

TENDER NO: WAP/NK/JHK/RMC-PKG-2/BALANCE/2026

TENDER DOCUMENT

FOR

**Lining, Repair and Construction of Balance Works of Right Main Canal
& its Structures of Package-2 (RD 17.16 to 31.40 km) under North Koel
Reservoir Project, Jharkhand**

Estimated Cost (Rs. 43.97 Crores)

TENDER NO: WAP/NK/JHK/RMC-PKG-2/BALANCE/2026

TENDER DRAWINGS

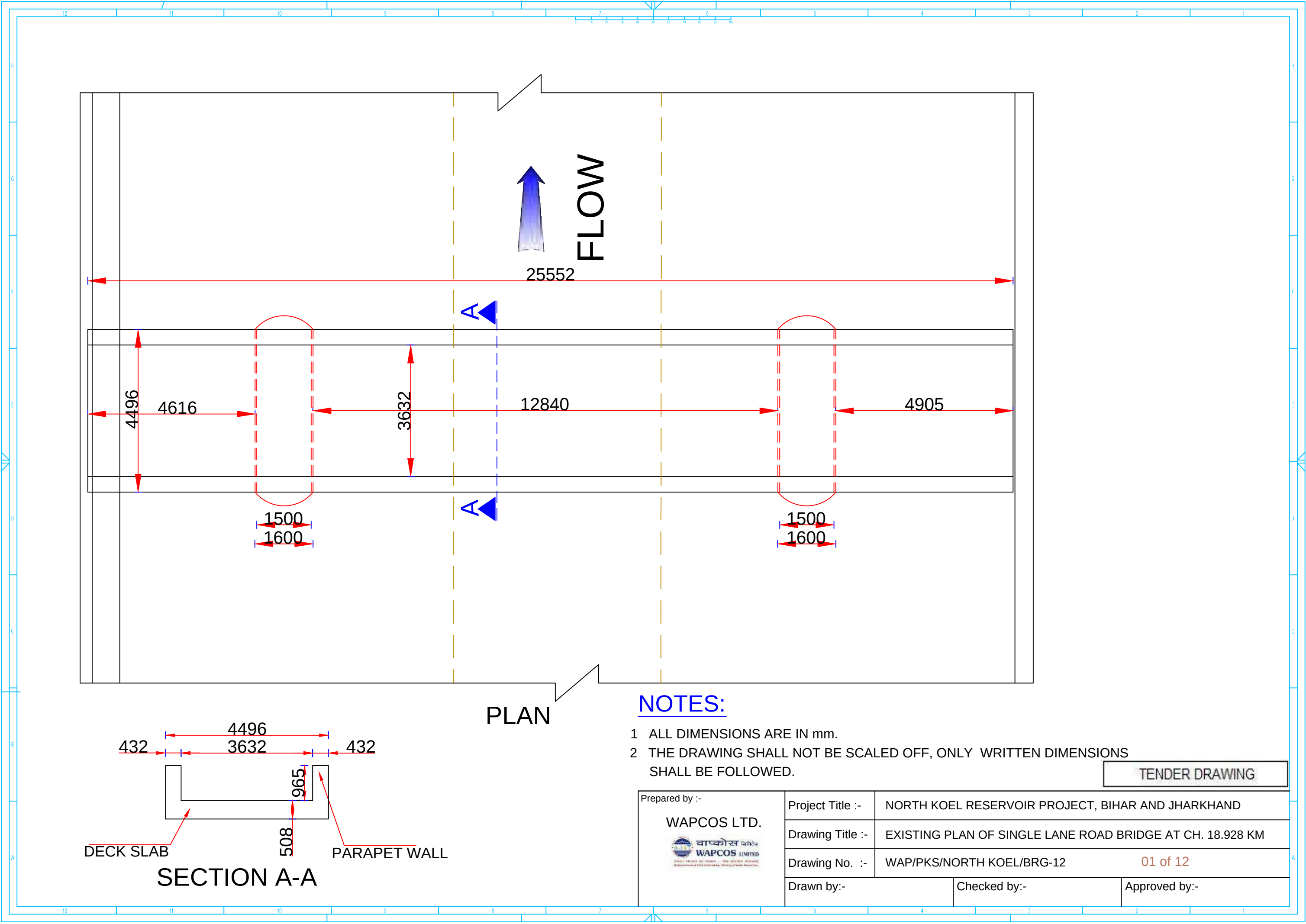


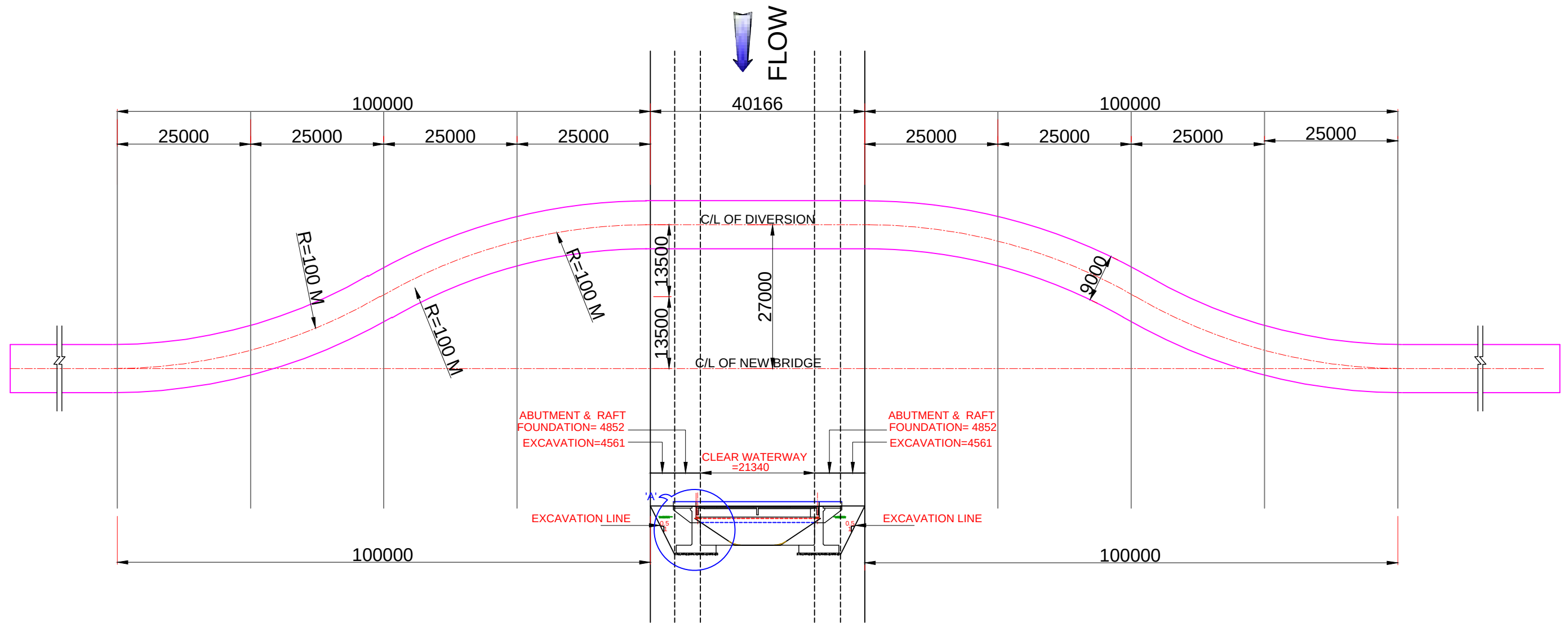


S.L.R. BRIDGE

AT

CH. 18.928 KM

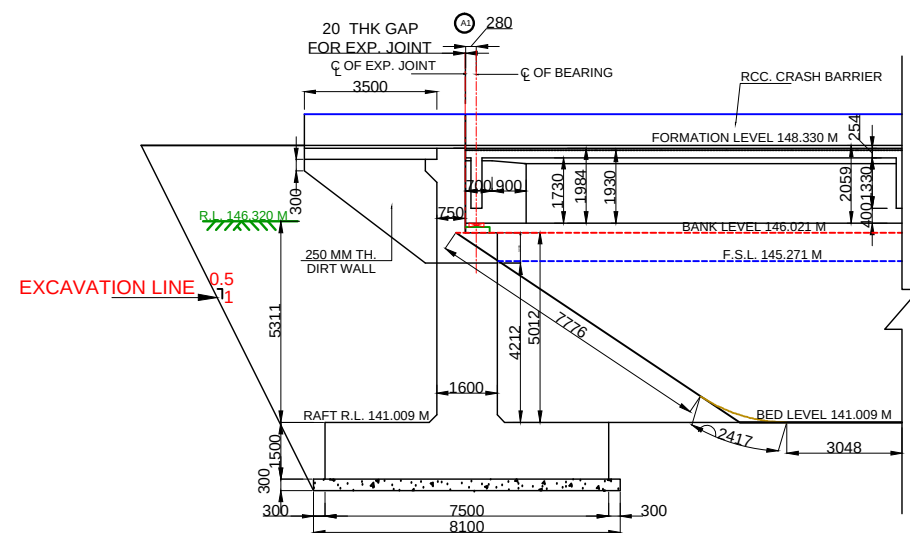




SKETCH OF DIVERSION PLAN AT KM 18.928 FOR S.L.R. BRIDGE

NOTES:-

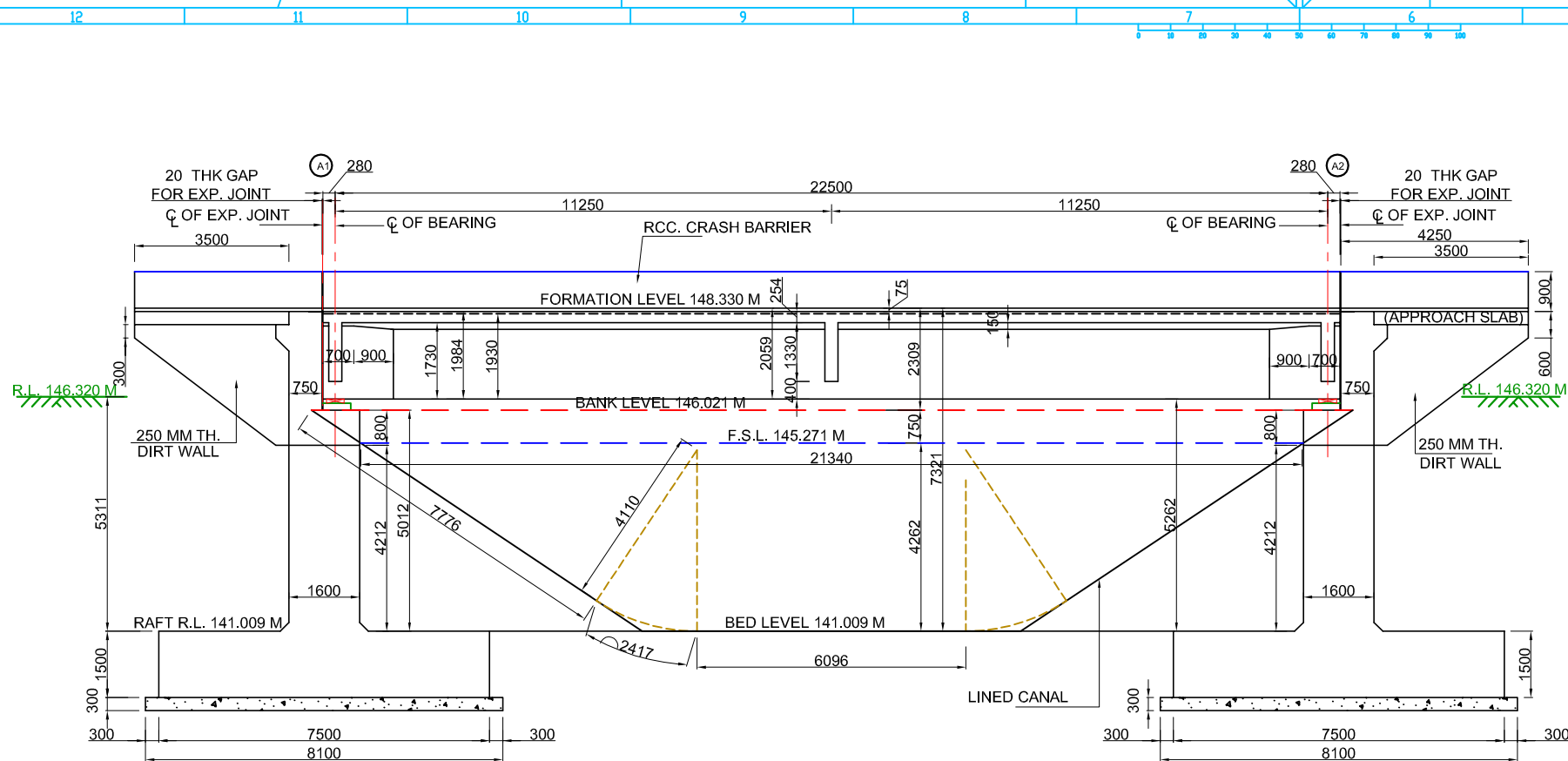
1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.



DETAIL SECTION AT 'A'

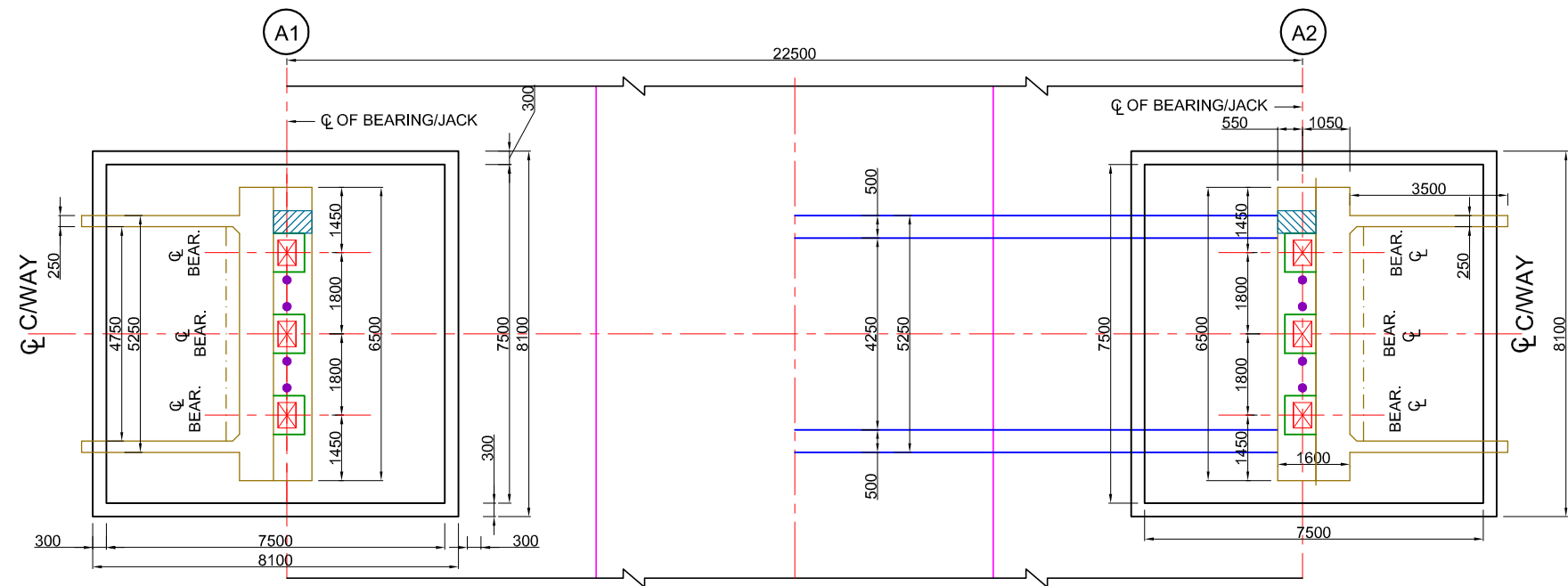
TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 18.928 FOR S.L.R. BRIDGE	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 12	02 of 12
	Drawn by:-	Checked by:-	Approved by:-



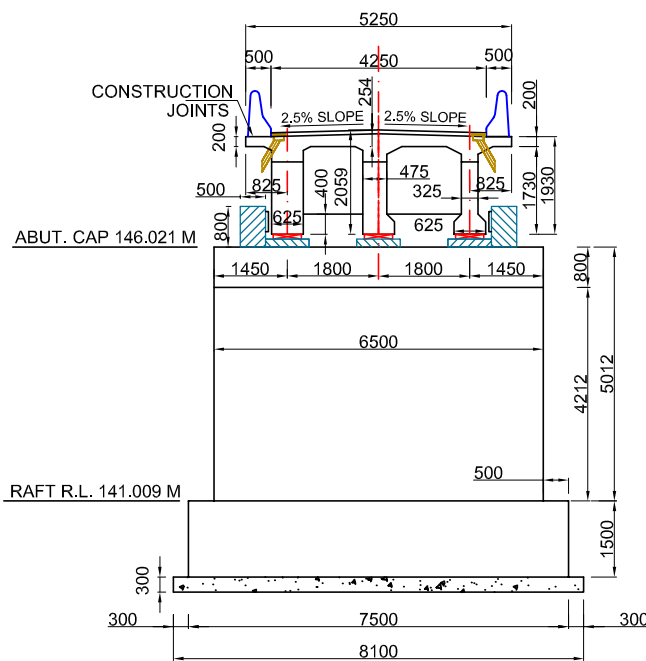
SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)

NOTES:

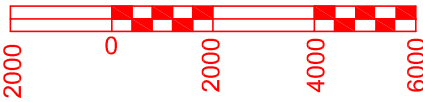
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
- DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
- ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	80.900 CUMEC
BED LEVEL	141.009 M
WATER DEPTH	4.262 M
F.S.L.	145.271 M
FREE BOARD	0.75 M
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a) RAFT	M35
b) ABUTMENT	M25
c) SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d) CRASH BARRIER	M30
e) PEDESTAL (SEISMIC)	M35
f) WEARING COAT	M30
- TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0°
ROAD LEVEL	148.330 M
EX. ROAD LEVEL	146.320 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M
- SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 18.928 WITH THREE BEAMS

Drawing No. :-

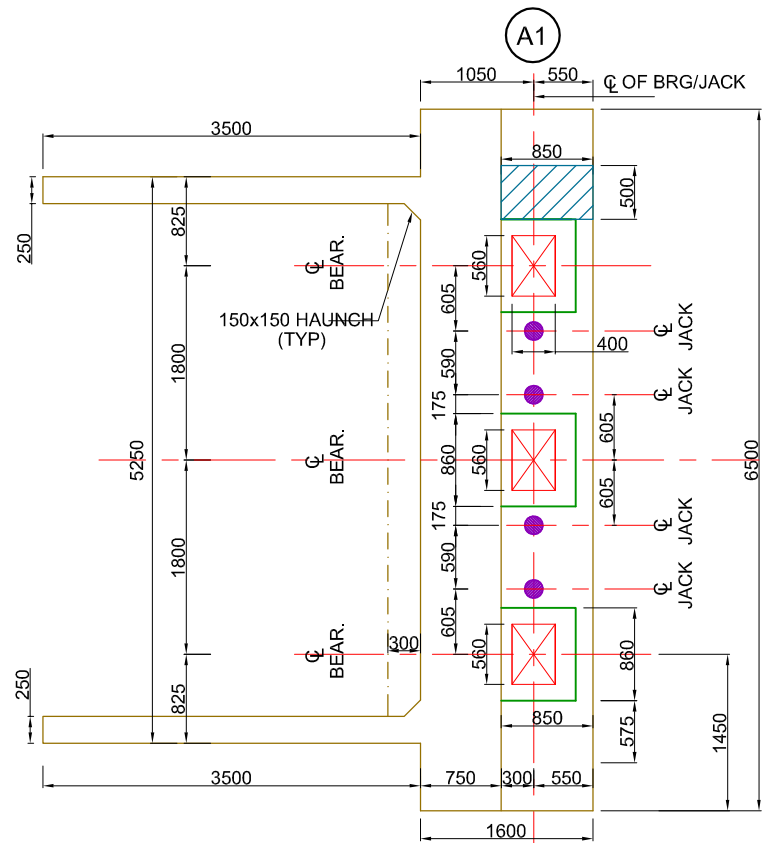
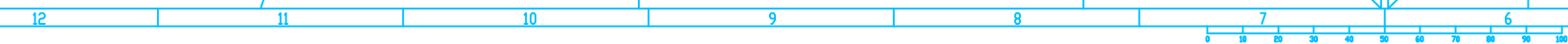
WAP/PKS/NORTH KOEL/RMC/BRG-12

