



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- Baluwa
Volume-2
Detailed Drawing

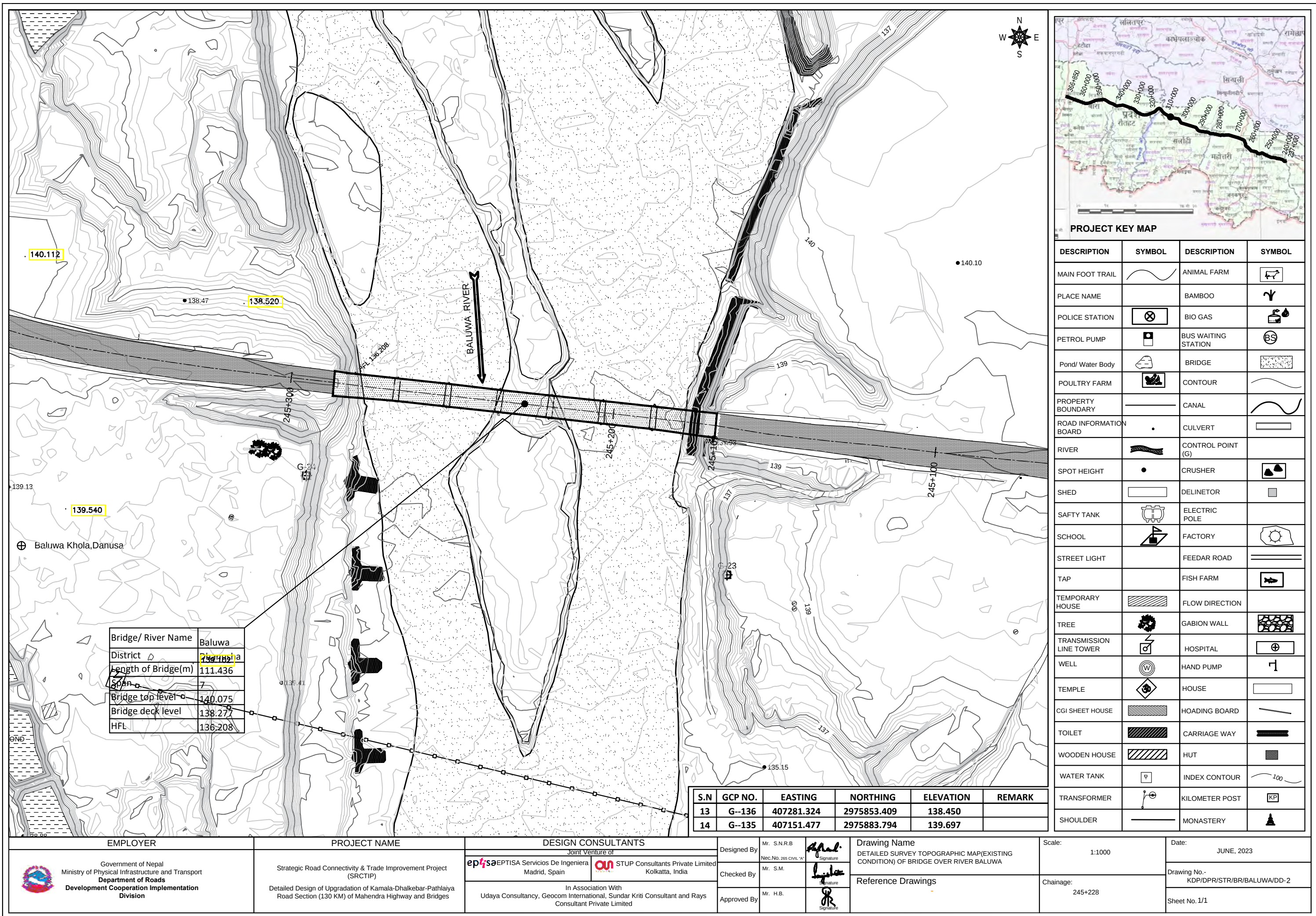
June, 2023

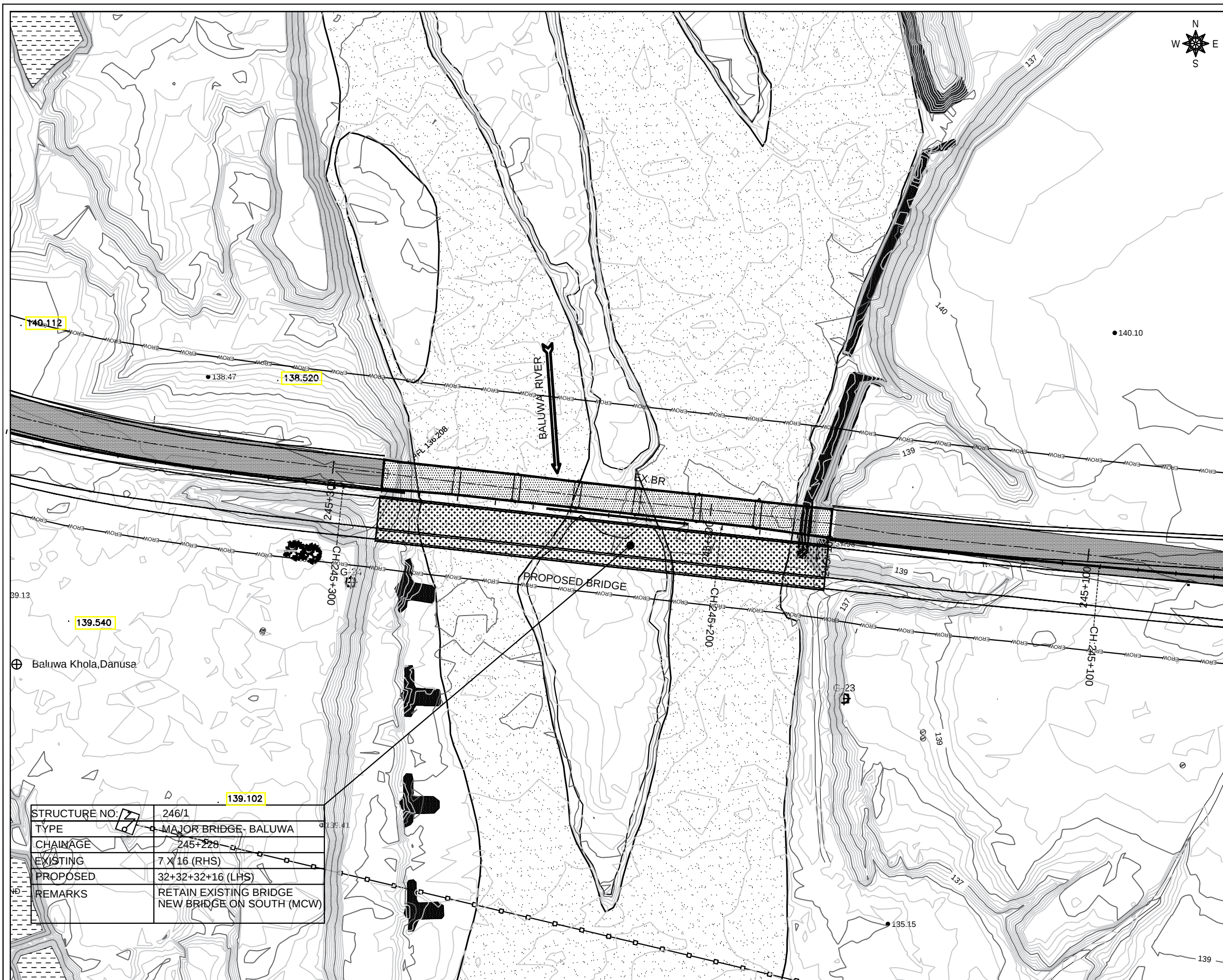
Joint Venture of:

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





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)	
SPOT HEIGHT		CRUSHER	
SHED		DELINETOR	
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	

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 Ingenieria Madrid, Spain STUP Consultants Private Limited Kolkatta, India In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited	Mr. S.N.R.B. Nec.No. 265 CIVIL "A" 	DETAILED SURVEY TOPOGRAPHIC MAP(WITH PROPOSED BRIDGE) OF BRIDGE OVER RIVER BALUWA Reference Drawings	1:1000 Chainage: 245+228	JUNE, 2023 Drawing No.- KDP/DPR/STR/BR/BALUWA/DD-3 Sheet No. 1/1
			Checked By Mr. S.M. 			
			Approved By Mr. H.B. 			

A. GENERAL

1. ALL DIMENSIONS ARE IN MILLIMETERS 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
f) IRC SP-13 2022
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, $\phi=30^\circ$ & 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) - 224.56 CUMECs
2. HFL - 136.35 m
3. FREE BOARD (MINIMUM) - 1.200 m
4. MAXIMUM SCOUR LEVEL:
ABUTMENT - 133.25 m
PIER - 131.43 m

SCOUR LEVELS WERE CALCULATED AS PER IRC 78:2014 CL 703 WITH APPROPRIATELY INCREASED DESIGN DISCHARGE

D. STRUCTURAL AND OTHER DATA: -

1. SPAN ARRANGEMENT: 3x32+16 = 112 m
2. SUPERSTRUCTURE:
PRECAST PSC LONGITUDINAL GIRDERS & CAST-IN-SITU RCC CROSS GIRDERS AND DECK SLAB.
3. SUBSTRUCTURE
A) LEFT ABUTMENTS - RCC WALL TYPE
4. FOUNDATIONS
A) LEFT ABUTMENT - 1200 DIA BORED CAST-IN-SITU PILE
DESIGN WORKING LOAD ON PILE - 1665 kN (NON SEISMIC), 2322 kN (SEISMIC)
B) PIER - 1200 DIA BORED CAST-IN-SITU PILE
DESIGN WORKING LOAD ON PILE - 1784 kN (NON SEISMIC), 2468 kN (SEISMIC)
RCC BORED PILES SHOULD BE CONSTRUCTED AS PER IS: 2911(PART 1/SEC 2)-2010.
5. BEARINGS
POT 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. PIERM35
f. RETURN WALL.....M35
g. LEVELING COURSE: I) BELOW APPROACH SLAB.....M15
II) BELOW PILE CAP.....M15
g. APPROACH SLABM30
h. CAST-IN-SITU CRASH BARRIERM40
i. KERBM35
j. DECK SLAB FOR PSC GIRDERS.....M45
k. PRECAST PSC GIRDERSM50
l. 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. CONCRETE COVER

- a. DECK SLAB, GIRDER, PEDESTAL, CAP : 40 MM
b. SUBSTRUCTURE AND FOUNDATION : 75 MM

14. LAPS (Ls) ARE TO BE STAGGERED AND MINIMUM LAP LENGTH ARE TO BE AS FOLLOWS:

- a) FOR M 30 GRADE CONCRETE : 57.20 $\emptyset$
b) FOR M 35 GRADE CONCRETE : 51.48 $\emptyset$
c) FOR M 40 GRADE CONCRETE : 48.62 $\emptyset$
d) FOR M 45 GRADE CONCRETE : 45.70 $\emptyset$
e) FOR M 50 GRADE CONCRETE : 42.00 $\emptyset$

(WHERE $\emptyset$ IS THE DIAMETER OF THE BAR)

15. 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%	57.20 $\emptyset$	51.48 $\emptyset$	48.62 $\emptyset$	45.70 $\emptyset$	42.00 $\emptyset$
25% $\leq$ LAPPED BAR <33%	65.78 $\emptyset$	59.50 $\emptyset$	55.91 $\emptyset$	52.60 $\emptyset$	48.00 $\emptyset$
33% $\leq$ LAPPED BAR <50%	80.08 $\emptyset$	72.07 $\emptyset$	68.07 $\emptyset$	64.00 $\emptyset$	59.00 $\emptyset$
50% $\leq$ LAPPED BAR	85.80 $\emptyset$	77.22 $\emptyset$	72.93 $\emptyset$	68.60 $\emptyset$	63.00 $\emptyset$

16. THE LAP LENGTH SHALL BE STAGGERED BY MINIMUM DISTANCE OF 1.3 TIMES THE LAP LENGTH.

17. HELICAL REINFORCEMENT SHALL BE LAPPED BY 1.5 TURNS.

18. 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.

19. SHARP EDGES OF CONCRETE TO BE CHAMFERED MINIMUM 50 X 50

20. LONGITUDINAL AND TRANSVERSE STOPPER SHOULD BE KEPT AT +10MM FROM EXPANSION.

LEFT ABUTMENT DETAILS

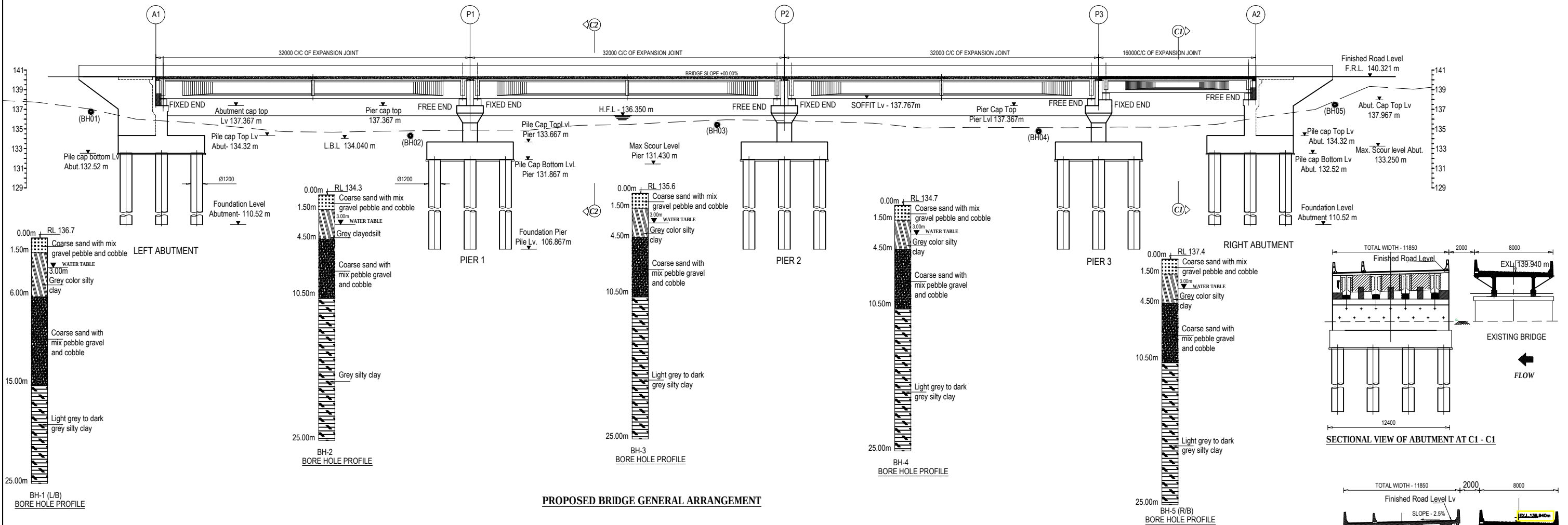
EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Mr. S.N.R.B	Drawing Name	Scale:	Date:
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of  EPTISA Servicios De Ingenieria Madrid, Spain	Mr. S.N.R.B Nec.No. 265 Civil "A"		GENERAL NOTES OF BRIDGE OVER RIVER BALUWA	AS SHOWN	JUNE, 2023
		 STUP Consultants Private Limited Kolkata, India	Checked By Mr. S.M. Nec.No.				Drawing No.- KDP/DPR/STR/BR/BALUWA /DD -4
		In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited	Approved By Mr. H.B. Nec.No.		Reference Drawings	Chainage: 245+228	Sheet No. 1 / 2



