cubic metres measured in original position of any kind of solids (Gatch, rock, sand, loose sand etc.) excavated in conformity with the plans or as directed by the engineer but in no case shall any quantity be included in the measurement for payment which is outside of a volume bounded by vertical planes just outside of and parallel to the outside line of plain concrete of footings.

Rates shall include for backfilling and compacting up to the original ground level. Quantities of any material re-handled shall not be included in the measurement for payment.

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5.14.2 Cement Soil Stabilization

This item is provisional and shall be used only if directed by the engineer. The quantities to be paid for shall be the number of cubic metres complete in place and accepted by the Engineer as per specifications.

5.14.3 Concrete Work

The quantity to be paid for concrete works shall be number of cubic meters or square meters for each class of concrete, as measured from the drawings and agreed with the Engineer, complete in place and accepted.

In computing the Quantity of concrete for payment, the dimensions used shall be those shown on drawings or ordered in writing by the Engineer.

Reinforced concrete price shall include all reinforcement shown on drawings.

No measurements, payments or other allowances will be made for formworks, shuttering, bracing, chamfer or finishing of any description as such works should be included in the rates of concrete. No deduction in quantities will be made for volume of fittings, pipes and manhole covers and frames, unless noted in the Bill of Quantities.

No Extra payment shall be paid for any work, equipment or material needed to complete the concrete items as per specification of the Engineer.

5.14.4 Measurement of Steel Reinforcement

Notice is hereby given that no separate measurement for steel reinforcement bars shall be made. All steel reinforcement shall be deemed to be included in the rate of concrete works.

5.14.5 Joints in Concrete Works

The quantity to be paid shall be the number of linear metre of water stop and shall include for but not limited to Water stop, Filler, sealant etc. No measurement shall be made for the joints which do not have PVC Water stop. Such parts should be included in the rate of joints.

5.14.6 Surface Boxes, Covers, Covers and Frames, Vents, Ladders & Level Indicators

The quantity to be paid shall be the number of each unit erected and accepted, rates shall include for but not limited to;

1. Painting all C.I. items with two coats of approved bituminous compound.
2. Painting of all D.I fittings inside the chambers shall be with epoxy based paint and the rate shall include this item.

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3. All stainless steel items shall conform to 316L and should be pickled and passivated before installation.

5.14.7 Brickwork and Block work

The unit of measurement for brickwork and block work and the like shall be “Square Metres”, and the area shall be that required by the drawings and specification measured on the center-line of the wall. Separate items are provided for each material and each nominal thickness of wall. No deductions shall be made for brickwork and block work displaced by lintels, sills and the like and for openings not exceeding 0.25 square metres in area. Walls are measured through attached piers.

Rates for brickwork and block work in walls and the like shall include for all attached piers, all joints, ties, pointing, damp proof courses, reinforcement, flashings, cavity closures, rough and fair cutting, fair returns and all chases, holes, openings and building in pipes, ducts (including provision of sleeves and ducts), steel sections, doors and window frames and the like, and the construction and demolition of sample panels as specified.

Separate rate for line brick work and solid block work to be quoted.

Rendering, plastering, tiling, painting and other internal finishes to brickwork and block work shall be measured in accordance with clause 5.14.12.

5.14.8 Roofing

The unit of measurement shall be “square metres” and applicable to the composite covering detailed on the drawings and set out in the specification measured over the plan area to the extremities of the particular finishing as detailed on the drawings with no deductions for projections or openings through the roofing not exceeding 0.10 square metres in plan area.

Separate items are provided for each type of roofing system to be used.

The rates shall include for the roof finish complete including vapour barriers, light weight screeds finished to falls and cross falls, water proof membranes, insulation board, all adhesives and solar reflective tiles. The rates shall also include for flashings, counter flashings, turn ins, eaves trims, angle fillets, forming rebates and chases and working to all outlets, perimeters, gutters, up stands, obstructions and the like complete.

5.14.9 Doors, Windows, Louvers, Partitions and Furniture

The unit of measurement for doors, windows and louvers shall be “number”. The rates entered for doors, windows and louvers shall include where applicable for supply, fitting, hanging, glazing, door closures, door furniture, fittings, signs, frames, painting and the like complete.

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The unit of measurement for partitions which include the removal type as well as curtain walling, access panels and glazed screens is either “number” with the dimensions specified or “square metres” measured through all doors and openings with the partition. The rates shall include where applicable for supply, fitting, hanging, glazing, door closures, door furniture, fittings, signs, frames, painting and the like complete as shown on the drawings and detailed in the specifications.

The unit of measurement for furniture shall be “number”. Separate items are provided for each type of furniture. The rates shall include for supply and installation in the locations as directed by the Engineer.

Rates for laboratory benches shall include for all cupboard and drawer units, worktops and all fittings listed in the specification and allow for all cutouts necessary to receive fittings. Separate items are provided for sink units and water, gas and waste fittings.

5.14.10 Metal work

The rates for all metalwork items shall include for the supply, installation and everything necessary to complete the items, including all supports, frames and fixings, preparatory work, painting and finishing.

The unit of measurement for chequered plating, open metal flooring, duct covers, landings and the like shall be “Square Metres” measured as the net clear opening. The rates shall include for all raked and curved cutting, supporting steel work, frame work, fixing and the like.

The unit of measurement of hand railing shall be “linear metres” measured along the center line of the upper handrail of all horizontal, curved and inclined sections.

5.14.11 Building Services

The unit of measurement for sanitary fittings shall be “number” and the rate shall include for the supply and fixing of all the composite equipment necessary.

Unless otherwise mentioned in the Bill of Quantities, the following shall be considered:

Building service pipe lines shall be measured in “linear metres” through all fittings such as tapes, connectors, bends, elbows, tees and the like. Soil pipe lines shall be measured to the first inspection chamber or manhole on the sewerage outside the building. Water and fire service pipe lines shall be measured to and include the connection with the site water and fire service mains respectively. Separate items are provided for each pipe material and each diameter. The rates shall include for the supply and installation of all pipes and fittings not separately enumerated to complete the building service pipelines including works external to the building. The unit of measurement for valves on service pipelines shall be “number”. Separate items are provided for each type and size.

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“Linear Metres” measured through all fittings etc., from the collection to the discharge points. Separate items are provided for each pipe diameter. The rates shall include for the supply the unit of measurement for rainwater pipe work shall be and installation of the pipes and all fittings complete.

The unit of measurement for ducts built into walls, slabs and beams for main electrical cables shall be “linear metres”. Ducts and conduits associated with lighting, small power, ventilation, telemetry, control, telephones and the like, shall not be measured separately but shall be included in the rates for these works. Ducts built into walls, slabs and beams for pipe lines shall not be measured separately but shall be included in the rates for the pipe lines. The rates for all items included under this heading shall include for all fittings not separately enumerated, building in, fixing, associated fixtures, supports and the like as shown on the drawings and detailed in the specification to complete the works.