03 of 12

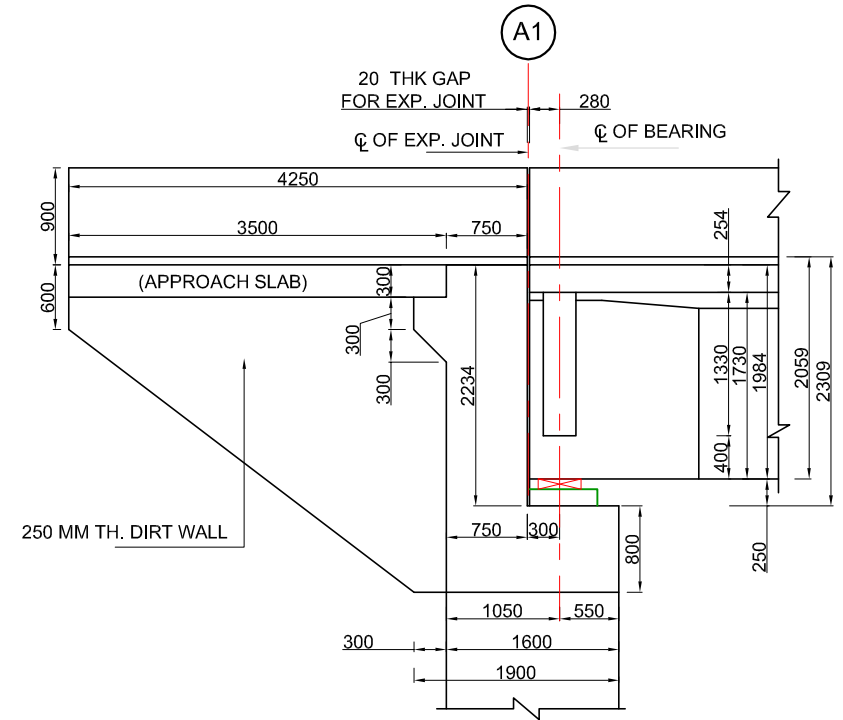
Drawn by:-

Checked by:-

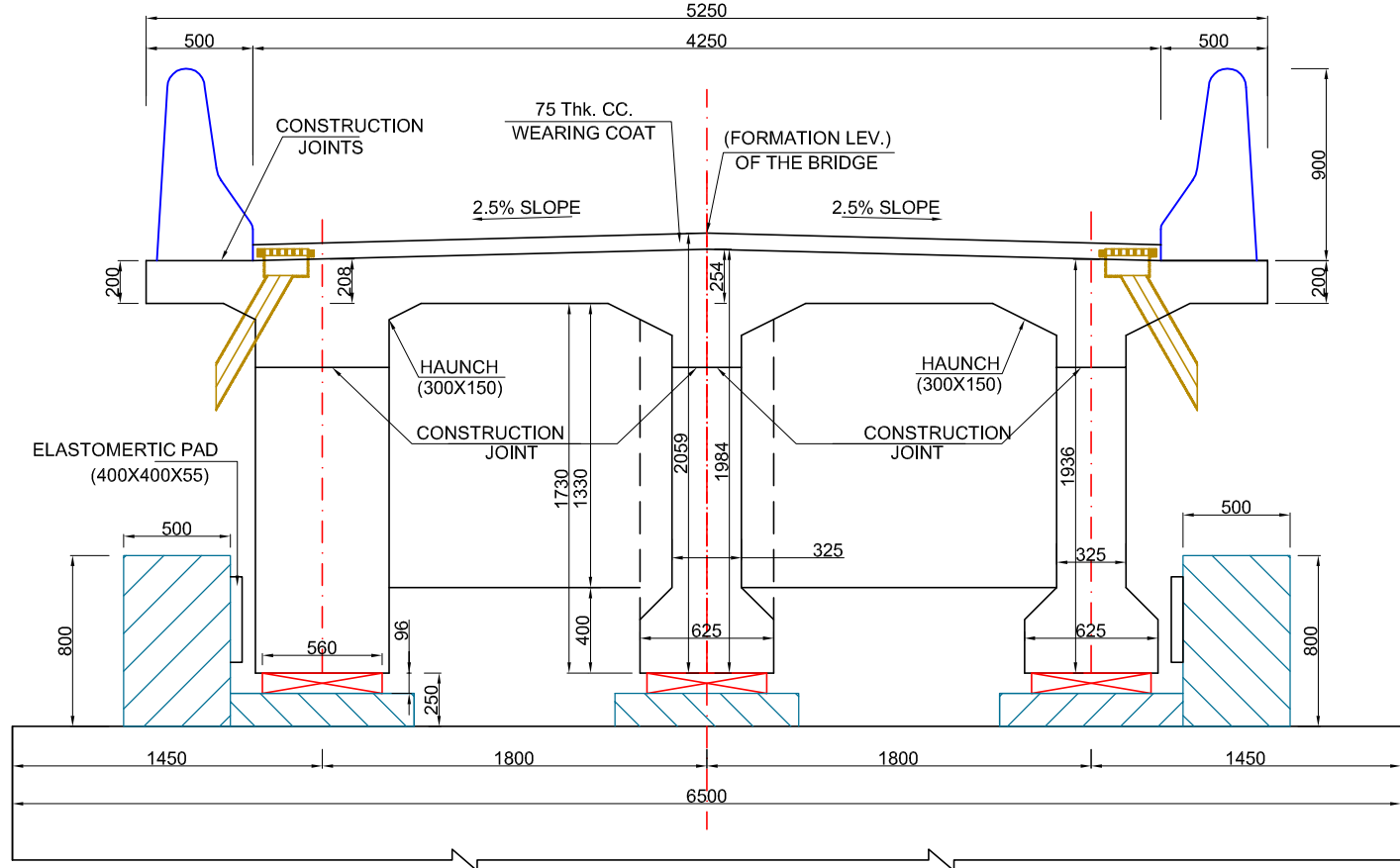
Approved by:-



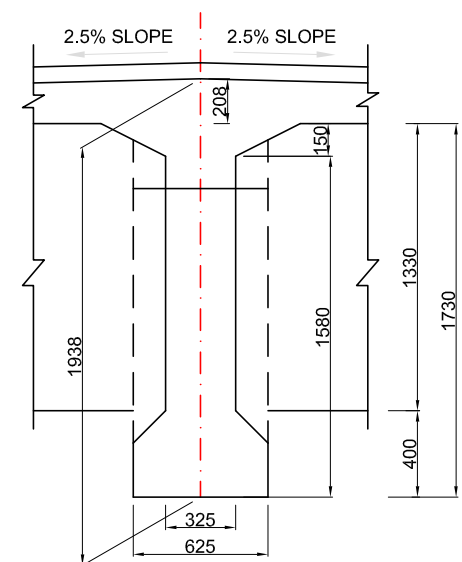
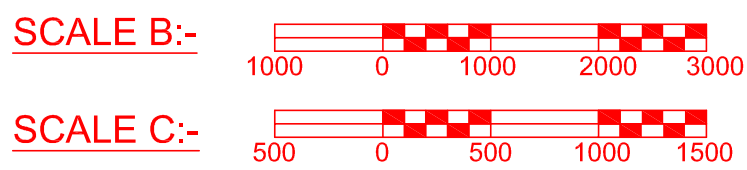
PLAN OF ABUTMENT AT BEARING LEVEL
(SCALE B)



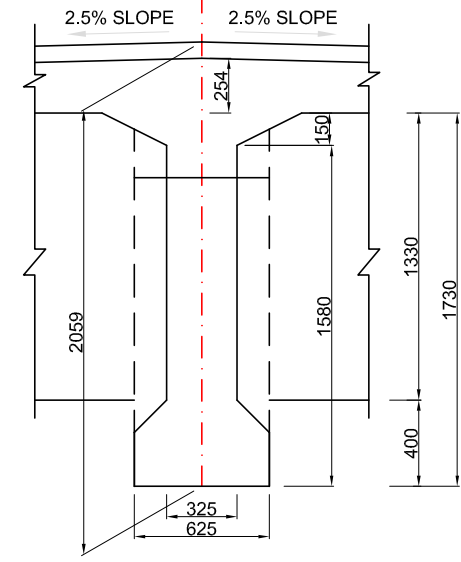
DETAIL - 'D1'
(SCALE B)



CROSS SECTION OF GIRDERS
(SCALE C)



CROSS SECTION OF
RCC 'I' OUTER GIRDER
(SCALE C)



CROSS SECTION OF
RCC 'I' INTERMEDIATE GIRDER
(SCALE C)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T-BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN-AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.

ABUT. CAP 146.021 M

TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR BRIDGE AT KM 18.928 WITH THREE BEAMS		
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-12		04 of 12
	Drawn by:-	Checked by:-	Approved by:-	

