Greater Amman Municipality

Bus Rapid Transit (BRT) System in Amman

Package (16)

MAHATTA CONNECTOR

DESIGN DRAWINGS

steer davies gleave

CONSOLIDATED CONSULTANTS GROUP

May, 2018

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INNOVATIVE SOLUTIONS...PROVEN EXCELLENCE

DESIGN MANAGEMENT SERVICES SPECIALIZED STUDIES

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NOTES :

Rev.	Date	Description	Checked
1			

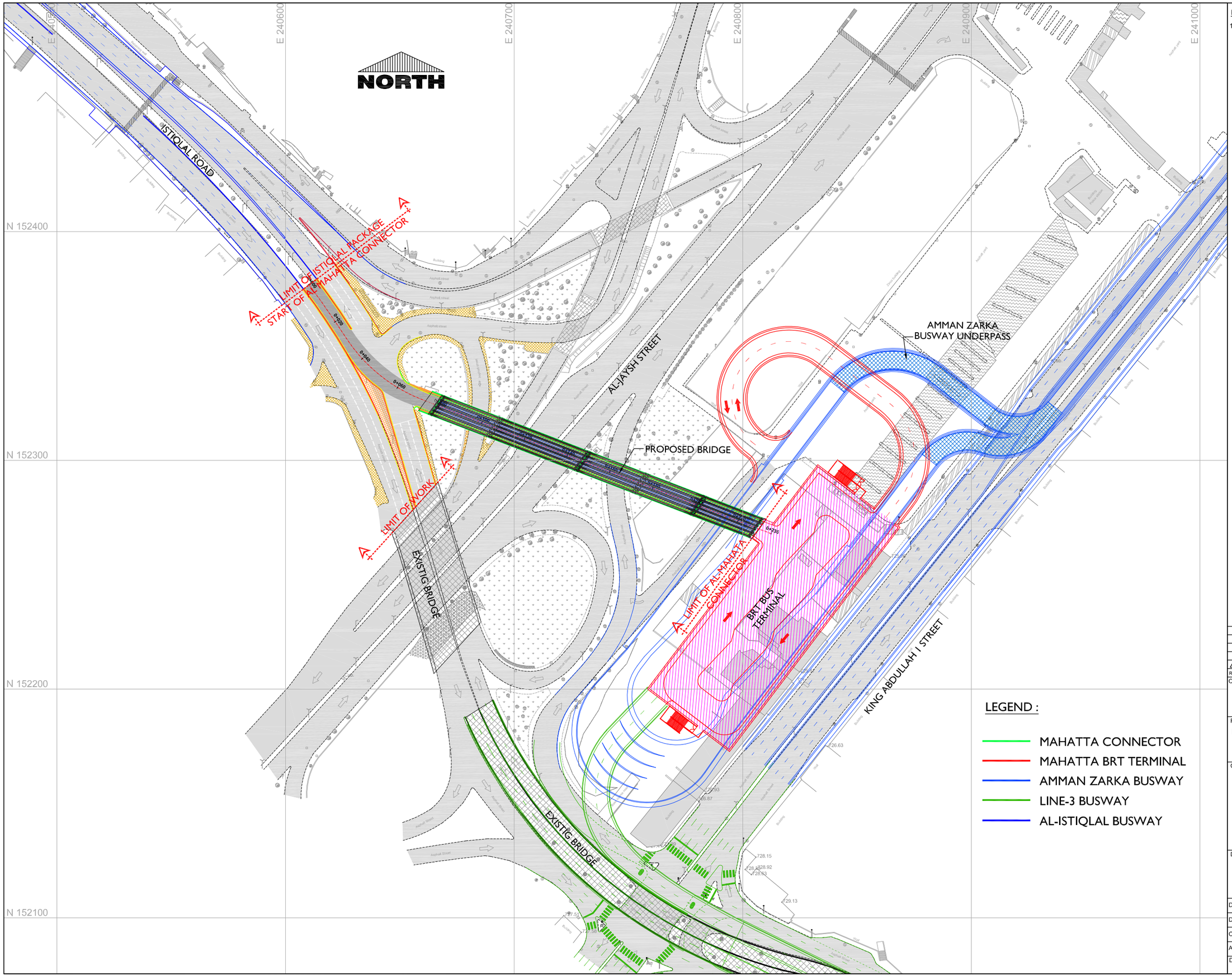
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: LIST OF DRAWINGS

Designed By	KH. ZEATER	Date	MAY, 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	N.T.S
Drawing No. : RD-00			Rev. 00



NOTES :

1- THE SUBJECT OF THESE DRAWINGS ARE THE MAHATTA CONNECTOR. THE INCLUSION OF THESE CONCEPT DESIGNS OF THE PROPOSED CONNECTIONS TO THE POSTPONED LINE 3 AND AMMAN ZARQA BRT ARE FOR ILLUSTRATION PURPOSES ONLY AND MAY BE TAKEN FORWARD BY A THIRD PARTY IN FUTURE. THE MAHATTA CONNECTOR WILL IN FUTURE BECOME THE DESIGN CONSTRAINT THAT ANY THIRD PARTY WILL HAVE TO WORK WITH.

Rev.	Date	Description	Checked
1			

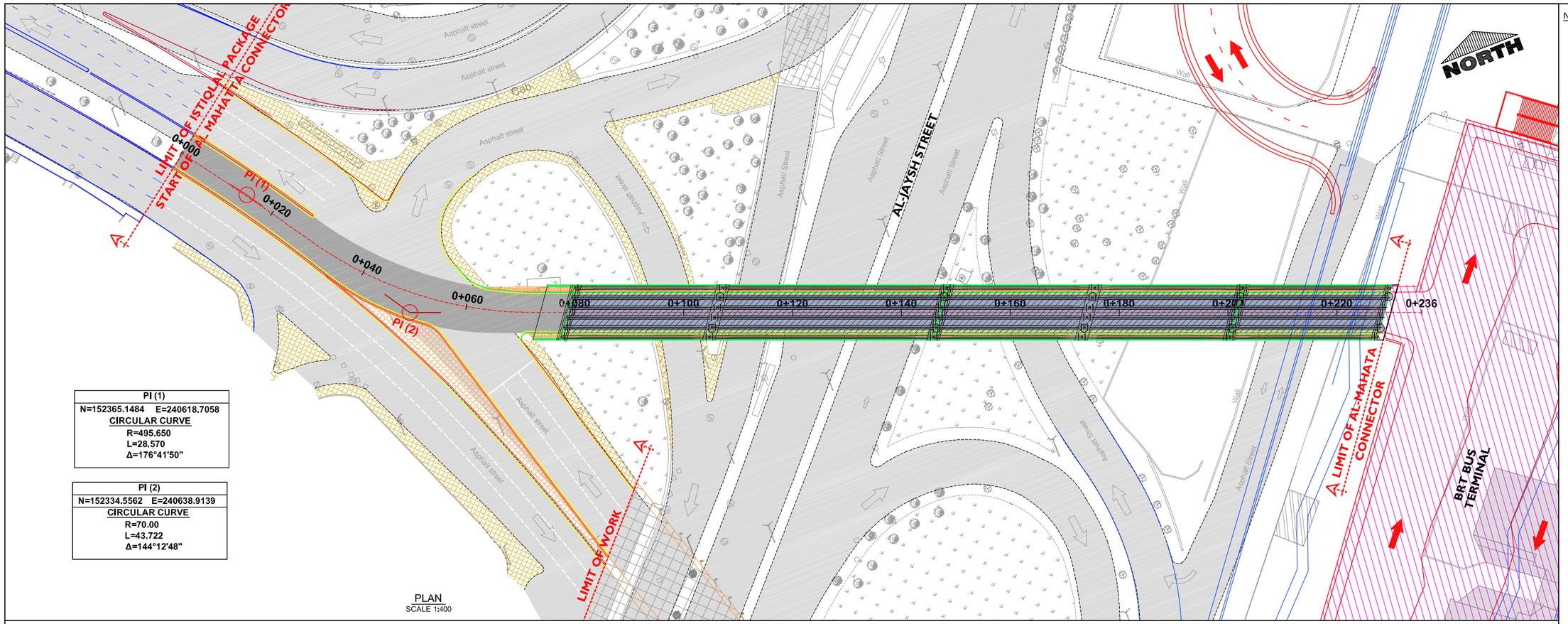
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: ROADS GENERAL LAYOUT

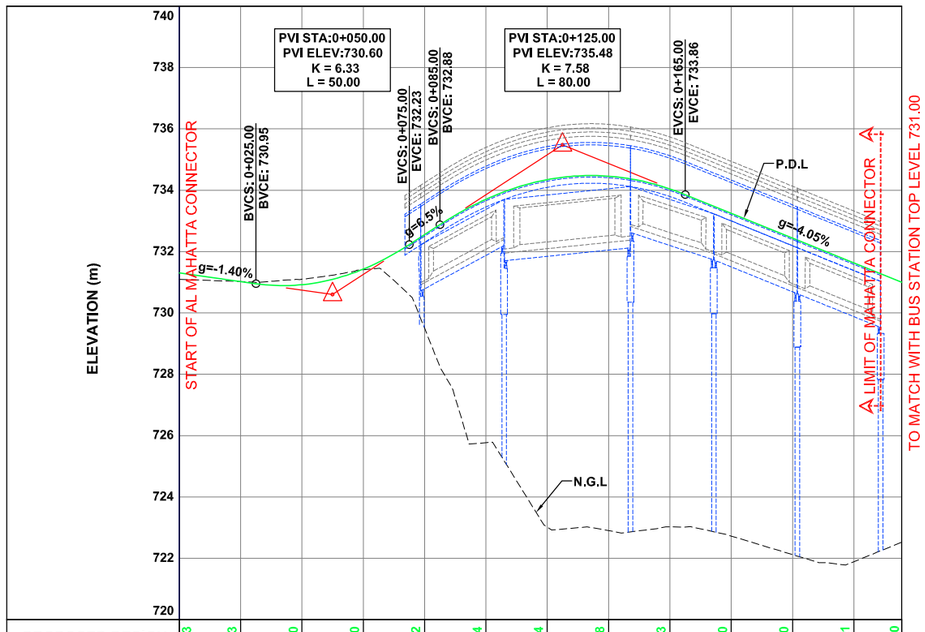
Designed By	KH. ZEATER	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	1:750
Drawing No. :	RD-01	Rev.	00



PI (1)
N=152365.1484 E=240618.7058
CIRCULAR CURVE
R=495.650
L=28.570
Δ=176°41'50"

PI (2)
N=152334.5562 E=240638.9139
CIRCULAR CURVE
R=70.00
L=43,722
Δ=144°12'48"

PLAN
SCALE 1:400



STATION	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+235.57
NATURAL GROUND LEVEL (N.G.L)	731.09	731.02	731.10	731.41	729.50	725.77	723.01	722.90	723.03	722.73	722.12	721.89	722.52
PROPOSED DESIGN LEVEL (P.D.L)	731.303	731.023	730.920	731.430	732.552	733.704	734.344	734.458	734.043	733.250	732.440	731.631	731.000

PROFILE
SCALE H=1:1000 , V=1:100

NOTES :

Rev.	Date	Descrtption	Checked

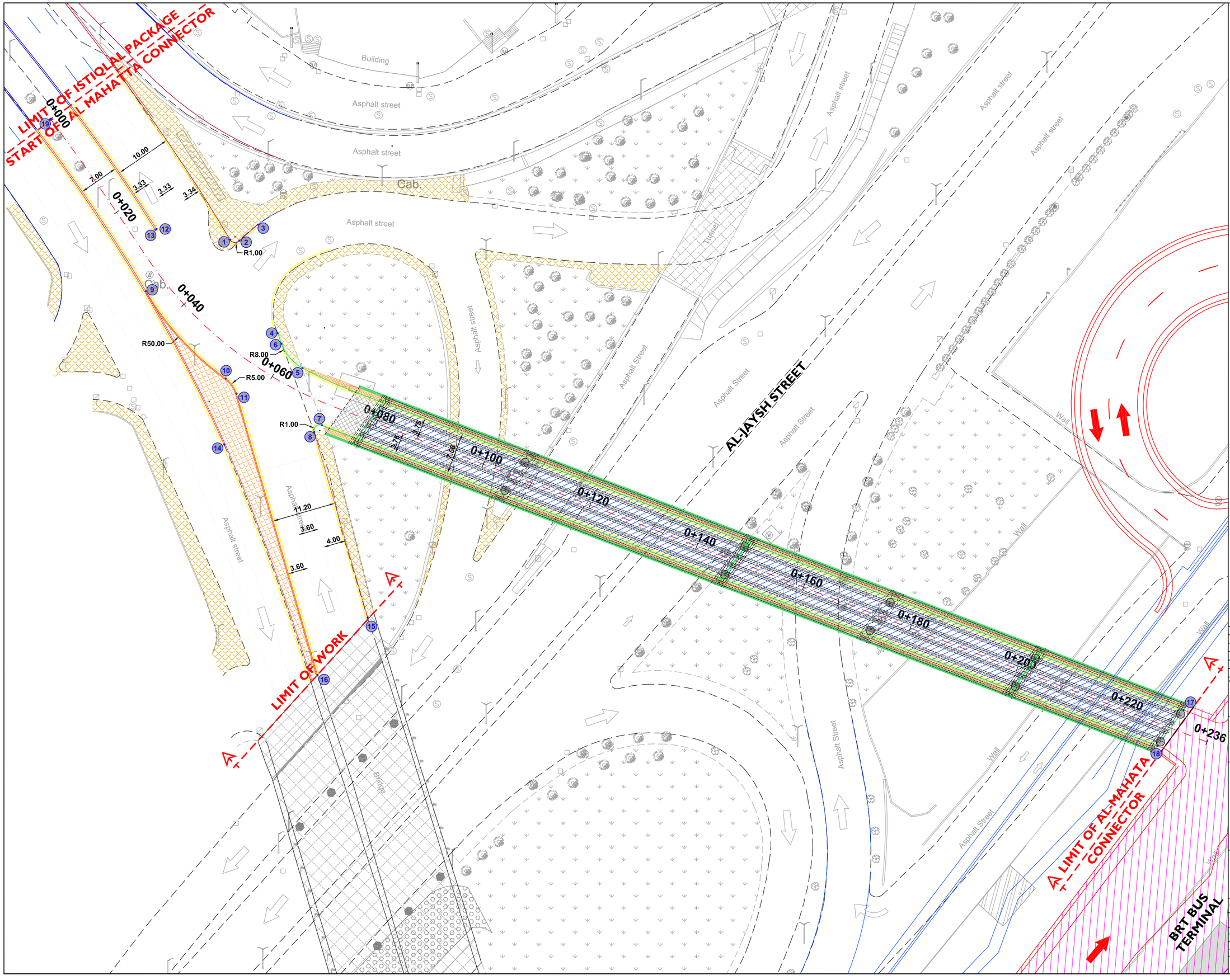
Client
Greater Amman Municipality

Project Name
BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16)
MAHATTA CONNECTOR

Consultants
steer davies gleave
CONSOLIDATED CONSULTANTS GROUP

Drawing Title
ROADS
PLAN AND PROFILE

Designed By	KH. ZEATER	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	RD-02		Rev. 00



NOTES :

SETTING OUT POINTS TABLE

PT#	EAST (X)	NORTH (Y)
1	240641.622	152355.765
2	240643.252	152355.618
3	240646.469	152358.424
4	240649.938	152339.423
5	240654.294	152333.329
6	240650.621	152337.577
7	240657.657	152323.346
8	240656.337	152322.136
9	240626.893	152346.784
10	240640.861	152331.521
11	240642.745	152328.876
12	240628.760	152357.654
13	240628.548	152357.521
14	240640.580	152319.963
15	240665.668	152289.690
16	240656.897	152279.664
17	240808.363	152273.537
18	240803.799	152267.255
19	240610.202	152376.902

Rev.	Date	Description	Checked

Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: ROADS
DETAILED LAYOUT

Designed By	KH. ZEATER	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	1:300
Drawing No. :	RD-03		Rev. 00

LIMIT OF ISTIQLAL PACKAGE
START OF AL MAHATTA CONNECTOR

Building

Asphalt street

Asphalt street

Cab.

Asphalt street

25cm WIDE DIVIDER

Asphalt street

Asphalt street

Asphalt street

Asphalt street

Tunnel

Asphalt street

Asphalt Street

Asphalt Street

AL-JAYSH STREET

Asphalt Street

Asphalt Street

Wall

NEW CURB STONE

Asphalt street

Asphalt street

LIMIT OF WORK

Bridge

Asphalt Street

Wall

Wall

Wall

Asphalt Street

LIMIT OF AL-MAHATA CONNECTOR

BRT BUS TERMINAL

NOTES :

LEGEND :

Proposed Traffic Signals

Traffic Movements Allowed At Signals

Rev.	Date	Description	Checked

Client

Greater Amman Municipality

Project Name

BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants

steer davies gleave

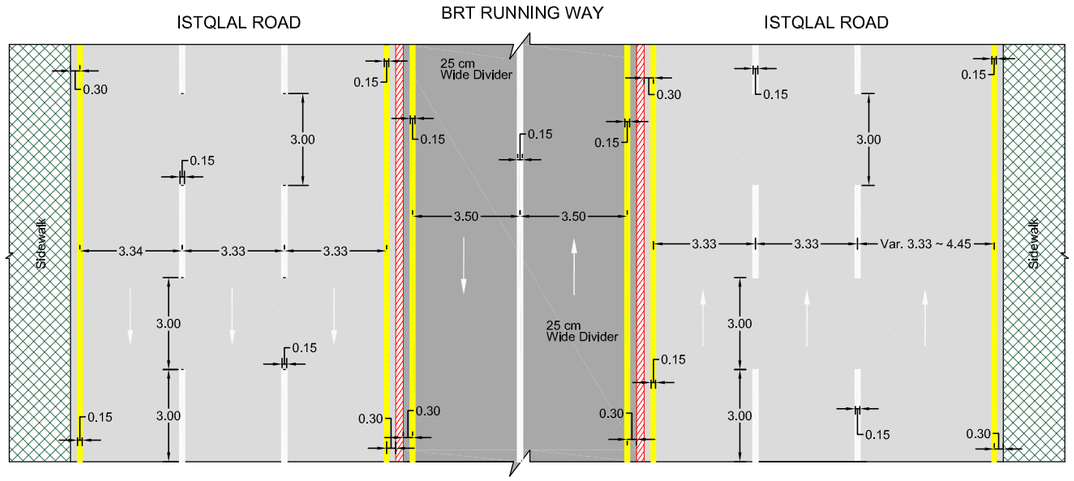
CONSOLIDATED CONSULTANTS GROUP

Drawing Title

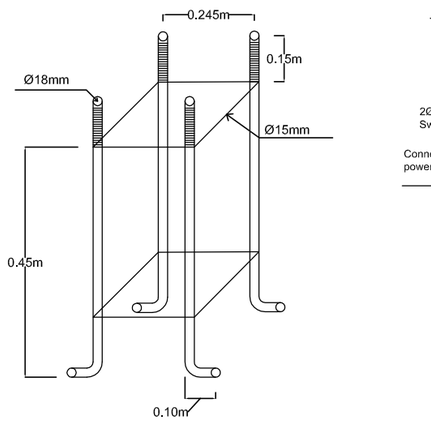
ROADS

SIGNAGE AND MARKING

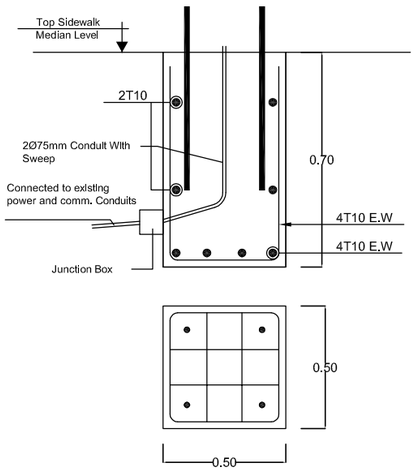
Designed By	KH. ZEATER	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	1:300
Drawing No. :	RD-04		Rev. 00



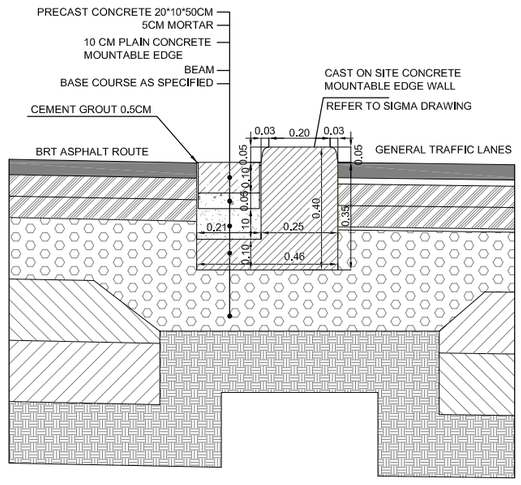
Typical Marking Plan (Dimensions are in meters)
Scale 1/100



TRAFFIC SIGNAL POLE BASE AND SCREW FIXINGS



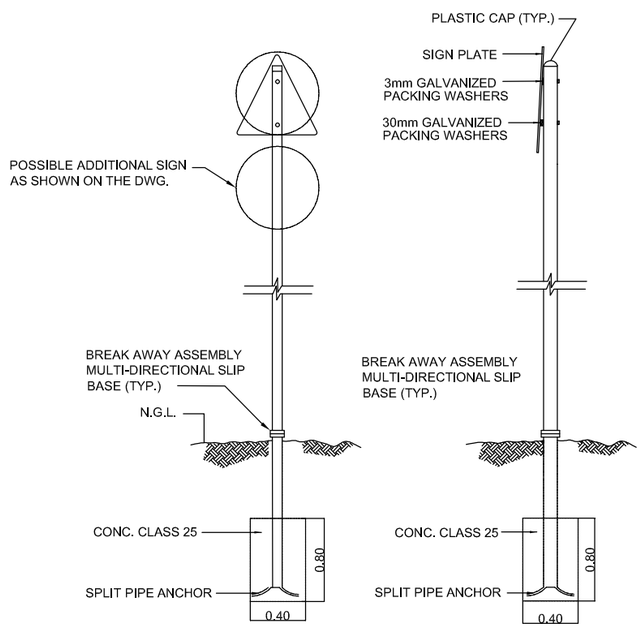
CONCRETE BASE DETAIL
FOR TRAFFIC SIGNALS



TYPICAL DETAILS IN MOUNTABLE EDGE WALL
SCALE 1 : 10

PASS THIS SIDE
WITH SIGNPOST MARKER

PASS TO
EITHER SIDE
M-2.3

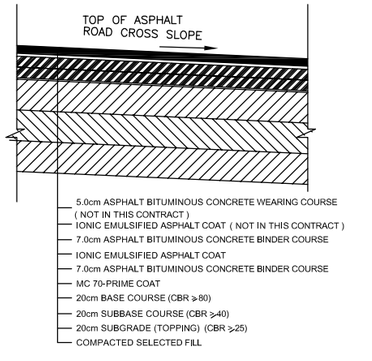


FRONT VIEW SIDE VIEW

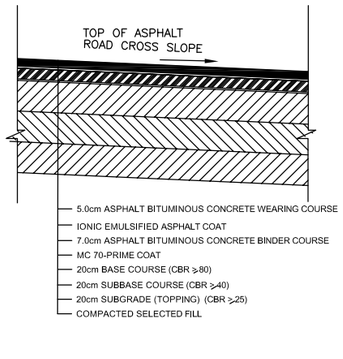
WARNING & REGULATORY SIGNS SUPPORT

NOTES :

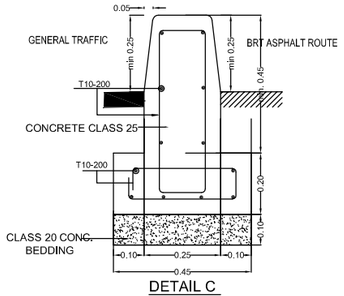
1- Expansion joint between asphalt & concrete pavements:
 * Contractor shall saw edges of pavements straight, vertical and smooth.
 * Joint sealant depth and finishing shall be in accordance with joint sealant manufacturer's specifications.
 * Contractor shall thoroughly clean each face of all joints prior to application of the sealant.
 * Contractor shall place sealant material on dry joint faces.
2- If A6 or A7 material is encountered at subgrade (topping) level in any section, and if natural ground does not satisfy the topping requirements, it should be totally removed for a minimum depth of 40cm and replaced by selected topping of minimum CBR of 25% for the top 20cm and by selected fill of minimum CBR of 15% and maximum PI (15%) for the lower 20cm. if natural ground meet topping requirement (CBR >25%) no need for topping.



(DETAIL A) ROADS TYPICAL LAYERS
ASPHALT PAVEMENT ON BRT

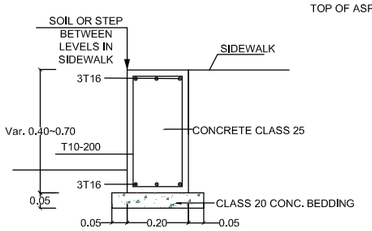


(DETAIL B) ROADS TYPICAL LAYERS
ASPHALT PAVEMENT AT ROAD EXTENSION
AREAS

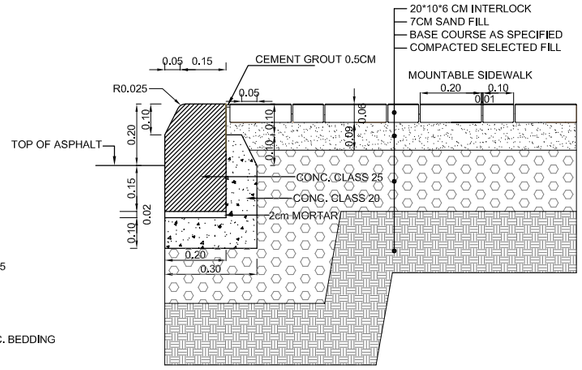


DETAIL C

25cm WIDE DIVIDER FOR BRT
NTS



(DETAIL D(TYPICAL EDGE BEAM
AS NEEDED
NTS



CURBSTONE DETAIL
SCALE 1:10

Rev.	Date	Description	Checked

Client
Greater Amman Municipality

Project Name
BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16)
MAHATTA CONNECTOR

Consultants
steer davies gleave
CONSOLIDATED CONSULTANTS GROUP

Drawing Title
ROADS
MISCELLANEOUS DETAILS

Designed By	KH. ZEATER	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	RD-05		Rev. 00

STRUCTURAL NOTES

GENERAL

1- THE DESIGN OF THE BRIDGE WORKS IS IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

2- FOR THE HORIZONTAL AND VERTICAL ALIGNMENT THE STRUCTURAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH CIVIL DRAWINGS.

3- ALL STRUCTURAL DIMENSIONS ARE GIVEN IN MILLIMETERS (mm), ALL LEVELS IN METERS (m) ABOVE DATUM, ALL CHAINAGES IN KILOMETERS (km) + METERS (m).

MATERIALS

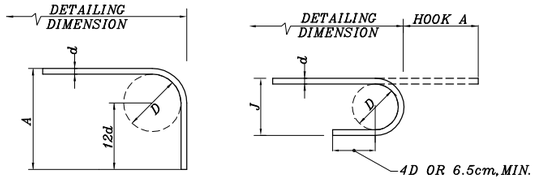
REINFORCING STEEL

- ALL REINFORCEMENT BARS ARE TO BE DEFORMED ROUND STEEL BARS TYPE 2 GRADE 460 COMPLYING WITH THE REQUIREMENT OF BS 4449:1988 SPECIFICATION.
- SPIRAL REINFORCEMENT PLAIN ROUND STEEL BARS GRADE 250 COMPLYING WITH THE REQUIREMENT OF BS 4449:1988.
- WHERE REINFORCING BARS ARE TO BE SPLICED – ALL BAR LAP LENGTH SHALL CONFORM TO THE REQUIREMENT OF THE DESIGN SPECIFICATION AND THE TABLE BELOW :

CONCRETE GRADE (N/mm^2) Fcu	BAR DIA (mm)	12	16	20	25	32
	BAR AREA (mm^2)	113	201	314	491	804
	BAR WEIGHT (kg/m)	0.89	1.58	2.47	3.85	6.31
45	TENSION LAP*	600	800	1000	1300	2100
40	SPLICES(mm)	600	800	1000	1350	2250
45	COMPRESSION LAP LENGTH	390	470	550	650	790
40		390	470	550	650	790

*LAP SIZE IS FOR CLASS B SPLICE, IF SPLICE DOES NOT MEET CLASS B REQUIREMENT, SPLICE LENGTH SHALL BE RECOMPUTED BASED ON DESIGN SPECIFICATIONS

- SPLICE SHALL BE AVOIDED AT POINTS OF MAXIMUM STRESS AND SPLICED BARS SHALL BE STAGGERED.
- REINFORCEMENT HOOK SHALL BE AS SHOWN BELOW :-



90° HOOK 180° HOOK

BAR SIZE mm	D=6D FOR 12 TO 25 D=8D FOR 32 STANDARD 180° HOOK			D=6D FOR12 TO 25 D=8D FOR 32 STANDARD 90° HOOK	
	HOOK A	J	D	A	D
12	150	96	72	192	74
16	180	128	96	256	96
20	230	160	120	320	120
25	280	250	150	400	150
32	440	320	256	544	256

fy= 460 N/mm^2
d= BAR DIAMETER
D= BEND DIAMETER

CONCRETE

THE CLASSES OF CONCRETE FOR THIS WORK ARE BASED ON 28 DAYS COMPRESSIVE CUBE STRENGTH AND ARE AS FOLLOWS:-

- POST-TENSIONED CONCRETE FOR GIRDERS — AS GIVEN IN RELEVANT DRAWINGS
- REINFORCED, NON POST-TENSIONED CONCRETE (BRIDGE DECK, PIERS, ABUTMENTS, FOOTINGS, APPROACH SLABS, & COPING BEAMS). — C35
- NON REINFORCED CONCRETE. — C15
- SULFATE RESISTANT PORTLAND CEMENT (SRC) SHALL BE USED FOR NON-REINFORCED CONCRETE.(BLINDING CONCRETE). ALL OTHER STRUCTURAL COMPONENTS SHALL BE CONSTRUCTED OF ORDINARY PORTLAND CEMENT (OPC).