5.14.12 Floor, Walls and Ceiling Finishes

The unit of measurement for finishes shall be “Square Metres” except for skirting which shall be “linear metres”. The area for finishes except for skirting and the length for skirting shall be the finished area and finished length respectively shown on the drawings or as otherwise instructed. No deduction shall be made for voids not exceeding 0.25 square metres in area. Separate items are provided for each type of finish but painting to plaster, painting to timber and screenings and rendering beneath tiled finishes shall not be measured separately but included in the rate for the item.

The rates for all finishes shall include for the fully inclusive finish in accordance with the specification and drawings irrespective of the number of sub-coats or layers required and water proofing membranes, angles, working to falls, working into reveals, openings, channels, kerbs, working into flush, raised or sunk panels, all expansion joints and the like. The rates shall also include for all joints and boundaries to other finishes, making good around joints, channels, pipes, tubes, bars, ducting, tanking and the like.

The rates for suspended ceilings shall also include for the support system and infill panels.

5.14.13 Pipe Works, Ductile Iron Pipes, Valves and Fittings

5.14.13.1 Earthworks

Unless otherwise mentioned in the bill of quantities, the rate shall include for, but not limited to:

1. Collect from MEW stores or supply as mentioned in bill of quantities all Ductile Iron Pipes, Polyethylene sleeves fittings and valves.
2. Clearing and grading the pipeline route; excavating in any type of ground including gatch, rock, running sand, concrete, old foundations, roadways, paths, paved areas, slabs, grass, etc., planking and strutting; leveling and compacting the bottom of the

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trench; extra excavation at joint holes and for fittings etc. as necessary, extra excavation from the main trench to make all connections with existing mains as shown on the drawings; and all things necessary, whether mentioned herein or not, to ensure that trenches are dug to the correct line and level and maintained in a safe workmanship like manner backfilling and compacting as specified; removal to tip of surplus excavated materials, provision of extra filling materials to replace rock and other materials not permitted for backfilling, provision of sand padding where and when specified, for the reinstatement of all surfaces including roads, paths, paved areas, kerbs etc., to match the existing and to the satisfaction of the Engineer. The temporary removal and replacement if and as approved by the Engineer of all fences, walls, hedges and other such obstructions along the route of the pipeline.

3. Laying, fixing, assembling and joining all pipes and fittings in trench bottoms or in manholes.
4. Supply of soap, lubricating paste etc.,.
5. Cutting and turning pipe ends where required.
6. Painting from inside and outside all fittings by approved bituminous compound.
7. Construction of manholes complete with all accessories needed, including for the design calculation of manholes and preparing full detailed working drawing all to be submitted to the Ministry for approval.
8. Design and construction of concrete thrust blocks and pedestals. Design calculations and drawings shall submit and approved by the Engineer before commencement of work.
9. Preparing and submitting to the Ministry full detailed working drawings for approval.

Note:

- Inlet and outlet manholes constructed to the wall of reservoir are included with the items of reservoir itself.
- All as per specifications, drawings, standards of good workmanship and to the satisfaction of the Engineer.

5.14.13.2 Drainage Works

All drainage works shown on drawings shall be as per the following:

1. Supply of all reinforced concrete pipe (Sulphate resisting type) from the National Industries Company, Kuwait.

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2. Joining together according to the Manufacturer's specifications.
3. Connecting to existing manholes if any.
4. Clearing and grading of pipe line route etc,
5. Provision of concrete padding under the R.C. pipes when and where required.
6. Construction of R.C. drainage to the required gradient & for rain water drainage including connection to drainage manholes.
7. Construction of drainage manholes complete with all accessories needed including for the design of manholes and preparing full detailed working drawings all to be submitted to the Ministry for approval.

NOTE:

All as per specifications, drawings, standards of good workmanship and to the satisfaction of the Engineer.

5.14.14 Cleaning, Flushing, Testing and Disinfection of Pipelines

The measurement for this item shall be considered as complete lump sum for the whole lengths of the pipeline and its accessories.

The rates for cleaning and flushing of the water pipelines shall include but not be limited to:

1. The supply of water needed
2. Supply of all materials and equipments,
3. Cleaning including application of chlorinating agents
4. Testing and flushing of the pipe line
5. All necessary connections and any other operation work and all things necessary to ensure that the completed work meets the requirements of specification, standards of good workmanship and to the satisfaction of the Engineer.

5.14.15 Cleaning, Flushing and Washing of Reservoir

The measurement for this item shall be considered as complete lump sum for each reservoir.

The rate shall include but not be limited to:

1. The supply of water needed.
2. Supply of all materials and equipment.
3. Cleaning the whole concrete surfaces thoroughly washing and pumping away the water used for cleaning.
4. MEW shall charge the Contractor for the fresh water used for the cleaning, washing and flushing processes at the rate of 800 Fils per One Thousand Imp. Gallons of water.

All work and all materials necessary to ensure that the complete works meet the requirements of the specifications and to the satisfaction of the Engineer.

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5.14.16 Testing and Disinfection of Reservoir

The measurement of this item shall be considered as complete lump sum for each compartment of the reservoir.

The rate shall include for but not limited to:

1. MEW shall supply the fresh water needed for tests from the existing main with a rate of flow to be decided by the Ministry.
2. The contractor has to make all the arrangements for testing and disinfection, and prepare whatever is needed to receive the water into the reservoir for disinfection and testing.
3. Water used for testing shall be fed into the reservoir with chlorine applied in amounts to produce at least 2 ppm. After 24 hours standing. The dosage must not exceed 10 ppm without the approval of the Engineer. The disinfectant solution shall remain in the reservoirs for such periods as the Engineer instructs, but in no case less than 24 hours.

In case of test failure, the Contractor has to repeat the test and disinfection procedure without any extra cost.

5.14.17 Contract Price

It should be noted that the measurement for all items in Bill of quantity will be for the actual quantities executed and the contractor will be paid for the executed works only.

The rates given for any item may be used as a basis for any variation.

5.15 BREAKDOWN OF UNIT PRICES FOR LUMP-SUM ITEMS

5.15.1 The tenderer is required to submit with his offer detailed breakdown sheets for items where required in the Bill of Quantities. Any item in the breakdown sheets should include for the profit and overhead. (Form of break down sheet is attached in Section 7, Appendices No. 12)

5.15.2 It should be noted that the measurement for all items mentioned in the above clause will be for the actual quantities executed and the contractor will be paid for the executed works only according to the analysis of the rates.

5.15.3 Should the Sum of the executed works for the above mentioned items exceed the total sum given for this item, the contractor will be paid the amount given in the lump-sum item as a maximum, and no payment will be made for the extra amount executed.

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5.15.4 The rates given for any item may be used as a basis for any variation.

5.16 TERMS OF PAYMENT

Payments under this contract shall be effected in Kuwaiti Dinars (KD) only.

