REPUBLIC OF LEBANON
MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

MAINTENANCE OF BRIDGE EXPANSION JOINTS
LOT 3
(JBEIL, BATROUN,BAABDA and SAIDA CAZAS)

TENDER DOCUMENTS

VOLUME 4
TENDER DRAWINGS

AUGUST 2025

DAR AL HANDASAH NAZIH TALEB & PARTNERS Consulting Engineers
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REHABILITATION & MAINTENANCE OF BRIDGE EXPANSION JOINTS LOT 3
(JBEIL, BATROUN, BAABDA and SAIDA CAZAS)

LIST OF DRAWINGS

DRAWING No.	DRAWING TITLE
GENERAL	
DWG BR-GN-L3-001	LIST OF DRAWINGS
DWG BR-GN-L3-002	BRIDGE LOCATIONS PLAN
CAZA SAIDA	
DWG BR-III.1-01	AL AAKBIEH BRIDGE (BR-III.1)-SHEET 1 OF 3
DWG BR-III.1-02	AL AAKBIEH BRIDGE (BR-III.1)-SHEET 2 OF 3
DWG BR-III.1-03	AL AAKBIEH BRIDGE (BR-III.1)-SHEET 3 OF 3
DWG BR-III.2-01	AL ZAHRANI BRIDGE (BR-III.2)-SHEET 1 OF 4
DWG BR-III.2-02	AL ZAHRANI BRIDGE (BR-III.2)-SHEET 2 OF 4
DWG BR-III.2-03	AL ZAHRANI BRIDGE (BR-III.2)-SHEET 3 OF 4
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CAZA BAABDA	
DWG BR-III.3-01	AL HKMEH-CITY CENTER BRIDGE (BR-III.3) -SHEET 1 OF 4
DWG BR-III.3-02	AL HKMEH-CITY CENTER BRIDGE (BR-III.3) -SHEET 2 OF 4
DWG BR-III.3-03	AL HKMEH-CITY CENTER BRIDGE (BR-III.3) -SHEET 3 OF 4
DWG BR-III.3-04	AL HKMEH-CITY CENTER BRIDGE (BR-III.3) -SHEET 4 OF 4
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DWG BR-III.4-02	CITY CENTER BRIDGE (BR-III.4) -SHEET 2 OF 5
DWG BR-III.4-03	CITY CENTER BRIDGE (BR-III.4) -SHEET 3 OF 5
DWG BR-III.4-04	CITY CENTER BRIDGE (BR-III.4) -SHEET 4 OF 5
DWG BR-III.4-05	CITY CENTER BRIDGE (BR-III.4) -SHEET 5 OF 5
CAZA JBEIL	
DWG BR-III.5-01	NAHER IBRAHIM BRIDGE (BR-III.5) -SHEET 1 OF 3
DWG BR-III.5-02	NAHER IBRAHIM BRIDGE (BR-III.5) -SHEET 2 OF 3
DWG BR-III.5-03	NAHER IBRAHIM BRIDGE (BR-III.5) -SHEET 3 OF 3
CAZA BATROUN	
DWG BR-III.6-01	BATROUN BRIDGE (BR-III.6) -SHEET 1 OF 3
DWG BR-III.6-02	BATROUN BRIDGE (BR-III.6) -SHEET 2 OF 3
DWG BR-III.6-03	BATROUN BRIDGE (BR-III.6) -SHEET 3 OF 3
CAZA BAABDA	
DWG BR-III.7-01	MDEIREJ BRIDGE (BR-III.7) -SHEET 1 OF 3
DWG BR-III.7-02	MDEIREJ BRIDGE (BR-III.7) -SHEET 2 OF 3
DWG BR-III.7-03	MDEIREJ BRIDGE (BR-III.7) -SHEET 3 OF 3
CAZA SAIDA	
DWG BR-III.8-01	AWALI BRIDGE (BR-III.8)-SHEET 1 OF 4
DWG BR-III.8-02	AWALI BRIDGE (BR-III.8)-SHEET 2 OF 4
DWG BR-III.6-03	AWALI BRIDGE (BR-III.8)-SHEET 3 OF 4
DWG BR-III.6-04	AWALI BRIDGE (BR-III.8)-SHEET 4 OF 4

DRAWING No.	DRAWING TITLE
TYPICAL DETAILS	
DWG BR-TD-01	EXECUTION PROCEDURE FOR BRIDGE JOINTS REHABILITATION-SHEET 1 OF 2
DWG BR-TD-02	EXECUTION PROCEDURE FOR BRIDGE JOINTS REHABILITATION-SHEET 2 OF 2
DWG BR-TD-03	TRAFFIC SAFETY & CONTROL DEVICES DETAILS-SHEET 1 OF 4
DWG BR-TD-04	TRAFFIC SAFETY & CONTROL DEVICES DETAILS-SHEET 2 OF 4
DWG BR-TD-05	TRAFFIC SAFETY & CONTROL DEVICES DETAILS-SHEET 3 OF 4
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NOTES

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	PJ MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2005

SCALE N.T.S

LIST OF DRAWINGS (SHEET 1/1)

DRAWING No. DWG BR-GN-L3-001 REV 00

NOTES

LEGEND

● BRIDGES UNDER LOT 3 SCOPE OF WORKS

MAINTENANCE OF BRIDGE EXPANSION JOINTS
SCOPE OF WORK
BRIDGES UNDER LOT 3

Lot No	Bridge Reference	Bridge Name		Caza	Group Assignment
LOT 3	BR-III.1	Al AAkbieh Bridge	جسر العاقبية مقابل جامعة فينيسيا	Saida	Group II (Day Time)
	BR-III.2	Al Zahrani Bridge	جسر الزهراني	Saida	Group I (Night Time)
	BR-III.3	Al Hkmeh Bridge	جسر جامعة الحكمة	Baabda	Group I (Night Time)
	BR-III.4	City Center Bridge	جسر سيتي سنتر	Baabda	Group I (Night Time)
	BR-III.5	Naher Brahim Bridge	جسر العقيبة نهر إبراهيم	Jbeil	Group I (Night Time)
	BR-III.6	Batroun Interchange	محول البترون	Batroun	Group I (Night Time)
	BR-III.7	Mdeirej Bridge	جسر مديرج	Baabda	Group II (Day Time)
	BR-III.8	Awali Bridge	جسر الأولي	Saida	Group I (Night Time)

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL-HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 20[illegible]

SCALE N.T.S

BRIDGE LOCATIONS PLAN

DRAWING No. REV
DWG BR-GN-L3-002 00

AL AAKBIEH BRIDGE-FACING PHOENICIA UNIVERSITY
(BR-III.1)

BRIDGE AERIAL VIEW
N.T.S.

Caza Saida : Al AAkbieh Bridge									Existing Joints Characteristics					New Joints Characteristics			
Package	Caza	Bridge Reference	Bridge Name	Number of Carriage way	Type of existing Deck	Total Number of Joints / Carriageway	Distance Between joints (m)	Joint Reference	Type of existing joint	Actual Gap Width (cm)	Joint Width (cm)	Joint Length (m)	Required Maintenance Works	Type of new joint	Actual Gap Width (cm)	Joint Width (cm)	Joint Length (m)
LOT 3	Saida	BR-III.1	Al AAkbieh Bridge	2.00	Precast Girder Bridge	2.00	300.00	J1-NW	Reinforced Elastomeric	15cm	55cm	16.00	Removal of existing joint, supply and installation of new joint as specified	Reinforced Elastomeric type EJ 270	15cm	89.00	16.00
								J2-SW	Reinforced Elastomeric	15cm	55cm	16.00	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 270	15cm	89.00	16.00
							300.00	J3-NE	Reinforced Elastomeric	15cm	55cm	16.00	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 270	15cm	89.00	16.00
								J4-SE	Reinforced Elastomeric	15cm	55cm	16.00	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 270	15cm	89.00	16.00

EXISTING & NEW EXPANSION JOINTS CHARACTERISTICS
(TABLE BR-III.1)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

BRIDGE DECK AREA

BRIDGE EXPANSION JOINTS

No.	DATE	REVISION	DESCRIPTION	CHECKED	ENGINEER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

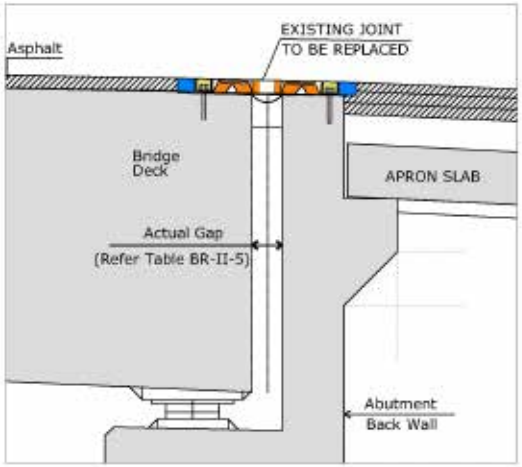
DATE August 2020

CAZA SAIDA
AL AAKBIEH BRIDGE
FACING PHOENICIA UNIVERSITY
(BR-III.1)
SHEET 1 OF 3

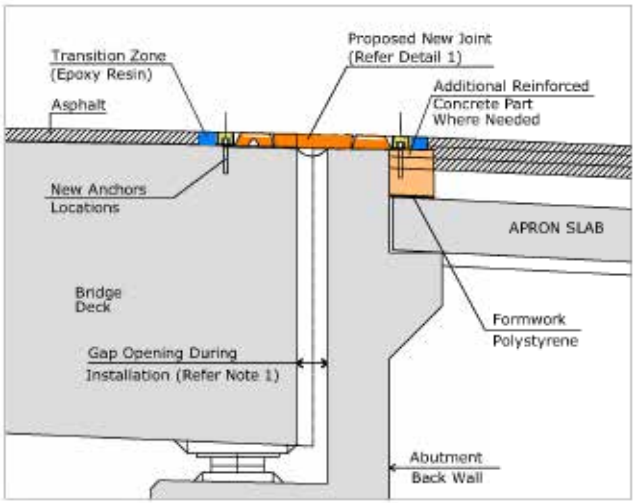
SCALE N.T.S

DRAWING No. (BR-III.1-01)

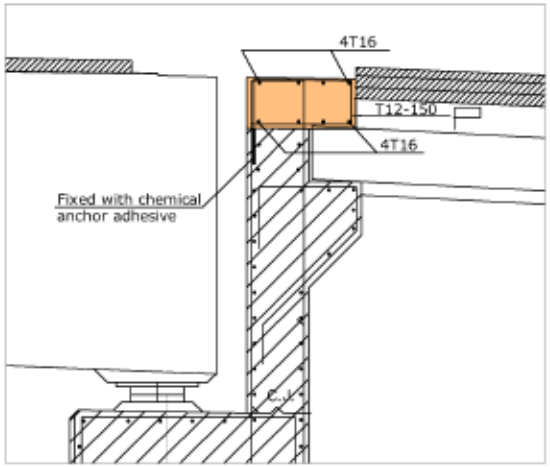
REINFORCED ELASTOMERIC JOINTS
TYPICAL SECTION DETAILS



TYPICAL SECTION FOR THE EXISTING JOINT



TYPICAL SECTION FOR THE PROPOSED NEW JOINT



TYPICAL DETAILS FOR THE ADDITIONAL REINFORCEMENT (WHERE NEEDED)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

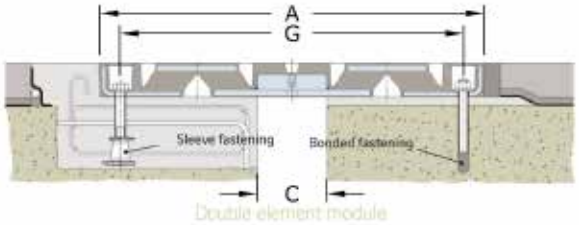
b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

TYPICAL DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS



DETAIL 1

SCHEDULE DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS

Location	Type	Actual Gap Width (mm)	Joint Movement Capacity	Dimensions (mm)*		
				A	G	C
Joint 1-NW	EJ 270	150	±135	890	790	150
Joint 2-SW	EJ 270	150	±135	890	790	150
Joint 3-NE	EJ 270	150	±135	890	790	150
Joint 4-SE	EJ 270	150	±135	890	790	150

* REFER TO NOTE 1

No	DATE	REVISION	DESCRIPTION	CHECKED	MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2005

CAZA SAIDA
AL AAKBIEH BRIDGE
FACING PHOENICIA UNIVERSITY
(BR-II-1)
SHEET 2 OF 3

SCALE N.T.S.