12 11 10 9 8 7 6 5 4 3 2 1

H

G

F

E

D

C

B

A

H

G

F

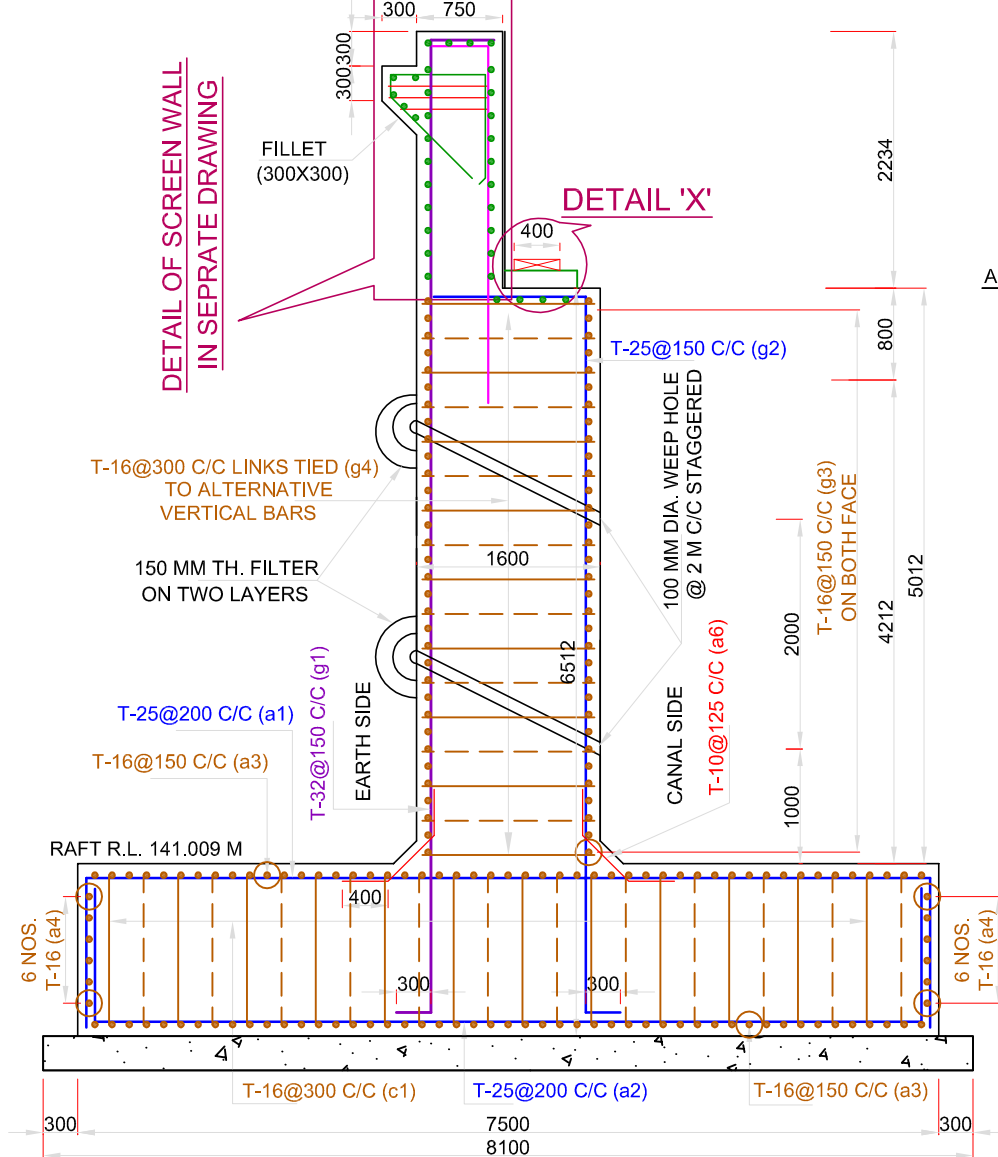
E

D

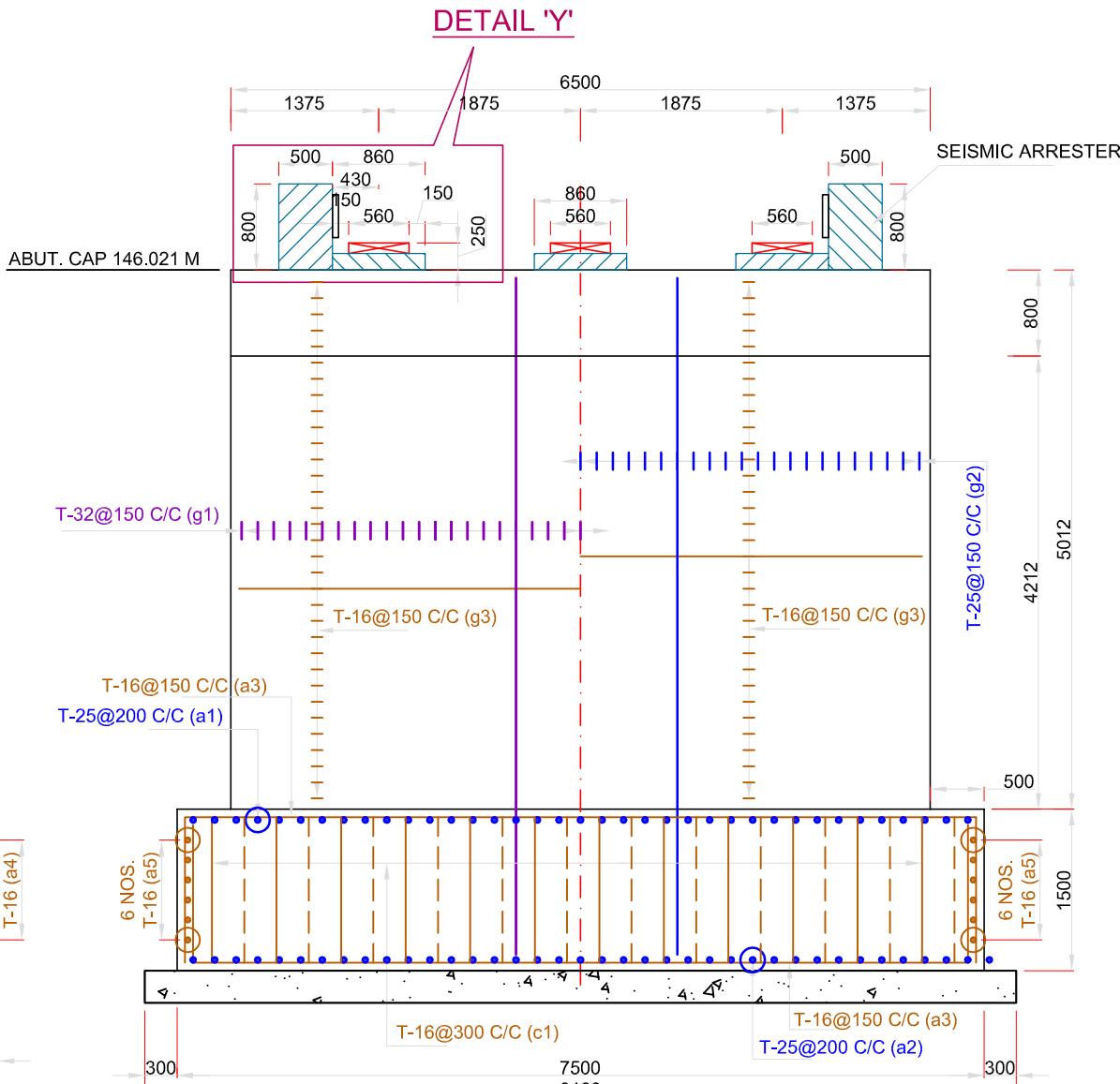
C

B

A



SIDE VIEW OF ABUTMENT
SCALE A



CROSS SECTION OF ABUTMENT
HALF EARTH SIDE / HALF CANAL SIDE
SCALE A

BARS BENDING SCHEDULE

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
1	g1		32	150	42X2
2	g2		25	150	42X2
3	g3		16	150	32X2X2
4	g4		16	300	9X11X2
5	a1		25	200	37X2
6	a2		25	200	37X2
7	a3		16	150	49X2X2
8	a4		16	-	6X2X2
9	a5		16	-	6X2X2
10	a6		10	125	59X2X2
11	c1		16	300	13X13X2

NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - RAFT M35
 - SUBSTRUCTURE M25
 - PEDESTAL M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:-
500 0 500 1000 1500