TO KAMALA

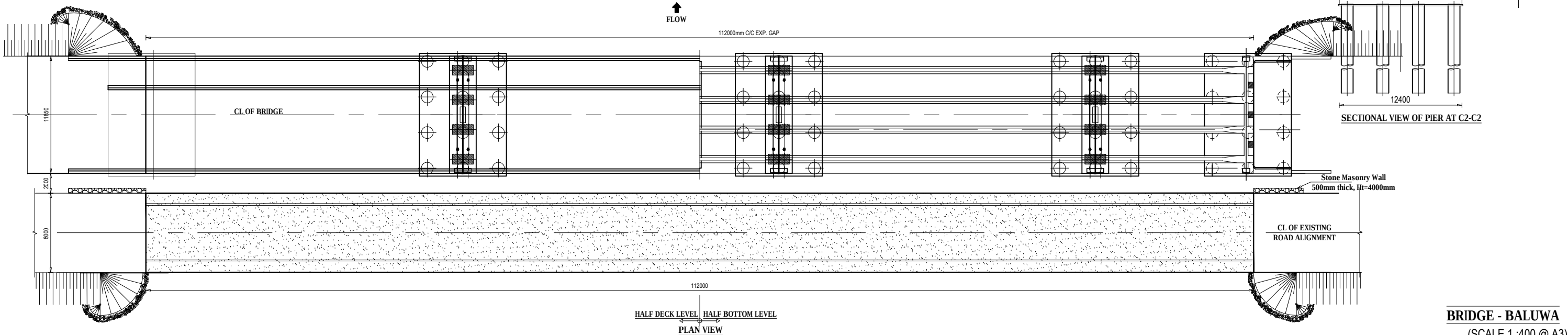


TO PATHALAIYA



PROPOSED BRIDGE GENERAL ARRANGEMENT

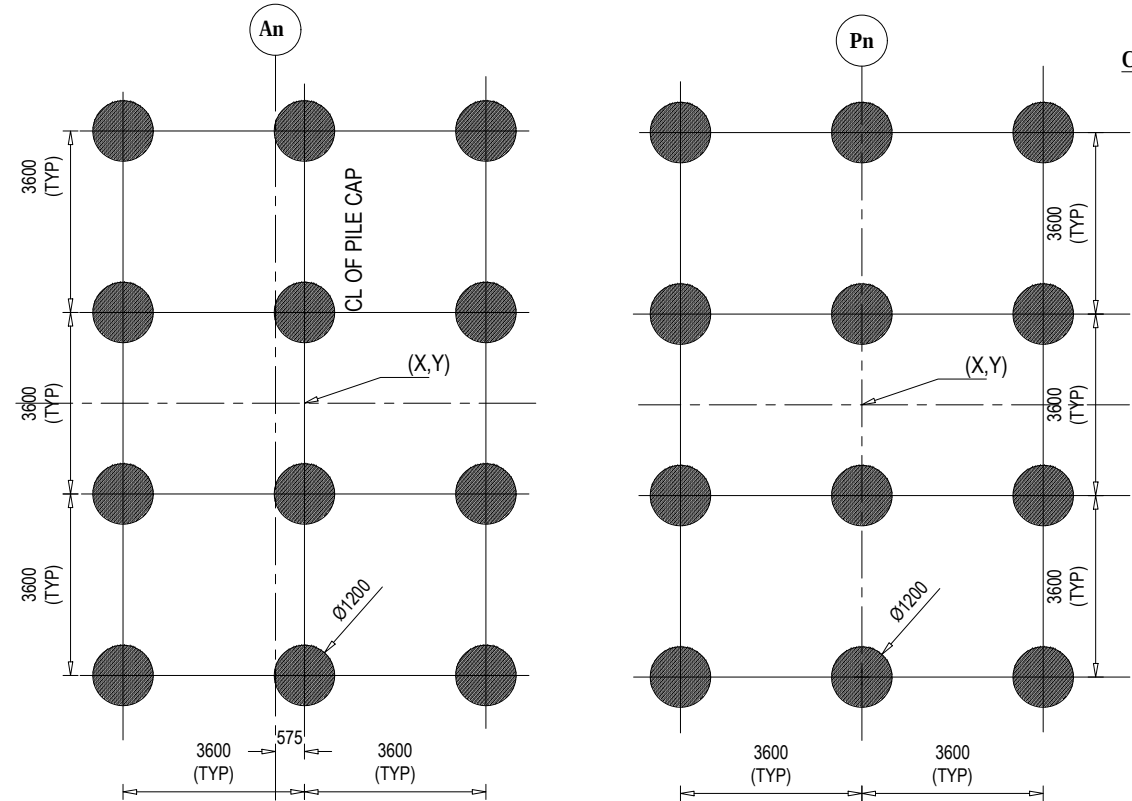
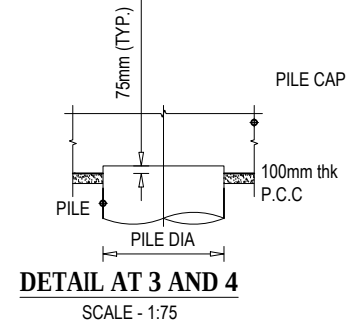
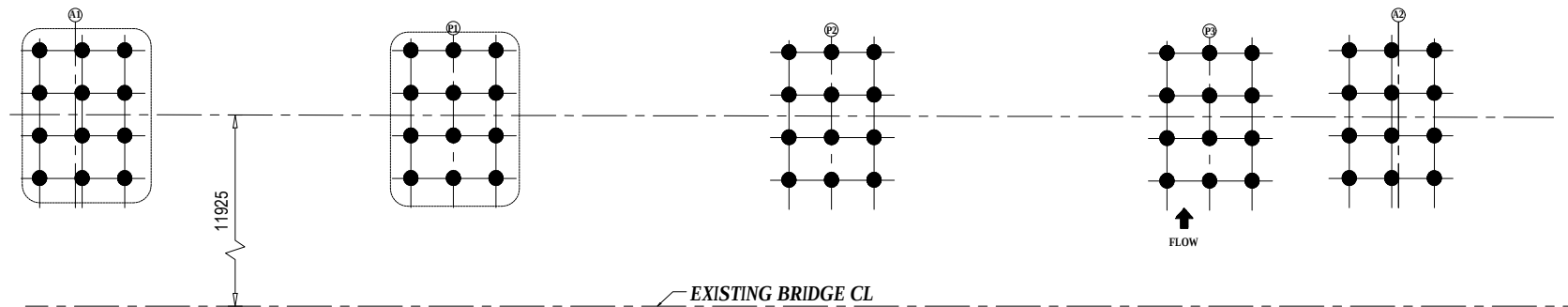
Finished Road Level(D/S)	140.321	PIER 1	140.321	PIER 2	140.321	PIER 3	140.321	RIGHT ABUTMENT	140.321
Finished Road Level (Existing Bridge)	139.940		139.940		139.940		139.940		139.940
Existing Ground Level(D/S)	135.890		134.872		135.861		135.164		136.179
Existing Ground Lv	138.55		134.911		135.869		135.215		136.914
Chainage	245+172		245+204		245+236		245+268		245+284



PLAN VIEW

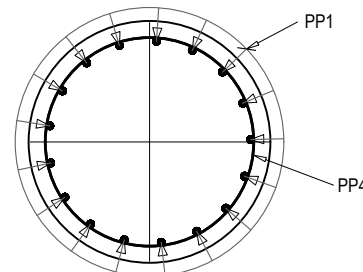
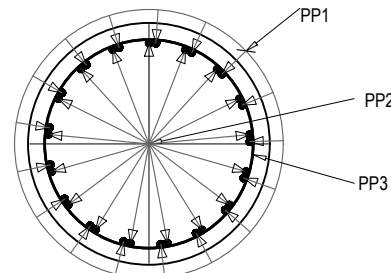
BRIDGE - BALUWA
(SCALE 1 : 400 @ A3)

EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Mr. S.N.R.B. Nec.No. 265 Civil "A"	Signature	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 Ingenieria Madrid, Spain STUP Consultants Private Limited Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited	Checked By	Mr. S.M. Nec.No.	Signature	GENERAL ARRANGEMENT OF BRIDGE OVER RIVER BALUWA	AS SHOWN	JUNE, 2023
			Approved By	Mr. H.B. Nec.No.	Signature	Reference Drawings	Chainage:	Drawing No. - KDP/DPR/STR/BR/BALUWA /DD -5
							245+228	Sheet No. 1 / 1



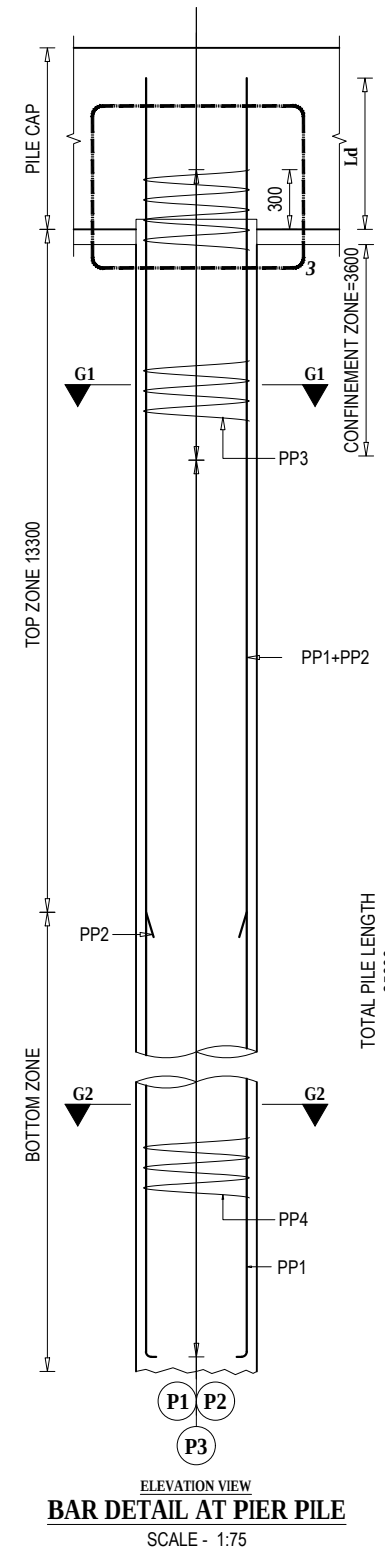
CO ORDINATES OF PILE LOCATION OF PROPOSED BRIDGE

SN.	ABUTMENT/PIER	EASTING (X)	NORTHING (Y)
1	ABUTMENT (A1)	407275.8739	2975887.6615
2	PIER (P1)	407244.6374	2975891.0978
3	PIER (P2)	407212.8293	2975894.5970
4	PIER (P3)	407181.0212	2975898.0962
5	ABUTMENT (A2)	407165.6887	2975899.783



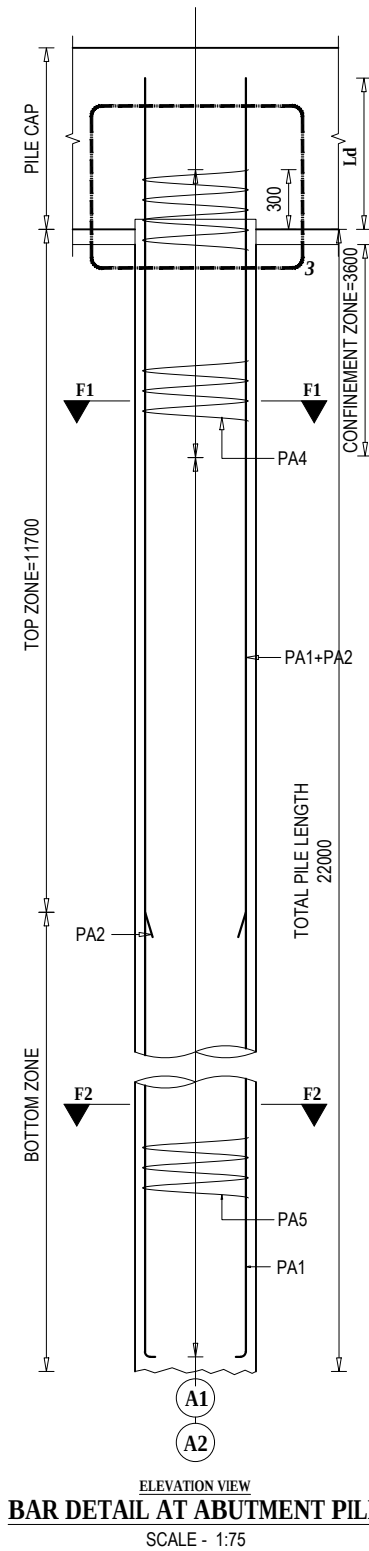
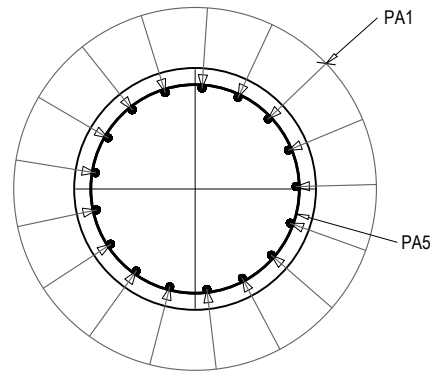
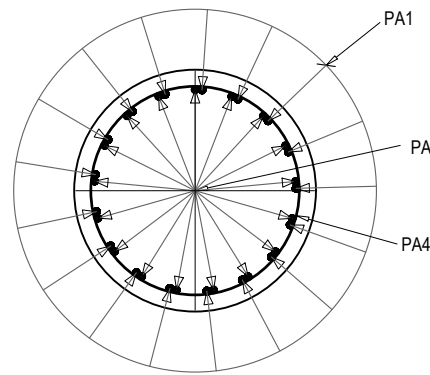
BAR BENDING SCHEDULE OF PIER PILE							
S.No	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	TOTAL WEIGHT (Kg)
1	PP1	2000	25	23.950	17	3858	1570.79
2	PP2	13425	20	13.425	17	2469	563.5185
3	PP3	75	16	155.965	1	1.580	246.46
4	PP4	150	16	398.883	1	1.580	630.35
TOTAL (KG) :							3011.13
No. of Pile Per Abutment :							12.00
TOTAL WEIGHT (KG) :							36133.57

BAR BENDING SCHEDULE OF ABUTMENT PILE							
S.No	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	TOTAL WEIGHT (Kg)
1	PA1	23650	25	23.950	17	3858	1570.79
2	PA2	13425	20	13.425	17	2469	563.5185
3	PA3	75	16	155.965	1	1.580	246.46
4	PA4	150	16	398.883	1	1.580	630.35
TOTAL (KG) :							3011.13
No. of Pile Per Abutment :							12.00
TOTAL WEIGHT (KG) :							36133.57

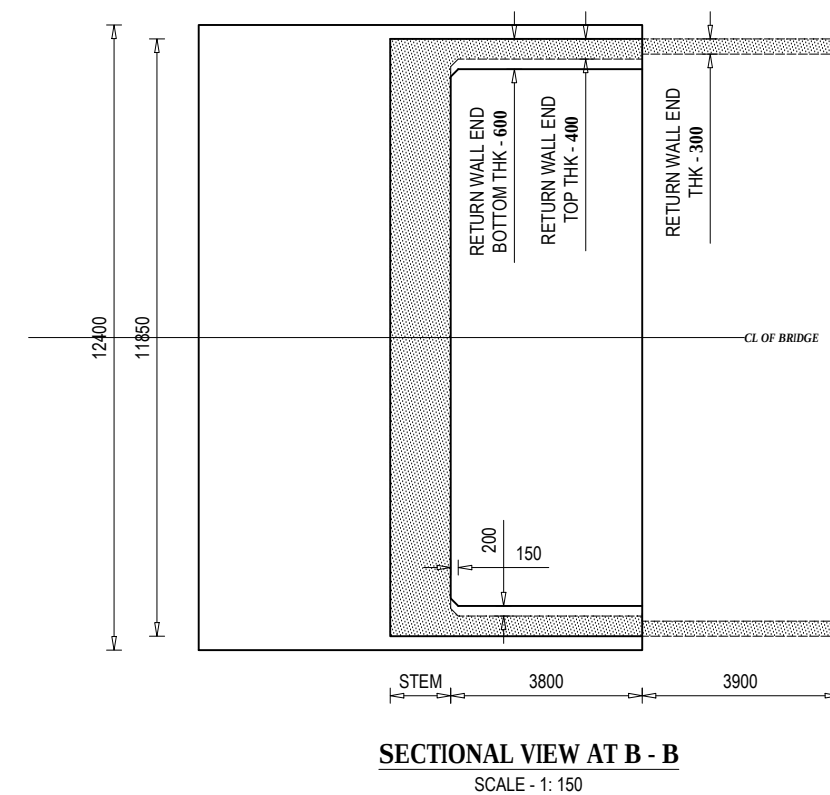
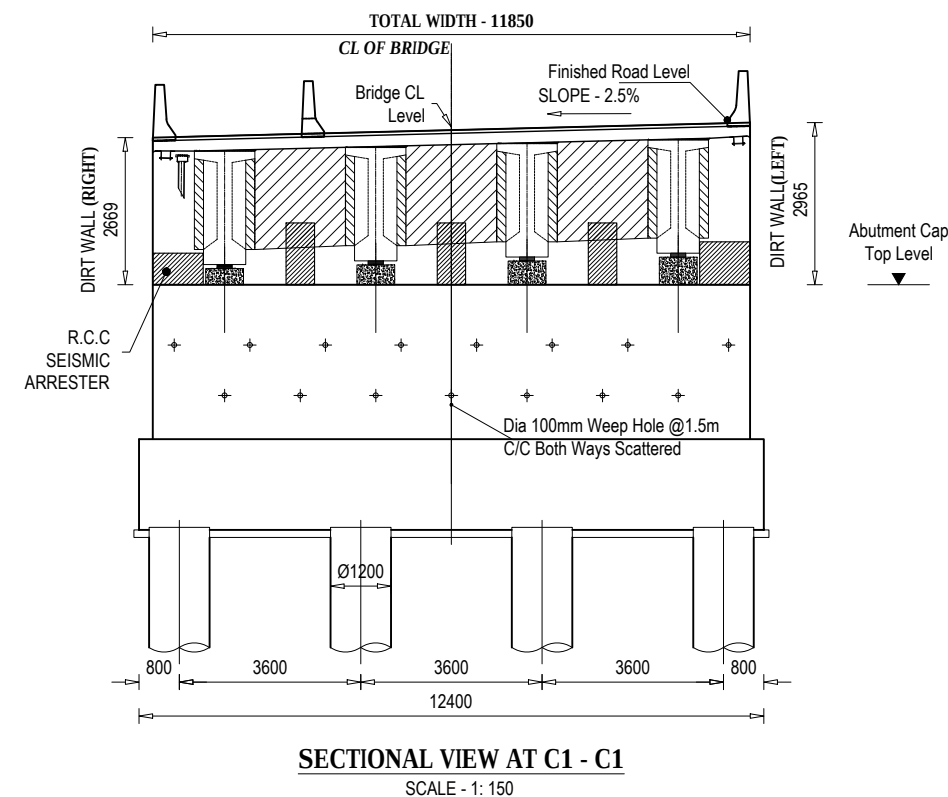
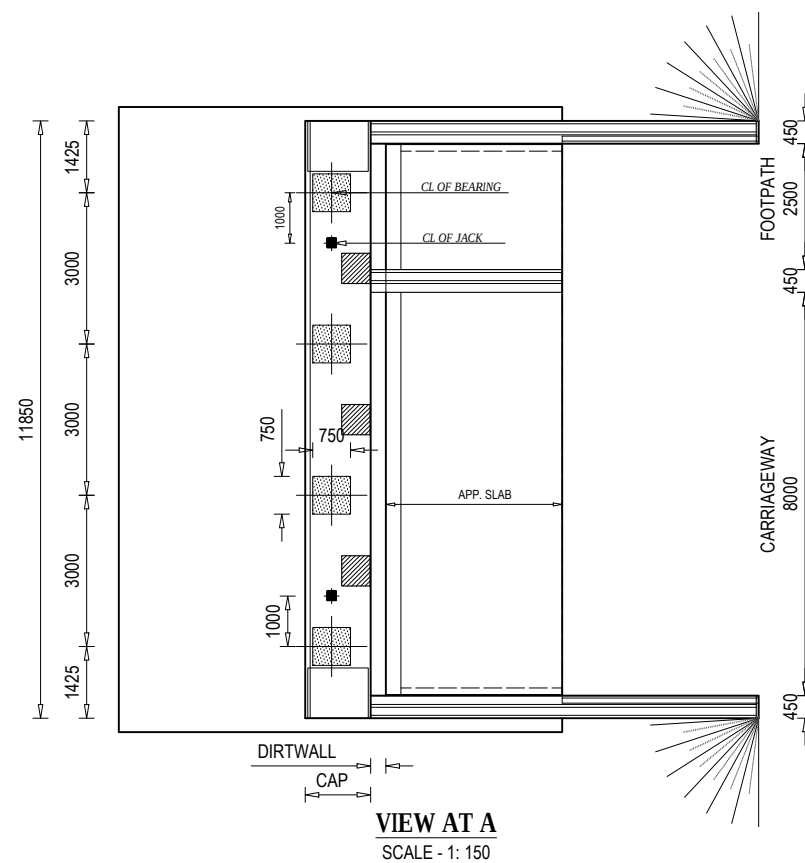
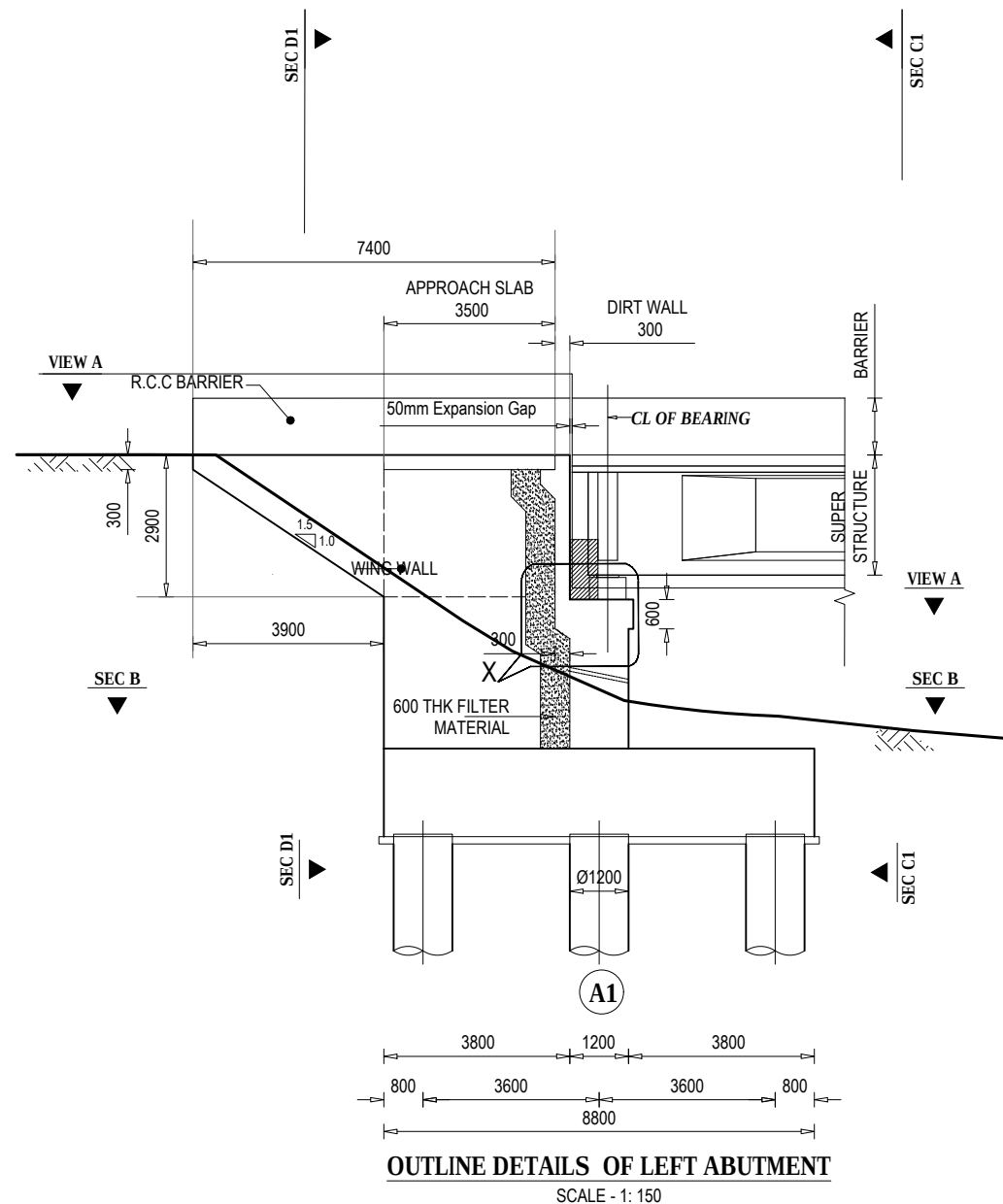


