



Government of Nepal
Ministry of Physical Infrastructure and Transport
Department Of Roads
Development Cooperation Implementation Division
Strategic Road Connectivity & Trade Improvement Project
(SRCTIP)

**Detailed Design of Upgradation of Kamala- Dhalkebar- Pathlaiya
Road Section (130km) of Mahendra Highway and Bridges**

Final Design Report
Volume IV
Design Report & Drawing of Bridges

Bridge Name- Atabbe
Volume-2
Detailed Drawing

April, 2023

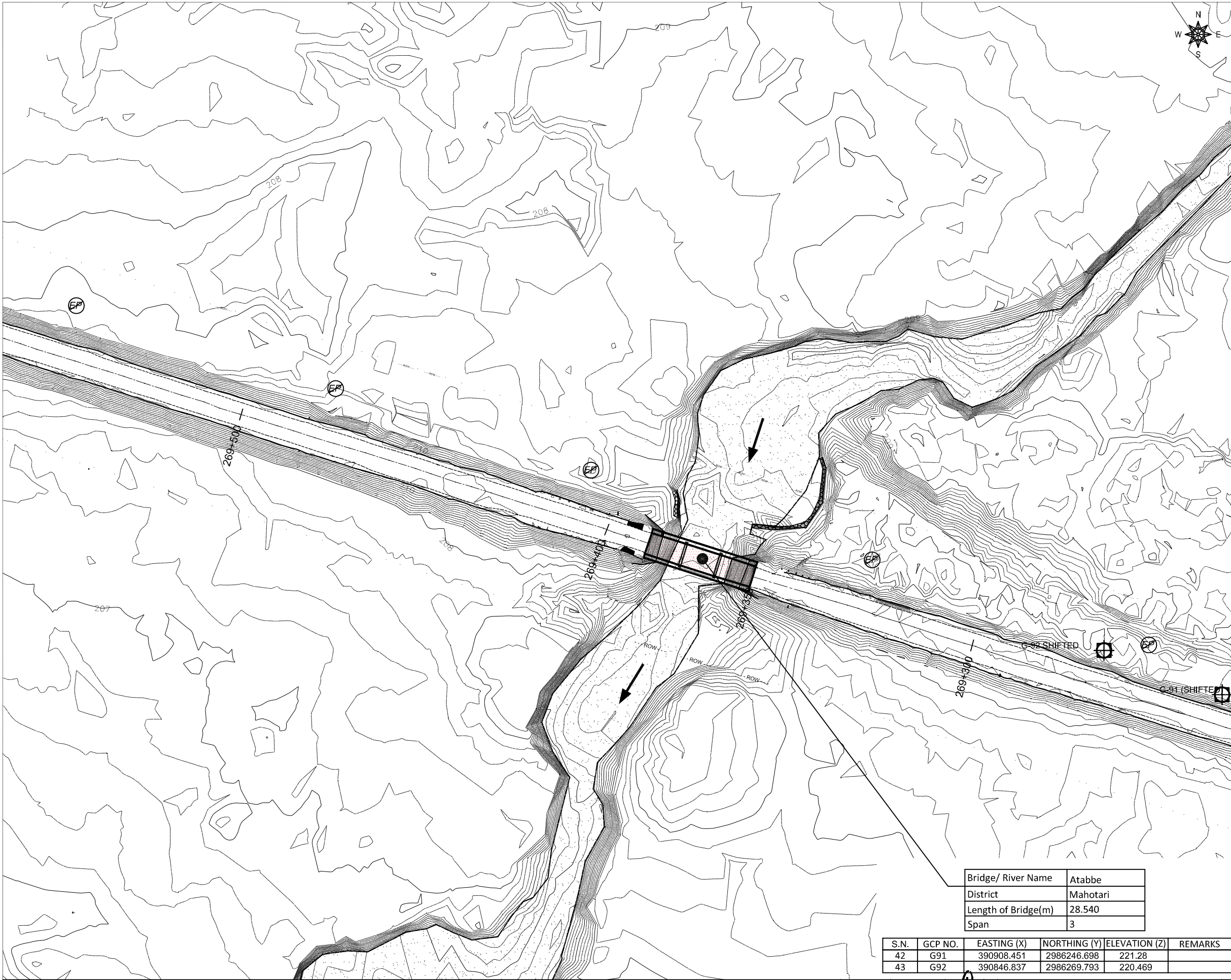
Joint Venture Of:

eptisa EPTISA Servicios De Ingenieria
Madrid, Spain

STUP STUP Consultants Private Limited
India

In Association With
Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited

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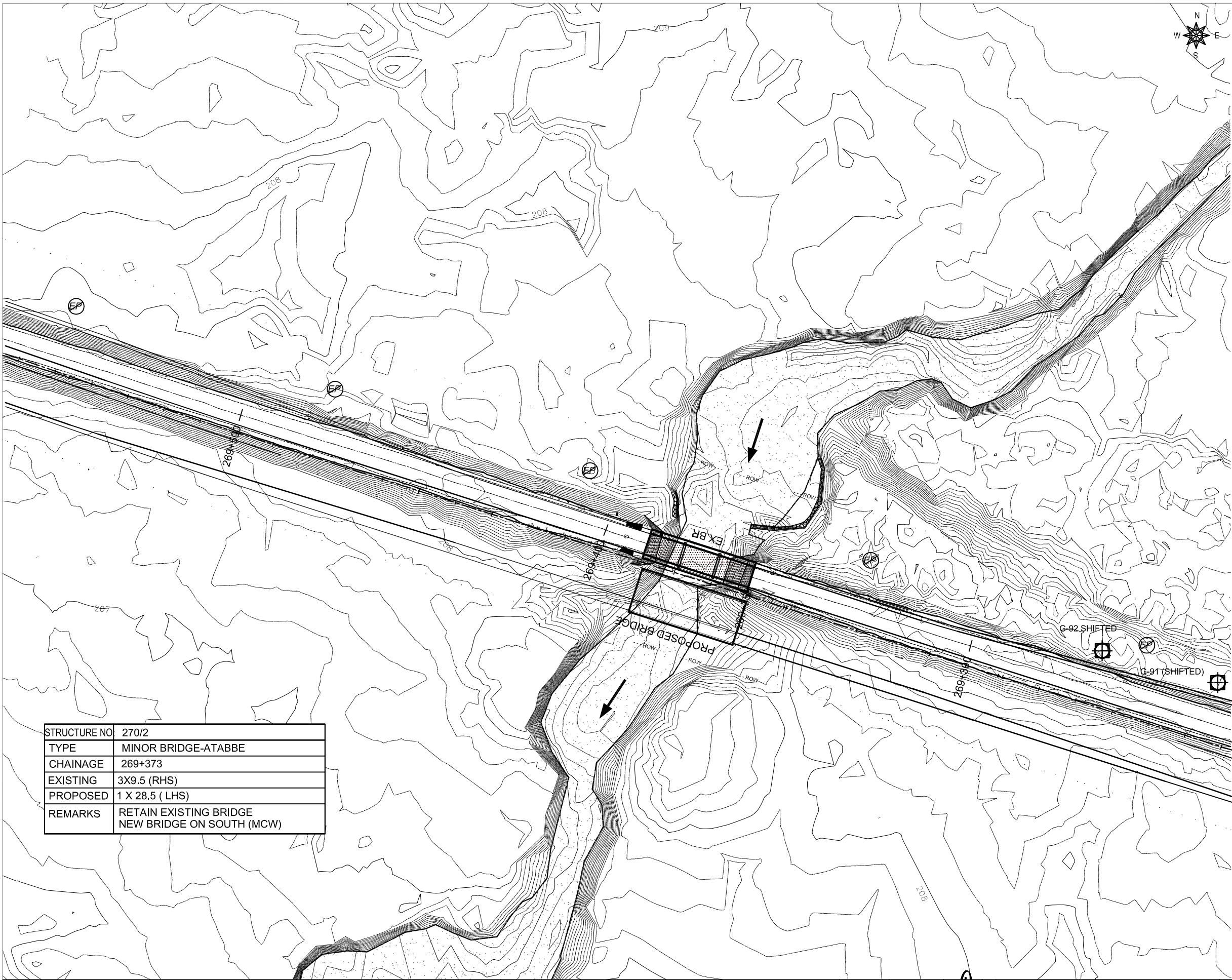


DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
MAIN FOOT TRAIL		ANIMAL FARM	
PLACE NAME		BAMBOO	
POLICE STATION		BIO GAS	
PETROL PUMP		BUS WAITING STATION	
Pond/ Water Body		BRIDGE	
POULTRY FARM		CONTOUR	
PROPERTY BOUNDARY		CANAL	
ROAD INFORMATION BOARD		CULVERT	
RIVER		CONTROL POINT (G)	
		CRUSHER	
SHED		DELINOTOR	
SAFTY TANK		ELECTRIC POLE	
SCHOOL		FACTORY	
STREET LIGHT		FEEDAR ROAD	
TAP		FISH FARM	
TEMPORARY HOUSE		FLOW DIRECTION	
TREE		GABION WALL	
TRANSMISSION LINE TOWER		HOSPITAL	
WELL		HAND PUMP	
TEMPLE		HOUSE	
CGI SHEET HOUSE		HOADING BOARD	
TOILET		CARRIAGE WAY	
WOODEN HOUSE		HUT	
WATER TANK		INDEX CONTOUR	
TRANSFORMER		KILOMETER POST	
SHOULDER		MONASTERY	

Bridge/ River Name	Atabbe
District	Mahotari
Length of Bridge(m)	28.540
Span	3

S.N.	GCP NO.	EASTING (X)	NORTHING (Y)	ELEVATION (Z)	REMARKS
42	G91	390908.451	2986246.698	221.28	
43	G92	390846.837	2986269.793	220.469	

 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	PROJECT NAME Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlalya Road Section (130 KM) of Mahendra Highway and Bridges	DESIGN CONSULTANTS Joint Venture of EPTISA Servicios De Ingenieria Madrid, Spain STUP Consultants Private Limited Kolkatta, India In Association With Udaya Consultancy, Geocom International, Sundar Krti Consultant and Rays Consultant Private Limited		Designed By Mr. R.D. Nec.No. 6489 CIVIL/AY 	Drawing Name DETAILED SURVEY TOPOGRAPHICAL MAP (EXISTING CONDITION) OF BRIDGE OVER RIVER ATABBE Reference Drawings	Scale: 1:1000 Chainage: 269+373	Date: 12.03.2023
				Checked By Mr. S.M. 			Drawing No.- KDP/DPR/STR/BR/ATABBE/DD- 2
				Approved By Mr. H.B. 			Sheet No. 1 / 1



STRUCTURE NO.	270/2
TYPE	MINOR BRIDGE-ATABBE
CHAINAGE	269+373
EXISTING	3X9.5 (RHS)
PROPOSED	1 X 28.5 (LHS)
REMARKS	RETAIN EXISTING BRIDGE NEW BRIDGE ON SOUTH (MCW)



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MAIN FOOT TRAIL		ANIMAL FARM	
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WOODEN HOUSE		HUT	
WATER TANK		INDEX CONTOUR	
TRANSFORMER		KILOMETER POST	
SHOULDER		MONASTERY	

EMPLOYER		PROJECT NAME		DESIGN CONSULTANTS		Designed By	Mr. R.D.		Drawing Name	DETAILED SURVEY TOPOGRAPHICAL MAP (WITH PROPOSED BRIDGE) OF BRIDGE OVER RIVER ATABBE	Scale:	1:1000	Date:	12.03.2023
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP)	Joint Venture of		Checked By	Mr. S.M.			Reference Drawings					Chainage:	269+373
		 EPTISA Servicios De Ingenieria Madrid, Spain	 STUP Consultants Private Limited Kolkatta, India		Approved By		Mr. H.B.					Sheet No. 1 / 1		
		In Association With Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited												

A. GENERAL

1. ALL DIMENSIONS ARE IN MILLIMETER AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. DIMENSIONS ARE NOT TO BE SCALED.
3. THE LAYOUT OF THE BRIDGE/CULVERT SHALL BE SET AS PER RELEVANT HIGHWAY PLAN AND PROFILE DRAWING,
4. THE FORMATION LEVEL GIVEN IN THIS DRAWING SHALL BE VERIFIED FROM THE RELEVANT HIGHWAY DRAWING. IN CASE OF ANY DISCREPANCY THE HIGHWAY DRAWING SHALL BE CONSIDERED CORRECT.

B. DESIGN CRITERIA

1. THE DESIGN HAS BEEN PREPARED BASED ON THE FOLLOWING CODES:

- a) NEPAL ROAD STANDARD 2070
b) IRC-5 2015
c) IRC-6 2017
d) IRC-78 2014
e) IRC-112 2020

2. TOTAL WIDTH OF THE BRIDGE DECK: 11.85 M (8 M WIDE CARRIAGEWAY + 2.5 M WIDE FOOTPATH) HOWEVER THIS BRIDGE IS DESIGNED FOR THE FOLLOWING CARRIAGEWAY LIVE LOADS AS PER IRC:6-2017
a) ONE LANE OF IRC CLASS 70R (WHEELED) FOR TWO LANES + ONE LANE OF IRC CLASS A
b) THREE LANES OF IRC CLASS A

3. SEISMIC ZONE CONSIDERED IN THE DESIGN IS ZONE-V.

4. LAYING, COMPACTION, & EXTENT OF BACKFILL BEHIND ABUTMENT & RETURN/RETAINING WALLS SHALL CONSIST OF SELECTED EARTH CONFORMING TO THE APPENDIX-6 OF IRC:78-2014 HAVING PROPERTIES C=0, =30° & DENSITY=20KN/m3.

5. 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL WALLS OF THE ABUTMENT AND RETURN WALL ABOVE GL. IN ONE OR TWO LAYERS AT A SLOPE OF 1 VERTICAL TO 20 HORIZONTAL TOWARDS THE DRAINING FACE.

C. HYDRAULIC DATA:-

1. DESIGN DISCHARGE, (Q100) - 33.03 CUMECs
2. HFL - 207.150M
3. FREE BOARD(MINIMUM) - 1M
4. MAXIMUM SCOUR LEVEL:
ABUTMENT - 204.220M

STRUCTURAL AND OTHER DATA:-

1. SPAN ARRANGEMENT: 1 x 28.5 = 28.5 M
2. SUPERSTRUCTURE:
PRECAST PSC LONGITUDINAL GIRDERS & CAST-IN-SITU RCC CROSS GIRDERS AND DECK SLAB.
3. SUBSTRUCTURE:
A) ABUTMENT - RCC WALL TYPE
4. FOUNDATION
A) ABUTMENT - 1200 DIA BORED CAST-IN-SITU PILE
DESIGN WORKING LOAD ON PILE - 266 TON
RCC BORED PILES SHOULD BE CONSTRUCTED AS PER IS: 2911(PART 1/SEC 2)-2010.
5. BEARINGS
FIXED BEARINGS
6. WEARING COAT:
65 MM THICK ASPHALTIC CONCRETE WEARING COAT AS PER STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE WORKS (2073) ,
DEPARTMENT OF ROADS
7. EXPANSION JOINT -
SLAB SEAL TYPE EXPANSION JOINT OF PROVEN QUALITY SHALL BE PROVIDED IN ACCORDANCE WITH IRC:SP-69-2005 (GUIDELINES AND SPECIFICATIONS OF EXPANSION JOINT)
8. DRAINAGE SPOUTS - AS PER STANDARD SPECIFICATION FOR ROAD & BRIDGE WORKS 2073
9. RAILINGS/CRASH BARRIER:
RCC CRASH BARRIER AT EDGES OF CARRIAGEWAY AND FOOTPATH
10. FOOTPATH
2.5m WIDE FOOTPATH AT OUTER EDGE OF DECK

11. CONCRETE:-

- a. PILE..... M35 (CEMENT CONTENT AS PER SPECIFICATION)
b. PILE CAP.....M35
c. BEARING PEDESTALS.....M40
d. ABUTMENTM35
e. RETURN WALL.....M35
f. LEVELING COURSE: I) BELOW APPROACH SLAB.....M15
a. II) BELOW PILE CAP.....M15
i. APPROACH SLABM30
j. CAST-IN-SITU CRASH BARRIERM40
k. KERBM35
l. DECK SLAB FOR PSC GIRDERS.....M45
m.PRECAST PSC GIRDERSM50
n. CAST-IN-SITU CROSS GIRDER FOR PSC.GIRDERS.....M45

12. REINFORCEMENT STEEL:-

- a. H.Y.S.D. BARS - GRADE 500 CONFORMING TO IS 1786
b. REINFORCEMENT WHERE EVER NECESSARY SHALL BE LOCALLY BENT OR ADJUSTED TO ENSURE PROPER CONCRETING.

13. PRESTRESSING STRAND -

- ALL PRESTRESSING STRANDS SHALL HAVE 7 PLY UNCOATED STRESS RELIEVED HIGH TENSILE STRAND OF 15.2 MM DIA CONFORMING TO CLASS 2 OF IS 14268-2017

14. CONCRETE COVER

1. DECK SLAB, GIRDER, PEDESTAL, CAP: 40 MM
2. SUBSTRUCTURE AND FOUNDATION: 75 MM

15. LAPS (Ls) ARE TO BE STAGGERED AND MINIMUM LAP LENGTH ARE TO BE AS FOLLOWS (UNLESS NOTED OTHERWISE):

- a) FOR M 30 GRADE CONCRETE : 57.2
b) FOR M 35 GRADE CONCRETE : 51.48
c) FOR M 40 GRADE CONCRETE : 48.62
d) FOR M 45 GRADE CONCRETE : 45.76
e) FOR M 50 GRADE CONCRETE : 41.47

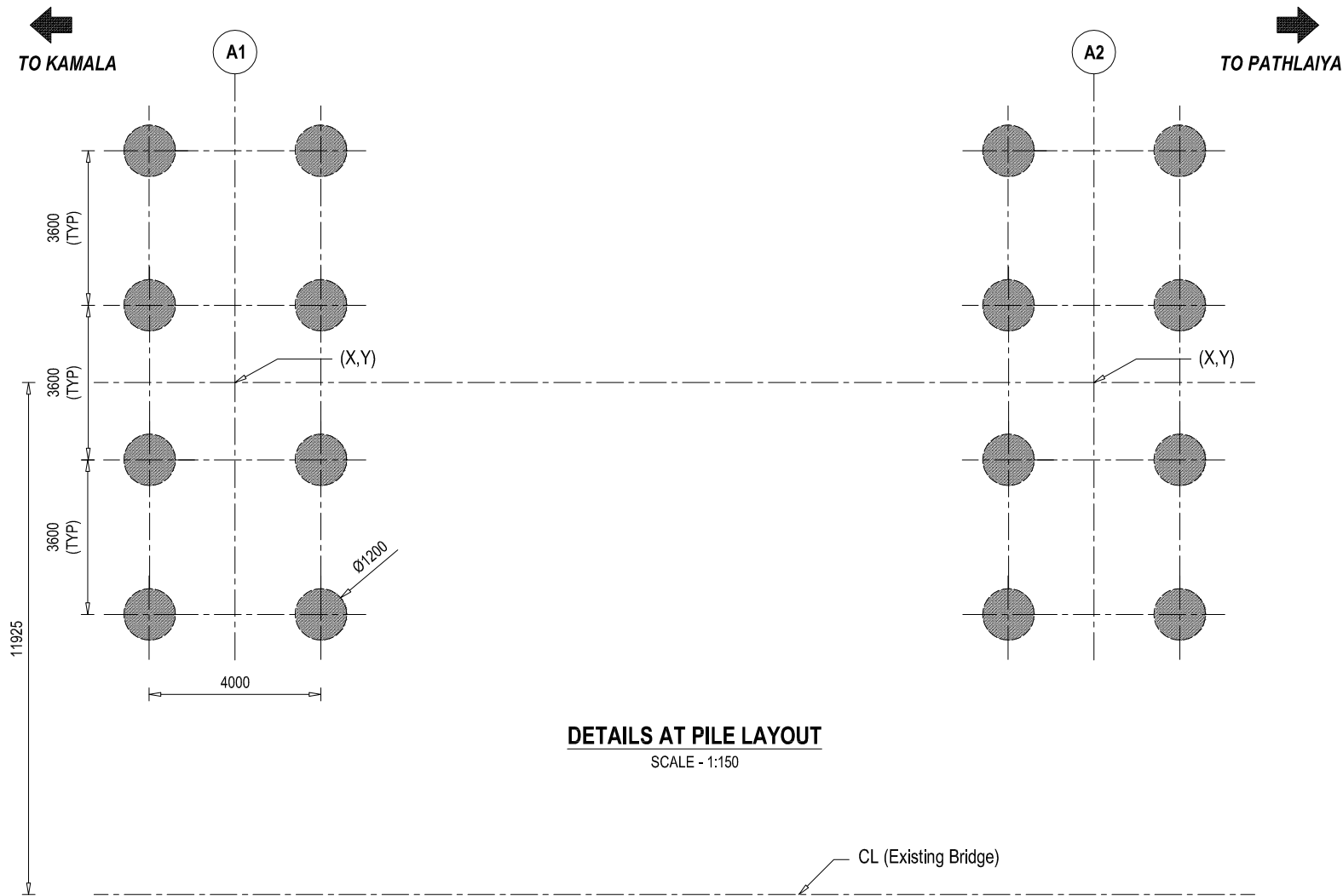
(WHERE IS THE DIAMETER OF THE BAR)

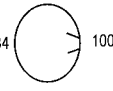
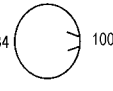
16. LAP LENGTH SHALL BE INCREASED BY A FACTOR BASED ON THE PERCENTAGE OF LAPPED BAR RELATIVE TO THE TOTAL CROSS SECTIONAL AREA. LAP LENGTH FOR DIFFERENT GRADE OF CONCRETE AS WELL AS DIFFERENT PERCENTAGE OF LAP LENGTH ARE AS FOLLOWS:

GRADE OF CONCRETE	M30	M35	M40	M45	M50
LAPPED BAR ≤25%	57.2φ	51.48φ	48.62φ	45.76φ	41.47φ
25%<LAPPED BAR ≤33%	65.78φ	62.65φ	55.91φ	52.62φ	47.69φ
33%<LAPPED BAR ≤50%	80.08φ	72.07φ	68.07φ	64.06φ	58.06φ
50%<LAPPED BAR	85.8φ	77.22φ	72.93φ	68.64φ	62.21φ

17. THE LAP LENGTH SHALL BE STAGGERED BY MINIMUM DISTANCE OF 1.3 TIMES THE LAP LENGTH.
18. HELICAL REINFORCEMENT SHALL BE LAPPED BY 1.5 TURNS.
19. INSTEAD OF LAPPING SPLICING OF REINFORCEMENT CAN BE DONE WITH WELDED JOINT AS PER CL. 15.2.5.2 OF IRC 112-2020. WELD LENGTH SHALL NOT BE LESS THAN 18D.
20. SHARP EDGES OF CONCRETE TO BE CHAMFERED MINIMUM 50 X 50