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 18.928 WITH THREE BEAMS

Drawing No. :-

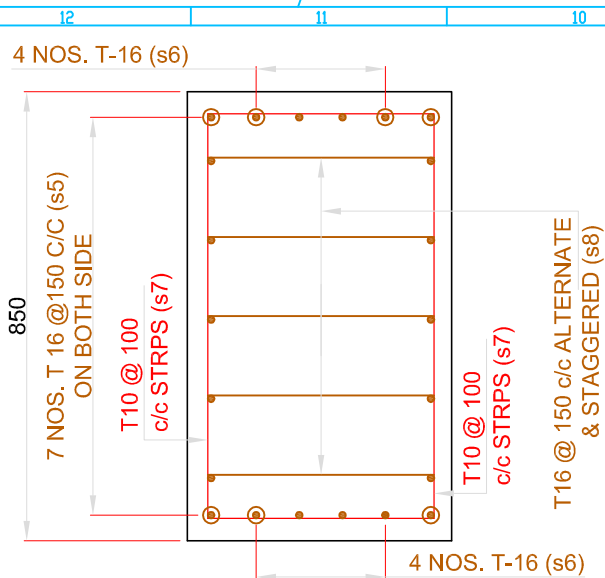
WAP/PKS/NORTH KOEL/RMC/BRG-12

05 of 12

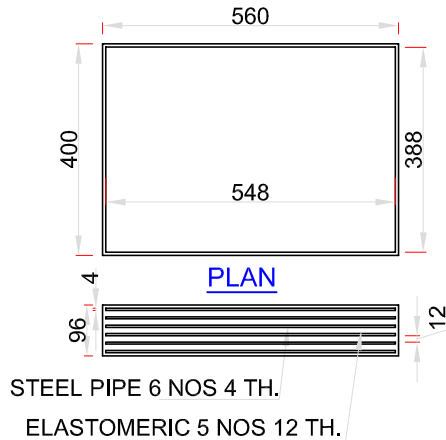
Drawn by:-

Checked by:-

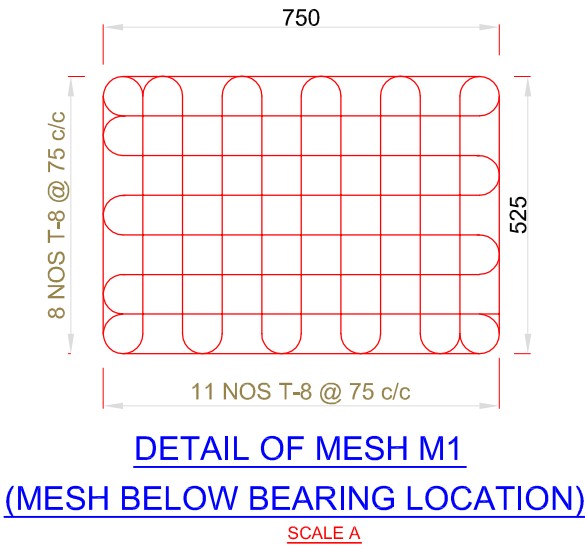
Approved by:-



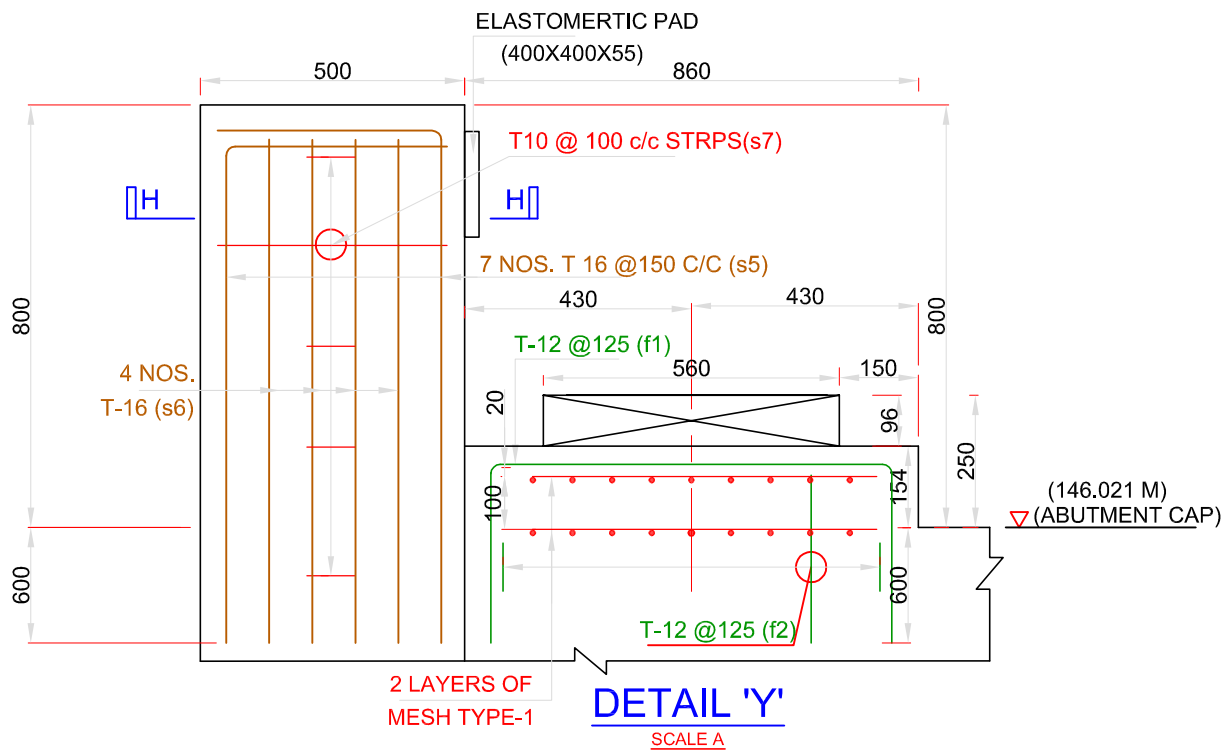
SECTION H-H
SCALE A



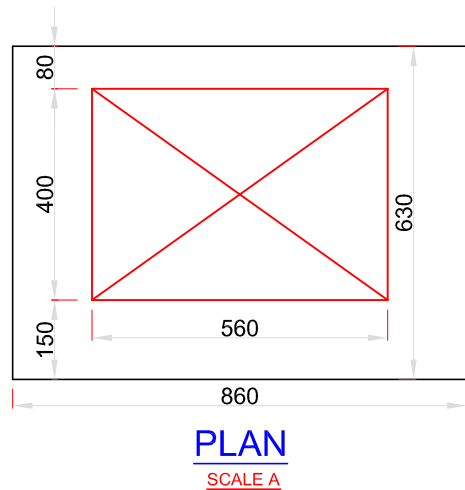
DETAILS OF
ELASTOMERIC BEARINGS
SCALE A



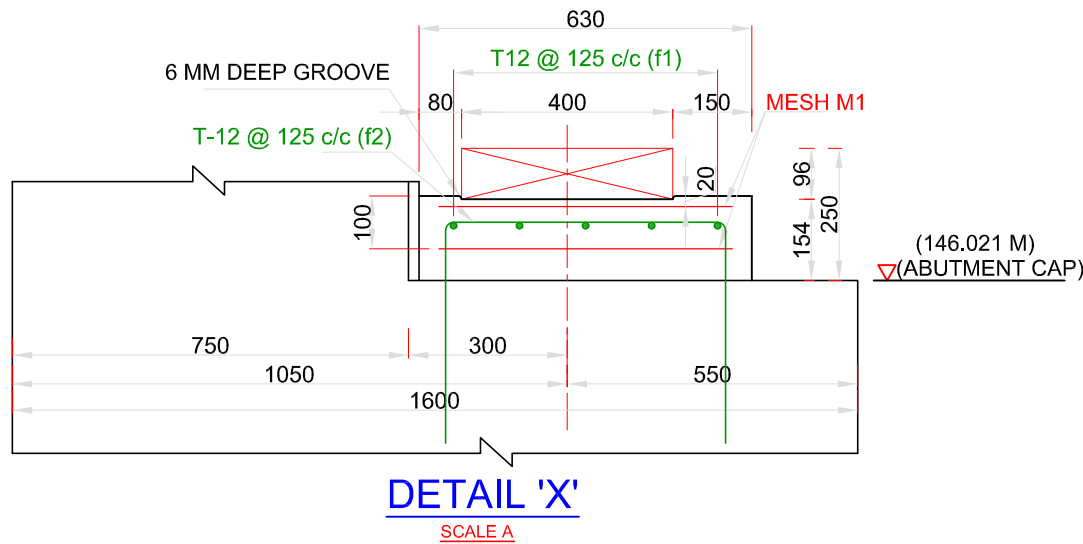
DETAIL OF MESH M1
(MESH BELOW BEARING LOCATION)
SCALE A



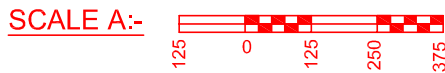
DETAIL 'Y'
SCALE A



PLAN
SCALE A



DETAIL 'X'
SCALE A



BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5		16	150	14X2X2
	2	s6		16	-	8X2X2
	3	s7		10	100	5X2X2
	4	s8		16	150	5X2X2
PEDESTAL FOR ABUTMENT	5	f1		12	125	5X3X3
	6	f2		12	125	5X3X3

NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - RAFT M35
 - SUBSTRUCTURE M25
 - PEDESTAL M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 18.928 WITH THREE BEAMS

Drawing No. :-

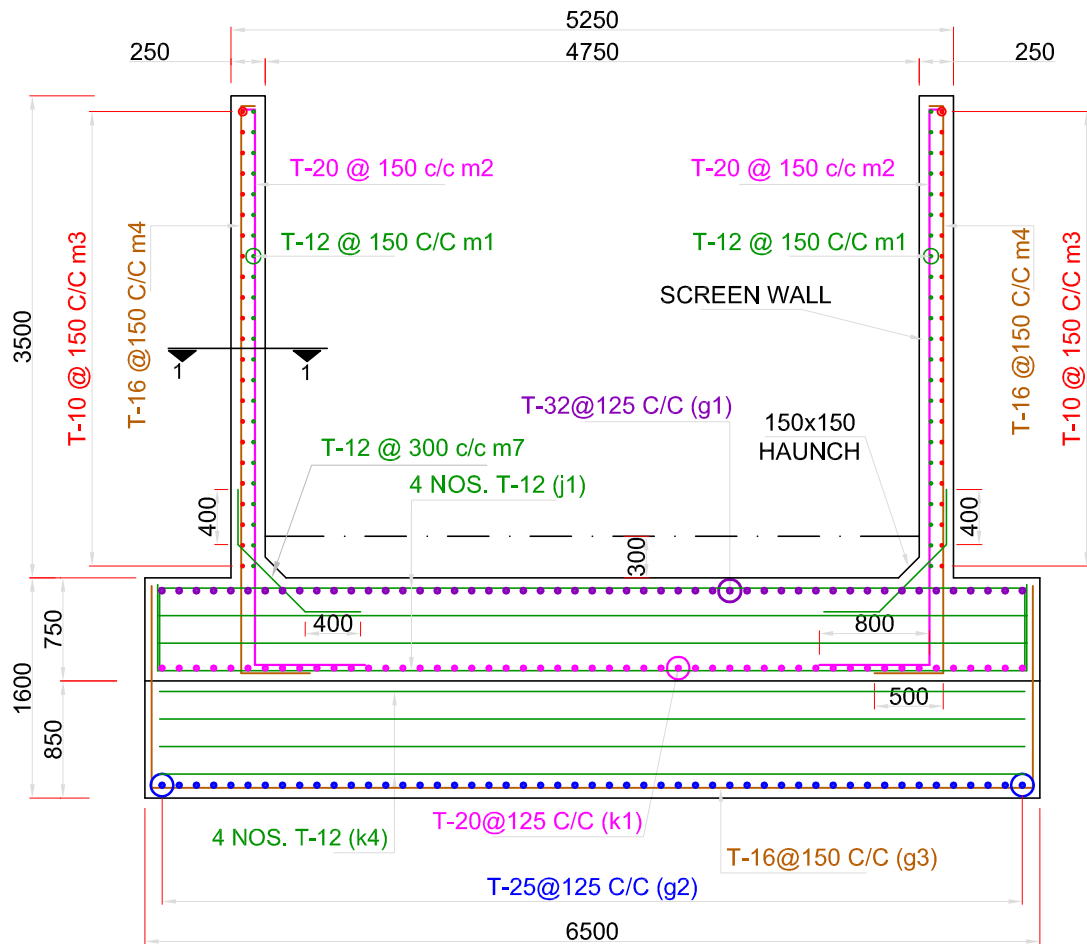
WAP/PKS/NORTH KOEL/RMC/BRG-12

06 of 12

Drawn by:-

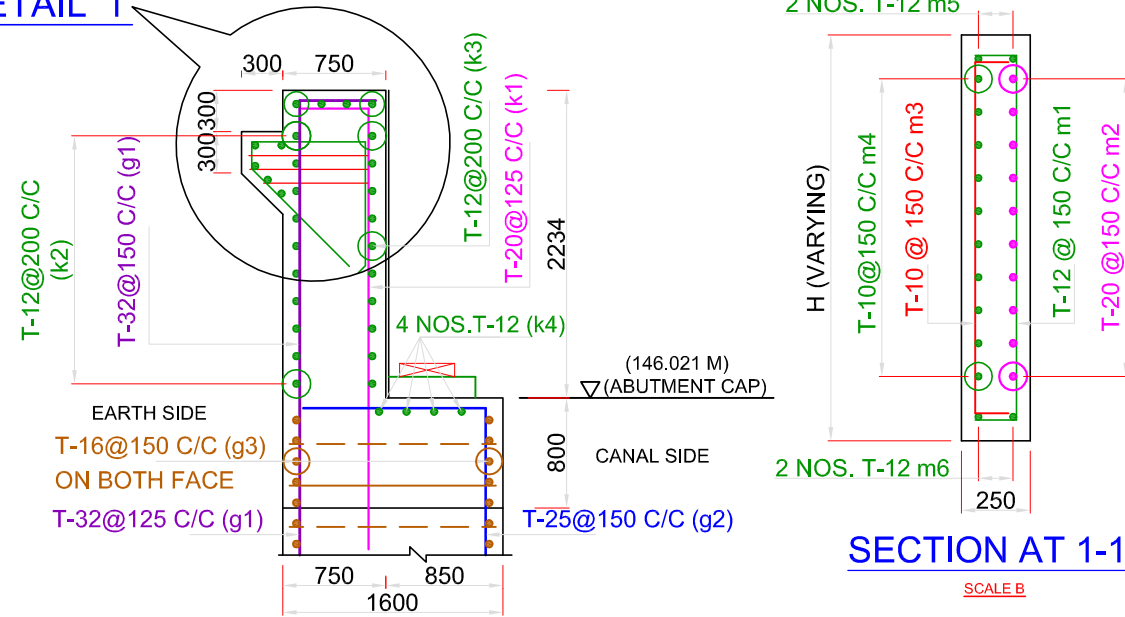
Checked by:-

Approved by:-



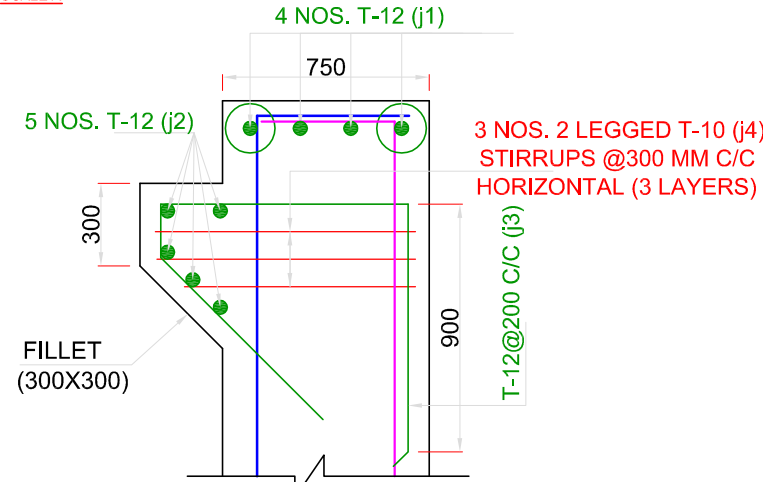
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL
SCALE A

