



REPUBLIC OF LEBANON
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Maintenance of Bridge Expansion Joints

Lot 2

(Aley, Chouf and Saida Cazas)

Tender Documents

Volume 3
Bill of Quantities
Rev-1

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MAINTENANCE OF BRIDGE EXPANSION JOINTS

LOT 2

(ALEY, CHOUF AND SAIDA CAZAS)

BILL OF QUANTITIES

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QC	Ref: L2106D / 3802	
	Revision: 01	Date: January, 2024
	<input type="checkbox"/> Draft	<input checked="" type="checkbox"/> Final
	Signature:	

PREAMBLE TO BILL OF QUANTITIES

PREAMBLE

1. Background:

The Project of “Maintenance of Bridge Expansion Joints for Lot 2” aims to perform the maintenance works for the expansion joints of selected bridges by replacement/ repair the damaged joints as specified in the project Tender Documents.

The main indicator for joint defect of the bridge is when it fails to provide the following functions: (1) withstand traffic loads and allow bridge movement, (2) afford a smooth riding surface and safe surface for vehicles, (3) minimize noise and vibration, and (4) prevent water from infiltrating and damaging other bridge components.

The bridges within the project scope listed in the following table are located on high-speed highway roads, serving high traffic volumes and presenting significant risk factors. In addition, the following table show the classification of the bridges based on the assigned time for the execution of joints maintenance works, considering traffic service level constraints during execution.

Lot No	Caza	Bridge Reference	Bridge Name	Fixed/ Optional	Group Assignment
Lot 2	Aley	BR-II.1	Soufar Bridge	Fixed	Group-II (Day time)
		BR-II.2	Khaldeh Bridge	Fixed	Group-I (Night time)
	Chouf	BR-II.3	Wadi Al Zayneh Bridge	Fixed	Group-II (Day time)
	Saida	BR-II.4	Al Zahrani Interchange	Optional	Group-II (Day time)
		BR-II.5	Al Aakbieh Bridge	Optional	Group-II (Day time)

2. Scope of Works:

The maintenance of Bridge Expansion Joints shall focus on preserving the road facility during the projected design life, in a good condition to provide an acceptable level of service for the users.

The maintenance work shall mainly include the following:

- Maintenance for the damaged expansion joints, as well as repair works for the concrete supports and the asphalt approach areas.
- Traffic Management Plan during different construction phases.

Maintenance of the bridge expansion joints

The Maintenance of the existing expansion joint includes mainly one of the following cases:

- In case of minor defects, the repair of existing joints consists of replacing the damaged parts of the joint and restoring/repairing the deteriorated parts of anchorage systems without full replacement of existing joints.
- In case of major defects, the rehabilitation of deck expansion joints includes mainly replacing the existing one with a new one as specified in the project tender documents and according to the method statement presented hereafter.

It is noted that the rehabilitation operation of existing elastomeric joints shall include mainly the following activities:

- Install as necessary the temporary signing and channelizing devices for the TCP in the working area.
- Dismantling of the existing expansion joints and all related materials and accessories.
- Milling the existing pavement from both sides of the expansion joint.
- Base joint preparation by cleaning and removal of the damaged parts by using an electrical hammer.
- Installing of steel reinforcement where required (Utilization of epoxy mortar for steel anchor).
- Base releveling and pouring of deteriorated parts by using high strength and fast hardening micro-concrete (Sikacrete or equivalent).
- Joint installation including drill and fixation of anchor bolts by epoxy resin.
- Milling and surface asphaltting from both sides of the expansion joint.
- Clean and fill the transition strip (Epoxy Based) on both sides of the expansion joints.
- Dismantle the temporary signing and channelizing devices.

Traffic management and control plans:

The traffic management plan shall be implemented during each construction phase by diverting the traffic to the edge lanes in a safe manner and ensuring during the work the continuity of traffic circulation with an acceptable service level. It shall include the implementation of all necessary temporary traffic signs and safety.

3. Quality System Requirements (Quality Plan):

The Contractor is required to submit a **Quality Plan related to the proposed bridge expansion joints as part of their bid documents**. This plan should include the specific documentation detailed in the following table:

No	Description of document
1	Description of the proposed expansion joint, material specifications, and arrangement drawings showing the details of the proposed expansion joint
2	Laboratory test certificates
3	Certification from the manufacturer of the expansion joint
4	Details and /or procedures for installation

- The expansion joint must be manufactured by a company which has a third party certified quality management system (i.e. ISO or equivalent) for the manufacture and supply of bridge joints. This certification must be submitted to the Engineer for approval.
- Laboratory test certificates must be provided to the Engineer to verify that the material used in the manufacture and the proposed joint has been tested in a laboratory meeting the requirements of this specifications. Testing must be performed by a laboratory which is accredited by an International Certified Laboratory.

The provided Joint Quality Plan will be taken into consideration when the tenders are examined and evaluated.