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		In Association With Udaya Consultancy, Geocom International, Sundar Krti Consultant and Rays Consultant Private Limited	Checked By	Mr. S.M.		Reference Drawings	Drawing No.- KDP/DPR/STR/BR/ATABBE/DD-4
			Approved By	Mr. H.B.		Chainage: 269+373	Sheet No. 1 / 1

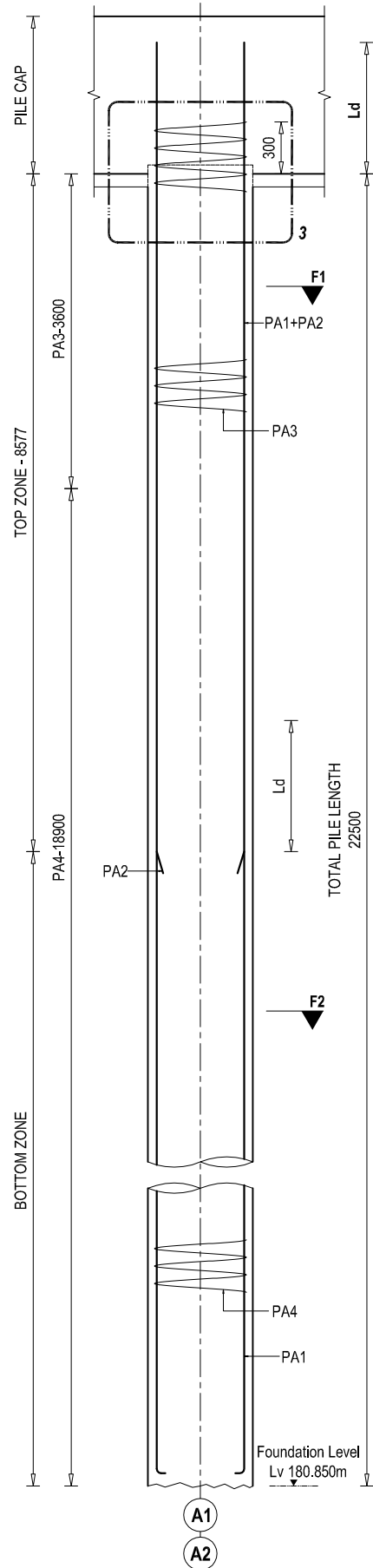
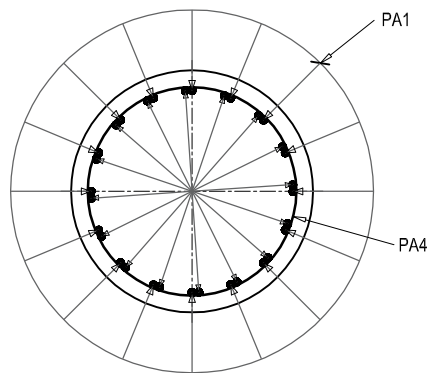
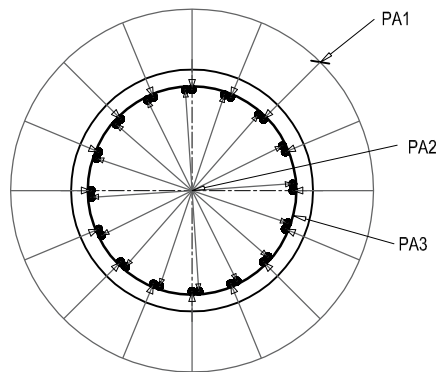
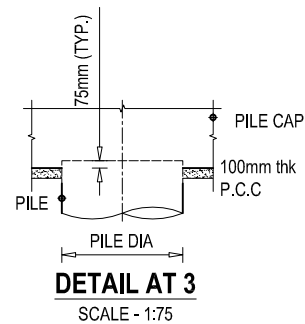


BAR BENDING SCHEDULE OF ABUTMENT PILE								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	PA1	 24150	25		24.450	11	3.858	1037.62
2	PA2	11802	25		11.802	11	3.858	500.856
3	PA3	Dia. 1034  100	16	110	3.448	47	1.580	256.11
4	PA4	Dia. 1034  100	12	110	3.448	159	0.889	487.36
TOTAL (KG) :								2281.95
No. of Pile								8.00
TOTAL WEIGHT (KG) :								18255.56

PILE CAPACITY (INDIVIDUAL)		
SN.	DIA (mm)	CAPACITY (T on)
1	1200	266

CO ORDINATES OF PILE LOCATION OF PROPOSED BRIDGE

SN.	ABUTMENT/PIER	EASTING (X)	NORTHING (Y)
1	ABUTMENT (A1D)	402331.241	2978289.242
2	ABUTMENT (A2D)	402308.842	2978281.453

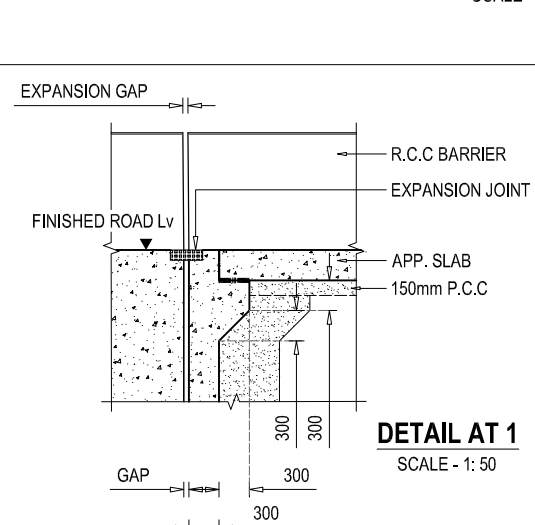
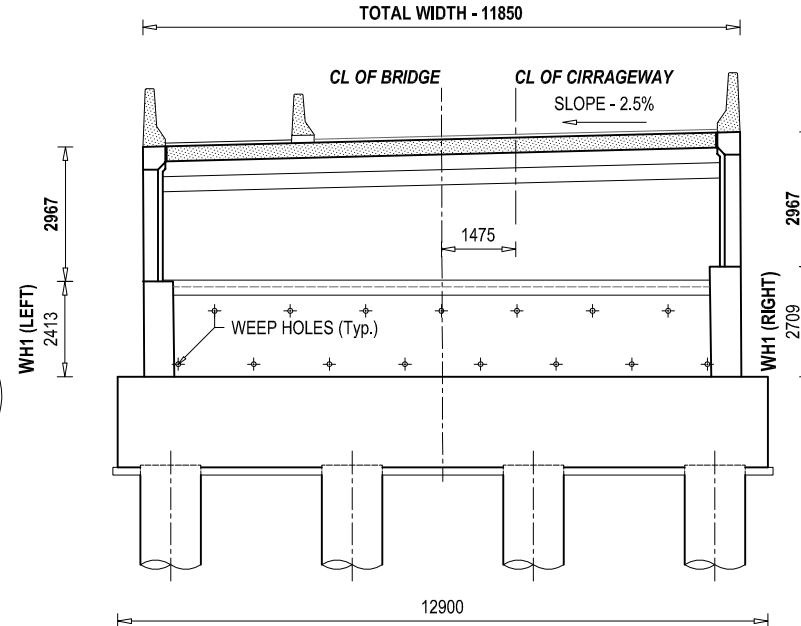
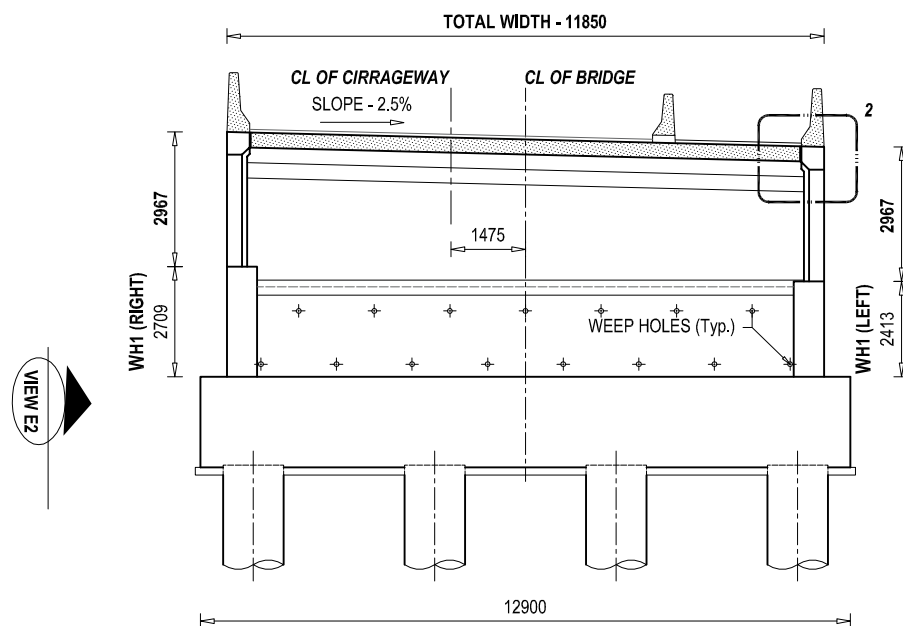
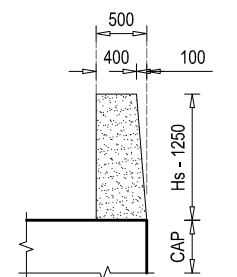
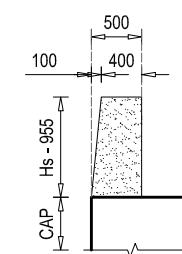
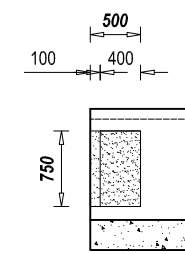
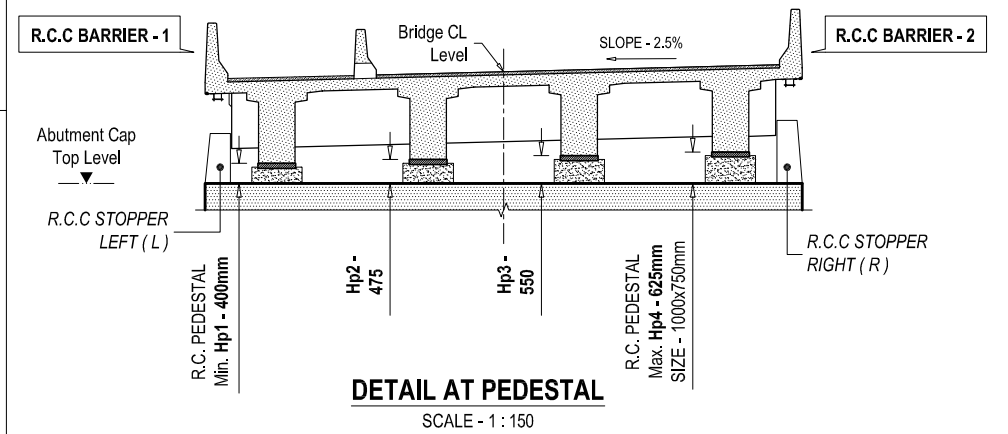
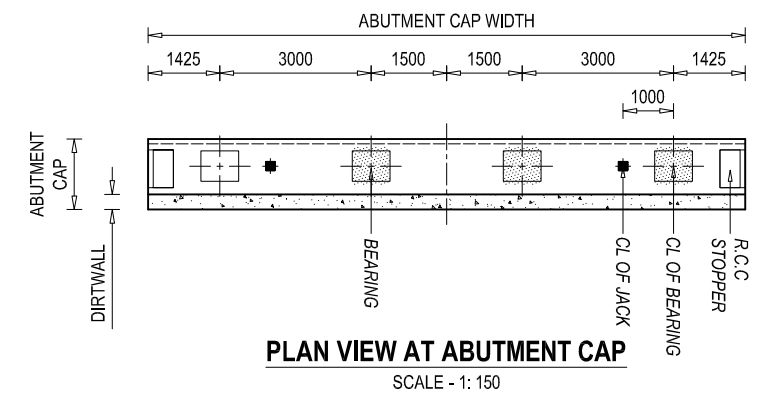
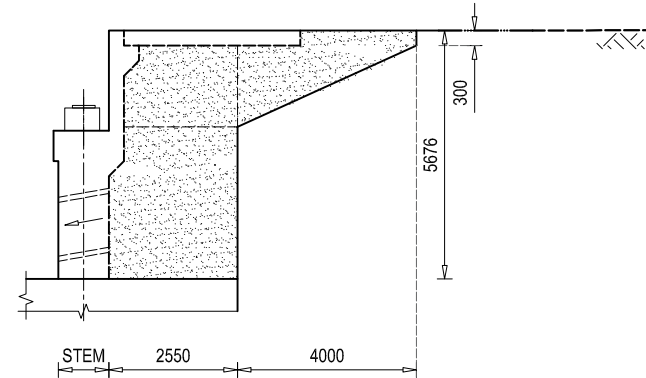
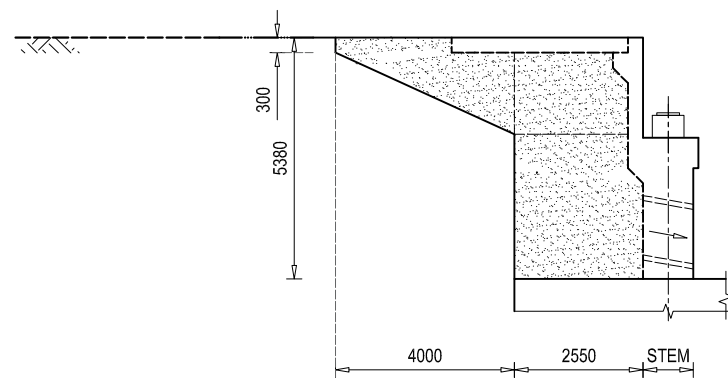


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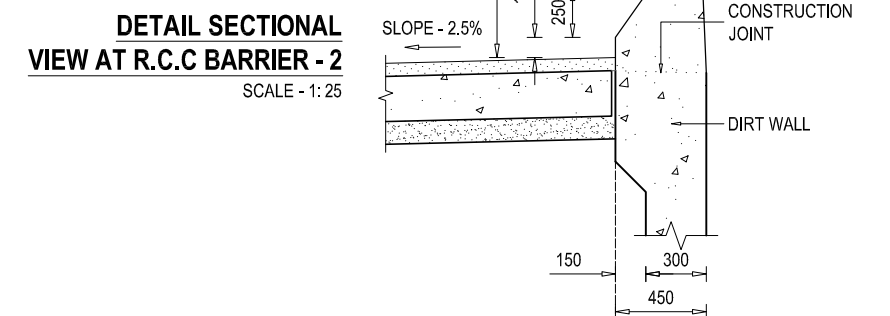
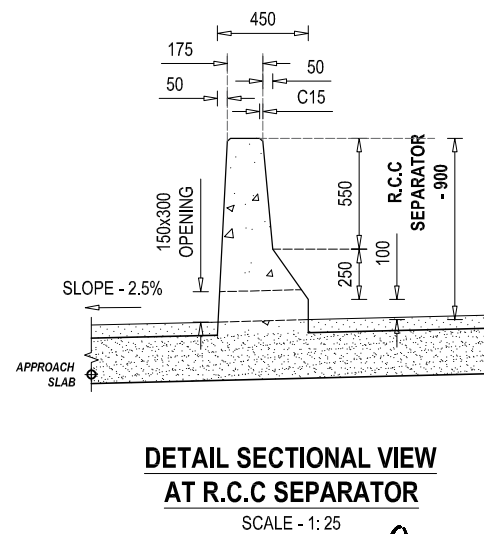
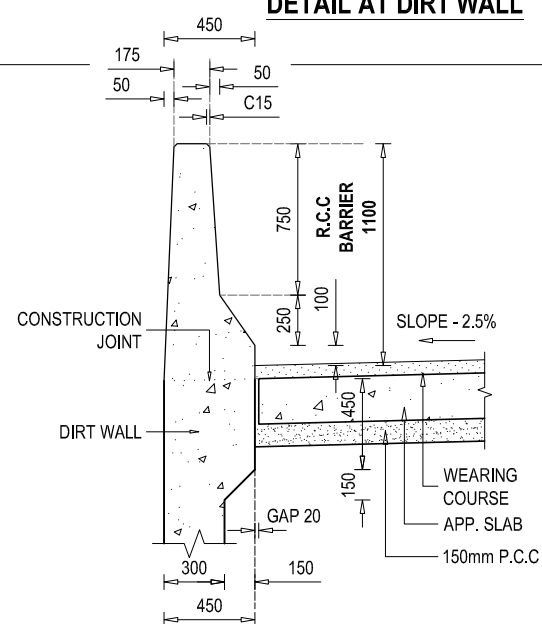
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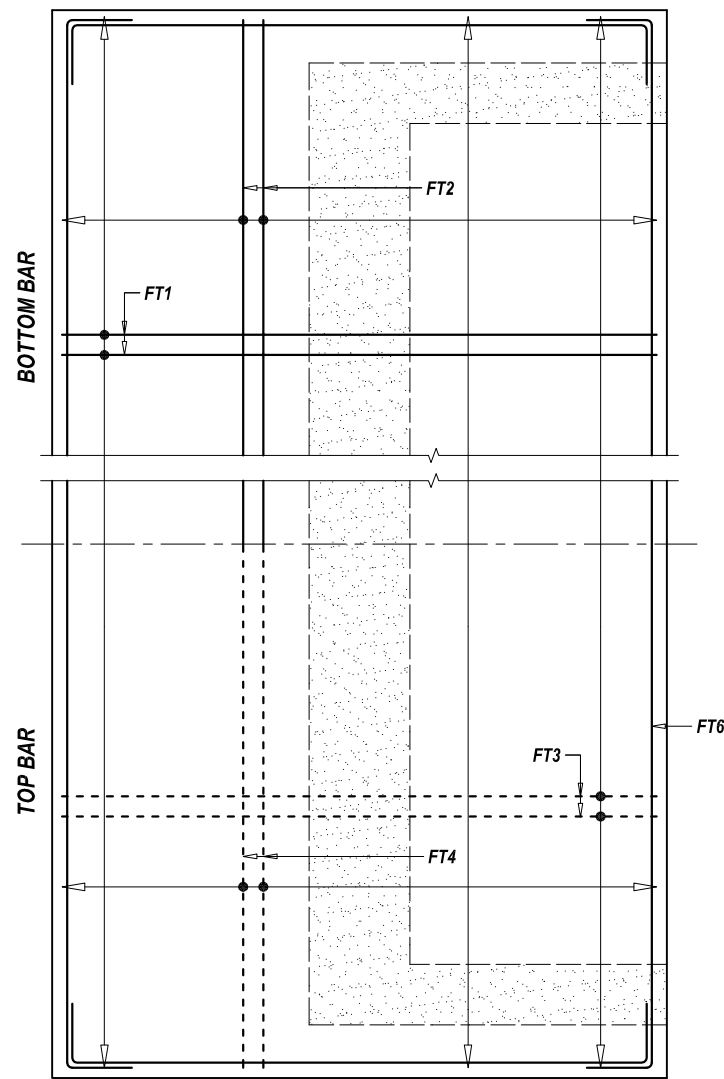
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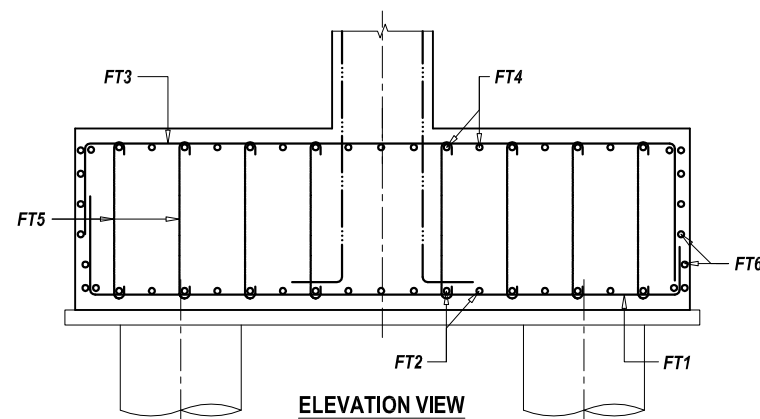
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		In Association With Udaya Consultancy, Geocom International, Sundar K/Itl Consultant and Rays Consultant Private Limited		Checked By	Mr. S.M.		Signature	Reference Drawings	Chainage:	KDP/DPR/STR/BR/ATABBE/DD-9
		Approved By	Mr. H.B.		Signature		269+373		Sheet No. 2 / 2	



PLAN VIEW

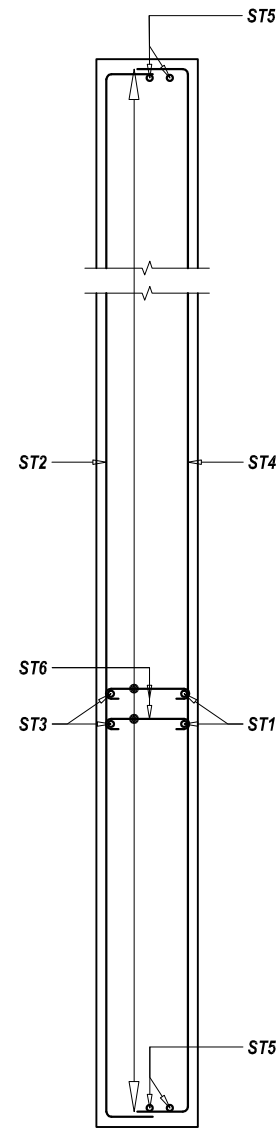


ELEVATION VIEW

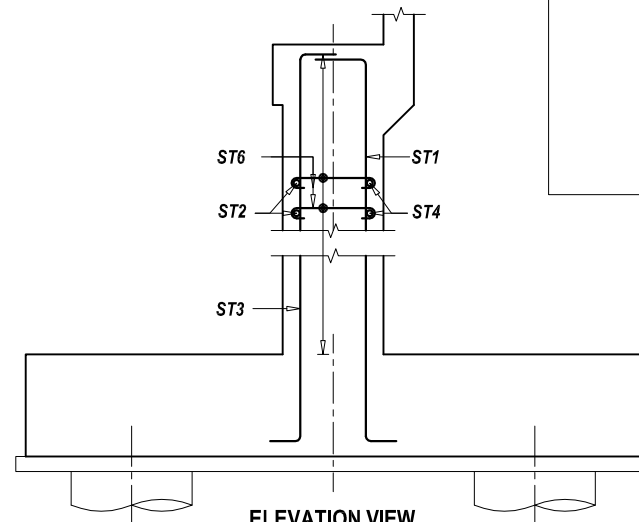
BAR DETAIL OF PILE CAP

SCALE - 1 : 75

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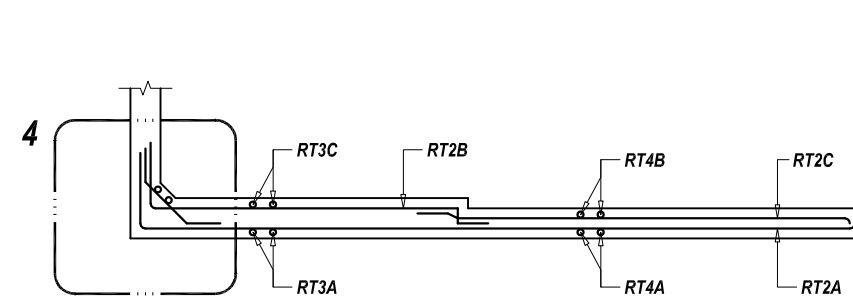
SECTIONAL PLAN VIEW