Payment becoming duly payable by the owner shall be transferred to the contractor's account opened with one of the approved Kuwaiti banks. Notification of the number of the contractor's account and the name of the bank involved shall be submitted to the owner by means of an authenticated letter.

Accordingly, the owner shall deposit the payments due during the contract, unless he is notified otherwise within a reasonable time prior to the due date of payments. Payments due will be deposited without any obligations whatsoever on the part of the owner.

5.16.1 Method of Payment

Payments under this contract shall be affected in Kuwait Dinar (KD) only. Payment shall be transferred to the Contractor's account opened with one of the approved local Kuwaiti banks. Notification of the number of the contractor's account and the name of the bank involved shall be submitted to the Owner by means of an authenticated letter.

Accordingly, the owner shall deposit the payments due during the contract, in the contractor's account, unless he is notified otherwise within a reasonable time prior to the due date of transfer. Payments due shall be deposited without any obligations whatsoever on the part of the Owner.

The following shall regulate the method of payments to be made by the Owner to the Contractor.

5.16.2 The Contractor after signing the Contract, will be entitled to an advance payment of an amount equal to Ten per cent (10%) of the total contract Price if requested within 45 days from the date of signing the Contract against unconditional Bank Guarantee with the same amount of the advance payment issued from any approved local bank in Kuwait. Guarantee shall be valid till the refund of the total payment. Ministry shall not pay any interest on the guarantee. Contractor's creditors, are not allowed to seize its amount.

No advance payment shall, however be allowed to compensate for variation orders.

5.16.3 Materials Supplied to the Site

The contractor will be entitled, upon a detailed application of the quantities of materials supplied to the site, inspected and accepted and submitted to the Engineer, within sixty (60) days, to be paid a percentage of its value as follows:

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1. **Reinforced Concrete:** Fifty five (55%) percent of the value of Rebar as per purchase bills, or as shown in the breakdown of the BOQ rates, provided that the value does not exceed forty (40%) percent of the equivalent volume of reinforced concrete in the BOQ in Cubic Metres.
2. **D.I. Pipes, Fittings & All Types Of Valves:** Fifty five (55%) percent of the value of materials inspected and accepted by the third party independent inspector, after storing in the correct manner and visually inspecting it on site, as per purchase bills, or as shown in the breakdown of the BOQ rates, provided that the value does not exceed forty (40%) percent of the item rate in the BOQ in Number or Meter Run.
3. **Electric, Control & Data Transfer Instruments System:** Fifty five (55%) percent of the value of these instruments or systems after inspection and simulation testing during manufacturing at the vendor's facilities in the country of origin according to the contract conditions, after storing in the correct manner and visually inspecting it on site, as per purchase bills, or as shown in the breakdown of the BOQ rates, provided that this value does not exceed forty (40%) percent of the item rate in the BOQ in Numbers or Lump Sum.
4. **Copper or Fiber Optic Cables:** Fifty five (55%) of the supplied quantities in Meter Run as per purchase bills, or as shown in the breakdown of the BOQ rates, provided that this value does not exceed forty (40%) percent of the value of the same lengths in the BOQ.

5.16.4 The Contractor shall be entitled to have monthly interim payments up to (80%) of the total price of the works covered by the detailed statement of the measured executed works until the date of statement. The Owner shall upon the Contractor's written request, check the statement and pay the due amount(s) to the Contractor within sixty (60) days from the date of the contractor's request after deductions of the total accumulated amount of all the previous interim payment to date, from any amount due to the Owner.

5.16.5 Preparing and paying of the interim payment certificate shall be made within 60 days from the date when the Contractor submits his applications in complete order. In case the application provided is incomplete then the 60 days period shall be counted from the date the Contractor completes his application.

5.16.6 As soon as the works are completed according to the contract provisions and have satisfactorily completed the Reliability Test Run and Acceptance Test. The Contractor shall submit a written request to the owner for issuing of a Taking over and Acceptance Certificate. The Contractor's request shall include the complete account of the contract or of any part thereof, showing in detail all previous payments made and the balance amount due.

The Engineer shall examine and verify the information included in the said request and the owner shall upon the recommendation of the Engineer form a committee for the survey and inspection of the works. The committee shall give its recommendation upon which the owner shall issue the Taking Over and Acceptance certificate in which shall be certified the

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date of work completion, test passed and acceptance of the owner thereof, also the date which the guarantee and maintenance period begins.

In the event that work under the Contract is divided into sections, the owner shall be free to accept and take over any section of the work completed and tested and he shall issue separate taking over and acceptance certificates for each section that has been accepted and taken over. According to agreement reached between the owner and the Contractor, the acceptance and taking over of some parts of work may be arranged before completion of the whole works by issuing separate certificates thereto.

The taking over and acceptance certificate issued for the work does not imply a full, satisfactory completion.

If for any reason of the Contractor's default the issuing of the Taking Over and Acceptance Certificate for the work or any portion thereof was delayed, for a period that exceeds one month from the completion date specified under the Contract, the owner shall be free to use the Works, or any part thereof, provided that the said work can be safely operated while the Contractor may still have the opportunity to make the necessary arrangement for issuing of the Taking Over and Acceptance Certificate.

5.16.7 After issuing taking over certificate, the Owner shall pay to the Contractor upon HIS written request, accompanied with an account signifying the executed works and deserved sums, up to (90%) of the total price of the works covered by the Taking Over Certificate after deduction of any amounts due to the Owner, due penalties, and the value of outstanding works.

5.16.8 When the Final Acceptance Certificate for the Works is issued by the Owner , the Owner will approve the payment due to the Contractor up to 100% of the amounts for the Works included in the Certificate after deducting any amounts due to the Owner.

5.16.9 The Contractor may request the Owner to give him a Final Certificate at any time after the Contractor becomes free from all his obligations under the Contract. The Contractor may request a separate final certificate for a complete unit for which he has already acquired a Taking Over and Acceptance Certificate, and any time after he becomes free from his obligations with respect to that particular part of the work.

The Final Certificate shall not be issued unless the Contractor has fulfilled all his obligations under the Contract and delivered all the required spare parts Then the owner shall within thirty days after receiving the request of the Contractor with respect thereto form a committee which shall inspect the works and give its recommendation within three months.

MEW will not issue final payment certificate to contractor / subcontractor until they submit certificate from ministry of finance stating that the contractor has paid all due amounts to the ministry of finance .

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The Owner shall upon the committee recommendation issue the Final Certificate. The Final Certificate shall be deemed irrevocable evidence for completing the works except in the event of fraud or dishonesty which relates thereto and may affect any matter stated therein.

5.16.10 The Contractor may request payment for the outstanding items whenever they are completed up to the satisfaction of the Engineer. The owner will pay upon recommendation from the Engineer either in a separate payment certificate or together with the payment Contractor's entitlements after the issue of the final certificate.