DETAIL '1'

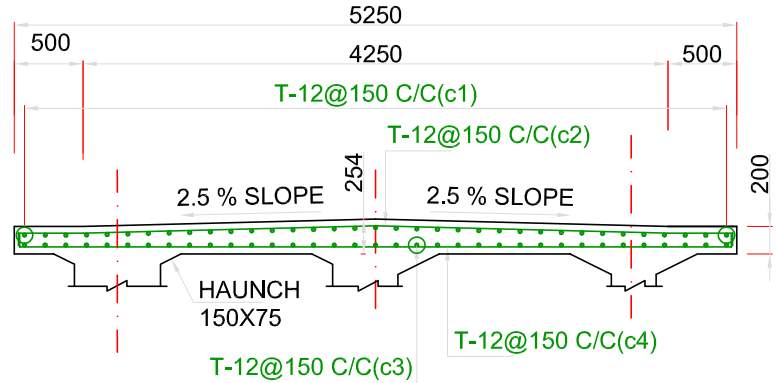


REINFORCEMENT DETAILS IN SECTION OF DIRT
SCALE A

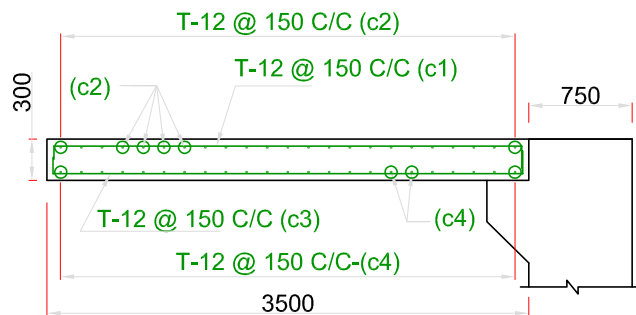
SECTION AT 1-1
SCALE B



DETAIL '1'
SCALE B



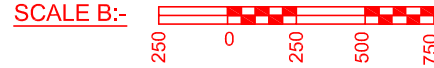
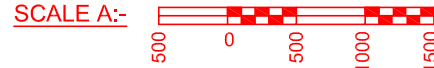
REINFORCEMENT IN APPROACH SLAB
SCALE A



SECTION OF APPROACH SLAB
SCALE A

BARS BENDING SCHEDULE

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
1	k1		20	125	51X2
2	k2		12	200	10X2
3	k3		12	200	10X2
4	k4		12	200	4X2
5	j1		12	-	4X2
6	j2		12	-	5X2
7	j3		12	-	24X2
8	j4		10	300	3X2
9	m1		12	150	44X2
10	m2		20	150	40X2
11	m3		10	150	44X2
12	m4		16	150	40X2
13	m5		12	-	4X2
14	m6		12	-	4X2
15	m7		12	300	8X2X2
16	c1		12	150	34X2
17	c2		12	150	23X2
18	c3		12	150	34X2
19	c4		12	150	23X2



NOTES

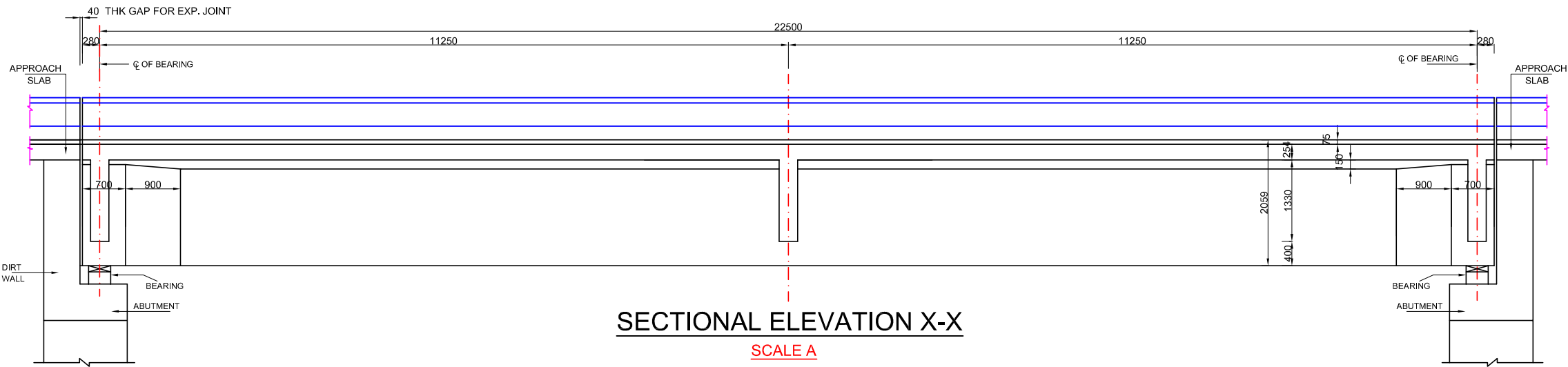
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS CRITICAL HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - RAFT M35
 - SUBSTRUCTURE M25
 - PEDESTAL M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF PIER AND PIER CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

WAPCOS LTD.



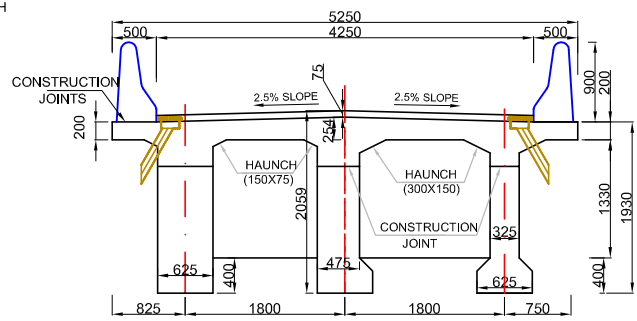
TENDER DRAWING

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 18.928 WITH THREE BEAMS		
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-12		07 of 12
Drawn by:-	Checked by:-	Approved by:-	



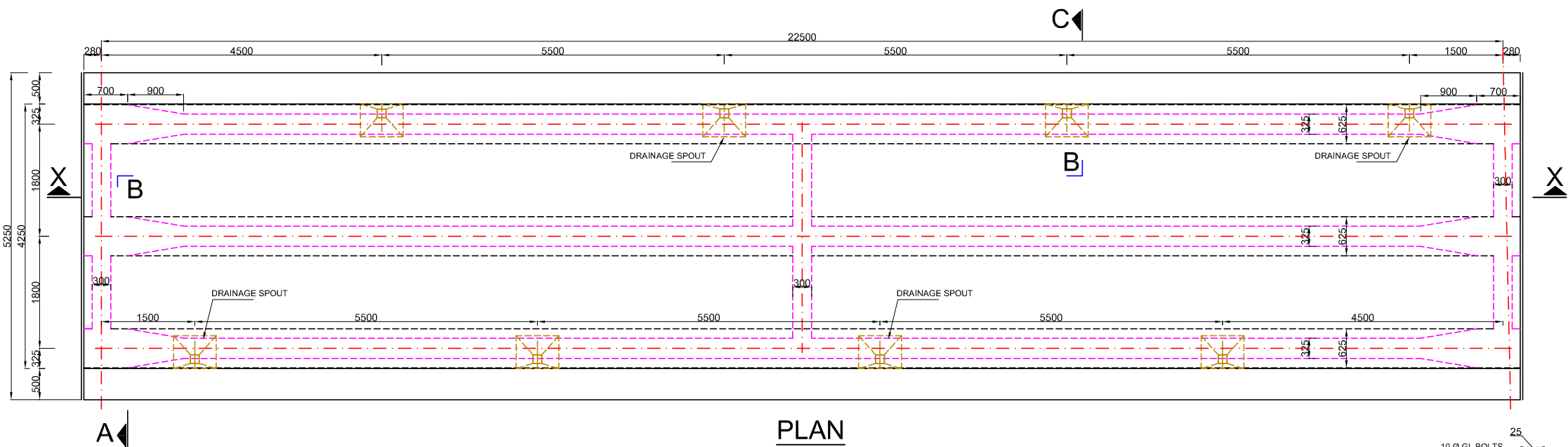
SECTIONAL ELEVATION X-X

SCALE A



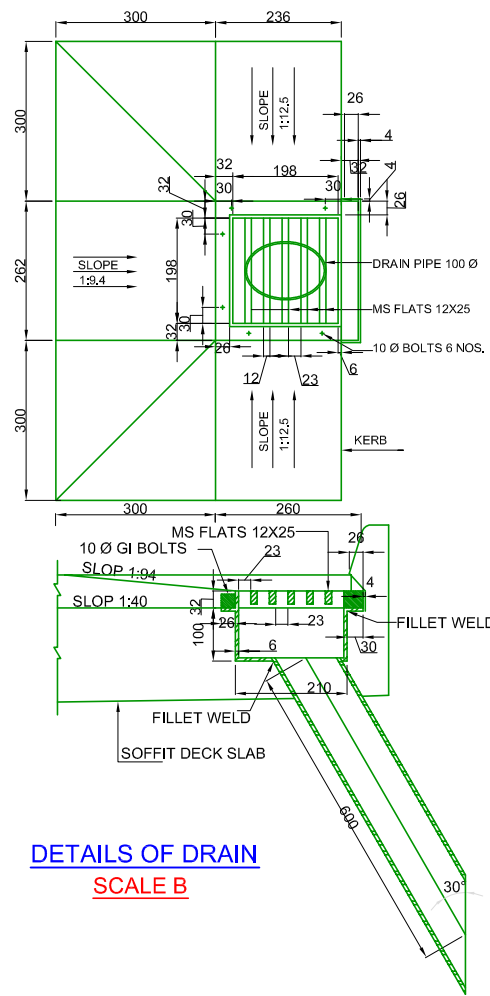
SECTION ABC

SCALE A



PLAN

SCALE A

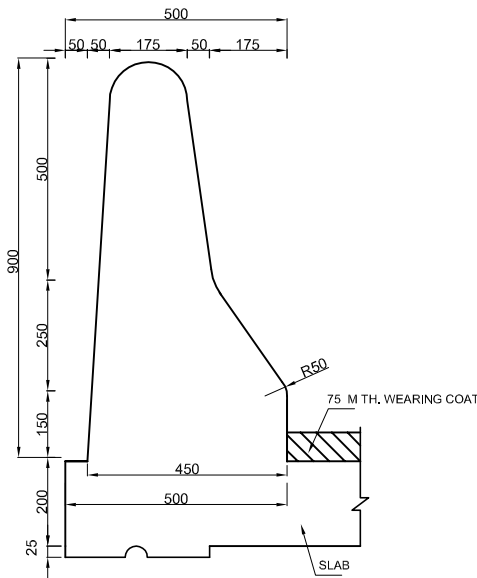


DETAILS OF DRAIN

SCALE B

NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
- THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T-BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
- THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
- GRADE OF CONCRETE FOR T-BEAM AND SLAB SHALL BE M-35. CONFORMING TO IS 456.
- 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
- DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
- THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAINAGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
- REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
- THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
- CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.