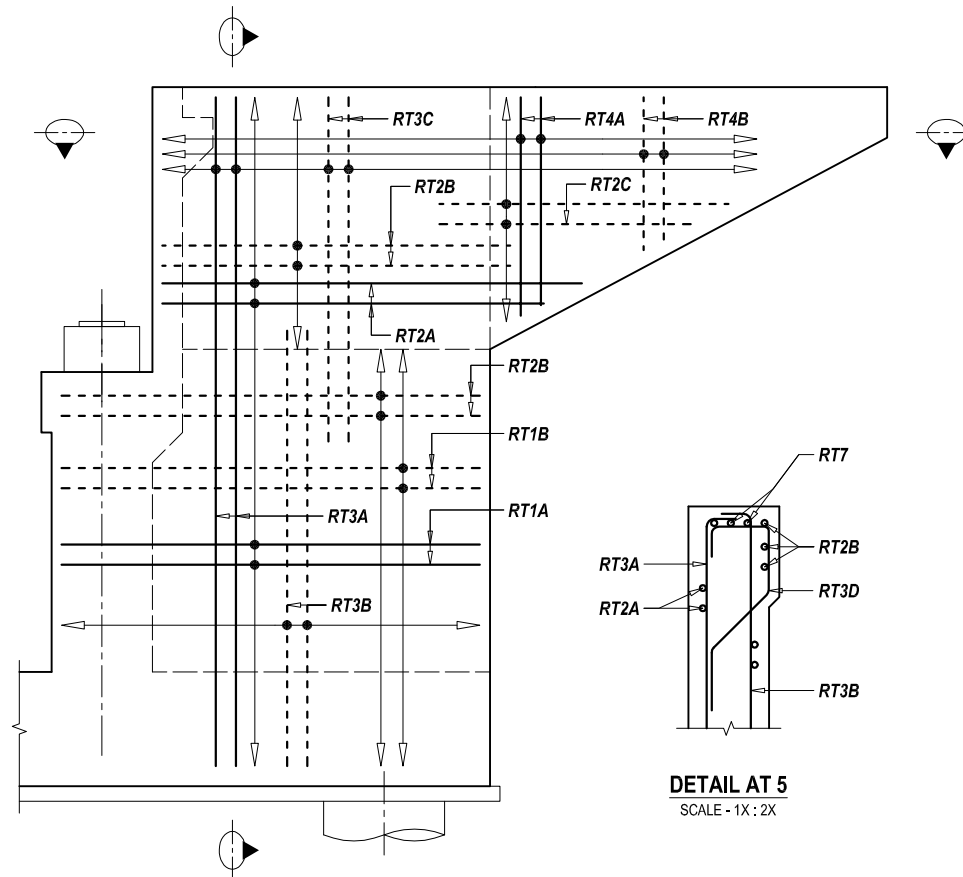
ELEVATION VIEW

BAR DETAIL AT ABUTMENT STEM

SCALE - 1 : 75



SECTIONAL PLAN VIEW

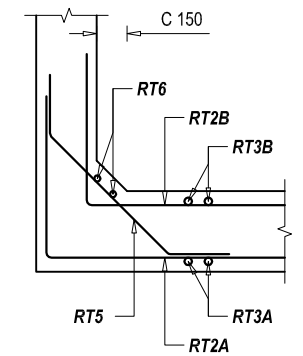


ELEVATION VIEW

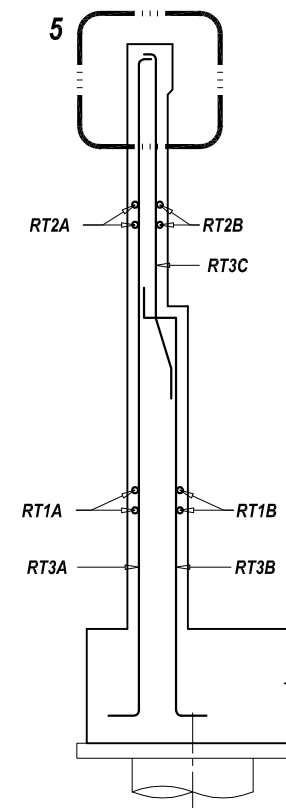
DETAIL AT 5
SCALE - 1X : 2X

BAR DETAIL AT RETURN WALL

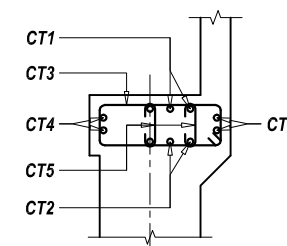
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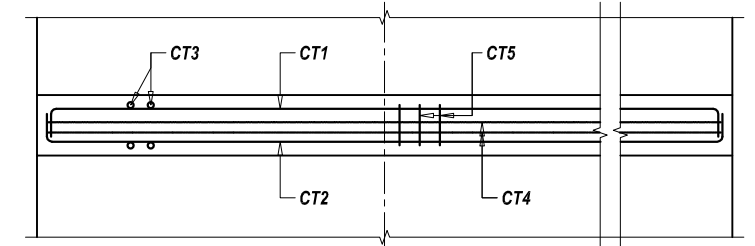
DETAILS AT 4



SECTIONAL SIDE VIEW



ELEVATION VIEW



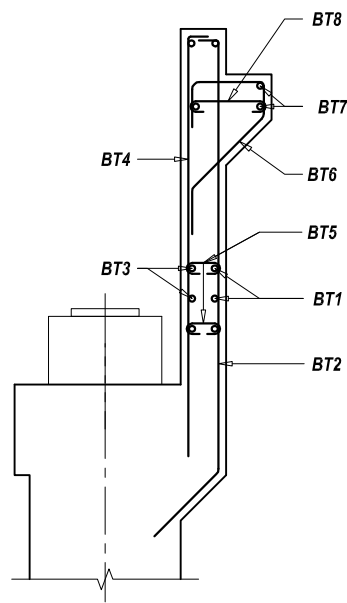
FRONT VIEW

BAR DETAIL AT ABUTMENT CAP

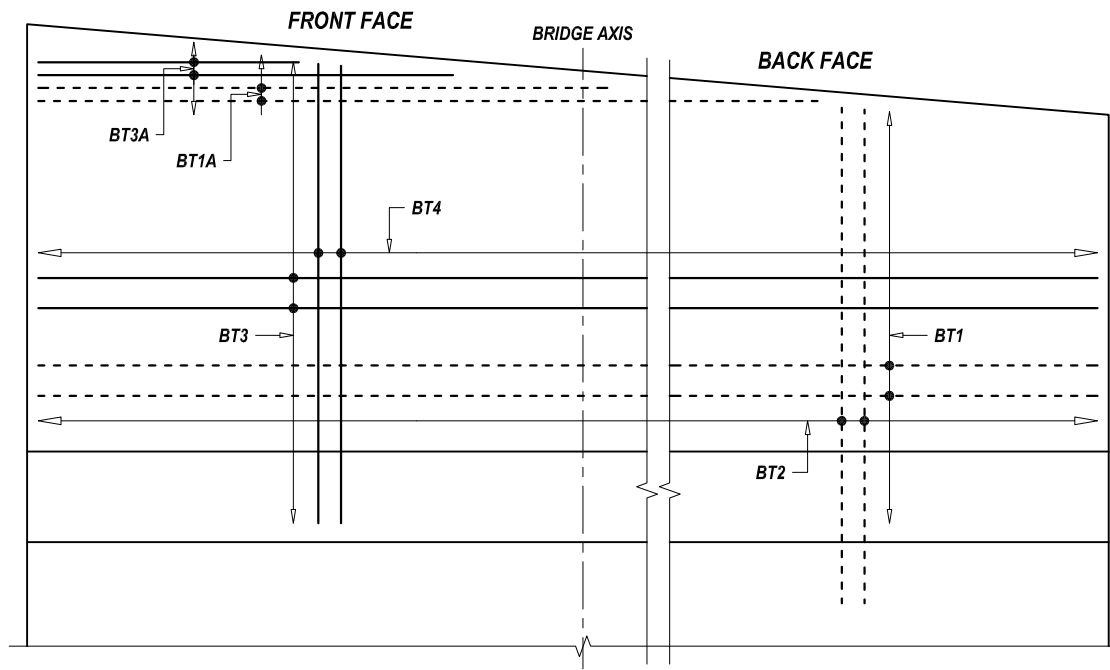
SCALE - 1 : 75

--- TOP BAR OR
NEAR FACE REINFORCEMENT
--- BOTTOM BAR OR
FAR FACE REINFORCEMENT

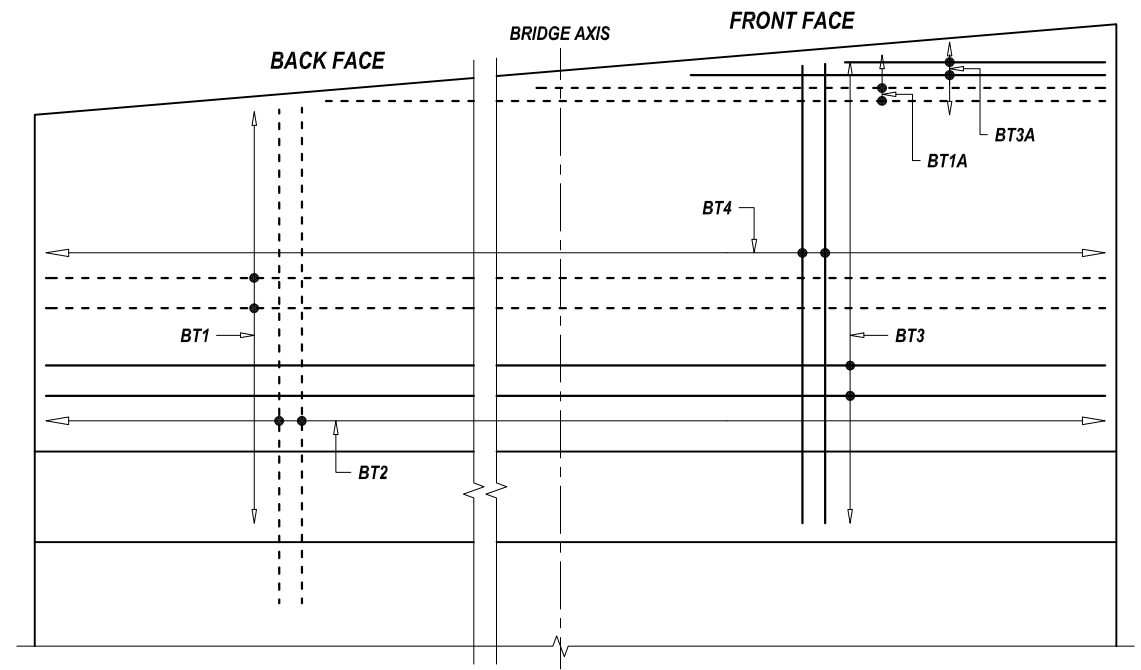
EMPLOYER Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	PROJECT NAME Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	DESIGN CONSULTANTS Joint Venture of EPTISA Servicios De Ingeniera Madrid, Spain STUP Consultants Private Limited Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited	Designed By Mr. R.D. Nec.No. 6489 CH/1/X Signature Checked By Mr. S.M. Signature Approved By Mr. H.B. Signature	Drawing Name ABUTMENT REINFORCEMENT DETAILS OF BRIDGE OVER RIVER ATABBE Reference Drawings KDP/DPR/STR/BR/ATABBE/DD-9	Scale: AS SHOWN Chainage: 269+373	Date: 16.04.2023 Drawing No.- KDP/DPR/STR/BR/ATABBE/DD-8 Sheet No. 1 / 2
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SECTIONAL SIDE VIEW



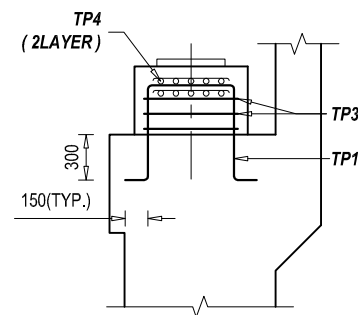
ELEVATION VIEW / VIEW AT D1



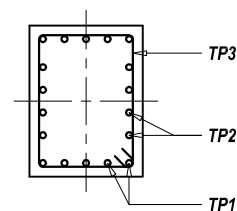
ELEVATION VIEW / VIEW AT D2

BAR DETAIL AT DIRT WALL

SCALE - 1 : 50



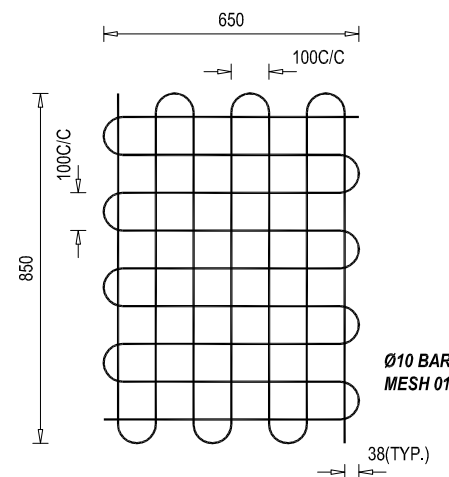
SECTIONAL SIDE VIEW



SECTIONAL PLAN VIEW
BAR DETAIL AT PEDESTAL

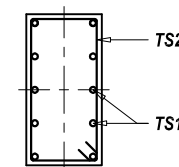
SCALE - 1 : 50

NOTE
READ THIS DRAWING IN CONJUNCTION WITH
DRG NO. KDP/DPR/STR/BR/ATABBE/DD-4

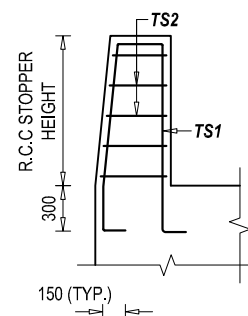


REINFORCEMENT DETAILS OF
BEARING MESH

SCALE - 1 : 50

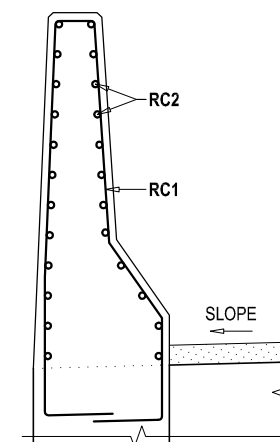


SECTIONAL PLAN VIEW



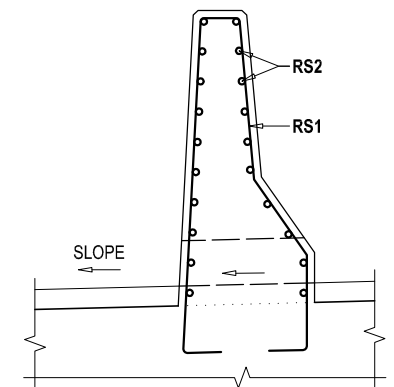
R.C.C STOPPER LEFT
ELEVATION VIEW

SCALE - 1 : 50



REINFORCEMENT DETAILS OF
R.C.C BARRIER (B)- SECTIONAL VIEW

SCALE - 1 : 25

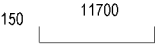
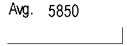
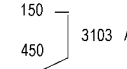
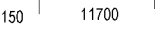
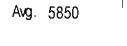
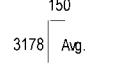
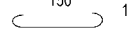
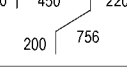
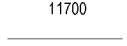
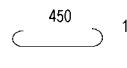


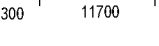
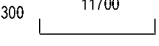
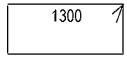
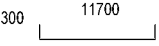
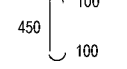
REINFORCEMENT DETAILS OF
R.C.C SEPARATOR - SECTIONAL VIEW

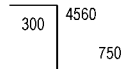
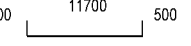
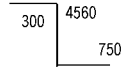
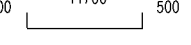
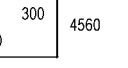
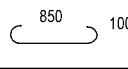
SCALE - 1 : 25

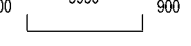
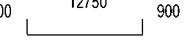
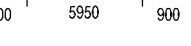
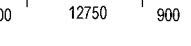
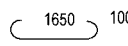
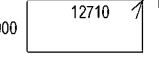
--- TOP BAR OR
NEAR FACE REINFORCEMENT
--- BOTTOM BAR OR
FAR FACE REINFORCEMENT

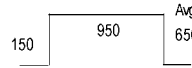
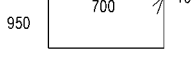
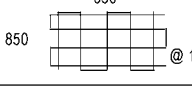
EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Mr. R.D.	Drawing Name	Scale:	Date:
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of  EPTISA Servicios De Ingeniera Madrid, Spain  STUP Consultants Private Limited Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kritt Consultant and Rays Consultant Private Limited	Checked By Mr. S.M.	Mr. S.M.	ABUTMENT REINFORCEMENT DETAILS OF BRIDGE OVER RIVER ATABBE Reference Drawings KDP/DPR/STR/BR/ATABBE/DD-9	AS SHOWN Chainage: 269+373	16.04.2023
			Approved By Mr. H.B.	Mr. H.B.			Drawing No.- KDP/DPR/STR/BR/ATABBE/DD-8
							Sheet No. 2 / 2

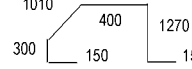
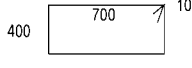
BAR BENDING SCHEDULE OF DIRT WALL								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	BT 1		16	200	12.000	18	1.580	341.33
2	BT 1A		16	200	6.000	3	1.580	28.44
3	BT 2		16	125	3.703	96	1.580	561.76
4	BT 3		16	200	12.000	14	1.580	265.48
5	BT 3A		16	200	6.000	3	1.580	28.44
6	BT 4		12	125	3.328	96	0.889	283.99
7	BT 5		12	500	0.350	120	0.889	37.33
8	BT 6		12	200	1.826	61	0.889	99.01
9	BT 7		16		11.700	5	1.580	92.44
10	BT 8		12	200	0.650	120	0.889	69.33
TOTAL (KG) :							1807.57	

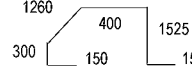
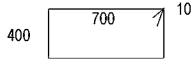
BAR BENDING SCHEDULE OF ABUTMENT CAP								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	CT 1		16	150	12.300	11	1.580	213.81
2	CT 2		16	150	12.300	11	1.580	213.81
3	CT 3		16	150	3.700	80	1.580	467.75
4	CT 4		12	150	12.300	8	0.889	87.47
5	CT 5		12	Long- 150 Trans300	0.650	382	0.889	220.71
TOTAL (KG) :							1203.55	

BAR BENDING SCHEDULE OF ABUTMENT STEM								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	ST 1		25		5.610	110	3.858	2380.79
2	ST 2		16	170	12.700	14	1.580	280.97
3	ST 3		20		5.610	110	2.469	1523.70
4	ST 4		16	170	12.700	14	1.580	280.97
5	ST 5		16		5.610	14	1.580	124.11
6	ST 6		12	Ver. 450 Hor.450	1.050	162	0.889	151.20
TOTAL (KG) :							4741.74	

BAR BENDING SCHEDULE OF PILE CAP								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	FT 1		25		7.750	100	3.858	2989.97
2	FT 2		20		14.550	50	2.469	1796.30
3	FT 3		16		7.750	100	1.580	1224.69
4	FT 4		16		14.550	50	1.580	1149.63
5	FT 5		10	Long- 250 Trans500	1.850	607	0.617	693.18
6	FT 6		16	200	37.520	8	1.580	474.33
TOTAL (KG) :							8328.09	

BAR BENDING SCHEDULE OF PEDESTAL								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	TP 1		16	150	2.850	6	1.580	27.02
1	TP 2		16	150	2.350	8	1.580	29.71
2	TP 3		16	150	3.500	3	1.580	16.59
1	TP 4		8		13.400	2	0.395	10.59
TOTAL (KG) :							83.91	
TOTAL NOS OF PEDESTAL :							4.00	
TOTAL WEIGHT (KG) :							335.64	

BAR BENDING SCHEDULE OF RCC SEISMIC ARRESTER - LEFT								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	TS1-L		16	150	3.280	6	1.580	31.10
2	TS2-L		12	150	2.400	7	0.889	14.93
TOTAL (KG) :							46.03	

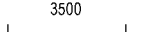
BAR BENDING SCHEDULE OF RCC SEISMIC ARRESTER - RIGHT								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	TS1-R		16	150	3.785	6	1.580	35.89
2	TS2-R		12	150	3.400	9	0.889	27.20
TOTAL (KG) :							63.09	

EMPLOYER		PROJECT NAME		DESIGN CONSULTANTS		Drawing Name		Scale:		Date:	
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of		Designed By	Mr. R.D.	ABUTMENT BAR BENDING SCHEDULE OF BRIDGE OVER RIVER ATABBE	AS SHOWN	16.04.2023		Drawing No.- KDP/DPR/STR/BRI/ATABBE/DD-9	
		 EPTISA Servicios De Ingeniera Madrid, Spain	 STUP Consultants Private Limited Kolkatta, India	Checked By	Mr. S.M.						
		In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited		Approved By	Mr. H.B.			Chainage: 269+373		Sheet No. 1 / 2	

BAR BENDING SCHEDULE OF RETURN WALL - LEFT								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	RT 1A	450 3400 150	12	150	4.000	38	0.889	135.11
2	RT 1B	450 3400 150	12	150	4.000	38	0.889	135.11
3	RT 2A	450 6050 150	12	150	6.650	21	0.889	124.13
4	RT 2B	150 3400 150 600	12	150	4.300	21	0.889	80.27
5	RT 2C	600 3575 150	12	150	4.475	21	0.889	83.53
6	RT 3A	7326 150 450	12	150	7.926	18	0.889	126.82
7	RT 3B	600 150 4359 450	12	150	5.559	18	0.889	88.94
8	RT 3C	150 2892 150 600	12	150	3.792	18	0.889	60.67
9	RT 3D	200 300 300 200 210	12	150	1.210	43	0.889	46.25
10	RT 4A	1483.5 150 150	12	150	1.784	50	0.889	79.27
11	RT 4B	1483.5 150 150	12	150	1.784	50	0.889	79.27
12	RT 5	300 870 300	12	150	1.470	59	0.889	77.09
13	RT 6	5676	12		5.676	2	0.889	10.09
14	RT 7	225 5375	20		5.6	4	2.469	55.31
TOTAL (KG) :								1181.86