4. The Bill of Quantities shall be priced in US Dollars. The rates inserted in the Bill of Quantities shall be in words (letters) and in figures. In the case of discrepancy between the two, the rates written in words shall govern.

5. The items in the Bill of Quantities do not necessarily contain full description of the required Works, and when pricing, the Contractor shall allow in his unit rates for all obligations, liabilities and services stipulated in the relevant sections of:

Volume I: Bid Conditions and Procedures, Conditions of Contract;

Volume II: Technical Specifications;

Volume IV: Drawings/ Manual;

and all other related Tender and Contract Documents.
6. The methods of measurement used and which will be used for re-measurement shall be in accordance with the Method of Measurement included in the Specifications and/or as noted in the Bill of Quantities with the item description. These methods of measurement shall be strictly adhered to notwithstanding any trade, general or local custom.
7. The Contractor shall, during his study of the Tender, address his queries, if any, to the Employer, who will study and clarify all such queries.

Should the Contractor, during his study of the Tender Documents, consider that there is any shortage, error or inconsistency in the Contract Documents, which would affect the rates of his Tender, or the value of the works, the Contractor must have all such points clarified by the Employer before submitting his Tender.
8. The text of the Bill of Quantities shall not be altered or qualified in any way by the Tenderer. Any such alteration or qualification to the text shall be ignored and the text shall remain as printed; Moreover, such alteration or qualification is liable to result in a Tender, which is otherwise favorable, not being considered.
9. The rates inserted by the Contractor will be deemed to cover the full cost of the Works, including all direct and indirect expenses, overhead and profit. Any item, which is not priced, shall be deemed to have been included in other rates and prices and in the Contract Price.
10. The Contractor shall satisfy himself as to the meaning of every item in the Bill of Quantities. Unless otherwise described or measured separately, the rates and prices inserted by the Contractor shall be deemed to cover all costs, expenses, risks, liabilities, obligations and services described in the Conditions of Contract and General Requirements, and all other Contract Documents, and all matters for the proper execution and completion of the Works and remedying defects therein. These rates shall allow, but not by way of limitation, for complying with all Contract Documents; for all labour and material, including samples, sampling and testing; for all temporary work of every description required; for the provision and use of all equipment and plant of every kind, whether mechanical or manual, required for the expeditious carrying out of the Works in their proper sequence; for shifting, altering and adapting such temporary work and equipment as may be required during the progress of the Works and removing at completion and making good any surfaces disturbed; for executing the requirements of the CDR Health and Safety Manual, for full customs and other import duties; for cooperation and coordination of the Works, with other Contractors; for the guarantees and bonds required; for providing all insurances and the like; for all necessary temporary services associated with these Works; for establishing and furnishing the Engineer's site office and providing the required vehicles, driver fuel, lubricants and maintenance for the Engineer's representative transportation, as specified; for the work in connection with measurements and the final account; for profit and for all other establishment charges and all costs of whatever nature. No claim for additional payment will be considered for any error or misunderstanding by the Contractor in these respects.

11. **This Bill of Quantities (BOQ) pertains to Three Cazas, consisting of fixed bills and optional bills. The Contractor must maintain same unit rates for identical items across different Cazas and The Contractor is obligated to use identical unit rates for the same items in both the fixed and optional bills. In the event of any discrepancies, the lowest unit rate will prevail, resulting in an adjustment to the bid price. The unit rates and prices provided by the Contractor will remain in effect throughout the duration of the Contract and will apply to any additional work that may be instructed by the Engineer.**
12. The Contractor is expected to take all necessary precautions to avoid damaging existing structures and services and where they are interrupted to reconnect them immediately. No separate payment shall be made and the rates in the Bill of Quantities shall be deemed to cover adequately all costs. The Contractor's attention is drawn to the fact that the service authorities may impose, in addition to the cost of repair, statutory penalties. Details of these requirements may be obtained from the respective authorities.
13. The Contractor shall allow in his rates for protecting all Works against damage by whatever method deemed necessary and approved. Any work damaged before the Works are handed over is to be replaced or made good at the Contractor's expense and to the entire satisfaction of the Engineer.
14. The Quantities set-out in the Bill of Quantities are estimated quantities, and they are not to be taken as the actual and correct quantities of the Works to be executed by the Contractor in fulfillment of his obligations under the Contract.