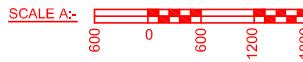
DETAILS OF CRASH BARRIER

SCALE B

REFERENCES:-

- M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.

TENDER DRAWING



Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 18.928 WITH THREE BEAMS

Drawing No. :-

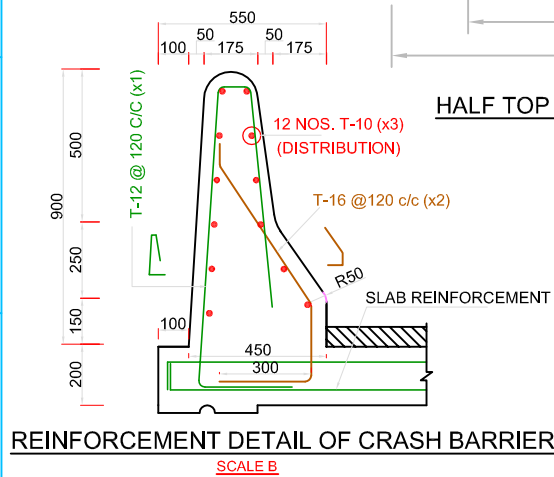
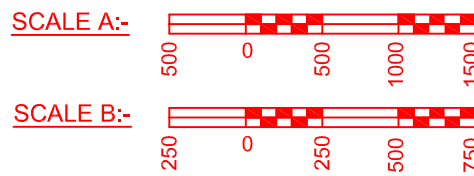
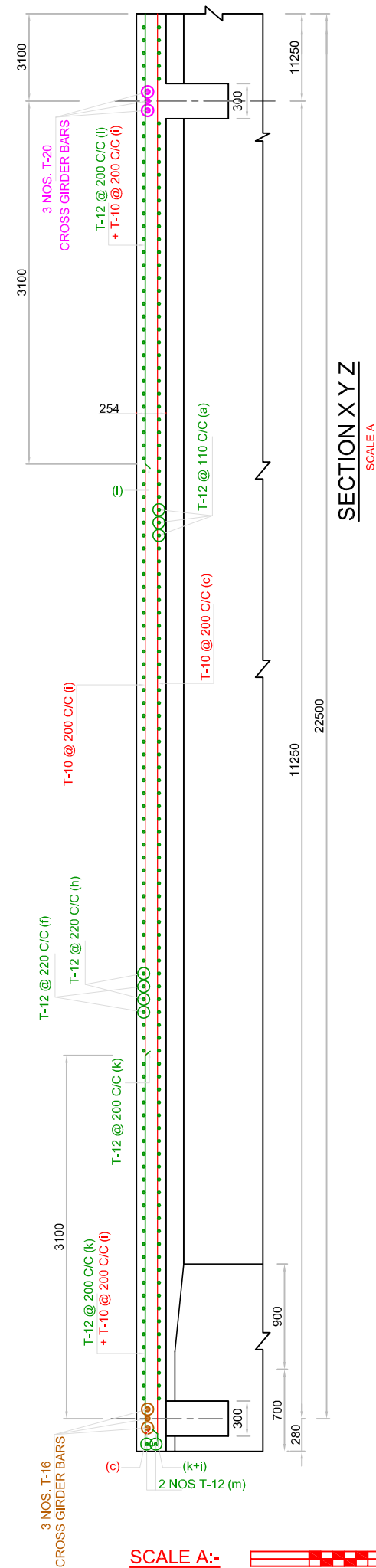
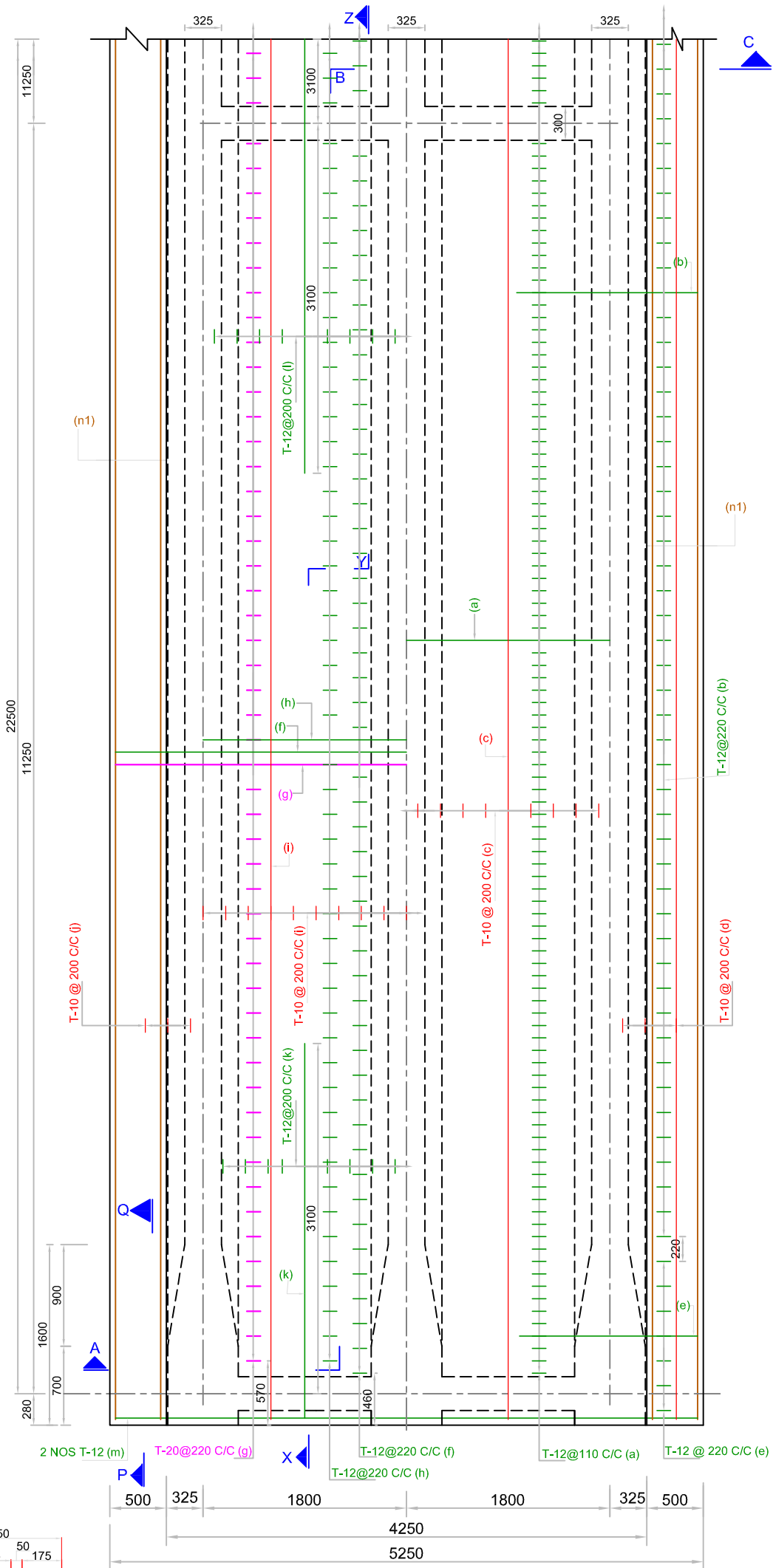
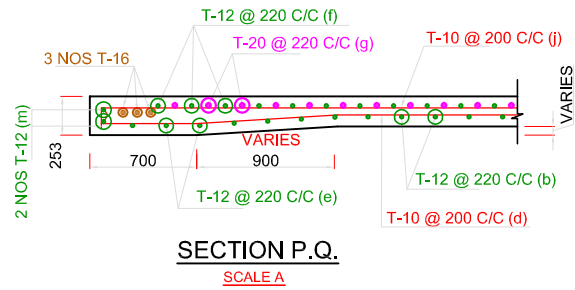
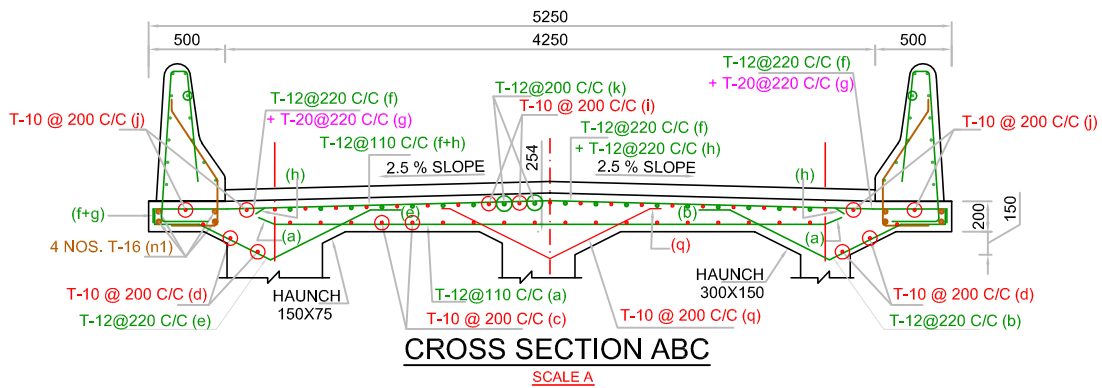
WAP/PKS/NORTH KOEL/RMC/BRG-12

