

**JORDAN NATIONAL BROADBAND NETWORK**  
**IMPLEMENTING THE CIVIL WORKS AND THE FIBER OPTIC**  
**WORKS OF THE NATIONAL BROADBAND NETWORK IN THE**  
**NORTH REGION OF THE KINGDOM**

**VOLUME VI – Bill of Quantities**

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## GENERAL PREAMBLE

- Quantities set out in the Bills of Quantities are the estimated quantities and they shall not be taken as the actual and correct quantities for ordering or purchasing of materials. These quantities may increase or decrease depending on actual site route surveys and route design finalization.
- Works shall be measured net as fixed in position for the actual executed works.
- Any additional Quantities executed by the contractor and not approved by the Engineer, shall not be measured and shall not be paid for and shall be ignored.
- All prices submitted by the contractor should include all costs, expenses, over-heads, profits and applicable taxes, fees and duties.
- Wherever the word supply is mentioned in the Bills of Quantities, it means that the Contractor should provide all supply items in addition to all required accessories and fittings, the cost of supplying all such items and the required accessories and fittings should be included in the Contractor's unit rates stipulated in the Bills of Quantities.
- Wherever the word install is mentioned in the Bills of Quantities, it means that the Contractor should install all supply items in addition to all required accessories and fittings, the cost of installing all such items and the required accessories and fittings should be included in the Contractor's unit rates stipulated in the Bills of Quantities.
- The following symbols and abbreviations are used in the Bill of Quantities:
  - LM : Linear Meter
  - No. : Number
  - L.S. : Lump Sum
  - M<sup>3</sup> : Cubic Meter
  - Km : Linear Kilometre
  - m<sup>2</sup> : Square Meter
  - month : month
- Unless otherwise specifically stated in the Bill of Quantities or herein, the costs of the following in addition to any other costs incurred by the Contractor for the proper functioning of all items under the Scope of Work are deemed to be included in the unit rates in the Bill of Quantities:

labour and all costs in connection therewith,

materials, products, goods, accessories, fittings and all costs in connection therewith,

Contractor's equipment, including but not limited to construction plant, scaffolding, tools, vehicles and the like, and all costs in connection therewith,

assembling, installing, fitting and fixing materials, products and goods in position, any method of fixing, fixing to any nature of base, poles,

background...etc. including preparation and providing fixing materials and accessories,

breaking down for transport and installation and subsequent re-assembly of composite items manufactured off site,

waste of materials,

square, raking and curved cutting,

work at any location or height,

work in small, isolated quantities,

protection of all work,

protection of all existing structures, utilities, site improvements, trees and vegetation, features, pavements and other facilities on and adjacent to the site, which are to remain upon completion of the work,

all other enabling tasks, materials, fittings, accessories, products, and goods associated and subsidiary components and items of work, which are indicated or reasonably inferred from the Drawings and/or Specification, and necessary to perform and complete the work described in this tender.

Establishment and overhead charges, profits, other costs, fees, and taxes including sales tax.

- Except where items are included in the Bill of Quantities and are priced separately by the Contractor therein, the costs of the following are deemed to be included in the unit rates in the Bills of Quantities:

site administration and security,

insurances,

bonds and guarantees,

water for the works,

lighting and power for the works,

temporary telephones for the use of the Contractor and the Engineer, and the cost of calls,

temporary roads, hard standings, crossings and the like,

temporary fencing, hoardings, screens, fans, foot- ways, guardrails, gantries and the like,

giving notices and making applications, including the payment of fees and charges in connection therewith,

safety, health and welfare of workpeople,

compliance with traffic regulations,

maintenance of public and private roads, services and adjoining property,

control of noise and pollution, prevention of fire and compliance with all other statutory and general obligations,

removing rubbish, protective casings and coverings and cleaning the works on completion,

dewatering and drying the works,

testing and commissioning of service installations including providing fuel,

samples of materials and testing of materials, including providing equipment for testing,

design, co-ordination, installation , training and as-built record drawings and the like,

preparation and submittal of reports, records, certificates, notices, proposals, designs, details, calculations and other information and data required by the Specification,

allow in unit rates for all other requirements services, provisions, liabilities and obligations contained in the General Requirements and Conditions of Contract.

Maintaining, adapting, clearing away and making good are deemed to be included with the items for temporary works.

## BILLS OF QUANTITIES

### ملاحظة هامة :

على المناقص ان يكون قد تفهم الشروط الخاصة بهذا  
العطاء قبل وضع اسعاره الافرادية.