PILE CAPACITY ABUT. (INDIVIDUAL)			
S.N.	DIA (mm)	DEMAND (kN)	
		SEISMIC	NON SEISMIC
A1	1200	2322	1665
A2	1200	1912	1576

PILE CAPACITY PIER (INDIVIDUAL)			
S.N.	DIA (mm)	DEMAND (kN)	
		SEISMIC	NON SEISMIC
P1, P2	1200	2186	1784
P3	1200	2468	1490

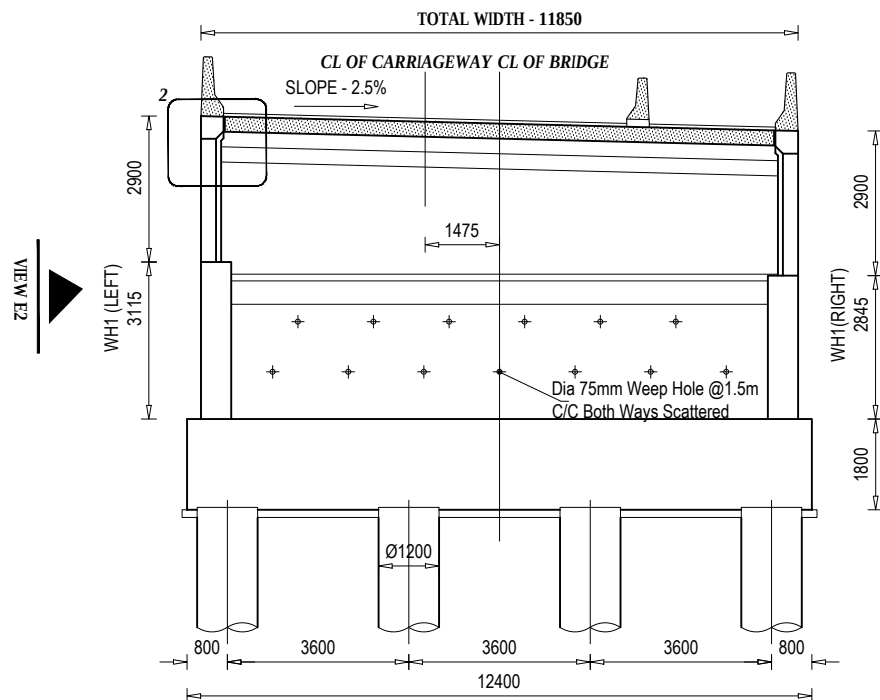


EMPLOYER		PROJECT NAME		DESIGN CONSULTANTS		Drawing Name		Scale:		Date:	
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of		Designed By	Mr. S.N.R.B. 	LAYOUT AND DETAIL OF PILE FOUNDATION OF BRIDGE OVER RIVER BALUWA	AS SHOWN	JUNE, 2023			
		 EPTISA Servicios De Ingenieria 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. 						
					Nec.No. 265 CIVIL "A"		Chainage: 245+228	Drawing No.- KDP/DPR/STR/BR/BALUWA/DD-6			
					Nec.No.			Sheet No. 1/1			
					Nec.No.						

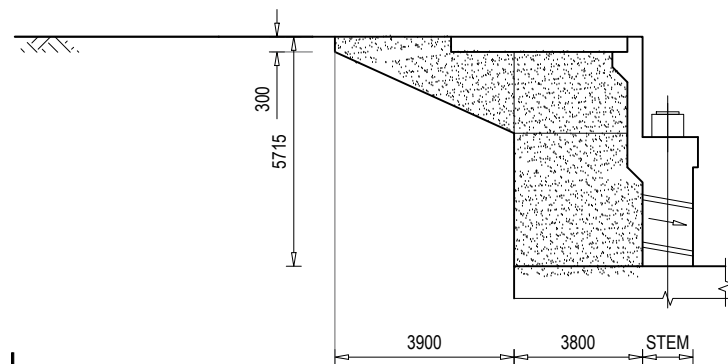


LEFT ABUTMENT DETAILS

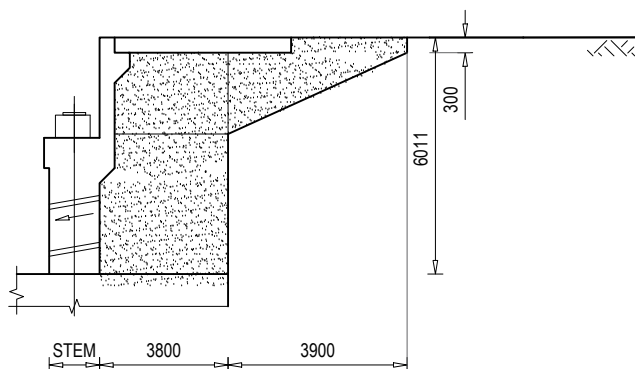
EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Drawing Name	Scale:	Date:
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of ep4sa EPTISA Servicios De Ingenieria Madrid, Spain STUP STUP Consultants Private Limited Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited	Mr. S.N.R.B. Nec.No. 265 Civil "A"	ABUTMENT DETAILS OF BRIDGE OVER RIVER BALUWA Reference Drawings	AS SHOWN	JUNE, 2023
			Checked By Mr. S.M. Nec.No.			Drawing No.- KDP/DPR/STR/BR/BALUWA/DD-7
			Approved By Mr. H.B. Nec.No.			Sheet No. 1 / 4



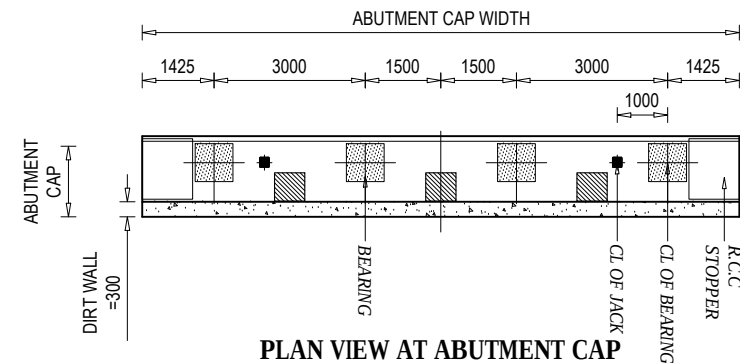
SECTIONAL VIEW AT D1 - D1
SCALE - 1: 150
DETAIL AT DIRT WALL



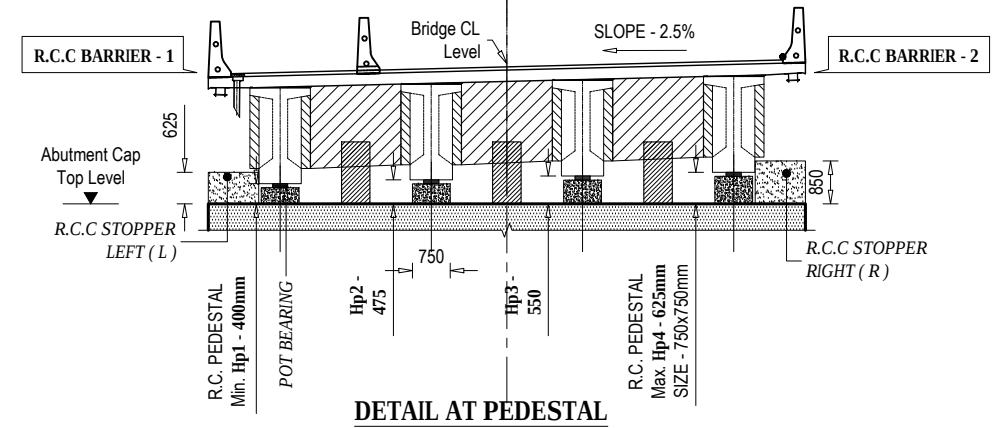
VIEW AT E1
SCALE - 1: 150



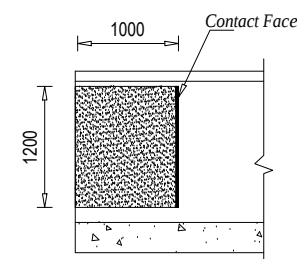
VIEW AT E2
SCALE - 1: 150
DETAIL AT RETURN WALL



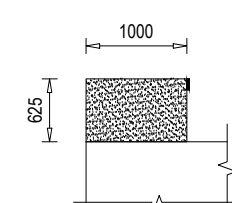
PLAN VIEW AT ABUTMENT CAP
SCALE - 1: 150