5.16.11 Deduction From Payments Due to the Contractor

All payments due from the Contractor to the Owner under the Contract whether in the form of penalties, compensations expenses or any other matter shall be deducted from the Performance Bond or any other payment due to the Contractor and will be paid to the Owner according to this Contract or any other Contract with any other ministry or administration in Kuwait Government. All deductions shall be made without any previous notice or court action.

5.16.12 Payment Due to the Sub-Contractor, Not Paid

The Owner has the right to deduct from the Contract Price any payment due to the local Sub-Contractor not paid by the Contractor and the Owner shall pay such payment due to the Sub-Contractor if he proves that he completed his obligation. Deduction shall be made without objection on the part of Contractor and without any previous notice or court action.

5.16.13 If the payment of any sums due to the Contractor are delayed by the Owner, no interest will be paid to the Contractor on the amount of delayed payment.

5.17 PROGRAMME

The contractor shall, within fifteen days after signing the contract by both parties, submit to the Engineer for his approval, a program showing the order of procedure and the manner in which he proposes to carry out the works. He shall, whenever required by the Engineer, furnish particulars in writing of his arrangements for the carrying out of the works or any part thereof. The submission to and approval by the Engineer for the Contractor's program(s) or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract.

The work program to be submitted by the contractor should be prepared by CPM (Critical Path Method) using (Primavera) software. The program shall be updated every month for the current information and data available as required by the Engineer. The program shall calculate the critical path so that one can focus on the most important tasks.

To give a total control, conflict scheduling resolution, simulation, performance measurement analysis and multiple project scheduling shall be undertaken. The program shall be able to provide greater functionality and flexibility.

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5.18 SAFETY REGULATIONS

The contractor shall comply with the safety regulations, a copy of which is attached herewith, and his rates shall include all costs and expenses involved in complying with these regulations throughout the site.

5.19 CLEANLINESS OF SITE

Throughout the period of construction, the contractor shall keep the site and all temporary and permanent works in clean and tidy state as may reasonably be expected and he shall at all times maintain the whole of the works in a safe and workmanlike condition.

5.20 CERTIFICATION FROM MPW & MUNICIPALITY

Where relevant, as soon as the works are finished and before a Certificate of Completion is issued, the contractor shall obtain from the Municipality and the Ministry of Public Works, certificates that he has replaced and or restored all damaged paving, kerbing sidewalks, etc. satisfactorily and that the site has been cleaned. The contractor shall obtain permission from the Municipality prior to the start of any excavation of pavements, and he shall pay the Municipality their required guarantee(s).

5.21 TEMPORARY FENCE

As soon as the contractor is placed in possession of any part of the sites, he shall, in places where permanent fencing can not be erected immediately or where none is required, erect and when and where required re-erect and maintain temporary fencing wherever indicated by the Engineer.

In general, such temporary fencing will be required completely around all works carried out in public places or highways else where persons or animals have access and will be required for the whole period of construction work at that place. At the main delineated sites, temporary or permanent fencing will generally be required right around the whole site and shall be sufficiently robust and well-erected to prevent any persons or animals from entering except at the specific access point, which shall be provided with lockable gates. Temporary fencing may also be required to subdivide sections of the site within the boundary fence. The cost of supply, erection and maintenance of such temporary fencing and all patrolling that may be necessary for the safety of the works and the materials stored on site will be deemed to be covered by the prices stated in the Bill of Quantities. When an access is provided for owners, tenants or occupiers of adjoining lands, it shall be maintained in a reasonable condition so that use of the access is at no time impaired by the operations of the contractor.

Temporary fencing shall not be removed until it is replaced immediately by permanent fencing. If no permanent fencing is required, the temporary fencing shall remain in position until completion of the whole of the works unless the Engineer agrees to its removal at an

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earlier date. When the fencing has been removed, the ground shall be reinstated and left in a safe condition.

5.22 FIRE FIGHTING

Where relevant only portable fire extinguishers are envisaged at this stage for fire fighting. However, the system shall be approved by Fire Brigade and it is the responsibility of contractor to obtain the necessary approval. The portable extinguisher shall comply with NFPA – 10 – 1998 and be subject to Kuwait Fire Brigade approval.

5.23 UNSTABLE SUB-GRADE

Where the bottom, at sub grade is found to be unstable or to include ashes, cinders any type of refuse vegetables or other organic materials or large pieces or fragments of in organic materials which in the judgment of the engineer should be removed, the contractor shall excavate and remove such and unsuitable materials to the width and depth ordered by the Engineer. The sub grade shall then be reformed by backfilling with stabilized soil of one part of cement to ten parts of selected soil (mainly a sand chosen from the excavated material) and each layer to be 20cm thick compacted well. Mixing the cement, water and soil should be carried out by an approved concrete mixer, the sub-grade should be stabilized before applying this mix by using an approved mechanical vibrating machine and by adding water, the mix also should be compacted and finished sub-base layer before pouring the blinding concrete.

5.24 STANDARD SPECIFICATIONS FOR ANY BUILDING WORKS

Any work of a building construction and/or civil work nature is to be carried out according to the best recognized practices.

Such practices shall comply with the relevant sections of the Standards and Specifications adopted by the Ministry of Energy and the Ministry of Public Works. The particular requirements for the specification of any building, civil construction or the like involved in this project are to be found in the Schedule of Particular Details at the end of this Section.

5.25 FACILITIES

The contractor shall provide all the service requirements including, but not limited to, drinking water, sanitation, lighting, electrical power, heating and air-conditioning and telephone where possible, throughout the duration of the works at his own expense and to the satisfaction of the Engineer. Immediately upon handing over any site under the contract to the Contractor, the Contractor shall provide adequate sanitary conveniences for all persons engaged upon the works in accordance with requirements of the Local Authorities and the instructions of the Engineer. Such accommodation shall be maintained as and where necessary throughout the duration of the construction period and for as long thereafter as may be necessary by the Engineer. The contractor shall keep the same in a clean and orderly

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condition at all times and when directed clear away the conveniences and thoroughly disinfect the site as necessary, entirely at his own expense.

The contractor shall also be responsible for and shall make his own arrangements for the supplies of water to all sites from the nearest lorry Filling Station and he shall pay charges and rates due to the supplying authority.

All water delivered to the site shall be clean, fresh and free from oil, acids, alkalis, organic matter and other deleterious substances. In general water will be acceptable for use by most trades other than concreting provided it is clear and contains not more than 4000 ppm of dissolved solids, of which not more than 1000 ppm may be chlorides. For concreting work the water must comply with the requirements stated in the concrete specifications.

The Contractor shall similarly be responsible for and pay all charges in connection with supplies of drinking water which shall be provided to all sites and offices.

The Contractor shall similarly be responsible for and pay all charges in connection with supplies of electricity to all sites. Mains supply is not available. These facilities shall include also for the followings and its cost should be included in his rates.