PRESTRESSING REINFORCEMENT

UNCOATED SEVEN WIRE HIGH TENSILE, COLD DRAWN LOW RELAXATION STRAND, COMPLYING WITH THE REQUIREMENT OF ASTM A416 GRADE 270 SPECIFICATION.

DESIGN STRESSES

DESIGN STRESSES ARE BASED ON CYLINDER COMPRESSIVE STRESS.
SEE CLASSES OF CONCRETE BELOW FOR MORE INFORMATION:-

- REINFORCING STEEL (NON-PRESTRESSED). — f_y = 420 N/mm^2
- PRESTRESSING STEEL (G 270). — $f's$ = 1860 N/mm^2
- REINFORCED, NON POST-TENSIONED CONCRETE (BRIDGE BARRIER, PIERS, ABUTMENTS, FOOTINGS & APPROACH SLABS) — $f'c$ = 28.0 N/mm^2
- NON REINFORCED CONCRETE (BLINDING CONCRETE). (USING SULFATE RESISTING CEMENT) — $f'c$ = 12.0 N/mm^2

DESIGN LOADINGS

1. DEAD LOADS :-
   - REINFOREED CONCRETE OWN WEIGHT — 25 kN/m^3
   - PLAIN CONCRETE OWN WEIGHT (SIDEWALK) — 23 kN/m^3
   - WEARING SURFACE (50mm ASPHALTIC CONCRETE) — 1.20 kN/m^2
   - FUTURE WEARING SURFACE (50mm ASPHALTIC CONCRETE) — 1.20 kN/m^2
   - UTILITIES AND SERVICES — 0.75 kN/m^2
   - UNIT WEIGHT OF SOIL ABOVE W.T — 19 kN/m^3
   - UNIT WEIGHT OF SOIL BELOW W.T — 11 kN/m^3
2. LIVE LOADS :-
   - AASHTO LRFD (HL93) MULTIPLIED BY A FACTOR 1.5
   - LIVE LOAD SURCHARGE NEAR RETAINING WALL SHALL BE EQUIVALENT TO BE 1m. OF SOIL.
3. THERMAL LOADS :-
   - TEMPERATURE RISE — 35°C
   - TEMPERATURE FALL — 30°C
4. WIND LOADS :-
   - BASIC WIND SPEED — 120 km/hr
5. SEISMIC LOADS :-
   - SEISMIC ZONE 2 WITH ACCELERATION COEFFICIENT OF 0.15.

METAL WORKS

STEEL SHALL BE ASTM A36, HOT DIPPED GALVANIZED EXCEPT AS OTHERWISE NOTED ON THE DRAWINGS AND SPECIFICATIONS.

FOUNDATION

- THE DESIGN BASED ON THE GEOTECHNICAL REPORT RECOMMENDATION OF USING SHALLOW FOUNDATION OF ALLOWABLE BEARING PRESSURE q_{net} OF :-

- WADI ALLUVIAL DEPOSITS = 2.0 Kg/cm^2 (USED FOR THE DESIGN OF ABUTMENT AND PIERS 3,4 & 5)
- MIXURE MATERIALS = 2.0 Kg/cm^2
- FRACTURED LIMESTONE / MORISTONE = 2.5 Kg/cm^2 (USED FOR THE DESIGN OF PIERS 1 & 2)
- THE CONTRACTOR SHOULD JUSTIFY THESE VALUES DURING CONSTRUCTION.

POST-TENSIONING SYSTEM

- THE POST-TENSIONING SYSTEM TO BE UTILIZED SHALL BE AS PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
- THE RECESS DETAIL FOR THE ANCHORAGE SHALL BE DEVELOPED TO SUIT THE PROPOSED POST-TENSIONING SYSTEM.
- THE PRESTRESSING SYSTEM SHALL BE OF A WELL PROVEN INTERNATIONAL SYSTEM USING CAST ANCHORAGES & TO THE APPROVAL OF ENGINEER.
- PRESTRESSING STRANDS SHALL BE LOW RELAXATION SEVEN-WIRE STRANDS WITH NORMAL DIAMETER OF 140mm. AND MINIMUM BREAKING LOAD OF 260kN.
- TENDON DUCTS & SYSTEM OF CABLE SUPPORTS INCLUDING THE SPACING SHALL BE TO THE APPROVAL OF THE ENGINEER.
- ALL STRESSING COMPONENTS INCORPORATED IN THE WORKS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS & SPECIFICATIONS.
- ALL TENDONS SHALL BE GROUTED. THE CONTRACTOR SHALL SUPPLY TO THE ENGINEER ALL DETAILS OF HIS PROPOSED TENDON GROUTING PROCEDURE & VETING LAYOUT FOR APPROVAL.

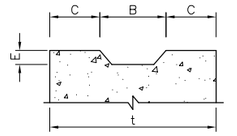
CONCRETE CONSTRUCTION

CHAMFERS

ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 20 MILLIMETERS UNLESS OTHERWISE NOTED ON THE DRAWINGS.

CONSTRUCTION AND EXPANSION JOINTS

ALL CONSTRUCTION AND EXPANSION JOINTS SHALL BE PLACED AS SHOWN ON THE DRAWINGS, AS PROVIDED IN THE SPECIFICATIONS, AND AS DIRECTED BY THE ENGINEER.
UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE SHEAR KEY DIMENSIONS SHALL BE AS FOLLOWS:



B	C	D	E
$\frac{t}{3}$ +80	$\frac{t}{3}$ −40	40	80

IN MILLIMETERS

CONCRETE COVER

MINIMUM COVER TO ENDS AND SIDES OF REINFORCEMENT UNLESS OTHERWISE INDICATED ON DRAWINGS TO BE AS FOLLOWS:-

- TO DECK REINFORCEMENT — 40 mm
- TO FOUNDATION, PIERS AND WALLS — 75 mm
- TO EXPOSED FACES OF WALLS AND PIERS — 50 mm
- TO FACES IN DIRECT CONTACT WITH SOIL — 75 mm

SURFACE FINISH

- FINISHES TO ALL EXPOSED FORMED SURFACES ARE OF GREAT IMPORTANCE & THE CONTRACTOR SHALL DEMONSTRATE BY MEANS OF TESTS BEFORE WORK COMMENCES THAT EACH TYPE OF FINISH SPECIFIED CAN BE CONSISTENTLY ACHIEVED TO THE SATISFACTION OF THE ENGINEER.
- ALL FORMS, FALSE WORK ERECTION PROCEDURES etc. SHALL BE APPROVED BY THE ENGINEER BEFORE THEY CAN BE USED ON SITE.

NOTES :

Rev.	Date	Description	Checked

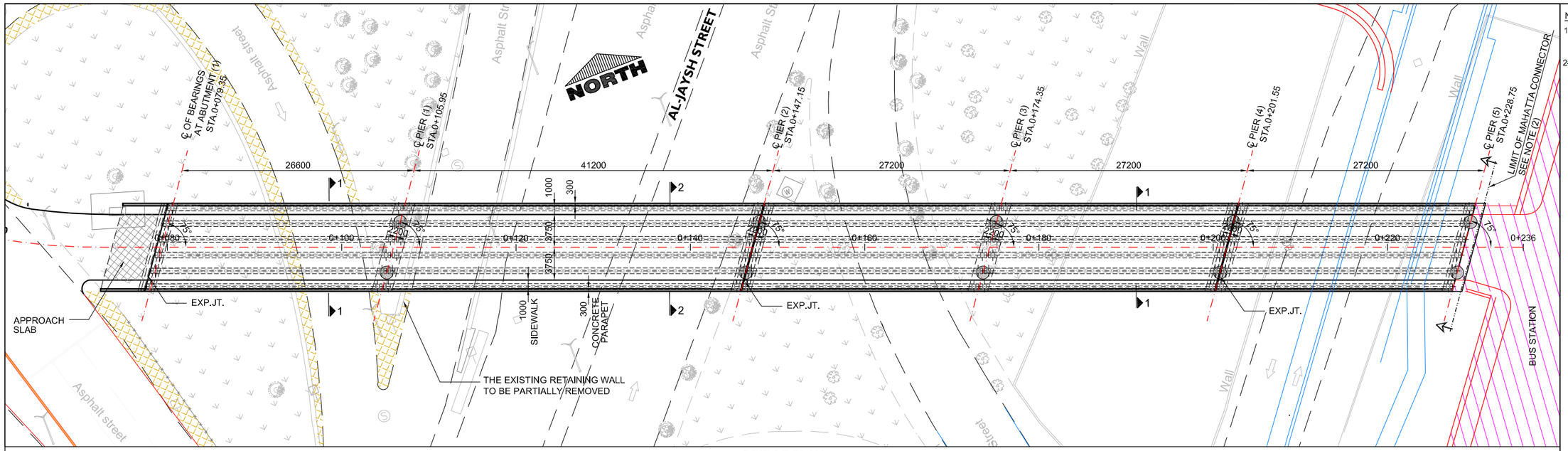
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

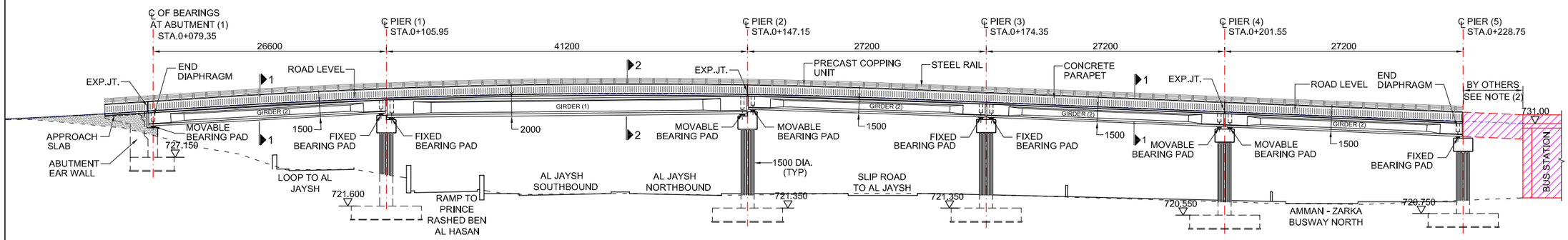
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: GENERAL STRUCTURAL NOTES

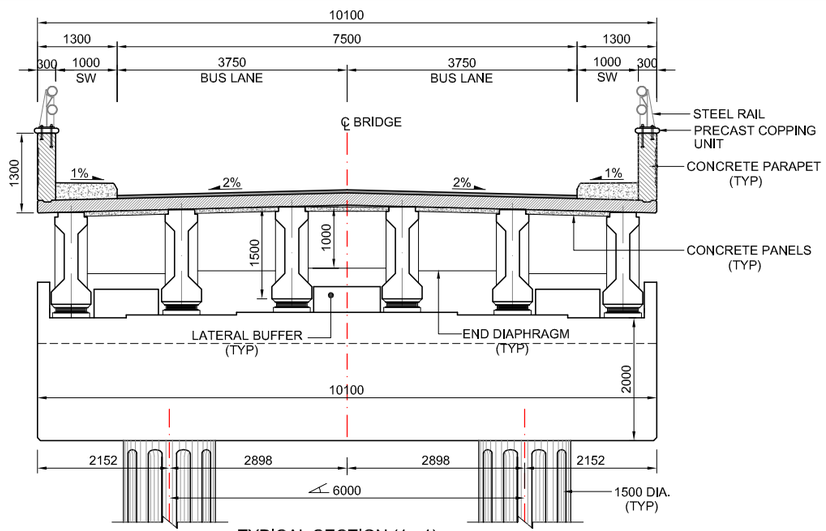
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	N.T.S
Drawing No.: ST-01			Rev. 00



BRIDGE PLAN
SCALE 1:250

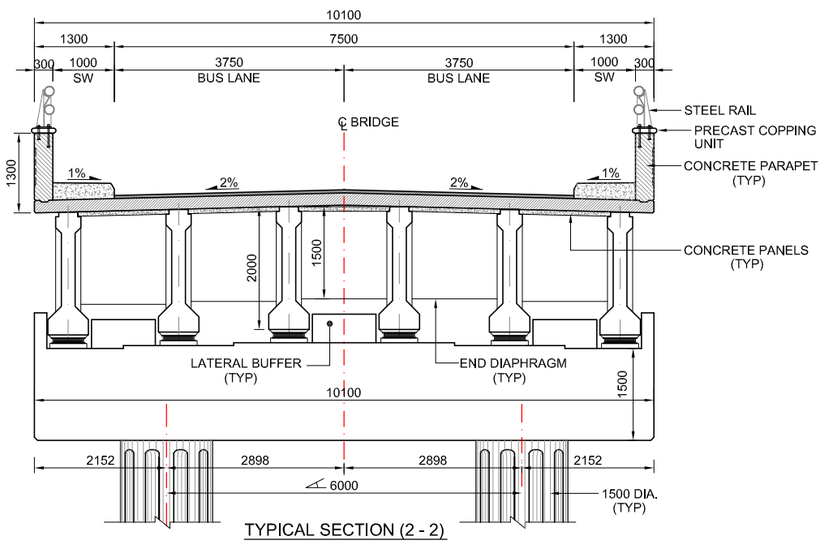


ELEVATION
SCALE 1:250



TYPICAL SECTION (1 - 1)

SECTIONS
SCALE 1:50



TYPICAL SECTION (2 - 2)

NOTES :

1- ALL DIMENSIONS ARE IN MILLIMETERS AND STATIONS ARE IN METERS UNLESS OTHERWISE INDICATED.

2- THE SUBJECT OF THESE DRAWINGS ARE THE MAHATTA CONNECTOR. THE INCLUSION OF THESE CONCEPT DESIGNS OF THE PROPOSED CONNECTIONS TO THE POSTPONED LINE 3 AND AMMAN ZARQA BRT ARE FOR ILLUSTRATION PURPOSES ONLY AND MAY BE TAKEN FORWARD BY A THIRD PARTY IN FUTURE. THE MAHATTA CONNECTOR WILL IN FUTURE BECOME THE DESIGN CONSTRAINT THAT ANY THIRD PARTY WILL HAVE TO WORK WITH.

Rev.	Date	Descrption	Checked

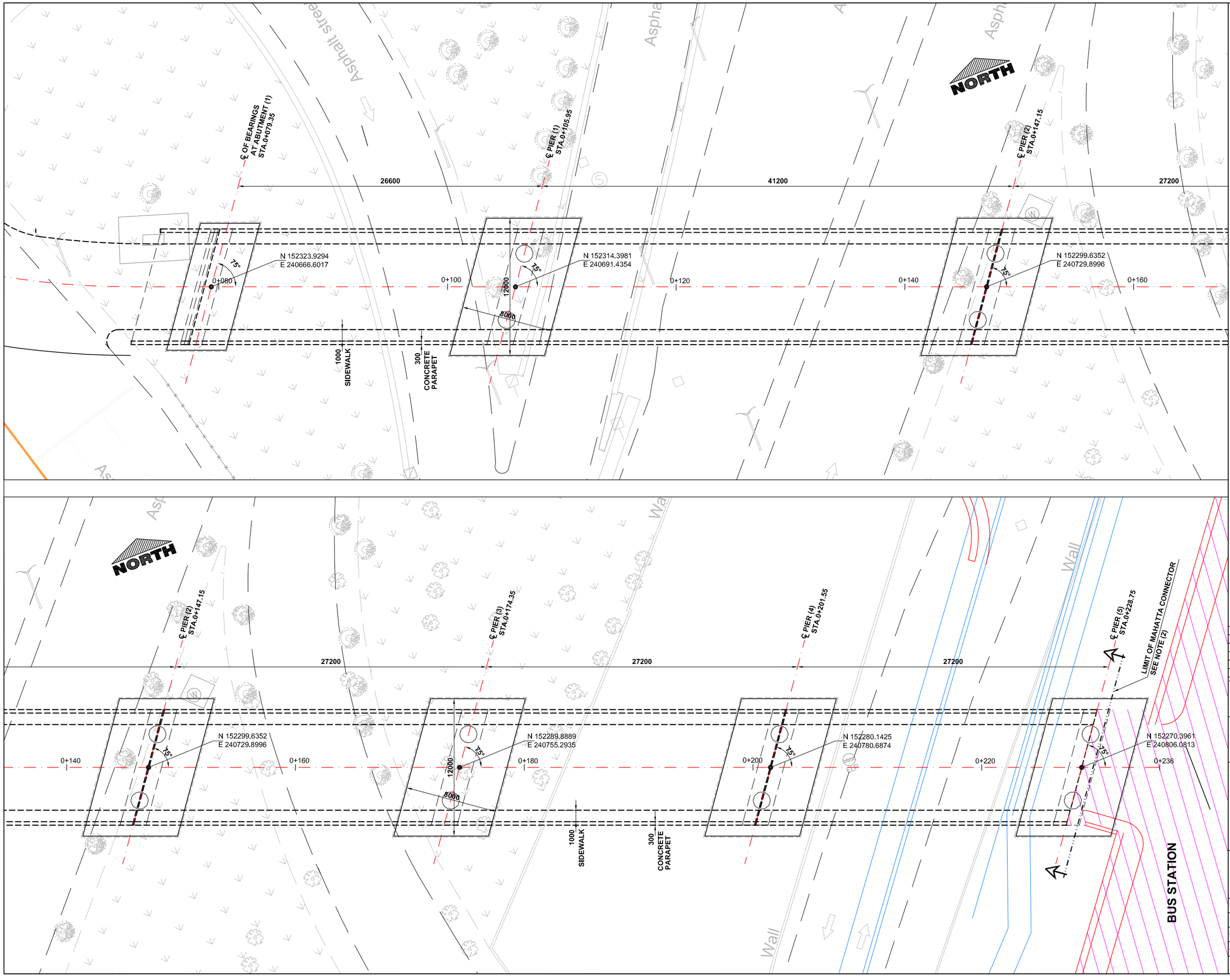
Client
Greater Amman Municipality

Project Name
BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16)
MAHATTA CONNECTOR

Consultants
steer davies gleave
CONSOLIDATED CONSULTANTS GROUP

Drawing Title
PLAN, ELEVATION AND SECTIONS

Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No.:	ST-02	Rev.	00



NOTES :

1-ALL DIMENSIONS ARE IN MILLIMETERS AND STATIONS ARE IN METERS UNLESS OTHERWISE INDICATED.

Rev.	Date	Description	Checked

Client

Greater Amman Municipality

Project Name

BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16)
MAHATTA CONNECTOR

Consultants

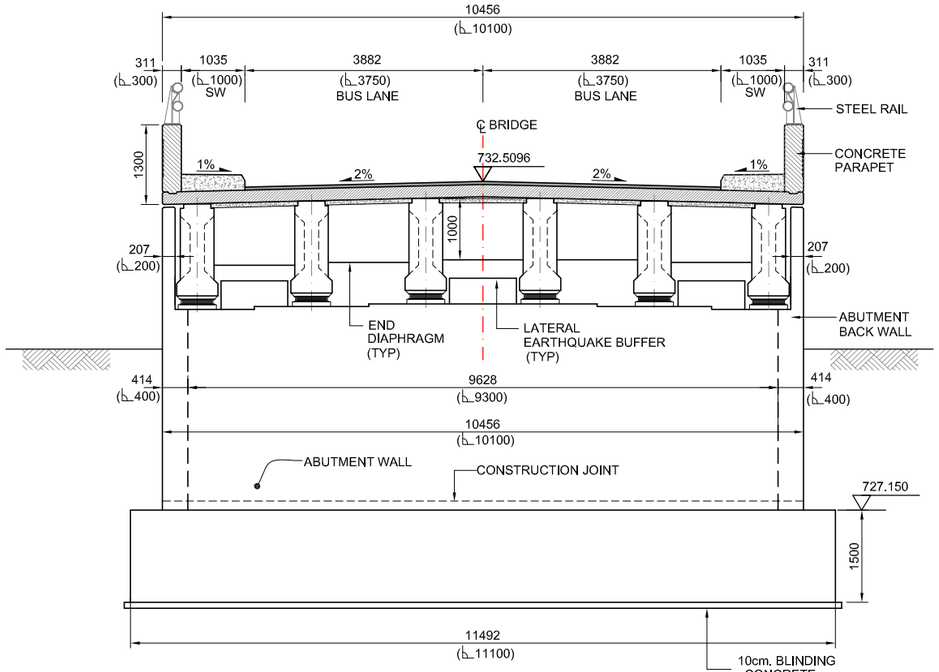
steer davies gleave

CONSOLIDATED CONSULTANTS GROUP

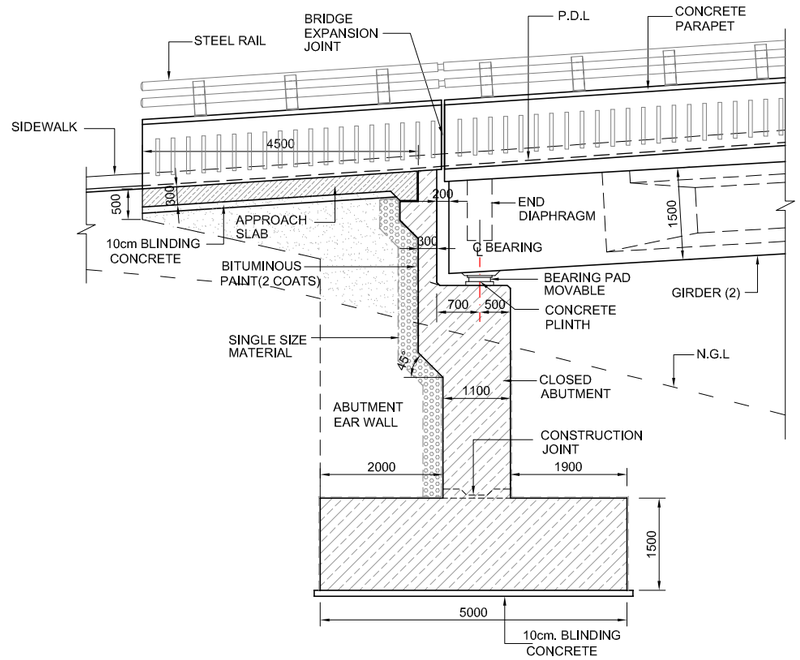
Drawing Title

FOOTING PLAN

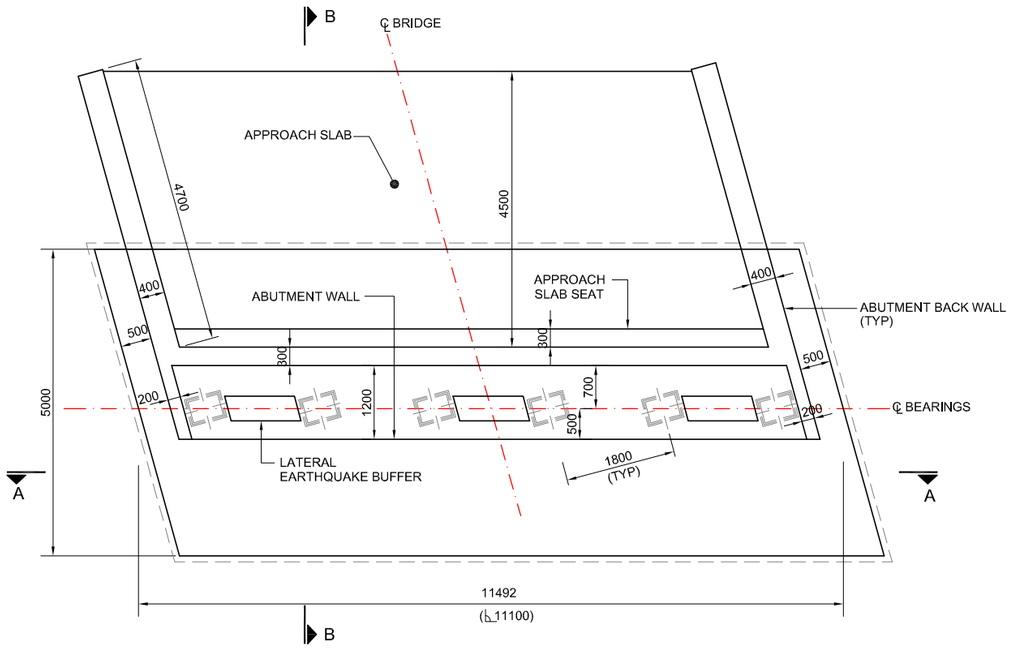
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	1:150
Drawing No. :	ST-03		Rev. 00



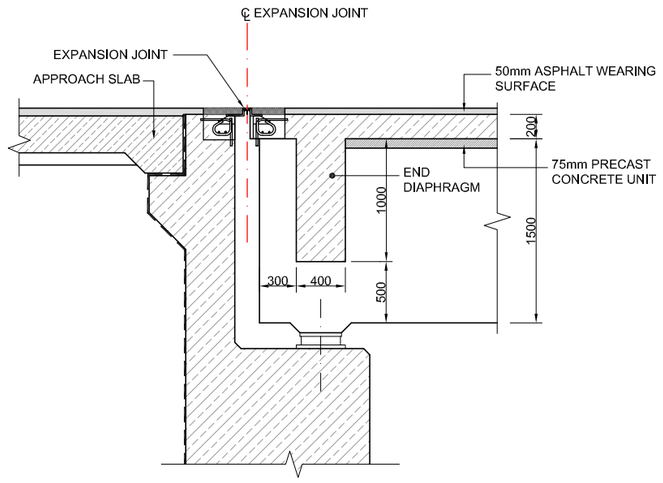
SECTION (A-A)
SCALE 1:50



SECTION (B-B)
SCALE 1:50



ABUTMENT PLAN
SCALE 1:50



END DIPHRAGM AT ABUTMENT
SCALE 1:25

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS AND STATIONS ARE IN KILOMETERS, UNLESS OTHERWISE INDICATED.
2. EXACT TOP PIER ELEVATION SHALL BE BASED ON BEARINGS THICKNESS AND ACCORDING TO ROAD DRAWINGS.