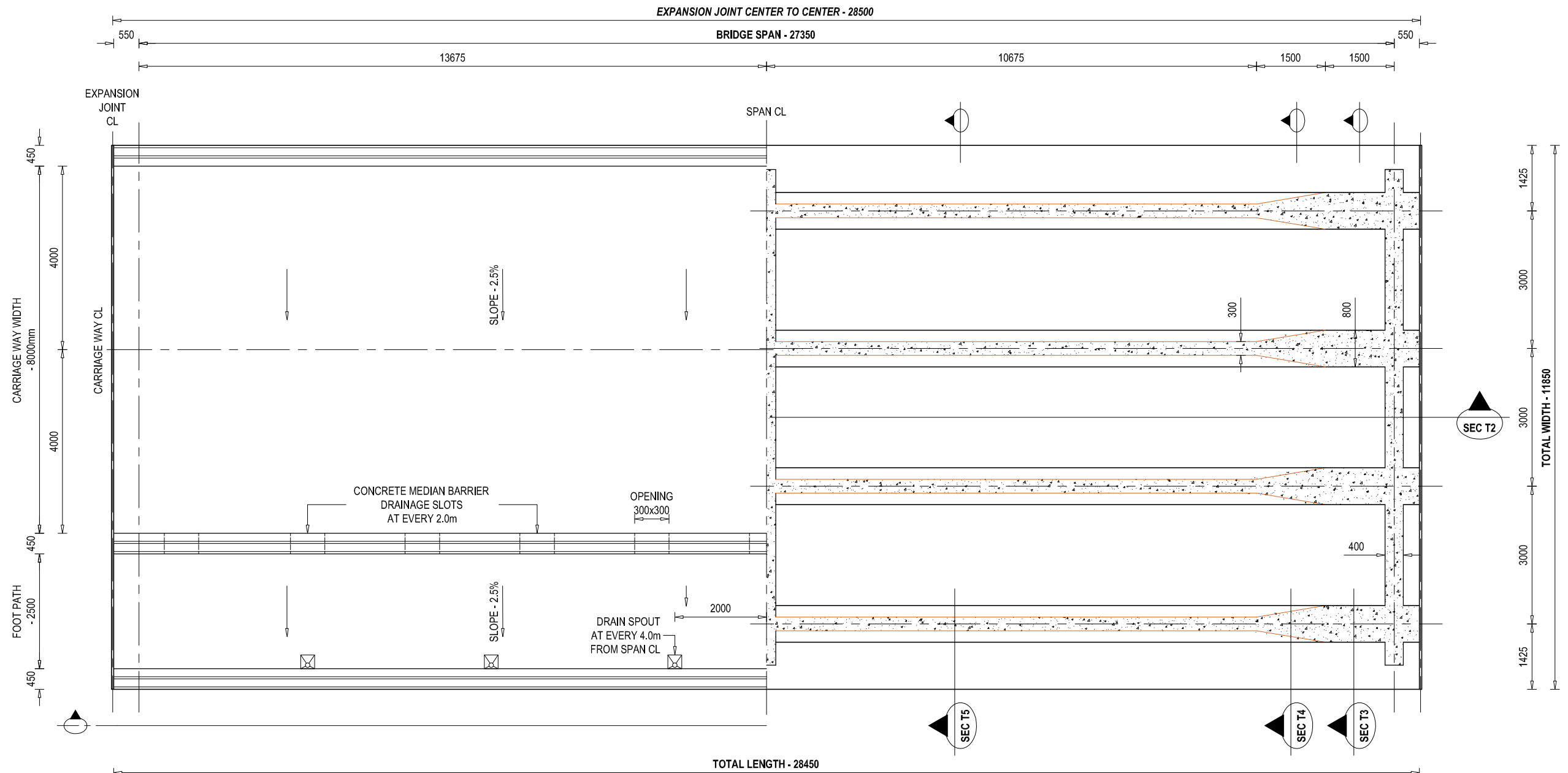
BAR BENDING SCHEDULE OF RETURN WALL - RIGHT								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	RT 1A	450 3400 150	12	150	4.000	36	0.889	128.00
2	RT 1B	450 3400 150	12	150	4.000	36	0.889	128.00
3	RT 2A	450 6050 150	12	150	6.650	21	0.889	124.13
4	RT 2B	150 3400 150 600	12	150	4.300	21	0.889	80.27
5	RT 2C	600 3575 150	12	150	4.475	21	0.889	83.53
6	RT 3A	7030 150 450	12	150	7.630	18	0.889	122.08
7	RT 3B	600 150 4063 450	12	150	5.263	18	0.889	84.21
8	RT 3C	150 2892 150 600	12	150	3.792	18	0.889	60.67
9	RT 3D	200 300 300 200 210	12	150	1.210	43	0.889	46.25
10	RT 4A	1483.5 150 150	12	150	1.784	50	0.889	79.27
11	RT 4B	1483.5 150 150	12	150	1.784	50	0.889	79.27
12	RT 5	300 870 300	12	150	1.470	59	0.889	77.09
13	RT 6	5380	12		5.380	2	0.889	9.56
14	RT 7	225 5375	20		5.6	4	2.469	55.31
TOTAL (KG) :								1157.64

BAR BENDING SCHEDULE OF R.C.C BARRIER								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	RC1	850 130 735 305 445 200 305 200	16	150	3.170	42	1.580	210.39
2	RC2	150 6100 150	10	150	6.400	20	0.617	79.01
TOTAL (KG) :								289.41

BAR BENDING SCHEDULE OF R.C.C SEPARATOR								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	RS1		16	150	2.695	25	1.580	106.47
2	RS2		10	150	3.800	17	0.617	39.88
TOTAL (KG) :								146.35

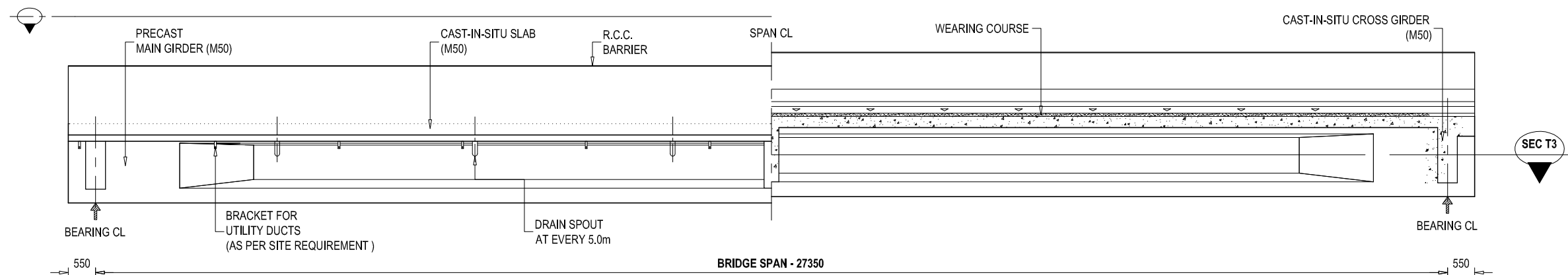
BAR BENDING SCHEDULE OF APPROACH SLAB								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	1601	100  100 10970	16	150	11.170	48	1.580	847.27
2	1202	100  100 3420	12	150	3.620	150	0.889	482.67
TOTAL (KG) :								1329.93

EMPLOYER		PROJECT NAME		DESIGN CONSULTANTS		Designed By	Mr. R.D.		Drawing Name	Scale:	AS SHOWN	Date:	16.04.2023
	Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of		Checked By								
			 EPTISA Servicios De Ingeniera Madrid, Spain	 STUP Consultants Private Limited Kolkatta, India									
			In Association With Udaya Consultancy, Geocom International, Sundar Krill Consultant and Rays Consultant Private Limited					Approved By	Mr. H.B.		Reference Drawings	Chainage:	269+373



HALF SECTIONAL PLAN VIEW OF SUPERSTRUCTURE AT SEC T1

SCALE - 1 : 100 @ A3 PAPER

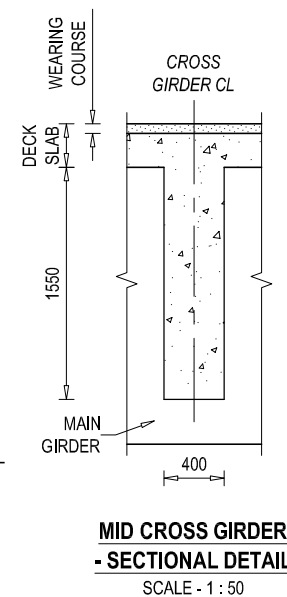
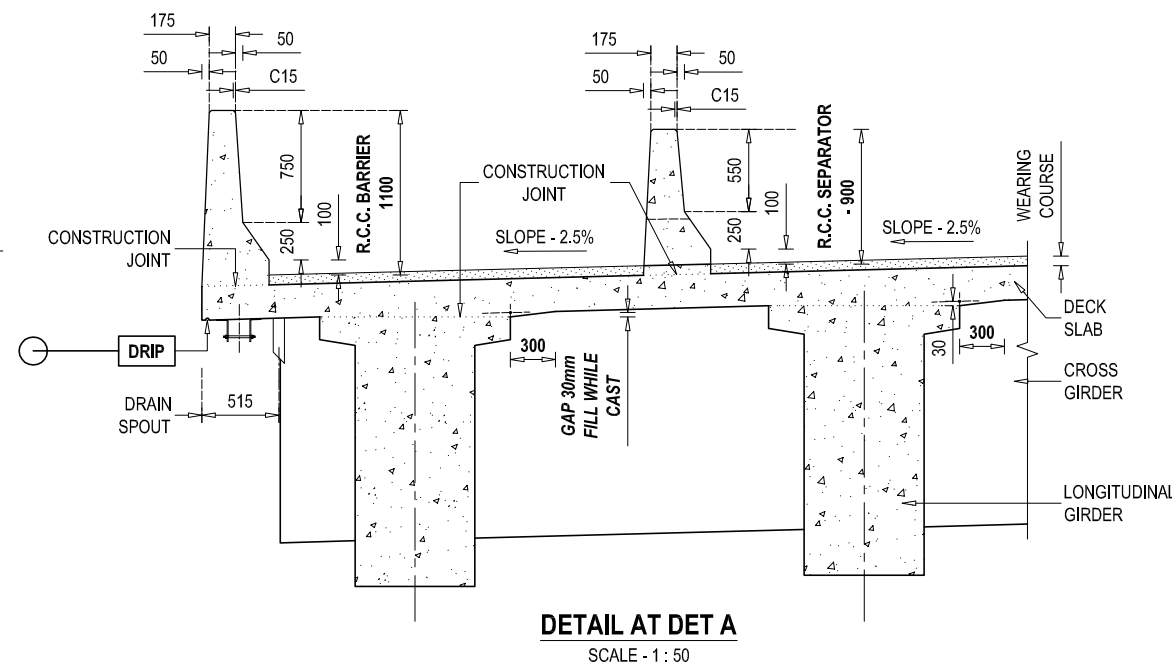
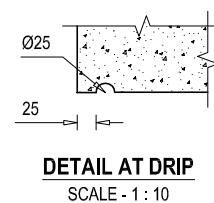
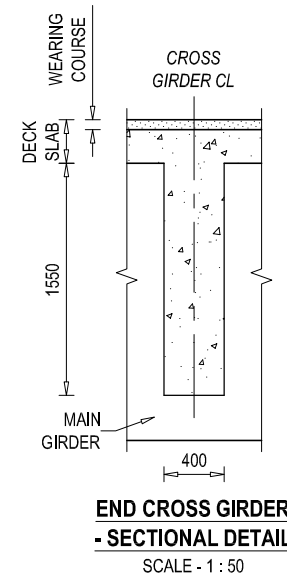
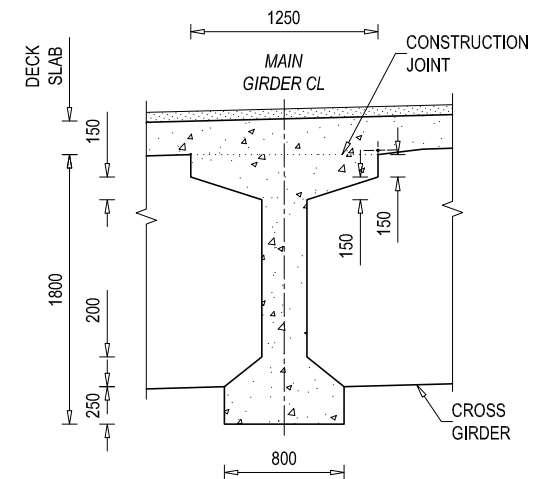
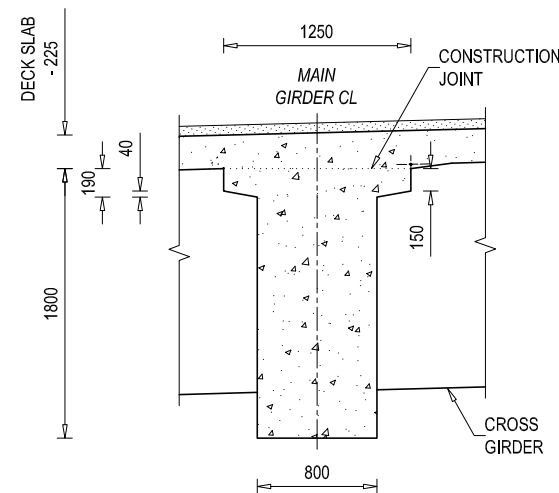
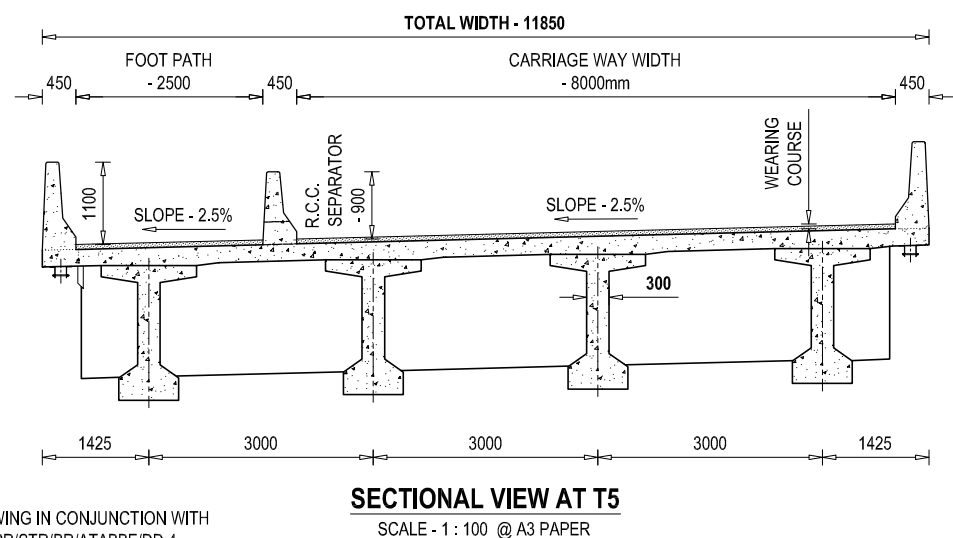
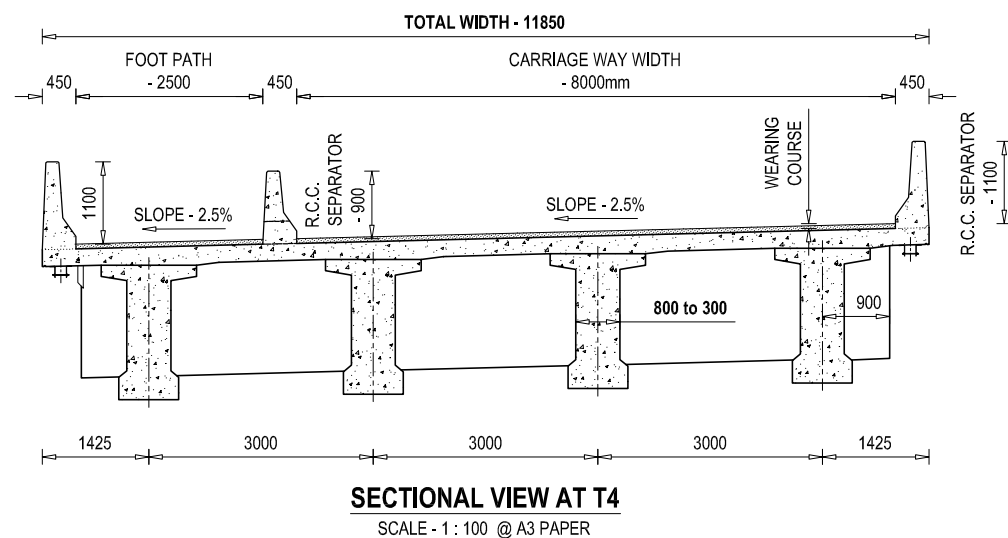
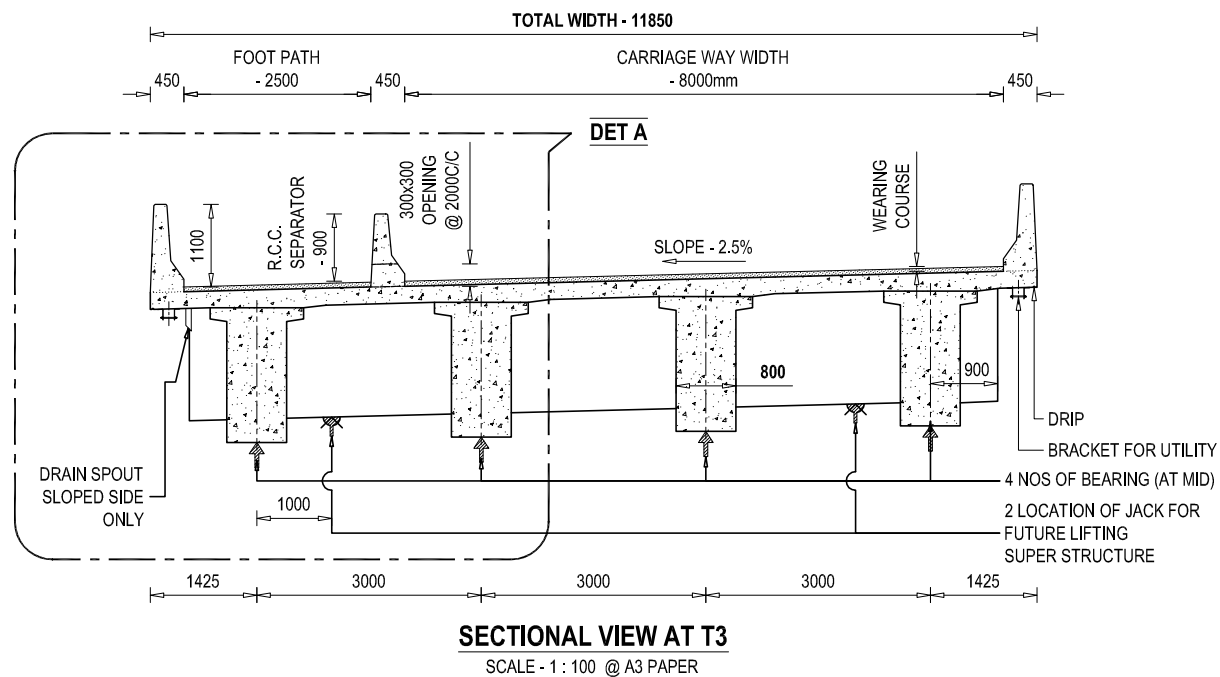


HALF ELEVATION SECTIONAL VIEW OF SUPERSTRUCTURE AT SEC T2

SCALE - 1 : 100 @ A3 PAPER

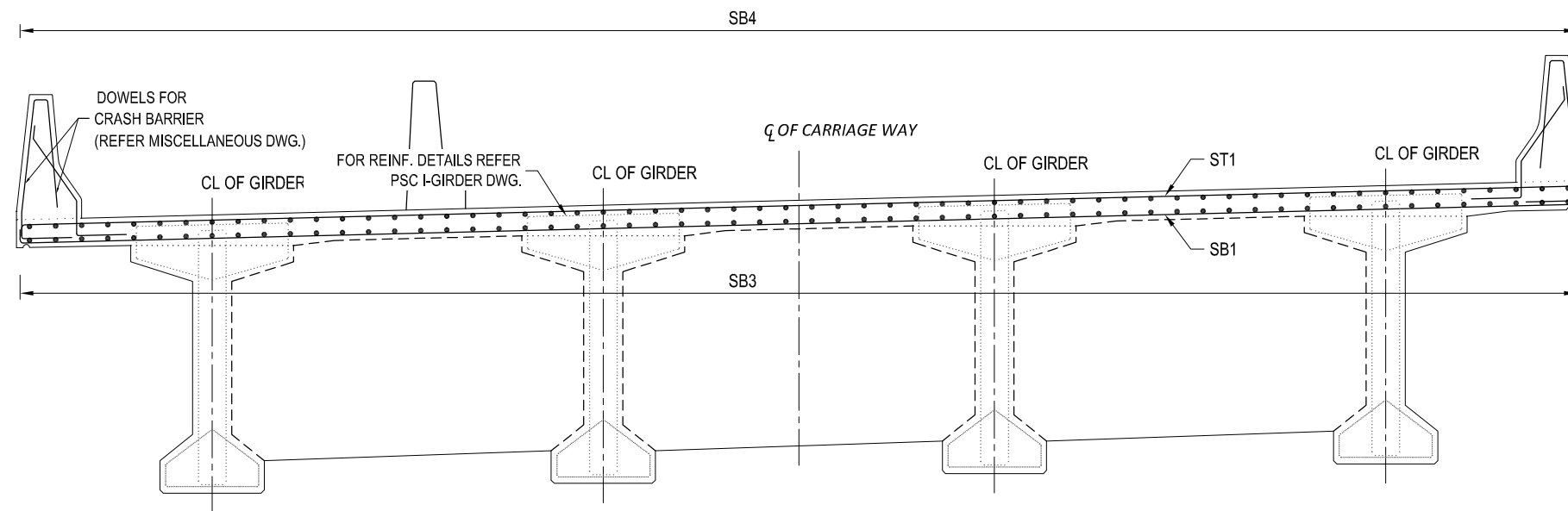
NOTE
READ THIS DRAWING IN CONJUNCTION WITH
DRG NO. KDP/DPR/STR/BR/ATABBE/DD-4

EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Drawing Name	Scale:	Date:
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Patthaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of  EPTISA Servicios De Ingeniera Madrid, Spain  STUP Consultants Private Limited Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited	Mr. R.D. Nec.No. 6489 CMU/V	SUPER STRUCTURE DETAILS OF BRIDGE OVER RIVER ATABBE	SCALE: AS SHOWN	16.04.2023
			Checked By Mr. S.M.	Reference Drawings	Chainage:	Drawing No. KDP/DPR/STR/BR/ATABBE/DD-10
			Approved By Mr. H.B.	KDP/DPR/STR/BR/ATABBE/DD-14	269+373	Sheet No. 1 / 2