5.25.1 Office Accommodation for MEW Staff

At the construction site, the contractor will be required to provide for the sole use of the Engineer and the Engineer's staff one or more mobile offices to give three hundred (300) m². The offices shall be positioned as directed by the Engineer and shall be properly designed and constructed and equipped with a European/Asian W.C.'s and Kitchen. The Tenderer shall submit plans and details of the proposed offices with his tender.

The office shall be air-conditioned and all doors and windows shall be fitted with sun shade and mosquito nets.

The office shall be provided by the Contractor with an adequate fresh water supply, a power supply together with ample electric light and power fittings, land telephone line and refrigerator. Each room shall be furnished with two tables, four chairs, shelves and cupboards.

The office of the MEW Project Engineer shall be provided with a wash basin and separate WC. Four (4) WC's and four (4) wash basins for other staff shall be provided. All services shall be connected to the appropriate mains and the Contractor shall pay any charges during the life of the contract for their use. The Contractor shall arrange to have the office swept out and cleaned daily.

Adjacent to the offices, the contractor shall provide and erect a temporary car shelter sufficient and suitable to give adequate protection to twelve cars. On completion of the contract, **the contractor shall disconnect all services and remove the offices and leave the site in tidy and clean condition. All mobile offices shall then become the property of the Contractor.**

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The facilities provided by the contractor (site office & telephones) must be suitable as per scope of work of the contract. The property would belong to the contractor after completion of the contract

5.25.2 Sign Boards

The Contractor shall provide one main sign board written in Arabic and English as prescribed by the Ministry at a place directed by the Engineer and remove the same on completion. One sign board 0.7 x 1.0 m shall be fixed at MEW Mobile office. The sign board shall show the following:

1. Name of the Ministry
2. Name of Contractor
3. Nature of Works
4. Date of Commencement
5. Date of Completion
6. Value of the Contract

The maximum size of the main sign board shall be 1.5 x 2.1 m with the bottom of the sign set 2.20 m above ground level. The color scheme shall be red lettering on a white background.

5.26 NOTES ON BILL OF QUANTITIES

1. The rates shall include all requirements mentioned in all sections related to technical specifications.
2. **Enclosed herewith is the result of soil investigations at the places of the reservoirs irrespective to that the Tenderer shall carry out the soil investigation at his own expense and he has to submit a report before commencement of construction and the rate of excavation shall be based on the results of soil investigation. The enclosed results of soil investigation are for guidance only. The Tenderer shall solely be responsible for any unforeseen type of soil (whether loose, semi loose, rocky or any other type) which may be discovered during construction.**

The contractor shall carry out boreholes for Soil Investigation at the location of the Buildings, at least one borehole for each building, in addition to the boreholes for the reservoirs. The number of boreholes shall not be less than the number indicated on the Tender Drawing. The rate shall be included in the Tender price.

3. Testing and flushing of the fresh water reservoir should be carried out by fresh water.

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Maintenance period shall begin after testing and putting the reservoir into operation. Contractor has to consider that in his rates and no claims will be accepted for any extra cost or expenses.

After the hydrostatic test is done, the Contractor will discharge the water as per the direction of the Engineer-in-charge either through the washout or through the outlet to the main lines.

4. Disposal of surplus soil

The contractor shall be responsible for disposal of all surplus soil or other excavated material not required or not suitable for re-use. Surplus soil or other excavated material may be spread near the site but by no means within the reservoir area and/or over routes of pipe lines. The grading should match the natural ground configuration. Water courses should not be filled. No heaps and/or tips shall be accepted.

5. Borrow Pits (Additional Fill)

Since existing area represents mostly rocky terrain, the excavated earth may not be suitable for backfilling and if the surplus suitable material obtained from excavations is less than the quantities required for filling, the contractor shall supply filling material at his own responsibility from borrow pits, provided such borrow pits are approved by the responsible Government Authorities of Kuwait.

The Municipality instructions with regard to surplus shall be followed.

After completion of the whole work inside the reservoirs area, the contractor shall clean, level and grade the site within the fence. Rates of the contract shall allow for this work.

5.27 IMPORTANT NOTE

The thermal insulation materials for decoration, ceiling and partitions as well as any other materials which are made from and/or include asbestos material, should not be used.

5.28 CONTRACT DRAWINGS AND DOCUMENTS

5.28.1 Drawings

Six (6) copies of the Contract Drawings shall be furnished to MEW on A1 size with proper and strong binding cover free of cost. The Contractor shall provide and make at his own expense any further copies required by him. The Contractor shall give in due time, notice in writing to the Engineer's Representative of any further drawing or specification that may be required for the execution of the Works in accordance with the Programme.

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5.28.2 Documents

Six (6) sets of the documents shall be furnished to MEW in A4 size with proper and strong binding cover free of charge. The Contractor shall provide and make at his own expense copies of relevant sections as directed by the Engineer or by Engineer's Representative.

5.28.3 Checking the Documents

The Contractor shall check and verify all Drawings, Designs, Specifications, Bills of Quantities, Schedules of Prices and other Documents and he shall officially comment thereon as he shall thereafter assume full responsibility for the execution thereof.

5.28.4 One Copy on Site

One copy of the Drawings and Contract Documents as furnished to the Contractor shall be kept by the Contractor on the Site and the same shall at all reasonable times be available for inspection and use by the Engineer, the Engineer's Representative and by any other person authorised by the Engineer in writing.

5.29 FURTHER DRAWINGS AND INSTRUCTIONS

The Engineer shall have full power and authority to supply to the Contractor from time to time during the progress of the Works such further drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the Works and the Contractor shall carry out and be bound by the same.

5.30 INSPECTION OF SITE

The Contractor shall be deemed to have based his Tender on information in respect of hydrological, physical and climatic conditions of the Site and have inspected the Site and its surroundings and satisfied himself before submitting his tender as to the nature of the ground and sub-soil, the form and nature of the Site, the quantities and nature of the Works and materials necessary for the completion of the Works, the means of access to the Site, the accommodation he may require and in general to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect his Tender.

5.31 OMISSION OR DISCREPANCY

If, at any time during the progress of the Works, the Contractor discovers an error, omission or discrepancy in the documents or if he receives, even in writing from the Employer, instructions which cannot be reconciled with the said documents, without specific instruction to the effect that this is to be considered a variation of the Contract, then, the Contractor shall immediately inform the Employer in writing of said error, omission or discrepancy and submit his suggestions for the correction thereof and he shall obtain the approval of the Engineer in writing before resuming such work. The Contractor shall otherwise be entirely responsible.

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5.32 FOSSILS,ARTICLES AND ANTIQUITIES

All fossils, coins, articles of value or antiquity and structures or materials and other remains or things of geological or archaeological interest discovered on the Site of the Works shall be deemed to be the absolute property of the Employer. The Contractor shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the Engineer's Representative of such discovery and carry out, at the expense of the Employer, the Engineer's Representative's orders as to the disposal of the same.