Notwithstanding the quantities given, all Works itemized in the Bill of Quantities will be subject to re-measurement in the unit of measurement indicated, and payment made at the corresponding unit rates on the re-measured quantities.
15. Unless otherwise stated, all measurements shall be measured net and are applicable to finished work only as completed and no allowance shall be made for wastage, working spaces, bulking, shrinkage, overlaps and the like. Unless otherwise described, the unit of measurement for each item shall be as indicated in the Bill of Quantities. Measurement shall be rounded up or down to the nearest whole number and exact half units shall be rounded up. Any thickness, which is stated in this Document, shall be the finished and specified thickness.
16. When the expression "Ditto" appears under an item in the Bill of Quantities, it shall be deemed to mean that the said item shall include the whole relevant description of the preceding item together with any description written before and/or after the said expression.
17. Any item of work included in the Bill of Quantities, which is not carried out, shall be omitted from the interim and final statements. Any additional item of work carried out on the Engineer's instructions shall be subject of a variation order and comparison Table included in the relevant interim and final statements, after Employer's approval.
18. **The Contractor should read carefully the Environment and Social Management Plan (ESMP) requirements and take all details into consideration while pricing. The cost of implementing of the ESMP requirements and the Traffic Management Plan should be included in the Contractors rates.**
19. Contractor should maximize the use of Labor under each item of work under the project as this issue of an essence to the Road and Employment Project.

20. The Contractor should be responsible and should determine the skilled and/or semi-skilled labors to be carried out as the task may present, especially for items where labor content is obviously high.
21. All maintenance activities shall be executed in accordance with the general & specific Traffic Management Plan (part of this tender document) during different construction phases and in accordance with the Environmental and Social Management plan (ESMP).
22. The Contractor should submit for consultant approval a specific traffic management plan (specific TMPs) related to each bridge during the first 28 days from notice to commence. The specific TMPs shall include the various traffic diversion plan layouts for various type of activities; Analysis of impacted roads; Risk Assessment; Protection of Work Zones and road users including pedestrians.
The method of measurement of the temporary safety devices and movable sign boards related to the activities to be carried out within the working areas shall be as specified in the technical specifications (Volume-2) and as indicated in the related BOQ Items.
23. **The Employer reserves the unrestricted right to reduce the awarded Contract value, either partially or in full (up to the entire amount), as well as the corresponding scope of work, based on the availability of funds. In this regard, the Employer possesses the prerogative to modify, decrease/eliminate, and/or augment the quantity of any item in the Bill of Quantities. The revised contract amount will be calculated accordingly. The Contractor must take these potential adjustments into account when setting the rates in the Bill of Quantities and, as such, shall not have the right to make claims against these alterations.**
24. The following notations are used in the Bill of Quantities:
- | | |
|---------------------|----------------|
| Linear Meter | lm |
| Square Meter | m ² |
| Cubic Meter | m ³ |
| Number | No. |
| Tonne | ton. |
| Kilogram | kg |
| Lump Sum | LS |
| Centimeter | cm |
| Millimeter | mm |
| Reinforced Concrete | RC |
| Drawing | Dwg |

Description of work and materials in the specifications details and dimensions shown on the drawings are not necessarily repeated in the Bill of Quantities

****END OF PREAMBLE****

GENERAL CONTRACT REQUIREMENTS

BILL NO. II-A: GENERAL CONTRACT REQUIREMENTS FOR LOT 2

Item	Relevant Specifications Measurement Items	Description
II-A	Division-1	<p>GENERAL CONTRACT REQUIREMENTS</p> <p><u>The cost of fulfilling all the requirements of general requirements over the contract period (5 Months) shall be deemed to have been included in other rates and prices and in the Contract Price, which shall include but not be limited to:</u></p> <p><u>- MOBILIZATION & DEMOBILIZATION</u> Includes all necessary mobilization and demobilization for the works.</p> <p><u>- INSURANCE</u> Includes all required insurances in accordance with the Contract Documents in general, and in volume 1- Conditions of Contract particularly.</p> <p><u>- TEMPORARY FACILITIES AND SERVICES FOR THE ENGINEER</u> Includes all necessary "Temporary Facilities For the Engineer and/or Employer" specified in the contract documents.</p> <p><u>-TEMPORARY SIGN BOARD</u> Delivery and installation of two Temporary Sign Boards for each bridge location. This item includes manufacturing, supplying and erecting "Temporary Sign Boards", each size 2000mm wide 3250mm high, all required foundations, fixing accessories, required pole with breakaway connection, painting and marking, complete as specified to the approval of the Engineer.</p> <p><u>-TOPOGRAPHICAL SURVEY</u> Includes all necessary works for the execution of the site topographical survey for verification of design levels, quantity measurements and the design of permanent and temporary works as specified and as directed by the Engineer.</p> <p><u>MATERIAL SUBMITTALS AND CONSTRUCTION SHOP DRAWINGS</u> Includes all necessary works and materials for the preparation and submission to the Engineer's approval of all execution and shop drawings concerning all temporary and permanent works under this contract. And shall also include but not limited to the detailed design, all necessary design calculations, working drawing, details and complete information concerning work, methods of erection, construction method and program work taking into consideration safety and non-stop traffic along the main roads. In addition to the submission of materials and construction documents in complete submittal packages to the Engineer for approval. Construction shall not commence before the receipt of approval of the relevant materials and construction documents.</p>