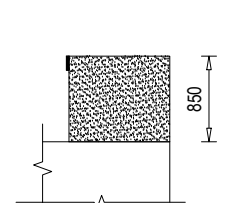
DETAIL AT PEDESTAL
SCALE - 1: 150



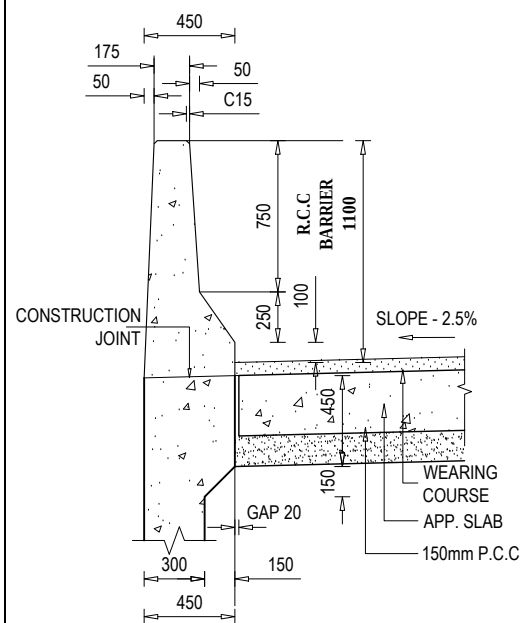
R.C.C SEISMIC RESTRAINER
PLAN VIEW



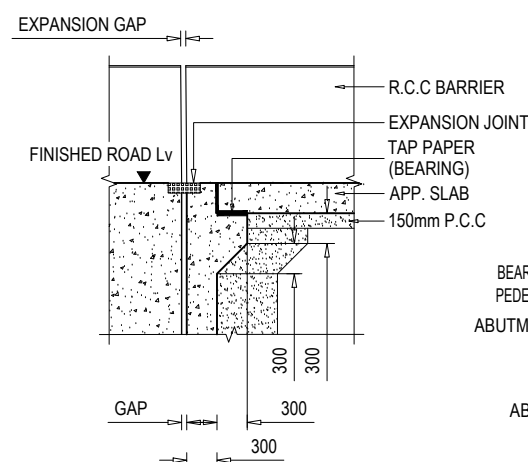
R.C.C SEISMIC RESTRAINER - LEFT
ELEVATION VIEW



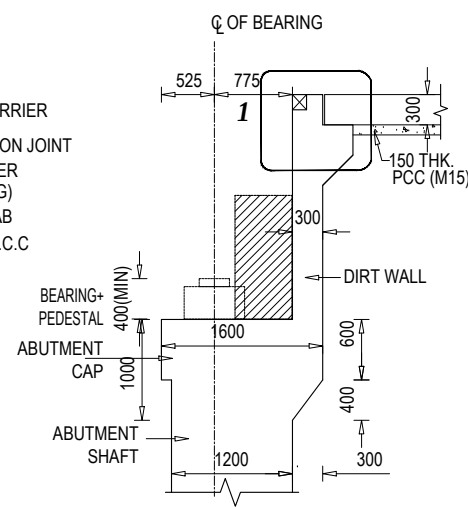
R.C.C SEISMIC RESTRAINER - RIGHT
ELEVATION VIEW



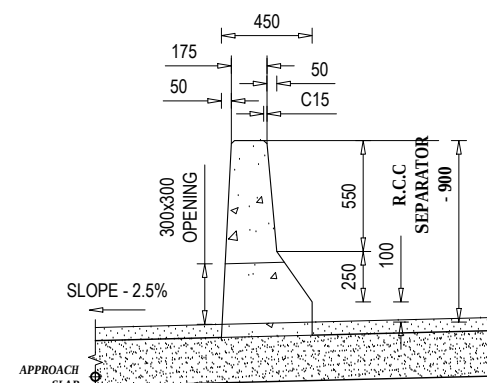
DETAIL SECTIONAL VIEW
AT R.C.C BARRIER
DETAIL AT 2
SCALE - 1: 25



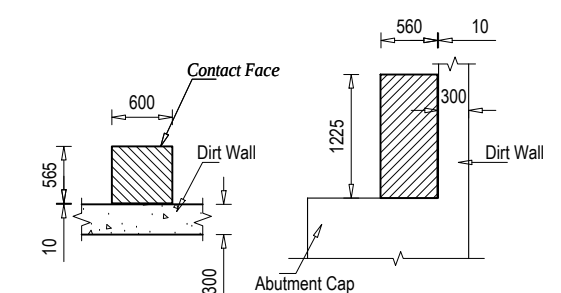
DETAIL AT 1
SCALE - 1: 50



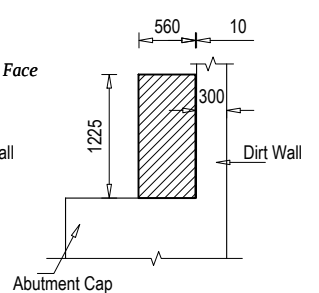
DETAIL-X
SCALE - 1: 75



DETAIL SECTIONAL VIEW
AT R.C.C SEPARATOR
SCALE - 1: 25



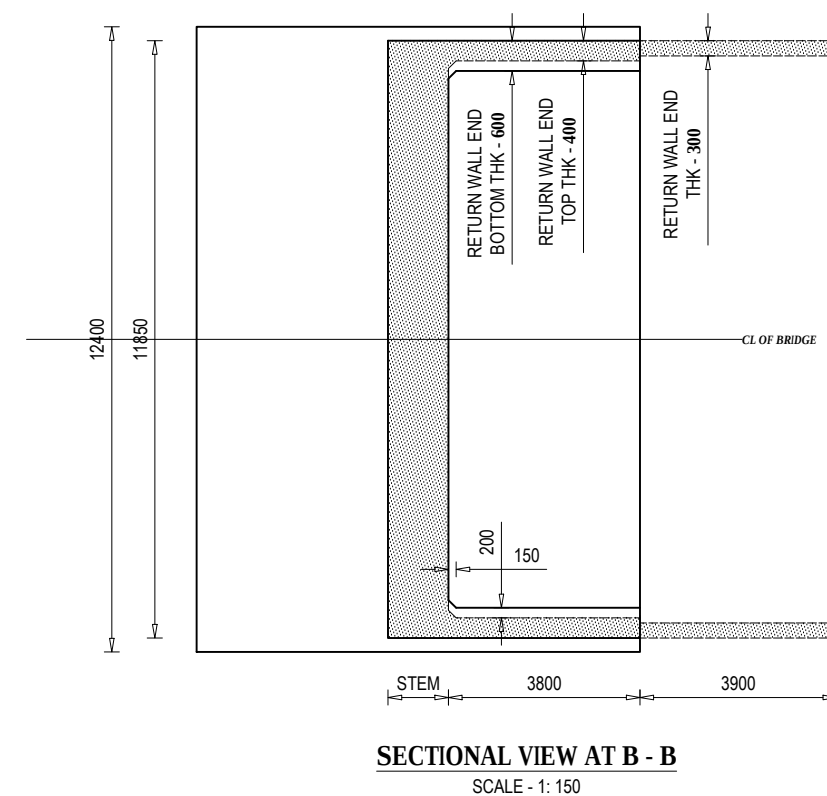
R.C.C LONGITUDINAL
RESTRAINER
PLAN VIEW



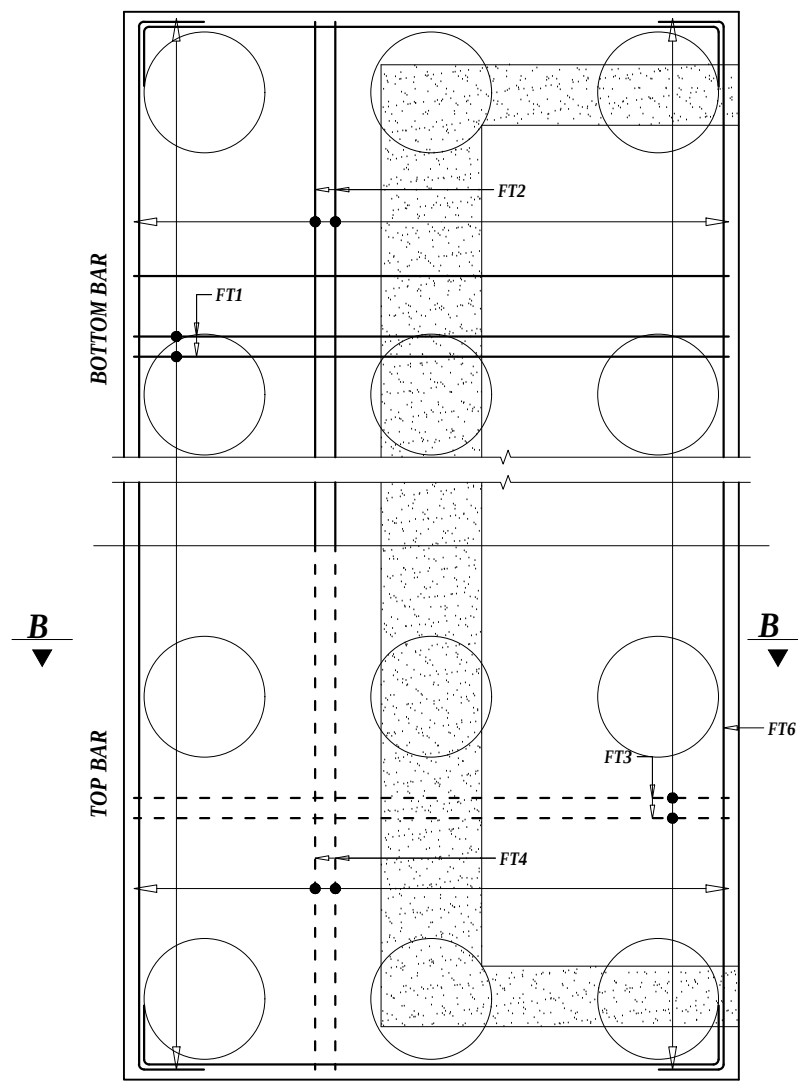
R.C.C LONGITUDINAL
RESTRAINER
ELEVATION VIEW

LEFT ABUTMENT DETAILS

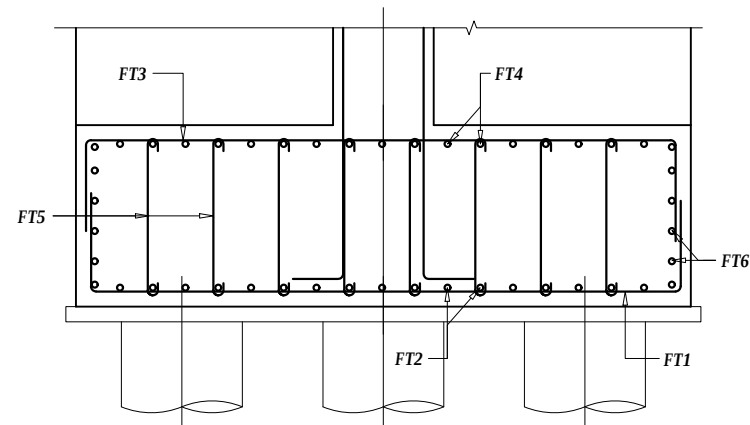
EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Drawing Name	Scale:	Date:
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of ep4sa EPTISA Servicios De Ingenieria Madrid, Spain STUP Consultants Private Limited Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Krii Consultant and Rays Consultant Private Limited	Mr. S.N.R.B. Nec.No. 265 Civil "A" Signature Mr. S.M. Nec.No. Signature Mr. H.B. Nec.No. Signature	ABUTMENT DETAILS OF BRIDGE OVER RIVER BALUWA	AS SHOWN	JUNE, 2023
			Checked By	Reference Drawings	Chainage:	Drawing No.- KDP/DP/STR/BR/BALUWA/DD -7
			Approved By		245+228	Sheet No. 2 / 4



EMPLOYER		PROJECT NAME		DESIGN CONSULTANTS		Designed By	Mr. S.N.R.B Nec.No. 265 Civil "A" 	Drawing Name ABUTMENT DETAILS OF BRIDGE OVER RIVER BALUWA	Scale: AS SHOWN	Date: JUNE, 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-Pathariya Road Section (130 KM) of Mahendra Highway and Bridges	Joint Venture of		Checked By	Mr. S.M. Nec.No. 					
		 EPTISA Servicios De Ingenieria Madrid, Spain	 STUP Consultants Private Limited Kolkatta, India							
		In Association With		Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited		Approved By	Mr. H.B. Nec.No. 			

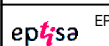


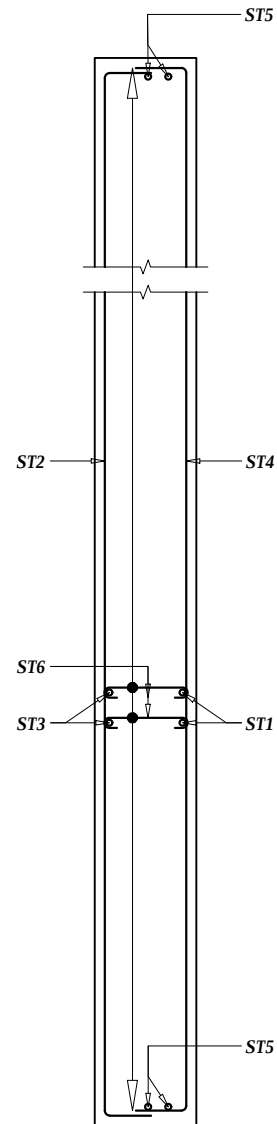
PLAN VIEW OF PILE CAP



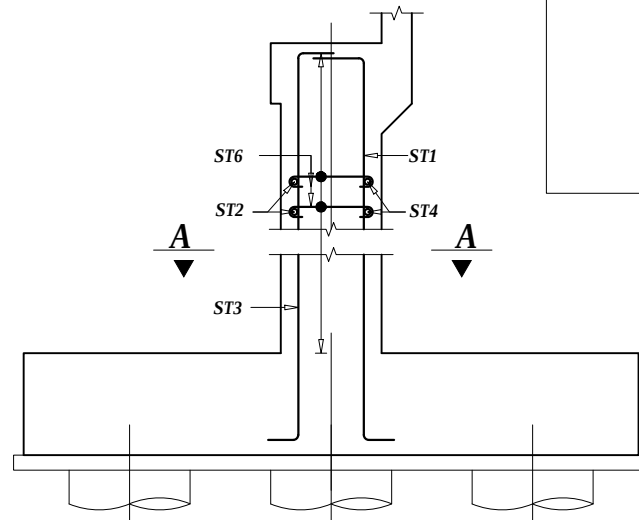
SECTIONAL AT B-B
BAR DETAIL OF PILE CAP
SCALE - 1 : 75

LEFT ABUTMENT DETAILS

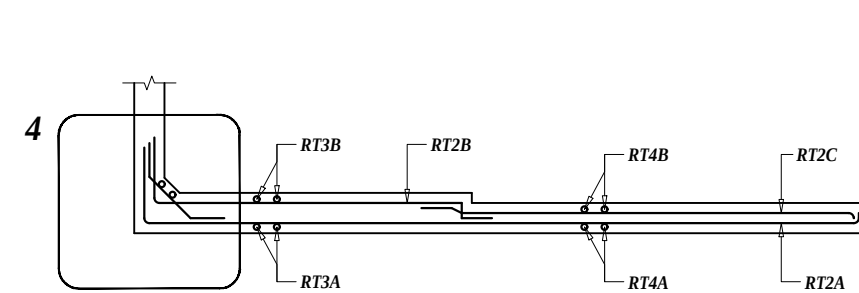
EMPLOYER  Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	PROJECT NAME Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	DESIGN CONSULTANTS Joint Venture of  EPTISA Servicios De Ingenieria Madrid, Spain  STUP Consultants Private Limited Kolkatta, India In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited	Designed By Mr. S.N.R.B. Nec.No. 265 CIVIL "A" Mr. S.M. Checked By Nec.No. Mr. H.B. Approved By Nec.No.	Drawing Name ABUTMENT REINFORCEMENT DETAILS OF BRIDGE OVER RIVER BALUWA Reference Drawings KDP/DPR/STR/BR/BALUWA/DD -9	Scale: AS SHOWN Chainage: 245+228	Date: JUNE, 2023 Drawing No.- KDP/DPR/STR/BR/BALUWA/DD -8 Sheet No. 1/4
--	---	--	--	--	---	--



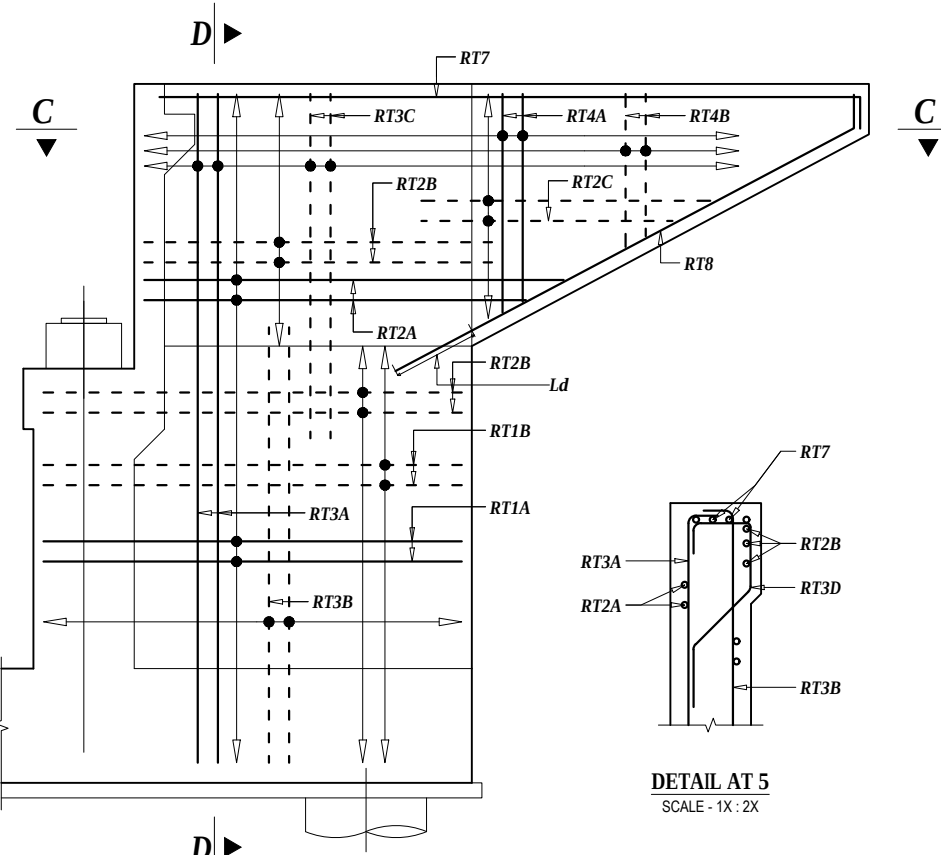
SECTIONAL AT A-A



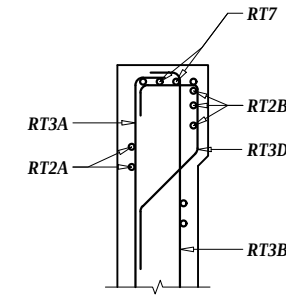
ELEVATION VIEW
BAR DETAIL AT ABUTMENT STEM
SCALE - 1 : 75



SECTIONAL PLAN VIEW AT C-C

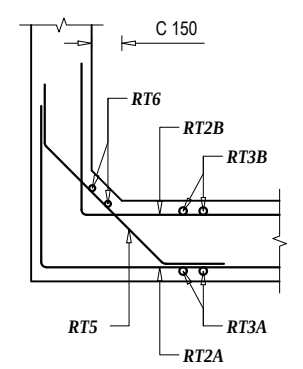


ELEVATION VIEW

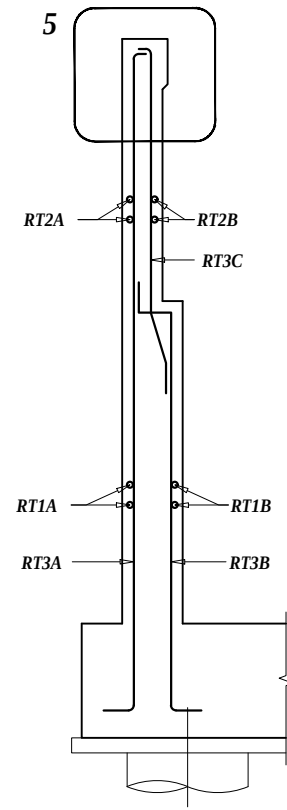


DETAIL AT 5
SCALE - 1X : 2X

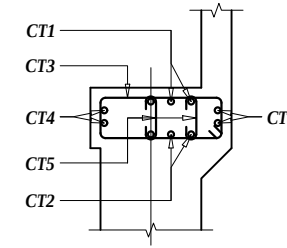
BAR DETAIL AT RETURN WALL
SCALE - 1 : 75



