

Annex 4 - Technical specifications

Technical specifications for Rehabilitation of Mansoura water network			
دفتر الشروط الفنية لمشروع إعادة تأهيل شبكة مياه المنصورة			
S/N	Items	Description	
1	Concrete rate 350 kg/M3 بيتون عيار 350 كغ /م3	<p>1 - The concrete materials should be as follow</p> <ul style="list-style-type: none"> - 400 L of sand - 800 L gravel - 350 Kg cement for 1 M3 concrete <p>2 - The cost of 1 M3 of concrete should be include all necessary materials like labours, machinery, fuel, scaffolding, molds, and other necessary equipment to complete the work.</p> <p>3 - The concrete cast should be free of Honey comb by Good shaking either by machines or hand</p> <p>4 - The spraying of water for concrete during the period of hardening should be not less than three times per day</p> <p>5 - All these instructions should be according to the drawings and orientation by the supervisor engineer.</p>	
2	Providing and spreading of clean sand تقديم وفرش رمل ناعم	<p>1- The sand should be clean and free of impurities and grass under the pipes with thickness of cm</p> <p>2- The price includes the provision of the sand and spreading it under and above the pipes including all manpower required and all necessary</p>	
3	Excavation and backfilling حفريات مهما كان نوعها	<p>1- Machine excavation of soil trenches (whatever the type of soil) for pipes, and access points/inspection chambers</p> <p>2- The trenches should be drilled according to the drawings regardless of the type of soil dry or rock</p> <p>3- The trenches should be straight</p> <p>4- The output of the drill should be placed on one side away from the edge of the trench sufficiently</p> <p>5- The contractor should not blocking the roads and access to the entrances to the buildings next to the excavations by taking all necessary works under his expense and responsibility</p> <p>6- The contractor should not drill in the Asphalt before cutting it using of special saw</p> <p>7- The contractor should take all necessary works to prevent underground water to fill the trenches and to ensure that the pipes are installed in trenches and are free of water.</p> <p>8- The backfilling should be as a layers with watering and compacting.</p> <p>9- The backfilling will be done using of the outputs of the excavation.</p>	
4	Providing and installing of HDPE pipes for drinking water تقديم وتركيب انابيب عالية الكثافة HDPE بولي ايثيلين قطر خاصه بهياد الشرب	<p>- The pipes should be designed for drinking water only and the contractor should provide the manufacturing certificate from the factory mentioned all specifications of the pipes along with his offer when he applying to this tender</p> <p>- The pipes should be manufactured under internationally accepted standards</p> <p>- The diameter should be printed on the surface of the pipes</p> <p>- Corrosion resistant</p> <p>- Chemical resistance</p> <p>- Weather conditions resistant</p> <p>- Pressure resistant up to 16 bar</p> <p>- Stress cracking resistant</p> <p>- The pipes should connecting using of welding pipes machines and high technical manpower's</p> <p>- All fittings like elbows and Tees should be the same standards of the pipes</p> <p>- After installation, the pipes should be tested under the designed pressure to ensure the good installation and no leakage occurred</p> <p>- A metal flanges should be entered the pipes using of metal hoops when if installing of valves required</p>	
5	Breaking, crushing and removal of debris تكسير و ازالة الركام	<p>1- The concrete and the remaining of building should be broken down using of air compressor, manpower, machines and whatever required to make the removal of the debris easier</p> <p>2- The Contractor shall comply with the instructions of the local and municipal authorities for the places of removal</p> <p>3- Removing the stones, dust and debris from the work site and transferring them to the approved and unloaded there according to orientation from the supervisor engineer.</p>	
6	Covers for sewage chambers غطية راكارات	<p>Providing and installing manhole cover, and of the highest quality. Metal, the covers should be able to open and close and providing the safe access to the manholes from the maintenance workers, the covers also should be equipped with metal frame which should attaching the concrete of the roof during the casting period, all installation should be according to the supervisor engineer and in coordination with municipality council.</p>	
7	Providing and installing of metal stairs for the chambers تقديم وتركيب سلام معدنية للريكاترات	<p>The stairs should be manufactured from metal pipes 1.5 inch, and it should be installed to the wall of the chambers and should be painting after that according to supervisor engineer</p>	
8	Providing and installing of gate valve تقديم وتركيب سكر جارور	<p>1- Should be equipped with two flanges</p> <p>2- the external body should be from the cast iron</p> <p>3- Transmission axis should be manufactured of stainless steel</p> <p>4- Protection: should be protected by epoxy</p> <p>5- All the letters of manufacturing should be marked on the body</p> <p>6- The cost will including all necessary accessories such as screws and gaskets</p>	
9	Providing and installing of check valve تقديم وتركيب سكر عدم رجوع	<p>1- Should be equipped with two flanges</p> <p>2- the external body should be from the cast iron</p> <p>3- Transmission axis should be manufactured of stainless steel</p> <p>4- Protection: should be protected by epoxy</p> <p>5- All the letters of manufacturing should be marked on the body</p> <p>6- The cost will including all necessary accessories such as screws and gaskets</p>	
10	Safety and security of supplier's manpower, equipment, workers, implemented activities and all of the program participant, visitors is the responsibility of the supplier. The supplier must follow the international standards of the safety and security plan as per OSHAAct 1970 - American Standards or and International Labour Organization safety code	<p>سلامة وأمن القوى العاملة للمورد والمعدات والعمالين والأنشطة المنفذة وجميع المشاركين في البرنامج ، الزوار هي مسؤولية المورد. يجب على المورد اتباع المعايير الدولية لخططة السلامة والأمن وفقًا لـ OSHAAct 1970 - المعايير الأمريكية أو مدونة السلامة لمنظمة العمل الدولية</p>	