5.33 PATENT RIGHTS AND LOYALTIES

The Contractor shall save harmless and indemnify the Employer from and against all claims and proceedings for or on account of an infringement of any patent rights, design, trademark or name or other protected rights in respect of any Constructional Plant, machine, work or material used for or in connection with the Works or Temporary Works and from and against all claims, demands, proceedings, damages, cost, charges and expenses whatsoever in respect thereof or in relation thereto.

Except where otherwise specified the Contractor shall pay all tonnage and other royalties, rent and other payments or compensation (if any) for getting stone, sand, gravel, clay or other materials required for the Works or Temporary Works.

5.34 INTERFERENCE WITH TRAFFIC AND ADJOINING PROPERTIES

All operations necessary for the execution of the Works and any Temporary Works shall, so far as compliance with the requirements of the Contract permit, be carried on so as not to interfere unnecessarily or improperly with the convenience of the public or the access to, use and occupation of public or private roads and footpaths to or from properties whether in the possession of the Employer or of any other person.

The Contractor shall save harmless and indemnify the Employer in respect of all claims, demands, proceedings, damages, costs, charges and expenses whatsoever arising out of, or in relation to, any such matters in so far as the Contractor is responsible thereof.

5.35 EXTRAORDINARY TRAFFIC

The Contractor shall use every reasonable means to prevent any of the highways or bridges communicating with or on the routes to the Site from being damaged or injured by any traffic of the Contractor or any of his Sub-contractors and, in particular, shall select routes, choose and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitable arise from the moving of plant and materials to and from the Site shall be limited, as far as reasonably possible, and so that no unnecessary damage or injury

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may be occasioned to such highways and bridges. The Contractor shall bear all the expenses and damages resulting from the same.

5.35.1 Water Borne Traffic

Where the nature of the Works is such as to require the use by the Contractor of water borne transport the foregoing provisions of this Clause shall be construed as though 'Highway' included a lock, dock, sea wall, or other structure related to a waterway and 'Vehicle' included craft and shall have effect accordingly.

5.36 FESTIVALS AND RELEGIOUS CUSTOMS

The Contractor shall in all dealings with labour in his employ have due regard to all recognised festivals, days of rest and religious or other local customs.

5.37 MATERIALS, WORKMANSHIP, SAMPLES AND TESTS

5.37.1 Quality

All materials and workmanship shall be of the respective kind described in the Contract and in accordance with the Engineer's instructions and shall be subjected from time to time to such tests as the Engineer may direct at the place of manufacture or fabrication, or on the Site or at all or any of such places. The Contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing the quality, weight or quantity of any work or material used and shall supply samples of materials before incorporation in the Works for testing and approval as may be selected and required by the Engineer.

5.37.2 Samples

All samples of materials for the Works shall be supplied by the Contractor at his own cost as and when required by the Contract or as requested by the Engineer.

5.37.3 Testing Materials by Government Research Station

All materials and articles procured by the Contractor and intended to be used in the Construction of the Permanent Works may at any time to be tested at the Contractor's cost by the Government Research Station at the request of the Contractor or the Engineer. The findings of such laboratory tests shall be final and binding on both parties to the Contract. The Contractor shall be responsible for all charges in connection therewith including delivery to and/or collection from the Government Research Station.

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5.37.4 Cost of Tests

The cost of making any test shall be borne by the Contractor if such tests are clearly intended by or provided for in the Specification or Bill of Quantities and (in the cases only of a test under load or of a test to ascertain whether the design of any finished or partially finished work is appropriate for the purposes which it was intended to fulfill) is described in the Specification or Schedule of Rates in sufficient detail to enable the Contractor to price or allow for the same in the Tender.

5.37.5 Cost of Test Not Provided For, etc.

If any test is ordered by the Engineer which is either:

1. Not so intended by or provided for, or,
2. (In the cases above mentioned) is not so described, or,
3. Though so intended or provided for, is ordered by the Engineer to be carried out by an independent person at any place other than the Site or the place of manufacture or fabrication of the materials tested;

Then the cost of such test(s) shall be borne by the Contractor if the test shows the workmanship or materials not to be in accordance with the provisions of the Contract or the Engineer's instructions but otherwise by the Employer.

5.37.6 Contractor to Prepare Shop Drawings

The Contractor shall be responsible for the preparation and provision of shop details and working drawings of all pre-fabricated items including those of intended specialist supply.

These details shall be prepared if possible after Site dimensions have been taken and the fabrication shall not commence until the drawings have been submitted to the Engineer and written approval has been obtained.

These details shall be dimensioned in the metric system and shall describe accurately the method of the fabrication, applied finishes and sizes of all members and fixing and shall indicate methods of marking components for Site erection.

5.38 ACCESS TO SITE

The Engineer and any person authorised by him shall at all times have access to the Works and to the Site and to all Workshops and places where work is being prepared or from where materials, manufactured articles or machinery are being obtained for the Works. The Contractor shall afford every facility for and every assistance in obtaining their right to such access.

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5.39 EXAMINATIONS / UNCOVERING

5.39.1 Examination of Work Before Covering Up

No work shall be covered or put out of view without the approval of the Engineer or the Engineer's Representative and the Contractor shall afford full opportunity for the Engineer or the Engineer's Representative to examine and measure any work which is about to be covered or put out of view before permanent work is placed thereon. The Contractor shall give due notice to the Engineer's Representative whenever any such work is ready or about to be ready for examination and the Engineer's Representative shall without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such work.

5.39.2 Uncovering and Making Openings

The Contractor shall uncover any part or parts of the Works or make openings in or through the same as the Engineer may from time to time direct and shall reinstate and make good such part or parts to the approval of the Engineer. If any such part or parts have been covered after compliance with requirements of sub-clause (1) of this Clause and are found to be executed in accordance with the Contract, the expense of uncovering and making good the same shall be borne by the Employer, but in every other case all such expenses shall be borne by the Contractor and shall be recoverable from him by the Employer or may be deducted by the Employer from any monies due or which may become due to the Contractor.

5.40 REMOVALS AND DEFAULT OF CONTRACTOR

5.40.1 Removal of Improper Work and Materials

The Engineer shall during the progress of the Works have the power to order in writing from time to time.

1. The removal from the Site, within such time or times as may be specified in the order, of any materials which, in the opinion of the Engineer, are not in accordance with the Contract.
2. The substitution of proper and suitable materials and,
3. The removal and proper re-execution (not withstanding any previous test thereof or interim payment therefore) of any work which in respect of materials or workmanship is not, in the opinion of the Engineer, in accordance with the Contract.

5.40.2 Default of Contractor in Compliance

In case of default on the part of the Contractor in carrying out such an order, the Employer shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be recoverable from the Contractor by the

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Employer, or may be deducted by the Employer from any monies due or which may become due to the Contractor.