Rev.	Date	Description	Checked
1			

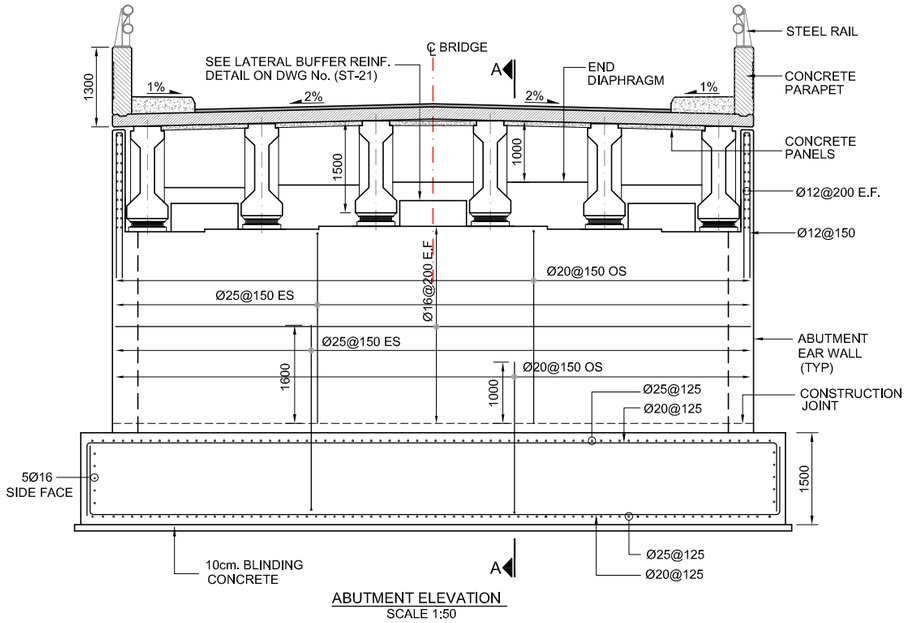
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

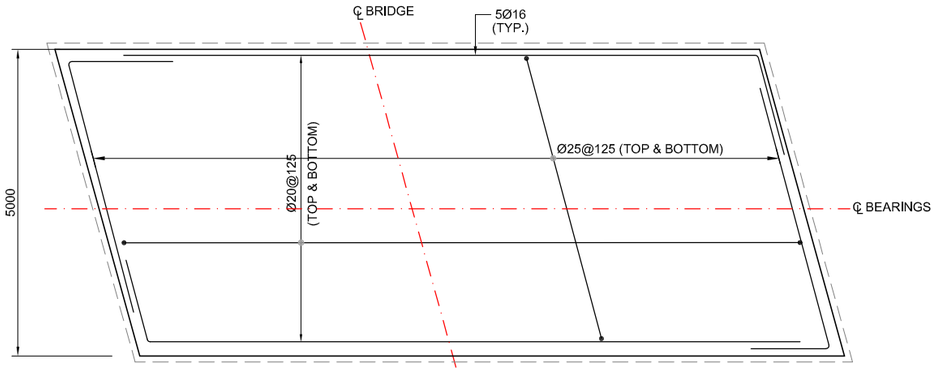
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: ABUTMENT STRUCTURAL DETAILS

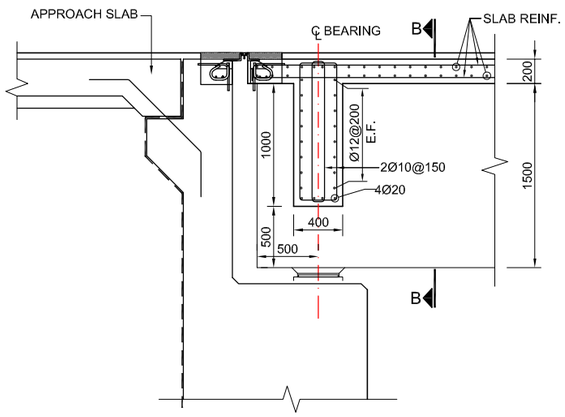
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-04		Rev. 00



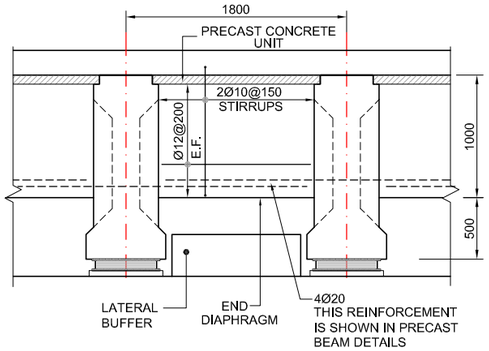
ABUTMENT ELEVATION
SCALE 1:50



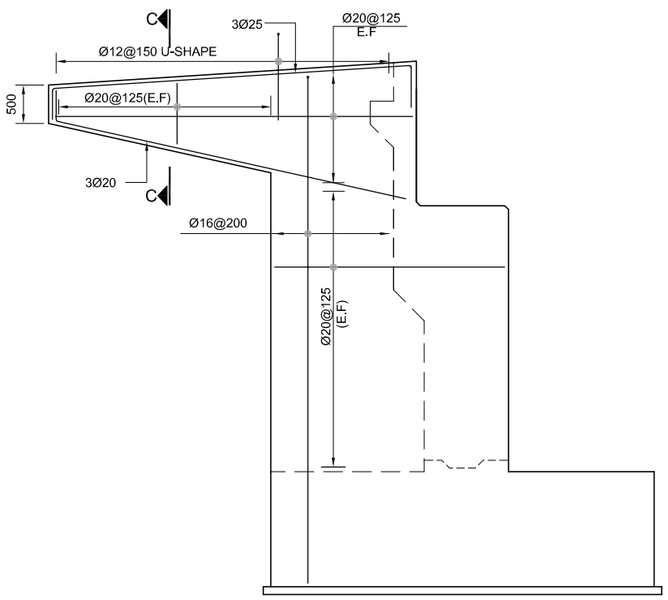
ABUTMENT FOOTING PLAN
SCALE 1:50



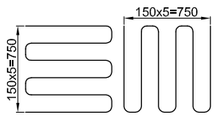
END DIAPHRAGM DETAILS AT ABUTMENT
SCALE 1:25



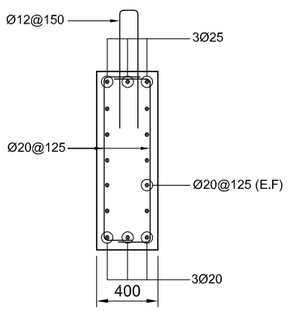
SECTIONAL ELEVATION (B-B)
SCALE 1:25



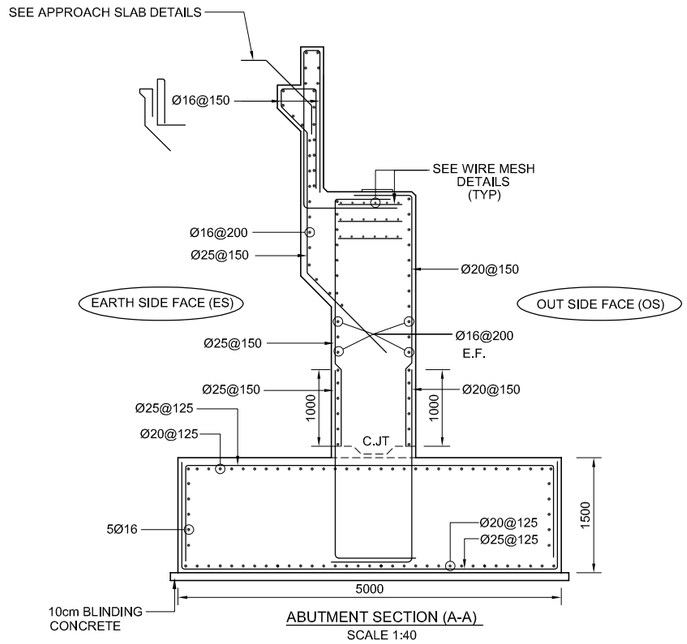
ABUTMENT EAR WALL SECTIONAL ELEVATION
SCALE 1:40



WIRE MESH DETAILS
N.T.S



SECTION (C-C)
SCALE 1:25



ABUTMENT SECTION (A-A)
SCALE 1:40

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS AND STATIONS ARE IN KILOMETERS, UNLESS OTHERWISE INDICATED.
2. FOR LATERAL BUFFER AND BEARING PLINTH DETAILS AND REINFORCEMENT SEE RELEVANT DRAWINGS.

Rev.	Date	Description	Checked
1			

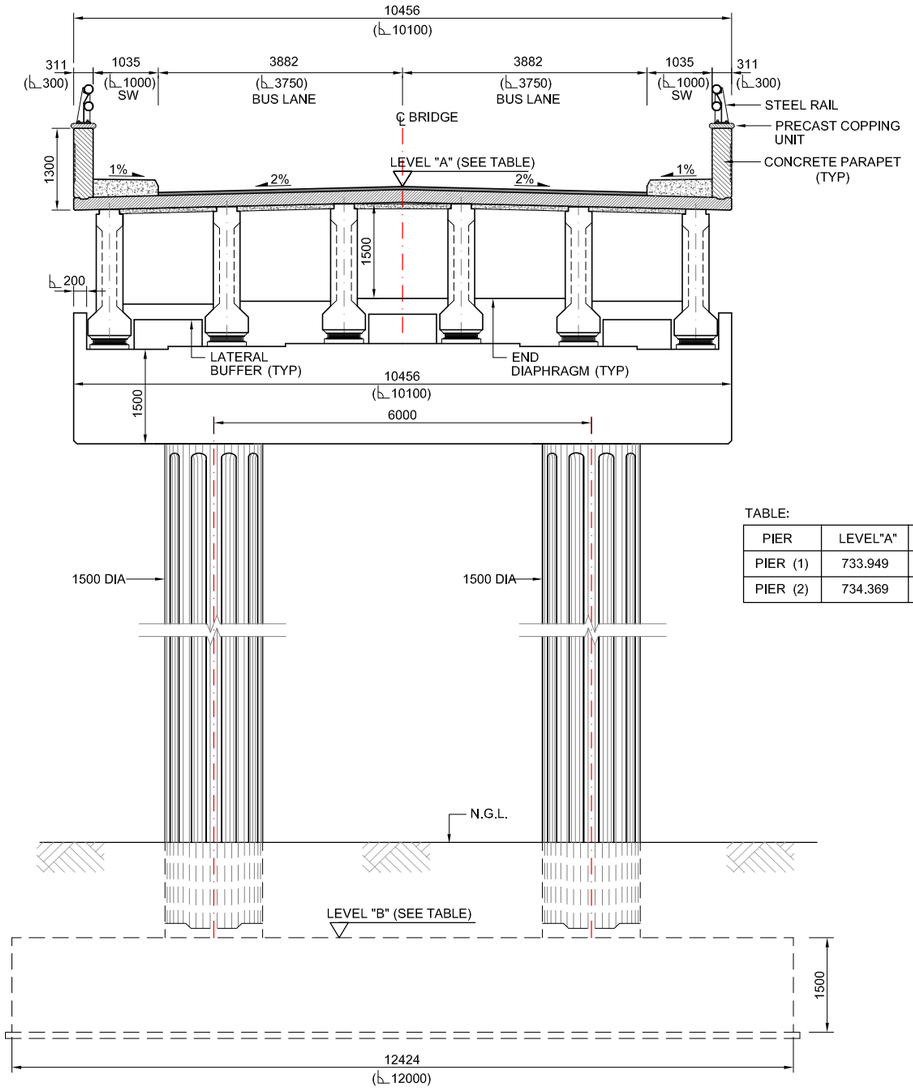
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: ABUTMENT REINFORCEMENT DETAILS

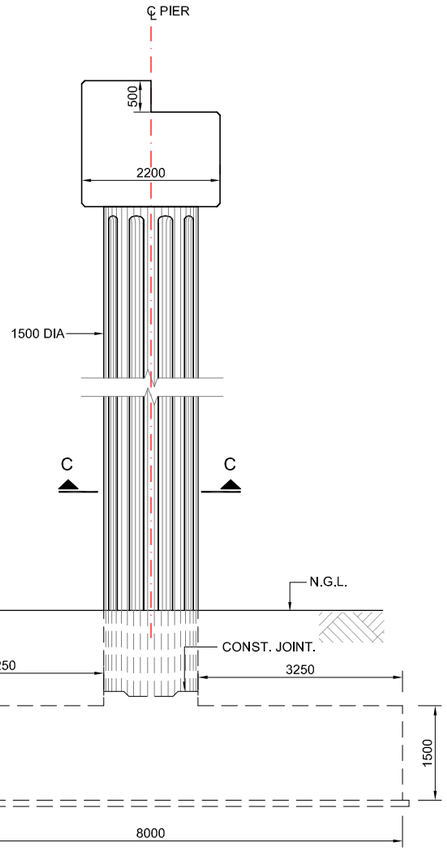
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-05		Rev. 00



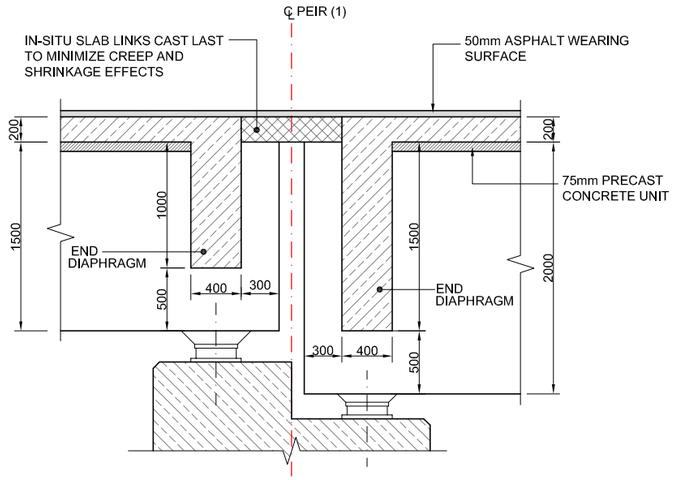
SECTION (A-A)
SCALE 1:50

TABLE:

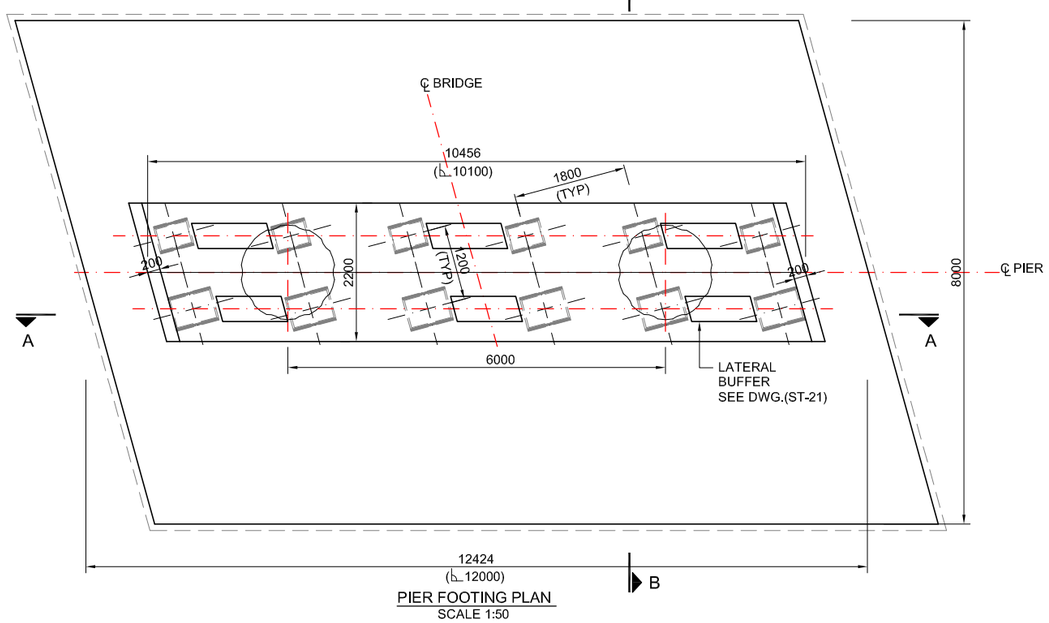
PIER	LEVEL"A"	LEVEL"B"
PIER (1)	733.949	721.600
PIER (2)	734.369	721.350



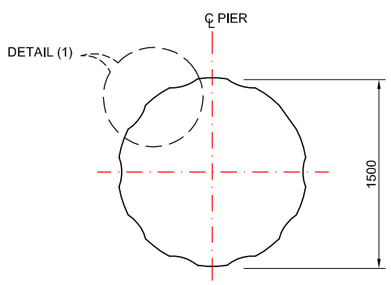
SECTION (B-B)
SCALE 1:50



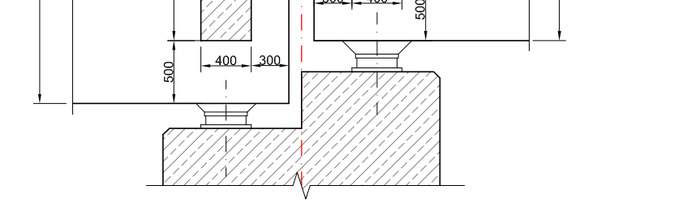
END DIAPHRAGMS AT PIER (1)
SCALE 1:25



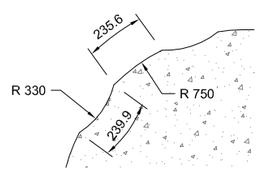
PIER FOOTING PLAN
SCALE 1:50



SECTION (C-C)
SCALE 1:25



END DIAPHRAGMS AT PIER (2)
SCALE 1:25



DETAIL (1)
SCALE 1:12.5

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS AND ALL LEVELS ARE IN METERS, UNLESS OTHERWISE INDICATED.
2. EXACT TOP PIER ELEVATION SHALL BE BASED ON BEARINGS THICKNESS AND ACCORDING TO ROAD DRAWINGS.

Rev.	Date	Description	Checked

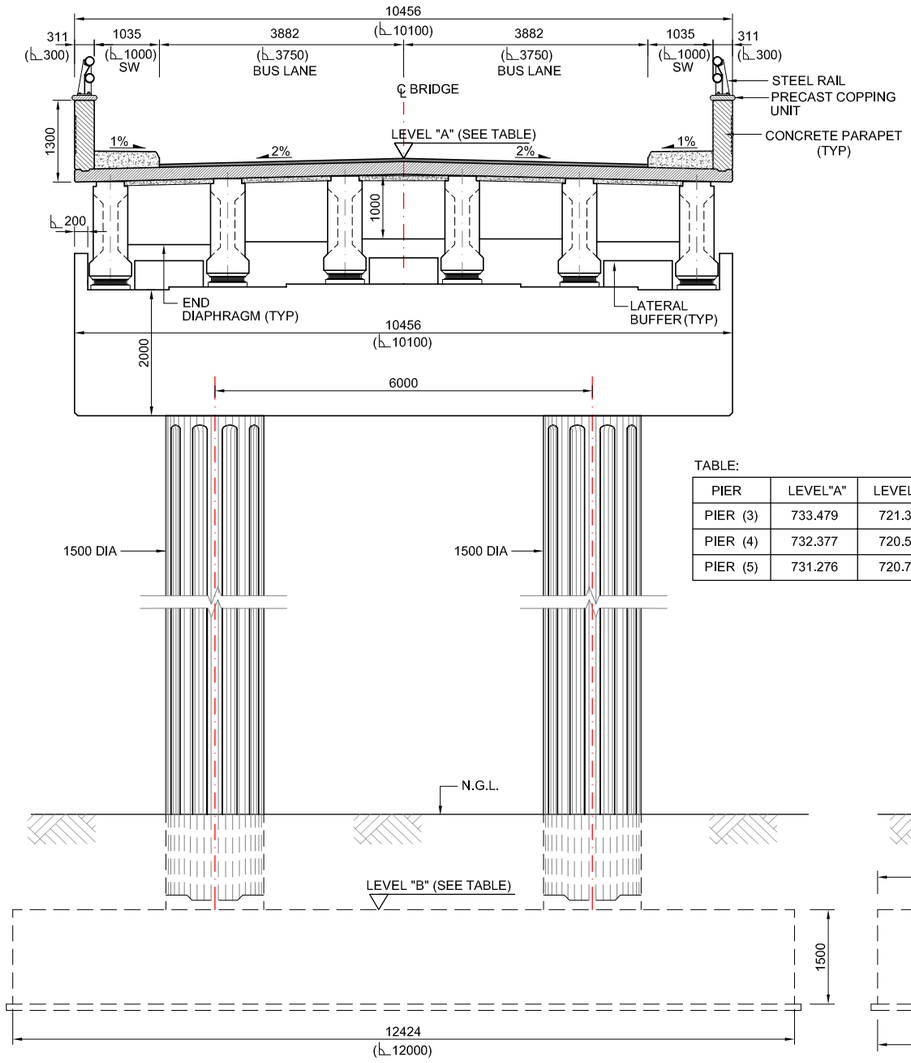
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: PIERS (1&2) STRUCTURAL DETAILS

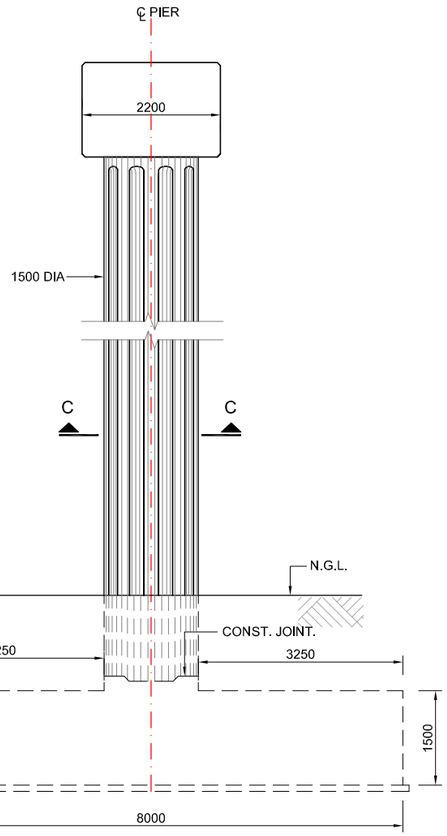
Designed By	S. ALSMADI	Date	MAY, 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-06		Rev. 00



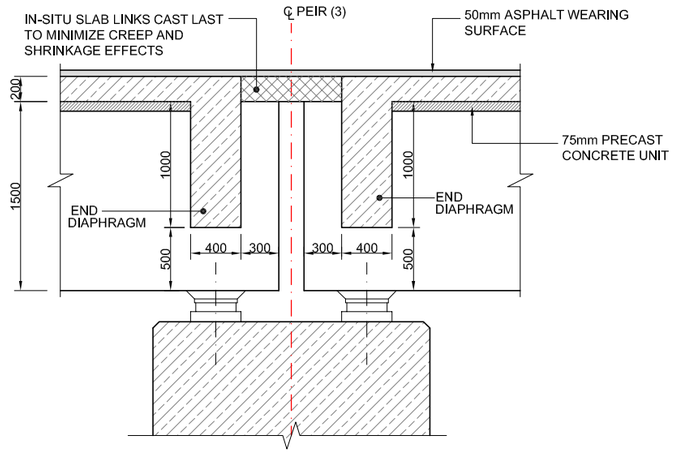
SECTION (A-A)
SCALE 1:50

TABLE:

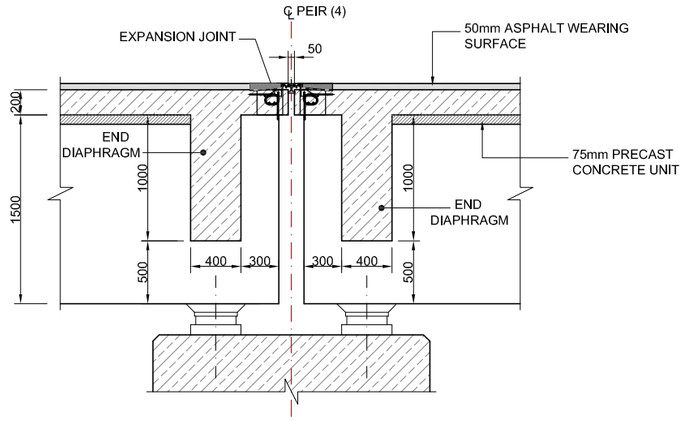
PIER	LEVEL"A"	LEVEL"B"
PIER (3)	733.479	721.350
PIER (4)	732.377	720.550
PIER (5)	731.276	720.750



SECTION (B-B)
SCALE 1:50



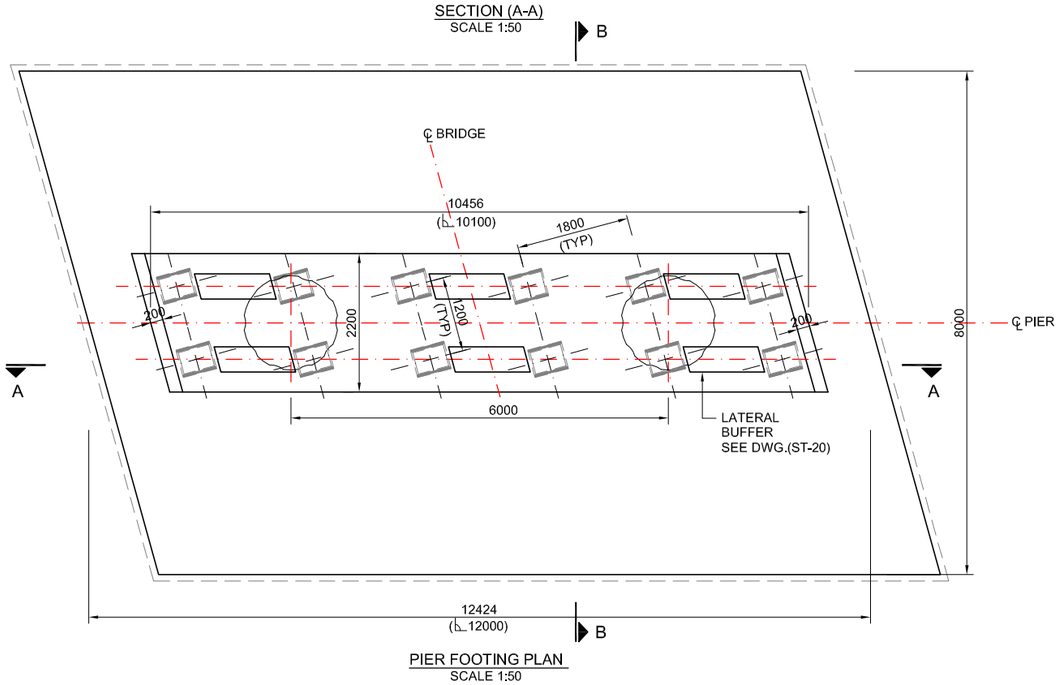
END DIAPHRAGMS AT PIER (3)
SCALE 1:25



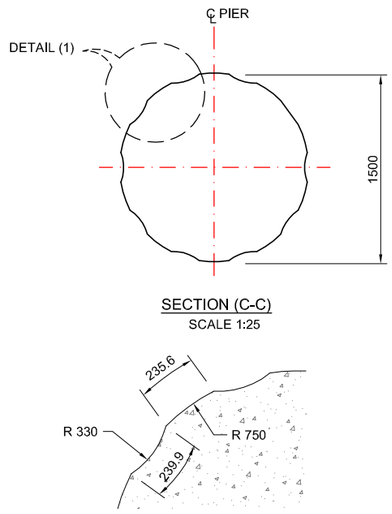
END DIAPHRAGMS AT PIER (4)
SCALE 1:25

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS AND ALL LEVELS ARE IN METERS, UNLESS OTHERWISE INDICATED.
2. EXACT TOP PIER ELEVATION SHALL BE BASED ON BEARINGS THICKNESS AND ACCORDING TO ROAD DRAWINGS.