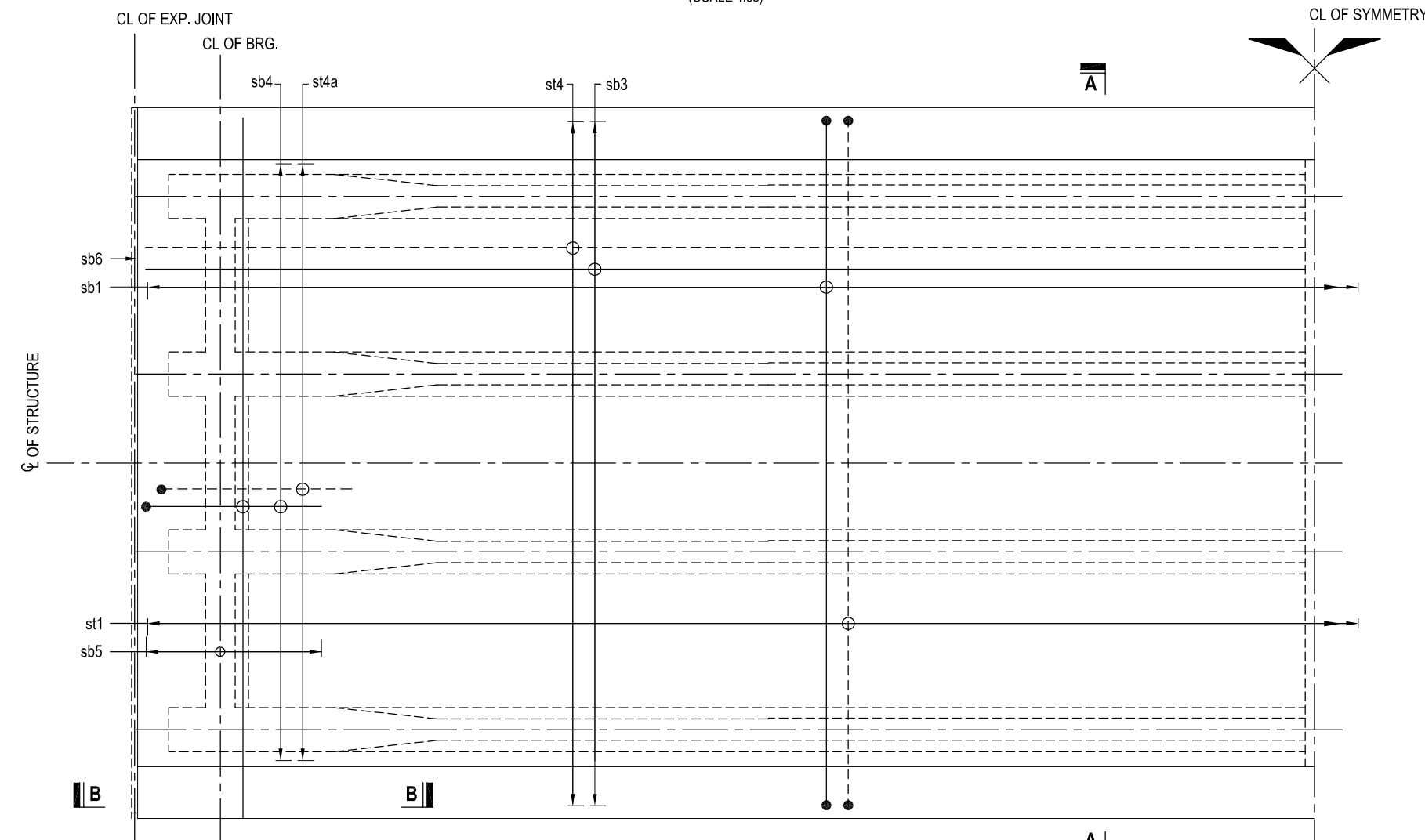
NOTE
READ THIS DRAWING IN CONJUNCTION WITH
DRG NO. KDP/DPR/STR/BR/ATABBE/DD-4

EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Drawing Name	Scale:	Date:
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of EPTISA Servicios De Ingeniera Madrid, Spain STUP Consultants Private Limited Kolkatta, India In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited	Mr. R.D. Nec.No. 6489 C/M/V Mr. S.M. Mr. H.B.	SUPER STRUCTURE DETAILS OF BRIDGE OVER RIVER ATABBE Reference Drawings KDP/DPR/STR/BR/ATABBE/DD-14	SCALE: AS SHOWN Chainage: 269+373	16.04.2023 Drawing No. KDP/DPR/STR/BR/ATABBE/DD-10 Sheet No. 2 / 2



REINFORCEMENT DETAILS OF INTERMEDIATE CROSS GIRDER

(SCALE 1:35)

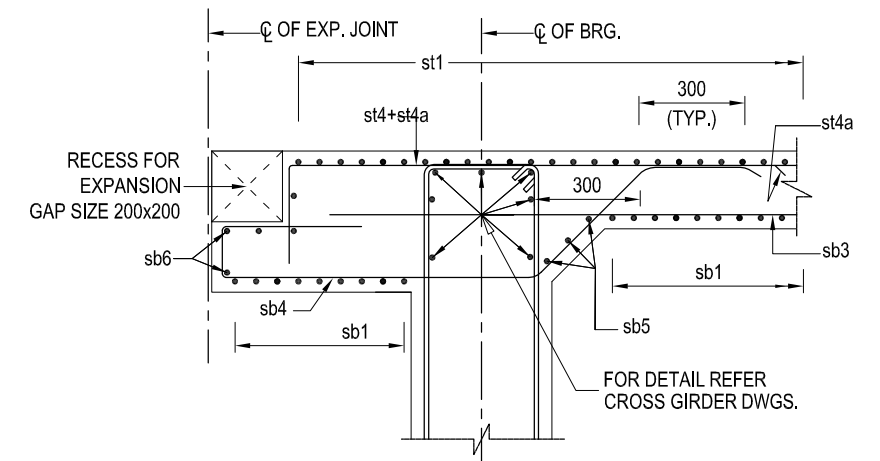


PLAN SHOWING DECK REINFORCEMENT DETAILS

(PLAN AT DECK TOP ONLY SHOWN)

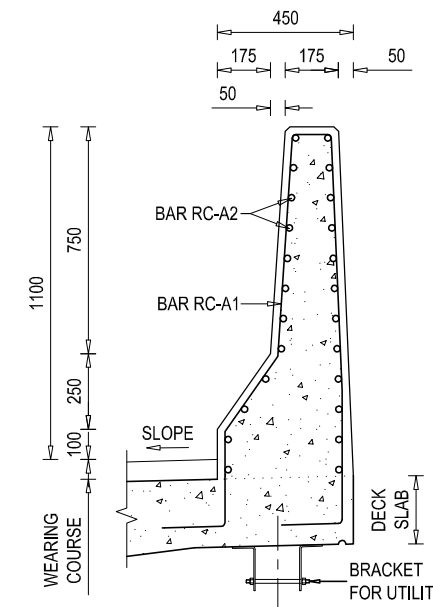
(SCALE 1:75)

NOTE
READ THIS DRAWING IN CONJUNCTION WITH
DRG NO. KDP/DPR/STR/BR/ATABBE/DD-4



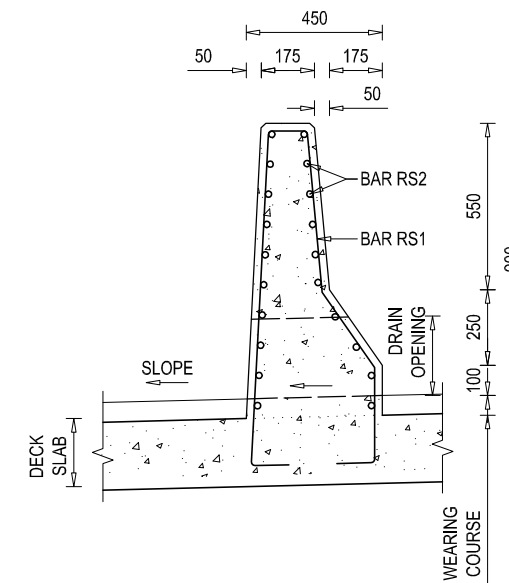
SECTION B-B

(SCALE - 1:25)



**REINFORCEMENT DETAILS OF
R.C.C BARRIER (A)- SECTIONAL VIEW**

SCALE - 1 : 25



**REINFORCEMENT DETAILS OF
R.C.C SEPARATOR - SECTIONAL VIEW**

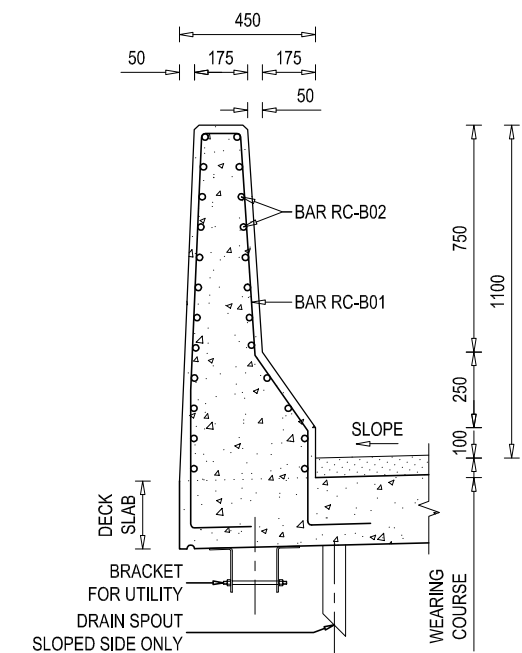
SCALE - 1 : 25

LEGEND :

TOP BARS SHOWN THUS 
BOTTOM BARS SHOWN THUS 

NOTES :

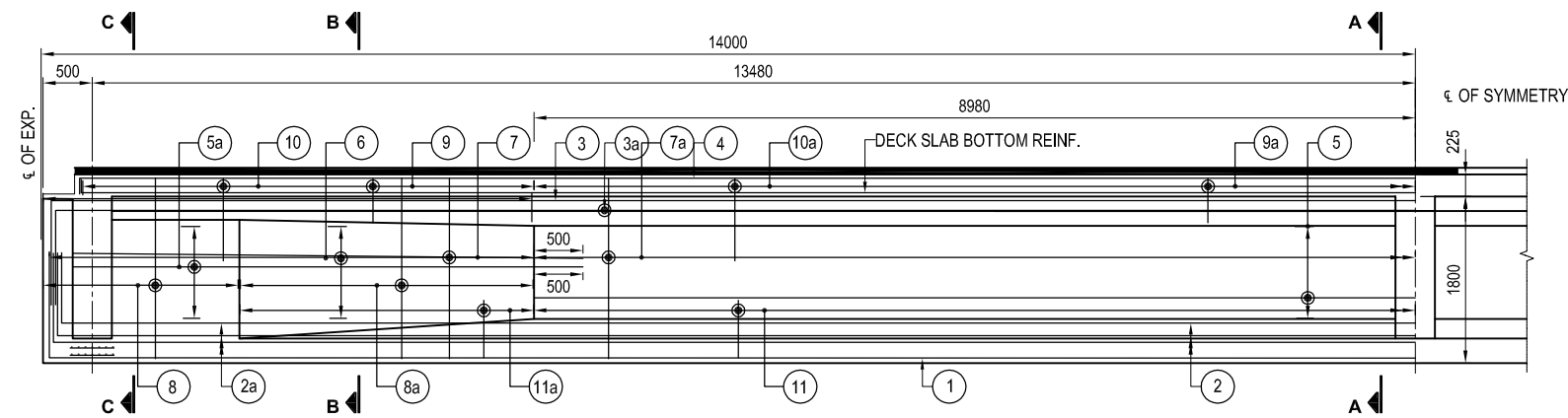
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS IN METERS, UNLESS NOTED OTHERWISE.
2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. CLEAR COVER FOR ALL REINFORCEMENT SHALL BE 40mm. UNLESS NOTED OTHERWISE.
4. FOR ALL OTHER NOTES REFER GENERAL ARRANGEMENT DRAWING.



**REINFORCEMENT DETAILS OF
R.C.C BARRIER (B)- SECTIONAL VIEW**

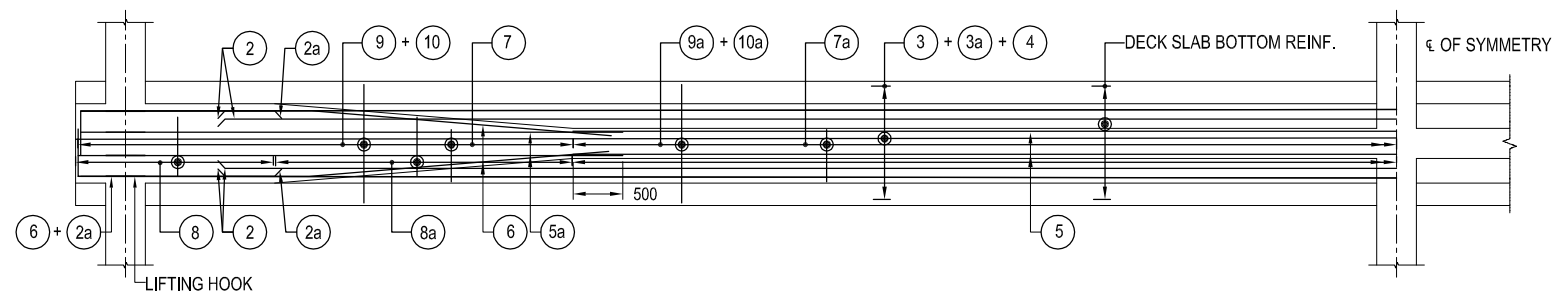
SCALE - 1 : 25

EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS		Mr. R.D.	Drawing Name	Scale:	Date:
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of	Designed By	Nec.No. 6489 CHM/141	DECK SLAB DETAILS OF BRIDGE OVER RIVER ATABBE	SCALE: AS SHOWN	16.04.2023
		 EPTISA Servicios De Ingeniera Madrid, Spain  STUP Consultants Private Limited Kolkata, India	Checked By	Mr. S.M.	Reference Drawings		Drawing No. KDP/DPR/STR/BR/ATABBE/DD-11
		In Association With	Approved By	Mr. H.B.	KDP/DPR/STR/BR/ATABBE/DD-14	Chainage: 269+373	Sheet No. 1 / 1
		Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited					



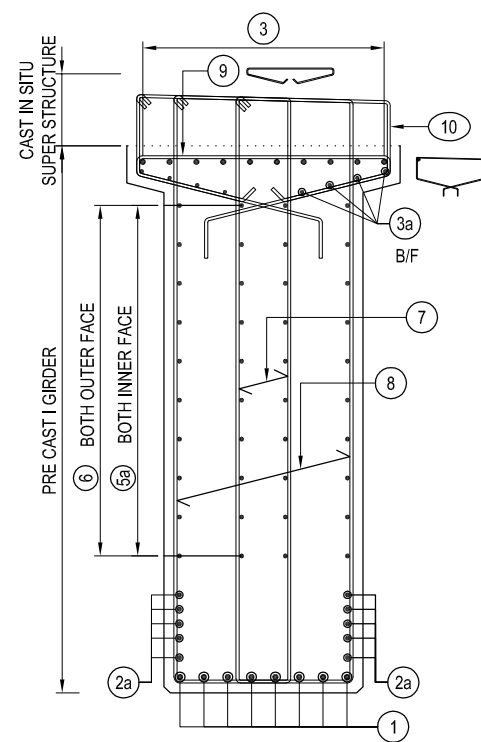
ELEVATION SHOWN REINFORCEMENT DETAIL OF LONGITUDINAL GIRDER

(SCALE 1:75)



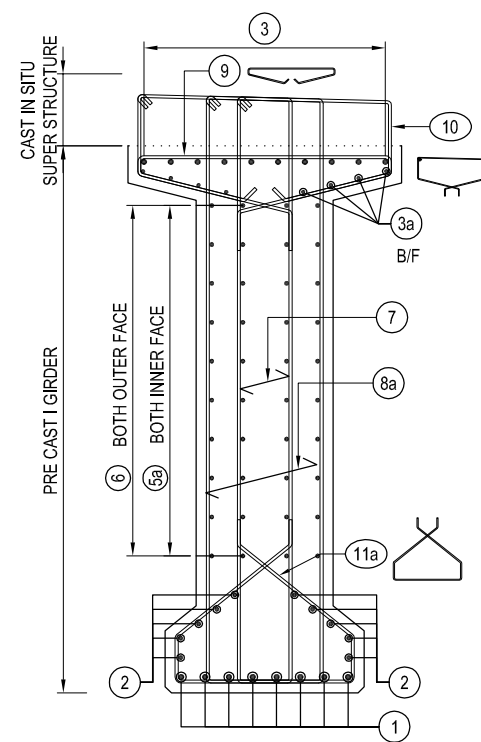
HALF PLAN SHOWING REINFORCEMENT DETAIL OF LONGITUDINAL GIRDER

(SCALE 1:75)



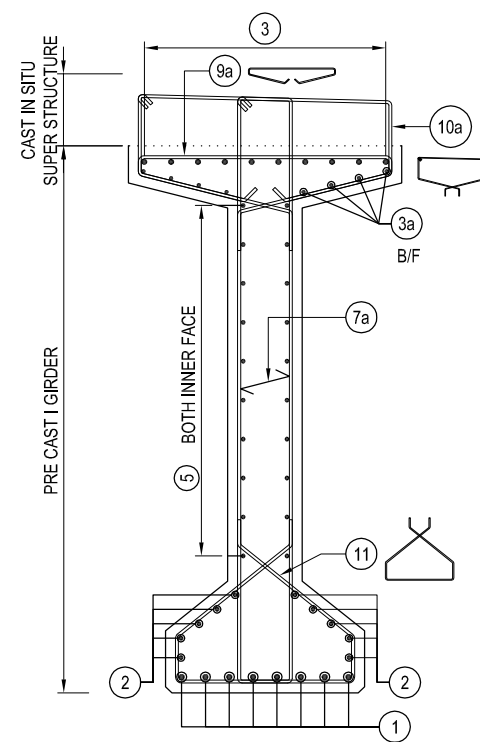
SECTION AT C-C

(SCALE 1:30)



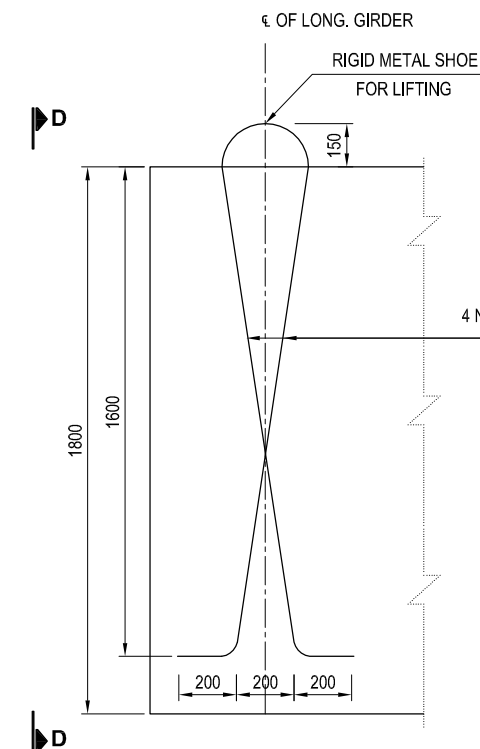
SECTION AT B-B

(SCALE 1:30)



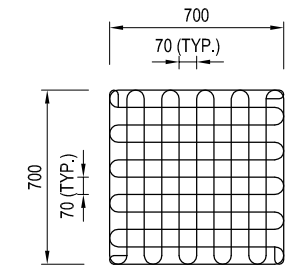
SECTION AT A-A

(SCALE 1:30)



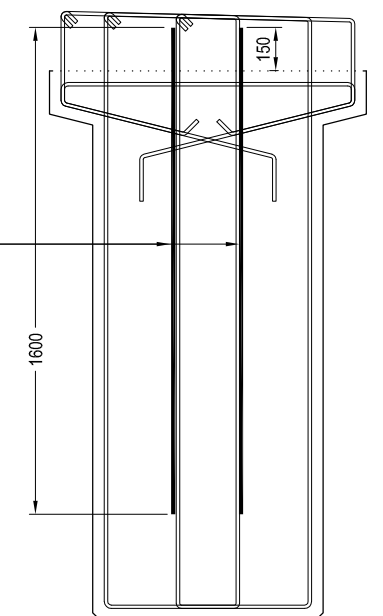
TYPICAL DETAIL OF LIFTING OF GIRDER AT EACH END OF THE GIRDER

(SCALE 1:30)



MESH TYPE "A"

8Ø MESH TO BE PLACED UNDER BEARING
(SCALE 1:30)



SECTION D-D

(SCALE 1:30)

NOTES :-

- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS.
- DO NOT SCALE THIS DRAWING. ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
- MATERIALS:-
CONCRETE : CONFORMING TO IS :456.
PSC GIRDERM-45
DECK SLAB & CROSS GIRDER M-40
- REINFORCEMENT: Fe 500D CONFORMING TO IS 1786
- CLEAR COVER TO ANY REINFORCEMENT: 40mm.
- LAP LENGTH OF THE BARS SHALL BE AS PER IRC 112:2011 NOT MORE THEN 50% OF BARS SHALL BE LAPPED AT ONE LOCATION.
- MESH 'A' SHALL BE PROVIDED IN GIRDER AT BEARING LOCATION IN TWO LAYERS AT 20MM & 100MM FORM SOFFIT OF GIRDER. ALL MESH REINFORCEMENT SHALL BE CENTRALLY PLACED W.R.T. BEARING.
- STRANDS SHALL BE OF SAME SPECIFICATION AS PROVIDED FOR STRESSING FOR GIRDER.
- BAR/STRANDS FOR LIFTING OF GIRDER SHALL BE PROVIDED IN SUCH A WAY SO AS TO ENSURE THAT LOAD IS TRANSFERRED ON ALL BAR/STRANDS SIMULTANEOUSLY.
- WHERE ANCHORAGE AND LAPS ARE USED THE MINIMUM ANCHORAGE AND LAP LENGTHS SHALL BE PROVIDED AS BELOW.