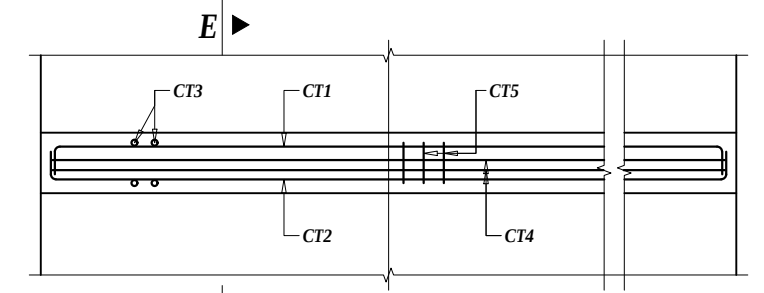
DETAILS AT 4



SECTIONAL SIDE VIEW AT D-D



SECTION VIEW AT E-E

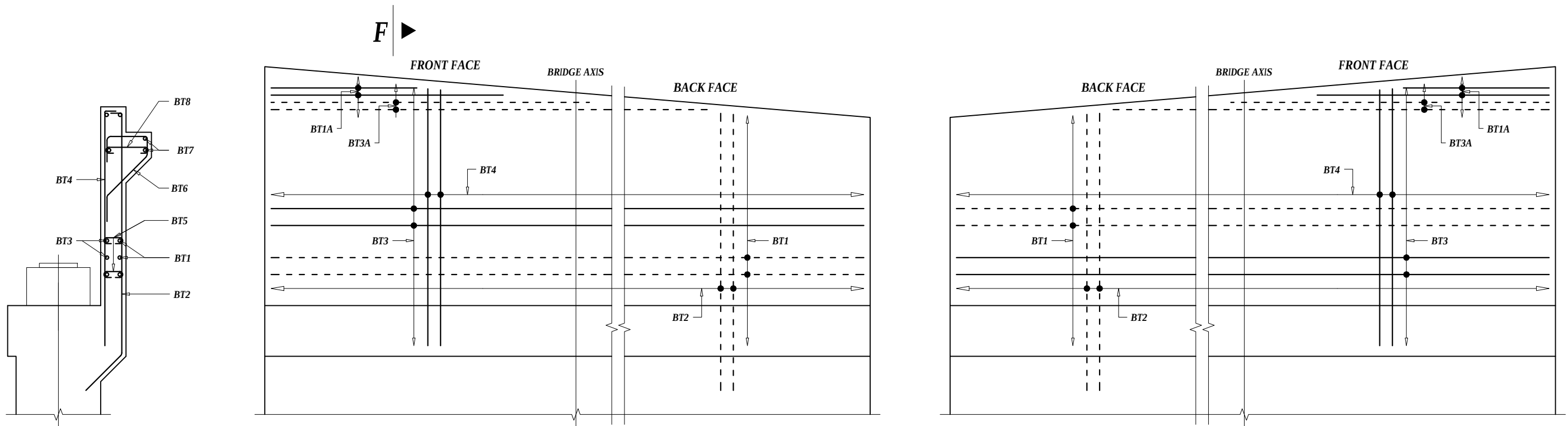


FRONT VIEW

BAR DETAIL AT ABUTMENT CAP
SCALE - 1 : 75

--- TOP BAR/NEAR FACE/
EARTH FACE REINFORCEMENT

--- BOTTOM BAR/ FAR FACE/
OTHER FACE REINFORCEMENT



SECTIONAL VIEW AT F-F

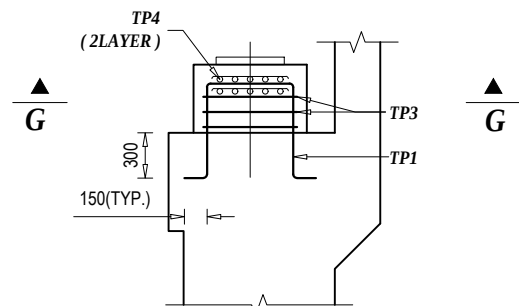
F

ELEVATION VIEW / VIEW AT D1

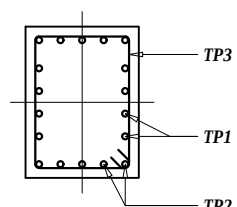
BAR DETAIL AT DIRT WALL

SCALE - 1 : 50

ELEVATION VIEW / VIEW AT D2



SECTIONAL SIDE VIEW

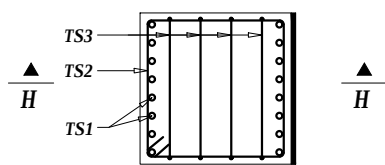


SECTIONAL PLAN VIEW AT G-G

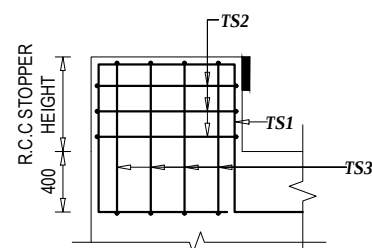
BAR DETAIL AT PEDESTAL

SCALE - 1 : 50

LEFT ABUTMENT DETAILS



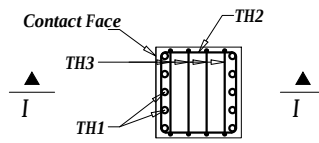
SECTIONAL PLAN VIEW



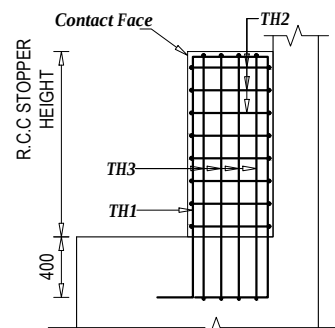
SECTIONAL VIEW AT H-H

R.C.C STOPPER LEFT
ELEVATION VIEW

SCALE - 1 : 50



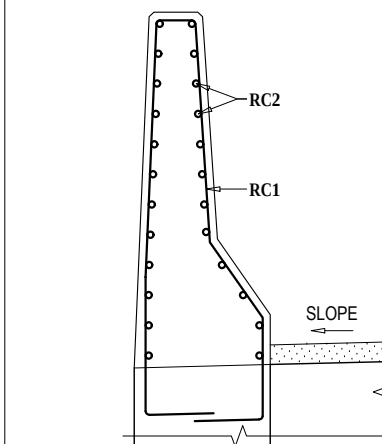
SECTIONAL PLAN VIEW



SECTIONAL VIEW AT I - I

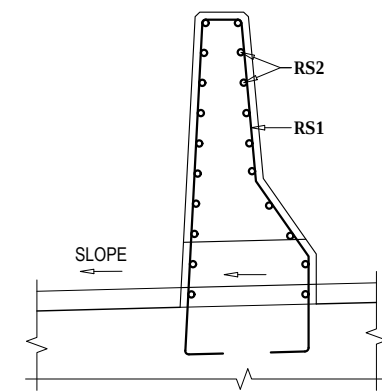
R.C.C LONGITUDINAL
STOPPER SECTION

SCALE - 1 : 50



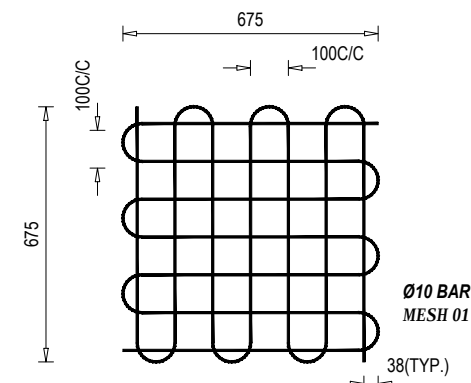
REINFORCEMENT DETAILS OF
R.C.C BARRIER (B)- SECTIONAL VIEW

SCALE - 1 : 25



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

SCALE - 1 : 25

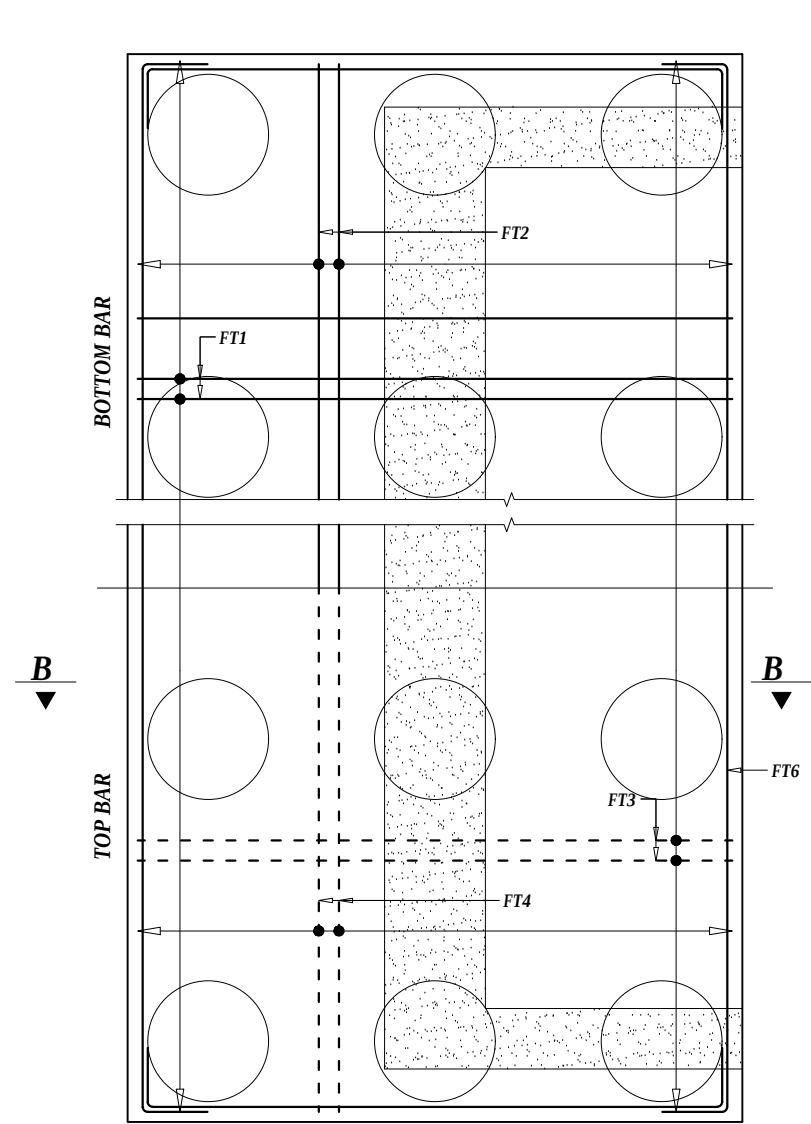


REINFORCEMENT DETAILS OF
BEARING MESH

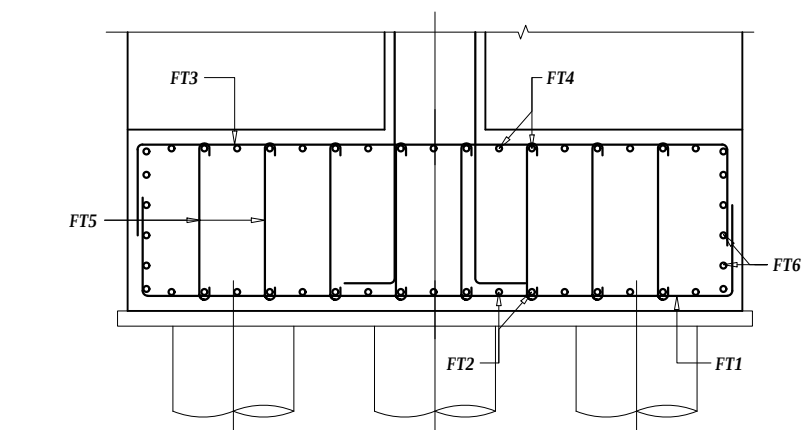
SCALE - 1 : 50

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

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 Ingenieria Madrid, Spain  STUP Consultants Private Limited Kolkatta, India In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited	Mr. S.N.R.B. Nec.No. 265 CIVIL "A" 	ABUTMENT REINFORCEMENT DETAILS OF BRIDGE OVER RIVER BALUWA	AS SHOWN	JUNE, 2023
			Checked By Mr. S.M. Nec.No. 	Reference Drawings	Chainage:	Drawing No.- KDP/DPR/STR/BR/BALUWA/DD-8
			Approved By Mr. H.B. Nec.No. 	KDP/DPR/STR/BR/BALUWA/DD -9	245+228	Sheet No. 2 / 4



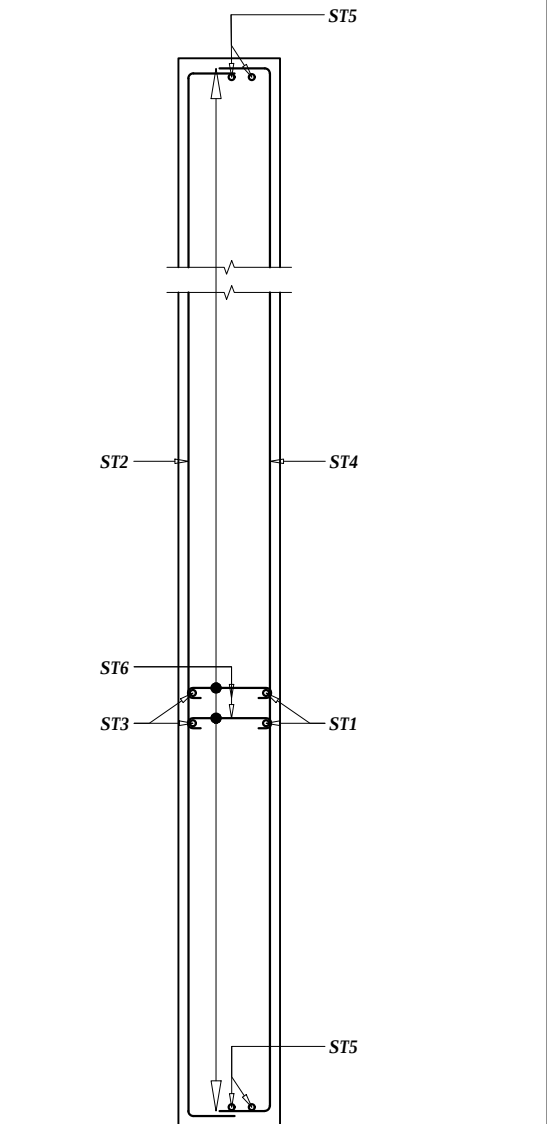
PLAN VIEW OF PILE CAP



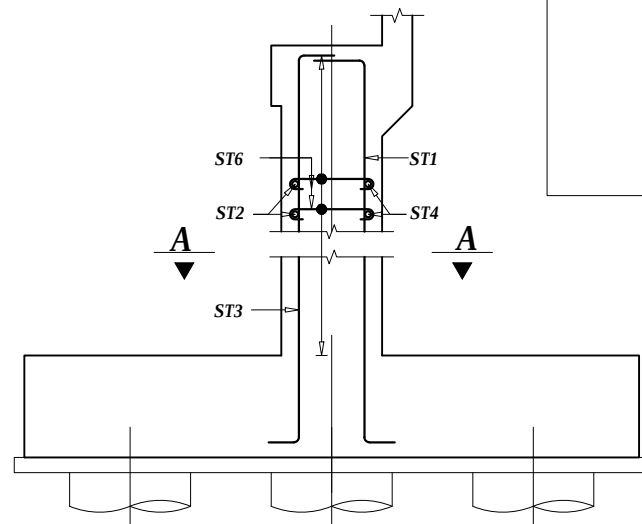
SECTIONAL AT B-B
BAR DETAIL OF PILE CAP
SCALE - 1 : 75

RIGHT ABUTMENT DETAILS

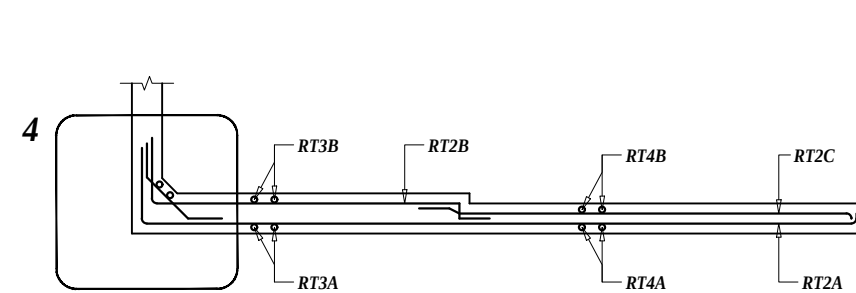
EMPLOYER	PROJECT NAME	DESIGN CONSULTANTS	Designed By	Drawing Name	Scale:	Date:
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of 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 Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited	Mr. S.N.R.B. Nec.No. 265 CIVIL "A" Signature Mr. S.M. Nec.No. Signature Mr. H.B. Nec.No. Signature	ABUTMENT REINFORCEMENT DETAILS OF BRIDGE OVER RIVER BALUWA Reference Drawings KDP/DPR/STR/BR/BALUWA/DD - 9	AS SHOWN Chainage: 245+228	JUNE, 2023 Drawing No.- KDP/DPR/STR/BR/BALUWA/DD - 8 Sheet No. 3/4



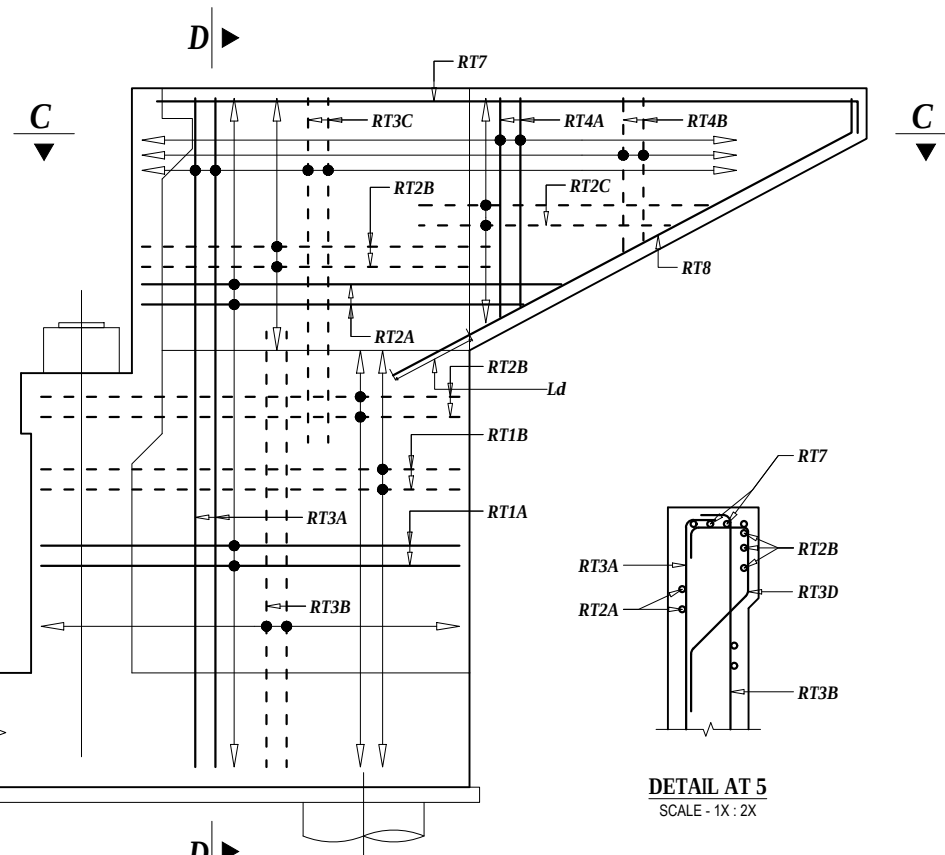
SECTIONAL AT A-A



ELEVATION VIEW
BAR DETAIL AT ABUTMENT STEM
SCALE - 1 : 75

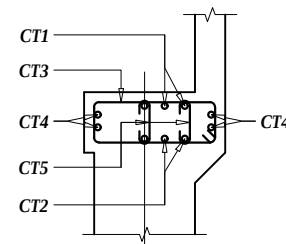


SECTIONAL PLAN VIEW AT C-C

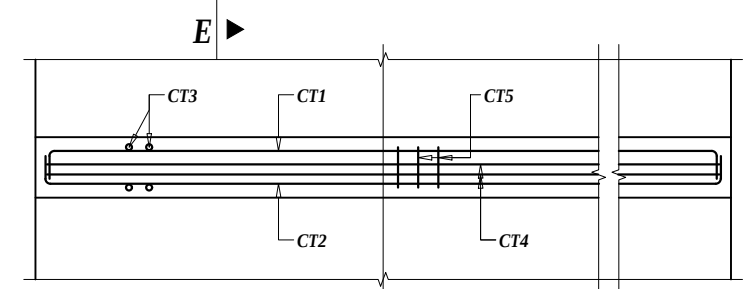


ELEVATION VIEW

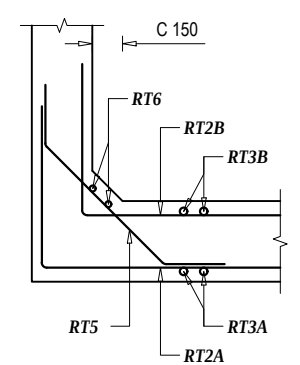
BAR DETAIL AT RETURN WALL
SCALE - 1 : 75