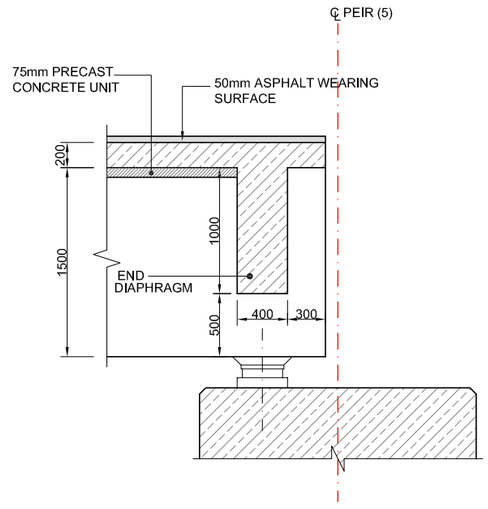


PIER FOOTING PLAN
SCALE 1:50



SECTION (C-C)
SCALE 1:25

DETAIL (1)
SCALE 1:12.5



END DIAPHRAGM AT PIER (5)
SCALE 1:25

Rev.	Date	Description	Checked
1			

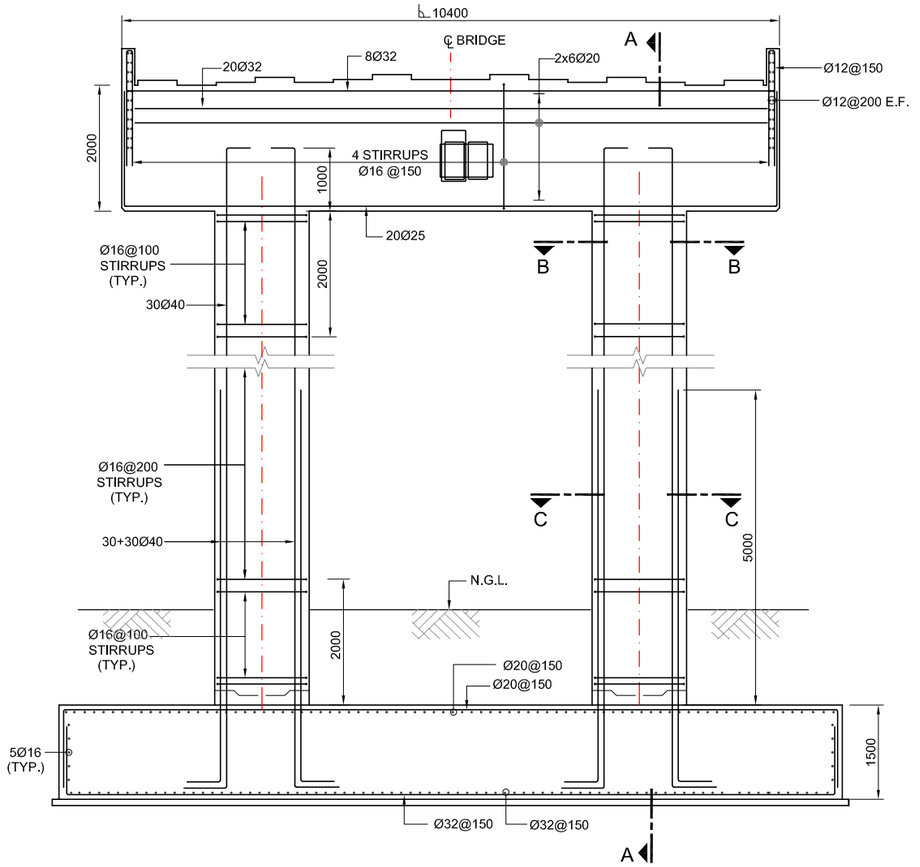
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

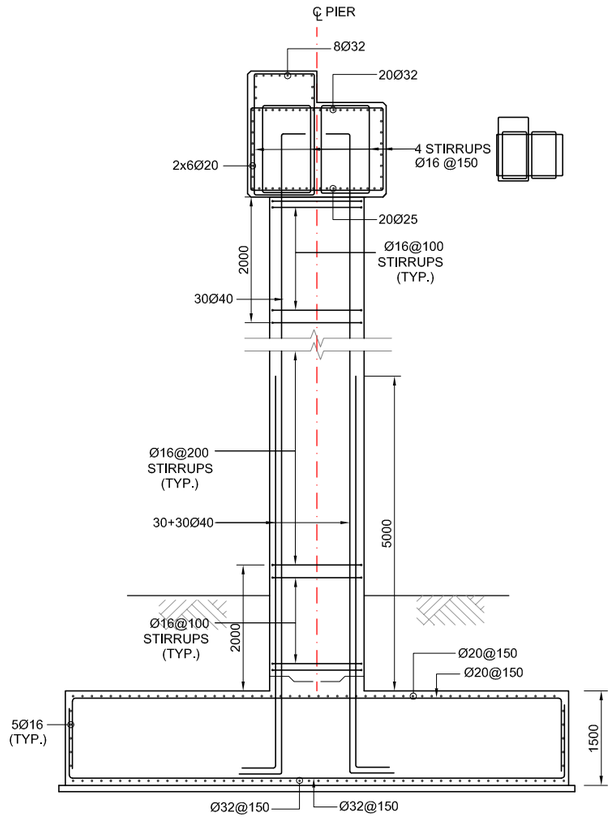
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: PIERS (3,4,&5) STRUCTURAL DETAILS

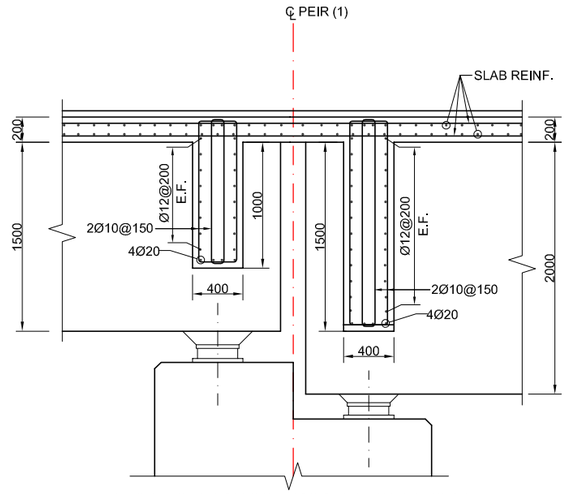
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-07		Rev. 00



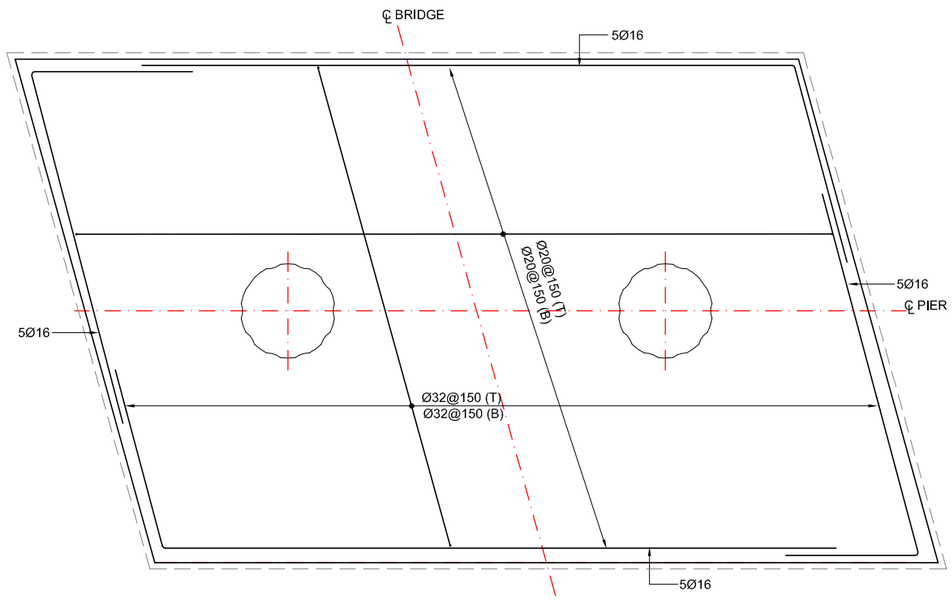
PIER (1) SECTIONAL ELEVATION
SCALE 1:50



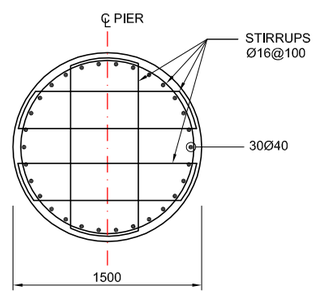
SECTION (A-A)
SCALE 1:50



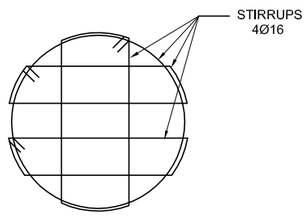
END DIAPHRAGM REINFORCEMENTAT PIER (1)
SCALE 1:25

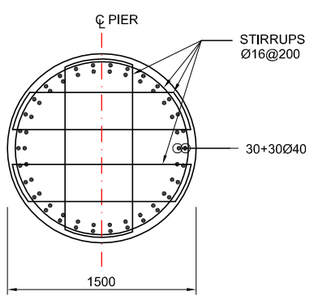


PIER FOOTING PLAN
SCALE 1:50



SECTION (B - B)
SCALE 1:25





SECTION (C - C)
SCALE 1:25

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. FOR LATERAL BUFFER AND BEARING PLINTH DETAILS AND REINFORCEMENT SEE RELEVANT DRAWINGS.

Rev.	Date	Description	Checked

Client: Greater Amman Municipality

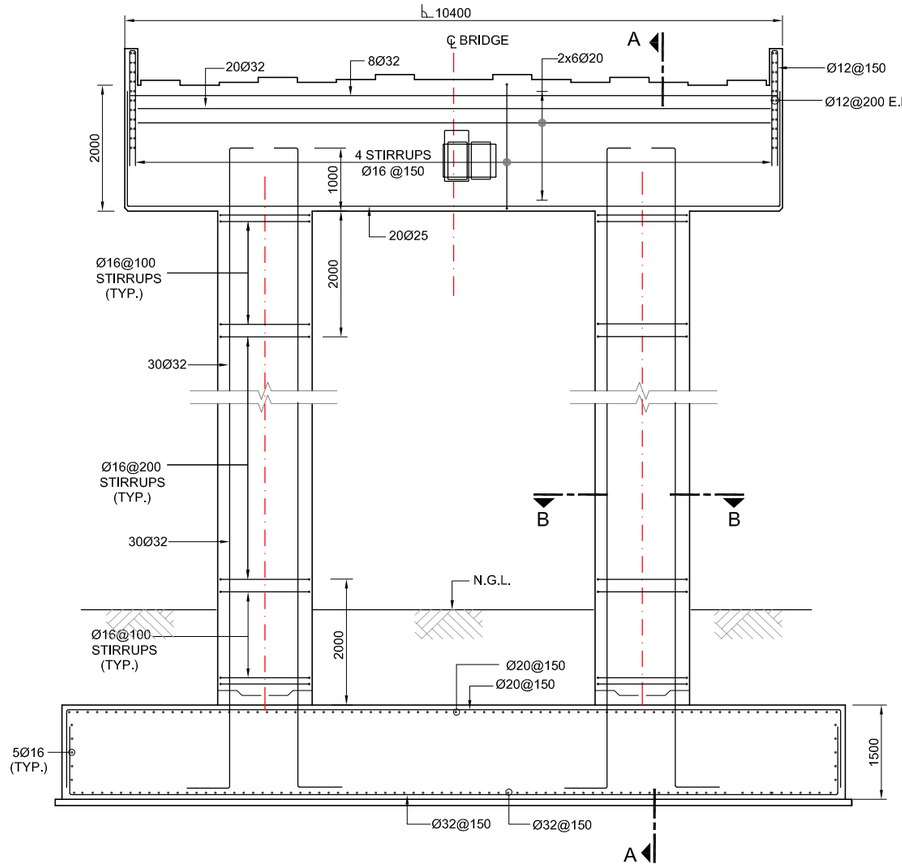
Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

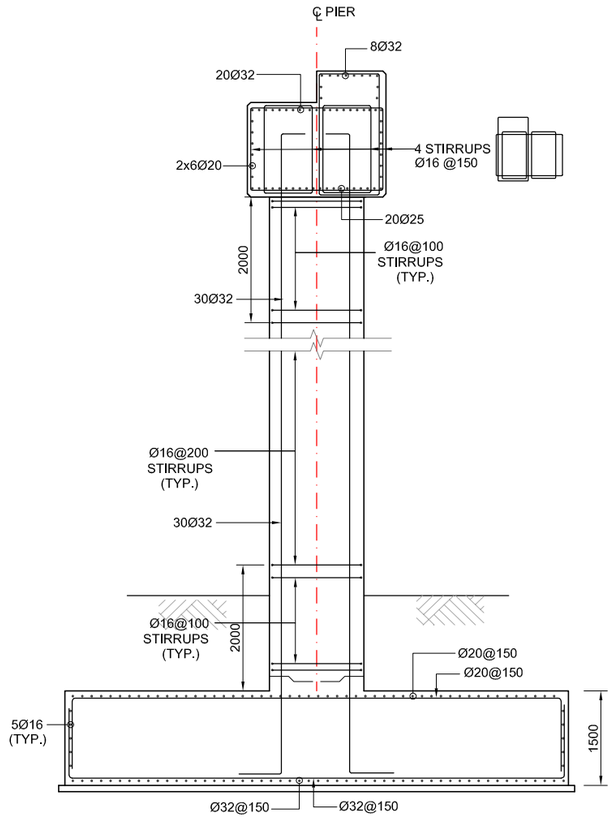
Drawing Title: PIER (1) REINFORCEMENT DETAILS

Designed By	S. ALSMADI	Date	MAY, 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN

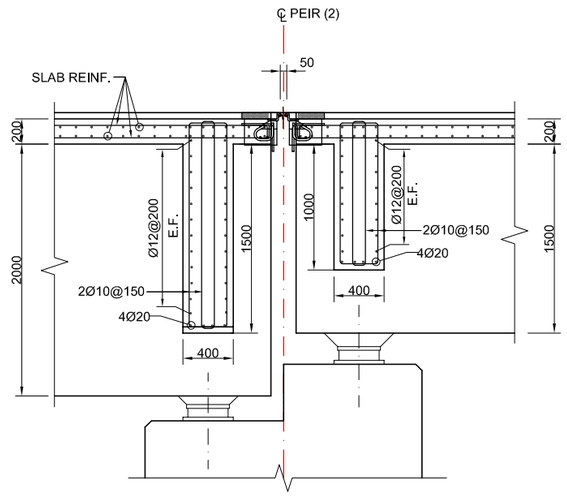
Drawing No. : ST-08 Rev. 00



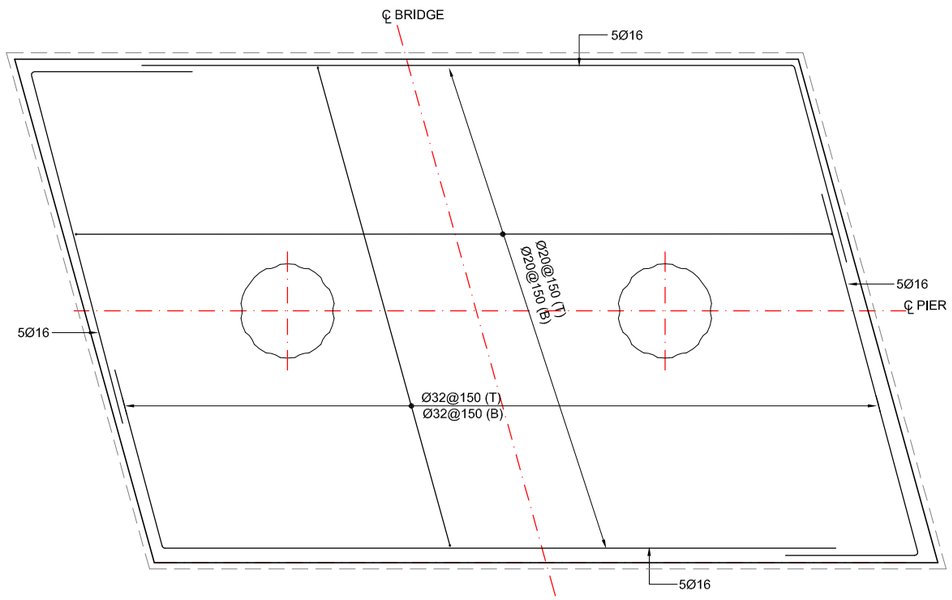
PIER (2) SECTIONAL ELEVATION
SCALE 1:50



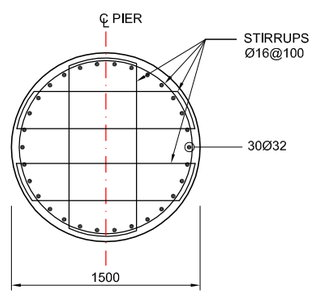
SECTION (A-A)
SCALE 1:50



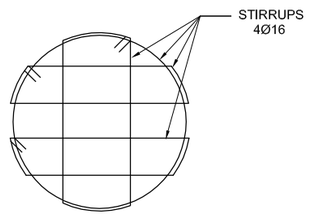
END DIAPHRAGM REINFORCEMENTAT PIER (2)
SCALE 1:25



PIER FOOTING PLAN
SCALE 1:50



SECTION (B - B)
SCALE 1:25



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. FOR LATERAL BUFFER AND BEARING PLINTH DETAILS AND REINFORCEMENT SEE RELEVANT DRAWINGS.

Rev.	Date	Description	Checked

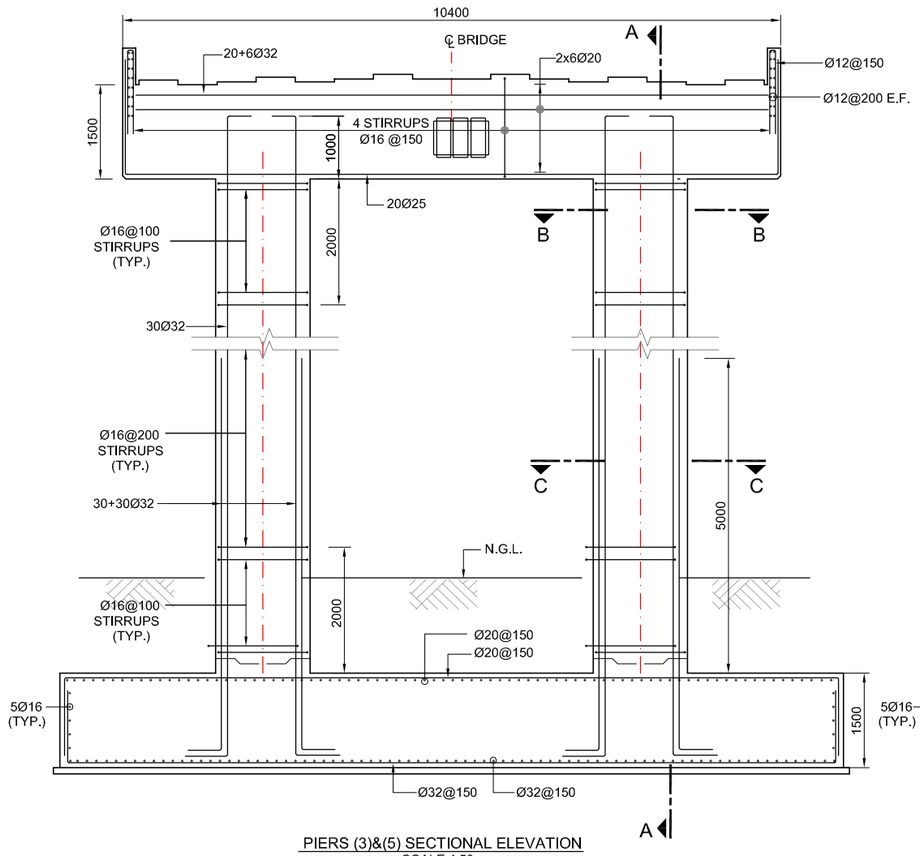
Client
Greater Amman Municipality

Project Name
BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16)
MAHATTA CONNECTOR

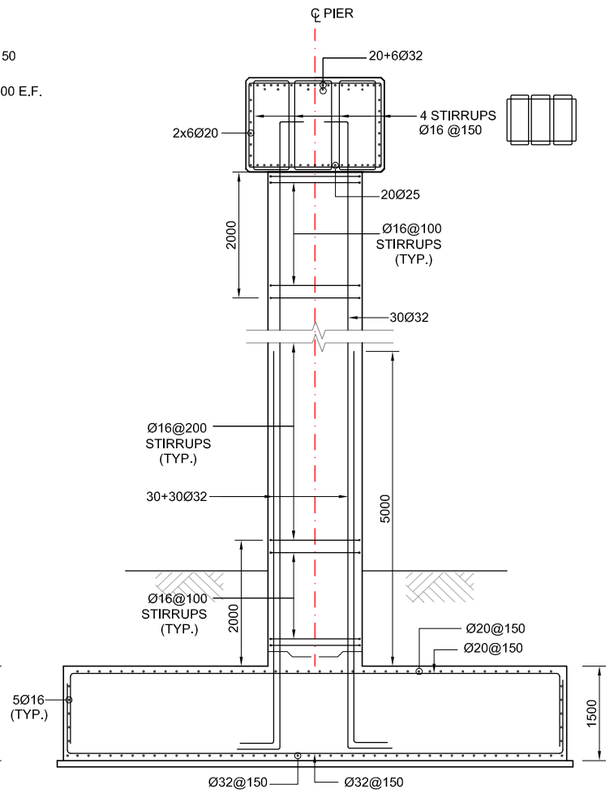
Consultants
steer davies gleave
CONSOLIDATED CONSULTANTS GROUP

Drawing Title
PIER (2) REINFORCEMENT DETAILS

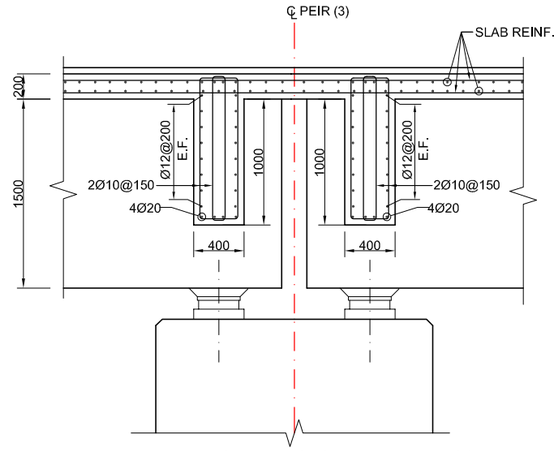
Designed By	S. ALSMADI	Date	MAY, 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-09		Rev. 00



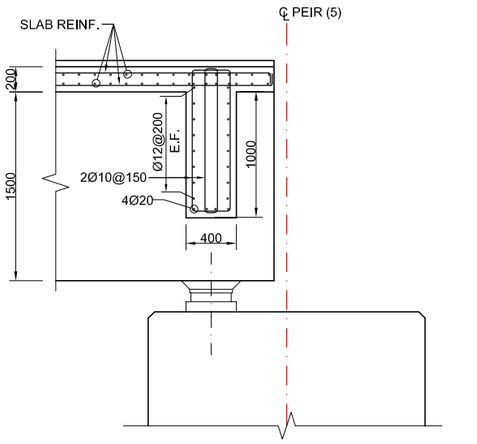
PIERS (3)&(5) SECTIONAL ELEVATION
SCALE 1:50



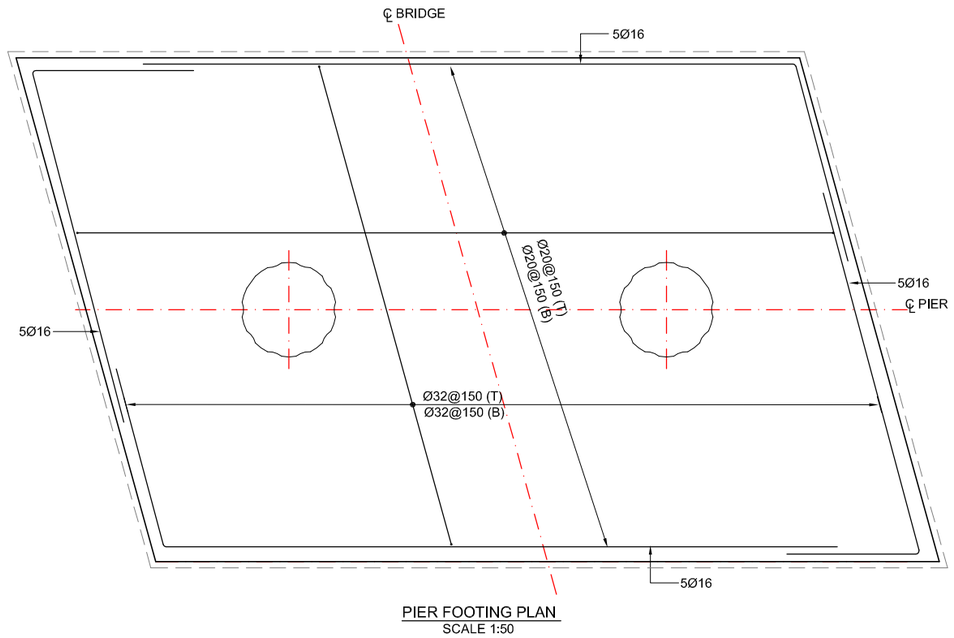
SECTION (A-A)
SCALE 1:50



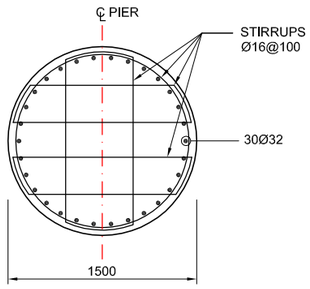
END DIAPHRAGM REINFORCEMENT AT PIER (3)
SCALE 1:25



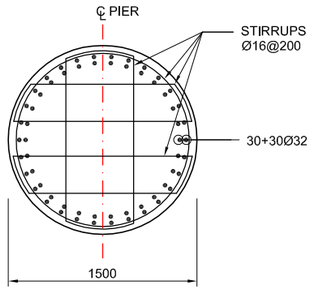
END DIAPHRAGM REINFORCEMENT AT PIER (5)
SCALE 1:25



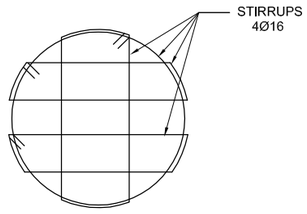
PIER FOOTING PLAN
SCALE 1:50



SECTION (B - B)
SCALE 1:25



SECTION (C - C)
SCALE 1:25



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. FOR LATERAL BUFFER AND BEARING PLINTH DETAILS AND REINFORCEMENT SEE RELEVANT DRAWINGS.

Rev.	Date	Description	Checked
1			

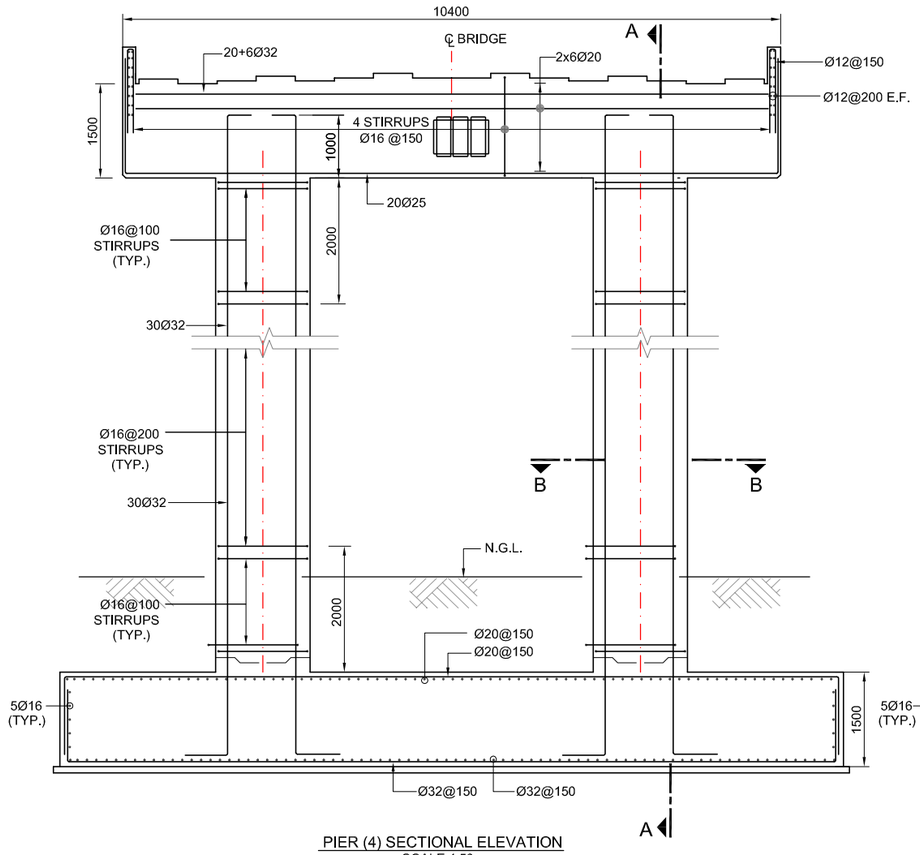
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

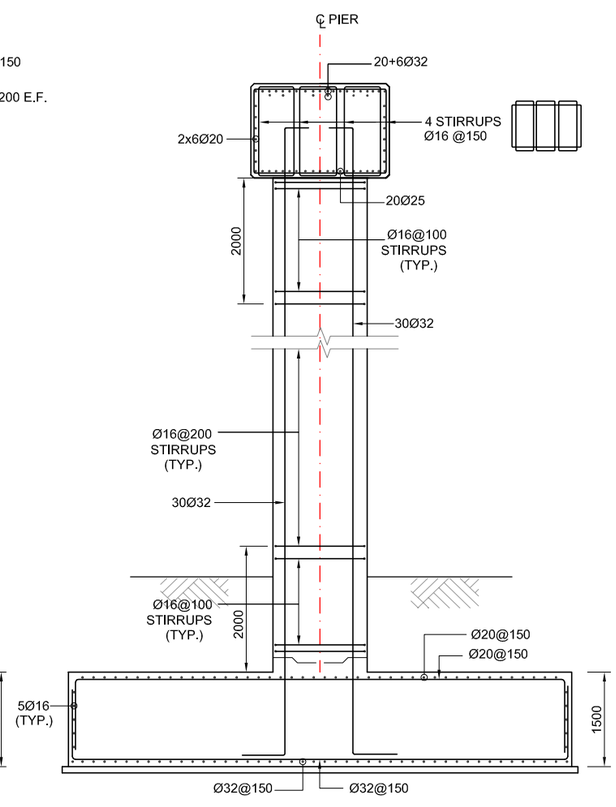
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: PIERS(3&5) REINFORCEMENT DETAILS

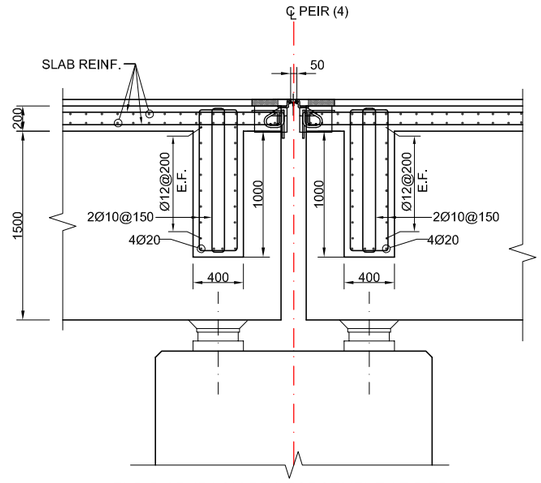
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. : ST-10			Rev. 00



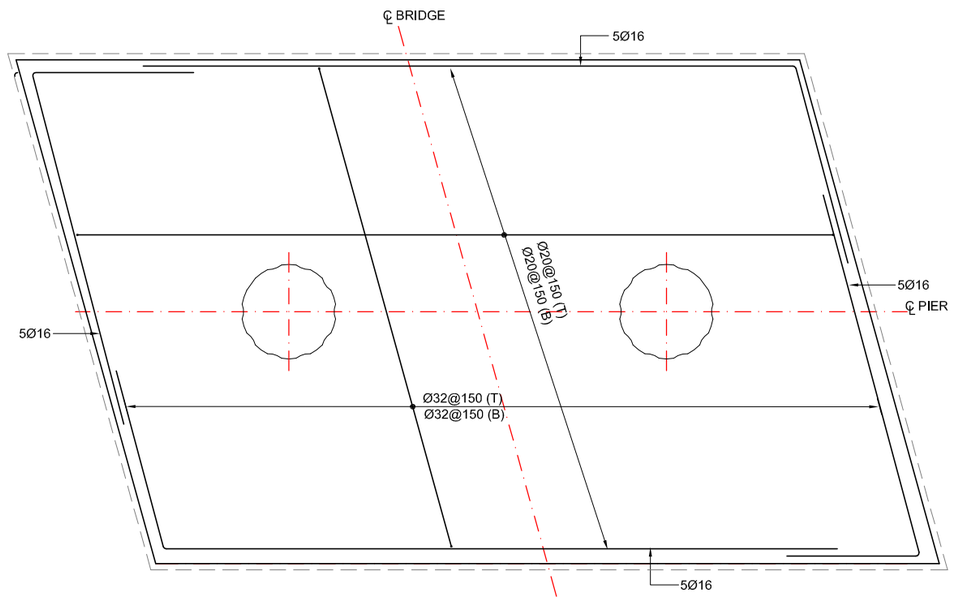
PIER (4) SECTIONAL ELEVATION
SCALE 1:50



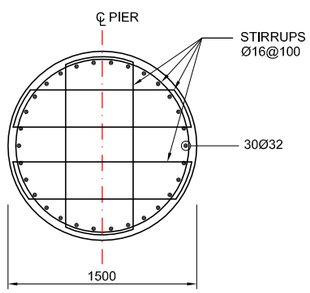
SECTION (A-A)
SCALE 1:50



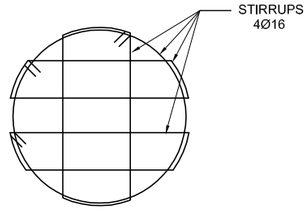
END DIAPHRAGM REINFORCEMENT AT PIER (4)
SCALE 1:25



PIER FOOTING PLAN
SCALE 1:50



SECTION (B - B)
SCALE 1:25



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. FOR LATERAL BUFFER AND BEARING PLINTH DETAILS AND REINFORCEMENT SEE RELEVANT DRAWINGS.