DRAWING No. DWG BR-II-1-02

REV 00

AL AAKBIEH BRIDGE-FACING PHOENICIA UNIVERSITY (BR-III.1)
BRIDGE EXPANSION JOINTS
(EXISTING SITE CONDITION-SITE PHOTOS)

EAST CARRIAGEWAY-JONT 2-SE

NOTES

LEGEND

No.	DATE	REVISION	DESCRIPTION	CHECKED	ENGINEER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAJEH TALEB & PARTNERS consulting engineers
دار الهندسة نجيب طالب وشركاه مهندسون مستشارون

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3	STAGE : TENDER DOCUMENTS
	DATE August 2023
CAZA SAIDA AL AAKBIEH BRIDGE FACING PHOENICIA UNIVERSITY (BR-III.1) SHEET 3 OF 3	SCALE N.T.S
	DRAWING No. [DWG BR-III.1-03] REV. 00

AL ZAHRANI BRIDGE
(BR-III.2)

BRIDGE AERIAL VIEW
N.T.S.

Caza Saida : Al Zahrani BRIDGE									Existing Joints Characteristics					New Joints Characteristics			
Package	Caza	Bridge Reference	Bridge Name	Number of Carriage way	Type of existing Deck	Total Number of Joints / Carriageway	Distance Between joints (m)	Joint Reference	Type of existing joint	Actual Gap Width (cm)	Joint Width (cm)	Joint Length (m)	Required Maintenance Works	Type of new joint	Actual Gap Width (cm)	Joint Width (cm)	Joint Length (m)
LOT 3	Saida	BR-III.2	Al Zahrani BRIDGE-Main Bridge	2.00	Precast Girder Bridge	2.00	70.00	J1-NW	Reinforced Elastomeric	10cm	28cm	16.00	Removal of existing joint, supply and installation of new joint as specified	Reinforced Elastomeric type EJ 180	10cm	50.00	16.00
								J2-SW	Reinforced Elastomeric	10cm	28cm	16.00	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 180	10cm	50.00	16.00
							70.00	J3-NE	Reinforced Elastomeric	10cm	28cm	16.00	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 180	10cm	50.00	16.00
								J4-SE	Reinforced Elastomeric	10cm	28cm	16.00	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 180	10cm	50.00	16.00
			Al Zahrani BRIDGE-West Ramp	1.00	Precast Girder	2.00	70.00	J5-NW	Reinforced Elastomeric	10cm	28cm	11.50	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 180	10cm	50.00	11.50
								J6-SW	Reinforced Elastomeric	10cm	28cm	11.50	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 180	10cm	50.00	11.50
			Al Zahrani BRIDGE-East Ramp	1.00	Precast Girder	2.00	70.00	J7-NE	Reinforced Elastomeric	5cm	28cm	9.50	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 160	5cm	50.00	9.50
								J8-SE	Reinforced Elastomeric	5cm	28cm	9.50	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 160	5cm	50.00	9.50

EXISTING & NEW EXPANSION JOINTS CHARACTERISTICS
(TABLE BR-III.2)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

BRIDGE DECK AREA

BRIDGE EXPANSION JOINTS

No.	DATE	REVISION	DESCRIPTION	CHECKED	ENGINEER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAJIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

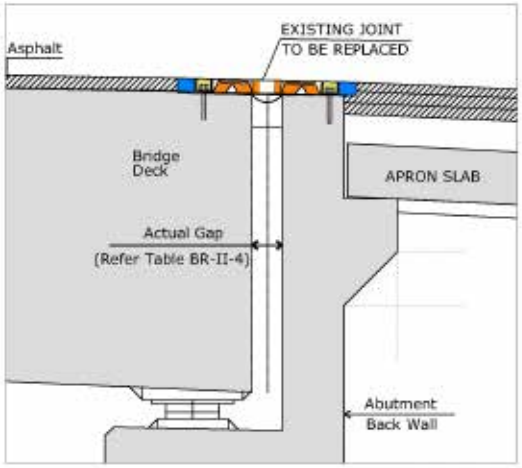
DATE : August 2020

SCALE : N.T.S

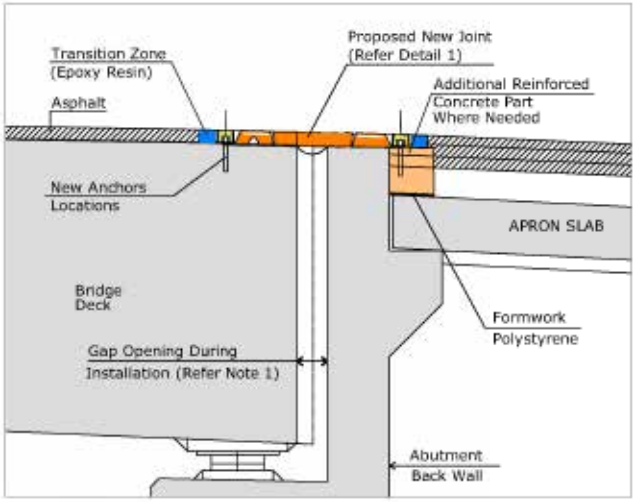
CAZA SAIDA
AL ZAHRANI BRIDGE
(BR-III.2)
SHEET 1 OF 4

DWG BR-III.2-01

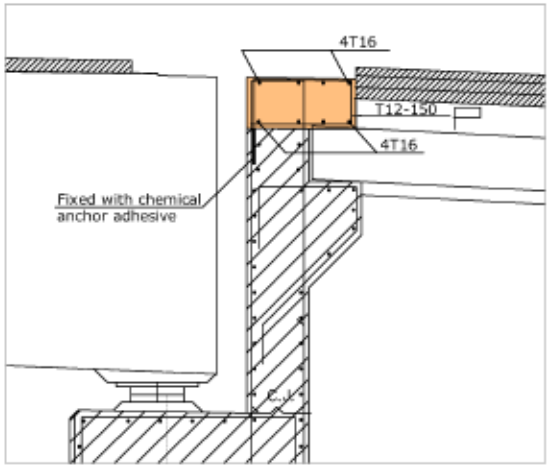
REINFORCED ELASTOMERIC JOINTS
TYPICAL SECTION DETAILS



TYPICAL SECTION FOR THE EXISTING JOINT



TYPICAL SECTION FOR THE PROPOSED NEW JOINT



TYPICAL DETAILS FOR THE ADDITIONAL REINFORCEMENT (WHERE NEEDED)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

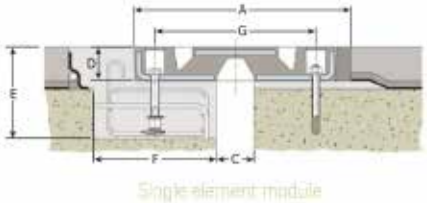
b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

TYPICAL DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS



DETAIL 1

SCHEDULE DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS

Location	Type	Actual Gap Width (mm)	Joint Movement Capacity	Dimensions (mm)*		
				A	G	C
Joint 1-NW	EJ 180	100	±90	500	400	100
Joint 2-SW	EJ 180	100	±90	500	400	100
Joint 3-NE	EJ 180	100	±90	500	400	100
Joint 4-SE	EJ 180	100	±90	500	400	100
Joint 5-NW	EJ 180	100	±90	500	400	100
Joint 6-SW	EJ 180	100	±90	500	400	100
Joint 7-NE	EJ 160	50	±80	470	370	90
Joint 8-SE	EJ 160	50	±80	470	370	90

* REFER TO NOTE 1

No	DATE	REVISION	DESCRIPTION	CHECKED	PJ MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2005

CAZA SAIDA
AL ZAHRANI BRIDGE
(BR-III 2)
SHEET 2 OF 4

SCALE N.T.S.

DRAWING No. DWG BR-III.2-02

REV 00

AL ZAHRANI BRIDGE (BR-III.2)

BRIDGE EXPANSION JOINTS
(EXISTING SITE CONDITION-SITE PHOTOS)

EAST CARRIAGEWAY-JOINT 2-SE

NOTES

LEGEND

No.	DATE	REVISION	DESCRIPTION	CHECKED	APPROVED

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAJEH TALEB & PARTNERS consulting engineers
دار الهندسة نجيب طالب وشركاه المهندسون المستشارون

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2023

CAZA SAIDA
AL ZAHRANI BRIDGE
(BR-III.2)
SHEET 3 OF 4

SCALE N.T.S

DWG BR-III.2-03 03

AL ZAHRANI BRIDGE (BR-III.2)

BRIDGE EXPANSION JOINTS
(SOUTH RAMP TO BEIRUT SITE PHOTOS)
(EXISTING SITE CONDITION-SITE PHOTOS)

NOTES

LEGEND

No.	DATE	REVISION	DESCRIPTION	CHECKED	ENGINEER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAJEH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2023

CAZA SAIDA
AL ZAHRANI BRIDGE
(BR-III.2)
SHEET 4 OF 4

SCALE N.T.S

DWG BR-III.2-04 04

AL HKMEH BRIDGE
(BR-III.3)

BRIDGE AERIAL VIEW
N.T.S.

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

BRIDGE EXPANSION JOINTS TO BE REPLACED

BRIDGE EXPANSION JOINTS TO BE MAINTAINED (REPAIR & MAINTENANCE WORKS)

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2025

CAZA BAABDA
AL HKMEH BRIDGE
(BR-III.3)
SHEET 1 OF 4

SCALE N.T.S.

DRAWING No. DWG BR-III.3-01

REV 00

AL HKMEH BRIDGE
(BR-III.3)

Caza Baabda: El Hkmeh Bridge									Existing Joints Characteristics					New Joints Characteristics		
Package	Caza	Bridge Reference	Bridge Name	Number of Carriage way	Type of existing Deck	Total Number of Joints	Distance Between joints (m)	Joint Reference	Type of existing joint	Actual Gap Width (cm)	Joint Width (cm)	Joint Length (m)	Required Maintenance Works	Type of existing joint	Gap Width (cm)	Joint Width (cm)
LOT 3	Baabda	BR-III.3	El Hkmeh Bridge	2	Box Girder Bridge	12		G	Reinforced Elastomeric		18	15.5	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 220		18
								L	Reinforced Elastomeric	11	5	7.55	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 180	11	5
								H	Reinforced Elastomeric			9.15	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 220		
								A	Reinforced Elastomeric	5		7	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 220	5	
								B	Reinforced Elastomeric	9		9.87	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area 3-Cleaning joint Gap and repair waterproof system		9	
								I	Reinforced Elastomeric	13		13.1	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area 3-Cleaning joint Gap and repair waterproof system		13	
								J	Reinforced Elastomeric	15		10.88	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area 3-Cleaning joint Gap and repair waterproof system		15	
								K	Reinforced Elastomeric	17/18		7.14	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area 3-Cleaning joint Gap and repair waterproof system		17/18	
								C	Reinforced Elastomeric	9		9.87	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area 3-Cleaning joint Gap and repair waterproof system		9	
								D	Reinforced Elastomeric	8		6.45	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area 3-Cleaning joint Gap and repair waterproof system		8	
								E	Reinforced Elastomeric	5		7.5	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 180	5	800
								F	Reinforced Elastomeric	5		7.42	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area 3-Cleaning joint Gap and repair waterproof system		5	

EXISTING & NEW EXPANSION JOINTS CHARACTERISTICS
(TABLE BR-III 3)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	PJ MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE : August 2020