5.41 RATE OF PROGRESS

The whole of the materials, labour, plant and equipment to be provided by the Contractor under this Contract and the mode manner and speed of execution and maintenance of the Works are to be of a kind and conducted in a manner to the approval of the Engineer.

Should the rate of progress of the Works or any part thereof be at any time in the opinion of the Engineer too slow to ensure the completion of the work or any part thereof by the prescribed time or extended time for completion the Engineer shall so notify the Contractor in writing and the Contractor shall thereupon take such steps as he may think necessary and the Engineer may approve to expedite progress so as to complete the Works or any part thereof by the prescribed time or extended time.

If as a result of any notice given by the Engineer under this Clause the Contractor shall seek the Engineer's permission to do any work at night or on locally recognised days of rest such permission shall not be unreasonably refused.

Where the Works entail interrupting public facilities or services such as roads, electrical, water, telephone or drainage installations and or obstructing traffic, navigation and the like or cause a great nuisance to the public or residents then the Engineer shall have the right to instruct the Contractor to minimize the disruption or nuisance and the Contractor shall expedite the execution and completion of the respective part of the Works.

The Contractor shall work additional hours up to twenty-four hours per day and shall increase the labour, materials plant and equipment on Site as necessary to complete the respective works in the shortest possible time. The Contractor shall immediately implement measures to minimize disruption and/or nuisance without being entitled to claim any compensation.

If the Contractor delays in executing measures to expedite progress by the prescribed date set for him by the Engineer then the Employer shall be entitled to claim from the Contractor a Penalty for each week or part thereof of delay equal to double the weekly rate for delay shown in the Contract.

5.42 PLANT, TEMPORARY WORKS, SERVICES, ETC.

5.42.1 Plant, etc., Exclusive Use for the Works

All Constructional Plant, Temporary Works and materials provided by the Contractor shall, when brought on to the Site, be deemed to be as though they are the property of the Employer and exclusively intended for the construction and completion of the Works, and the Contractor shall not remove the same or any part thereof (save for the purpose of

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moving it from one part of the Site to another), without the consent, in writing, of the Engineer which shall not be unreasonably withheld.

5.42.2 Removal of Plant, etc.

Upon completion of the Works the Contractor shall remove from the Site all the said Constructional Plant and Temporary Works remaining thereon and any unused materials provided by the Contractor.

5.42.3 Employer Not Liable for Damage to Constructional Plant

The Employer shall not at any time be liable for the loss of or damage to any of the said Constructional Plant and Temporary Works or materials save as mentioned in prescribed clause hereof.

5.42.4 Re-export of Plant

In respect of any Constructional Plant which the Contractor shall have imported for the purposes of the Works the Employer will assist the Contractor where required in procuring any necessary Government consent for the re-export of such Constructional Plant by the Contractor upon the removal thereof as aforesaid.

5.42.5 Temporary Roads, etc.

The Contractor shall provide and maintain all temporary roads, tracks and other means necessary for access to the Site and the movement of Constructional Plant and materials and shall clear away the same upon completion and make good all damaged or disturbed areas to the approval of the Engineer.

5.42.6 Drawings of Temporary Works

The Contractor shall submit drawings and full particulars of all Temporary Works to the Engineer before commencing the same. The Engineer may require modifications to be made if he considers them to be insufficient and the Contractor shall give effect to such modification but shall not be relieved of his responsibility for the sufficiency thereof.

5.42.7 Diversion and/or Upholding of Services

The Contractor shall support, protect and divert, as required, at his own cost and to the approval of the Engineer any water mains or other services encountered during the progress of the Works.

Where such diversions are not required in connection with the Permanent Works, the Contractor shall maintain and keep the same in working order in their existing locations.

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5.42.8 Making Good Damage to Services, Earthworks and Land

The Contractor shall make good, at his own cost, all damage to telephone, telegraph and electric cables or wires, sewers, water or other pipes and all other services encountered except where the competent authority, the Employer or a private party owning or responsible for the same elects to make good the damage. The cost incurred in so doing shall be paid by the Contractor to the said authority, Employer or private party on demand. All damage and disturbance of the surface of the land by the Works shall be repaired and made good by the Contractor or the authorities concerned at the Contractor's expense. All such making good and repairs shall be to the approval of the Engineer.

5.43 APPROVAL OF MATERIALS, ETC., NOT IMPLIED

The operation of Clause 5.43 hereof shall not be deemed to imply any approval by the Engineer of the materials or other matters referred to therein nor shall it prevent the rejection of any materials, etc., at any time by the Engineer.

5.44 QUANTITIES

Unless specified otherwise the quantities for the Contract shall be:

5.44.1 Quantities for Works to be Measured

The quantities set out in the Bills of Quantities are the estimated quantities of the Works but they are not to be taken as the actual and correct quantities of the Works.

The Contractor shall be paid the amount of the actual quantities executed according to the Contract and calculated on the basis of the rates in the Bill of Quantities.

5.45 WORKS TO BE MEASURED

The Engineer or his Representative shall, except as otherwise stated, ascertain and determine by measurement the value (in accordance with the Contract) of work done in accordance with the Contract (and in case of Lump Sum Contract the value of the Works in addition or deduction). He shall, when he requires any part or parts of the Works to be measured, give notice to the Contractor's authorised agent or representative who shall forthwith attend, or send a qualified agent to assist the Engineer or the Engineer's Representative in making such measurement, and shall furnish all particulars required by either of them. Should the Contractor not attend, or neglect or omit to send such agent, then the measurement made by the Engineer or approved by him shall be taken to be the correct measurement of the work. For the purpose of measuring such permanent work as is to be measured by records and drawings, the Engineer's Representative shall prepare records and drawings month by month of such work and the Contractor, as and when called upon to do so in writing, shall, within 14 days, attend to examine and agree such records and drawings with the Engineer's Representative and shall sign the same when so agreed. If the Contractor does not so attend to examine and agree such records and drawings, they shall be taken to be correct.

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If after examination of such records and drawings, the Contractor does not agree the same or does not sign the same as agreed they shall nevertheless be taken to be correct unless the Contractor shall, within 14 days of such examination, lodge with Engineer's Representative notice in writing of the respects in which such records and drawings are claimed by him to be incorrect.

5.46 METHOD OF MEASUREMENT

The Works shall be measured net, notwithstanding any general or local customs, except where otherwise specifically described or prescribed in the Contract.

5.47 PROVISIONAL AND P.C. SUMS

5.47.1 Provisional Sum

1. "Provisional Sum" means a sum included in the Contract and so designated for the execution of work or the supply of goods, materials, or services, or for contingencies, which sum may be used, in whole or in part, or not at all, at the direction and discretion of the Engineer. The Contract Price shall include only such amount in respect of the work, supply or services to which such Provisional Sums relate as the Engineer shall approve or determine in accordance with this Clause.
2. In respect of every Provisional Sum the Engineer shall have power to order:
 - Work to be executed, including goods, materials or services to be supplied by the Contractor. The Contract Price shall include the value of such work executed or such goods, materials or services supplied determined in accordance with prescribed clause hereof.
 - Work to be executed or goods, materials or services to be supplied by a Sub-contractor. The sum to be paid to the Contractor therefore shall be determined and paid in accordance with prescribed clause hereof.
 - Goods and materials to be purchased by the Contractor. The sum to be paid to the Contractor therefore shall be determined and paid in accordance with prescribed clause hereof.