Rev.	Date	Description	Checked

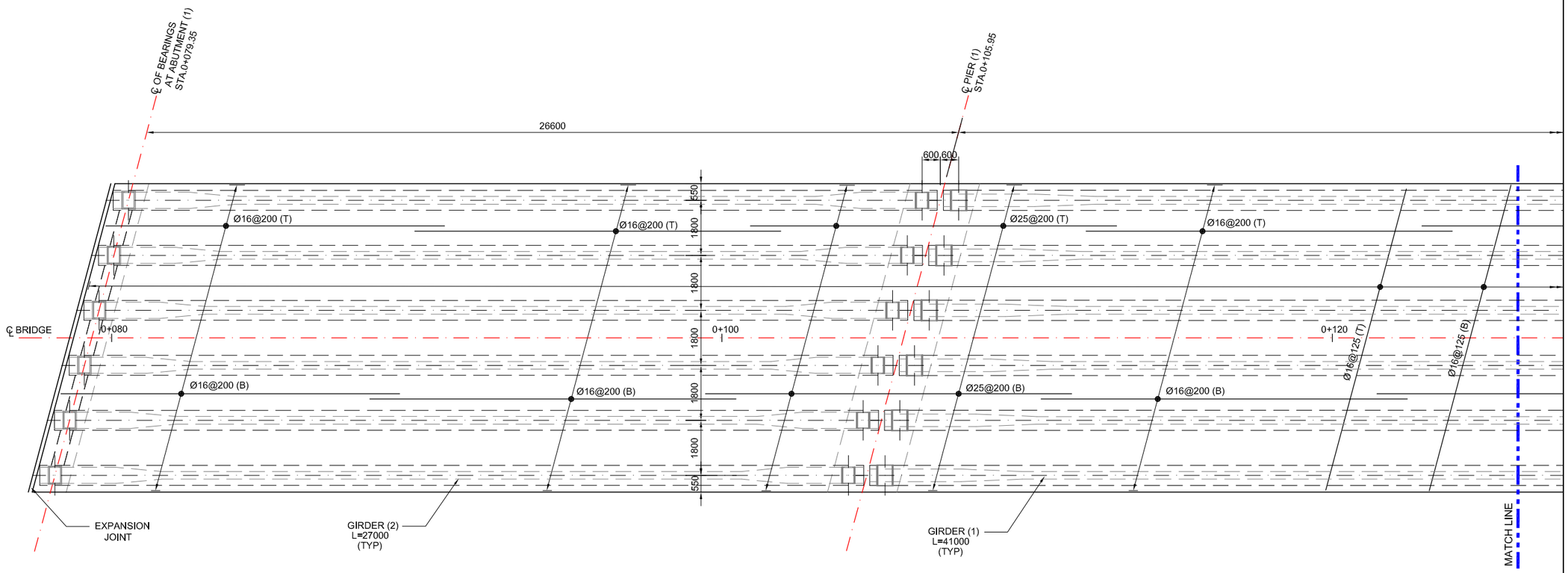
Client: Greater Amman Municipality

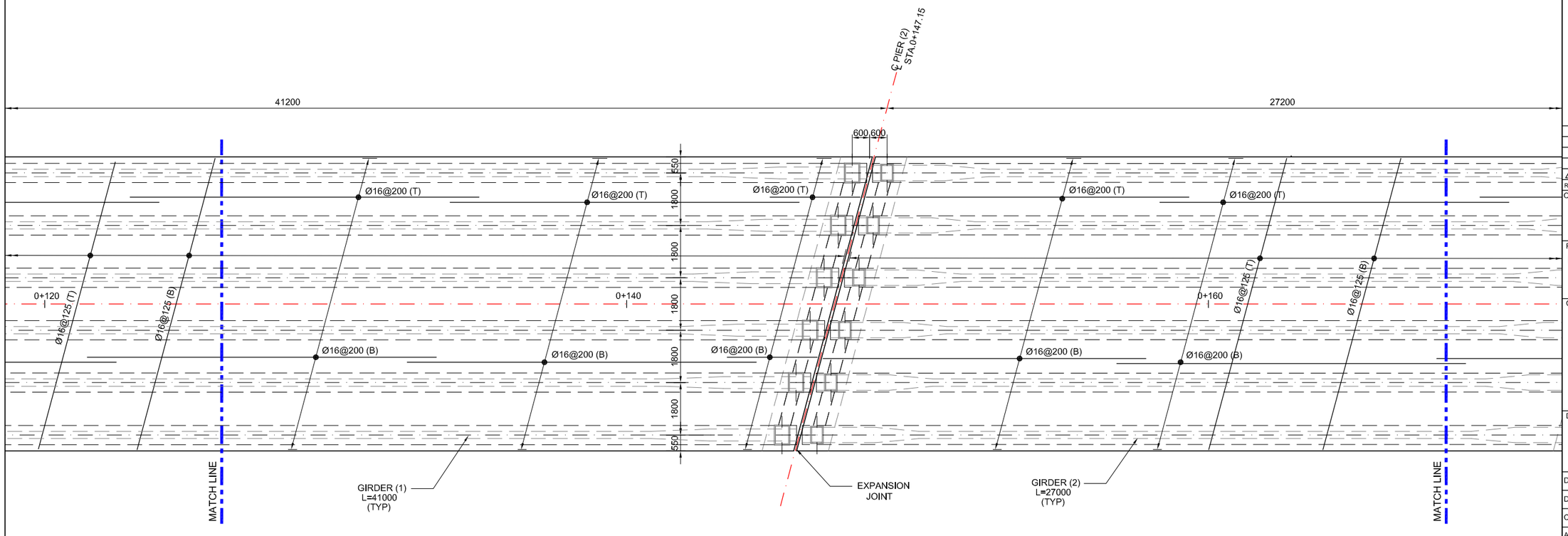
Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: PIER (4) REINFORCEMENT DETAILS

Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-11		Rev. 00





NOTES :

1-ALL DIMENSIONS ARE IN MILLIMETERS AND STATIONS ARE IN METERS UNLESS OTHERWISE INDICATED.

Rev.	Date	Description	Checked

Client

Greater Amman Municipality

Project Name

BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16)
MAHATTA CONNECTOR

Consultants

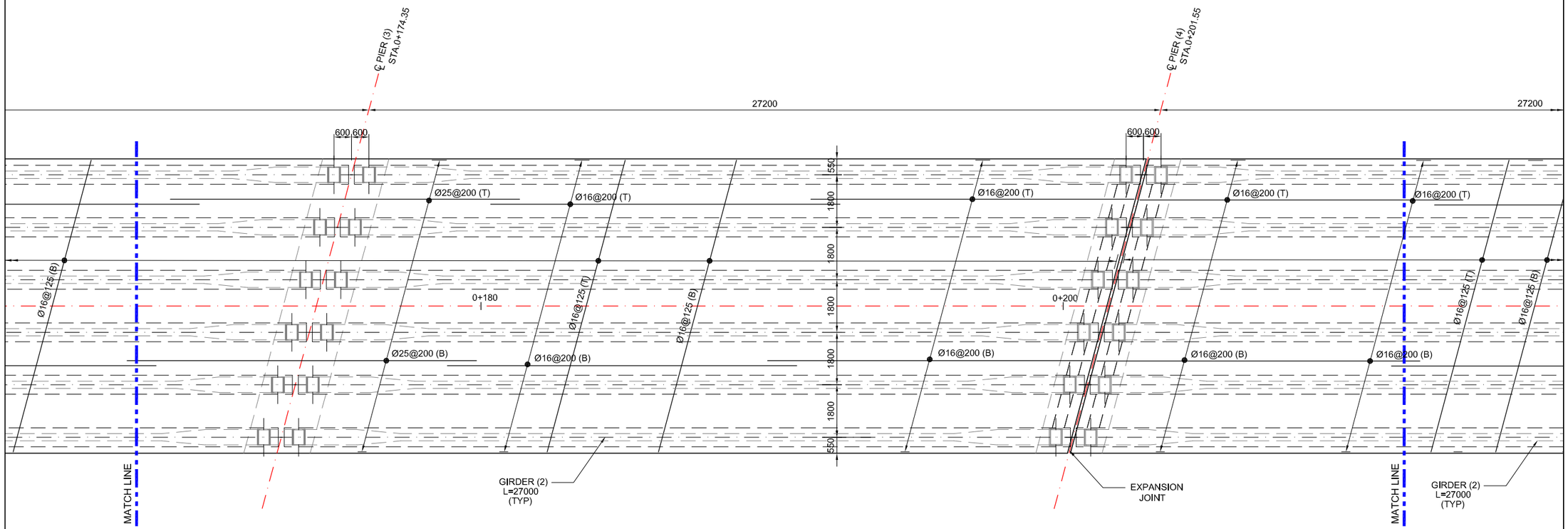
steer davies gleave

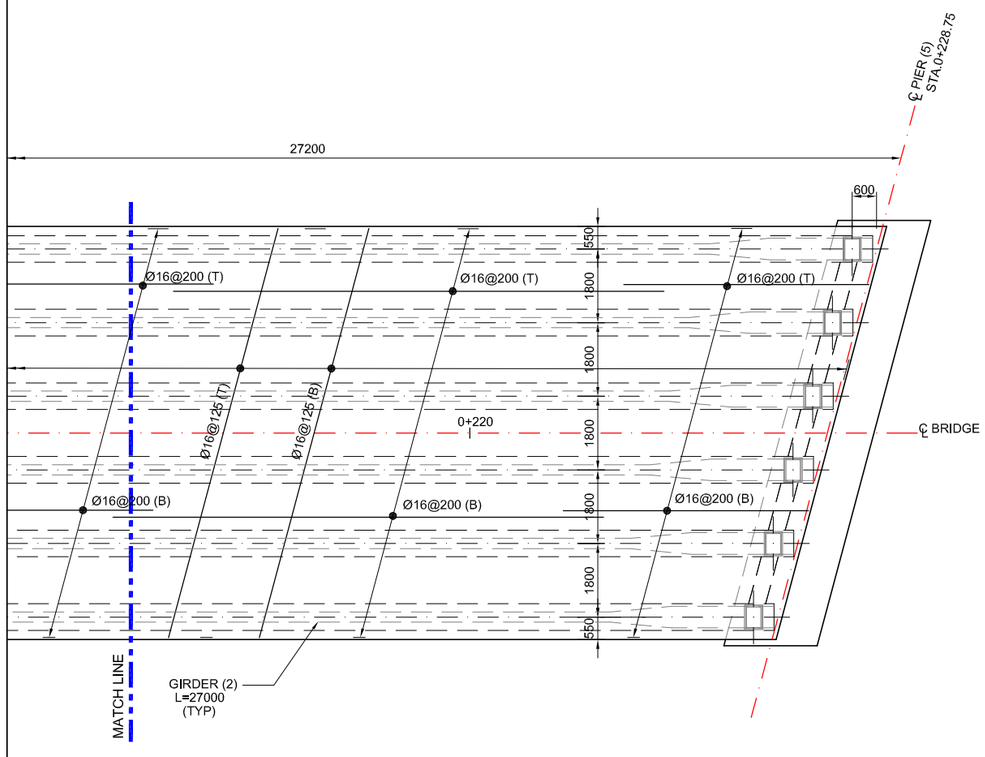
CONSOLIDATED CONSULTANTS GROUP

Drawing Title

SLAB REINFORCEMENT PLAN
(1 OF 2)

Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	1:75
Drawing No. :	ST-12		Rev. 00





NOTES :

1-ALL DIMENSIONS ARE IN MILLIMETERS AND STATIONS ARE IN METERS UNLESS OTHERWISE INDICATED.

Rev.	Date	Description	Checked
1			

Client

Greater Amman Municipality

Project Name

BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16)
MAHATTA CONNECTOR

Consultants

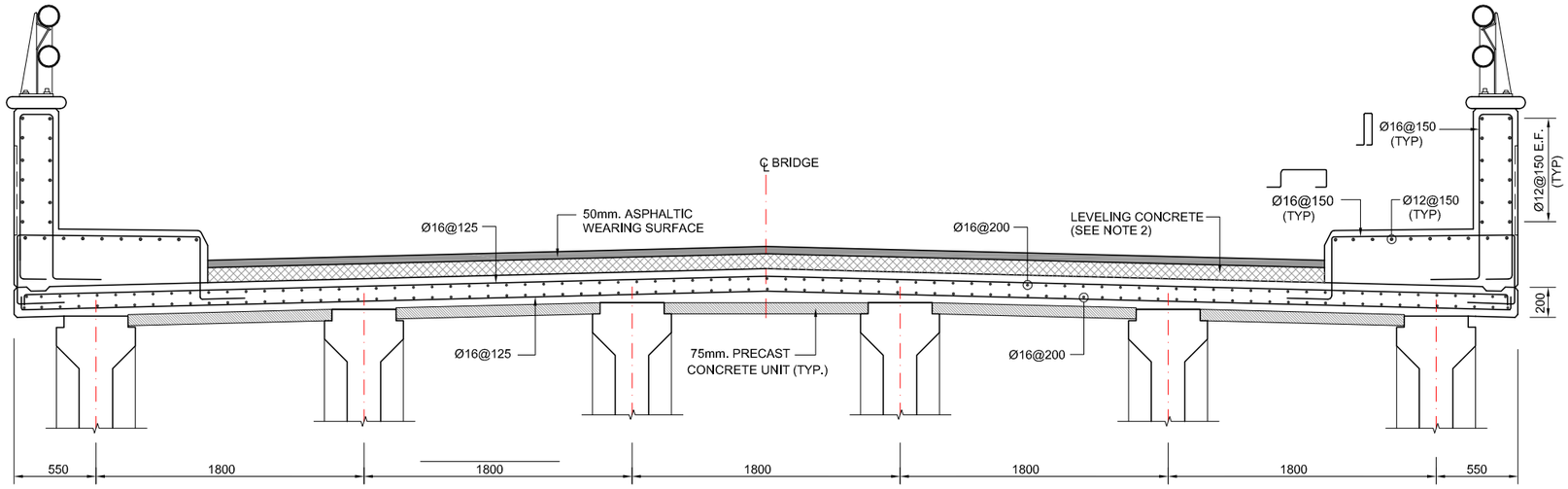
steer davies gleave

CONSOLIDATED CONSULTANTS GROUP

Drawing Title

SLAB REINFORCEMENT PLAN
(2 OF 2)

Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	1:75
Drawing No. :	ST-13		Rev. 00



SECTION REINFORCEMENT DETAILS
AT MID SPAN
SCALE 1:20

*GIRDER (2) IS SHOWN ON THE DRAWING, SLAB REINFORCEMENT AT GIRDER (1) AND (2) ARE SIMILAR.

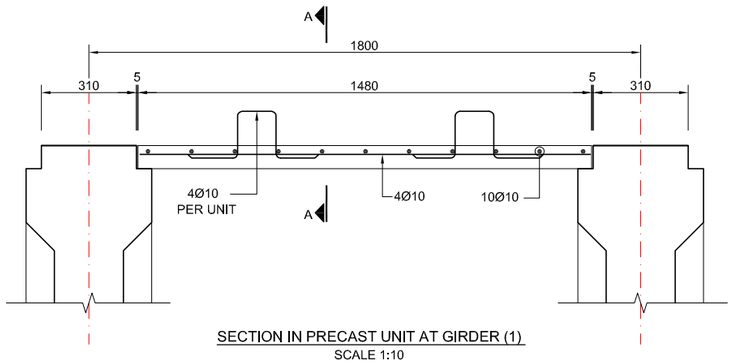
*FOR SLAB REINFOCEMENT VARIATION AND ORIENTATION SEE SLAB REINFORCEMENT PLAN.

NOTES :

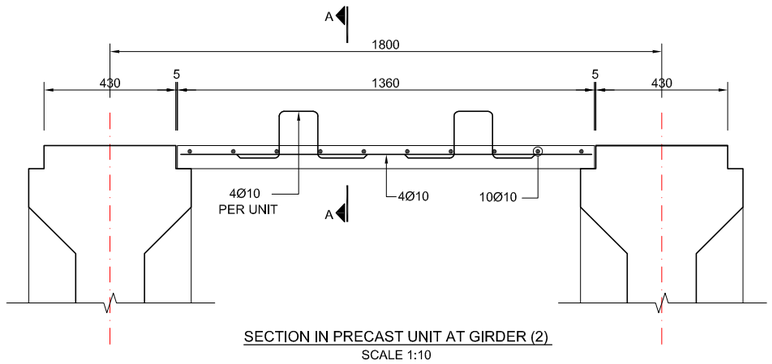
1- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE INDICATED.

2- LEVELLING CONCRETE BETWEEN SLAB DECK AND ASPHALT SHALL BE USED TO ACHEIVE THE REQUIRED PROFILE. THE CONTRACTOR SHALL MAKE HIS ARRANGEMENT TO ACHEIVE MINIMUM LEVELLING CONCRETE TO BE USED TAKING INTO CONSIDERATION GIRDER PROFILE, ROAD PROFILE AND GIRDER DEFLECTION.

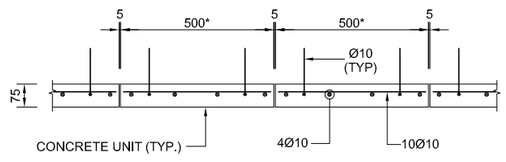
3- LENGTH OF PRECAST CONCRETE UNIT CAN BE MODIFIED TO SUIT CONTRACTOR ARRANGEMENT.



SECTION IN PRECAST UNIT AT GIRDER (1)
SCALE 1:10



SECTION IN PRECAST UNIT AT GIRDER (2)
SCALE 1:10



*SEE NOTE (3)

SECTION A-A
SCALE 1:10

Rev.	Date	Descrptlon	Checked

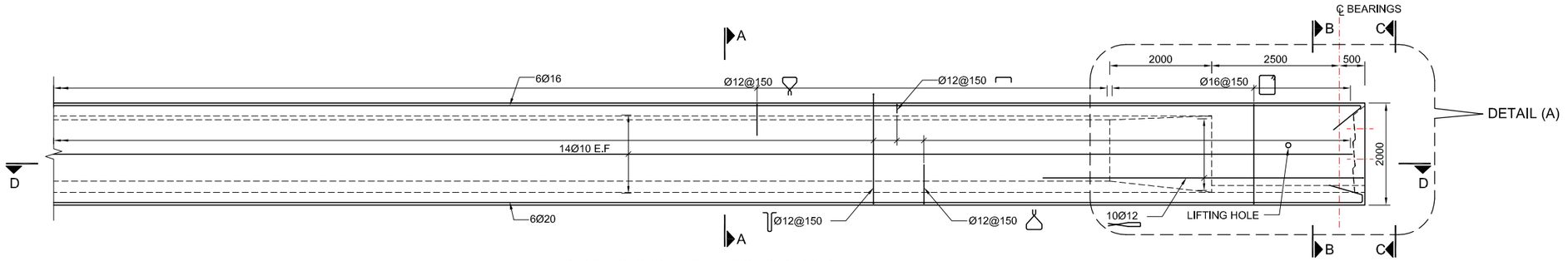
Client: Greater Amman Municipality

Project Name
BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16)
MAHATTA CONNECTOR

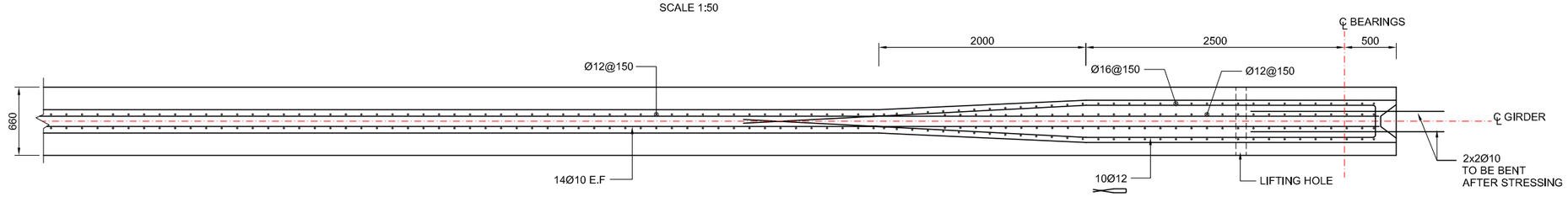
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title
SLAB REINFORCEMENT SECTION AND PRECAST CONCRETE UNIT DETAILS

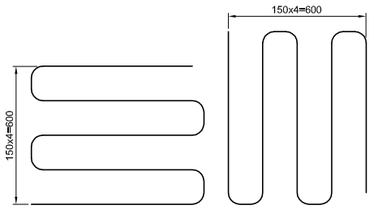
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-14		Rev. 00



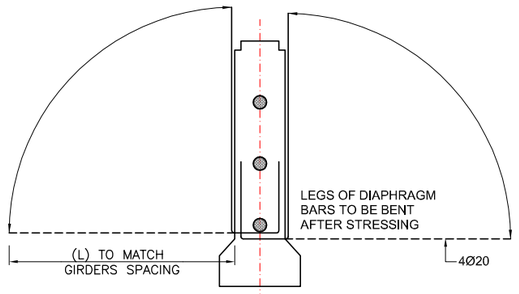
PARTIAL SECTIONAL ELEVATION OF GIRDER
SCALE 1:50



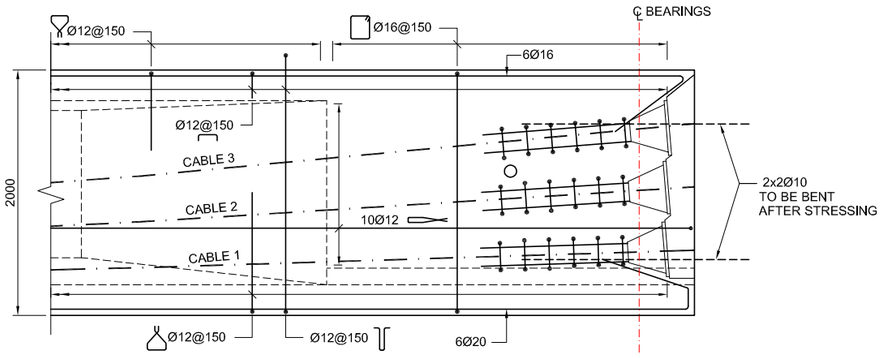
HALF SECTIONAL PLAN D-D
SCALE 1:25



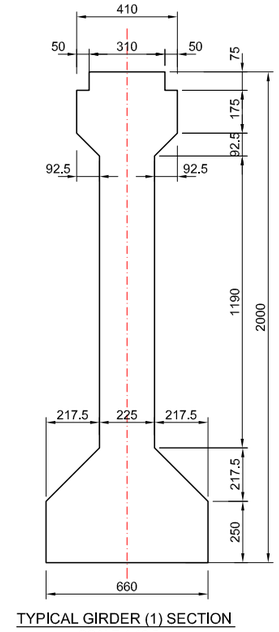
MESH DETAIL
N.T.S



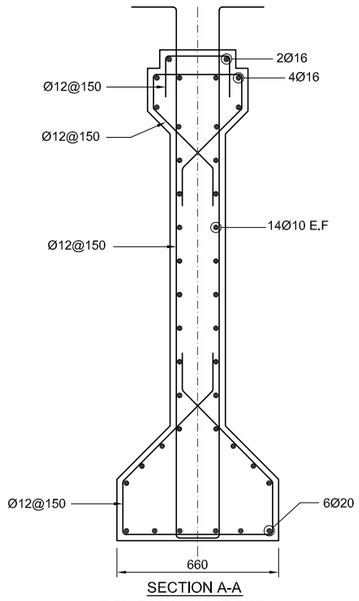
BARS BENT DETAIL
SCALE 1:25



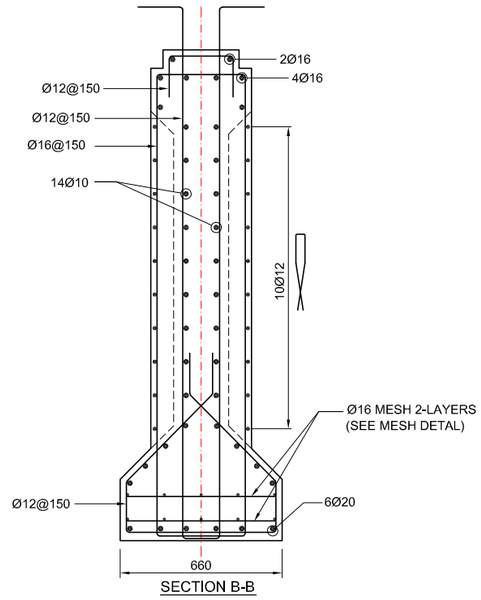
END BLOCK REINFORCEMENT
DETAIL (A)
SCALE 1:25



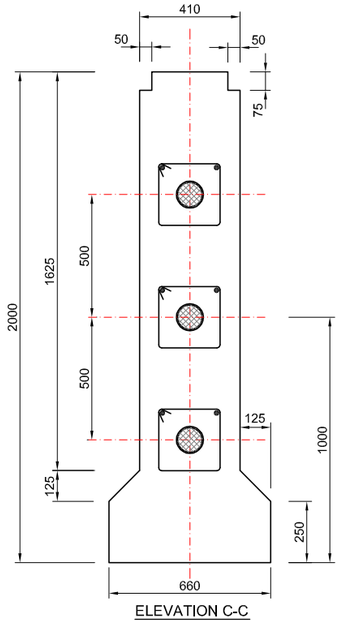
TYPICAL GIRDER (1) SECTION
SCALE 1:12.5



SECTION A-A
(REINFORCEMENT DETAIL)
SCALE 1:12.5



SECTION B-B
(REINFORCEMENT DETAIL)
SCALE 1:12.5



ELEVATION C-C
SCALE 1:12.5

NOTES :

1-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.