I. BILL OF QUANTITIES FOR ALEY CAZA (Fixed)

BILL NO. II-B: PREPARATION AND JOINTS REPAIR WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II-B.1	2.01.03	Dismantling of damaged expansion joints and all related materials and accessories, along with the cleaning of the gap of expansion joints, completed all as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	lm	51.00		
II-B.2	2.02.03	Demolition and removal of the damaged concrete joint support (cracked /not sound) including the removal of demolished parts of concrete and the cleaning of the steel reinforcement all as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	lm	25.00		
II-B.3	2.03.03	The repair works for the anchor bolts and transition strips of existing bridge joints will include, but not be limited to: -Saw cutting the existing asphalt adjacent to the joint and cleaning the anchorage heads and the transition zones between the joint elements and the road surface (from both sides of the joint). -Relevelling the existing joint where needed. -Pouring epoxy resin into the anchorages reservation. -Filling the transition zones with epoxy resin. The type of epoxy resin to be used is subject to the Engineer's Approval and all activities shall be carried out as specified and to the satisfaction of the Engineer. Unit Rate in lettersUSD	lm	51.00		
Subtotal Bill No. II-B: PREPARATION AND JOINTS REPAIR WORKS						

Only in letters

.....United States Dollars

BILL NO. II-C: CONCRETE REPAIR WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-C		<u>CONCRETE REPAIR WORKS</u> <i>(All Works shall be done complete as shown on drawings, as specified and to the Engineer's approval)</i>				
II-C.1	5.01.08	Cast in situ Reinforced concrete Class 450/20; including SBR additive, completed as specified, shown on drawings and to the Engineer's satisfaction. Unit Rate in lettersUSD	m ³	10.00		
II-C.2	5.25.04	Cast in situ special grout: cement based high strength and fast hardening micro-concrete (Minimum compressive strength in one day 35 MPa) with a maximum aggregate size of 10mm (Sikacrete or equivalent) Unit Rate in lettersUSD	m ³	10.00		
II-C.3	5.03.04.2	Supply and installation of additional High Tensile Steel bar reinforcement for the anchorage zones completed as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	T	1.50		
II-C.4	5.03.04.3	Supply, and installation of additional High Tensile Steel bar reinforcement for the anchorage zones and fixation with chemical anchor adhesive (Sika or equivalent) completed as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	T	1.00		
Subtotal Bill No. II-C: Concrete Repair Works						

Only in letters
.....United States Dollars

BILL NO. II-D: EXPANSION JOINTS REPLACEMENT WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II-D.1		Supply and installation of a Reinforced Elastomeric Expansion Joint. The rates provided shall constitute full compensation for furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, all in accordance with specifications and to the satisfaction of the Engineer.				
II-D.1.a		Not Applicable.	-	-	-	-
II-D.1.b		Not Applicable.	-	-	-	-
II-D.1.c		Not Applicable.	-	-	-	-
II-D.1.d	5.18.08.2	Reinforced Elastomeric Expansion Joint with allowable movement range type EJ 220 (+/- 110) as shown on drawings. Unit Rate in lettersUSD	lm	19.00	-	-
II-D.1.e		Not Applicable.	-	-	-	-
II-D.1.f	5.18.08.2	Reinforced Elastomeric Expansion Joint with allowable movement range type EJ 350 (+/- 175) as shown on drawings. Unit Rate in lettersUSD	lm	32.00		
II-D.2		Supply and installation of Steel Finger Joint with all as specified and shown in drawings. The rate shall include also all necessary materials and accessories, and shop drawings submittals as specified and to the Engineer's satisfaction.				
II-D.2.a	5.18.08.3	Steel Finger Joints type FJ 350 with allowable movement range (+/- 175) as shown on drawings. Unit Rate in lettersUSD	lm	4.00		
Subtotal Bill No. II-D: Expansion Joints Replacement Works						

Only in letters
.....United States Dollars

BILL NO. II-E: INCIDENTAL BRIDGE MAINTENANCE WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-E		All Works shall be completed as specified and shown on drawings and to the Engineer's satisfaction				
II-E.1		Not Applicable.	-	-	-	-
II-E.2	4.08.14	Asphalt pavement maintenance works for the bridge deck and approach areas, including milling up to 5 cm, applying one layer of tack coat, and one layer of asphalt wearing course (Th = 5 cm). Unit Rate in lettersUSD	m2	400.00		
II-E.3		Not Applicable.	-	-	-	-
II-E.4		Not Applicable.	-	-	-	-
II-E.5		Not Applicable.	-	-	-	-
Subtotal Bill No. II-E: Incidental Bridge Maintenance Works						