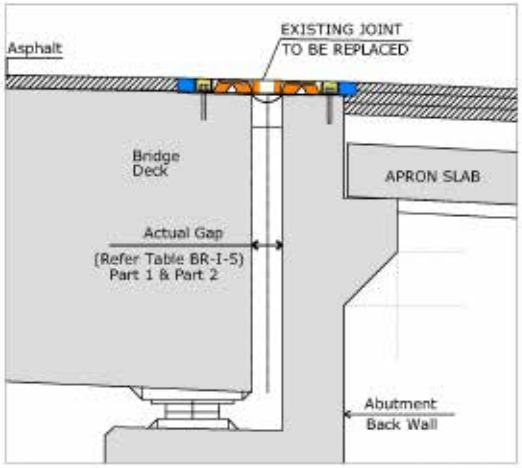
CAZA BAABDA
AL HKMEH BRIDGE
(BR-III.3)
SHEET 2 OF 4

SCALE : N.T.S

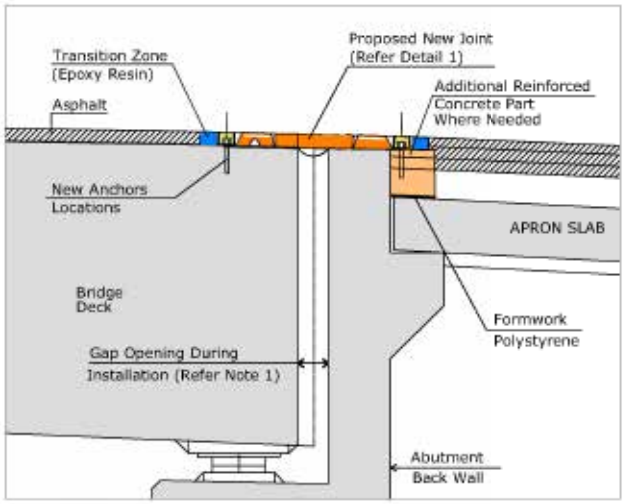
DRAWING No. REV

DWG BR-III.3-02 00

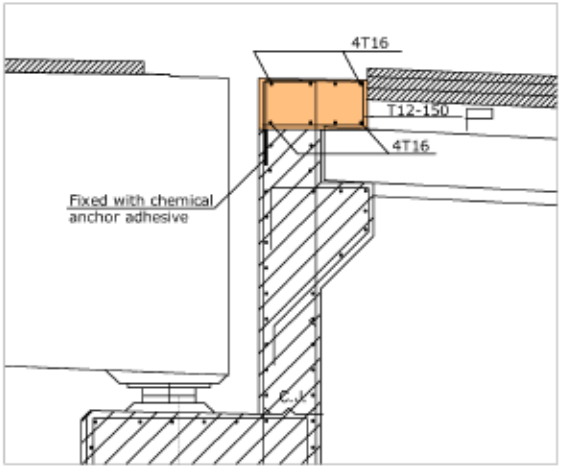
REINFORCED ELASTOMERIC JOINTS
TYPICAL SECTION DETAILS



TYPICAL SECTION FOR THE EXISTING JOINT



TYPICAL SECTION FOR THE PROPOSED NEW JOINT



TYPICAL DETAILS FOR THE ADDITIONAL REINFORCEMENT (WHERE NEEDED)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

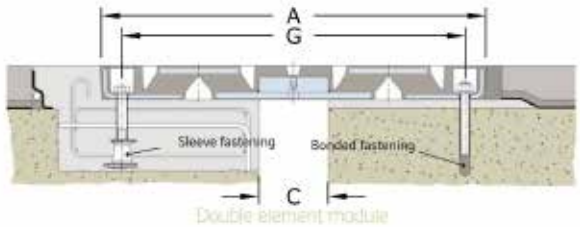
b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

TYPICAL DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS



DETAIL 1

SCHEDULE DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS

Location	Type	Actual Gap Width (mm)	Joint Movement Capacity	Dimensions (mm)*		
				A	G	C
Joints G,H,A	EJ 220	100	±110	800	700	120
Joints L,E	EJ 180	80	±90	500	400	100

* REFER TO NOTE 1

No	DATE	REVISION	DESCRIPTION	CHECKED	PJ MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2005

CAZA BAABDA
AL HKMEH BRIDGE
(BR-III-3)
SHEET 3 OF 4

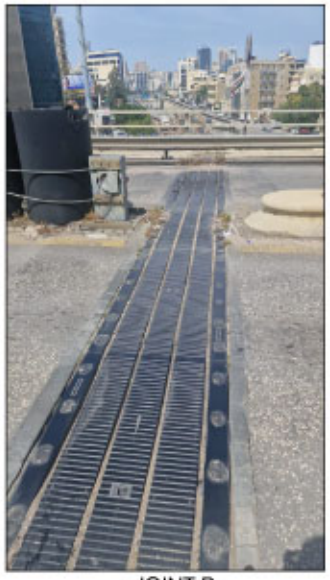
SCALE N.T.S

DRWG No. BR-III-3-03

REV 00

AL HKMEH BRIDGE (BR-III.3)
BRIDGE EXPANSION JOINTS
(EXISTING SITE CONDITION-SITE PHOTOS)

JOINT A



JOINT B

JOINT D

JOINT G

JOINT E

JOINTS J & K

JOINT L

NOTES

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	APPROVED

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE : August 2020

CAZA BAABDA
AL HKMEH BRIDGE
(BR-III.3)
SHEET 4 OF 4

SCALE : N.T.S

DRAWING No. : DWG/BR-III.3-04

REV : 00

CITY CENTER BRIDGE
(BR-III.4)

BRIDGE AERIAL VIEW
N.T.S.

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

BRIDGE EXPANSION JOINTS TO BE REPLACED

BRIDGE EXPANSION JOINTS TO BE MAINTAINED (REPAIR & MAINTENANCE WORKS)

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2025

CAZA BAABDA
CITY CENTER BRIDGE
(BR-III.4)
SHEET 3 OF 5

SCALE N.T.S.

DRAWING No. REV

DWG BR-III.4-01 00

CITY CENTER BRIDGE
(BR-III.4)

Caza Baabda:City Center Bridge									Existing Joints Characteristics				New Joints Characteristics		
Package	Caza	Bridge Reference	Bridge Name	Number of Carriageway	Type of existing Deck	Total Number of Joints / Carriageway	Distance Between joints (m)	Joint Reference	Type of existing joint	Actual Gap Width (cm)	Joint Length (m)	Required Maintenance Works	Type of existing joint	Gap Width (cm)	Joint Length (m)
LOT 3	Baabda	BR-III.4	City Center Bridge	1	Box Girder Bridge			O	Reinforced Elastomeric	8/9	11.05	Removal of existing joint,supply and installation of new joint as specified	Reinforced Elastomeric type EJ 180	8/9	11.05
								Z	Reinforced Elastomeric	9/10	10.85	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 180	9/10	10.85
								Q	Reinforced Elastomeric	19/20	18.55	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 270	19/20	18.55
								R	Reinforced Elastomeric	16/17	17.65	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 270	16/17	17.65
								U	Reinforced Elastomeric	6/7	30.2	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 180	6/7	30.2
								P	Reinforced Elastomeric	12	10.5	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 220	12	10.5
								S	Reinforced Elastomeric	12	17.5	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 220	12	17.5
								Y4	Reinforced Elastomeric	12/13	10.8	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 220	12/13	10.8
								T	Reinforced Elastomeric	6/7	15.25	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 180	6/7	15.25
								Y3	Reinforced Elastomeric	18	10.85	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 270	18	10.85
								Y6	Reinforced Elastomeric		10.4	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 270		10.4
								P1	Reinforced Elastomeric		10.16	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric type EJ 270		10.16
								M	Reinforced Elastomeric	12	14.59	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system		12	14.59
								N	Reinforced Elastomeric	16	13.6	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system		16	13.6
								W	Reinforced Elastomeric	14	10.69	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system		14	10.69
								Y	Reinforced Elastomeric	17	10.75	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system		17	10.75
								P2	Reinforced Elastomeric	13.5	10.2	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system		13	10.2
								P3	Reinforced Elastomeric		8.2	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system			8.2
								V	Reinforced Elastomeric	12/13	10.85	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system		12/13	10.85
								X	Reinforced Elastomeric	14	10.75	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system		14	10.75
								Y1	Reinforced Elastomeric	13/14	10.7	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system		13/14	10.7
								Y2	Reinforced Elastomeric	15	10.84	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system		15	10.84
								Y5	Reinforced Elastomeric	11.5	10.8	1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair waterproof system		12	10.8

EXISTING & NEW EXPANSION JOINTS CHARACTERISTICS
(TABLE BR-III.4)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2020

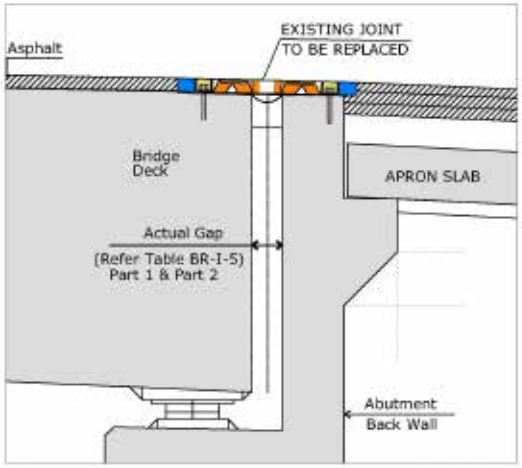
CAZA BAABDA
CITY CENTER BRIDGE
(BR-III.4)
SHEET 2 OF 3

SCALE N.T.S.

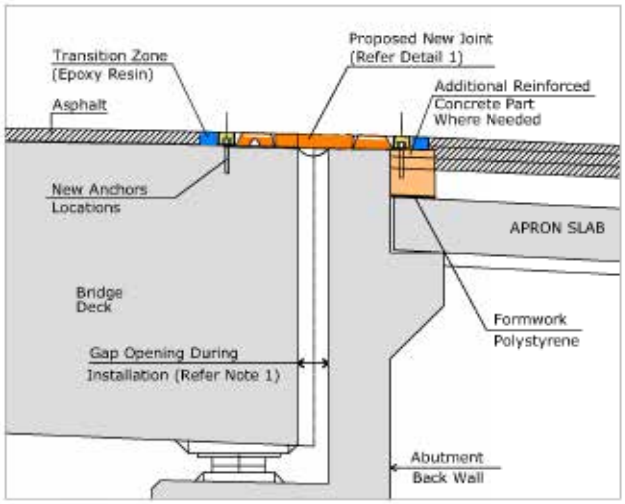
DRAWING No. REV

DWG BR-III.4-02 00

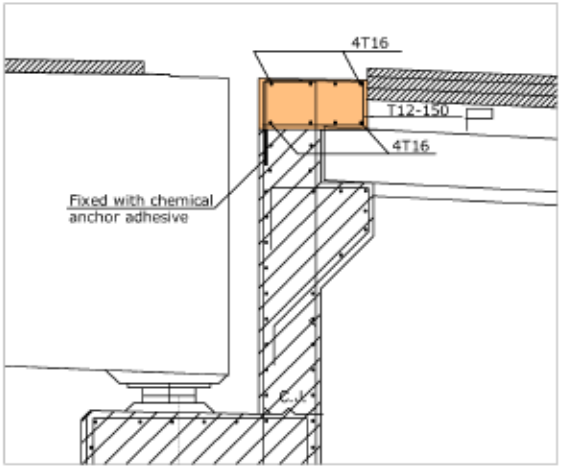
REINFORCED ELASTOMERIC JOINTS
TYPICAL SECTION DETAILS



TYPICAL SECTION FOR THE EXISTING JOINT



TYPICAL SECTION FOR THE PROPOSED NEW JOINT



TYPICAL DETAILS FOR THE ADDITIONAL REINFORCEMENT (WHERE NEEDED)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

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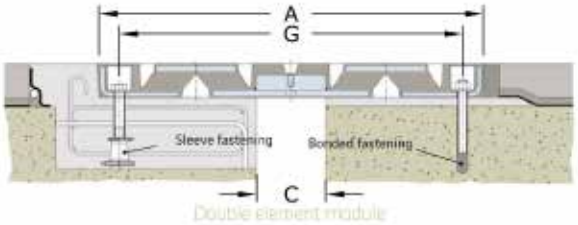
c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

TYPICAL DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS



DETAIL 1

SCHEDULE DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS

Location	Type	Actual Gap Width (mm)	Joint Movement Capacity	Dimensions (mm)*		
				A	G	C
Joints O,Z,U,T	EJ 180	80	±90	500	400	100
Joints P,S,Y4	EJ 220	100	±110	800	700	120
Joints Q,R,Y3,Y6,P1	EJ 270	150	±135	890	790	150

* REFER TO NOTE 1

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2025

CAZA BAABDA
CITY CENTER BRIDGE
(BR-III-4)
SHEET 3 OF 5

SCALE N.T.S

DRAWING No. DWG BR-III-4-03

REV 00

CITY CENTER BRIDGE (BR-III.4)
BRIDGE EXPANSION JOINTS
(EXISTING SITE CONDITION-SITE PHOTOS)

JOINT Y

JOINT Y1

JOINT Y2

JOINT Y3

JOINT Y4

JOINT Y5

JOINT Y6

NOTES

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2025

CAZA BAABDA
CITY CENTER BRIDGE
(BR-III.4)

SHEET 4 OF 5

SCALE N.T.S.