2-THE RECESS DETAILS FOR ANCHORAGE ARE ONLY SHOWN INDICATIONAL, THE CONTRACTOR SHALL DEVELOPE THESE REINFORCEMENT TO SUIT THE PROPOSED POST TENSIONING SYSTEM.

Rev.	Date	Description	Checked
1			

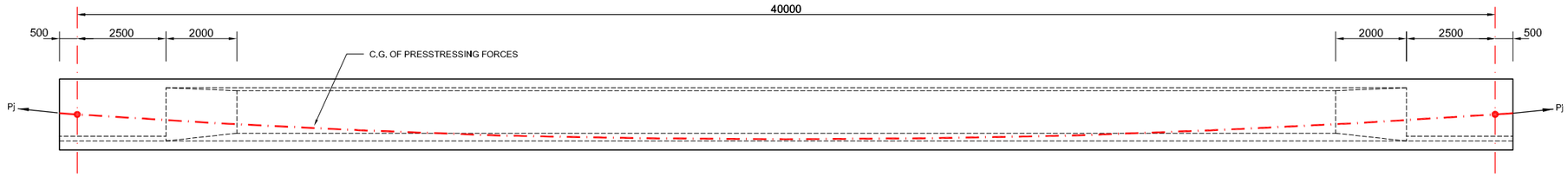
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: GIRDER(1) REINFORCEMENT DETAILS

Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. : ST-15			Rev. 00

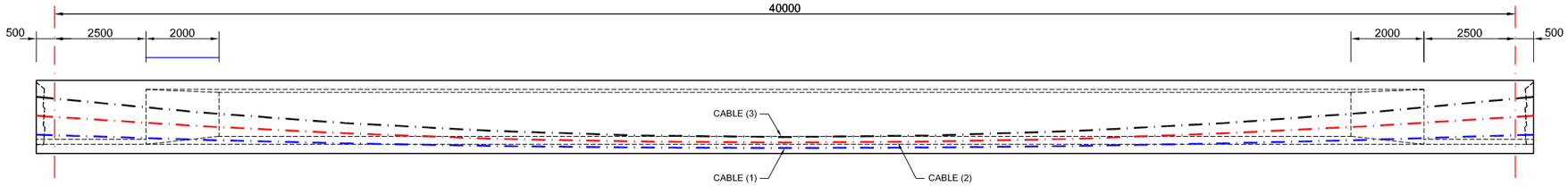


X	0.0 L	0.1 L	0.2 L	0.3 L	0.4 L	0.5 L	0.6 L	0.7 L	0.8 L	0.9 L	1.0 L
Y	1000	748	552	412	328	300	328	412	552	748	1000

X = DISTANCE ALONG BOX GIRDER CENTER LINE.
Y = DISTANCE (mm) FROM BOTTOM OF BOX TO TENDONS CENTER OF GRAVITY.

Pj = SEE NOTES 5 & 6

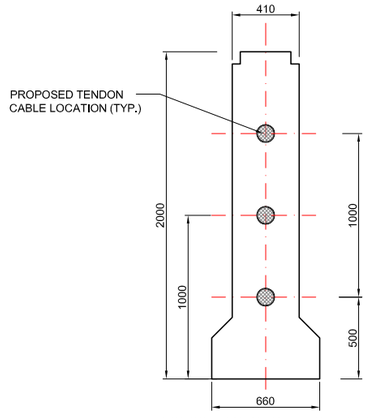
PRECAST POST-TENSIONING PROFILE
CENTER LINE OF FORCES
SCALE 1:75



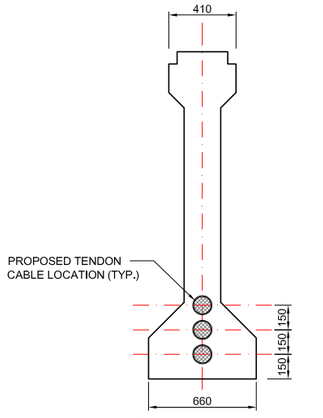
X	0.0 L	0.1 L	0.2 L	0.3 L	0.4 L	0.5 L	0.6 L	0.7 L	0.8 L	0.9 L	1.0 L
CABLE (1) Y	500	374	276	206	164	150	164	206	276	374	500
CABLE (2) Y	1000	748	552	412	328	300	328	412	552	748	1000
CABLE (3) Y	1500	1122	828	618	492	450	492	618	828	1122	1500

X = DISTANCE ALONG BOX GIRDER CENTER LINE.
Y = DISTANCE (mm) FROM BOTTOM OF BOX TO TENDONS CENTER OF GRAVITY.

PROPOSED PRECAST POST-TENSIONING PROFILE
CENTER LINES OF CABLES
SCALE 1:75



PROPOSED SECTION AT SUPPORT
N.T.S



PROPOSED SECTION AT MID SPAN
N.T.S

NOTES:

1- GIRDER CONCRETE SHALL BE OF GRADE 60 (CYLINDER STRENGTH OF 48 MPa) AND MAY BE STRESSED WHEN CONCRETE HAS ATTAINED A CYLINDRICAL STRENGTH OF 43 MPa.

2- THE CONTRACTOR SHALL PREPARE R/C SHOP DRAWINGS FOR BEAMS AND GET APPROVAL OF THE ENGINEER PRIOR TO MANUFACTURING.

3- THE METHOD OF STACKING OF BEAMS SHALL BE AGREED WITH THE ENGINEER.

4- BEAMS SHALL BE LIFTED VERTICALLY FROM THE LIFTING HOLES SHOWN AFTER PRESTRESSING AND WITHOUT CAUSING ANY HORIZONTAL FORCE ON THE BEAM.

5- CABLES SHALL CONSIST OF 22 No. 0,6" DIAMETER (AREA=140mm^2) LOW RELAXATION STRANDS AND MINIMUM BREAKING LOAD OF 260KN/STRAND.

6- THE JACKING FORCE FOR THE PROPOSED CABLES SHALL BE 12889.8 KN. STRESSED FROM BOTH ENDS AS SHOWN ON THE DRAWINGS.

7- THE POST-TENSIONING SYSTEM TO BE UTILIZED SHALL BE AS PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

8- THE PRESTRESSING DESIGN JACKING FORCE AND ELONGATION ARE BASED ON THE FOLLOWING PARAMETERS:-

WOBBLE COEFFICIENT	K = 0,0017/m
FRICTION CURVATURE COEFFICIENT	μ = 0,20
DRAW-IN WEDGE (ANCHORAGE SET)	5mm
MODULES OF ELASTICITY	195000 MPa
LONG TERM LOSSES	275 MPa

9- THE RECESS DETAIL FOR THE ANCHORAGE SHALL BE DEVELOPED TO SUIT THE PROPOSED POST-TENSIONING SYSTEM.

10- THE PRESTRESSING SYSTEM SHALL BE OF A WELL PROVEN INTERNATIONAL SYSTEM USING CAST ANCHORAGES & TO THE APPROVAL OF ENGINEER.

11- TENDON DUCTS & SYSTEM OF CABLE SUPPORTS INCLUDING THE SPACING SHALL BE TO THE APPROVAL OF THE ENGINEER.

12- ALL STRESSING COMPONENTS INCORPORATED IN THE WORKS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS & SPECIFICATIONS.

13- ALL TENDONS SHALL BE GROUTED. THE CONTRACTOR SHALL SUPPLY TO THE ENGINEER ALL DETAILS OF HIS PROPOSED TENDON GROUTING PROCEDURE & VETING LAYOUT FOR APPROVAL.

14- REINFORCING BARS SHALL BE SPACED TO CLEAR PRESTRESSING ANCHORAGES.

15- THE UPPER FACE OF THE PRECAST GIRDER SHALL BE INTENTIONALLY ROUGHEND BY MEANS SUBJECT TO THE ENGINEERS APPROVAL.

16- THE RECESSES FOR THE ANCHORS SHALL BE FILLED WITH PORTLAND CEMENT CONCRETE.

17- MIN. LAP LENGTH OF 60cm SHALL BE USED FOR THE SEGMENTS OF LONG PASSIVE REINFORCEMENT IN THE GIRDERS.

18- THE LONG TERM DEFLECTION OF DECK SLAB AT MID SPAN IS 38,9mm, AND THE IMMEDIATE CALCULATED DEFLECTION DUE TO GIRDER WEIGHT AND PRESSTRESSING AT MID SPAN IS 40,2mm. THE CONTRACTOR SHALL VERIFY THE IMMEDIATE DEFLECTION AND ADJUST THE CONSTRUCTION CAMBER ACCORDINGLY.

19- NEW ARRANGEMENT OF TENDONS CAN BE PROPOSED BY THE CONTRACTOR, IF APPROVED BY THE ENGINEER, PROVIDED THAT THE CENTER OF FORCE AT MID SPAN IS EQUIVALENT TO THE ARRANGMENT SHOWN ON THE DRAWING. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CALCULATIONS AND DETAILS REQUIRED FOR HIS NEW PROPOSED ARRANMENT.

20- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.

NOTES :

1-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.

2-SEE OTHER NOTES IN THE DRAWING.

Rev.	Date	Description	Checked
1			

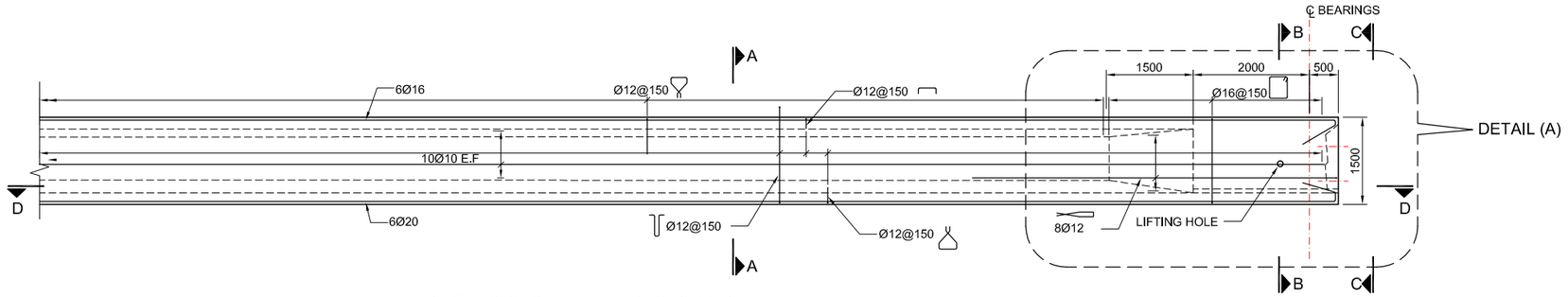
Client
Greater Amman Municipality

Project Name
BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16)
MAHATTA CONNECTOR

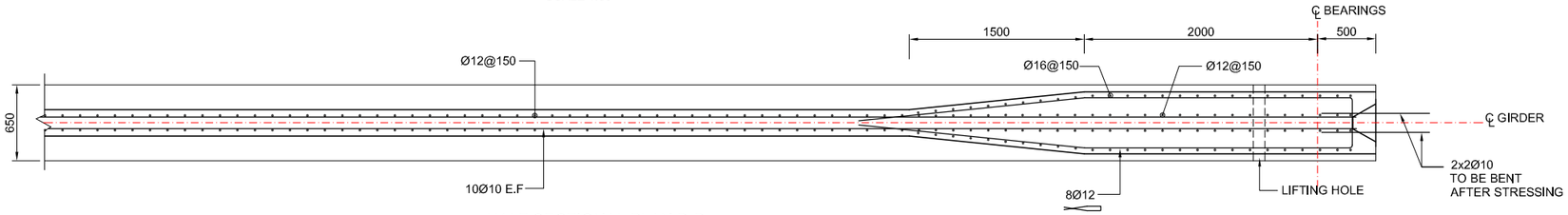
Consultants
steer davies gleave
CONSOLIDATED CONSULTANTS GROUP

Drawing Title
GIRDER (1) PRESTRESSING DEATILS

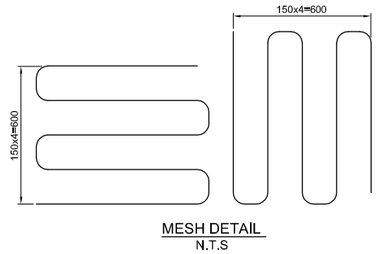
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-16		Rev. 00



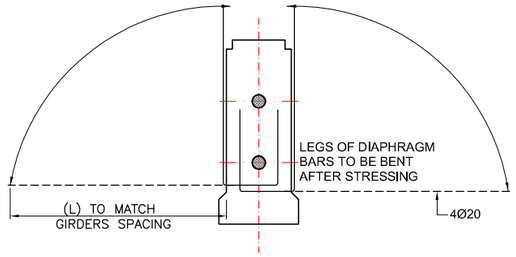
PARTIAL SECTIONAL ELEVATION OF GIRDER
SCALE 1:50



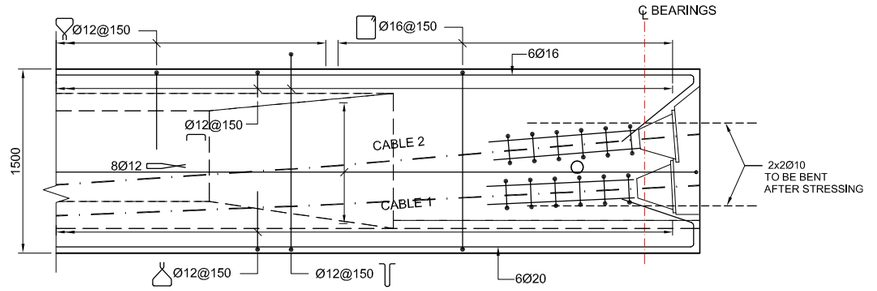
HALF SECTIONAL PLAN D-D
SCALE 1:25



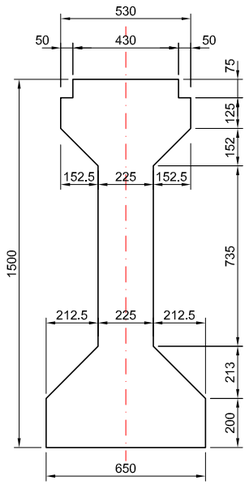
MESH DETAIL
N.T.S



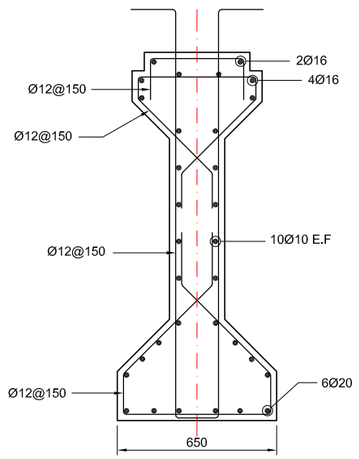
BARS BENT DETAIL
SCALE 1:25



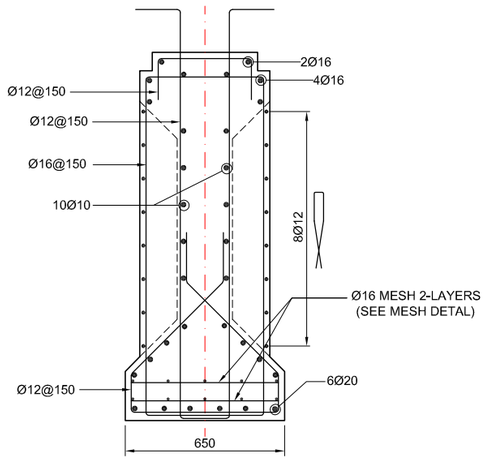
END BLOCK REINFORCEMENT
DETAIL (A)
SCALE 1:25



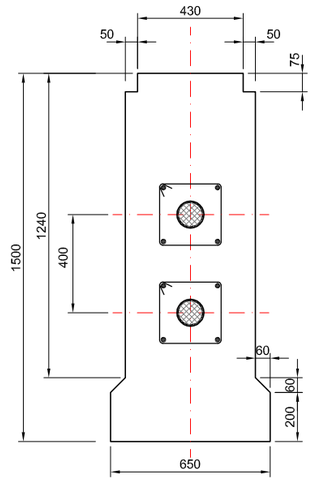
TYPICAL GIRDER (2) SECTION
SCALE 1:12.5



SECTION A-A
(REINFORCEMENT DETAIL)
SCALE 1:12.5



SECTION B-B
(REINFORCEMENT DETAIL)
SCALE 1:12.5



ELEVATION C-C
SCALE 1:12.5

NOTES :

1-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.

2-THE RECESS DETAILS FOR ANCHORAGE ARE ONLY SHOWN INDICATIONAL, THE CONTRACTOR SHALL DEVELOPE THESE REINFORCEMENT TO SUIT THE PROPOSED POST TENSIONING SYSTEM.

Rev.	Date	Description	Checked

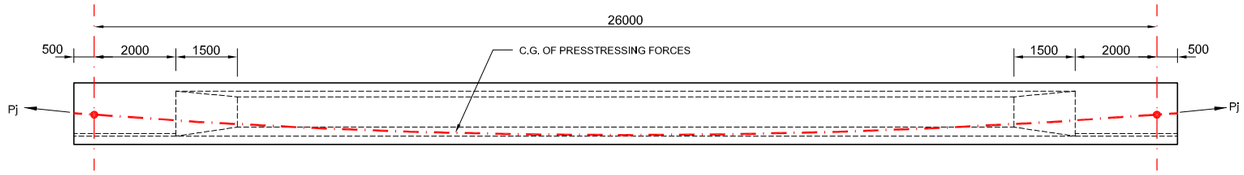
Client
Greater Amman Municipality

Project Name
BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16)
MAHATTA CONNECTOR

Consultants
steer davies gleave
CONSOLIDATED CONSULTANTS GROUP

Drawing Title
GIRDER (2) REINFORCEMENT DETAILS

Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-17		Rev. 00

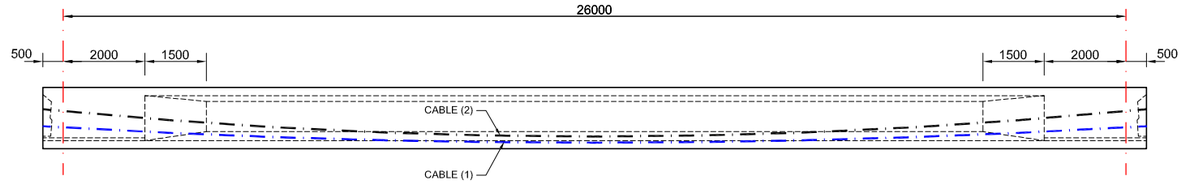


X	0.0 L	0.1 L	0.2 L	0.3 L	0.4 L	0.5 L	0.6 L	0.7 L	0.8 L	0.9 L	1.0 L
Y	725	545	405	305	245	225	245	305	405	545	725

X = DISTANCE ALONG BOX GIRDER CENTER LINE.
Y = DISTANCE (mm) FROM BOTTOM OF BOX TO TENDONS CENTER OF GRAVITY.

Pj = SEE NOTES 5 & 6

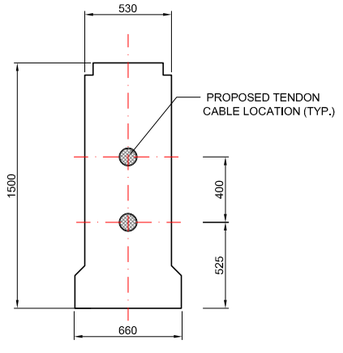
PRECAST POST-TENSIONING PROFILE
CENTER LINE OF FORCES
SCALE 1:75



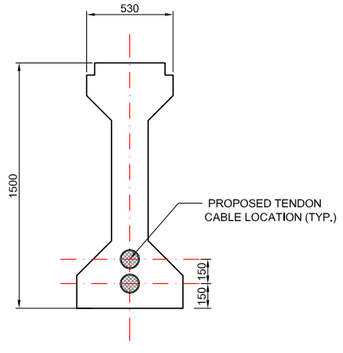
X	0.0 L	0.1 L	0.2 L	0.3 L	0.4 L	0.5 L	0.6 L	0.7 L	0.8 L	0.9 L	1.0 L
CABLE (1) Y	525	390	285	210	165	150	165	210	285	390	525
CABLE (2) Y	925	700	525	400	325	300	325	400	525	700	925

X = DISTANCE ALONG BOX GIRDER CENTER LINE.
Y = DISTANCE (mm) FROM BOTTOM OF BOX TO TENDONS CENTER OF GRAVITY.

PROPOSED PRECAST POST-TENSIONING PROFILE
CENTER LINES OF CABLES
SCALE 1:75



PROPOSED SECTION AT SUPPORT
SCALE 1:20



PROPOSED SECTION AT MID SPAN
SCALE 1:20

NOTES:

1- GIRDER CONCRETE SHALL BE OF GRADE 50 (CYLINDER STRENGTH OF 40 MPa) AND MAY BE STRESSED WHEN CONCRETE HAS ATTAINED A CYLINDRICAL STRENGTH OF 32 MPa.

2- THE CONTRACTOR SHALL PREPARE R/C SHOP DRAWINGS FOR BEAMS AND GET APPROVAL OF THE ENGINEER PRIOR TO MANUFACTURING.

3- THE METHOD OF STACKING OF BEAMS SHALL BE AGREED WITH THE ENGINEER.

4- BEAMS SHALL BE LIFTED VERTICALLY FROM THE LIFTING HOLES SHOWN AFTER PRESTRESSING AND WITHOUT CAUSING ANY HORIZONTAL FORCE ON THE BEAM.

5- CABLES SHALL CONSIST OF 17 No. 0,6" DIAMETER (AREA=140mm^2) LOW RELAXATION STRANDS AND MINIMUM BREAKING LOAD OF 260KN/STRAND.

6- THE JACKING FORCE FOR BOTH PROPOSED CABLES SHALL BE 6640.2 KN. STRESSED FROM BOTH ENDS AS SHOWN ON THE DRAWINGS.

7- THE POST-TENSIONING SYSTEM TO BE UTILIZED SHALL BE AS PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

8- THE PRESTRESSING DESIGN JACKING FORCE AND ELONGATION ARE BASED ON THE FOLLOWING PARAMETERS:-

WOBBLE COEFFICIENT	K = 0,0017/m
FRICTION CURVATURE COEFFICIENT	μ = 0.20
DRAW-IN WEDGE (ANCHORAGE SET)	5mm
MODULES OF ELASTICITY	195000 MPa
LONG TERM LOSSES	275 MPa

9- THE RECESS DETAIL FOR THE ANCHORAGE SHALL BE DEVELOPED TO SUIT THE PROPOSED POST-TENSIONING SYSTEM.

10- THE PRESTRESSING SYSTEM SHALL BE OF A WELL PROVEN INTERNATIONAL SYSTEM USING CAST ANCHORAGES & TO THE APPROVAL OF ENGINEER.

11- TENDON DUCTS & SYSTEM OF CABLE SUPPORTS INCLUDING THE SPACING SHALL BE TO THE APPROVAL OF THE ENGINEER.

12- ALL STRESSING COMPONENTS INCORPORATED IN THE WORKS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS & SPECIFICATIONS.

13- ALL TENDONS SHALL BE GROUTED. THE CONTRACTOR SHALL SUPPLY TO THE ENGINEER ALL DETAILS OF HIS PROPOSED TENDON GROUTING PROCEDURE & VETING LAYOUT FOR APPROVAL.

14- REINFORCING BARS SHALL BE SPACED TO CLEAR PRESTRESSING ANCHORAGES.

15- THE UPPER FACE OF THE PRECAST GIRDER SHALL BE INTENTIONALLY ROUGHEND BY MEANS SUBJECT TO THE ENGINEERS APPROVAL.

16- THE RECESSES FOR THE ANCHORS SHALL BE FILLED WITH PORTLAND CEMENT CONCRETE.

17- MIN. LAP LENGTH OF 60cm SHALL BE USED FOR THE SEGMENTS OF LONG PASSIVE REINFORCEMENT IN THE GIRDERS.

18- THE LONG TERM DEFLECTION OF DECK SLAB AT MID SPAN IS 38,9mm, AND THE IMMEDIATE CALCULATED DEFLECTION DUE TO GIRDER WEIGHT AND PRESSTRESSING AT MID SPAN IS 40,2mm. THE CONTRACTOR SHALL VERIFY THE IMMEDIATE DEFLECTION AND ADJUST THE CONSTRUCTION CAMBER ACCORDINGLY.

19- NEW ARRANGEMENT OF TENDONS CAN BE PROPOSED BY THE CONTRACTOR, IF APPROVED BY THE ENGINEER, PROVIDED THAT THE CENTER OF FORCE AT MID SPAN IS EQUIVALENT TO THE ARRANGMENT SHOWN ON THE DRAWING. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CALCULATIONS AND DETAILS REQUIRED FOR HIS NEW PROPOSED ARRANMENT.

20- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.

NOTES :

1-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.

2-SEE OTHER NOTES IN THE DRAWING.

Rev.	Date	Description	Checked

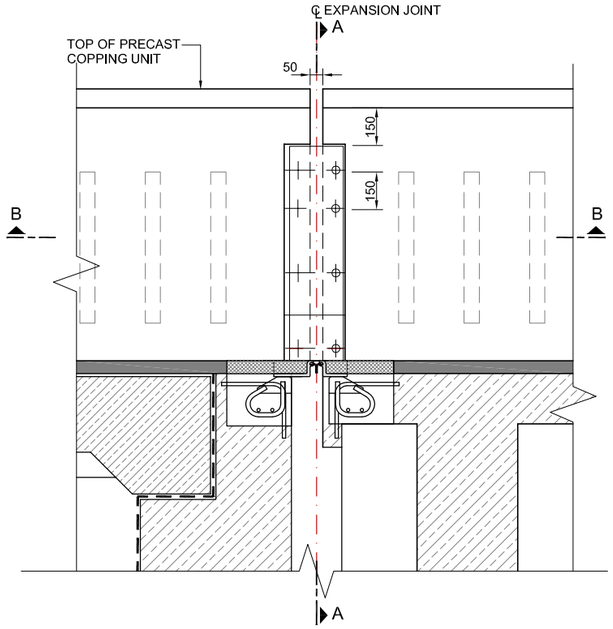
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

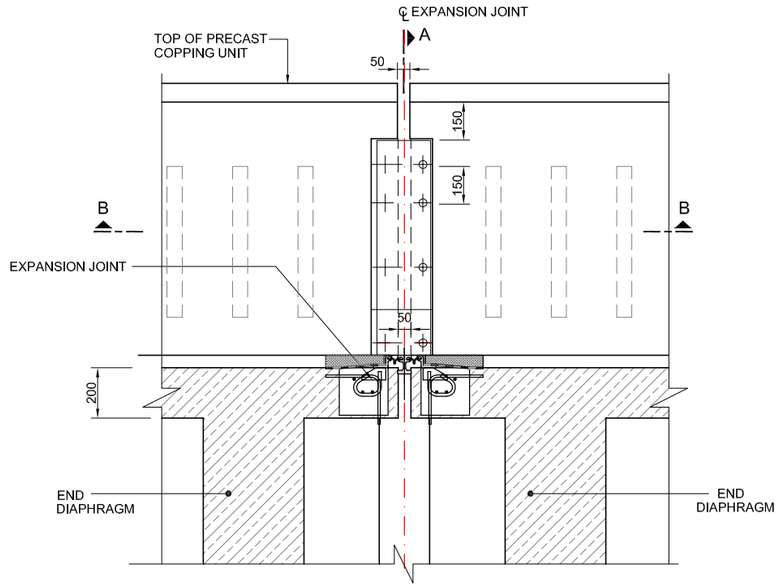
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: GIRDER (2) PRESTRESSING DEATILS

Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-18		Rev. 00



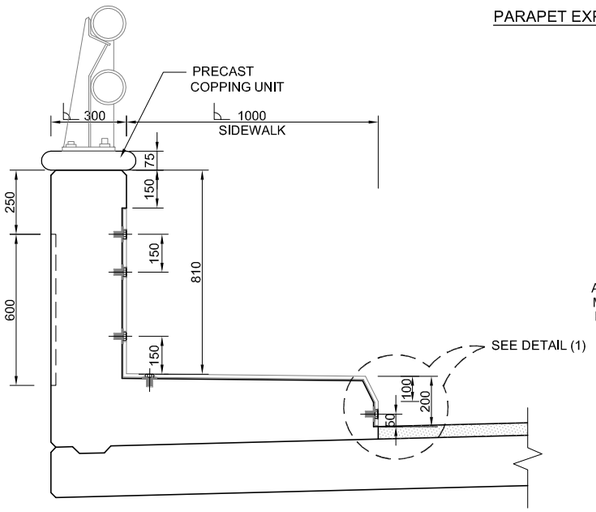
PARAPET EXPANSION JOINT ELEVATION AT ABUTMENT
SCALE 1:12.5



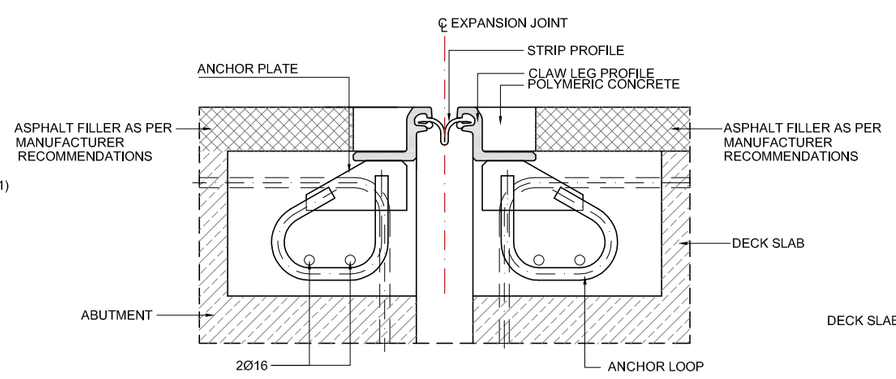
PARAPET EXPANSION JOINT ELEVATION AT PIERS (2 & 4)
SCALE 1:12.5

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. JOINT MOVEMENTS ARE BASED ON CASTING TEMPERATURE OF 30°C.THE CONTRACTOR SHALL ADJUST THE MOVEMENT RANGE DUE TO TEMPERA--TURE VARIATIONS AT CASTING.
3. THE CONTRACTOR SHALL SUBMIT COMPLETE DETAILS OF THE PROPOSED EXPANSION JOINT MEETING THE MOVE--MENT REQUIREMENTS.
4. EXPANSION JOINTS SHALL BE INSTALLED ACCORDING TO MANUFACTURERS RECOMMENDED PROCEDURES.
5. EXPANSION JOINT DETAILS SHOWN ARE ONLY INDICATIVE, THE CONTRACTOR SHOULD PROVIDE EXPANSION JOINT WHICH MEET THE MOVEMENT RANGE STATED IN THE DRAWINGS.