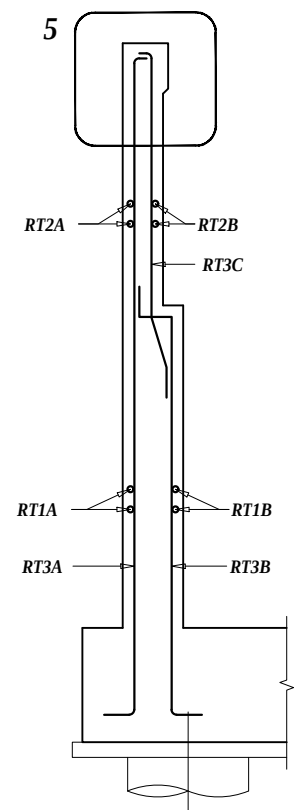
SECTION VIEW AT E-E



BAR DETAIL AT ABUTMENT CAP
SCALE - 1 : 75



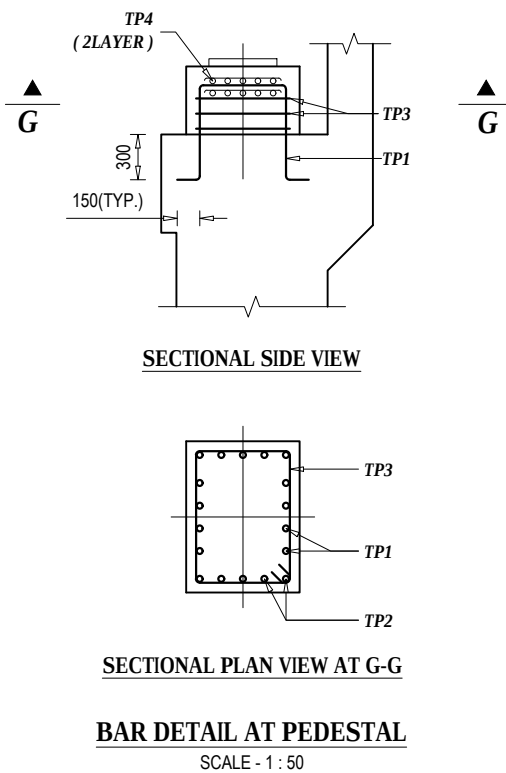
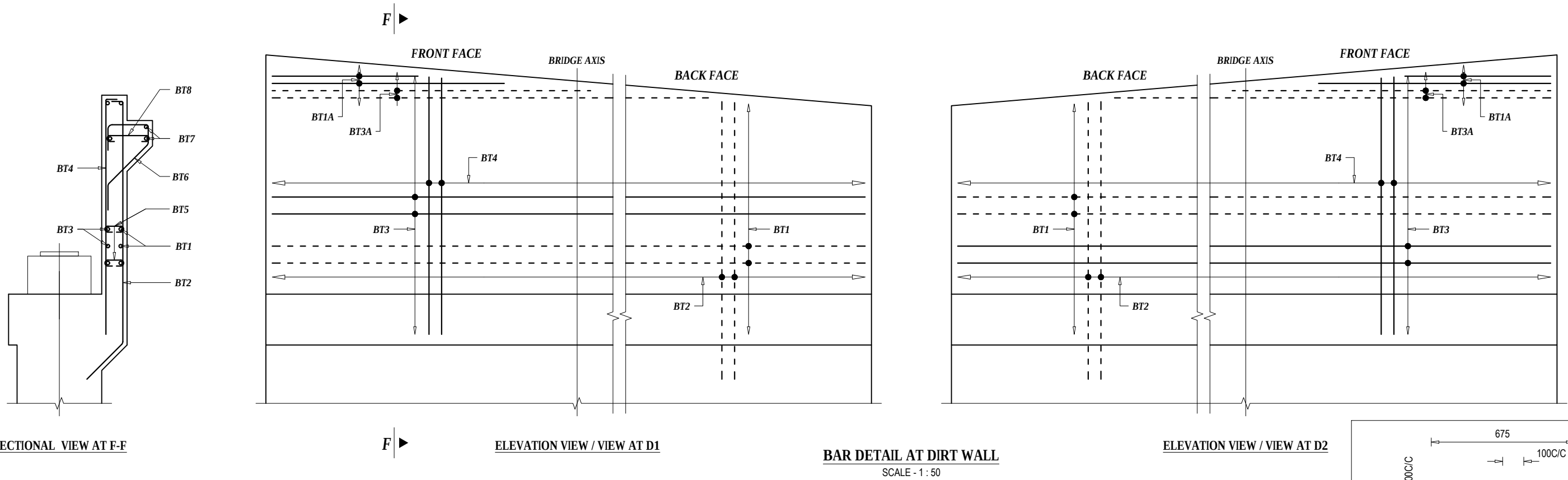
DETAILS AT 4



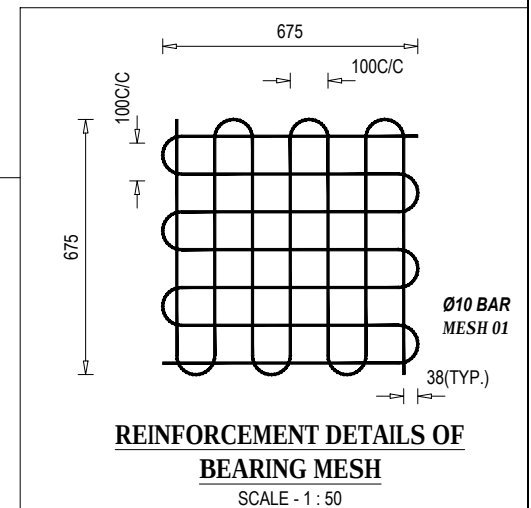
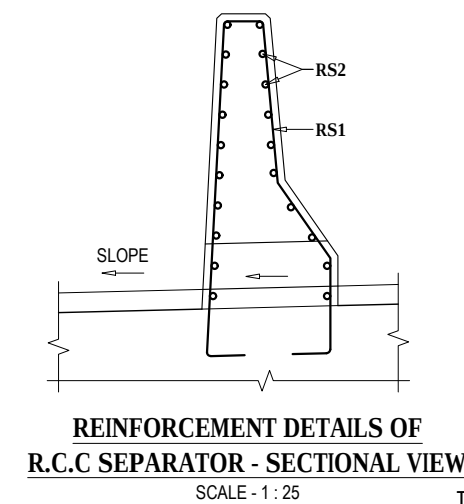
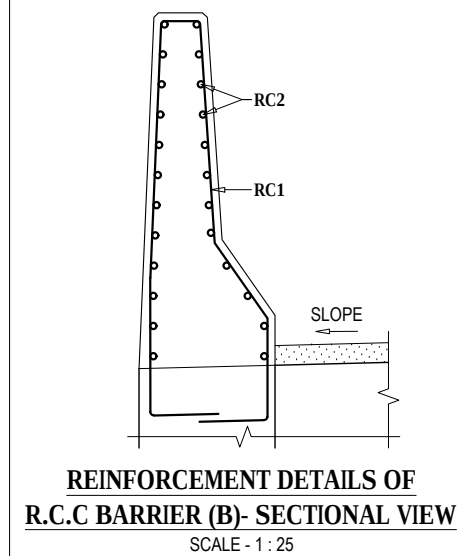
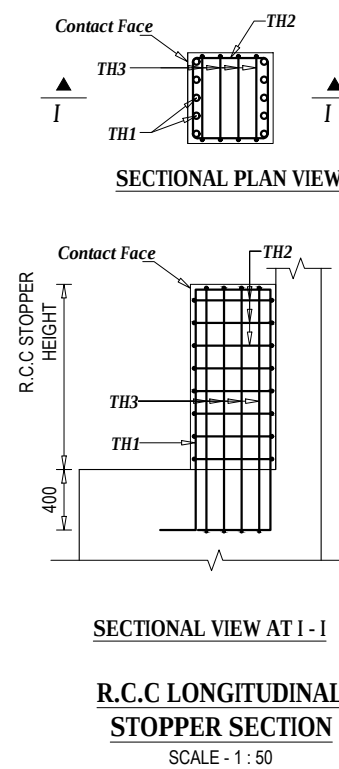
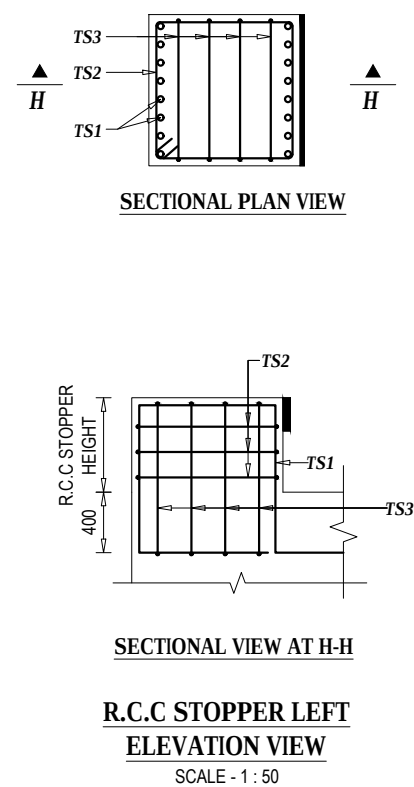
SECTIONAL SIDE VIEW AT D-D

--- TOP BAR/NEAR FACE/
EARTH FACE REINFORCEMENT

— BOTTOM BAR/ FAR FACE/
OTHER FACE REINFORCEMENT



RIGHT ABUTMENT DETAILS



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 Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited	Mr. S.N.R.B. Nec.No. 265 CIVIL "A" Mr. S.M. Nec.No. Mr. H.B. Nec.No.	ABUTMENT REINFORCEMENT DETAILS OF BRIDGE OVER RIVER BALUWA Reference Drawings KDP/DPR/STR/BR/BALUWA/DD -9	AS SHOWN Chainage: 245+228	JUNE, 2023 Drawing No.- KDP/DPR/STR/BR/BALUWA/DD-8 Sheet No. 4 /4

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	BT1	150 11700 150	12	150	12.000	24	0.889	256.00
2	BT1A	Avg. 5850 150	12	150	6.000	3	0.889	16.00
3	BT2	150 3415 Avg. 450	16	150	4.015	80	1.580	507.58
4	BT3	150 11700 150	12	150	12.000	20	0.889	213.33
5	BT3A	Avg. 5850 150	12	150	6.000	3	0.889	16.00
6	BT4	150 3490 Avg.	12	150	4.090	80	0.889	290.84
7	BT5	100 150 100	12	450	0.350	162	0.889	50.40
8	BT6	200 450 220 200 756	16	150	1.826	80	1.580	230.84
9	BT7	11700	12	5 Nos.	11.700	5	0.889	52.00
10	BT8	100 450 100	12	150	0.650	158	0.889	91.29
TOTAL (KG) : 1724.28								

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	CT1	300 11700 300	16	150	12.300	12	1.580	233.24
2	CT2	300 11700 300	16	150	12.300	12	1.580	233.24
3	CT3	450 1450 100	16	150	2.000	80	1.580	252.84
4	CT4	300 11700 300	12	150	12.000	8	0.889	85.33
5	CT5	450 100 100	12	Long. 150 Trans. 300	0.650	422	0.889	243.82
TOTAL (KG) : 1048.48								

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	ST1	300 4696 900	25	150	5.896	80	3.858	1819.75
2	ST2	600 11700 600	16	150	12.900	17	1.580	346.55
3	ST3	300 4696 900	20	150	5.896	80	2.469	1164.64
4	ST4	600 11700 600	16	150	12.900	17	1.580	346.55
5	ST5	300 4696 900	16	200	5.896	14	1.580	130.44
6	ST6	100 3490 100	16	Ver. 450 Hor. 450	1.250	162	1.580	320.00
TOTAL (KG) : 4127.93								

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	FT1	900 8650 900	25	110	10.450	12	3.858	4555.43
2	FT2	900 12250 900	20	200	14.050	44	2.469	1525.42
3	FT3	900 8650 900	20	110	10.450	12	2.469	2869.68
4	FT4	900 12250 900	16	200	14.050	44	1.580	975.94
5	FT5	1680 150 150	16	450	1.580	560	1.580	1752.18
6	FT6	11850 8600 150	16	200	41.200	10	1.580	651.06
TOTAL (KG) : 12311.38								

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	TP1	150 700 800 Avg. 16	16	150	2.500	6	1.580	23.70
2	TP2	150 700 800 Avg. 16	16	150	2.500	6	1.580	23.70
2	TP3	700 700 130 16	16	150	3.000	4	1.580	18.96
1	TP4	650 550 10 2 Nos. @ 100	10	2	10.500	2	0.617	12.36
TOTAL (KG) :								79.33
TOTAL NOS OF PEDESTAL :								4.00
TOTAL WEIGHT (KG) :								317.33

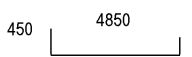
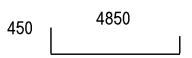
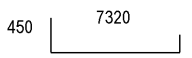
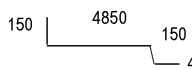
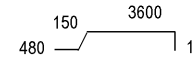
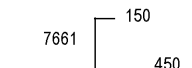
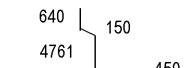
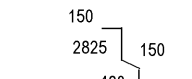
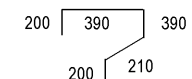
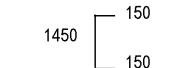
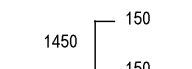
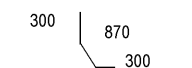
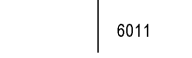
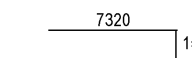
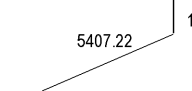
BAR BENDING SCHEDULE OF RCC SEISMIC RESTRAINER - LEFT								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	TS1-L	900 975 850 850	32		4.550	11	6.321	316.37
2	TS2-L	900 1100 100	12	120	4.200	6	0.889	22.40
3	TS3-L	975 1100 100	16	110	4.350	10	1.580	68.74
TOTAL (KG) : 407.51								

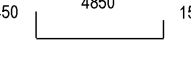
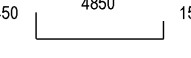
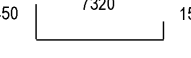
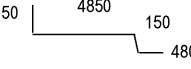
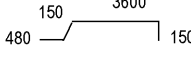
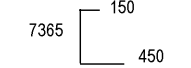
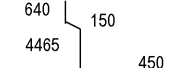
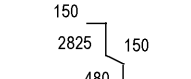
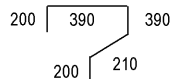
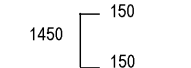
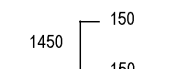
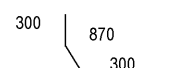
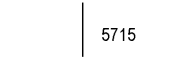
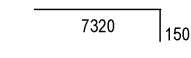
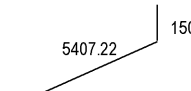
BAR BENDING SCHEDULE OF RCC SEISMIC RESTRAINER - RIGHT								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	TS1-R	900 900 550 550	32		5.550	11	6.321	408.75
2	TS2-R	900 1100 100	12	120	4.200	6	0.889	22.40
3	TS3-R	900 1100 100	16	110	4.350	10	1.580	76.96
TOTAL (KG) : 512.47								

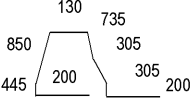
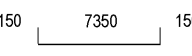
BAR BENDING SCHEDULE OF RCC LONGITUDINAL RESTRAINER								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	TL1	1550 475 550 550	32	100	5.955	6	6.321	202.93
2	TL2	510 475 100	16	150	2.170	6	1.580	27.43
3	TL3	1550 510 100	25	150	4.560	4	3.858	67.73
TOTAL (KG) :								297.36
TOTAL NOS OF LONGITUD. RESTRAINER :								3.00
TOTAL WEIGHT (KG) :								592.08

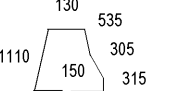
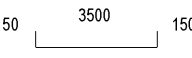
LEFT ABUTMENT DETAILS

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-Pathaliya Road Section (130 KM) of Mahendra Highway and Bridges		Joint Venture of ep4sa EPTISA Servicios De Ingenieria Madrid, Spain an STUP Consultants Private Limited Kolkata, India		Mr. S.N.R.B.		ABUTMENT BAR BENDING SCHEDULE OF BRIDGE OVER RIVER BALUWA		AS SHOWN		JUNE, 2023	
				In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited		Checked By	Mr. S.M.						
						Approved By	Mr. H.B.	Reference Drawings		Chainage:		Sheet No. 1/4	
										245+228			