DRWG No. BR-III.4-04 REV 00

CITY CENTER BRIDGE (BR-III.4)
BRIDGE EXPANSION JOINTS
(EXISTING SITE CONDITION-SITE PHOTOS)

JOINT Q

JOINT W

JOINT R

JOINT S

JOINT O

JOINT T

JOINT U

NOTES

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	APPROVED

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2025

CAZA BAABDA
CITY CENTER BRIDGE
(BR-III.4)

SCALE N.T.S.

SHEET 5 OF 5

DRAWING No. DWG/BR-III.4-05 REV. 00

NAHER BRAHIM BRIDGE
(BR-III.5)

BRIDGE AERIAL VIEW
N.T.S.

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

BRIDGE DECK AREA

BRIDGE EXPANSION JOINTS

Caza Jbeil: Nahr Brahim Bridge									Existing Joints Characteristics					New Joints Characteristics			
Package	Caza	Bridge Reference	Bridge Name	Number of Carriage way	Type of existing Deck	Total Number of Joints / Carriageway	Distance Between joints (m)	Joint Reference	Type of existing joint	Actual Gap Width (cm)	Joint Width (cm)	Joint Length (m)	Required Maintenance Works	Type of new joint	Gap Width (cm)	Joint Width (cm)	Joint Length (m)
LOT 3	Jbeil	BR-III.5	Naher Brahim Bridge	2.00	Box Girder Bridge/ Three Spans Bridge	2.00	90.00	J1-SE	Reinforced Elastomeric	5.00	26.00	16.00	Removal of exsiting joint, supply and installation of new joint as specified	Reinforced Elastomeric type EJ 120	5.00	39.00	16.00
								J2-NE	Reinforced Elastomeric	5.00	26.00	16.00	Removal of exsiting joint, supply and installation of new joint	Reinforced Elastomeric type EJ 120	5.00	39.00	16.00
							90.00	J3-SW	Reinforced Elastomeric	5.00	26.00	16.00	Removal of exsiting joint, supply and installation of new joint	Reinforced Elastomeric type EJ 120	5.00	39.00	16.00
								J4-NW	Reinforced Elastomeric	5.00	26.00	16.00	Removal of exsiting joint, supply and installation of new joint	Reinforced Elastomeric type EJ 120	5.00	39.00	16.00

EXISTING & NEW EXPANSION JOINTS CHARACTERISTICS
(TABLE BR-III.5)

No.	DATE	REVISION	DESCRIPTION	CHECKED	PM/MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL-HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2025

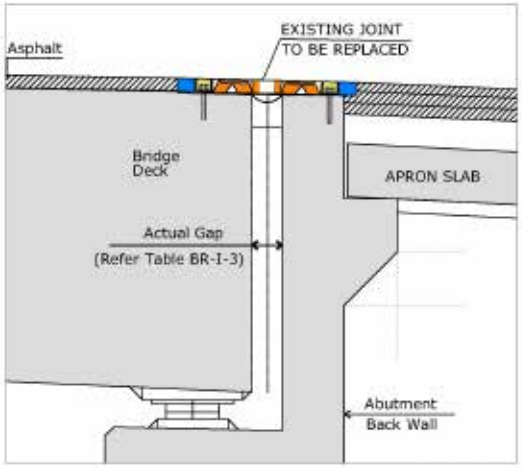
CAZA JBEIL
NAHER BRAHIM BRIDGE
(BR-III.5)
SHEET 1 OF 3

SCALE N.T.S.

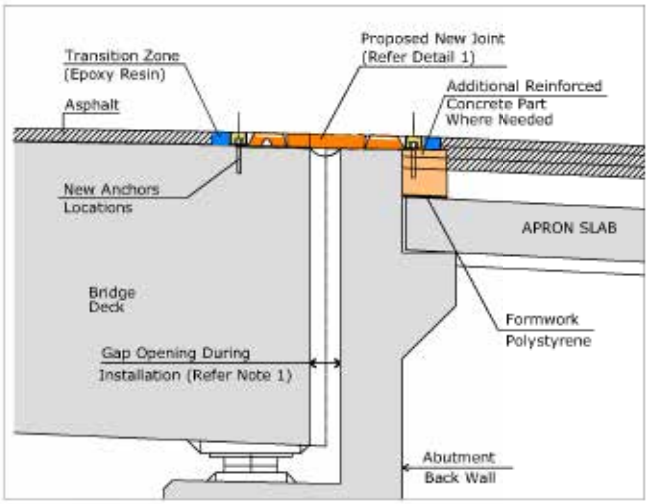
DRAWING No. REV.

DWG BR-III.5-01 00

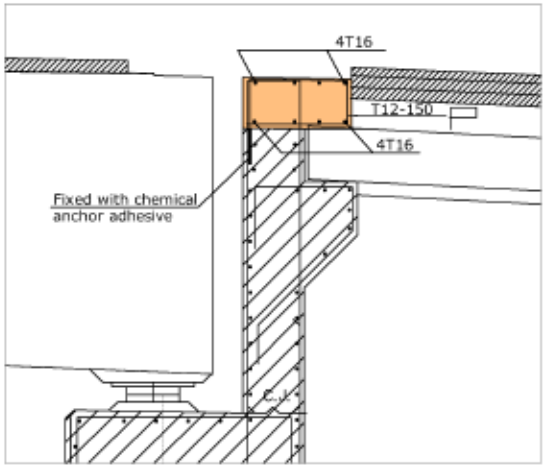
REINFORCED ELASTOMERIC JOINTS
TYPICAL SECTION DETAILS



TYPICAL SECTION FOR THE EXISTING JOINT



TYPICAL SECTION FOR THE PROPOSED NEW JOINT



TYPICAL DETAILS FOR THE ADDITIONAL REINFORCEMENT (WHERE NEEDED)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

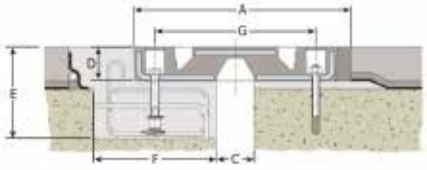
b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

TYPICAL DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS



Single element module

DETAIL 1

SCHEDULE DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS

Location	Type	Actual Gap Width (mm)	Joint Movement Capacity	Dimensions (mm)*		
				A	G	C
Joint 1-SE	EJ 120	50	± 60	390	300	70
Joint 2-NE	EJ 120	50	± 60	390	300	70
Joint 3-SW	EJ 120	50	± 60	390	300	70
Joint 4-NW	EJ 120	50	± 60	390	300	70

* REFER TO NOTE 1

No	DATE	REVISION	DESCRIPTION	CHECKED	MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2005

CAZA JBEIL
NAHR IBRAHIM BRIDGE
(BR-III 5)
SHEET 2 OF 3

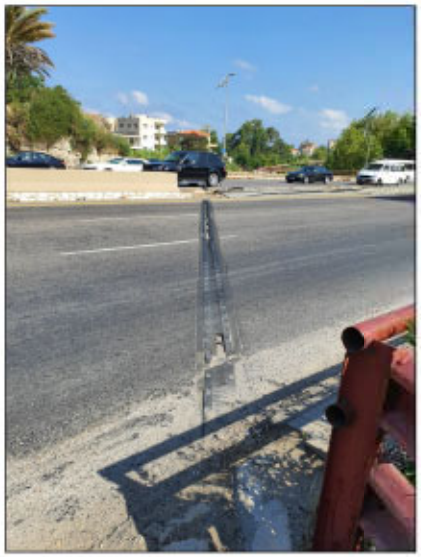
SCALE N.T.S

DRAWING No. DWG BR-III 5-02

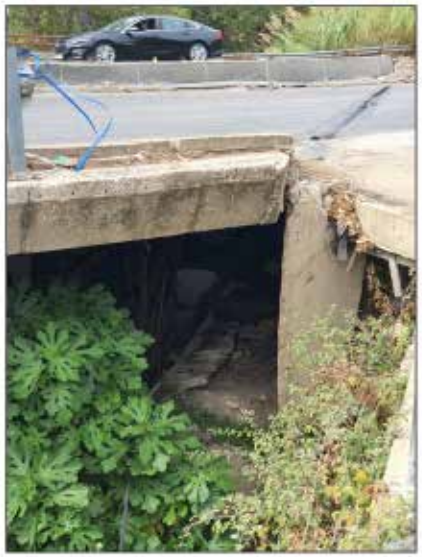
REV 00

NAHER BRAHIM BRIDGE (BR-III.5)
BRIDGE EXPANSION JOINTS
(EXISTING SITE CONDITION-SITE PHOTOS)

EAST CARRIAGEWAY-JOINT 1-SE



EAST CARRIAGEWAY-JOINT 1-SE



EAST CARRIAGEWAY-JOINT 2-NE

EAST CARRIAGEWAY-JOINT 2-NE

EAST CARRIAGEWAY-JOINT 3-SW

NOTES

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2020

CAZA JBEIL
NAHER BRAHIM BRIDGE
(BR-III.5)
SHEET 3 OF 3

SCALE N.T.S.

DRWG No. REV

DWG BR-III.5-03 00

BATROUN BRIDGE
(BR-III.6)

BRIDGE AERIAL VIEW
N.T.S.

Caza Batroun: Batroun Bridge									Existing Joints Characteristics					New Joints Characteristics			
Package	Caza	Bridge Reference	Bridge Name	Number of Carriage way	Type of existing Deck	Total Number of Joints / Carriageway	Distance Between joints (m)	Joint Reference	Type of existing joint	Actual Gap Width (cm)	Joint Width (cm)	Joint Length (m)	Required Maintenance Works	Type of new joint	Gap Width (cm)	Joint Width (cm)	Joint Length (m)
LOT 3	Batroun	BR-III.6	Batroun Bridge	2.00	Deck Slab/ Single Span	2.00	25.00	J1-SE	Reinforced Elastomeric	5.00	26.00	25.00	Removal of existing joint, supply and installation of new joint as specified	Reinforced Elastomeric type EJ 120	5.00	39.00	25.00
								J2-NE	Reinforced Elastomeric	5.00	26.00	25.00	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 120	5.00	39.00	25.00
							25.00	J3-SW	Reinforced Elastomeric	5.00	26.00	17.00	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 120	5.00	39.00	17.00
								J4-NW	Reinforced Elastomeric	5.00	26.00	17.00	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric type EJ 120	5.00	39.00	17.00

EXISTING & NEW EXPANSION JOINTS CHARACTERISTICS
(TABLE BR-III.6)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

BRIDGE DECK AREA

BRIDGE EXPANSION JOINTS

No.	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2020

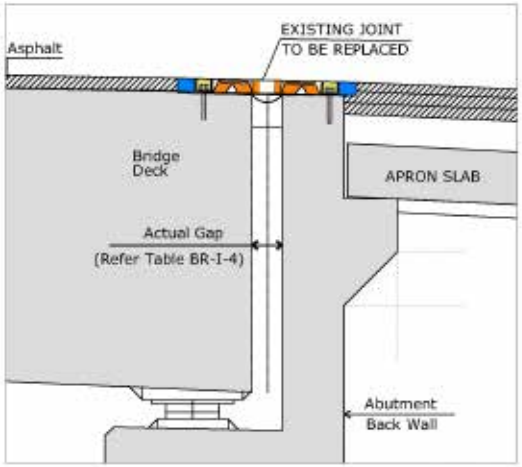
CAZA BATROUN
BATROUN BRIDGE
(BR-III.6)
SHEET 1 OF 3

SCALE N.T.S.