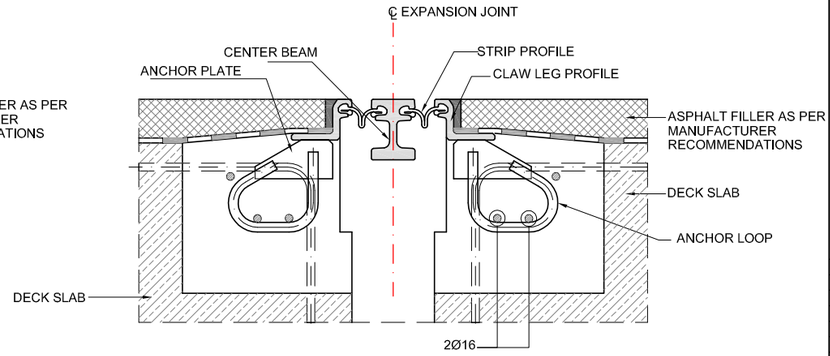


SECTION (A - A)
SCALE 1:12.5



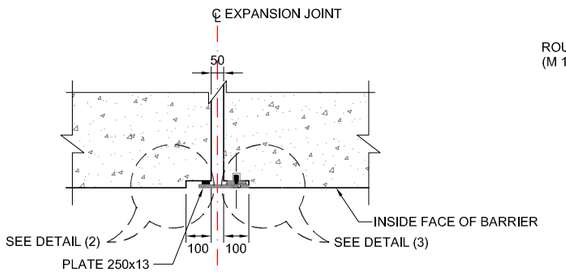
MIN. EXPANSION = 10mm
MIN. CONTRACTION = 25mm
TOTAL MOVEMENT = 35mm

MOVABLE EXPANSION JOINT DETAIL @ ABUTMENT
N.T.S

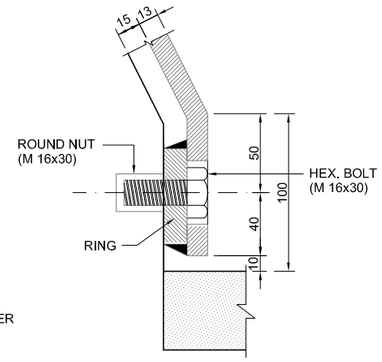


MIN. EXPANSION = 30mm
MIN. CONTRACTION = 70mm
TOTAL MOVEMENT = 100mm

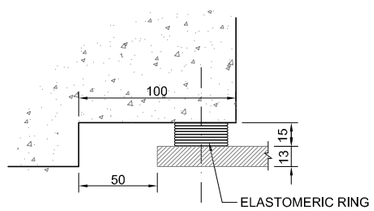
MOVABLE EXPANSION JOINT DETAIL @ PIERS (2 & 4)
N.T.S



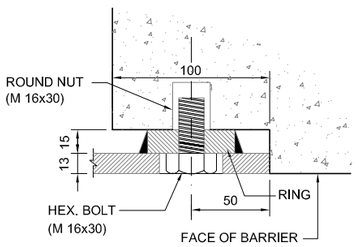
SECTION (B - B)
SCALE 1:12.5



DETAIL (1)
SCALE 1:2



DETAIL (2)
SCALE 1:2



DETAIL (3)
SCALE 1:2

BRIDGE PARAPET DETAILS AT EXPANSION JOINT

Rev.	Date	Description	Checked

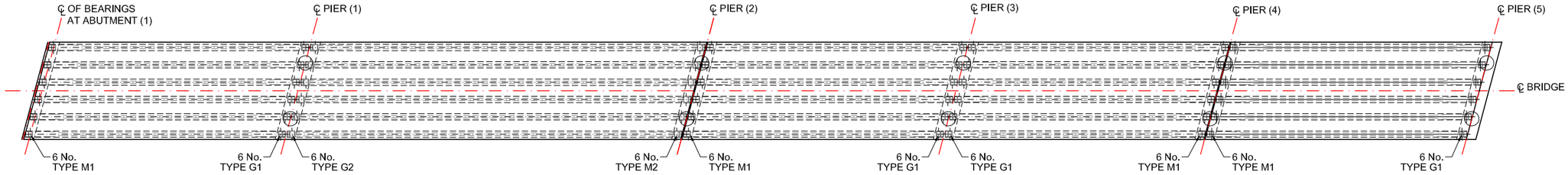
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

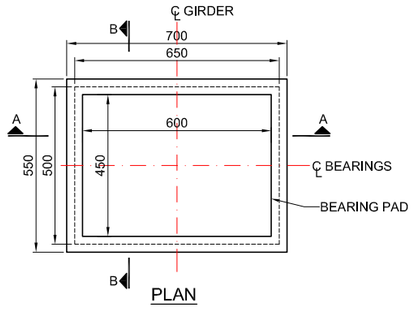
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: EXPANSION JOINT DETAILS

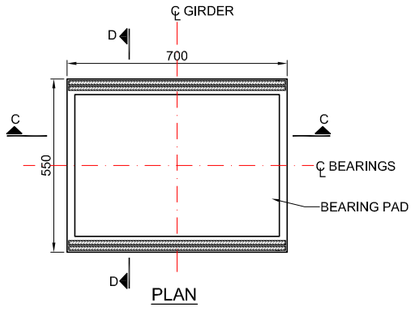
Designed By	S. ALSMADI	Date	MAY, 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-19		Rev. 00



BEARING ARRANGEMENT PLAN
SCALE 1:250



PLAN



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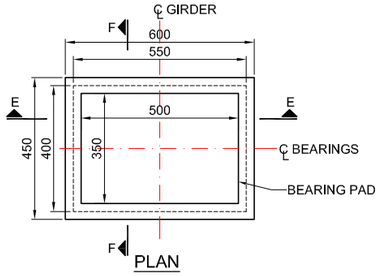
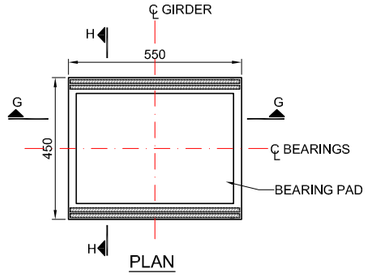
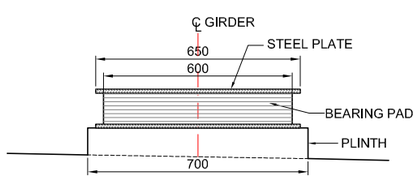


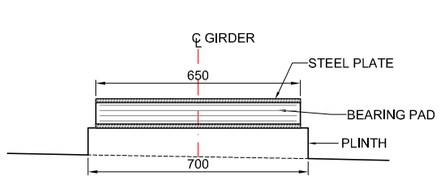
PLAN



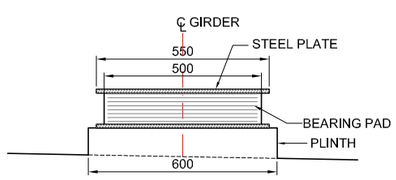
PLAN



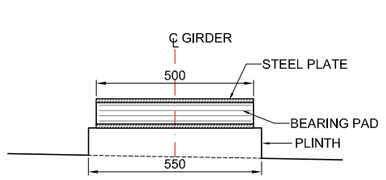
SECTION A-A



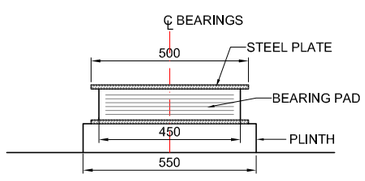
SECTION C-C



SECTION E-E

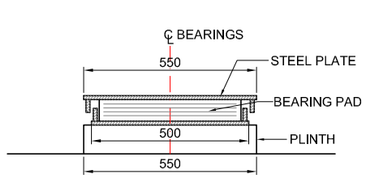


SECTION G-G



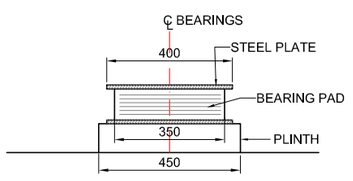
SECTION B-B

MOVABLE BEARING TYPE (M1)
SCALE 1:10



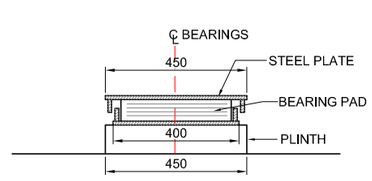
SECTION D-D

FIXED BEARING TYPE (G1)
SCALE 1:10



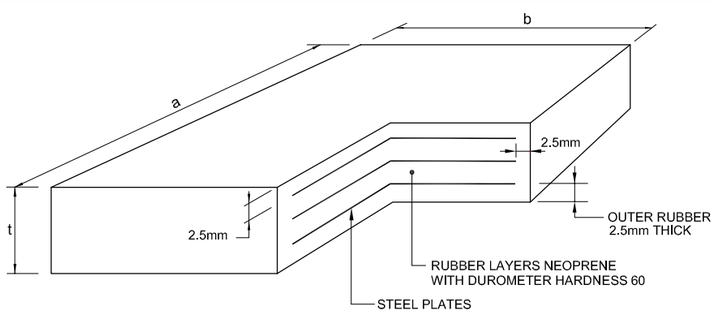
SECTION F-F

MOVABLE BEARING TYPE (M2)
SCALE 1:10



SECTION H-H

FIXED BEARING TYPE (G2)
SCALE 1:10



BEARING PAD DESCRIPTION

TYPE	DIMENSION cm.		MIN. RUBBER THICKNESS(cm) *SEE NOTE (7)
	a	b	
M1	350	500	70
G1	350	500	70
M2	450	600	85
G2	450	600	85

TYPICAL LAMINATED ELASTOMERIC BEARING PAD DETAILS

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. THE ELASTOMERIC BEARINGS CONSIST OF INDIVIDUAL LAYERS OF RUBBER WITH STEEL PLATES INSERTED BETWEEN THEM. HE STEEL PLATES AND RUBBER LAYERS ARE VULCANIZED TOGETHER GIVING A BOND ON THEIR CONNECTING FACES.
3. THE SYNTHETIC RUBBER SHALL HAVE THE FOLLOWING CHARACTERISTICS:
   - SHORE A HARDNESS 60 ± 5
   - TENSILE STRENGTH 175 kg/cm
4. ALL THE STEEL PLATES SHALL BE STAINLESS STEEL EPOXY-GLUED TO CONCRETE & ELASTOMERIC BEARINGS.
5. ASSUMED TEMPERATURE AT TIME OF SUPERSTRUCTURE POURING IS 30°C. THE CONTRACTOR SHALL ADJUST THE MOVEMENT DUE TO TEMPERATURE RISE AND FALL BASED ON ACTUAL TEMPERATURE AT TIME OF CASTING.
6. BEARINGS ARE TO BE PROVIDED WITH LOWER AND UPPER STEEL ANCHOR PLATES TO ALLOW FOR THE SIMPLE EXCHANGE OF BEARING WITH AMAXIMUM BRIDGE LIFTING OF 5mm.
7. MIN. RUBBER THICKNESS GIVEN IN THE TABLE DOES NOT INCLUDE THE REQUIRED STEEL PLATES IN THE LAMINATED ELMINATED ELASTOMERIC BEARING DIMENSION, SIZE AND No. SHALL BE AS PER MANUFACTURER RECOMMENDATIONS.

Rev.	Date	Description	Checked

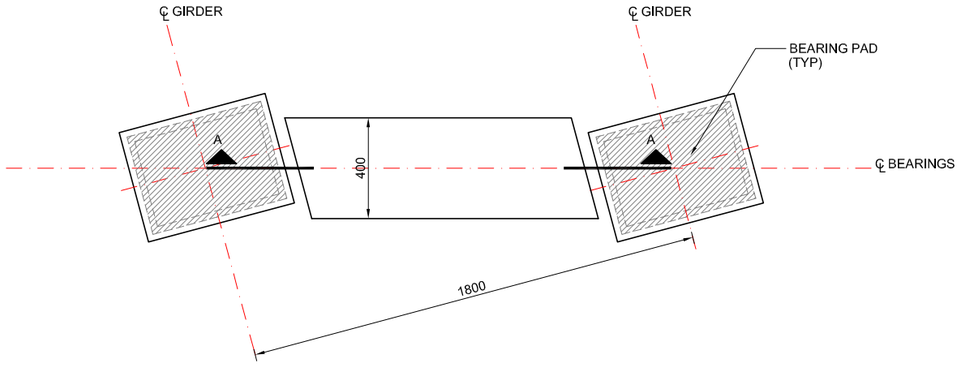
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

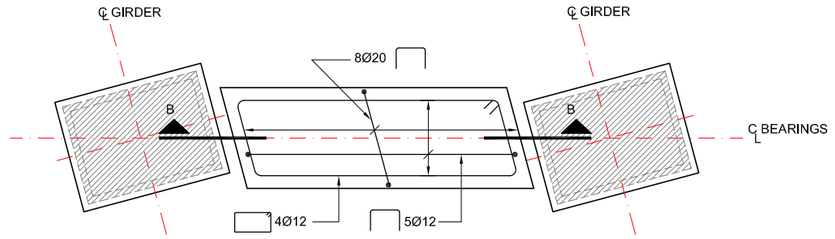
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: BEARINGS DETAILS

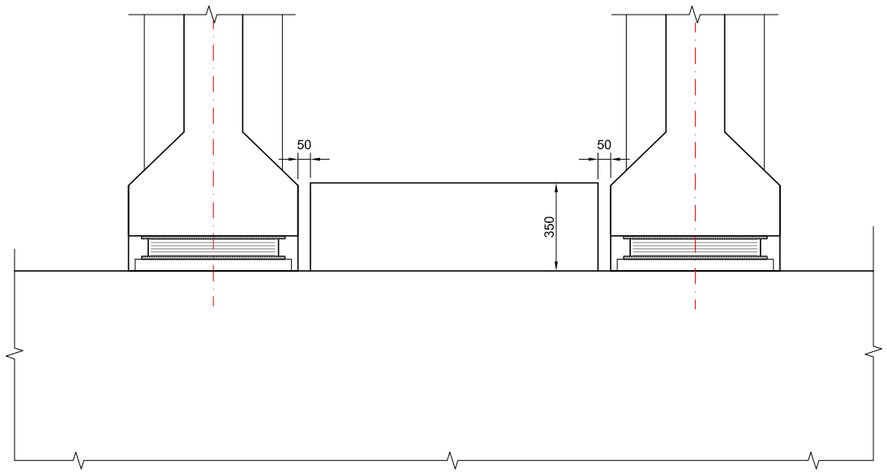
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-20		Rev. 00



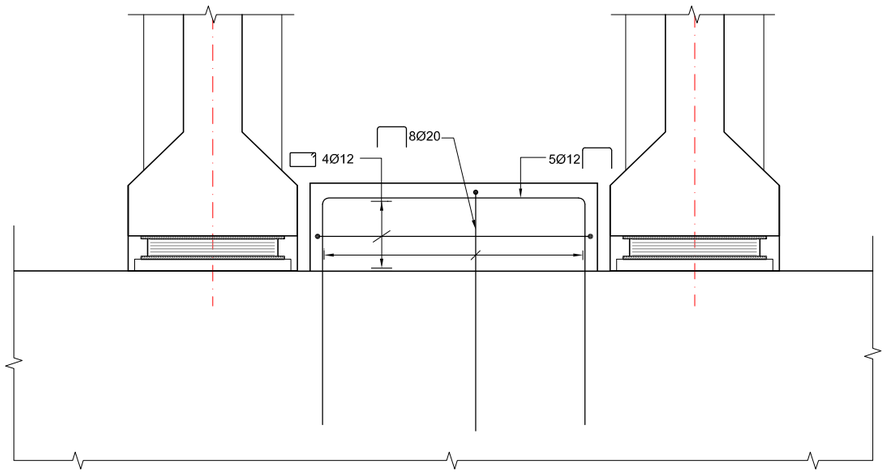
LATERAL BUFFER PLAN
SCALE 1:12.5



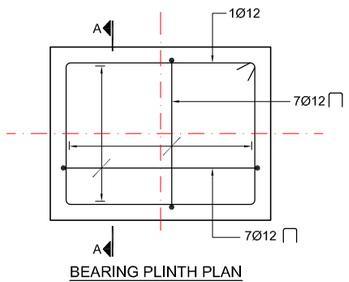
LATERAL BUFFER PLAN REINFORCEMENT
SCALE 1:12.5



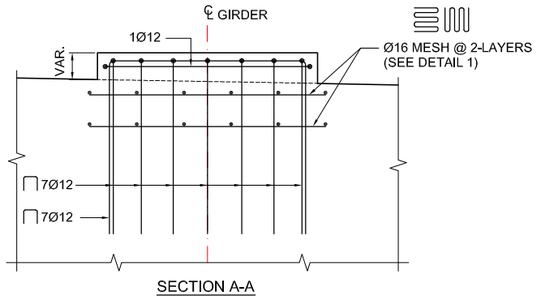
SECTION A-A
SCALE 1:12.5



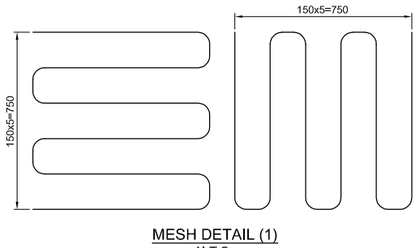
SECTION B-B
SCALE 1:12.5



BEARING PLINTH PLAN
N.T.S



SECTION A-A
N.T.S



MESH DETAIL (1)
N.T.S

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.

Rev.	Date	Description	Checked

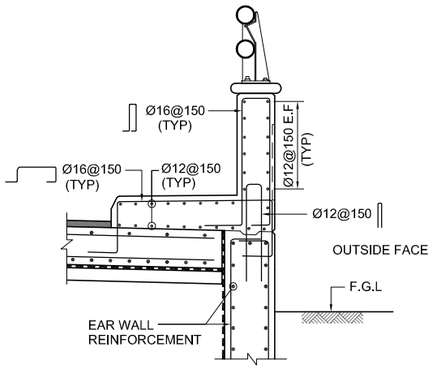
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

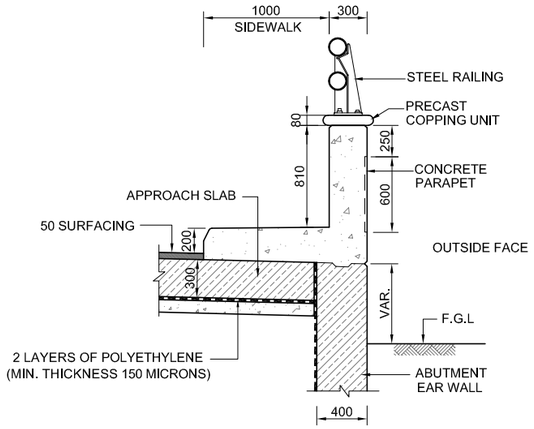
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: LATERAL BUFFER AND BEARING PLINTH

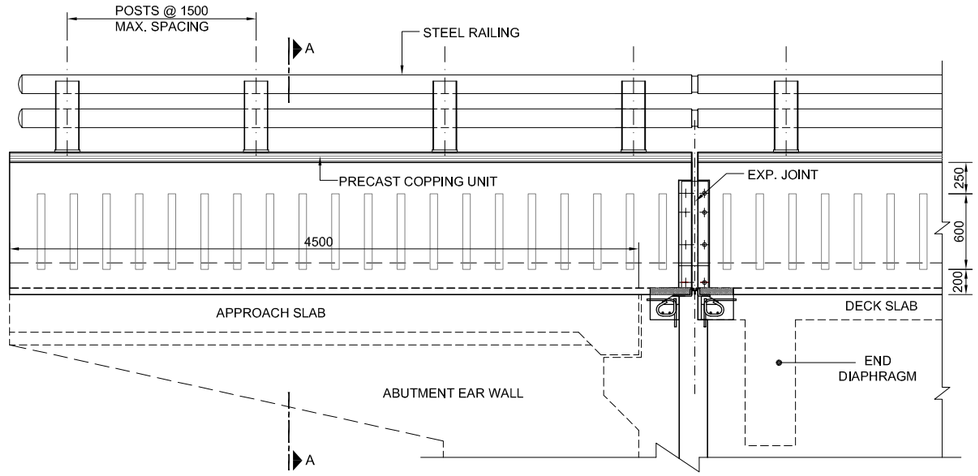
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-21		Rev. 00



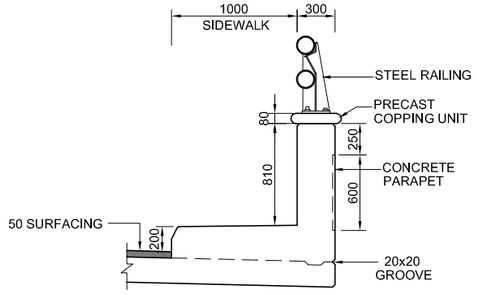
SECTION (A-A) RIENFORCEMENT
SCALE 1:25



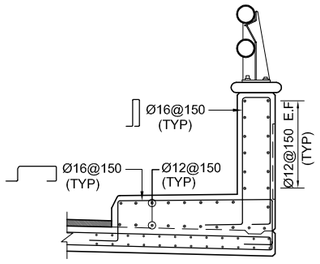
SECTION (A-A)
SCALE 1:25



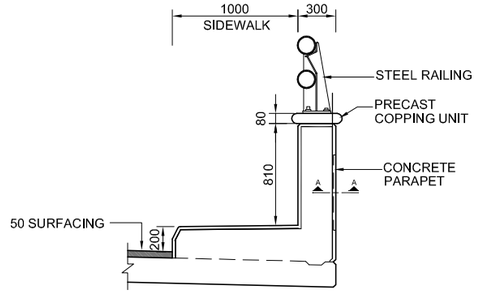
PARAPER ELEVATION
N.T.S



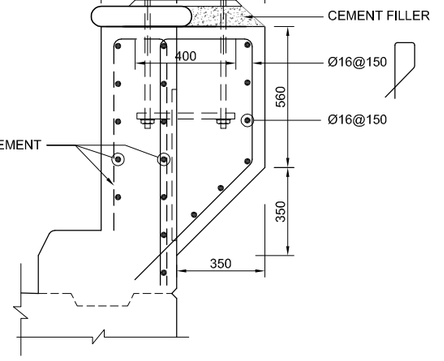
PARAPET DETAIL
SCALE 1:25



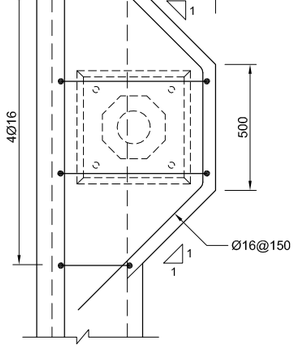
PARAPET REINFORCEMENT DETAIL
SCALE 1:25



JOINT ELEVATION
SCALE 1:25

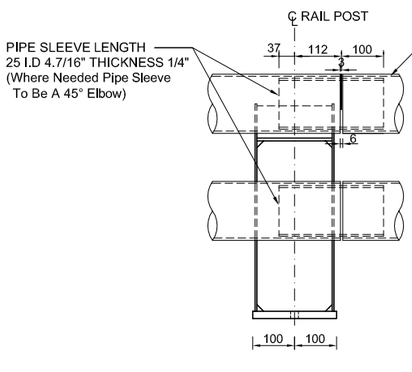


SECTIONAL ELEVATION
SCALE 1:12.5

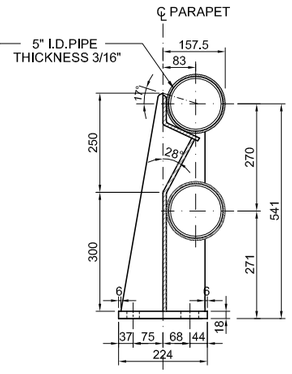


PLAN
SCALE 1:12.5

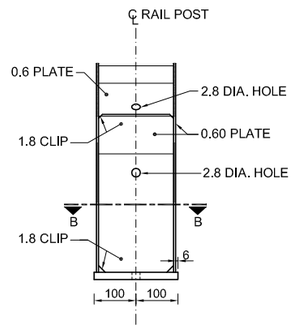
ADDITIONAL REINFORCEMENT AT LIGHT POLE LOCATION



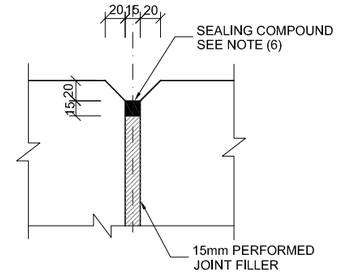
FRONT VIEW



SIDE VIEW



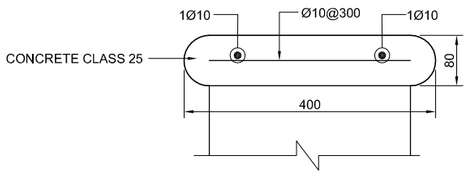
BACK VIEW



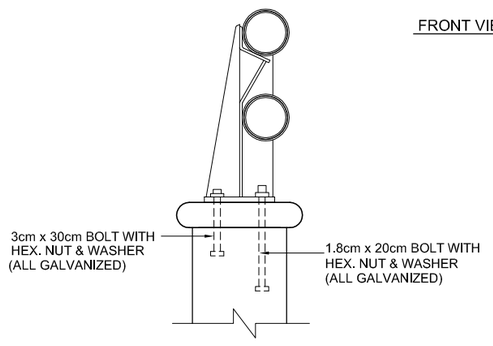
CONSTRUCTED AT EQUAL INTERVALS
BETWEEN BRIDGE EXPANSION JOINTS
WITH MAXIMUM SPACING OF 10m

SECTION A - A
N.T.S

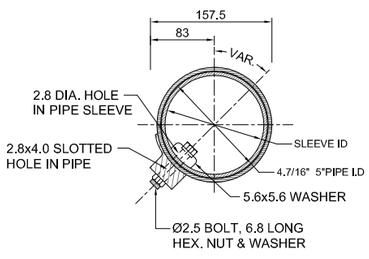
PARAPET JOINT DETAIL



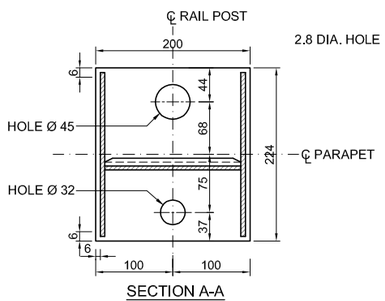
PRECAST COPPING UNIT
SCALE 1:5



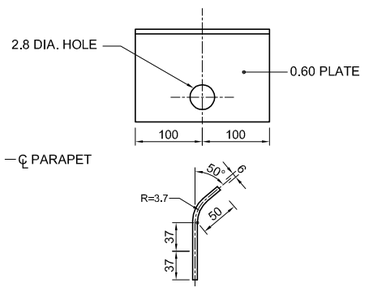
RAIL POST ANCHOR BOLT DETAIL



RAIL CONNECTION



SECTION A-A



RAIL FASTENING PLATE

STEEL RAIL DETAILS
N.T.S

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. ALL BARS REINFORCEMENT DIAMETER & SPACING ARE IN mm. UNLESS OTHERWISE INDICATED.