NOTE :

READ THIS DRAWING IN CONJUNCTION WITH
DRG NO. KDP/DPR/STR/BR/ATABBE/DD-4

EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Drawing Name	Scale:	Date:
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathalaya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of  EPTISA Servicios De Ingenieria Madrid, Spain  STUP Consultants Private Limited Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited	Mr. R.D.	MAIN GIRDER REINFORCEMENT DETAILS OF BRIDGE OVER RIVER ATABBE	SCALE: AS SHOWN	16.04.2023
			Checked By	Reference Drawings		Drawing No. KDP/DPR/STR/BR/ATABBE/DD-12
			Approved By	KDP/DPR/STR/BR/ATABBE/DD-14		Sheet No. 1 / 3

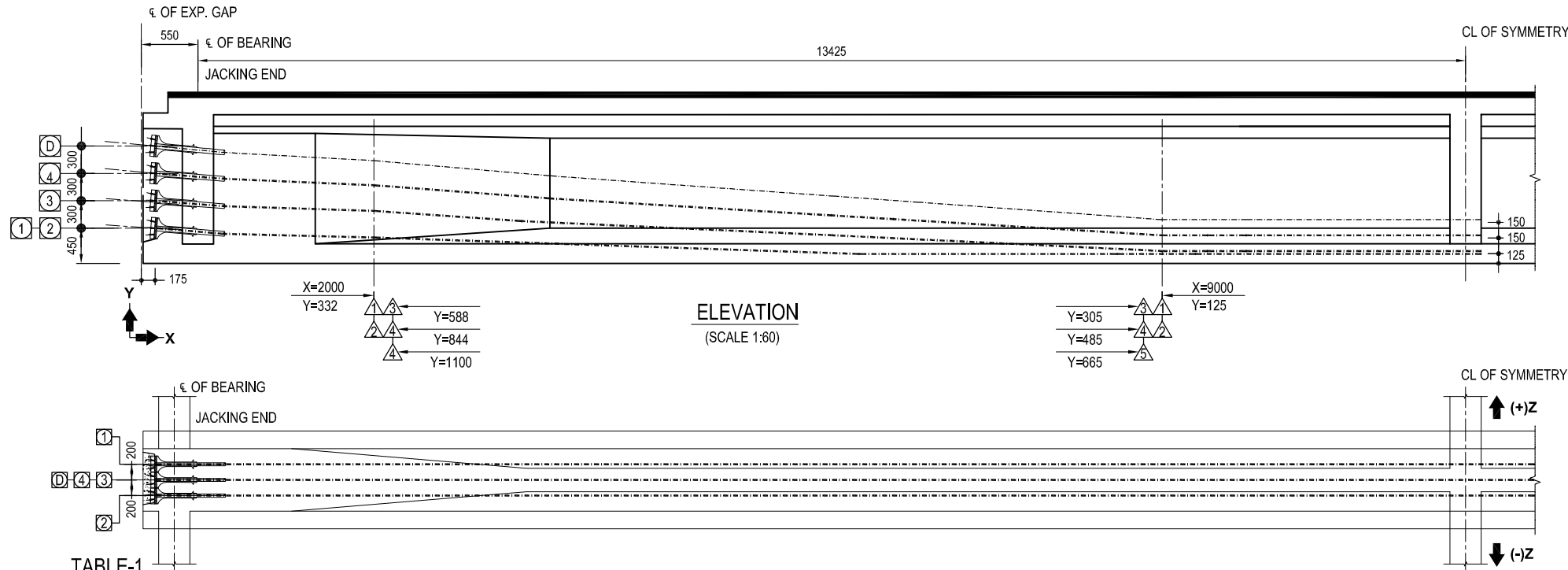


TABLE-1

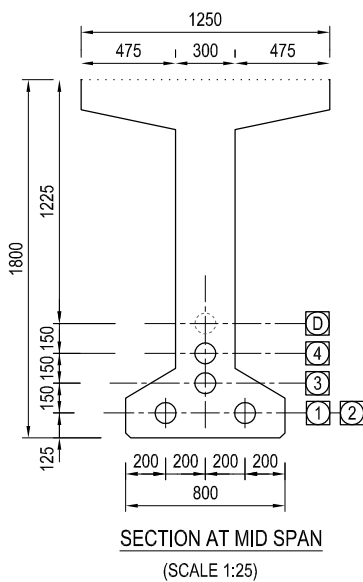
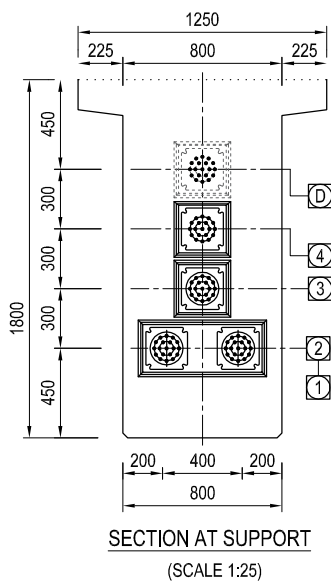
'Y' & 'Z' COORDINATES AT DISTANCE 'X' FROM END OF CABLE/DUCT IN mm.

Cable No.	X	150	500	1500	2000	3000	3500	5000	6500	7500	9000	10500	11000	11500	12000	12500	13000	13500	14075
1	Y	450	420	361	332	277	252	192	151	134	125	125	125	125	125	125	125	125	125
	Z	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
2	Y	450	420	361	332	277	252	192	151	134	125	125	125	125	125	125	125	125	125
	Z	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200
3	Y	750	710	629	588	513	480	397	341	318	305	305	305	305	305	305	305	305	305
	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Y	1050	999	896	844	749	707	602	531	501	485	485	485	485	485	485	485	485	485
	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Y	1350	1288	1163	1100	984	933	807	720	685	665	665	665	665	665	665	665	665	665
	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE-2

SCHEDULE OF TENDON FORCE AND EXTENSION:-

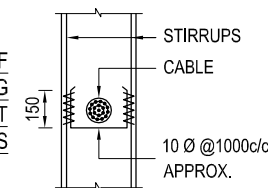
Cable No.	Total Length of Cable (mm)	Theoretical Elongation at Each End (mm)	Emergence Angle of Cable	No. of Strands	No. of Strands Left for Emergency	Jacking Force (T)	Stressing Type
1	30463	106.26	3.38	19	-	272.2	Both End
2	30463	107.09	3.38	19	-	272.2	Both End
3	30475	105.96	4.63	18	1	257.9	Both End
4	30490	105.79	5.88	18	1	257.9	Both End
5	Dummy		7.12				



TYPICAL DETAIL OF SUPPORTING ARRANGEMENT FOR CABLES (SCALE 1:20)

NOTE :

READ THIS DRAWING IN CONJUNCTION WITH DRG NO. KDP/DPR/STR/BR/ATABBE/DD-4



PLAN SHOWING STRESSING OF CABLE 1 & 2

(SCALE 1:25)

SEQUENCE OF STRESSING :-

* CABLES SHALL BE STRESSED IN THE FOLLOWING SEQUENCE

SL.NO.	CABLE NO.	SEQUENCE OF STRESSING
1.	③	AFTER 7 DAYS OF CASTING OR AFTER CONCRETE ATTAINS 37MPa CUBIC STRENGTH, WHICHEVER IS LATER (BOTH ENDS PRESTRESSING)
2.	① & ②	AFTER 21 DAYS OF CASTING GIRDER OR CONCRETE ATTAINS 48MPa CUBIC STRENGTH. CABLE 1 & 2 SHALL BE STRESSED FROM ONE END AS SHOWN IN PLAN SIMULTANEOUSLY FROM OPPOSITE ENDS TO EACH OTHER.
3.	④	STRESS CABLE 4 (BOTH ENDS PRESTRESSING)

SEQUENCE OF CONSTRUCTION :-

SL.NO.	LOADING CASES	TIME (DAYS)
1.	CASTING OF GIRDER	0 DAYS
2.	1 st STAGE PRESTRESSING	7 DAYS OR AFTER CONCRETE ATTAINS 37mpa WHICHEVER IS LATER.
3.	2 nd STAGE PRESTRESSING	21 DAYS OR AFTER CONCRETE ATTAINS 48mpa WHICHEVER IS LATER.
4.	CASTING OF DECK SLAB	28 DAYS
5.	REMOVAL OF DECK SHUTTERING	56 DAYS
6.	CASTING OF CRASH BARRIER	56 DAYS
7.	LAYING OF ASPHALT CONCRETE & ALLOWING LIVE LOAD	63 DAYS

NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS ARE NOT TO BE FOLLOWED.

3. PRESTRESSING SYSTEM

- ALL PRESTRESSING STRANDS SHALL HAVE 7 PLY UNCOATED STRESS RELIEVED HIGH TENSILE STRANDS (LOW RELAXATION) OF CONFIRMING TO CLASS 2 OF IS 14268-1983.
- CORRUGATED HDPE SHEATHING SHALL BE USED FOR ALL CABLES
- THE PARAMETERS ADOPTED FOR DESIGN ARE AS FOLLOWS-
 - SLIP AT EACH END-----6mm
 - MINIMUM SHEATH DIAMETER-----90mm (LD)-FOR 19T13
 - CO-EFFICIENT OF FRICTION----- $\mu=0.17$ RADIAN
 - WOBBLE CO-EFFICIENT----- $k=0.002/m$
 - NOMINAL AREA OF EACH STRANDS - $A=98.8mm^2$
 - NOMINAL ULTIMATE BREAKING LOAD OF EACH STRANDS ----- $=183.71KN$
 - MODULUS OF ELASTICITY OF HIGH TENSILE STEEL ----- $E=1.95 \times 10^5 mpa$
- ALL THE DESIGN PARAMETERS SHALL BE VERIFIED AT SITE BEFORE USE.
- SYSTEM OF PRESTRESSING -19T13/12T13 (ISMAL)

4. PRESTRESSING OPERATION

(ALL OPERATIONS TO BE SATISFY IRC AND MOST SPECIFICATION)

- ALL CABLES SHALL BE LAID IN SMOOTH CURVES PASSING THROUGH THE GIVEN ORDINATES AND SHALL BE SUPPORTED AT A SPACING NOT EXCEEDING 1000mm BY A 16mm DIA CROSS BAR / TACK WELDED SECURELY HELD IN POSITION WITH VERTICAL WEB REINFORCEMENT.
 - CABLE LENGTHS MENTIONED IN THE TABLE-2 OF DRAWING ARE INCLUSIVE OF 1000mm EXTRA AT EACH ANCHORAGE. TOTAL LENGTH SHALL BE VERIFIED AT SITE.
 - STRANDS OF CABLE NO. 1 & 2 SHALL BE STRESSED FROM ONE END SIMULTANEOUSLY FROM OPPOSITE ENDS TO EACH OTHER, STRANDS OF CABLE NO. 3 & 4 SHALL BE TENSIONED FROM BOTH ENDS SIMULTANEOUSLY. JACK USED FOR TENSIONING SHALL BE ISMAL 3000 RG / 4000 MG OR EQUIVALENT FOR 19T13 & J20/1000MG FOR 7T13, JACKING FORCES GIVEN IN TABLE-2 SHALL BE INCREASED BY RELEVANT PERCENTAGE TO ACCOUNT FOR ANCHORAGE AND JACK FRICTION & EFFICIENCY AS PER MANUFACTURE'S INSTRUCTIONS.
 - GROUTING OF CABLES SHALL BE DONE IN SAME SEQUENCE AS STRESSING AND SHALL CONFORM WITH IRC:112-2011 AND ALSO TO MOST SPECIFICATION.
 - ANCHORAGE POCKET SHALL BE FILLED WITH EPOXY MORTAR OR NON SHRINK CONCRETE AFTER STRESSING & GROUTING.
 - EXTENSIONS SHALL BE RECHECKED AFTER 24 HOURS AFTER ANCHORING TO OBSERVE SLOW SLIPPAGE THE MATTER SHALL BE REPORTED FOR EXCESSIVE SLIPPAGE IF ANY.
 - EXTENSIONS GIVEN IN TABLE-2 ARE FOR HALF CABLE LENGTHS (BOTH ENDS STRESSING) FULL CABLE LENGTH (ONE ENDS STRESSING) INCLUSIVE OF 750mm GRIP LENGTH AT EACH END LOSS UPTO 6mm DUE TO SLIP OF ANCHORAGES ARE NOT TO BE COMPENSATED DURING SITE OPERATIONS. JACK PRESSURE & EXTENSION OF CABLES AT EACH END GIVEN IN THE DRAWING SHALL BE VERIFIED AT SITE.
 - INITIAL SLACKNESS IN THE PRESTRESSING SHALL BE REMOVED BY APPLYING SMALL TENSION. THE INITIAL TENSION REQUIRED TO REMOVE THE INITIAL SLACKNESS SHALL BE TAKEN AS THE STARTING POINT FOR MEASURING ELONGATION AND CORRECTION SHALL BE APPLIED AS PER CLAUSE 12.2.1.3 OF IS:1343-1980.
 - IN CASE THE CALCULATED ELONGATION AND THE JACK PRESSURE ARE NOT ACHIEVED SIMULTANEOUSLY DURING PRESTRESSING OPERATION, STRESSING SHALL BE CONTINUED/DISCONTINUED AS PER NOTE NO. 8 GIVEN BELOW.
- 5) THE EXTENSION GIVEN IN TABLE-2 SHALL BE MODIFIED AT SITE IN CASE ACTUAL VALUE OF AREA OF STRAND 'A' AND MODULUS OF ELASTICITY 'E' VARIES FROM THOSE ASSUME IN DESIGN REVISED EXTENSION SHALL BE CALCULATED AS UNDER:

$$\text{ELONGATION} = \frac{98.7 \times 195000}{\text{NEW AREA} \times \text{NEW MODULUS}} \times \text{X ELONGATION GIVEN IN TABLE-2}$$

- 6) THE EXTENSION OF CABLES SHALL BE VERIFIED FOR A FEW CABLES AT SITE. IN CASE THE VALUE OF AND ARE DIFFERENT THAN THOSE CONSIDERED, EXTENSION SHALL BE SUITABLY MODIFIED AFTER APPROVAL OF ENGINEER-IN-CHARGE.
- 7) THE GRIP LENGTH FROM ANCHORAGE FACE TO GRIPPING POINT IN JACK ASSUMED IN TENSION CALCULATION IS 750mm AND THE ADDITIONAL LENGTH TAKEN FOR CUTTING IS 200mm. IF GRIP LENGTH VARIES THAN THOSE CONSIDERED, EXTENSIONS SHALL BE MODIFIED.

8. SPECIAL NOTES FOR PRESTRESSING:-

- IF THE CALCULATED ELONGATION IS REACHED BEFORE THE CALCULATED GAUGE PRESSURE IS OBTAINED CONTINUE TENSIONING TILL ATTAINING THE CALCULATED GAUGE PRESSURE PROVIDED BY ELONGATION DOESNOT EXCEED 1.05 TIMES THE CALCULATED ELONGATION . IF THIS ELONGATION IS ACHIEVED BEFORE THE CALCULATED GAUGE PRESSURE IS ATTAINED STOP STRESSING & INFORM THE ENGINEER-IN-CHARGE.
- IF THE CALCULATED ELONGATION HAS NOT BEEN REACHED CONTINUE TENSIONING BY INTERVALS OF 5KG/sq cm UNTILL THE CALCULATED ELONGATION IS REACHED PROVIDED THE GAUGE PRESSURE DOES NOT EXCEED 1.05 TIMES THE CALCULATED GAUGE PRESSURE.
- IF THE ELONGATION AT 1.05 TIMES THE CALCULATED GAUGE PRESSURE IS LESS THEN 0.95 TIMES THE CALCULATED ELONGATION, THE FOLLOWING MEASURES MUST BE TAKEN IN SUCCESSION TO DEFINE THE CAUSE OF THIS LACK OF ELONGATION
 - RECALIBRATE THE PRESSURE GAUGE.
 - CHECK THE CORRECT FUNCTIONING OF THE JACK PUMP AND LEADS.
 - DE-TENSION CABLE, SLIDE IT IN ITS DUCT TO CHECK THAT IT IS NOT BLOCKED BY MORTAR WHICH HAS INTERED THROUGH HOLES IN THE SHEATH, DETENSION THE CABLE IF FOUND FREE.
- IF THE ELONGATION IS NOT OBTAINED FURTHER FINISHING OPERATIONS SUCH AS CUTTING OR SEALING SHOULD NOT BE UNDERTAKEN WITHOUT THE APPROVAL OF ENGINEER-IN-CHARGE.
- FOR CO-ORDINATES REFER TABLE 1 OF THIS DRAWING.
- FORCE IN CABLE 1 & 2 IS TO BE KEPT SAME AND UNIFORM ALWAYS, THROUGHOUT THE WHOLE PRESTRESSING OPERATION.
- DO NOT MAKE GROUTING TILL THE LOAD VS ELONGATION VALUE IS FOUND IN CONFIRMITY WITH THE FORCE VS ELONGATION TABLE. OTHERWISE, SHARE LOAD VS ELONGATION VALUE TO THE DESIGNER FOR FURTHER ACTION.



Government of Nepal
Ministry of Physical Infrastructure and Transport
Department of Roads
Development Cooperation Implementation
Division

Strategic Road Connectivity & Trade Improvement Project (SRCTIP)
Detailed Design of Upgradation of Kamab-Dhalkebar-Pathilajya Road Section (130 KM) of Mahendra Highway and Bridges

DESIGN CONSULTANTS
Joint Venture of
EPTISA Servicios De Ingeniera Madrid, Spain
STUP Consultants Private Limited Kolkata, India
In Association With
Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited

Designed By

Mr. R.D.

Nec.No. 6489 CIVIL/14

Checked By

Mr. S.M.

Approved By

Mr. H.B.

Drawing Name

MAIN GIRDER REINFORCEMENT DETAILS OF BRIDGE OVER
RIVER ATABBE

Reference Drawings

KDP/DPR/STR/BR/ATABBE/DD-14

Scale:

SCALE: AS SHOWN

Chainage:

269+373

Date:

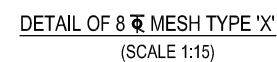
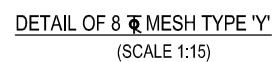
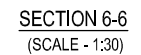
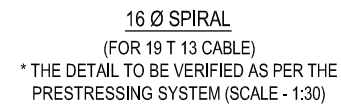
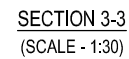
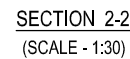
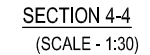
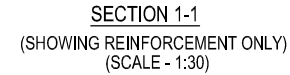
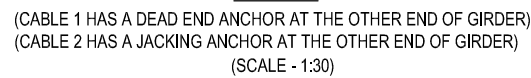
16.04.2023

Drawing No.

KDP/DPR/STR/BR/ATABBE/DD-12

Sheet No.