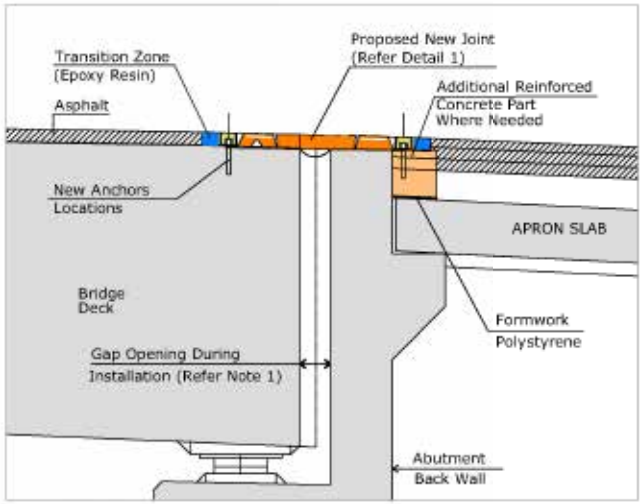
DRAWING No. DWG BR-III.6-01

REV 00

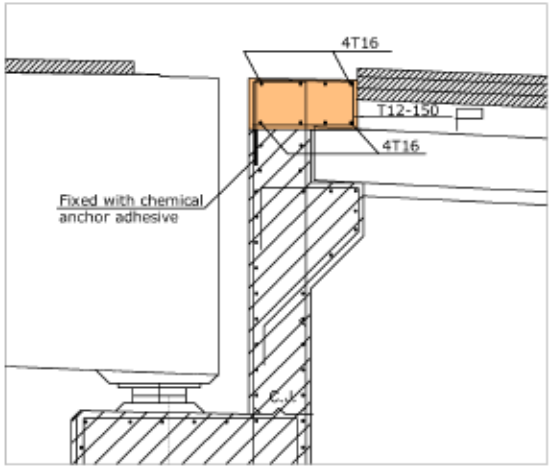
REINFORCED ELASTOMERIC JOINTS
TYPICAL SECTION DETAILS



TYPICAL SECTION FOR THE EXISTING JOINT



TYPICAL SECTION FOR THE PROPOSED NEW JOINT



TYPICAL DETAILS FOR THE ADDITIONAL REINFORCEMENT (WHERE NEEDED)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

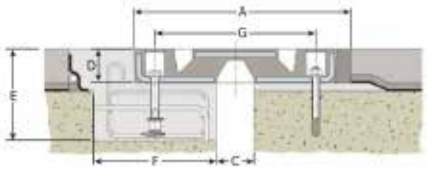
b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

TYPICAL DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS



Single element module

DETAIL 1

SCHEDULE DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS

Location	Type	Actual Gap Width (mm)	Joint Movement Capacity	Dimensions (mm)*		
				A	G	C
Joint 1-SE	EJ 120	50	±60	390	300	70
Joint 2-NE	EJ 120	50	±60	390	300	70
Joint 3-SW	EJ 120	50	±60	390	300	70
Joint 4-NW	EJ 120	50	±60	390	300	70

* REFER TO NOTE 1

No	DATE	REVISION	DESCRIPTION	CHECKED	PJ MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2005

CAZA BATROUN
BATROUN BRIDGE
(BR-III-6)
SHEET 2 OF 3

SCALE N.T.S.

DRAWING No. REV.

DWG BR-III-6-02 00

BATROUN BRIDGE (BR-III.6)

BRIDGE EXPANSION JOINTS
(EXISTING SITE CONDTION-SITE PHOTOS)

EAST CARRIAGEWAY-JOINT 1-SE

WEST CARRIAGEWAY-JOINT 2-NE

EAST CARRIAGEWAY-JOINT 2-NE

EAST CARRIAGEWAY-JOINT 1-SE

WEST CARRIAGEWAY-JOINT 1-SE

NOTES

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2020

CAZA BATROUN
BATROUN BRIDGE
(BR-III.6)
SHEET 3 OF 3

SCALE N.T.S.

DRWG No. REV

DWG BR-III.6-03 00

MDEIREJ BRIDGE
(BR-III.7)

BRIDGE AERIAL VIEW
N.T.S.

Caza Baabda: Mdeirej Bridge									Existing Joints Characteristics					New Joints Characteristics			
Package	Caza	Bridge Reference	Bridge Name	Number of Carriage way	Type of existing Deck	Total Number of Joints / Carriageway	Distance Between joints (m)	Joint Reference	Type of existing joint	Actual Gap Width (cm)	Joint Width (cm)	Joint Length (m)	Required Maintenance Works	Type of new joint	Actual Gap Width (cm)	Joint Width (cm)	"Joint Length (m)"
LOT 3	BAABDA	BR-III.7	Mdeirej Bridge	2.00	Precast GirderBridge	2.00	450.00	J1-NE	Steel finger Joint	20.00	63.00	16.00	"1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair works for the waterproof system"	-	20.00	63.00	
								J2-NW	Steel finger Joint	20.00	63.00	16.00	"1-Routine Maintenance for the existing joint 2-Repair for the transition asphalt area. 3-Cleaning joint Gap and repair works for the waterproof system"	-	20.00	63.00	
							450.00	J3-SE	Reinforced Elastomeric Joint	20.00	110.00	16.00	Removal of existing joint,supply and installation of new joint	Reinforced Elastomeric Joint type EJ 350	20.00	110.50	16.00
								J4-SW	Reinforced Elastomeric Joint	30.00	110.00	16.00	Removal of existing joint, supply and installation of new joint	Reinforced Elastomeric Joint type EJ 350	30.00	110.50	16.00

EXISTING & NEW EXPANSION JOINTS CHARACTERISTICS
(TABLE BR-III.7)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

- BRIDGE DECK AREA
- BRIDGE EXPANSION JOINTS

No.	DATE	REVISION	DESCRIPTION	CHECKED	ENGINEER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAJIH TALEB & PARTNERS consultingengineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

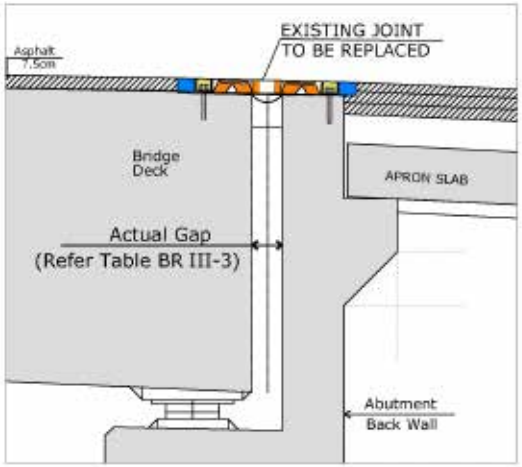
DATE August 2020

CAZA BAABDA
MDEIREJ BRIDGE
(BR-III.7)
SHEET 1 OF 3

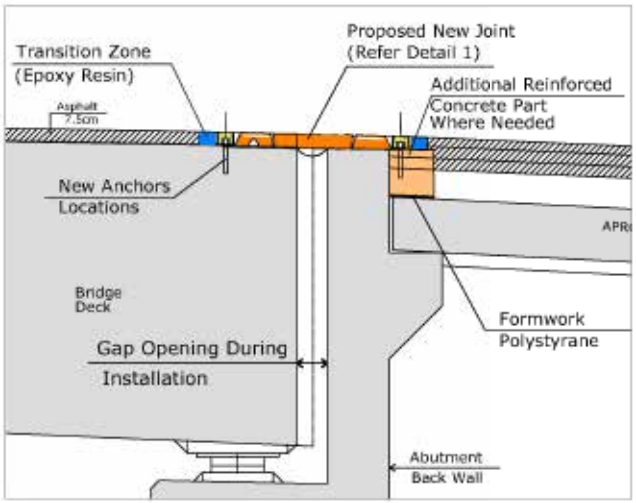
SCALE N.T.S

DWG BR-III.7-01 01

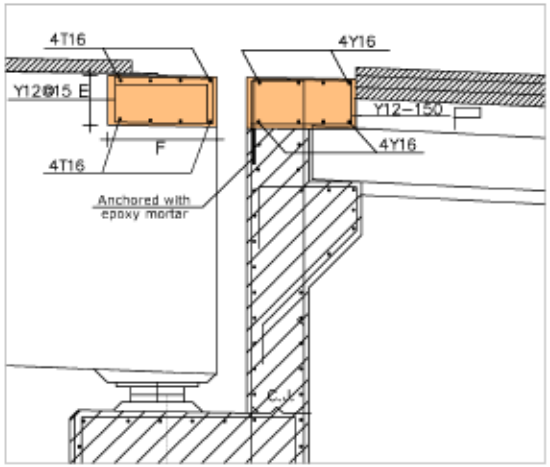
REINFORCED ELASTOMERIC JOINTS
TYPICAL SECTION DETAILS



TYPICAL SECTION FOR THE EXISTING JOINT



TYPICAL SECTION FOR THE PROPOSED NEW JOINT



TYPICAL DETAILS FOR THE ADDITIONAL REINFORCEMENT (WHERE NEEDED)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

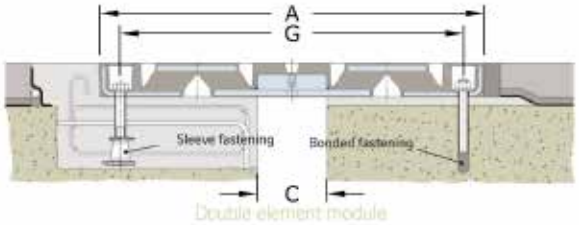
b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

TYPICAL DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS



DETAIL 1

SCHEDULE DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS

Location	Type	Actual Gap Width (mm)	Joint Movement Capacity	Proposed Dimensions (mm)*		
				A	G	C
Joint 3-SE	EJ 350	250	±175	1105	980	220
Joint 4-SW	EJ 350	290	±175	1105	980	220

* REFER TO NOTE 1

No	DATE	REVISION	DESCRIPTION	CHECKED	PJ MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2005

CAZA BAABDA
MDEIRIJ BRIDGE
(BR-III.7)
SHEET 2 OF 3

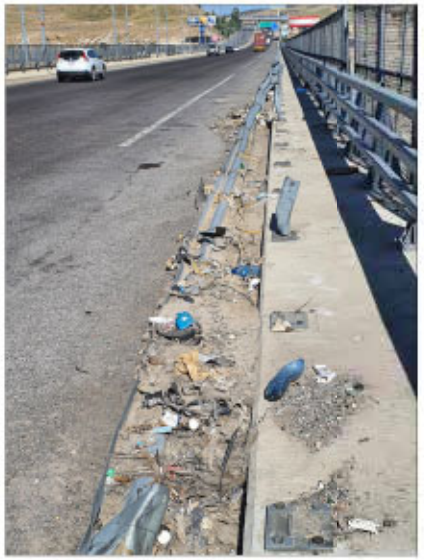
SCALE N.T.S.

DRAWING No. DWG BR-III.7-02

REV 00

MDEIREJ BRIDGE (BR-III.7)

BRIDGE EXPANSION JOINTS
(EXISTING SITE CONDITION-SITE PHOTOS)



NOTES

LEGEND

No.	DATE	REVISION	DESCRIPTION	CHECKED	APPROVED

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAJEH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2020

CAZA BAABDA
MDEIREJ BRIDGE
(BR-III.7)
SHEET 3 OF 3

SCALE N.T.S

DWG BR-III.4-03

AWALI BRIDGE
(BR-III.8)

BRIDGE AERIAL VIEW
N.T.S.