Rev.	Date	Description	Checked

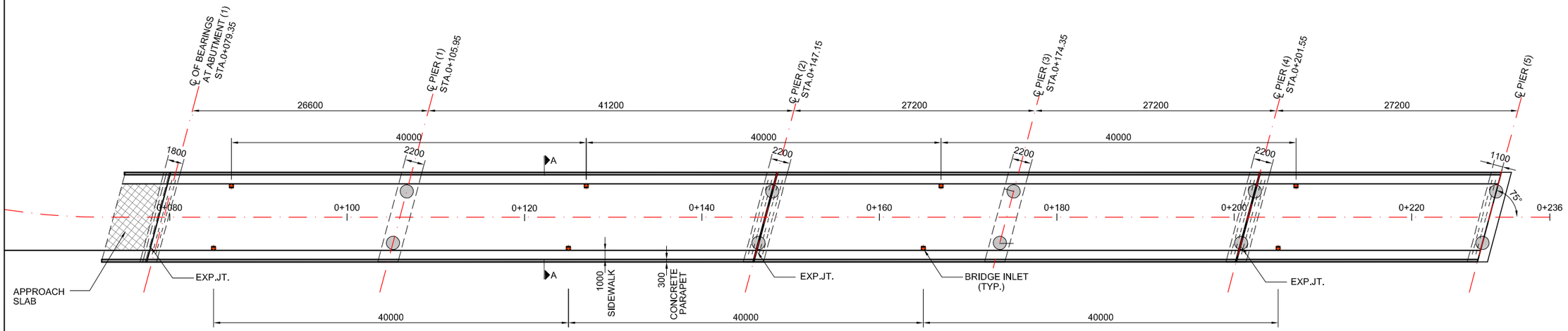
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

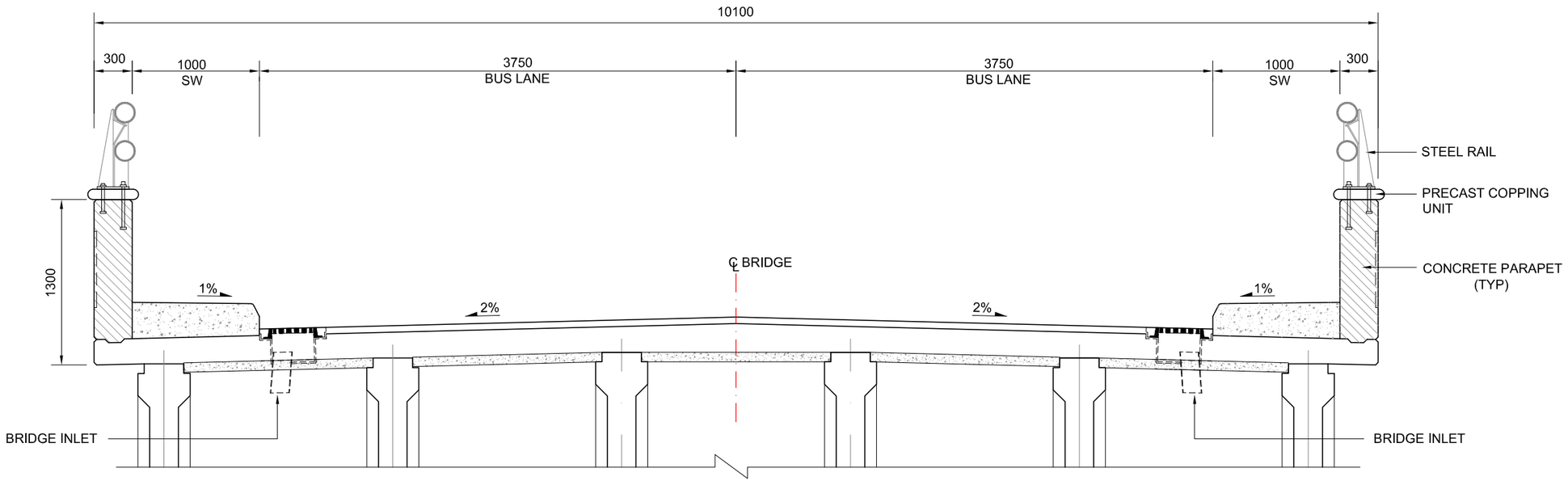
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: PARAPET AND RAILING DETAILS

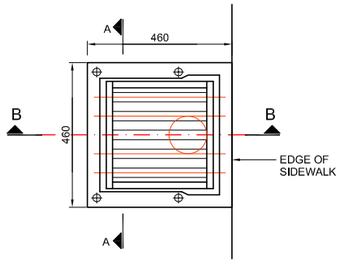
Designed By	S. ALSMADI	Date	MAY, 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. :	ST-22		Rev. 00



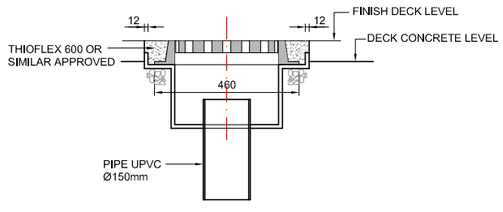
BRIDGE PLAN
SCALE 1:250



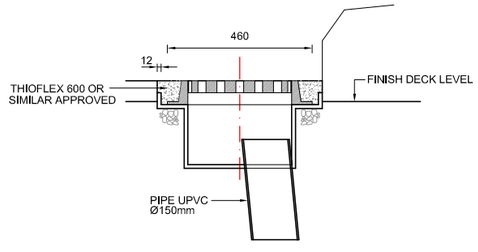
SECTION (A - A)
SCALE 1:20



PLAN ON BRIDGE INLET
SCALE: 1:10



SECTION A-A
SCALE: 1:10



SECTION B-B
SCALE: 1:10

NOTES :

1- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE INDICATED.

Rev.	Date	Description	Checked
1			

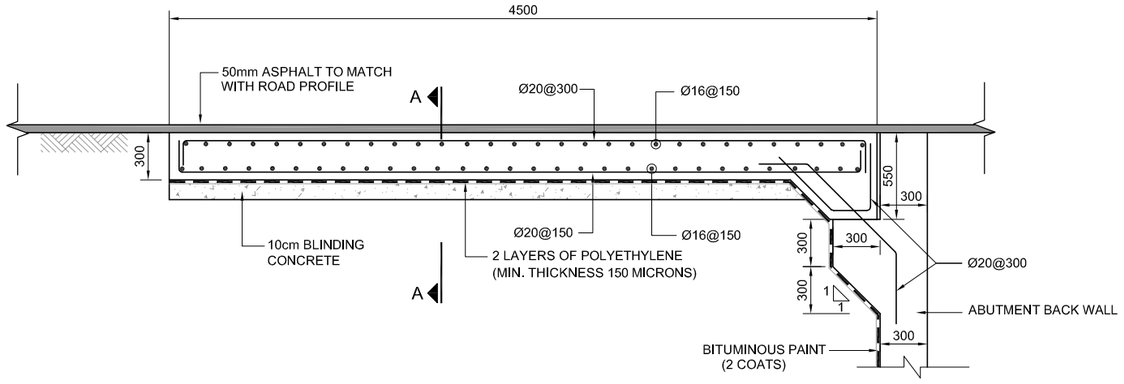
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

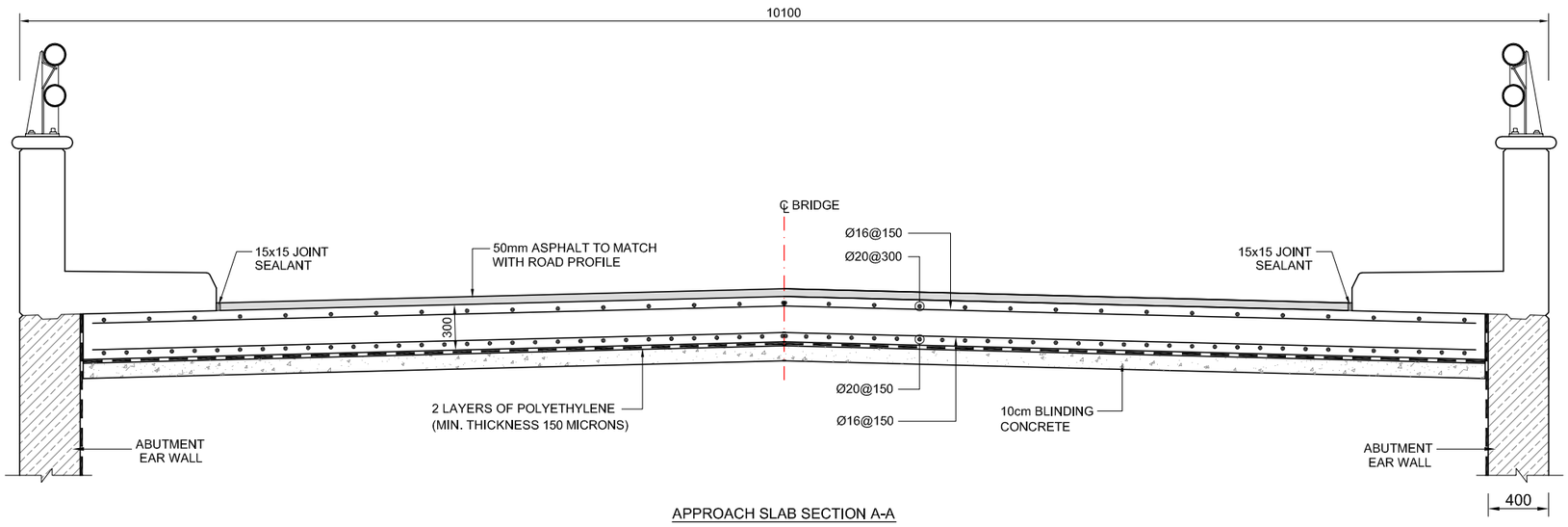
Consultants: steer davies gleave; Consolidated Consultants Group

Drawing Title: BRIDGE DRAINAGE DETAILS

Designed By	S. ALSMADI	Date	MAY, 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	AS SHOWN
Drawing No. : ST-23			Rev. 00



APPROACH SLAB TYPCAL CROSS SECTION



APPROACH SLAB SECTION A-A

NOTES :

1- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE INDICATED.

2- FOR PARAPET AND SIDEWALK DETAILS, SEE RELEVANT DRAWINGS.

Rev.	Date	Description	Checked

Client

Greater Amman Municipality

Project Name

BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants

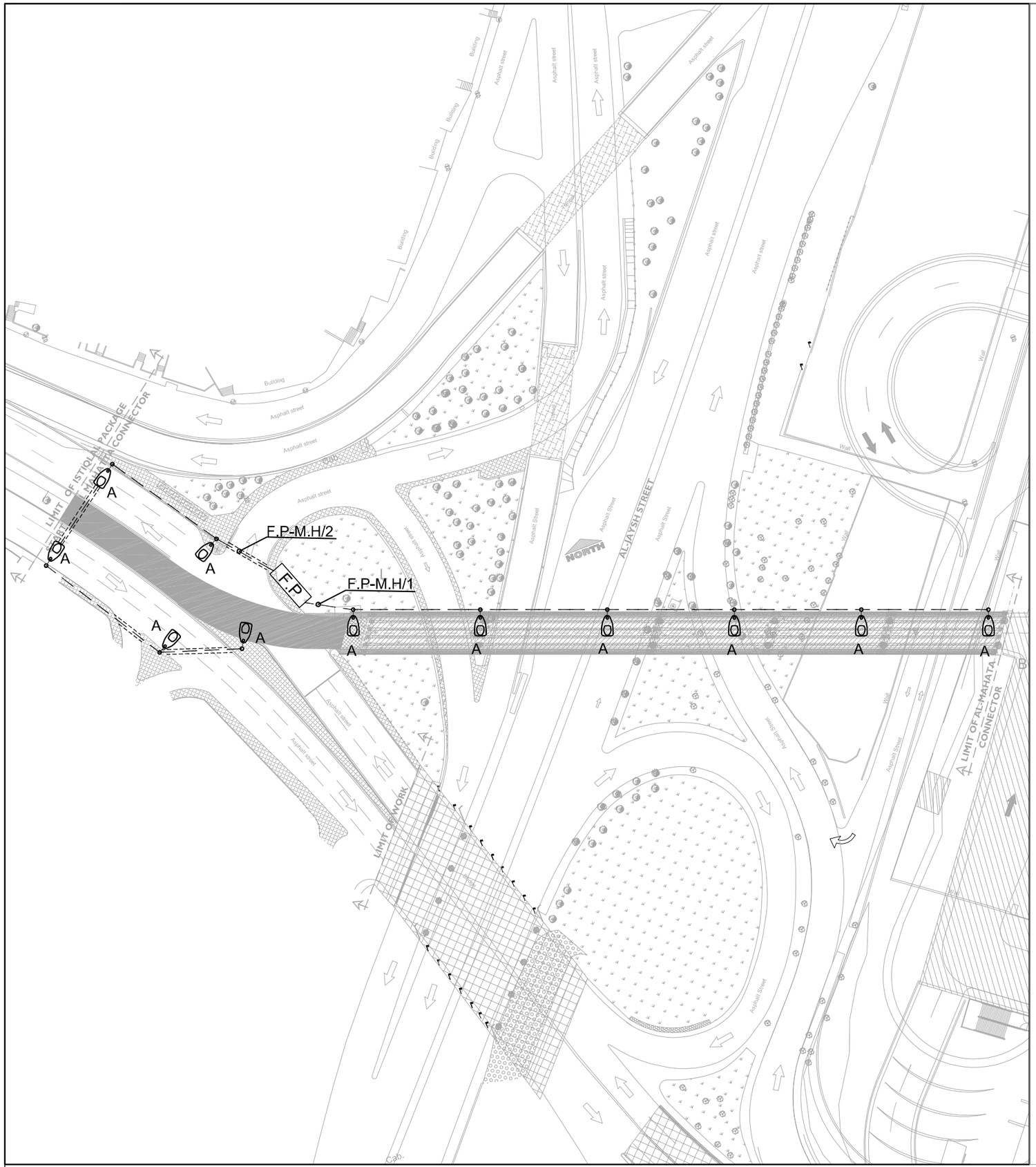
steer davies gleave

CONSOLIDATED CONSULTANTS GROUP

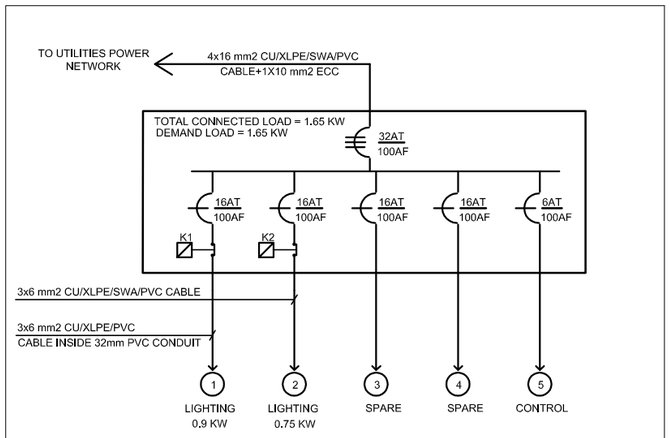
Drawing Title

APPROACH SLAB REINFORCEMENT DETAILS

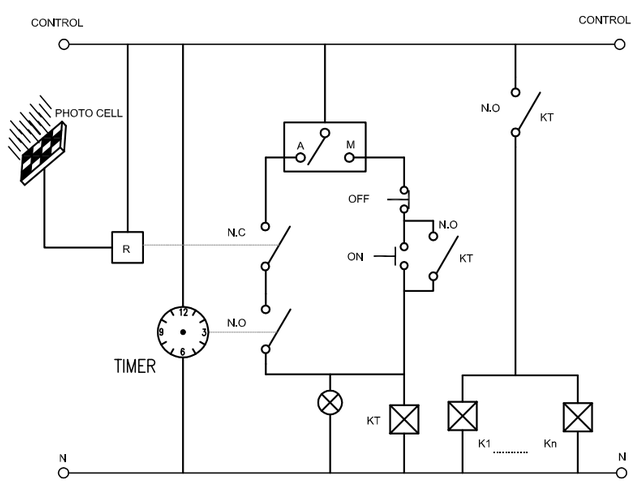
Designed By	S. ALSMADI	Date	MAY. 2018
Drawn By	E. HOSEH	Stage	–
Checked By	H. ALSALHI	Sheet Size	A1
Approved By	H. ALSALHI	Scale	1:20
Drawing No. :	ST-24		Rev. 00



SCALE:1:500



EXTERNAL LIGHTING PANEL {F.P-MH}



TYPICAL CONTROL CIRCUIT FOR F.P

SCALE:NTS

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS AND STATIONS ARE IN KILOMETERS, UNLESS OTHERWISE INDICATED.
2. THE FINAL SIZING FOR CABLES AND BREAKERS TO BE MODIFIED BY CONTRACTOR BASED ON THE FOLLOWING:
   - STREET LIGHTING FINAL SELECTION.
   - COORDINATION WITH JEPCO AND IMPLEMENT ANY REQUIRMENTS INCLUDING THE ACTUAL DISTANCE BETWEEN PANEL BOARDS AND ACTUAL LOCATIONS OF TRANSFORMERS.
   - FINAL LIGHTING, VOLTAGE DROP AND SHORT CIRCUIT CALULATIONS BASED ON ABOVE MENTIONED ITEMS AND REQUIRMENTS.
3. CABLES TO BE PROTECTED BY UPVC CONDUIT WITH CONCRETE ENCASEMENT AT EACH ROAD CROSSING .
4. BOLTS AND CONDUITS TO BE FIXED BY MEANS OF A TEMPLATE WHILE CASTING THE BLOCK.
5. THE STEEL WIRE ARMOUR OF THE CABLES TO BE BONDED TO THE POLE BY MEANS OF SUITABLE CLAMPS.
6. EACH PANEL BOARDS SHOULD HAVE ITS EARTHING ROD IN ADDITION TO MAIN EARTHING LEAD.
7. IT IS THE CONTRACTOR RESPONSIBILITY TO PROVIDE FOR THE ENGINEERS APPROVAL A COMPLETE LIGHTING STUDY ,WHERE THE FOLLOWING VALUES FOR ROAD PARAMETERS SHALL BE ACHIEVED;
   - Lm >= 1.5 cd/m2
   - U0 >= 0.4
   - Ul >= 0.7
   - TI =< 10
   - SR >= 0.5

LEGEND:

A 10 B	10 METER HEIGHT SINGLE ARM STREET LIGHTING POLE WITH **1 NO.LED LUMINARE WITH WATTAGE ≤ 150 WATT, AND WITH EFFICACY ≥ 140 LUMEN/WATT, AND CCT ≥ 4500 K** IP66 , HOUSING MADE OF DIE-CAST ALUMINUM ,
F.P X	ROAD LIGHTING FEEDER PILLAR X INDICATES FEEDER PILLAR TAG
	UPVC CONDUIT WITH CONCRETE ENCASEMENT

Rev.	Date	Description	Checked
1			

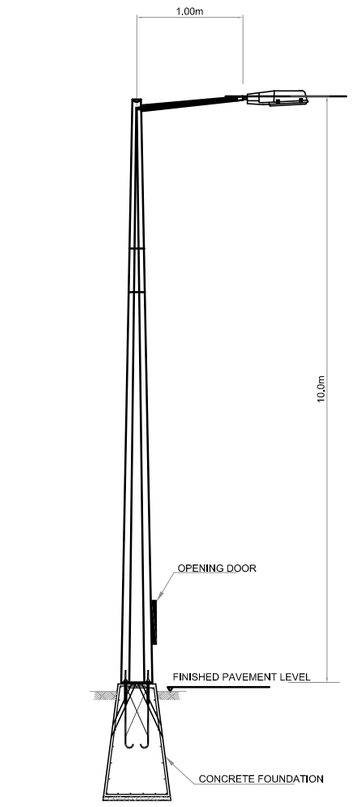
Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

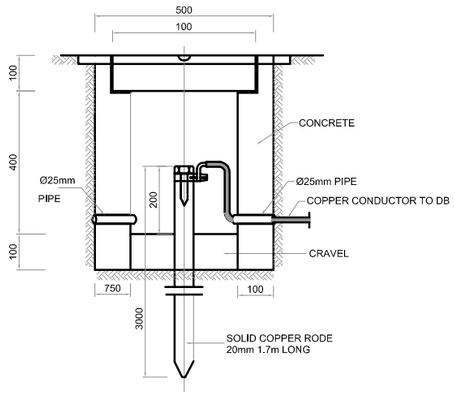
Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: ROAD LIGHTING LAYOUT & FEEDER PILLAR DETAILS

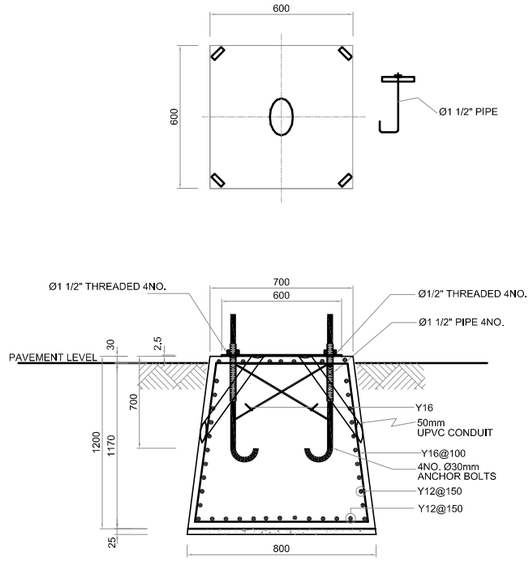
Designed By	R.ALAHWAL	Date	MAY. 2018
Drawn By	R.ALAHWAL	Stage	–
Checked By	H.KHALIL	Sheet Size	A1
Approved By	S.AYYASH	Scale	AS SHOWN
Drawing No. : EL-01			Rev. 00



10m SINGLE SIDED HIGH LIGHTING POLE

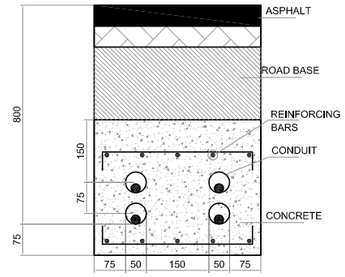


EARTHING DETAIL
M.H WITH COPPER ROD

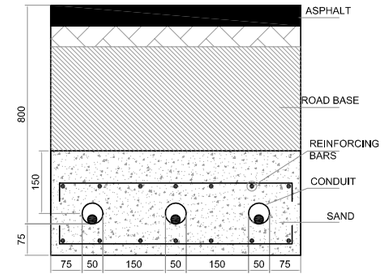


STREET LIGHTING BASE DETAIL

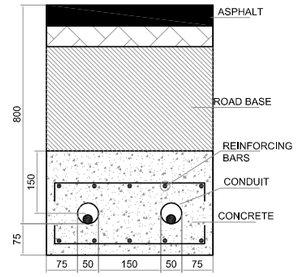
DETAIL (1): STREET LIGHTING DETAILS - SCALE: NTS



4-CONDUITS

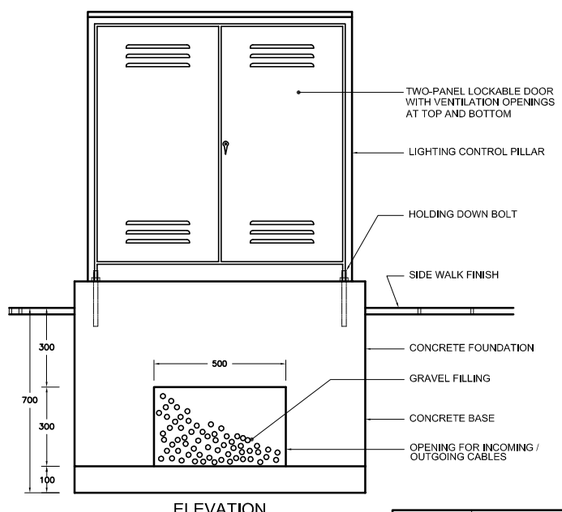


3-CONDUITS

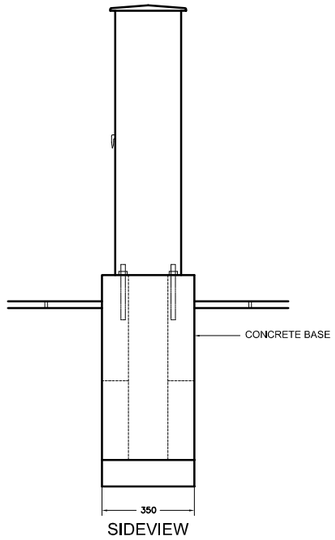


2-CONDUITS

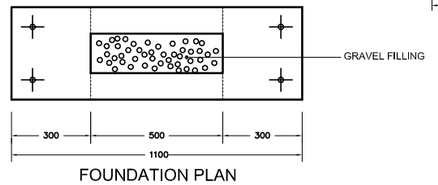
DETAIL (2): STREET LIGHTING CABLES IN STREET CROSSING - SCALE: NTS



ELEVATION



SIDEVIEW



FOUNDATION PLAN

DETAIL (3): FEEDER PILLAR INSTALLATION DETAILS - SCALE: NTS

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS AND STATIONS ARE IN KILOMETERS, UNLESS OTHERWISE INDICATED.
2. THE FINAL SIZING FOR CABLES AND BREAKERS TO BE MODIFIED BY CONTRACTOR BASED ON THE FOLLOWING:
   - STREET LIGHTING FINAL SELECTION.
   - COORDINATION WITH JEPCO AND IMPLEMENT ANY REQUIRMENTS INCLUDING THE ACTUAL DISTANCE BETWEEN PANEL BOARDS AND ACTUAL LOCATIONS OF TRANSFORMERS.
   - FINAL LIGHTING, VOLTAGE DROP AND SHORT CIRCUIT CALULATIONS BASED ON ABOVE MENTIONED ITEMS AND REQUIRMENTS.
3. CABLES TO BE PROTECTED BY UPVC CONDUIT WITH CONCRETE ENCASEMENT AT EACH ROAD CROSSING .
4. BOLTS AND CONDUITS TO BE FIXED BY MEANS OF A TEMPLATE WHILE CASTING THE BLOCK.
5. THE STEEL WIRE ARMOUR OF THE CABLES TO BE BONDED TO THE POLE BY MEANS OF SUITABLE CLAMPS.
6. EACH PANEL BOARDS SHOULD HAVE ITS EARTHING ROD IN ADDITION TO MAIN EARTHING LEAD.
7. IT IS THE CONTRACTOR RESPONSIBILITY TO PROVIDE FOR THE ENGINEERS APPROVAL A COMPLETE LIGHTING STUDY ,WHERE THE FOLLOWING VALUES FOR ROAD PARAMETERS SHALL BE ACHIEVED:
   - Lm >= 1.5 cd/m2
   - U0 >= 0.4
   - Ul >= 0.7
   - TI =< 10
   - SR >= 0.5

LEGEND:

A	10 METER HEIGHT SINGLE ARM STREET LIGHTING POLE WITH **1 NO.LED LUMINAIRE WITH WATTAGE ≤ 150 WATT, AND WITH EFFICACY ≥ 140 LUMEN/WATT, AND CCT ≥ 4500 K** IP66 , HOUSING MADE OF DIE-CAST ALUMINUM ,
F.P X	ROAD LIGHTING FEEDER PILLAR X INDICATES FEEDER PILLAR TAG
	UPVC CONDUIT WITH CONCRETE ENCASEMENT

Rev.	Date	Description	Checked

Client: Greater Amman Municipality

Project Name: BUS RAPID TRANSIT (BRT) SYSTEM IN AMMAN - PACKAGE (16) MAHATTA CONNECTOR

Consultants: steer davies gleave; CONSOLIDATED CONSULTANTS GROUP

Drawing Title: TYPICAL DETAILS

Designed By	R.ALAHWAL	Date	MAY. 2018
Drawn By	R.ALAHWAL	Stage	–
Checked By	H.KHALIL	Sheet Size	A1
Approved By	S.AYYASH	Scale	NTS
Drawing No. : EL-02			Rev. 00