Only in letters

.....United States Dollars

BILL NO. II-F: TRAFFIC CONTROL DEVICES & SAFETY BARRIERS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-F		TEMPORARY TRAFFIC CONTROL DEVICES FOR THE IMPLEMENTATION OF THE TTCP: (Supply the following temporary signing and channelizing devices for the TTCP on Highway complete all in accordance with the related drawings and subject to the Engineer's approval. The temporary devices shall include, but are not limited to the following:)				
II-F.1	6.09.03.1	Temporary Warning signs (1x1m dimensions) including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	16.00		
II-F.2	6.09.03.2	Temporary Warning signs size greater than or equal to 1x1.2m dimensions, including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	16.00		
II-F.3	6.09.03.3	Temporary Warning signs (1.8x0.6m dimensions) including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	6.00		
II-F.4	6.09.03.4	Temporary Regulatory and Mandatory signs with a Diameter between 0.85 and 1m, including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	32.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-F.5	6.09.06.1	Flashing Arrow or Chevron Boards Unit Rate in lettersUSD	Nr	6.00		
II-F.6	6.09.06.1	Flashing arrow boards (Truck mounted). Unit Rate in lettersUSD	Nr	2.00		
II-F.7	6.09.04	Plastic barrier, 180 cm long and 80 cm high, 40cm wide with reflective taps. Unit Rate in lettersUSD	Nr	1,000.00		
II-F.8	6.09.05	Solar flashing beacons. Unit Rate in lettersUSD	Nr	170.00		
II-F.9	5.03.04.6	Supply as necessary temporary steel plate cover joints (1000x1300x30mm) Unit Rate in lettersUSD	Nr	16.00		
		<u>Install, reinstall and dismantle as necessary temporary safety devices and steel plates cover joints</u>				
II-F.10		Install, reinstall and dismantle as necessary temporary steel plate cover joints Unit Rate in lettersUSD	Nr	4.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-F.11		<p>Daily mobilization of Temporary Traffic Safety devices on the Highway (install, reinstall and dismantle as necessary the temporary signing and channelizing devices for the TCP on Highway complete all in accordance with the related guidance drawings and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters</p> <p>.....USD</p>	Nr	4.00		
Subtotal Bill No. II-F: Traffic Control Devices & Safety Barriers						

Only in letters

.....United States Dollars

**SUMMARY
OF BILL OF QUANTITIES FOR
ALEY CAZA (Fixed)**

MAINTENANCE OF BRIDGE EXPANSION JOINTS

BILL OF QUANTITIES FOR LOT 2

SUMMARY OF ALEY CAZA (FIXED)

BILL NO	DESCRIPTION	AMOUNT IN USD
BILL II-B	PREPARATION AND JOINTS REPAIR WORKS	
BILL II-C	CONCRETE REPAIR WORKS	
BILL II-D	EXPANSION JOINTS REPLACEMENT WORKS	
BILL II-E	INCIDENTAL BRIDGE MAINTENANCE WORKS	
BILL II-F	TRAFFIC CONTROL DEVICES & SAFETY BARRIERS	
TOTAL AMOUNT OF BILL OF QUANTITIES FOR ALEY CAZA (US \$)		

II. BILL OF QUANTITIES FOR CHOUF CAZA (Fixed)

BILL NO. II-B: PREPARATION AND JOINTS REPAIR WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II-B.1	2.01.03	Dismantling of damaged expansion joints and all related materials and accessories, along with the cleaning of the gap of expansion joints, completed all as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	lm	30.00		
II-B.2	2.02.03	Demolition and removal of the damaged concrete joint support (cracked /not sound) including the removal of demolished parts of concrete and the cleaning of the steel reinforcement all as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	lm	10.00		
II-B.3	2.03.03	The repair works for the anchor bolts and transition strips of existing bridge joints will include, but not be limited to: -Saw cutting the existing asphalt adjacent to the joint and cleaning the anchorage heads and the transition zones between the joint elements and the road surface (from both sides of the joint). -Relevelling the existing joint where needed. -Pouring epoxy resin into the anchorages reservation. -Filling the transition zones with epoxy resin. The type of epoxy resin to be used is subject to the Engineer's Approval and all activities shall be carried out as specified and to the satisfaction of the Engineer. Unit Rate in lettersUSD	lm	30.00		
Subtotal Bill No. II-B: PREPARATION AND JOINTS REPAIR WORKS						

Only in letters

.....United States Dollars

BILL NO. II-C: CONCRETE REPAIR WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-C		<u>CONCRETE REPAIR WORKS</u> <i>(All Works shall be done complete as shown on drawings, as specified and to the Engineer's approval)</i>				
II-C.1	5.01.08	Cast in situ Reinforced concrete Class 450/20; including SBR additive, completed as specified, shown on drawings and to the Engineer's satisfaction. Unit Rate in lettersUSD	m ³	5.00		
II-C.2	5.25.04	Cast in situ special grout: cement based high strength and fast hardening micro-concrete (Minimum compressive strength in one day 35 MPa) with a maximum aggregate size of 10mm (Sikacrete or equivalent) Unit Rate in lettersUSD	m ³	10.00		
II-C.3	5.03.04.2	Supply and installation of additional High Tensile Steel bar reinforcement for the anchorage zones completed as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	T	1.00		
II-C.4	5.03.04.3	Supply, and installation of additional High Tensile Steel bar reinforcement for the anchorage zones and fixation with chemical anchor adhesive (Sika or equivalent) completed as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	T	0.50		
Subtotal Bill No. II-C: Concrete Repair Works						