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

- BRIDGE DECK AREA
- BRIDGE EXPANSION JOINTS

No.	DATE	REVISION	DESCRIPTION	CHECKED	APPROVED

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAJEH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2020

CAZA SAIDA
AWALI BRIDGE
(BR-III.8)

SCALE N.T.S

SHEET 1 OF 4

DWG BR-III.8-01

AWALI BRIDGE
(BR-III.8)

Caza Saida : Awali Bridge									Existing Joints Characteristics					New Joints Characteristics			
Package	Caza	Bridge Reference	Bridge Name	Number of Carriage way	Type of existing Deck	Total Number of Joints / Carriageway	Distance Between joints (m)	Joint Reference	Type of existing joint	Actual Gap Width (cm)	Joint Width (cm)	Joint Length (m)	Required Maintenance Works	Type of new joint	Gap Width (cm)	Joint Width (cm)	Joint Length (m)
LOT 3	Saida	BR-III.8	Awali Bridge	2.00	Precast GirderBridge	10.00	14.00	J1-NW	Reinforced Elastomeric	4cm	28.00	9.70	Removal of exsiting joint,supply and installation of new joint as specified	Reinforced Elastomeric type EJ 100	5cm	27.50	9.70
								J2W	Reinforced Elastomeric	4cm	28.00	9.70	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	9.70
								J3W	Reinforced Elastomeric	4cm	28.00	9.70	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	9.70
								J4W	Reinforced Elastomeric	4cm	28.00	9.70	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	9.70
								J5W	Reinforced Elastomeric	4cm	28.00	9.70	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	9.70
								J6W	Reinforced Elastomeric	4cm	28.00	9.70	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	9.70
								J7W	Reinforced Elastomeric	4cm	28.00	9.70	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	9.70
								J8W	Reinforced Elastomeric	4cm	28.00	9.70	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	9.70
								J9W	Reinforced Elastomeric	4cm	28.00	9.70	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	9.70
								J10-SW	Reinforced Elastomeric	4cm	28.00	9.70	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	9.70
						10.00	14.00	J1-NE	Reinforced Elastomeric	4cm	28.00	12.00	Removal of exsiting joint,supply and installation of new joint as specified	Reinforced Elastomeric type EJ 100	5cm	27.50	12.00
								J2E	Reinforced Elastomeric	4cm	28.00	12.00	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	12.00
								J3E	Reinforced Elastomeric	4cm	28.00	12.00	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	12.00
								J4E	Reinforced Elastomeric	4cm	28.00	12.00	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	12.00
								J5E	Reinforced Elastomeric	4cm	28.00	12.00	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	12.00
								J6E	Reinforced Elastomeric	4cm	28.00	12.00	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	12.00
								J7E	Reinforced Elastomeric	4cm	28.00	12.00	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	12.00
								J8E	Reinforced Elastomeric	4cm	28.00	12.00	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	12.00
								J9E	Reinforced Elastomeric	4cm	28.00	12.00	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	12.00
								J10-SE	Reinforced Elastomeric	4cm	28.00	12.00	Removal of exsiting joint,supply and installation of new joint	Reinforced Elastomeric type EJ 100	5cm	27.50	12.00

EXISTING & NEW EXPANSION JOINTS CHARACTERISTICS
(TABLE BR-III.8)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

No.	DATE	REVISION	DESCRIPTION	CHECKED	MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAJIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2023

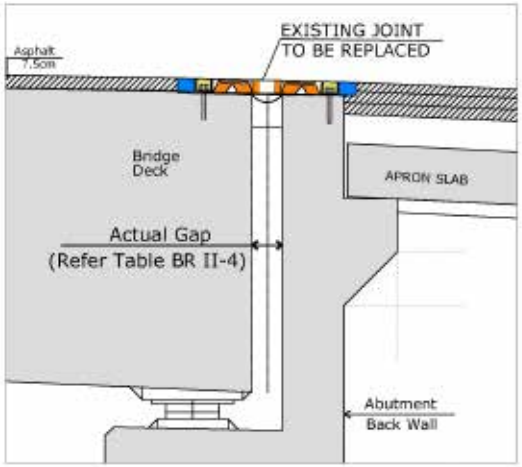
CAZA SAIDA
AWALI BRIDGE
(BR-III.8)
SHEET 2 OF 4

SCALE N.T.S

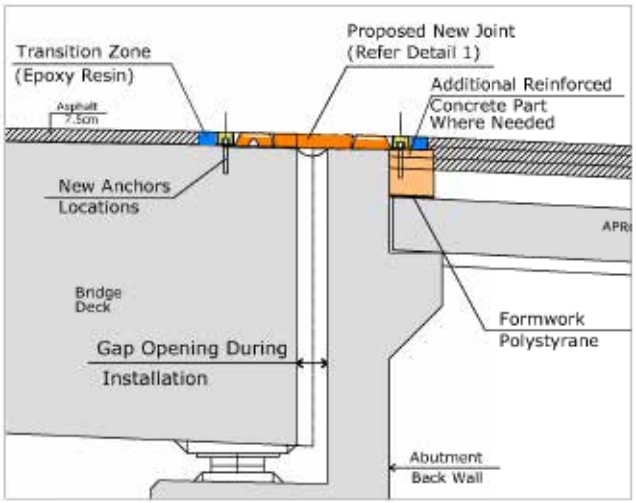
DRAWING No. REV

DWG BR-III.8-02 00

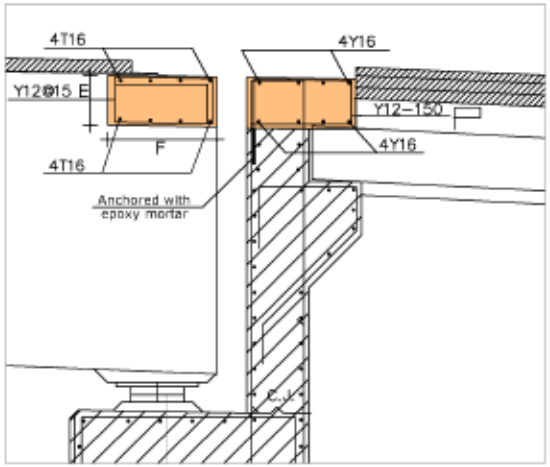
REINFORCED ELASTOMERIC JOINTS
TYPICAL SECTION DETAILS



TYPICAL SECTION FOR THE EXISTING JOINT



TYPICAL SECTION FOR THE PROPOSED JOINT



TYPICAL DETAILS FOR
THE ADDITIONAL REINFORCEMENT
(WHERE NEEDED)

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

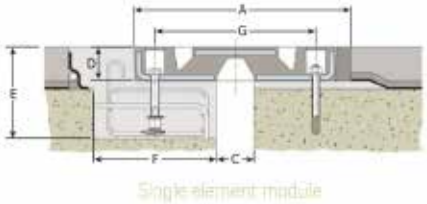
a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

TYPICAL REINFORCED ELASTOMERIC JOINT DETAILS



DETAIL 1

REINFORCED ELASTOMERIC
NEW JOINTS SCHEDULE DETAILS

Location	Type	Actual Gap Width (mm)	Joint Movement Capacity	Proposed Dimensions (mm)*		
				A	G	C
J1-NW to J10-SW	EJ 100	40	±50	355	280	60
J1-NE to J10-SE	EJ 100	40	±50	355	280	60

* REFER TO NOTE 1

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	PJ MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2025

CAZA SAIDA
AWALI BRIDGE
(BR-III.8)
SHEET 3 OF 4

SCALE N.T.S.

DRAWING No. DWG BR-III.8-03

REV 00

AWALI BRIDGE (BR-III.8)

BRIDGE EXPANSION JOINTS
(EXISTING SITE CONDITION-SITE PHOTOS)

NOTES

LEGEND

No.	DATE	REVISION	DESCRIPTION	CHECKED	APPROVED

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAJEH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE August 2023

CAZA SAIDA
AWALI BRIDGE
(BR-III.8)

SCALE N.T.S

SHEET 4 OF 4

DWG BR-III.8-04 04

EXECUTION PROCEDURE FOR BRIDGE JOINTS REHABILITATION (SHHET 1 OF 2)

Step 1. Traffic Management Implementation

- Install the temporary signing and channelizing devices according to the approved TMP plan and TTCP drawings.

Step 2. Removal of Damaged/Defective Expansion Joints

- Dismantle the defective/damaged expansion joints and all related accessories by removing the grouting and undoing the nuts using a torque meter.
- Vertically cut the existing transition strips layer using a saw.
- Remove the transition strips by hand and, if required, use a hammer. Do not damage the structural concrete (refer to Photo 1).
- Thoroughly clean the concrete support and the joint gap by using heavy and energetic blowing across the full thickness (refer to Photo 2). Also, prevent small items from getting inside the gap.

Photo 1: Removing and restoring the concrete support.

Photo 2: Clean the concrete support and the joint gap.

Step 3. Base Joint Preparation

- Check the condition of the concrete support and submit proposed remedial measures for approval if the concrete faces are not sound.
- Record and verify the dimensions of the existing concrete support, pavement thickness (R), new joint thickness (C), and gap width (G) (refer to Figure 1). Submit the necessary remedial measures for engineer approval if any factors hinder the proper functioning of the joints.

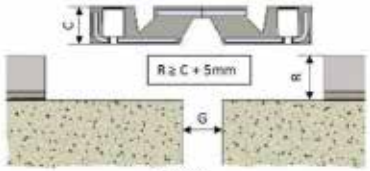


Figure 1

- Where necessary, demolish the weakened part of the concrete support and pour the required additional concrete elements to properly secure the joints. Utilize chemical anchors for fixing the additional reinforcement bars and pour high-performance concrete or micro-cement concrete, all as specified and subject to Engineer approval.

Step 4. Drain Installation and Waterproofing Closing

- Install the drain as shown in Figure 2 and according to the manufacturer's recommendations to facilitate the evacuation of any water within the pavement thickness.
- Connect the drain to the outlet evacuation system.

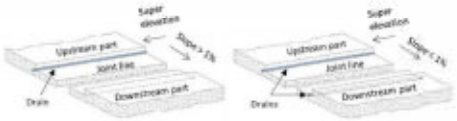


Figure 2 (Drain Installation)

Step 5. Preparing The Bedding Support

- Install a formwork of G thickness in polystyrene (a plywood-polystyrene-plywood sandwich for thickness over 65 mm) or in wood (Figure 3).
  If plywood is used, it must be coated with a form oil before being installed.
- Carefully cut the formwork slightly higher than the level of the road surface.

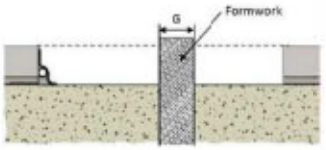


Figure 3: Formwork installation

- Adjust the bedding thickness by using a metallic or wooden jig (Figure 5) to position the elements between 0 and 2 mm below the road surface level (Figure 4).

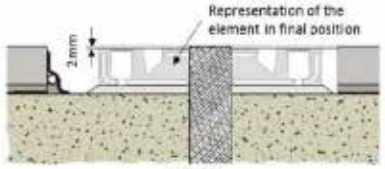


Figure 4

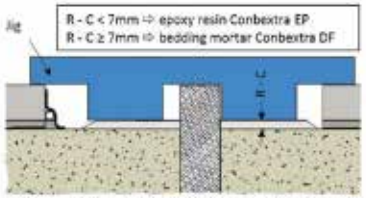


Figure 5: Setting the bedding thickness by using special Jig)

- Use as bedding support the following products depending on pavement thickness (R) and joint thickness (C) (Figure 5):
  - ✓ If (R – C) < 7mm: use epoxy resin (Conbextra EP or equivalent).
  - ✓ If (R – C) ≥ 7mm: use bedding mortar (Conbextra Bedding Mortar or equivalent).

Photo 3 Setting the bedding thickness by the JIG

Photo 4 Levelling of the elements

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

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d)Method statement for the joint rehabilitation works.