**The Bidder shall acknowledge the  
conditions, and mechanism related to this  
tender before providing unit prices.**

- The Contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the Tender and of the unit rates and prices stated in the Bill of Quantities, all of which shall, except insofar as it is otherwise provided in the Contract, cover all his obligations under the Contract including those in respect of the supply and installation of goods, materials, hangers, accessories, fixtures, plant or services and all matters and things

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necessary for the proper execution, completion of the permanent and/or the temporary Works and maintenance thereof (or the remedying of defects therein).

- All supplied material should be of the highest quality complying to specifications and accepted by the Engineer

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### Fiber Works

Item	Description	Unit	Estimated Quantities		Unit Rate J.D.		Amount
No.			Numbers	Words	Number	Words	J.D.
1	Optical Fiber Cable Supply and Installation Inside UPVC Ducts With all related accessories and fittings approved by the Engineer (Specifications are in Accordance with Volume IV).						
1.1	Supply 144 fibers cable.	Km	11				
1.2	Install 144 fibers cable in UPVC ducts.	Km	11				
1.3	Supply 96 fibers cable.	Km	655				
1.4	Install 96 fibers cable in UPVC ducts.	Km	655				
1.5	Supply 72 fibers cable.	Km	2				
1.6	Install 72 fibers cable in UPVC ducts.	Km	2				
1.7	Supply 48 fibers cable	Km	2				
1.8	Install 48 fibers cable in UPVC ducts	Km	2				
1.9	Supply 24 fibers cable.	Km	2				
1.10	Install 24 fibers cable in UPVC ducts.	Km	2				
2	Aerial Optical Fiber Cable Supply and Installation on Poles with all related accessories and fittings- approved by the Engineer. (Specifications in Accordance with Volume IV).						
2.1	Supply 144 fibers aerial cable (ADSS type).	Km	3				
2.2	Install 144 fibers aerial cable (ADSS type).	Km	3				
2.3	Supply 96 fibers aerial cable (ADSS type).	Km	21				
2.4	Install 96 fibers aerial cable (ADSS type).	Km	21				
2.5	Supply 72 fibers aerial cable (ADSS type).	Km	64				
2.6	Install 72 fibers aerial cable (ADSS type).	Km	64				
2.7	Supply 48 fibers aerial cable (ADSS type).	Km	227				
2.8	Install 48 fibers aerial cable (ADSS type).	Km	227				
2.9	Supply 24 fibers aerial cable (ADSS type).	Km	402				
2.10	Install 24 fibers aerial cable (ADSS type).	Km	402				
3	Splicing Enclosure for Duct Installed Cables with all related accessories and fittings approved by the Engineer, (Specifications are in Accordance with Volume IV).						
3.1	Supply splicing enclosure for 144 fibers cable	No.	32				
3.2	Install splicing enclosure for 144 fibers cable	No.	32				
3.3	Supply splicing enclosure for 96 fibers cable	No.	407				

3.4	Install splicing enclosure for 96 fibers cable	No.	407			
3.5	Supply splicing enclosure for 72 fibers cable	No.	2			
3.6	Install splicing enclosure for 72 fibers cable	No.	2			
3.7	Supply splicing enclosure for 48 fibers cable	No.	2			
3.8	Install splicing enclosure for 48 fibers cable	No.	2			
3.9	Supply splicing enclosure for 24 fibers cable	No.	635			
3.10	Install splicing enclosure for 24 fibers cable	No.	635			
<b>Total Carried to Next Page</b>						

<i>Total from previous page</i>							
Item No.	Description	Unit	Estimated Quantities		Unit Rate J.D.		Amount
			Numbers	Words	Number	Words	J.D.
4	Splicing Enclosure for Aerial Installed Cables , with all related accessories and fittings approved by the Engineer. (Specification are in Accordance with Volume IV).						
4.1	Supply splicing enclosure for 144 fibers cable.	No.	2				
4.2	Install splicing enclosure for 144 fibers cable.	No.	2				
4.3	Supply splicing enclosure for 96 fibers cable.	No.	38				
4.4	Install splicing enclosure for 96 fibers cable.	No.	38				
4.5	Supply splicing enclosure for 72 fibers cable.	No.	67				
4.6	Install splicing enclosure for 72 fibers cable.	No.	67				
4.7	Supply splicing enclosure for 48 fibers cable.	No.	353				
4.8	Install splicing enclosure for 48 fibers cable.	No.	353				
4.9	Supply splicing enclosure for 24 fibers cable.	No.	2				
4.10	Install splicing enclosure for 24 fibers cable.	No.	2				
5	Optical Distribution Frame.(Specification are in Accordance with Volume IV ).						
5.1	Supply (19" Cabinet mounting inclusive 19" rack (60 W x 80 D x 42 U)) for aggregate sites optical distribution frame	No.	32				
5.2	Install (19" Cabinet mounting inclusive 19" rack (60W x 80D x 42 U for aggregate sites optical distribution frame.	No.	32				
6	Optical Shelves to be Mounted in ODF Suitable for Fiber Cables from 24 to 144 approved by the Engineer , fully equipped including all related components, pig tails, adapters ,...etc (Specifications are in Accordance with Volume IV )						
6.1	Supply optical shelves panel for 144 fibers cable.	No.	10				
6.2	Install optical shelves panel for 144 fibers cable.	No.	10				