Only in letters

.....United States Dollars

BILL NO. II-D: EXPANSION JOINTS REPLACEMENT WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II-D.1		Supply and installation of a Reinforced Elastomeric Expansion Joint. The rates provided shall constitute full compensation for furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, all in accordance with specifications and to the satisfaction of the Engineer.				
II-D.1.a		Not Applicable.	-	-	-	-
II-D.1.b		Not Applicable.	-	-	-	-
II-D.1.c	5.18.08.2	Reinforced Elastomeric Expansion Joint type EJ 180 with allowable movement range (+/- 90) as shown on drawings. Unit Rate in lettersUSD	lm	30.00		
II-D.1.d		Not Applicable.	-	-	-	-
II-D.1.e		Not Applicable.	-	-	-	-
II-D.1.f		Not Applicable.	-	-	-	-
II-D.2		Supply and installation of Steel Finger Joint with all as specified and shown in drawings. The rate shall include also all necessary materials and accessories, and shop drawings submittals as specified and to the Engineer's satisfaction.				
II-D.2.a		Not Applicable.	-	-	-	-
Subtotal Bill No. II-D: Expansion Joints Replacement Works						

Only in letters

.....United States Dollars

BILL NO. II-E: INCIDENTAL BRIDGE MAINTENANCE WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-E		All Works shall be completed as specified and shown on drawings and to the Engineer's satisfaction				
II-E.1		Not Applicable.	-	-	-	-
II-E.2	4.08.14	Asphalt pavement maintenance works for the bridge deck and approach areas, including milling up to 5 cm, applying one layer of tack coat, and one layer of asphalt wearing course (Th = 5 cm). Unit Rate in lettersUSD	m2	200.00		
II-E.3	6.06.05.1	Dismantling damaged galvanized steel guardrail and replacing with new similaire one including terminal units. Unit Rate in lettersUSD	lm	60.00		
II-E.4		Not Applicable.	-	-	-	-
II-E.5		Not Applicable.	-	-	-	-
Subtotal Bill No. II-E: Incidental Bridge Maintenance Works						

Only in letters
.....United States Dollars

BILL NO. II-F: TRAFFIC CONTROL DEVICES & SAFETY BARRIERS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-F		TEMPORARY TRAFFIC CONTROL DEVICES FOR THE IMPLEMENTATION OF THE TTCP: (Supply the following temporary signing and channelizing devices for the TTCP on Highway complete all in accordance with the related drawings and subject to the Engineer's approval. The temporary devices shall include, but are not limited to the following:)				
II-F.1	6.09.03.1	Temporary Warning signs (1x1m dimensions) including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	6		
II-F.2	6.09.03.2	Temporary Warning signs size greater than or equal to 1x1.2m dimensions, including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	6		
II-F.3	6.09.03.3	Temporary Warning signs (1.8x0.6m dimensions) including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	2		
II-F.4	6.09.03.4	Temporary Regulatory and Mandatory signs with a Diameter between 0.85 and 1m, including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	13		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-F.5	6.09.06.1	Flashing Arrow or Chevron Boards Unit Rate in lettersUSD	Nr	2		
II-F.6	6.09.06.1	Flashing arrow boards (Truck mounted). Unit Rate in lettersUSD	Nr	1		
II-F.7	6.09.04	Plastic barrier, 180 cm long and 80 cm high, 40cm wide with reflective taps. Unit Rate in lettersUSD	Nr	450		
II-F.8	6.09.05	Solar flashing beacons. Unit Rate in lettersUSD	Nr	70		
II-F.9	5.03.04.6	Supply as necessary temporary steel plate cover joints (1000x1300x30mm) Unit Rate in lettersUSD	Nr	8		
		<u>Install, reinstall and dismantle as necessary temporary safety devices and steel plates cover joints</u>				
II-F.10		Install, reinstall and dismantle as necessary temporary steel plate cover joints Unit Rate in lettersUSD	Nr	2		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-F.11		<p>Daily mobilization of Temporary Traffic Safety devices on the Highway (install, reinstall and dismantle as necessary the temporary signing and channelizing devices for the TCP on Highway complete all in accordance with the related guidance drawings and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters</p> <p>.....USD</p>	Nr	2		
Subtotal Bill No. II-F: Traffic Control Devices & Safety Barriers						

Only in letters

.....United States Dollars

**SUMMARY
OF BILL OF QUANTITIES FOR
CHOUF CAZA (Fixed)**

MAINTENANCE OF BRIDGE EXPANSION JOINTS

BILL OF QUANTITIES FOR LOT 2

SUMMARY OF CHOUF CAZA (FIXED)