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	RT1A		12	150	5.450	41	0.889	198.62
2	RT1B		16	150	5.450	41	1.580	353.11
3	RT2A		12	150	7.920	21	0.889	147.84
3	RT2B		12	150	5.630	21	0.889	105.09
4	RT2C		12	150	4.380	21	0.889	81.76
5	RT3A		12	150	8.261	27	0.889	198.26
6	RT3B		16	150	6.001	27	1.580	256.04
7	RT3C		12	150	3.605	27	0.889	86.52
8	RT3D		12	150	1.390	51	0.889	63.01
9	RT4A		12	150	1.750	24	0.889	37.33
10	RT4B		12	150	1.750	24	0.889	37.33
11	RT5		12	150	1.470	61	0.889	79.71
12	RT6		12	2 Nos.	6.011	2	0.889	10.69
13	RT7		16		7.470	5	1.580	59.02
14	RT8		12		5.557	5	0.889	24.70
TOTAL (KG) :								1739.04

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	RT1A		12	150	5.450	39	0.889	188.93
2	RT1B		16	150	5.450	39	1.580	335.88
3	RT2A		12	150	7.920	21	0.889	147.84
4	RT2B		12	150	5.630	21	0.889	105.09
5	RT2C		12	150	4.380	21	0.889	81.76
6	RT3A		12	150	7.965	27	0.889	191.16
7	RT3B		16	150	5.705	27	1.580	243.41
8	RT3C		12	150	3.605	27	0.889	86.52
9	RT3D		12	150	1.390	51	0.889	63.01
10	RT4A		12	150	1.750	24	0.889	37.33
11	RT4B		12	150	1.750	24	0.889	37.33
12	RT5		12	150	1.470	61	0.889	79.71
12	RT6		12	2 Nos.	5.715	2	0.889	10.16
13	RT7		16		7.470	5	1.580	59.02
14	RT8		12		5.557	5	0.889	24.70
TOTAL (KG) :								1691.87

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	RC-B1		16	150	3.170	50	1.580	250.47
2	RC-B2		10	150	7.650	20	0.617	94.44
TOTAL (KG) :								344.91

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

LEFT ABUTMENT DETAILS

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. S.N.R.B Nec.No. 265 CIVIL "A"	AS SHOWN	AS SHOWN	JUNE, 2023		
			 EPTISA Servicios De Ingenieria Madrid, Spain	 STUP Consultants Private Limited Kolkatta, India	Checked By	Mr. S.M. Nec.No.					
					In Association With Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited		Approved By	Mr. H.B. Nec.No.	Reference Drawings	Chainage: 245+228	Drawing No.- KDP/DPR/STR/BR/BALUWA/DD -9

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	BT1		12	150	12.000	20	0.889	213.33
2	B11A		12	150	6.000	3	0.889	16.00
3	BT2		16	150	3.415	80	1.580	431.72
4	BT3		12	150	12.000	16	0.889	170.67
5	BT3A		12	150	6.000	3	0.889	16.00
6	BT4		12	150	3.490	80	0.889	248.18
7	BT5		12	450	0.350	135	0.889	42.00
8	BT6		16	150	1.826	80	1.580	230.84
9	BT7		12	5 Nos.	11.700	5	0.889	52.00
10	B18		12	150	0.650	158	0.889	91.29
TOTAL (KG) :								1512.03

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	CT1		16	150	12.300	12	1.580	233.24
2	CT2		16	150	12.300	12	1.580	233.24
3	CT3		16	150	2.000	80	1.580	252.84
4	CT4		12	150	12.000	8	0.889	85.33
5	CT5		12	Long: 150 Trans: 300	0.650	422	0.889	243.82
TOTAL (KG) :								1048.48

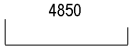
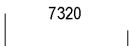
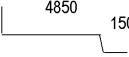
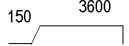
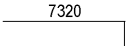
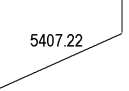
BAR BENDING SCHEDULE OF ABUTMENT STEM								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	ST1		25	150	6.496	80	3.858	2004.94
2	ST2		16	150	12.900	21	1.580	428.09
3	ST3		20	150	6.496	80	2.469	1283.16
4	ST4		16	150	12.900	21	1.580	428.09
5	ST5		16	200	6.496	14	1.580	143.71
6	ST6		16	Ver. 450 Hor. 450	1.250	189	1.580	373.33
TOTAL (KG) :								4661.32

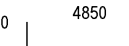
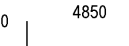
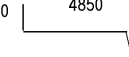
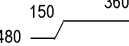
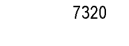
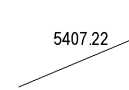
BAR BENDING SCHEDULE OF PILE CAP								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	FT1		25	110	10.450	112	3.858	4515.43
2	FT2		20	200	14.050	44	2.469	1526.42
3	FT3		20	110	10.450	112	2.469	2889.88
4	FT4		16	200	14.050	44	1.580	976.91
5	FT5		16	450	1.980	560	1.580	1752.18
6	FT6		16	200	41.200	10	1.580	651.06
TOTAL (KG) :								12311.88

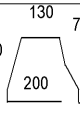
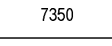
BAR BENDING SCHEDULE OF PEDESTAL								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	TP1		16	150	2.500	6	1.580	23.70
1	TP2		16	150	2.500	6	1.580	23.70
2	TP3		16	150	3.000	4	1.580	18.96
1	TP4		10	2 Nos.	10.500	2	0.617	12.96
TOTAL (KG) :								79.33
TOTAL NOS OF PEDESTAL :								4.00
TOTAL WEIGHT (KG) :								317.33
BAR BENDING SCHEDULE OF RCC SEISMIC RESTRAINER - 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		32		4.550	11	6.321	316.37
2	TS2-L		12	120	4.200	6	0.889	22.40
3	TS3-L		16	110	4.350	10	1.580	68.74
TOTAL (KG) :								407.51
BAR BENDING SCHEDULE OF RCC SEISMIC RESTRAINER - 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		32		4.550	11	6.321	316.37
2	TS2-R		12	120	4.200	6	0.889	22.40
3	TS3-R		16	110	4.350	10	1.580	68.74
TOTAL (KG) :								512.47
BAR BENDING SCHEDULE OF RCC LONGITUDINAL RESTRAINER								
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	TL1		32	100	5.306	6	6.321	202.93
2	TL2		16	150	2.170	8	1.580	27.43
3	TL3		25	150	4.360	4	3.858	57.59
TOTAL (KG) :								287.96
TOTAL NOS OF LONGITUDINAL RESTRAINER :								3.00
TOTAL WEIGHT (KG) :								885.08

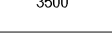
RIGHT ABUTMENT DETAILS

EMPLOYER		PROJECT NAME		DESIGN CONSULTANTS		Drawing Name		Scale:		Date:	
		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		ABUTMENT BAR BENDING SCHEDULE OF BRIDGE OVER RIVER BALUWA		AS SHOWN		JUNE, 2023	
				EPTISA Servicios De Ingenieria Madrid, Spain		STUP Consultants Private Limited Kolkatta, India				Drawing No.-	
				In Association With				Chainage:		KDP/DPR/STR/BR/BALUWA/DD -9	
				Udaya Consultancy, Geocom International, Sundar Kriti Consultant and Rays Consultant Private Limited				245+228		Sheet No. 3/4	

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	RT1A	450  150	12	150	5.450	41	0.889	198.62
2	RT1B	450  150	16	150	5.450	41	1.580	353.11
3	RT2A	450  150	12	150	7.920	21	0.889	147.84
3	RT2B	150  480	12	150	5.630	21	0.889	105.09
4	RT2C	480  150	12	150	4.380	21	0.889	81.76
5	RT3A	7661 	12	150	8.261	27	0.889	198.26
6	RT3B	640  4761 	16	150	6.001	27	1.580	256.04
7	RT3C	150  2825 	12	150	3.605	27	0.889	86.52
8	RT3D	200  390 	12	150	1.390	51	0.889	63.01
9	RT4A	1450 	12	150	1.750	24	0.889	37.33
10	RT4B	1450 	12	150	1.750	24	0.889	37.33
11	RT5	300 	12	150	1.470	61	0.889	79.71
12	RT6	 6011	12	2 Nos.	6.011	2	0.889	10.69
13	RT7	 150	16		7.470	4	1.580	47.22
14	RT8	 150	12		5.557	4	0.889	19.76
TOTAL (KG) :								1722.30

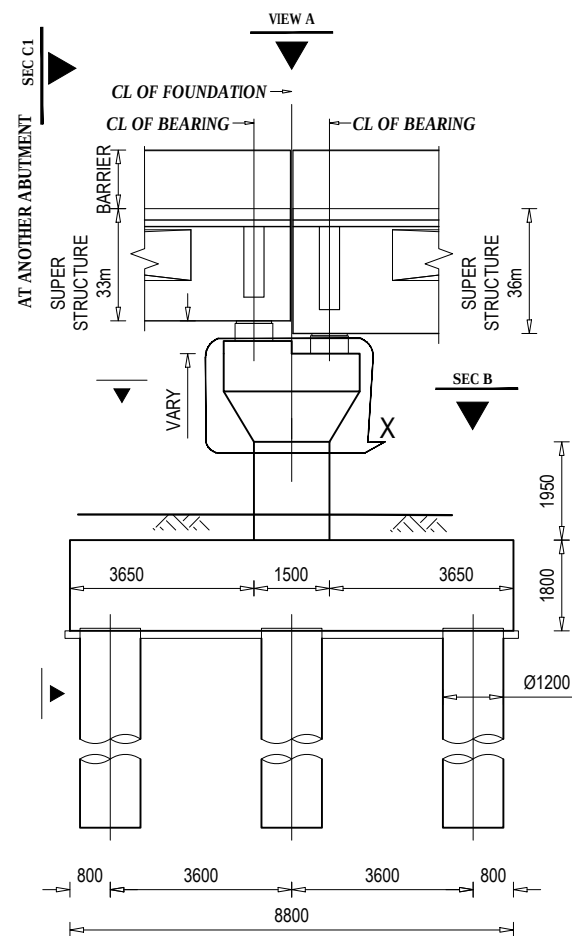
BAR BENDING SCHEDULE OF RETURN WALL - RIGHT								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	RT1A	450  150	12	150	5.450	39	0.889	188.93
2	RT1B	450  150	16	150	5.450	39	1.580	335.88
3	RT2A	450  150	12	150	7.920	21	0.889	147.84
4	RT2B	150  480	12	150	5.630	21	0.889	105.09
5	RT2C	480  150	12	150	4.380	21	0.889	81.76
6	RT3A	7365 	12	150	7.965	27	0.889	191.16
7	RT3B	640  4465 	16	150	5.705	27	1.580	243.41
8	RT3C	150  2825 	12	150	3.605	27	0.889	86.52
9	RT3D	200  390 	12	150	1.390	51	0.889	63.01
10	RT4A	1450 	12	150	1.750	24	0.889	37.33
11	RT4B	1450 	12	150	1.750	24	0.889	37.33
12	RT5	300 	12	150	1.470	61	0.889	79.71
12	RT6	 5715	12	2 Nos.	5.715	2	0.889	10.16
13	RT7	 150	16		7.470	4	1.580	47.22
14	RT8	 150	12		5.557	4	0.889	19.76
TOTAL (KG) :								1675.12

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	RC-B1		16	150	3.170	50	1.580	250.47
2	RC-B2	150  150	10	150	7.650	20	0.617	94.44
TOTAL (KG) :								344.91

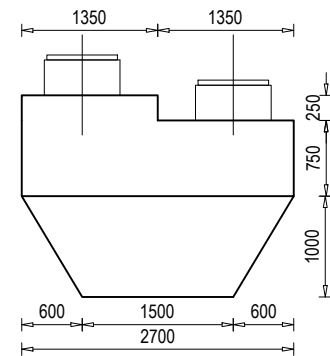
BAR BENDING SCHEDULE OF R.C.C SEPARATOR								
S.No.	BAR MARK	DESCRIPTION OF BAR	BAR DIA.(MM)	SPACING (MM)	BAR LENGTH (M)	No. OF BARS	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)
1	RS1		16	150	2.695	25	1.580	106.47
2	RS2	150  150	10	150	3.800	17	0.617	39.88
TOTAL (KG) :								146.35

RIGHT ABUTMENT DETAILS

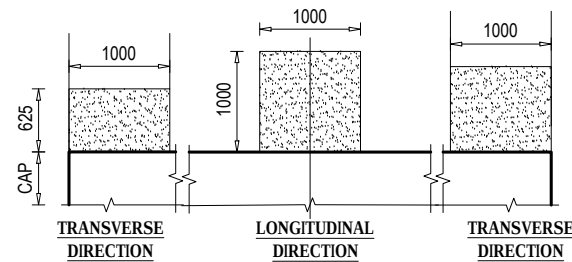
EMPLOYER		PROJECT NAME		DESIGN CONSULTANTS		Designed By	Mr. S.N.R.B Nec.No. 265 CIVIL "A" 	Drawing Name	Scale:	AS SHOWN	Date:	JUNE, 2023
	Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & 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 Kriti Consultant and Rays Consultant Private Limited		Approved By	Mr. H.B. Nec.No. 			



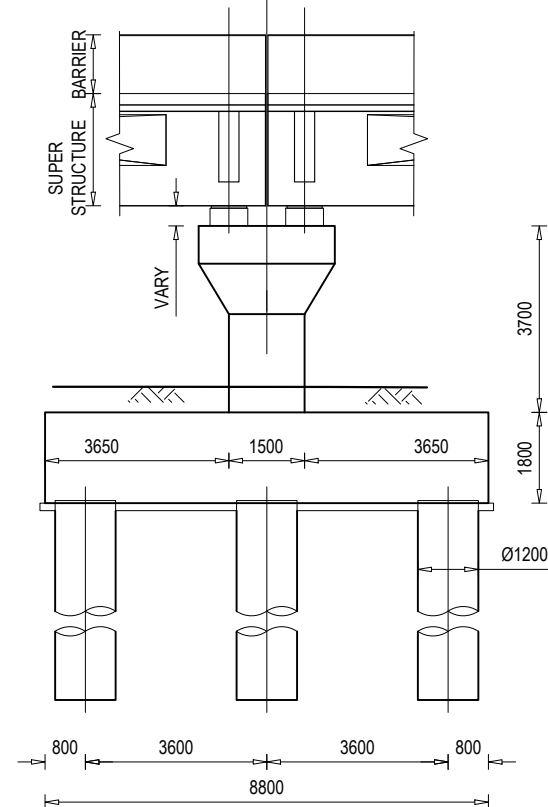
ELEVATION VIEW OF PIER (P1,P2)
SCALE - 1 : 150



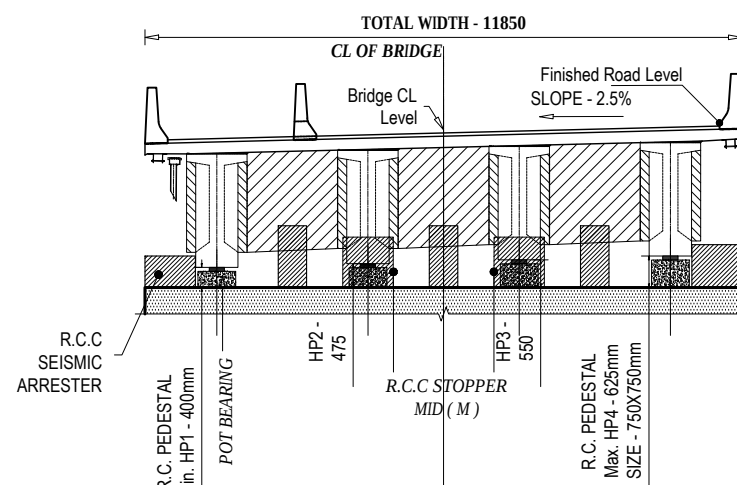
DETAIL AT X
SCALE - 1 : 75



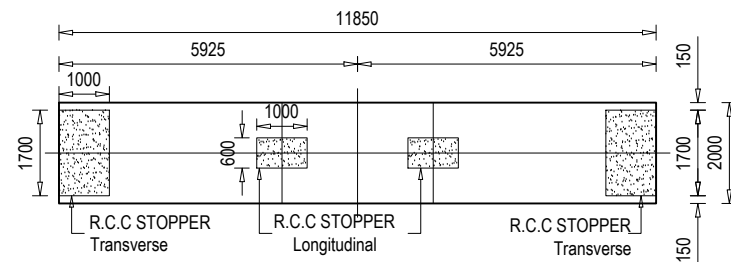
DETAIL OF RCC STOPPER AT PEDESTAL
SCALE - 1 : 75



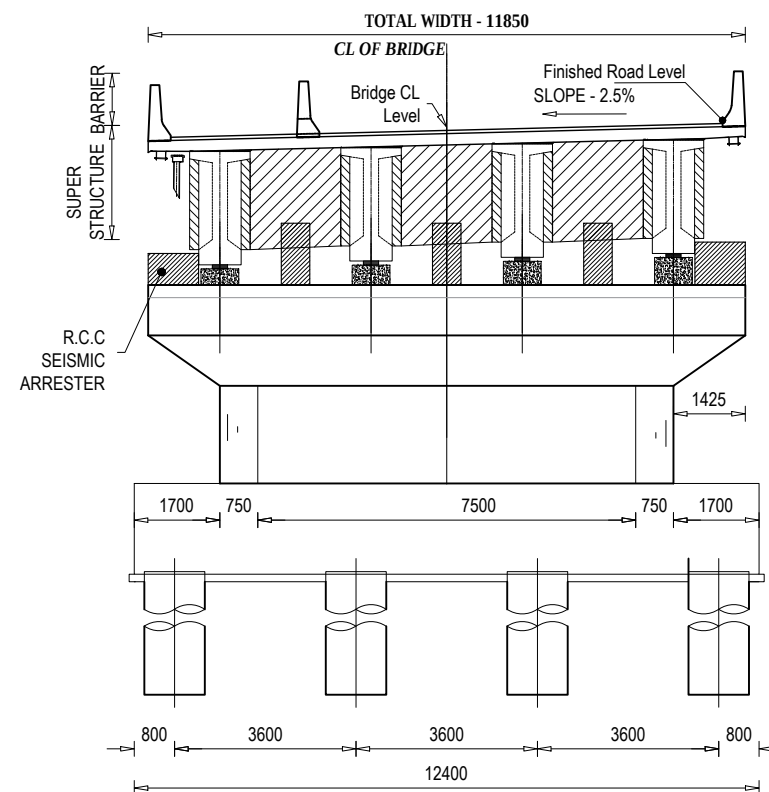
ELEVATION VIEW OF PIER (P3)
SCALE - 1 : 150