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3	STAGE : TENDER DOCUMENTS
	DATE August 2025
EXECUTION PROCEDURE FOR BRIDGE JOINTS REHABILITATION SHEET 1 OF 2	SCALE N.T.S.
	DRAWING No. DWG BR-TD-01 REV 00

EXECUTION PROCEDURE FOR BRIDGE JOINTS REHABILITATION (SHHET 2 OF 2)

Step 6. Preparing sealing of the anchorages

- Install the joints elements to mark the location of the anchorages with paint or predrilling.
- Dismantle the joints elements.
- Wait the bedding support has reached minimum 35 MPa of mechanical resistance.
- Drill the holes to the required depth and diameter as per manufacturer's recommendation (Figure 6).

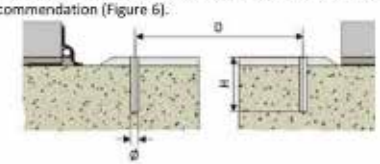


Figure 6: Anchorages sealing preparation

- Clean and dry the holes
- Fixing by approved chemical sealing as follow:
  - Insert the chemical bulbs inside the holes
  - Install the threaded rods to the bottom of the holes using a power drill (set on 750 rpm speed).
  - Wait until the chemical bulbs have hardened.

Step 7. Preparing the elements support surface

- Clean the concrete faces
- Coat them with epoxy resin or equivalent over a height of 80mm at least (Photo 6).
- Set the adequate membrane progressively by applying its rough face against the 80mm coated (Photos 5 &6; Figure 7).

Photo 5 Coating the concrete faces

Photo 6 Membrane installation

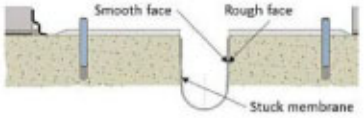
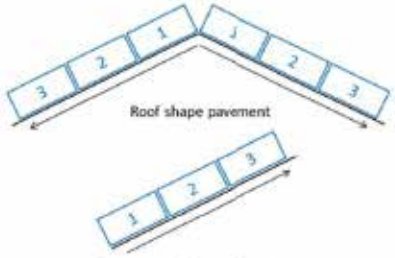


Figure 7

Step 8. Installing and Fixation the joints elements

- Use the appropriate tools recommended by the manufacturer to set the joint line.
- Proceed with the joint installation: Position the elements based on the pavement's shape, starting from the top for pavements with a roof shape and from the bottom for pavements with superelevation.



Pavement with superelevation

Figure 8: Installation order of the elements

Photo 7: Installation of joint elements

Step 9. Tensioning the anchorages

- Apply tension according to the chosen fastener type, starting from the middle anchorages of each element and finishing at the ends.
- Fasten bolts using a torque wrench calibrated according to manufacturer recommendations.
- Check the tightening torque and correct i: if necessary.

Step 10. Protecting the anchorages

- Clean the area around the anchorages meticulously by blowing.
- To protect the anchors, pour approved epoxy resin into the anchorages recess.

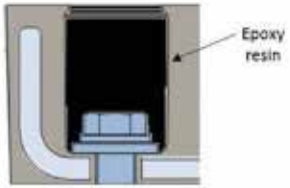


Figure 9: Anchorage heads protection

Step 11. Transition zone

- Clean the transition zone between the joint elements and the road surface thoroughly to remove any non-adherent particles.
- Protect the upper face of the surrounding elements (joint and pavement) with masking tape or other material to prevent them from becoming dirty.
- Fill in the transition zone (refer to Photo 8 and Figure 10) with approved epoxy resin (Fresyssiflex Sb or equivalent).

Photo 8: Filling in the transition zone

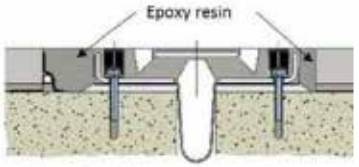


Figure 10 : Fill in the transition zone

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

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c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

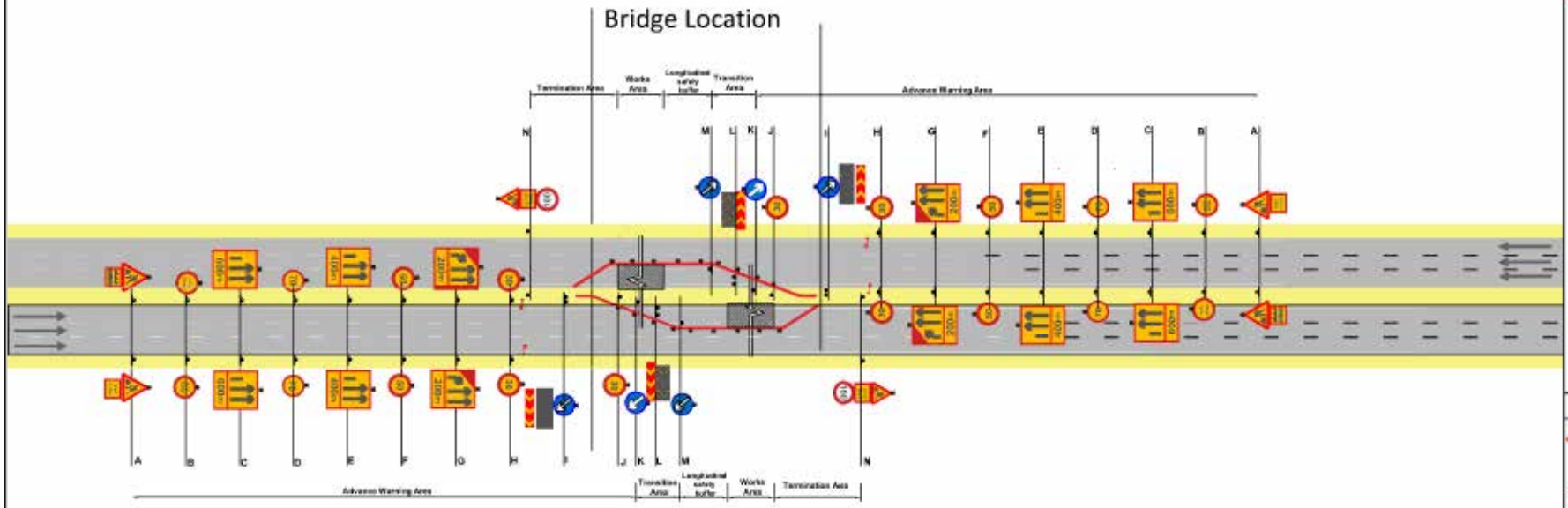
MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3	STAGE : TENDER DOCUMENTS
	DATE : August 2020
EXECUTION PROCEDURE FOR BRIDGE JOINTS REHABILITATION SHEET 2 OF 2	SCALE : N.T.S
	DRAWING No. DWG BR-TD-02 REV 00

Typical Left Hand Half Lanes Closure on Highway From Each Direction
Posted Speed=100Km/h, 3 or 2 lanes in each Direction
Group I- Nighttime Works



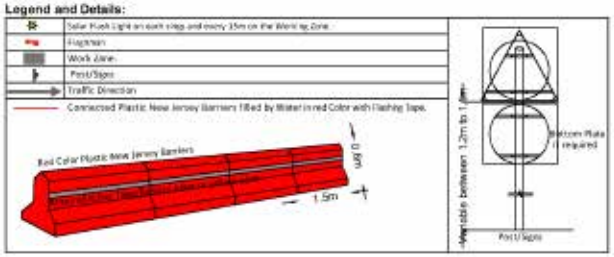
Sign locations, Types and Dimensions:

Permanent Speed Limit	Advance Warning Area										Transition Area 360m			Termination Area
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Warning Sign D=0.9m	Regulatory Sign D=0.6m or 1m	Warning Sign D=1.2m L=2.4m	Regulatory Sign D=0.6m or 1m	Warning Sign D=1.2m L=2.4m	Regulatory Sign D=0.6m or 1m	Warning Sign D=1.2m L=2.4m	Regulatory Sign D=0.6m or 1m	Mandatory Warning Sign	Regulatory Sign D=0.6m or 1m	Mandatory Sign D=0.6m or 1m	Warning Sign D=1.2m L=2.4m	Mandatory Sign D=0.6m or 1m	Warning Sign
100	0m	100m	200m	300m	400m	500m	600m	700m	800m	900m	1050m	1230m	1410m	100m From first cones

All Signs shall be reflectorized by the application of retroreflective materials.
Advanced warning Areas shall be increased in case of horizontal curves, and Crest/Sag points.
All Dimensions are in Meter unless otherwise indicated.
All speed Limits are in Km/h.
Do not Scale from the Drawing.

Permanent Speed Limit	Minimum Longitudinal Safety Buffer Length
100	60m

Legend and Details:



NOTES

- All dimensions are in meters unless otherwise indicated.
- Do not scale from the drawings.
- Connected plastic new jersey barriers filled (water & sand) in red colors with flashing Tape.
- This T.M.P. on highway is indicative. The contractor shall prepare the updated T.M.P. based on ground conditions and shall be approved by the consultant prior to commencement of works.
- Advanced warning area shall be increased in case of horizontal curves and/or working during night.

LEGEND

- Plastic New Jersey Barriers Filled (Water And Sand)
- Solar Flash Light On Sings And Every 15m

No.	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL-HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE: TENDER DOCUMENTS

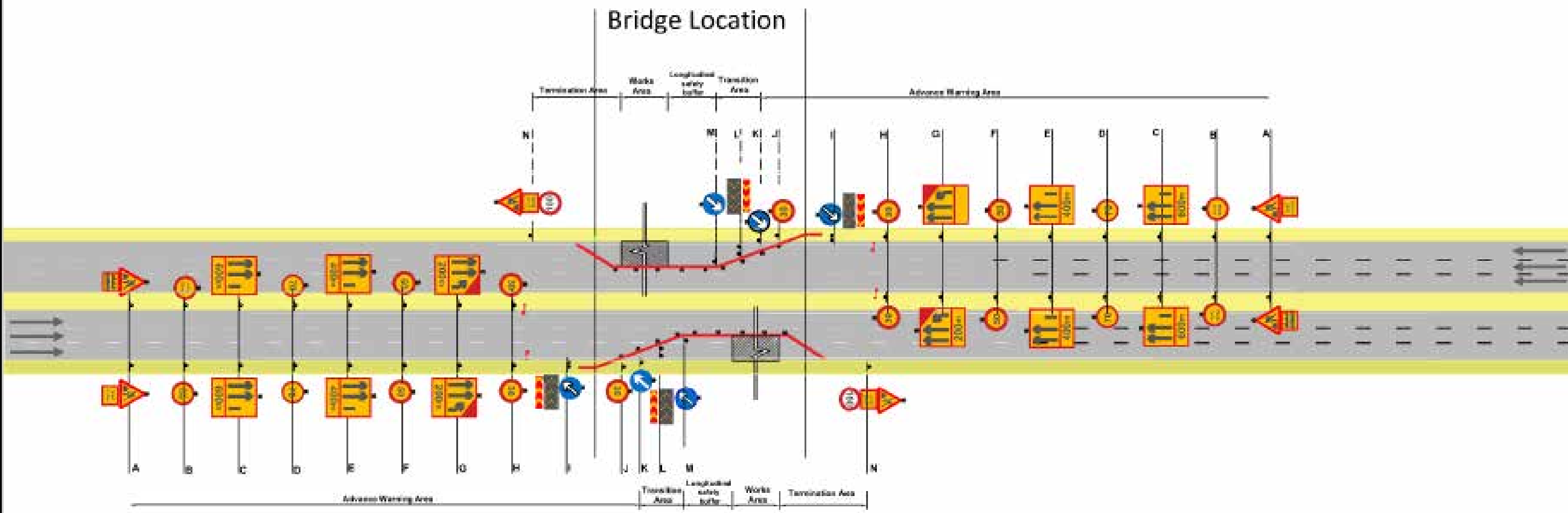
DATE: August 2020

SCALE: N.T.S.