BILL NO	DESCRIPTION	AMOUNT IN USD
BILL II-B	PREPARATION AND JOINTS REPAIR WORKS	
BILL II-C	CONCRETE REPAIR WORKS	
BILL II-D	EXPANSION JOINTS REPLACEMENT WORKS	
BILL II-E	INCIDENTAL BRIDGE MAINTENANCE WORKS	
BILL II-F	TRAFFIC CONTROL DEVICES & SAFETY BARRIERS	
TOTAL AMOUNT OF BILL OF QUANTITIES FOR CHOUF CAZA (US \$)		

III. BILL OF QUANTITIES FOR SAIDA CAZA (Optional)

BILL NO. II-B: PREPARATION AND JOINTS REPAIR WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II-B.1	2.01.03	Dismantling of damaged expansion joints and all related materials and accessories, along with the cleaning of the gap of expansion joints, completed all as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	lm	170.00		
II-B.2	2.02.03	Demolition and removal of the damaged concrete joint support (cracked /not sound) including the removal of demolished parts of concrete and the cleaning of the steel reinforcement all as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	lm	50.00		
II-B.3		Not Applicable.	-	-	-	-
Subtotal Bill No. II-B: PREPARATION AND JOINTS REPAIR WORKS						

Only in letters
.....United States Dollars

BILL NO. II-C: CONCRETE REPAIR WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-C		<u>CONCRETE REPAIR WORKS</u> <i>(All Works shall be done complete as shown on drawings, as specified and to the Engineer's approval)</i>				
II-C.1	5.01.08	Cast in situ Reinforced concrete Class 450/20; including SBR additive, completed as specified, shown on drawings and to the Engineer's satisfaction. Unit Rate in lettersUSD	m ³	10.00		
II-C.2	5.25.04	Cast in situ special grout: cement based high strength and fast hardening micro-concrete (Minimum compressive strength in one day 35 MPa) with a maximum aggregate size of 10mm (Sikacrete or equivalent) Unit Rate in lettersUSD	m ³	15.00		
II-C.3	5.03.04.2	Supply and installation of additional High Tensile Steel bar reinforcement for the anchorage zones completed as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	T	1.50		
II-C.4	5.03.04.3	Supply, and installation of additional High Tensile Steel bar reinforcement for the anchorage zones and fixation with chemical anchor adhesive (Sika or equivalent) completed as specified and to the Engineer's satisfaction. Unit Rate in lettersUSD	T	1.00		
Subtotal Bill No. II-C: Concrete Repair Works						

Only in letters

.....United States Dollars

BILL NO. II-D: EXPANSION JOINTS REPLACEMENT WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II-D.1		Supply and installation of a Reinforced Elastomeric Expansion Joint. The rates provided shall constitute full compensation for furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, all in accordance with specifications and to the satisfaction of the Engineer.				
II-D.1.a		Not Applicable.	-	-	-	-
II-D.1.b	5.18.08.2	Reinforced Elastomeric Expansion Joint type EJ 160 with allowable movement range (+/- 80) as shown on drawings. Unit Rate in lettersUSD	lm	19.00		
II-D.1.c	5.18.08.2	Reinforced Elastomeric Expansion Joint type EJ 180 with allowable movement range (+/- 90) as shown on drawings. Unit Rate in lettersUSD	lm	87.00		
II-D.1.d		Not Applicable.	-	-	-	-
II-D.1.e		Reinforced Elastomeric Expansion Joint with allowable movement range type EJ 270 (+/- 135) as shown on drawings. Unit Rate in lettersUSD	lm	64.00	-	-
II-D.1.f		Not Applicable.	-	-	-	-

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II-D.2		Supply and installation of Steel Finger Joint with all as specified and shown in drawings. The rate shall include also all necessary materials and accessories, and shop drawings submittals as specified and to the Engineer's satisfaction.				
II-D.2.a		Not Applicable.	-	-	-	-
Subtotal Bill No. II-D: Expansion Joints Replacement Works						

Only in letters

.....United States Dollars

BILL NO. II-E: INCIDENTAL BRIDGE MAINTENANCE WORKS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-E		All Works shall be completed as specified and shown on drawings and to the Engineer's satisfaction				
II-E.1	6.06.05.3	Concrete safety barrier terminal unit where required and as directed by the engineer. Unit Rate in lettersUSD	Nr	4.00		
II-E.2	4.08.14	Asphalt pavement maintenance works for the bridge deck and approach areas, including milling up to 5 cm, applying one layer of tack coat, and one layer of asphalt wearing course (Th = 5 cm). Unit Rate in lettersUSD	m2	380.00		
II-E.3	6.06.05.1	Dismantling damaged galvanized steel guardrail and replacing with new similaire one including terminal units. Unit Rate in lettersUSD	lm	120.00		
II-E.4		Not Applicable.	-	-	-	-
II-E.5		Not Applicable.	-	-	-	-
Subtotal Bill No. II-E: Incidental Bridge Maintenance Works						