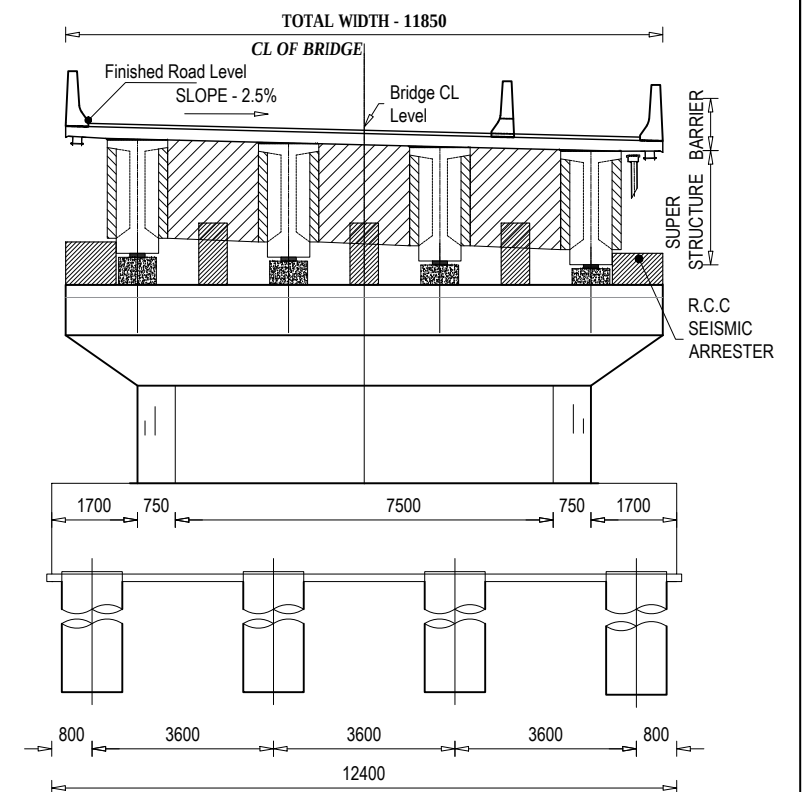
R.C.C PEDESTAL - ELEVATION VIEW
SCALE - 1 : 150



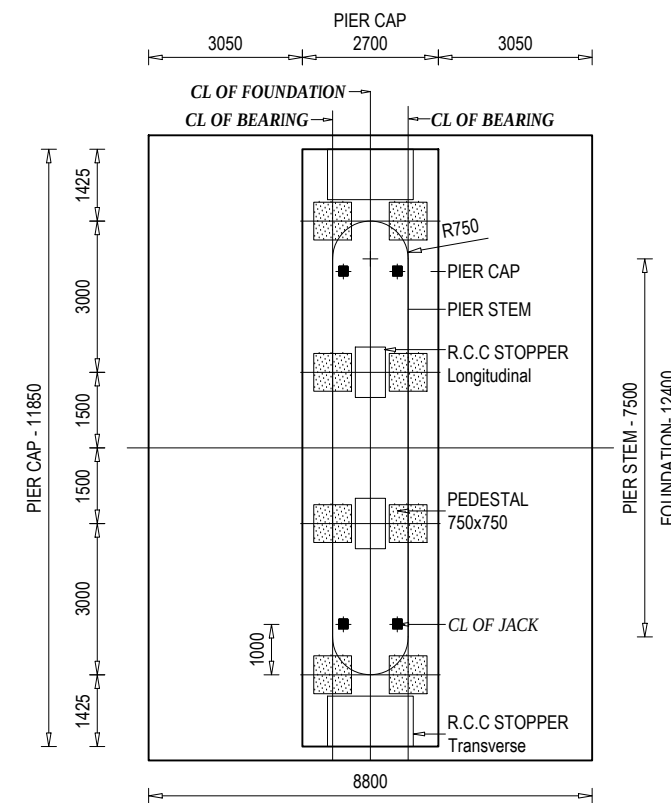
DETAIL AT R.C.C SEISMIC RESTRAINER
NOT SHOWING PEDESTAL
SCALE - 1 : 150



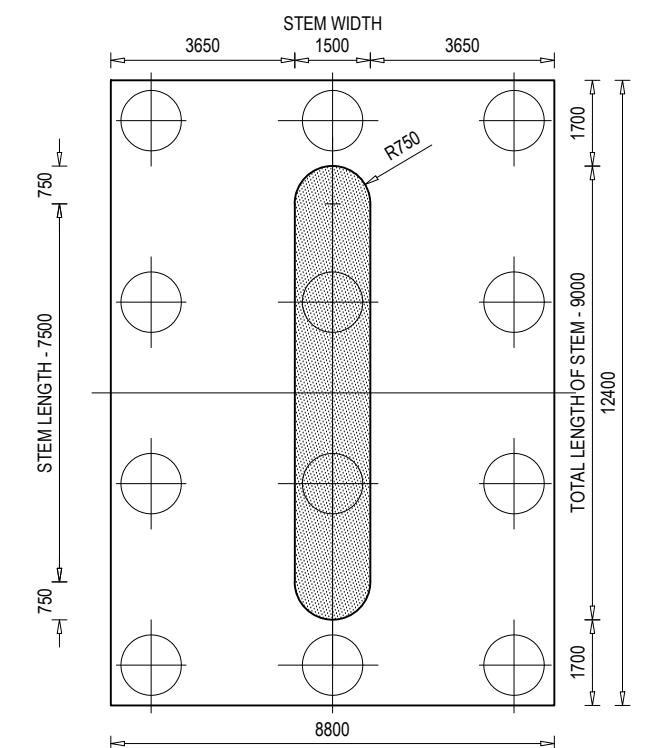
SECTIONAL VIEW AT C1 - C1
SCALE - 1 : 150



SECTIONAL VIEW AT C2 - C2
SCALE - 1 : 150

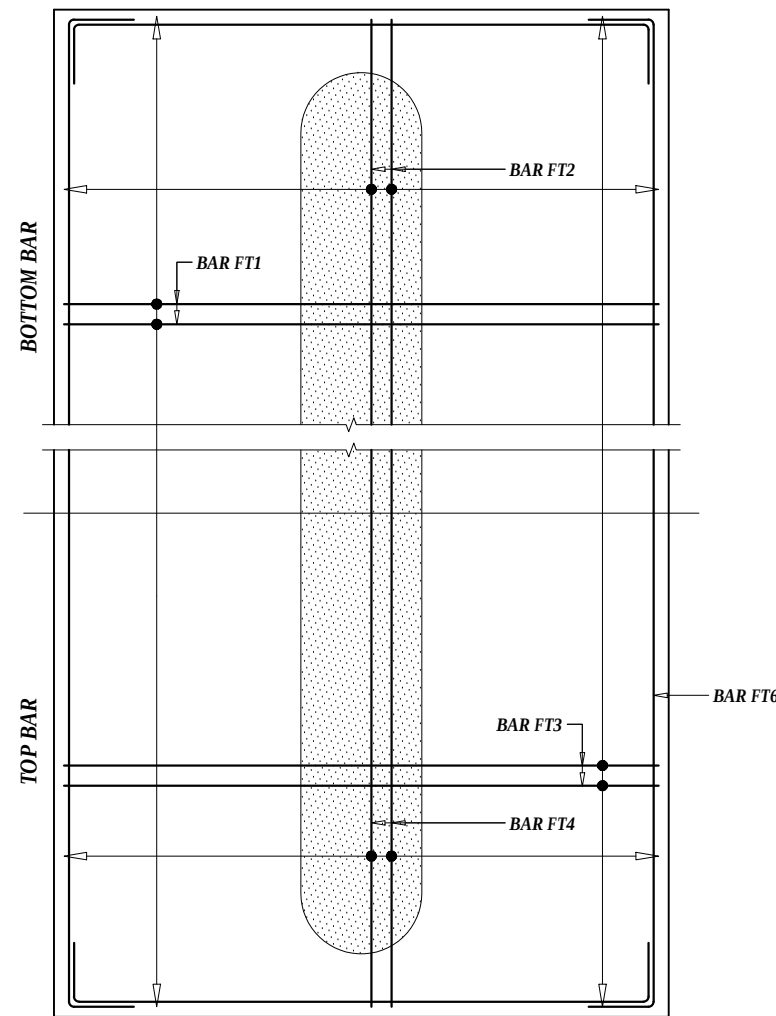


PLAN VIEW OF PIER (VIEW AT A)
SCALE - 1 : 150

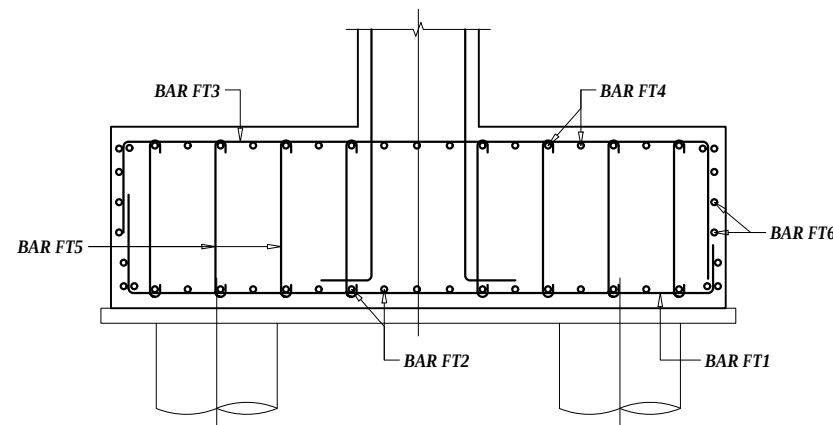


SECTIONAL VIEW AT B - B
SCALE - 1 : 150

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 (SRTCIP)	Joint Venture of episa EPTISA Servicios De Ingenieria Madrid, Spain STUP Consultants Private Limited Kolkata, India	Mr. S.N.R.B. Nec.No. 265 Civil "A"	PIER DETAILS OF BRIDGE OVER RIVER BALUWA	AS SHOWN	JUNE, 2023
	Detailed Design of Upgradation of Kamala-Dhalkebar-Pathlaiya Road Section (130 KM) of Mahendra Highway and Bridges	In Association With Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited	Checked By Mr. S.M. Nec.No.	Reference Drawings KDP/DPR/STR/BR/BALUWA/DD-12	Chainage: 245+228	Drawing No.- 10
			Approved By Mr. H.B. Nec.No.			Sheet No. 1/1



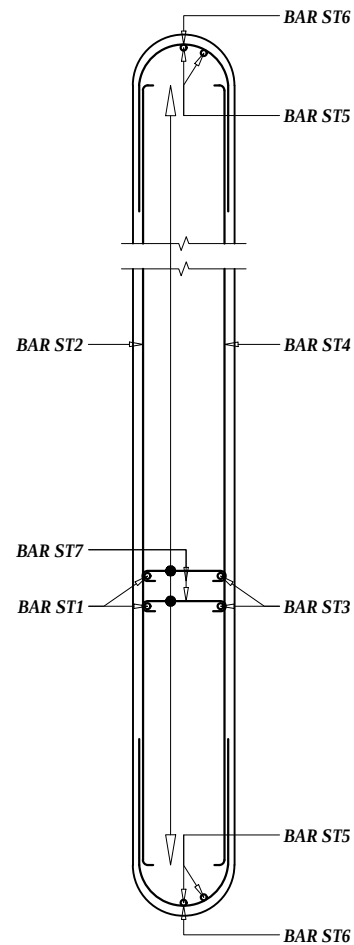
PLAN VIEW



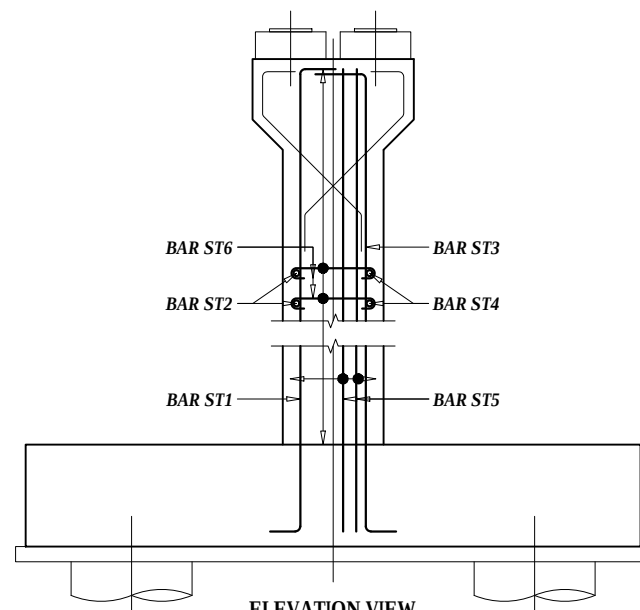
ELEVATION VIEW

BAR DETAIL OF FOUNDATION

SCALE - 1 : 75



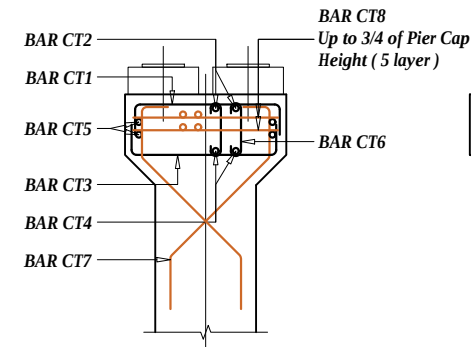
PLAN VIEW



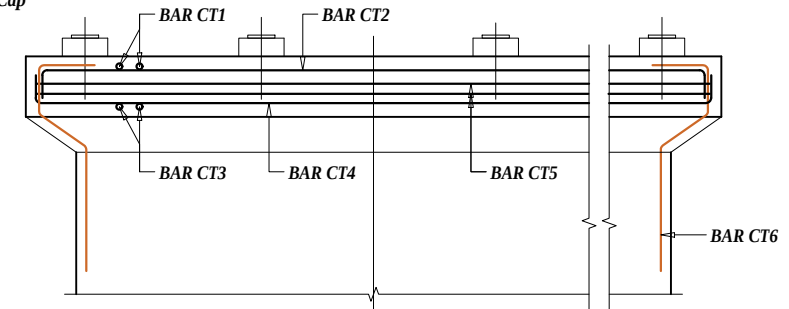
ELEVATION VIEW

BAR DETAIL AT ABUTMENT STEM

SCALE - 1 : 75



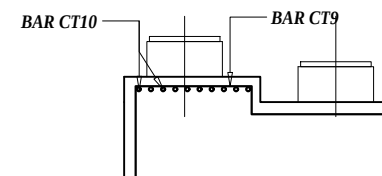
ELEVATION VIEW



FRONT VIEW

BAR DETAIL AT ABUTMENT CAP

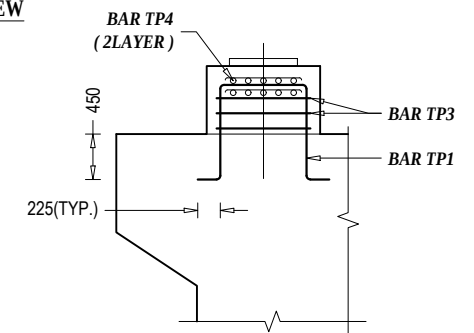
SCALE - 1 : 75



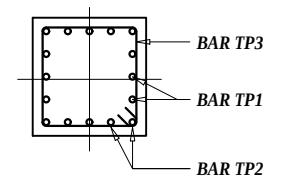
PIER CAP

ONLY SHOWING EXTRA BAR

SCALE - 1 : 40



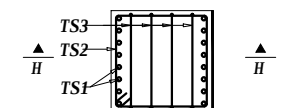
SECTIONAL SIDE VIEW



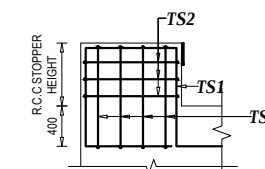
SECTIONAL PLAN VIEW

BAR DETAIL AT PEDESTAL

SCALE - 1 : 50



SECTIONAL PLAN VIEW

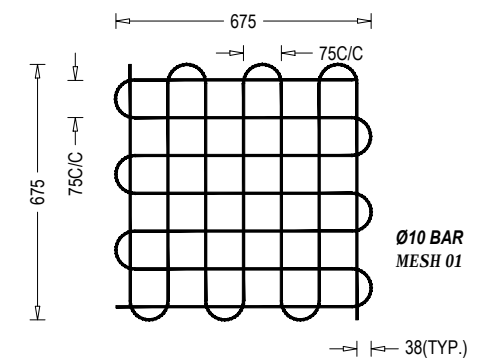


SECTIONAL VIEW AT H-H

R.C.C STOPPER LEFT

ELEVATION VIEW

SCALE - 1 : 50



REINFORCEMENT DETAILS OF BEARING MESH

SCALE - 1 : 50

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

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

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 ep4sa EPTISA Servicios De Ingenieria Madrid, Spain an STUP Consultants Private Limited Kolkata, India In Association With Udaya Consultancy, Geocom International, Sundar Kirti Consultant and Rays Consultant Private Limited	Designed By Mr. S.N.R.B. Nec.No. 265 Civil "A" Checked By Mr. S.M. Nec.No. Approved By Mr. H.B. Nec.No.	Drawing Name PIER BAR DETAIL OF BRIDGE OVER RIVER BALUWA Reference Drawings KDP/DPR/STR/BR/BALUWA/DD-12	Scale: AS SHOWN Chainage: 245+228	Date: JUNE, 2023 Drawing No.- 11 Sheet No. 1/1
---	---	--	---	---	---	---