2 / 3



	EMPLOYER
	Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division

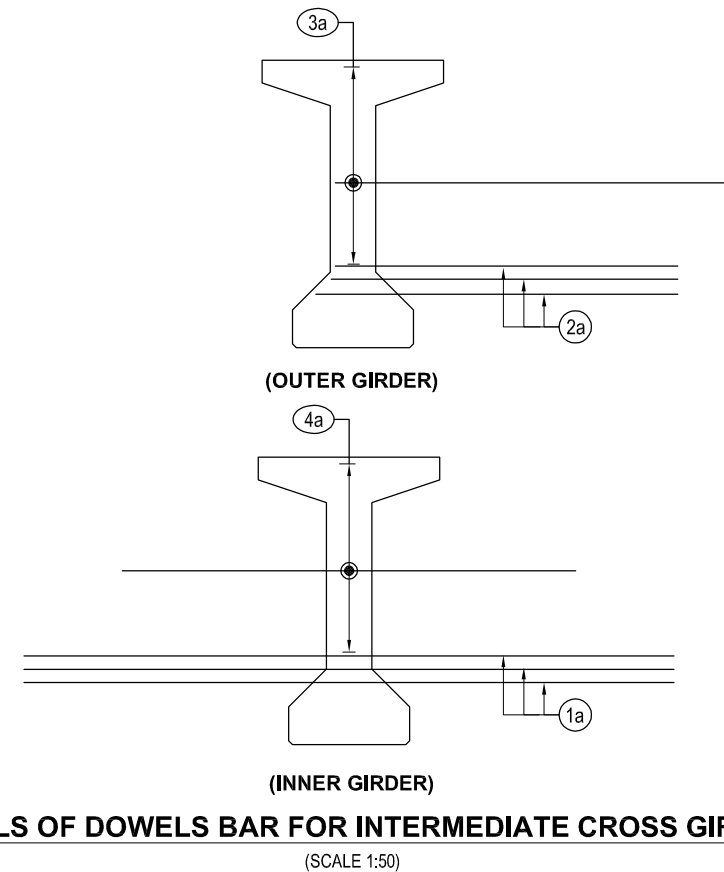
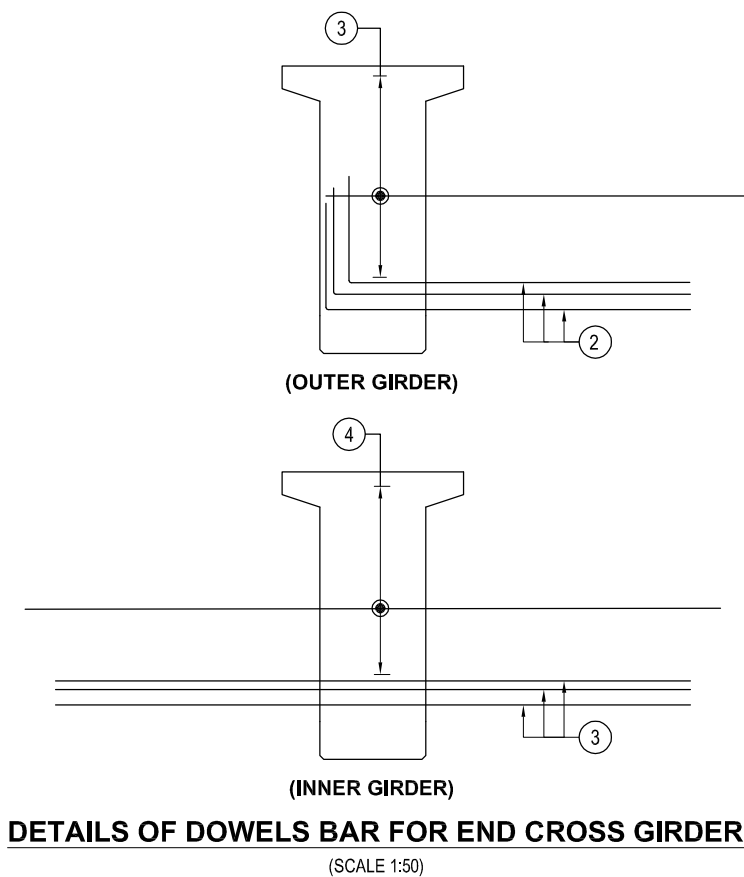
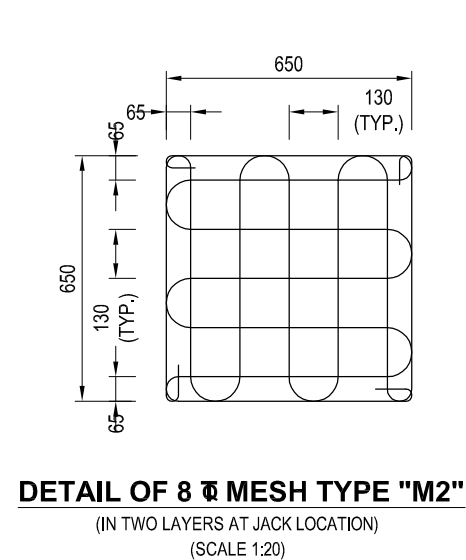
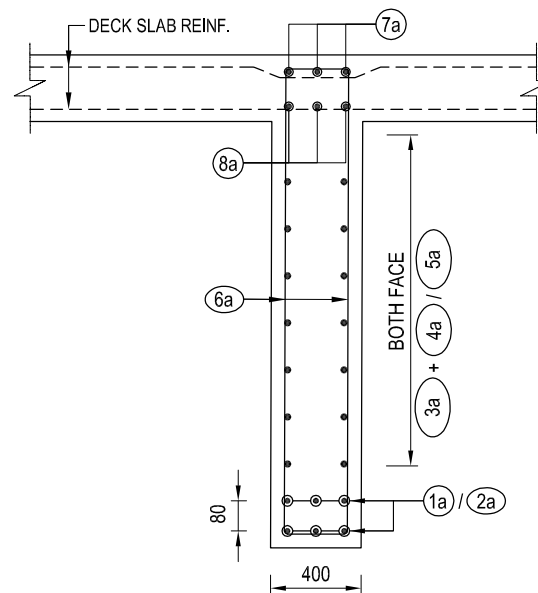
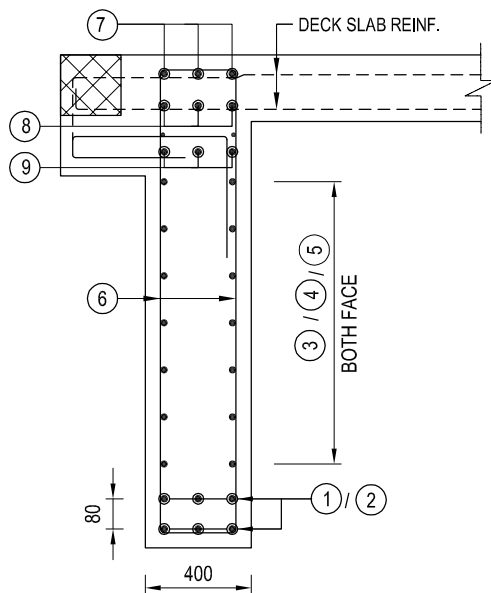
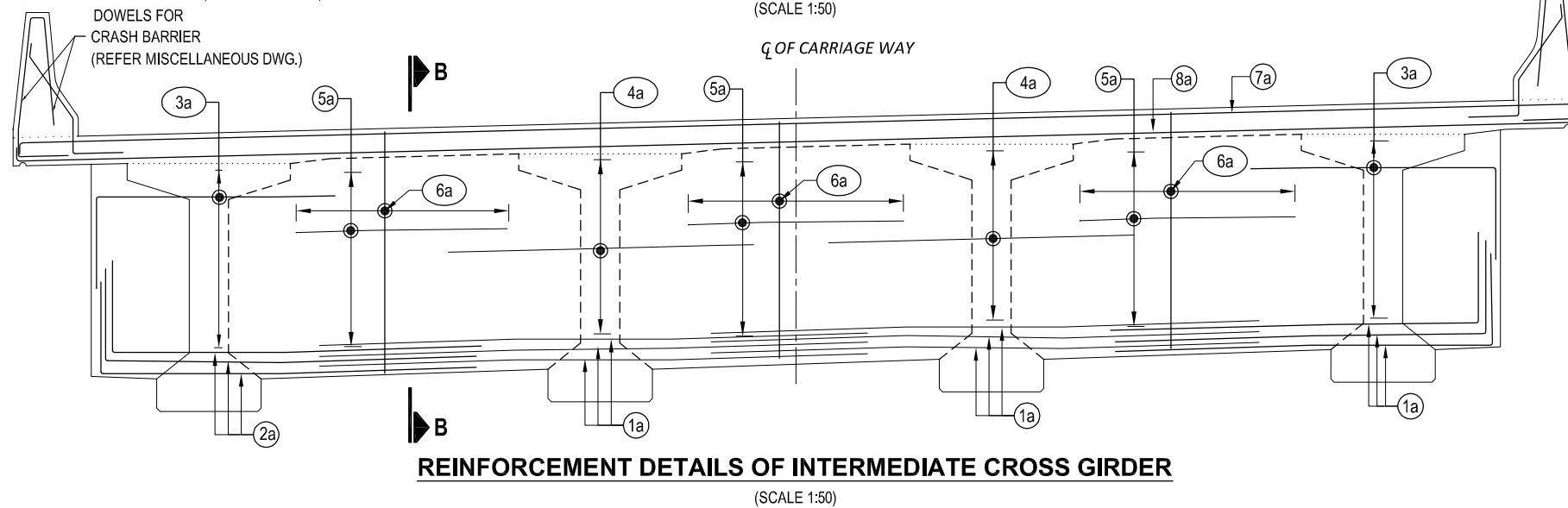
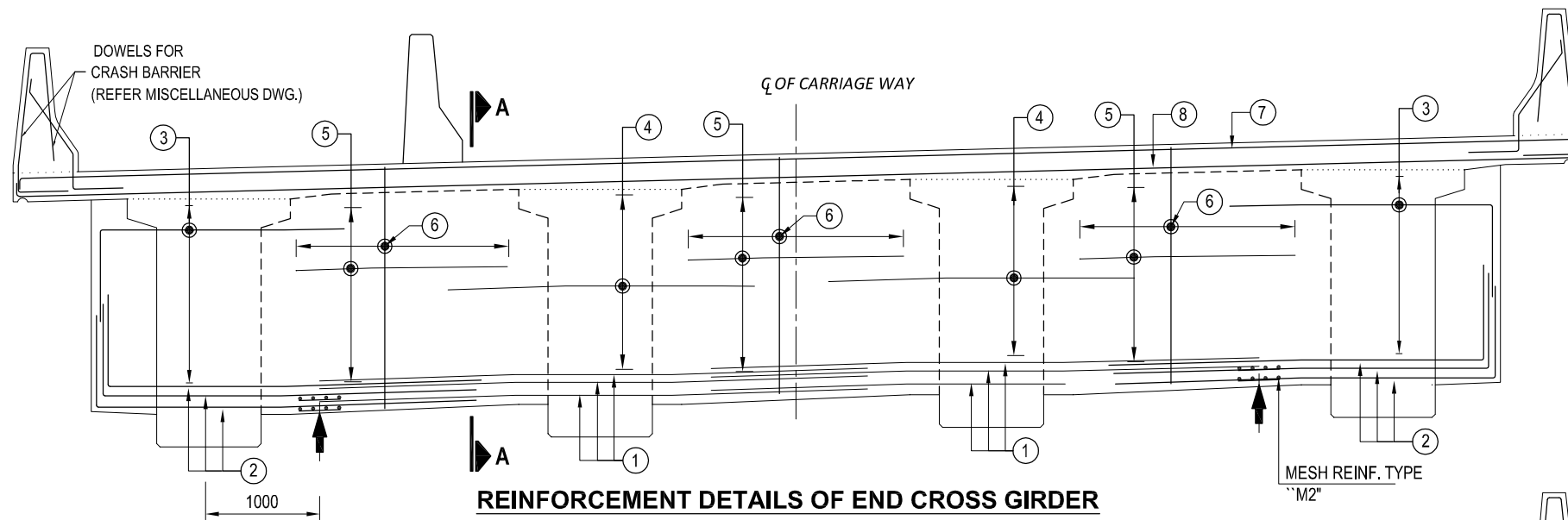
DESIGN CONSULTANTS	
Joint Venture of	
Servicios De Ingenieria Madrid, Spain	 STUP Consultants Private Limited Kolkatta, India
In Association With	
Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited	

Designed By	Mr. R.D.	
	Nec.No. 8489 CIVIL 'A'	Signature
Checked By	Mr. S.M.	
		Signature
Approved By	Mr. H.B.	

Date: 16.04.2023

Drawing No. KDP/DPR/STR/BR/ATABBE/DD-12

Sheet No. 3 / 3



NOTE :
READ THIS DRAWING IN CONJUNCTION WITH
DRG NO. KDP/DPR/STR/BR/ATABBE/DD-4

SECTION AT A-A
(SCALE 1:25)

SECTION AT B-B
(SCALE 1:25)

DETAILS OF DOWELS BAR FOR INTERMEDIATE CROSS GIRDER
(SCALE 1:50)

EMPLOYER Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	PROJECT NAME Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	DESIGN CONSULTANTS Joint Venture of EPTISA Servicios De Ingenieria Madrid, Spain STUP Consultants Private Limited Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited	Designed By Mr. R.D. Nac.No. 6489 CIVIL/14 Checked By Mr. S.M. Approved By Mr. H.B. 	Drawing Name CROSS GIRDER REINFORCEMENT DETAILS OF BRIDGE OVER RIVER ATABBE Reference Drawings KDP/DPR/STR/BR/ATABBE/DD-14	Scale: SCALE: AS SHOWN Chainage: 269+373	Date: 16.04.2023 Drawing No. KDP/DPR/STR/BR/ATABBE/DD-13 Sheet No. 1 / 1
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BAR BENDING SCHEDULE OF GIRDER (1 NO)								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	1	150 28420 150	16		28.720	6	1.580	272.31
2	2	28420	16		28.420	10	1.580	449.11
3	2a	1900 3010 500 5°	16		5.410	20	1.580	170.98
4	3	150 28420 150	16		28.720	10	1.580	453.85
5	3a	28420	16		28.420	8	1.580	359.28
6	4	SEE DECK REINFORCEMENT						
7	5	28420	12		28.420	10	0.889	252.62
8	5a	1900 3010 500 5°	12		5.410	20	0.889	96.18
9	6	1900 3010 500 5°	12		5.410	20	0.889	96.18
10	7	100 1945 2 Legged 220	12	150	4.530	68	0.889	273.81
11	7a	100 1945 2 Legged 220	12	150	4.530	166	0.889	668.43
12	8	100 1945 2 Legged 720	12	150	5.530	28	0.889	137.64
13	8a	100 1945 2 Legged Avg. 470	12	150	5.030	42	0.889	187.79
14	9	1170 85 75 475	12	150	2.440	68	0.889	147.48
15	9a	1170 85 75 475	12	150	2.440	166	0.889	360.04

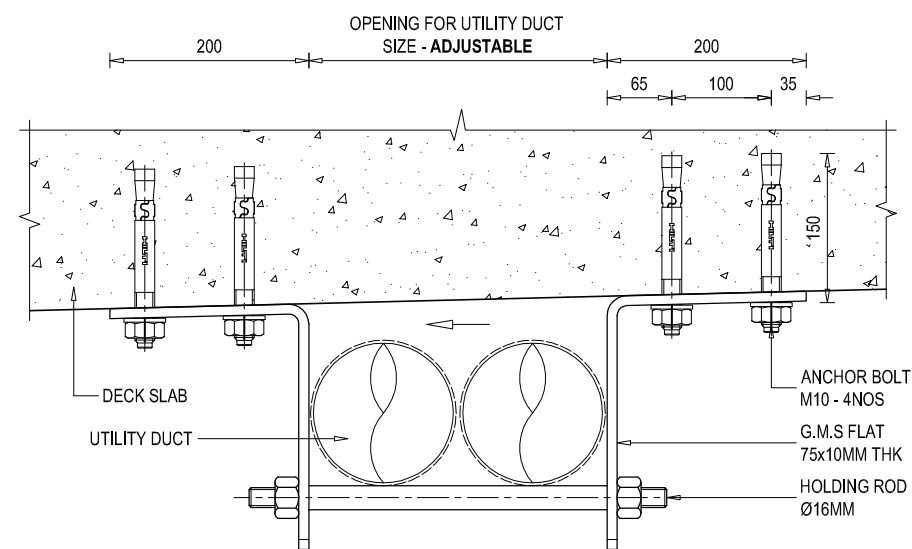
BAR BENDING SCHEDULE OF GIRDER (1 NO)								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
16	10	1170 290 935 150 51°	12	150	3.920	68	0.889	236.94
17	10a	1170 290 935 150 51°	12	150	3.920	166	0.889	578.42
18	11	170 150 51° 585 720	12	150	2.530	68	0.889	152.92
19	11a	170 150 51° 585 720	12	150	2.530	166	0.889	373.32
20	12	R150 1650 200	16		4.000	4	1.580	25.28
TOTAL :							5292.57	
GRAND TOTAL (4 NO.S)							21170.29	

BAR BENDING SCHEDULE OF CROSS GIRDER (PER SPAN)								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	1	4200	20		4.200	60	2.469	622.22
2	2	700 2610	20		3.310	24	2.469	196.15
3	3	700 2000	12		2.700	24	0.889	57.60
4	4	2400	12		2.400	60	0.889	128.00
5	5	2000	12		2.000	72	0.889	128.00
6	6	100 1800 2 Legged 320	12	150	4.440	10	0.889	39.47
7	7	150 11850 150	20		12.150	6	2.469	180.00
8	8	150 11850 150	20		12.150	6	2.469	180.00
9	9	150 11850 150	20		12.150	6	2.469	180.00
10	10	650 650	12		5.130	8	0.889	36.48
TOTAL :							1747.92	
GRAND TOTAL (3 NO.)							5243.75	

BAR BENDING SCHEDULE OF GRIDER END (1 NO)								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	eb1	800 380 800	16		1.980	2	1.580	6.26
2	eb2	1600	12		1.600	2	0.889	2.84
3	eb3	1600	12		1.600	2	0.889	2.84
4	eb4 + eb4a	800 550 Avg. 800	12		2.150	2	0.889	3.82
5	eb5	800 720 800	16		2.320	2	1.580	7.33
6	eb6	385 720	16		10.310	6	1.580	97.75
7	eb7	670 950	16		12.200	6	1.580	115.67
8	eb8	800 720 800	16		2.320	2	1.580	7.33
9	eb9	200 1800 3000 200	12		5.200	2	0.889	9.24
10	eb10	280 540	16		8.790	4	1.580	55.56
TOTAL :							308.67	
GRAND TOTAL (2 x 4 NO.S)							1234.67	

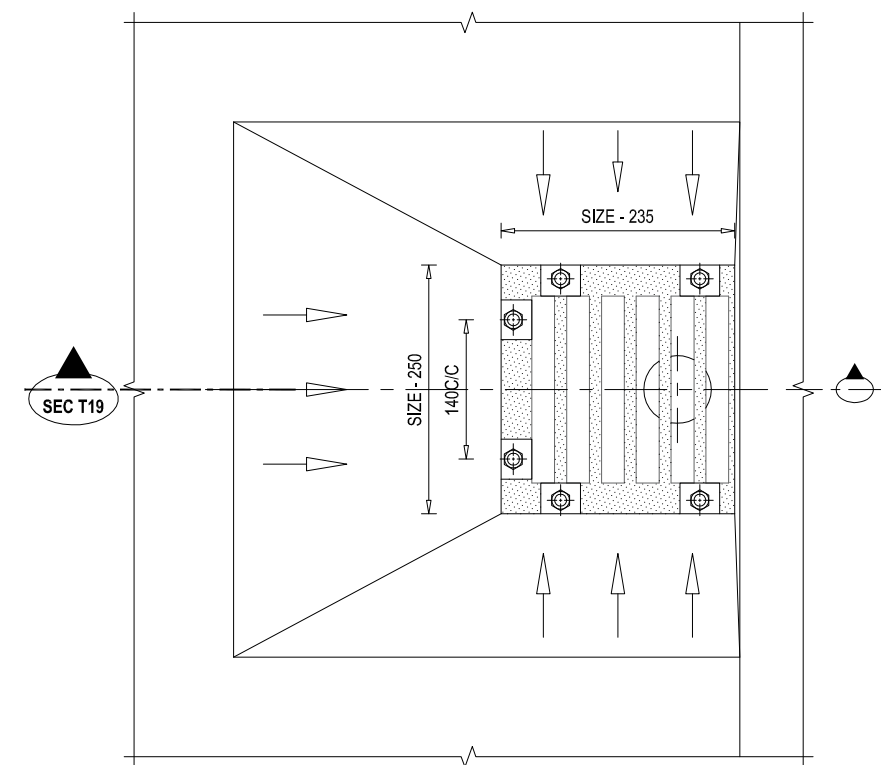
BAR BENDING SCHEDULE OF DECK (1 NO)								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	st1	350 11770 350	16	100	12.470	285	1.580	5616.12
2	st4	100 28420 100	10	150	28.620	79	0.617	1395.67
3	st4a	350 650	12	150	1.000	110	0.889	97.78
4	sb1	100 11770 100	16	100	11.970	350	1.580	6620.44
5	sb3	100 28420 100	12	150	28.620	110	0.889	2798.40
6	sb4	350 800 300 500	12	150	1.950	110	0.889	190.67
7	sb5	11770	10		11.770	3	0.617	21.80
8	sb6	11770	16		11.770	4	1.580	74.40
TOTAL :							16815.27	
GRAND TOTAL (1 NO.)							16815.27	

EMPLOYER		PROJECT NAME		DESIGN CONSULTANTS		Drawing Name		Scale:		Date:	
	Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of		Designed By	Mr. R.D.	SUPER STRUCTURE BAR BENDING SCHEDULE OF BRIDGE OVER RIVER ATABBE	SCALE: AS SHOWN	16.04.2023		
			 EPTISA Servicios De Ingenieria Madrid, Spain	 STUP Consultants Private Limited Kolkata, India	Checked By	Mr. S.M.			Reference Drawings	Chainage: 269+373	Drawing No. KDP/DPR/STR/BR/ATABBE/DD-14
					In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited						