Only in letters
.....United States Dollars

BILL NO. II-F: TRAFFIC CONTROL DEVICES & SAFETY BARRIERS

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-F		TEMPORARY TRAFFIC CONTROL DEVICES FOR THE IMPLEMENTATION OF THE TTCP: (Supply the following temporary signing and channelizing devices for the TTCP on Highway complete all in accordance with the related drawings and subject to the Engineer's approval. The temporary devices shall include, but are not limited to the following:)				
II-F.1	6.09.03.1	Temporary Warning signs (1x1m dimensions) including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	24.00		
II-F.2	6.09.03.2	Temporary Warning signs size greater than or equal to 1x1.2m dimensions, including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	24.00		
II-F.3	6.09.03.3	Temporary Warning signs (1.8x0.6m dimensions) including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	8.00		
II-F.4	6.09.03.4	Temporary Regulatory and Mandatory signs with a Diameter between 0.85 and 1m, including posts, supports, and all related temporary fixation. Unit Rate in lettersUSD	Nr	52.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-F.5	6.09.06.1	Flashing Arrow or Chevron Boards Unit Rate in lettersUSD	Nr	8.00		
II-F.6	6.09.06.1	Flashing arrow boards (Truck mounted). Unit Rate in lettersUSD	Nr	4.00		
II-F.7	6.09.04	Plastic barrier, 180 cm long and 80 cm high, 40cm wide with reflective taps. Unit Rate in lettersUSD	Nr	1,800.00		
II-F.8	6.09.05	Solar flashing beacons. Unit Rate in lettersUSD	Nr	280.00		
II-F.9	5.03.04.6	Supply as necessary temporary steel plate cover joints (1000x1300x30mm) Unit Rate in lettersUSD	Nr	32.00		
		<u>Install, reinstall and dismantle as necessary temporary safety devices and steel plates cover joints</u>				
II-F.10		Install, reinstall and dismantle as necessary temporary steel plate cover joints Unit Rate in lettersUSD	Nr	8.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate USD	Amount (USD)
II-F.11		<p>Daily mobilization of Temporary Traffic Safety devices on the Highway (install, reinstall and dismantle as necessary the temporary signing and channelizing devices for the TCP on Highway complete all in accordance with the related guidance drawings and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters</p> <p>.....USD</p>	Nr	8.00		
Subtotal Bill No. II-F: Traffic Control Devices & Safety Barriers						

Only in letters

.....United States Dollars

**SUMMARY
OF BILL OF QUANTITIES FOR
SAIDA CAZA (Optional)**

MAINTENANCE OF BRIDGE EXPANSION JOINTS

BILL OF QUANTITIES FOR LOT 2

SUMMARY OF SAIDA CAZA (OPTIONAL)

BILL NO	DESCRIPTION	AMOUNT IN USD
BILL II-B	PREPARATION AND JOINTS REPAIR WORKS	
BILL II-C	CONCRETE REPAIR WORKS	
BILL II-D	EXPANSION JOINTS REPLACEMENT WORKS	
BILL II-E	INCIDENTAL BRIDGE MAINTENANCE WORKS	
BILL II-F	TRAFFIC CONTROL DEVICES & SAFETY BARRIERS	
TOTAL AMOUNT OF BILL OF QUANTITIES FOR SAIDA CAZA (US \$)		

IV. TOTAL SUMMARY
LOT 2 –
(ALEY, CHOUF AND SAIDA CAZAS)

MAINTENANCE OF BRIDGE EXPANSION JOINTS

For Lot 2

(Aley, Chouf and Saida Cazas)

BILL OF QUANTITIES

TOTAL SUMMARY FOR LOT 2

	AMOUNT IN USD
TOTAL AMOUNT OF ALEY CAZA BILL OF QUANTITIES - Fixed (US \$)	
TOTAL AMOUNT OF CHOUF CAZA BILL OF QUANTITIES - Fixed (US \$)	
TOTAL AMOUNT OF SAIDA CAZA BILL OF QUANTITIES - Optional (US \$)	
(1) TOTAL AMOUNT OF PACKAGE II BILL OF QUANTITIES BEFORE DEDUCTION (US \$)	
(2) DEDUCTION BY BIDDERS IF ANY (US \$)	
(3) PROVISIONAL SUM FOR ALEY CAZA - (US \$)	\$15,000.00
(4) PROVISIONAL SUM FOR CHOUF CAZA (US \$)	\$5,000.00
(5) PROVISIONAL SUM FOR SAIDA CAZA - Optional (US \$)	\$10,000.00
(6)= (1)-(2)+(3)+(4)+(5): TOTAL AMOUNT OF LOT 2 BILL OF QUANTITIES AFTER DEDUCTION (US \$)	
TOTAL AMOUNT OF LOT 2 - AFTER DEDUCTION IN LETTERS	