6.3	Supply optical shelves panel for 96 fibers cable.	No.	94				
6.4	Install optical shelves panel for 96 fibers cable.	No.	94				
6.5	Supply optical shelves panel for 72 fibers cable.	No.	3				
6.6	Install optical shelves panel for 72 fibers cable.	No.	3				
6.7	Supply optical shelves panel for 48 fibers cable.	No.	4				
6.8	Install optical shelves panel for 48 fibers cable.	No.	4				
6.9	Supply optical shelves panel for 24 fibers cable.	No.	2				
6.10	Install optical shelves panel for 24 fibers cable.	No.	2				
<b>Total Carried to Next Page</b>							

Total from previous page							
Item	Description	Unit	Estimated Quantities		Unit Rate J.D.		Amount
No.			Numbers	Words	Number	Words	J.D.
7	Mini Optical Distribution Frame approved by the Engineer, Fully equipped including all related components, pig tails, Adapters,...etc (Specification are in Accordance with Volume IV ).						
7.1	Supply Mini ODF optical shelves with patch panel for 12 fibers cable.	No.	664				
7.2	Install Mini ODF optical shelves with patch panel for 12 fibers cable.	No.	664				
7.3	Supply (Wall mounting Cabinet 60 x 60 x 9 U )	No.	664				
7.4	Install (Wall mounting Cabinet 60 x 60 x 9 U )	No.	664				
<b>Fiber Works Total</b>							

**Civil Works BOQ**

Item No.	Description	Unit	Estimated Quantities		Unit Rate J.D.		Amount J.D.
			Numbers	Words	Number	Words	
8	<p>The execution of trench excavation for fiber optics cables 50 cm wide and 100 cm deep regardless of the type of the soil: rocky, sand, concrete, base course , asphalt, pavement slabs of various types and colors, etc.</p> <p>Prices shall include the following:</p> <ul style="list-style-type: none"> <li>▪ Excavation, layer backfilling in layers of not more than 20cm each, intensive compacting (as per the specifications of MOHPW and Municipalities in the kingdom) . Support excavation sides and to transfer the excess outside the site to the allowed locations according to the authorized sites.</li> <li>▪ Backfilling with Sweileh red sand to protect the pipes, approximately 30 cm high from the excavation base according to the drawings.</li> <li>▪ Procurement and installation of the warning tape, electronic identifiers, according to the specifications, drawings, the requirements of the responsible authorities, and the supervising Engineer.</li> <li>▪ The backfilling using single size material or base course or cement treated base course or concrete in any thickness according to the specifications, drawings, the requirements of the responsible authorities and the Engineer's instructions.</li> </ul>	Km	430				
9	<p>The execution of trench excavation for fiber optics cables 50 cm wide and 100 cm deep regardless of the type of the soil for routes In <b>Non-Urban</b> Areas defined by the Engineer.</p> <p>Prices shall include the following:</p> <ul style="list-style-type: none"> <li>▪ Excavation, backfilling one layer (using the excavated materials with maximum size of aggregate not more than 10 cm), intensive compacting (as per the specifications of MOHPW and Municipalities in the kingdom) . Support excavation sides and to transfer the excess outside the site to the allowed locations according to the authorized sites.</li> </ul>	Km	2				
<b>Total Carried to Next Page</b>							