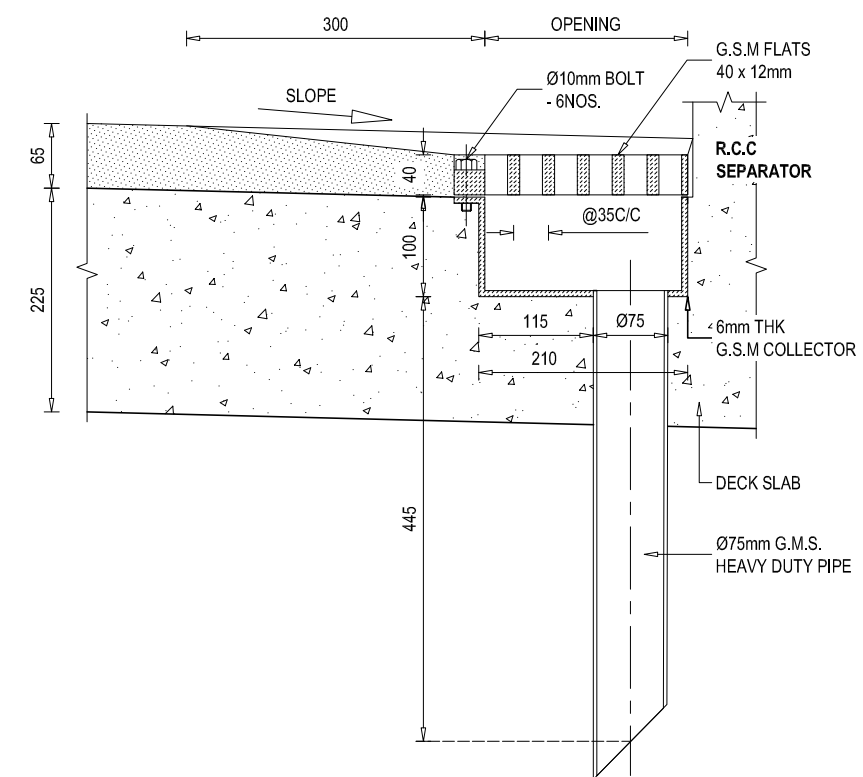


SECTIONAL ELEVATION VIEW AT SEC T17

SCALE - 1 : 10

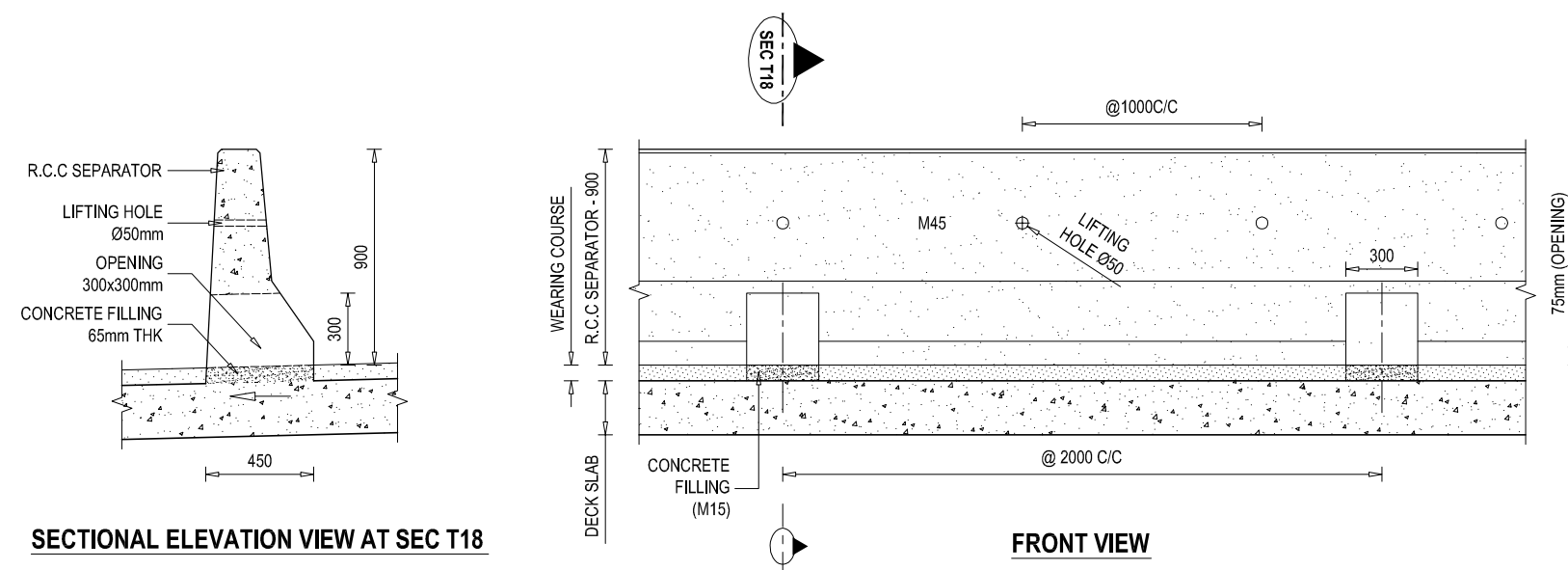


PLAN VIEW



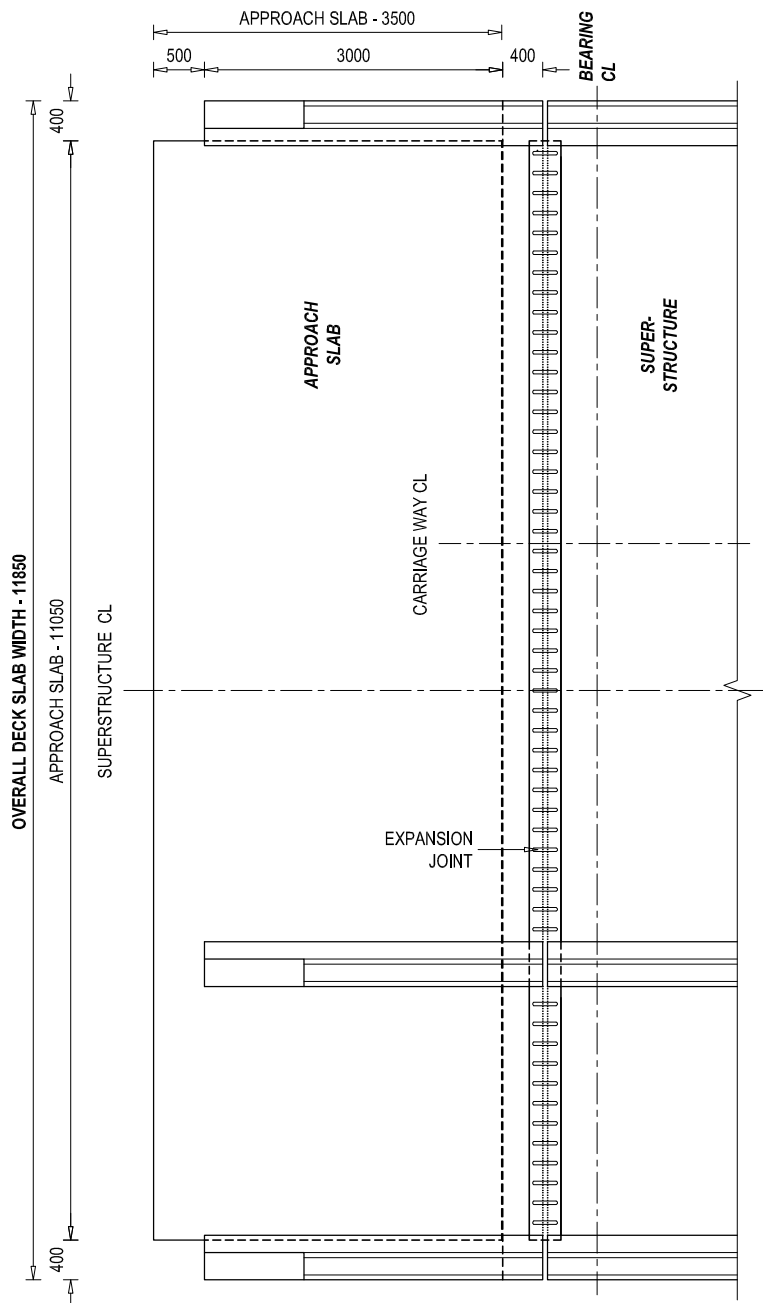
SECTIONAL ELEVATION VIEW AT SEC T19

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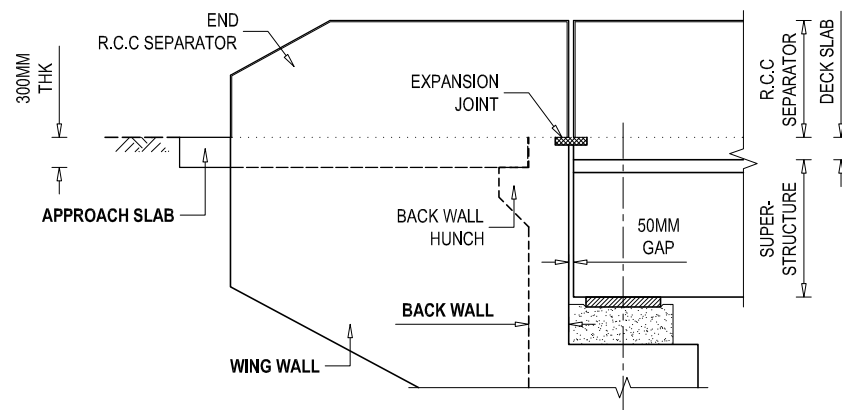


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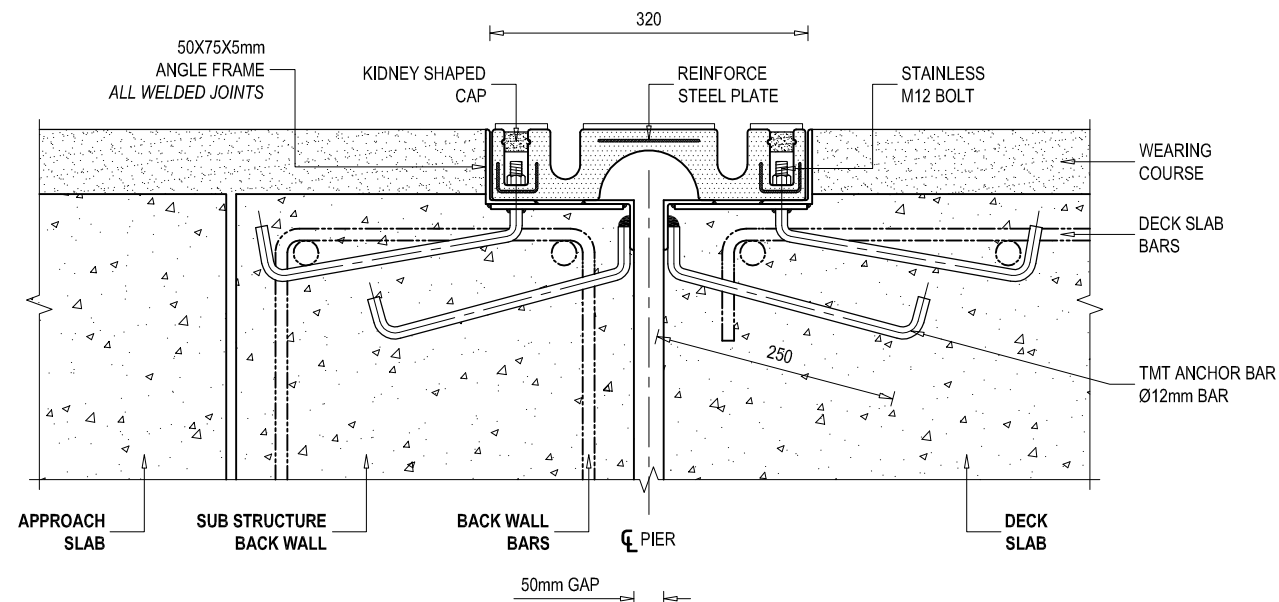
EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Mr. R.D.	Drawing Name	Scale:	Date:
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of	Mr. R.D.		MISCELLANEOUS DETAILS OF BRIDGE OVER RIVER ATABBE	AS SHOWN	16.04.2023
		 EPTISA Servicios De Ingenieria Madrid, Spain  STUP Consultants Private Limited Kolkatta, India	Mr. S.M.				Drawing No.-
		In Association With	Mr. H.B.		Reference Drawings	Chainage:	Sheet No. 1/2
		Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited	Approved By			269+373	



PLAN VIEW AT EXPANSION JOINT, END R.C.C SEPARATOR & APPROACH SLAB

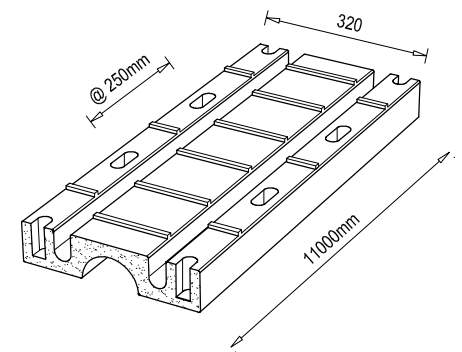


ELEVATION VIEW



SEAL TYPE EXPANSION JOINTS ARRANGEMENT IN A CARRIAGEWAY

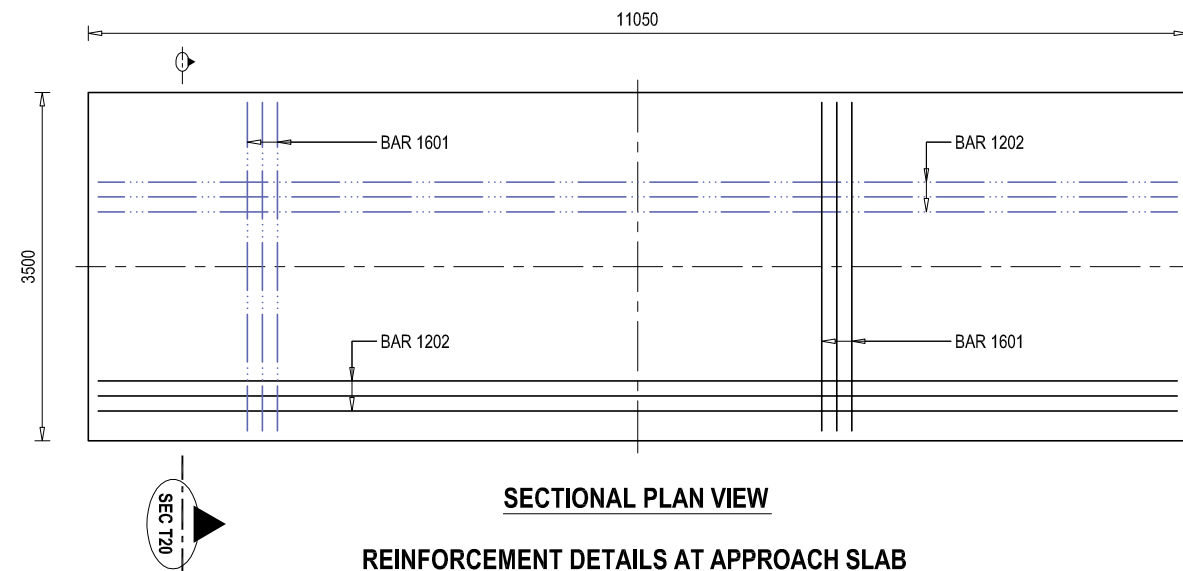
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EXPANSION JOINT ISOMETRIC VIEW

- SEAL TYPE

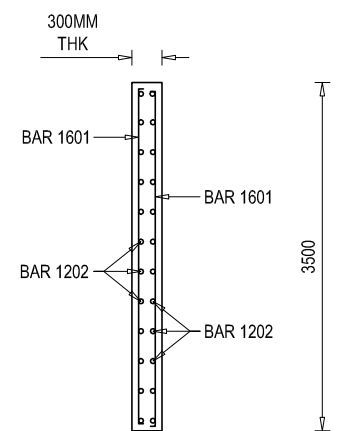
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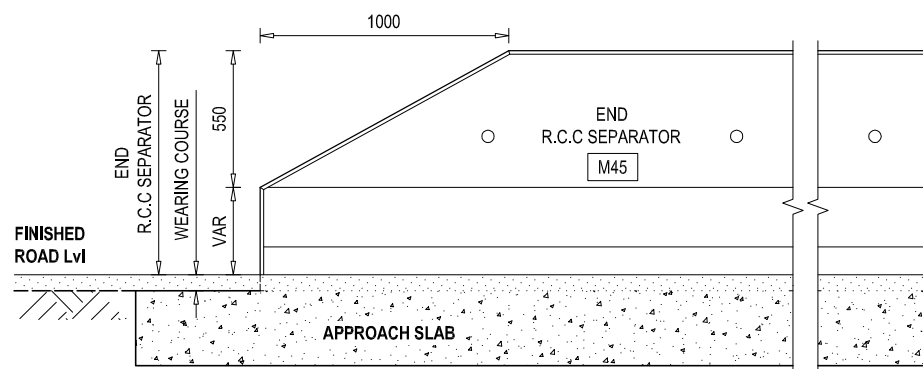
SECTIONAL PLAN VIEW

REINFORCEMENT DETAILS AT APPROACH SLAB

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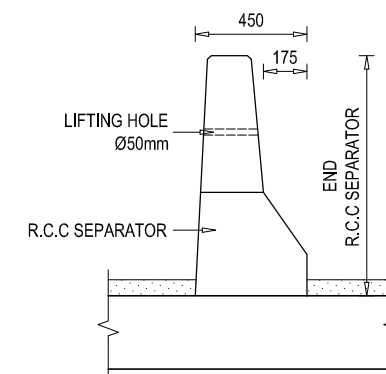


SECTIONAL ELEVATION VIEW AT SEC T20



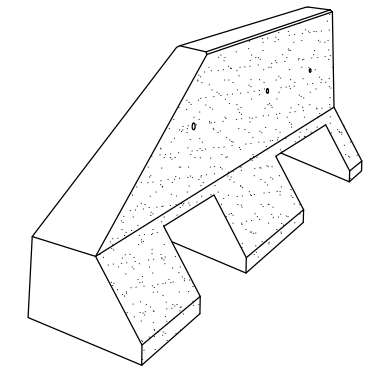
ELEVATION VIEW OF END R.C.C SEPARATOR

SCALE - 1 : 40 @ A3 PAPER



SIDE VIEW

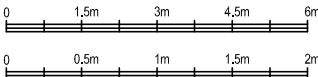
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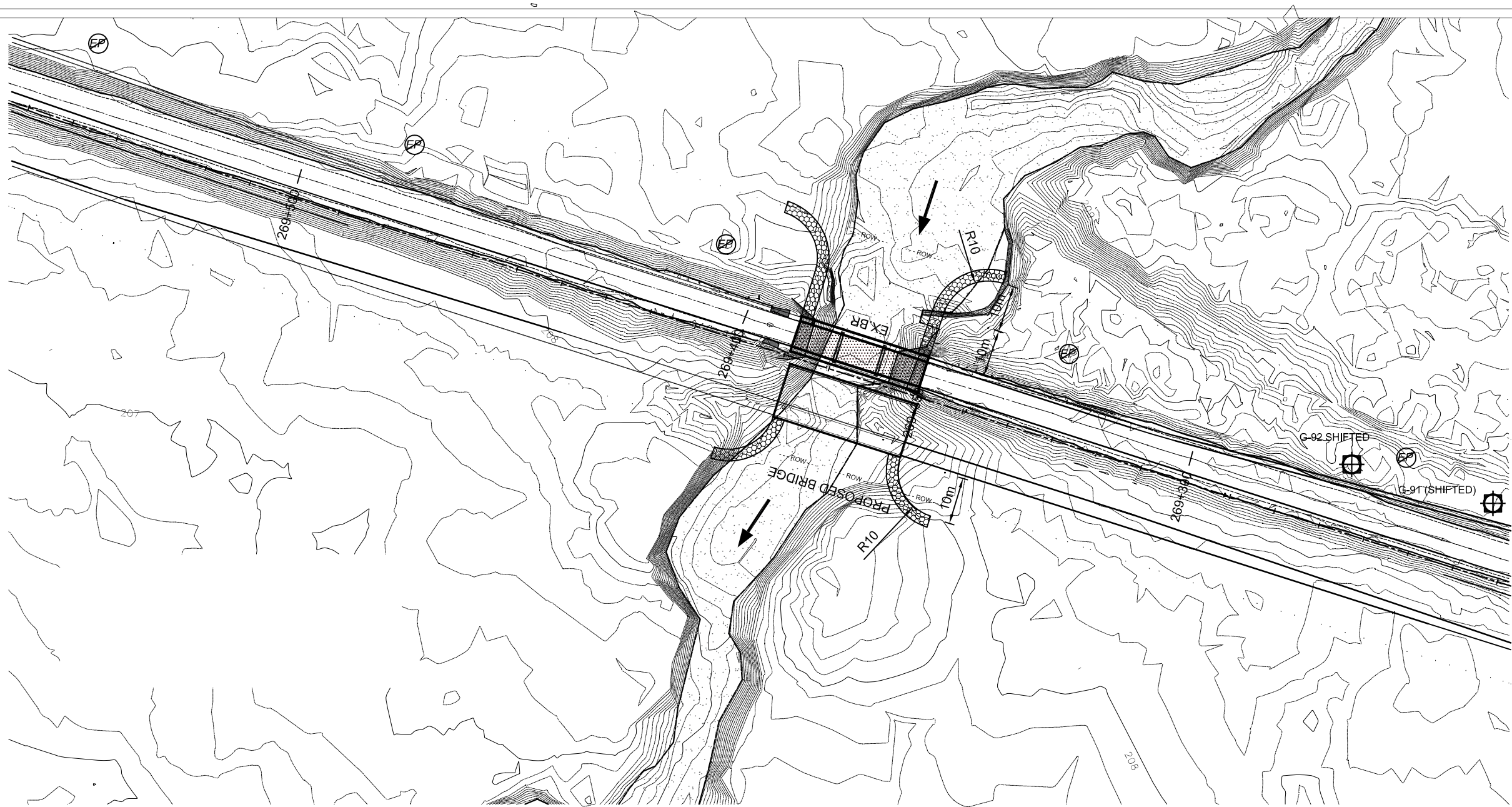
END R.C.C SEPARATOR ISOMETRIC VIEW

SCALE - NON

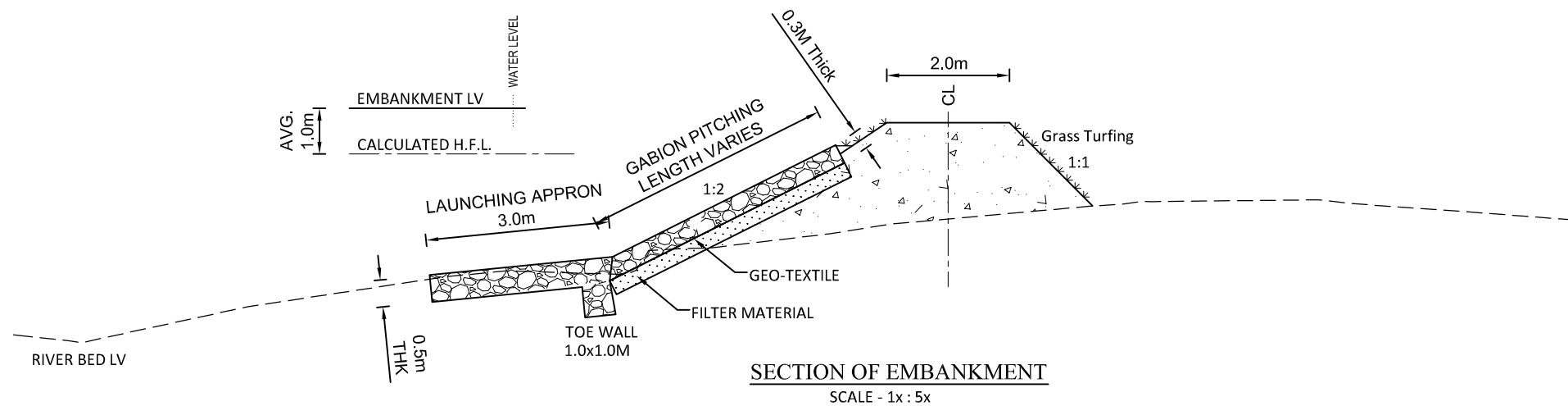
EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Drawing Name	Scale:	Date:
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamal-Dhalkebar-Pathalaya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of  EPTISA Servicios De Ingenieria Madrid, Spain  STUP Consultants Private Limited Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited	Mr. R.D.	MISCELLANEOUS DETAILS OF BRIDGE OVER RIVER ATABBE	AS SHOWN	16.04.2023
			Checked By	Reference Drawings	Chainage:	Drawing No.-
			Approved By	KDP/DPR/STR/BR/ATABBE /DD-9	269+373	KDP/DPR/STR/BR/ATABBE /DD-15
						Sheet No.2 /2



EMPLOYER		PROJECT NAME		DESIGN CONSULTANTS			Drawing Name		Scale:		Date:	
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP)	Joint Venture of			Designed By	Mr. R.D.		WING WALL DETAILS OF BRIDGE OVER RIVER ATABBE	AS SHOWN	15.04.2023		
		 EPTISA Servicios De Ingeniera Madrid, Spain	 STUP Consultants Private Limited Kolkatta, India	Checked By	Mr. S.M.							
		In Association With Udaya Consultancy, Geocom International, Sundar Krti Consultant and Rays Consultant Private Limited			Approved By	Mr. H.B.						
		Detailed Design of Upgradation of Kamala-Dhakkebar-Pathihalya Road Section (130 KM) of Mahendra Highway and Bridges					Reference Drawings		Chainage:			
							-		269+373			
											Drawing No.- KDP/DPR/STR/BR/ATABBE/DD-16	
											Sheet No. 1 / 1	



TOPOGRAPHIC MAP



EMPLOYER		PROJECT NAME		DESIGN CONSULTANTS		Drawing Name		Scale:		Date:		
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of		Designed By	Mr. R.D.	 Signature	RIVER TRAINING WORKS OF BRIDGE OVER RIVER ATABBE	1:1000	12.03.2023			
		 EPTISA Servicios De Ingenieria Madrid, Spain		Checked By	Mr. S.M.					 Signature		
		In Association With Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited		Approved By	Mr. H.B.						 Signature	
						Reference Drawings		Chainage: 269+373				Drawing No.- KDP/DPR/STR/BR/ATABBE/DD-17
										Sheet No.1 / 1		

Bearing Design Data for 28.5m Span and 11.85m width

Load Condition	Items	Under	On each Neoprene Bearing	Unit
Under No Live Load	V	NO EQ.	74.33	Ton
		EQ.	85.48	Ton
	H _L	NO EQ.	-	Ton
		EQ.	16.72	Ton
	H _T	NO EQ.	-	Ton
		EQ.	16.72	Ton
	θ	NO EQ.	0.00285	radian
		EQ.	0.00327	radian
	Δ		17.67	mm
Under Maximum Live Load	V	NO EQ.	117.24	Ton
		EQ.	129.68	Ton
	H _L	NO EQ.	-	Ton
		EQ.	0.00	Ton
	H _T	NO EQ.	-	Ton
		EQ.	0.00	Ton
	θ	NO EQ.	0.0042	radian
		EQ.	0.00486	radian
	Δ		29.13	mm

 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlalya Road Section (130 KM) of Mahendra Highway and Bridges	DESIGN CONSULTANTS		Designed By	Mr. R.D.	 Signature	Drawing Name	BEARING DESIGN DATA OF BRIDGE OVER RIVER ATABBE	Scale: 1:1000	Date: 12.03.2023
		Joint Venture of		Checked By	Mr. S.M.		Reference Drawings			
		In Association With		Approved By	Mr. H.B.					
		 EPTISA Servicios De Ingeniera Madrid, Spain	 STUP Consultants Private Limited Kolkatta, India							