5.47.2 Prime Cost Items

The term "Prime Cost" is defined as a sum provided for work or services to be executed by a nominated Sub-contractor, a statutory authority or a public undertaking or for materials or goods to be obtained from a nominated Supplier. Such sums shall be deemed to be exclusive of any profit required by the Main Contractor and provision shall be made for addition thereof. The sum to be paid to the Contractor with respect to a P.C sum shall be determined in accordance with prescribed clause in the case of Sub-contractors and suppliers.

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5.47.3 Use of Provisional and Contingency Items

All sums set out in the Contract documents which shall be stated to be provisional or for contingencies shall be used only at the direction and discretion of the Employer and if not used either wholly or in part shall be deducted from the Contract Price.

5.47.4 Production of Vouchers, etc.

The Contractor shall when required by the Employer produce all quotations, invoices, vouchers and accounts or receipts in connection with expenditure in respect of Provisional or Prime Cost Sums.

5.48 TRAINING

5.48.1 General

5.48.1.1 Description

This section establishes the requirements for training. Exceptions to these requirements are in individual Technical Sections and only modify the individual article and topic. Other articles and topics in this section remain in force unless specifically deleted by the technical section. Training required by this section is in addition to, and not a replacement for, manufacturer's equipment training required by the individual technical sections. The Employer reserves the right to video tape or otherwise record the instruction training presentations.

5.48.1.2 Training Requirements

1. The contractor shall develop individual training courses for each system identified on the Contract P & ID's. Three separate training sessions shall be provided for Mechanical, Electrical and Instrumentation works. All manuals and presentations shall be presented, or conducted, in both the local and English languages.
2. The Contractor shall develop and submit the curriculum to the Engineer for approval based on the following:
 - The curriculum shall be established for high school graduate level and shall include tests with at least 15 questions on each outline topic.
 - A task and skills analysis shall be performed, identifying the requirements for proper working of the system and all of its components.
 - A training analysis shall be performed identifying: tasks requiring training, logical order of presentation, objectives of each training segment and methods for measuring achievement of objectives for each segment.

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3. An instructor's manual shall be prepared, including notes to the instructor, for each training session. The manual shall address:

- Session objectives,
- Session outline,
- Session application,
- Instructor qualification and knowledge requirements,
- List of tools and supplies required for instruction,
- Safety and stand-by equipment,
- Student course and evaluation forms,
- Audio / visual resources or reproductions,
- Session tests and grading guide,
- References to the source of answers shall be provided in the course material,
- Additional notes such as references, review questions, demonstration techniques, class exercises, coordination with other sessions and achievement measurements.

4. Instruction shall be in accordance with the following:

- Timing of sessions shall be to suit Employer's normal working hours.
- A 10 minute break shall be provided after each hour of instruction.
- The size of the class shall not exceed 15 people.

5. Minimum curriculum requirements shall be:

- Theory of operation and control shall include both classroom and "hands on" training,
- How to use Manual including the location of information,
- System layout,
- Wiring, instrumentation and controls,
- Control sequence and logic,
- Normal and emergency operating procedures,
- Equipment / instrument adjustment and calibration,
- Side walk through to locate and identify equipment,
- Safety,
- Trouble shooting,
- How to use special tools,
- Spare parts.

5.48.1.3 Submittals

The following shall be submitted in both local and English languages for approval:

1. Curriculum development document,

MINISTRY OF ELECTRICITY & WATER KUWAIT	TENDER TITLE: CONSTRUCTION AND MAINTENANCE OF 5 NOS. R.C. GROUND RESERVOIRS FOR FRESH WATER, 55 M.I.G CAPACITY EACH, AND ANNEXED WORKS AT MUTLA HIGH (STAGE-II)
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2. One copy of an instructor's manual shall be provided for review. After acceptance (and before training) one copy and one camera-ready original shall be provided,
3. Complete schedule of training activities including: schedule of submittals, schedule of classes and coordinate with startup activities,
4. Training plan including course outline, time allocation for each training segment and instruction qualifications,
5. Presentation materials – two reproducible copies,
6. Manuals and class handouts – one reproducible copy for review and one copy for each student at least five working days prior to class.

5.48.1.4 Quality Assurance

1. The minimum experience for the instructor shall be three years actually operating and maintaining equipment and he/she shall have academic or factory training with a combination of training and experience. The Employer reserves the right to reject instructors lacking experience and education required to conduct the training. The instructor's qualification shall be submitted for approval.
2. A pre-training conference shall be scheduled not less than seven calendar days prior to training. The Employer, Engineer, Contractor, training instructors, and other responsible parties shall attend. The contractor shall submit an agenda five working days prior to the conference. The agenda shall include: training schedule, examination of training facilities and problem identification and resolution.

5.48.1.5 Training Area

The training area shall be provided by the Contractor and the minimum requirements to be provided are:

1. Air conditioned,
2. Seating for 15 students,
3. Tables suitable for students to write and lay out class materials,
4. All equipment required for audio/visual presentations.

5.48.1.6 Sequencing and Scheduling

The Contractor shall conduct classroom training prior to system startup and conduct hands-on training prior to system demonstration tests.

The Contractor shall notify the Engineer at least three days in advance of scheduled training of any delays. Failure to provide required notice shall make Contractor responsible for costs incurred by the Employer for Employer's personnel. The Employer may delay scheduled training by up to five calendar days for personnel time conflicts but shall notify Contractor of delay at least three days in advance of scheduled training.

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5.48.2 Products

5.48.2.1 Materials

The Contractor shall provide all materials and supplies (including consumables) necessary for training and demonstrations, special tools required for training and demonstrations, and all safety equipment required by instructors.

5.48.3 Execution

5.48.3.1 Preparation

All required submittals must be approved prior to their use by the Contractor in delivering training courses. The Contractor shall assemble instruction materials and set up demonstration material prior to classes.

5.48.3.2 Training

1. The Contractor shall provide not less than the days of training specified in the Particular Specifications.
2. The Contractor shall prepare a student evaluation for each attending student and present in a summary report. Originals of the student course evaluations shall be submitted to the Employer in the summary report.
3. The Contractor shall evaluate students' understanding of course material and shall conduct written tests at the end of each training segment. Tests shall be graded and evaluated to ensure fulfillment of course objectives. The original graded tests shall be submitted to the Employer.
4. Training methods, teaching techniques and trainer qualifications will be evaluated by the Employer or his designated representative. Unacceptable training will be repeated at Contractor's cost.

END OF SECTION