Total from previous page							
Item No.	Description	Unit	Estimated Quantities		Unit Rate J.D.		Amount J.D.
			Numbers	Words	Number	Words	
	<ul style="list-style-type: none"> <li>▪ Backfilling with Sweileh red sand to protect the pipes, approximately 30 cm high from the excavation base according to the drawings.</li> <li>▪ Procurement and installation of the warning tape, electronic identifiers for this mentioned distance herein according to the specifications, drawings, and the requirements of the responsible authorities, and the Engineer's instructions.</li> </ul>						
10	Re-instate the terrain to it's original status before excavation and Delivery and execution of a layer of hot mix Asphalt 7cm thickness after good compacting to reach a degree of 98% ( according to Marshal Test ) for all areas where Asphalted layer that should be removed (to meet the requirements of the responsible authorities)and to re-instate the terrain to original status using the Finisher with full cleanness. Price includes : Liquid Asphalt ( MC 70 ) at the average of 1.5 KG /m2 approx.	LM	230000				
11	As in the previous item no.10 but for pavement slabs of various types and colours, or concrete ground.	LM	200000				
12	The execution of trench excavation as per annex K ( MOPWH specifications for route reinstatement ) in the roads that are owned by the MOPWH , as the followings :						
12.1	The execution of trench cross section excavation within the main roads	LM	1000				
12.2	The execution of linear trench excavation within the main roads	LM	1500				
12.3	The execution of cross section trench excavation within the secondary roads	LM	1500				
13	<ul style="list-style-type: none"> <li>▪ Supply and installation of two (2) UPVC sub-ducts (1 1/4 inches in diameter &amp; 1.8mm thickness) inside One (1) UPVC duct (4 inches in diameter &amp; 3.2mm thickness) inside the trench, And according to the specifications, drawings, and the Engineer's instructions.</li> <li>▪ The price shall include the Flanges, accessories, fittings, the adhesives, different colors of plastic ropes 6 mm in diameter, quantity: 1, inside each sub-duct, to be used to drag cables in the future. (No knots are allowed).</li> </ul>	Km	55				
14	<ul style="list-style-type: none"> <li>▪ Procurement and installation of four (4) UPVC sub-ducts (1 1/4 inches in diameter &amp; 1.8mm thickness) inside One (1) UPVC duct (4 inches in diameter &amp; 3.2mm thickness) inside the trench, And according to the specifications, drawings, and the Engineer's instructions.</li> <li>▪ The price shall include the Flanges, accessories, fittings, the adhesives, different colors of plastic ropes 6 mm in diameter, quantity: 1, inside each sub-duct, to be used to drag cables in the future. (No knots are allowed).</li> </ul>	Km	379				
15	Supply and install As in the previous item no.11 but for (1) sub-duct (1 1/4 inches in diameter & 1.8mm thickness). inside the main duct (4 inches in diameter & 3.2mm thickness)	Km	2				
<b>Total Carried to Next Page</b>							

Total from previous page							
Item No.	Description	Unit	Estimated Quantities		Unit Rate J.D.		Amount J.D.
			Numbers	Words	Number	Words	
16	The supply and installation of the galvanized steel pipes 6 inches in diameter Class B, to be used in railway crossings and bridge crossings, if required in accordance to the specifications, drawings, the requirements of the responsible authorities and the Engineer's instructions. <ul style="list-style-type: none"> <li>The price shall include all fittings and accessories for fixation.</li> </ul>	LM	1000				
17	<ul style="list-style-type: none"> <li>Supply, Delivery ,installation and execution of pre-cast man-holes (120*68*82 cm) as internal dimensions with base and walls of 15 cm thickness, with a fair-face surface made from reinforced concrete with a minimum cube crushing strength of 260 kg/cm<sup>2</sup> after 28 days</li> <li>Prices shall include excavation, material, procurement, shuttering, pouring, reinforcement steel , mesh accessories, fixing the required plastic pipes, manhole's mesh and the metallic manhole cover that should be lockable and of heavy type 40 ton load waterproof and backfilling around the manhole, according to the specifications , drawings and the Supervising Engineer's instructions.</li> </ul>	No.	1010				
18	<ul style="list-style-type: none"> <li>Supply ,Delivery ,installation and execution of pre-cast man holes (100*100*100 cm) as internal dimensions with base and walls of 20 cm thickness, with a fair-face surface made from reinforced concrete with a minimum cube crushing strength of 250 kg/cm<sup>2</sup> after 28 days</li> <li>Prices shall include excavation, material, procurement, shuttering, pouring, reinforcement iron, accessories (the same accessories mentioned in item no. 14), fixing the required plastic pipes, and the reinforced concrete manhole cover with 80cm diameter and 10 cm thickness, the cast iron heavy cover frame, and backfilling around the manhole, according to the specifications, drawings, and Engineer's instructions.</li> </ul>	No.	10				
<b>Total Carried to Next Page</b>							