TRAFFIC SAFETY & CONTROL DETAILS DETAILS SHEET 1 OF 4

DRAWING No. DWG BR-TD-03 REV 00

Typical Right Hand Half Lanes Closure on Highway From Each Direction
Posted Speed=100Km/h, 3 or 2 lanes in each Direction
Group I- Nighttime Works



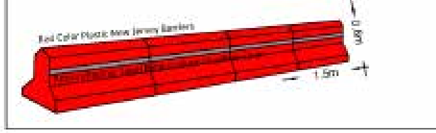
Sign locations, Types and Dimensions:

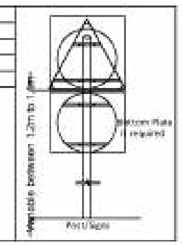
Permanent Speed Limit	Advance Warning Area										Transition Area 360m			Termination Area
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Warning Sign	Regulatory Sign	Warning Sign	Regulatory Sign	Warning Sign	Regulatory Sign	Warning Sign	Regulatory Sign	Mandatory & Warning Sign	Regulatory Sign	Mandatory Sign	Warning Sign	Mandatory Sign	Warning Sign
100	0m	100m	200m	300m	400m	500m	600m	700m	800m	900m	1050m	1230m	1410m	100m

Permanent Speed Limit	Minimum Longitudinal Safety Buffer Length
100	60m

Legend and Details:

	Solar Flash Light on each sign and every 15m on the Working Zone
	Flagman
	Work Zone
	Post/Signs
	Traffic Direction
	Connected Plastic New Jersey Barriers filled by Water in red Color with Flashing Tape.





NOTES

- All dimensions are in meters unless otherwise indicated.
- Do not scale from the drawings.
- Connected plastic new jersey barriers filled (water & sand) in red colors with flashing Tape.
- This T.M.P. on highway is indicative. The contractor shall prepare the updated T.M.P. based on ground conditions and shall be approved by the consultant prior to commencement of works.
- Advanced warning area shall be increased in case of horizontal curves and/or working during night.

LEGEND

- Plastic New Jersey Barriers Filled (Water And Sand)
- Solar Flash Light On Sings And Every 15m

No.	DATE	REVISION	DESCRIPTION	CHECKED	PLANNER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL-HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

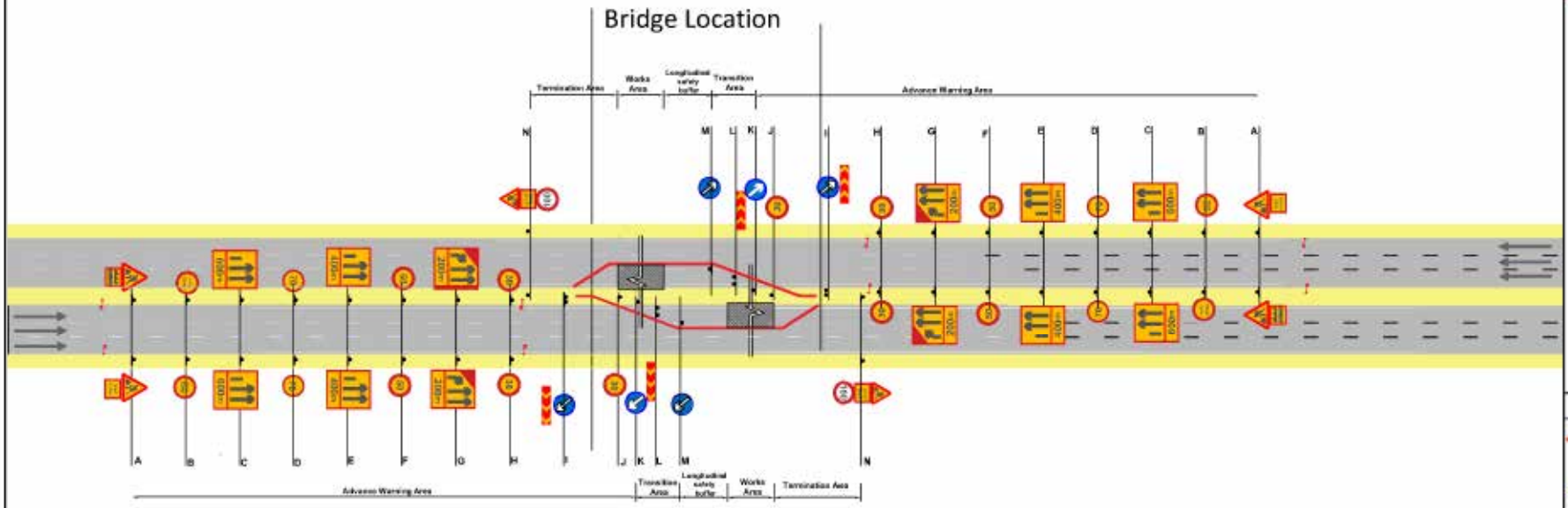
DATE August 2020

SCALE N.T.S.

TRAFFIC SAFETY & CONTROL DEVICES DETAILS SHEET 2 OF 4

DRAWING No. DWG BR-TD-04

Typical Left Hand Half Lanes Closure on Highway From Each Direction
Posted Speed=100Km/h, 3 or 2 lanes in each Direction
Group II- Daytime Works

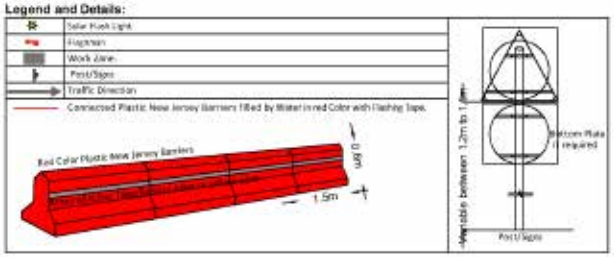


Sign locations, Types and Dimensions:

Permanent Speed Limit	Advance Warning Area										Transition Area 360m			Termination Area
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Warning Sign	Regulatory Sign	Warning Sign	Regulatory Sign	Warning Sign	Regulatory Sign	Warning Sign	Regulatory Sign	Mandatory Warning Sign	Regulatory Sign	Mandatory Sign	Warning Sign	Mandatory Sign	Warning Sign
100	0m	100m	200m	300m	400m	500m	600m	700m	800m	900m	1050m	1230m	1410m	100m

Permanent Speed Limit	Minimum Longitudinal Safety Buffer Length
100	60m

Legend and Details:



All Signs shall be reflectorized by the application of retroreflective materials.
Advanced warning Areas shall be increased in case of horizontal curves, and Crest/Sag points.
All Dimensions are in Meter unless otherwise indicated.
All speed Limits are in Km/h.
Do not Scale from the Drawing.

NOTES

- All dimensions are in meters unless otherwise indicated.
- Do not scale from the drawings.
- Connected plastic new jersey barriers filled (water & sand) in red colors with flashing Tape.
- This T.M.P. on highway is indicative. The contractor shall prepare the updated T.M.P. based on ground conditions and shall be approved by the consultant prior to commencement of works.
- Advanced warning area shall be increased in case of horizontal curves and/or working during night.

LEGEND

- Plastic New Jersey Barriers Filled (Water And Sand)
- Solar Flash Light On Sings And Every 15m

No.	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL-HANDASAH NAZH TALIB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

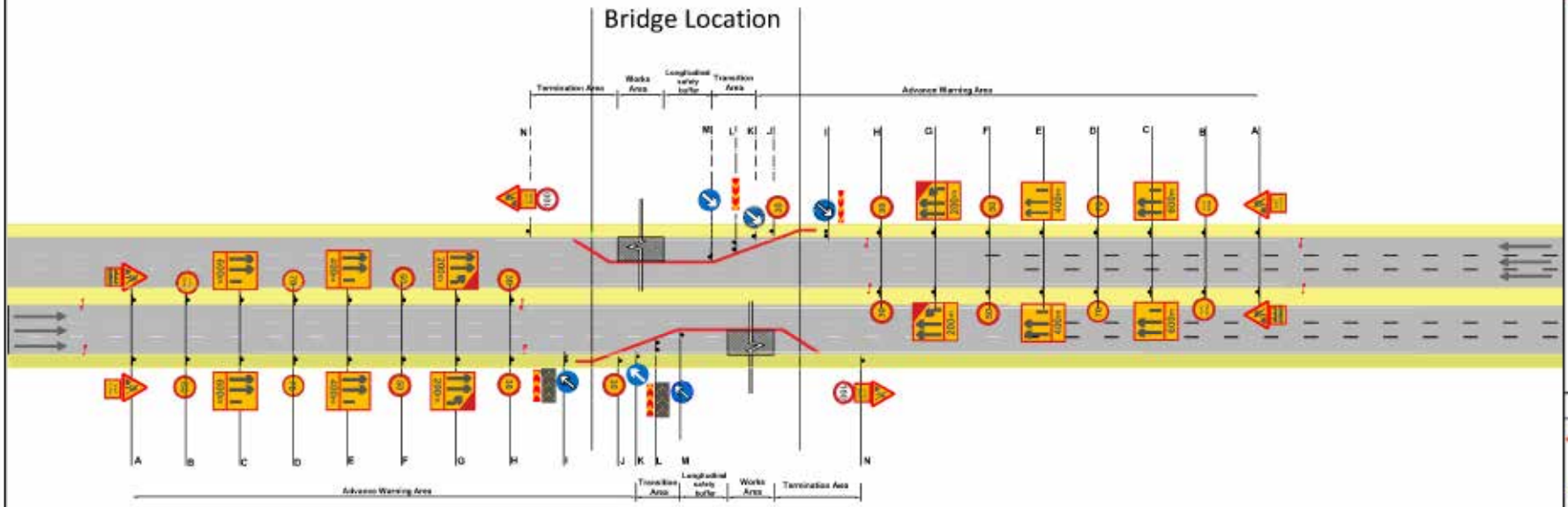
DATE : August 2020

SCALE : N.T.S.

TRAFFIC SAFETY & CONTROL DETAILS DETAILS SHEET 3 OF 4

DRAWING No. DWG BR-TD-05 REV 00

Typical Right Hand Half Lanes Closure on Highway From Each Direction
Posted Speed=100Km/h, 3 or 2 lanes in each Direction
Group II- Daytime Works



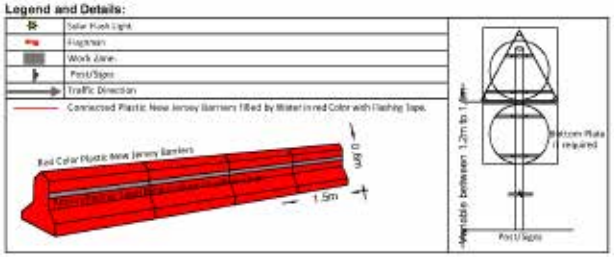
Sign locations, Types and Dimensions:

Permanent Speed Limit	Advance Warning Area										Transition Area 360m			Termination Area
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Warning Sign	Regulatory Sign	Warning Sign	Regulatory Sign	Warning Sign	Regulatory Sign	Warning Sign	Regulatory Sign	Mandatory Warning Sign	Regulatory Sign	Mandatory Sign	Warning Sign	Mandatory Sign	Warning Sign
100	0m	100m	200m	300m	400m	500m	600m	700m	800m	900m	1050m	1230m	1410m	1590m

All Signs shall be reflectorized by the application of retro-reflective materials.
Advanced warning Areas shall be increased in case of horizontal curves, And overtaking works.
All Dimensions are in Meter unless otherwise indicated.
All Speed Limits are in Km/h.
Do not Scale from the Drawing.

Permanent Speed Limit	Minimum Longitudinal Safety Buffer Length
100	60m

Legend and Details:



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- Connected plastic new jersey barriers filled (water & sand) in red colors with flashing Tape.
- This T.M.P. on highway is indicative. The contractor shall prepare the updated T.M.P. based on ground conditions and shall be approved by the consultant prior to commencement of works.
- Advanced warning area shall be increased in case of horizontal curves and/or working during night.

LEGEND

- Plastic New Jersey Barriers Filled (Water And Sand)
- Solar Flash Light On Sings And Every 15m

No.	DATE	REVISION	DESCRIPTION	CHECKED	PJ MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

DAR AL-HANDASAH NAZIH TALEB & PARTNERS consulting engineers

REHABILITATION & MAINTENANCE OF BRIDGES EXPANSION JOINTS LOT 3

STAGE : TENDER DOCUMENTS

DATE : August 2020

SCALE : N.T.S.

TRAFFIC SAFETY & CONTROL DETAILS DETAILS SHEET 4 OF 4

DRAWING No. DWG BR-TD-06 REV 00