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Item	Description	Unit	Estimated Quantities		Unit Rate J.D.		Amount
No.			Numbers	Words	Number	Words	J.D.
19	<ul style="list-style-type: none"> <li>▪ Supply , Delivery, installation and execution of pre-cast hand-holes (91.5*46*82cm) as internal dimensions with base and walls of 15 cm thickness, with a fair-face surface made from reinforced concrete with a minimum cube crushing strength of 260 kg/cm2 after 28 days</li> <li>▪ Prices shall include excavation, material, procurement, shuttering, pouring, reinforcement iron, accessories, fixing the required plastic pipes, manhole's mesh and the metallic manhole cover that should be lockable and of heavy type 40 ton load waterproof and backfilling around the manhole, according to the specifications , drawings and the Engineer's instructions.</li> </ul>	No.	644				
20	Supply , Delivery, installation and execution of pull boxes (50*26*48.5 cm) as internal dimensions with base and walls of 10 cm thickness with a fair-face surface finish made from reinforced concrete with a minimum cube crushing strength of 200 kg/cm2 after 28 days, the cover shall be of reinforced concrete type of 10cm thickness, with all related accessories according to the specifications, drawings and Engineer's instructions.	No.	711				
21	Supply and cast in place reinforced concrete with minimum cube crushing strength of 200 Kg/cm2 after 28 days, to be used to protect the ducts where the trench's route crosses flood's routes or valleys, and where required according to the Engineer's instructions. Price includes all shuttering works.	M3	350				
22	Supply and install galvanized U-guard cable protector including all related accessories, according to the specifications, drawings, and instructions of the Engineer.	LM	953				
23	Supply and install galvanized cable ladder (15 cm) including all related accessories, according to the specifications & drawings, and instructions of the Engineer.	LM	1905				
<b>Total Carried to Next Page</b>							

Total from previous page									
Item	Description	Unit	Estimated Quantities		Unit Rate J.D.		Amount		
No.			Numbers	Words	Number	Words	J.D.		
24	Supply and install flexible white color HDPE pipes (25mm in diameter and 2.8mm thickness) with all related accessories to be installed between the pole & the hand-hole and between the pull box & the entity and where required in accordance with the Engineer's guidance and instructions.	LM	5080						
25	Supply and install white color UPVC pipes (25mm in diameter and 1.5mm thickness) with all related accessories (joints, fittings, connectors...etc..) to be installed inside the entities and where required in accordance with the Engineer's guidance and instructions.	LM	1000						
26	Supply and install galvanized steel pipe Ø 2" Class A to be fixed to the poles and where required including all related accessories in accordance with the Engineer's guidance and instructions.	LM	100						
27	Supply and install galvanized steel pipe Ø 1" , Class A, to be fixed to the poles and where required including all related accessories in accordance with the Engineer's guidance and instructions.	LM	1900						
28	Cleaning existing sub ducts	LM	150						
29	blowing, and roping in the existing sub ducts	LM	1000						
<b>Civil Works Total</b>									

**Supervision staff facilities**

Item No.	Description	Unit	Est. Qty		Unit Rate J.D.		Amount J.D.
			Number	Words	Number	Words	
1	<p><b><u>Supply and install the Engineer's Office</u></b></p> <ul style="list-style-type: none"> <li>▪ Rent or construct and complete furnished Engineer's office, complete with all requirements as specified in the supplementary particular conditions for the duration of contract execution</li> <li>▪ Price shall include all expenses, overheads and profits.</li> </ul>	Month	24	Twenty four			
2	<p><b><u>Provision of vehicles for the Engineer's use.</u></b></p> <ul style="list-style-type: none"> <li>▪ Provide and maintain <b>two</b> brand new (2016), four-wheel drive, double cabin pick-up vehicles (min 2500 cc) complete with all requirements as specified in the supplementary particular conditions</li> <li>▪ Price shall include all expenses, overheads and profits.</li> </ul>	Month	24	Twenty four			
<b>Supervision and facilities Total</b>							

Pricing Collection				
S/No	Item Description	Page Carried from	Amount	
			Dinar	Fils
	<b>Total Fiber works ( Duct and ADSS )</b>	9 of 18		
	<b>Total of Civil Works</b>	14 of 18		
	<b>Total of supervision and Facilities</b>	15 of 18		
<b>Total</b>				
Percentage of Increase to total (    ) %				OR
Percentage of Decrease from Total (    ) %				
Final Total ..... J.D. ( in words .....) * Price including all applicable taxes, fees and duties.				
Name of Bidder .....				
Name of Authorized signatory ..... His Position .....				
Tel. & fax of Bidder.....				

<b>Address of Bidder</b> .....
<b>Date .../.../</b>
<b>Signature of Bidder (Authorized signatory) &amp; his seal</b> .....

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