08 of 12

Drawn by:-

Checked by:-

Approved by:-



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

REFERENCES:-

- M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 18.928 WITH THREE BEAMS

Drawing No. :-

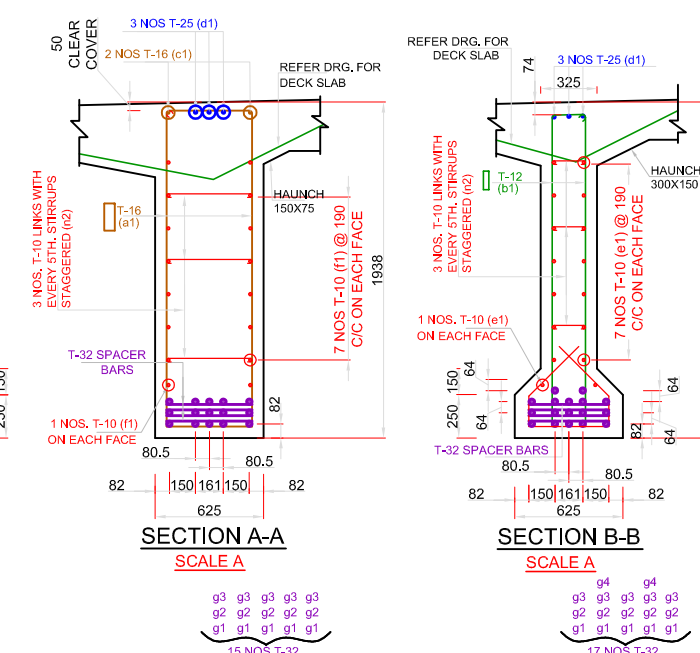
WAP/PKS/NORTH KOEL/RMC/BRG-12

09 of 12

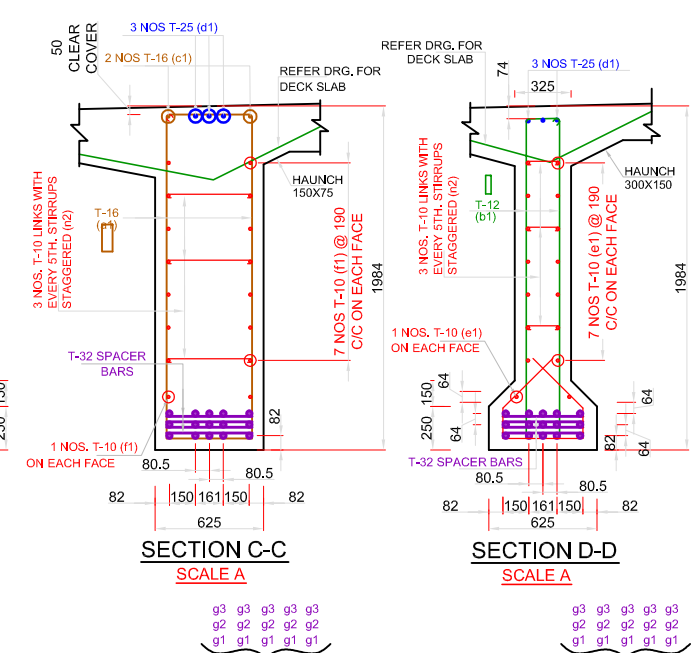
Drawn by:-

Checked by:-

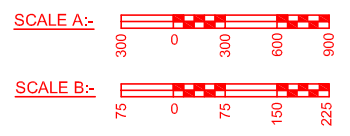
Approved by:-



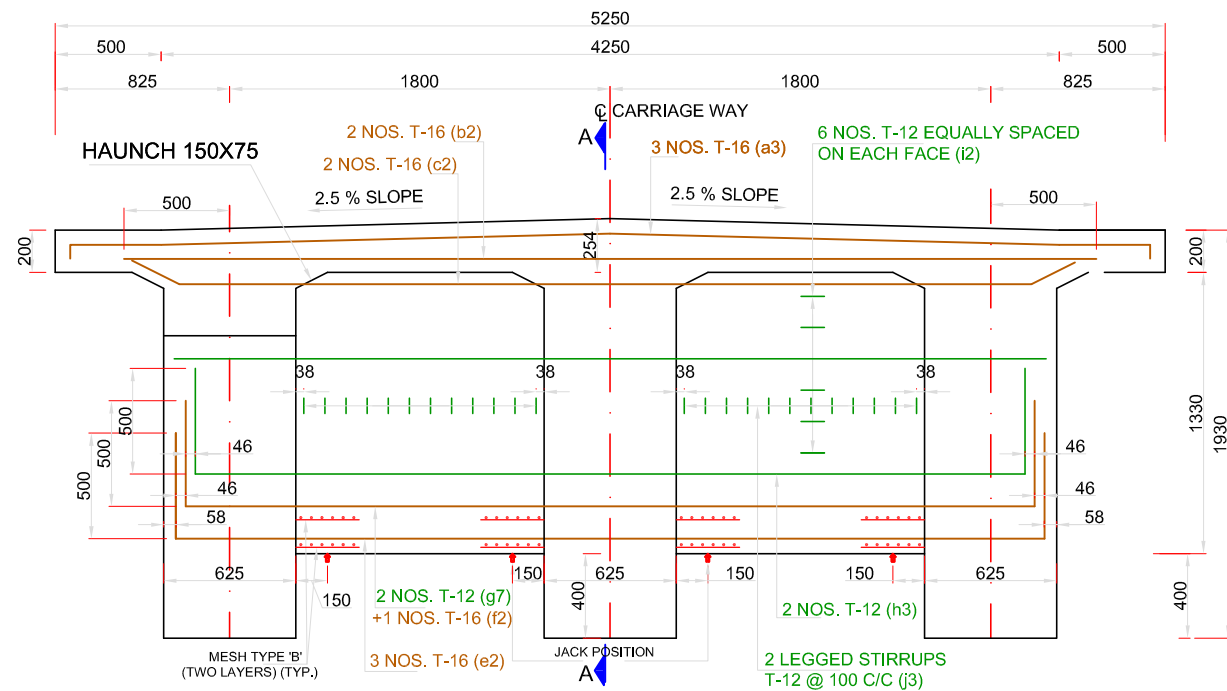
SECTION B-E
SCALE A



SECTION D-D
SCALE A

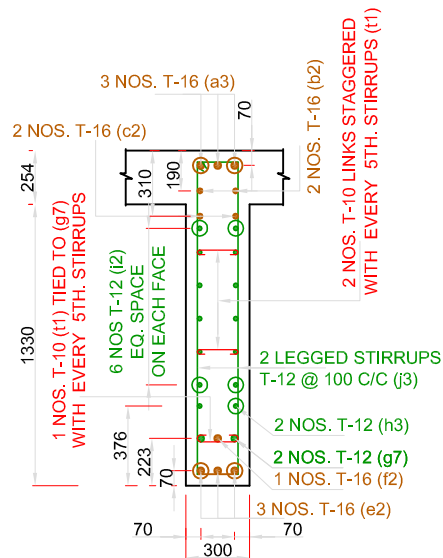


Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 18.928 WITH THREE BEAMS		
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-12		10 of 12
Drawn by:-		Checked by:-	Approved by:-



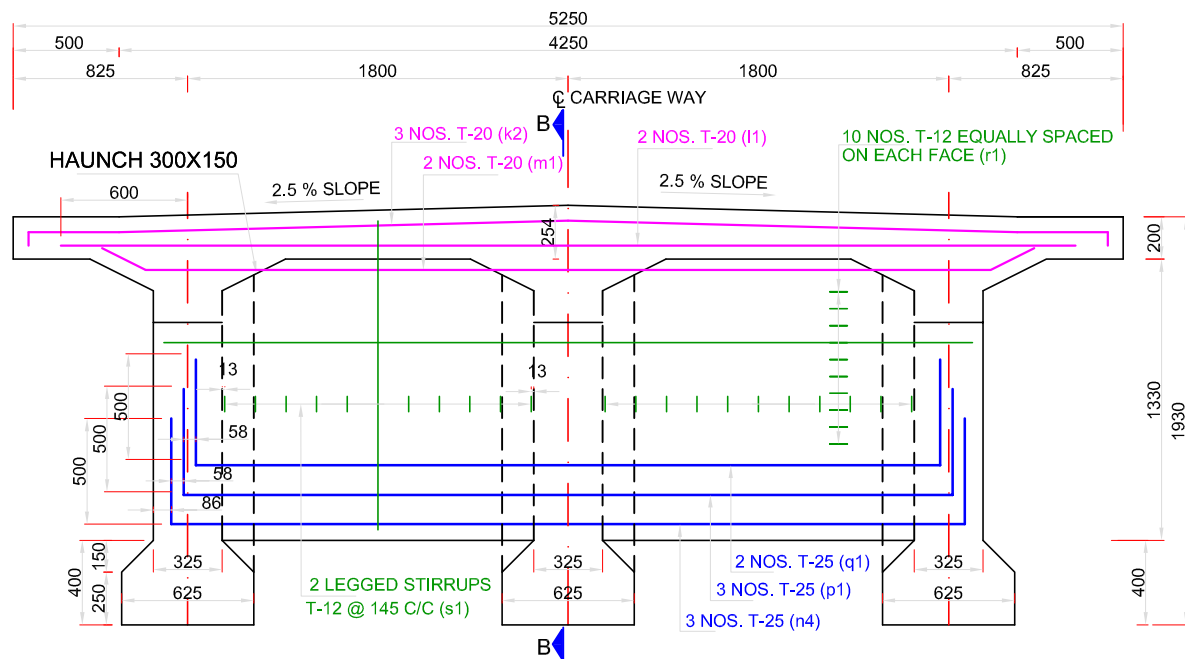
LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A



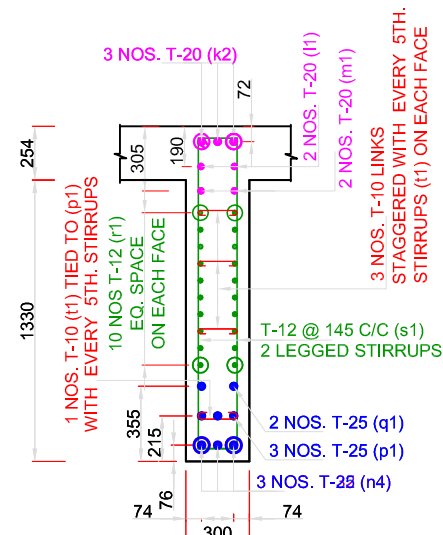
SECTION A-A

SCALE A



LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A

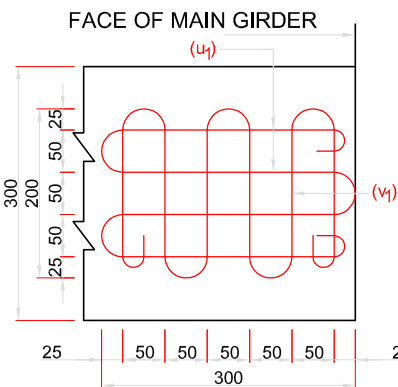


SECTION B-B

SCALE A

NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
- THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T-BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
- THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
- GRADE OF CONCRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
- H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
- DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
- THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN-AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
- CRASH BARRIER TYPE RAILING SHALL BE USED.
- THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
- ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



T-8 MESH REINFS.
TYPE - 'B'

SCALE B

SCALE A:-



SCALE B:-



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



REFERENCES:-

- M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE
AT KM 18.928 WITH THREE BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-12

11 of 12

Drawn by:-

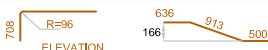
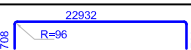
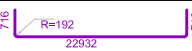
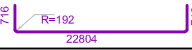
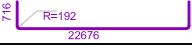
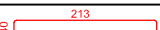
Checked by:-

Approved by:-

A) H.Y.S.D. BARS						
S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a		12	110	3600	200
2	b		12	220	1927	182
3	c		10	200	23460	19
4	d		10	200	23460	6
5	e		12	220	1927	32
6	f		12	220	5304	100
7	g		20	220	5182	100
8	h		12	220	3732	100
9	i		10	200	23460	19
10	j		10	200	23388	6
11	k		12	200	3588	36
12	l		12	200	6200	18
13	m		12	-	5150	4
14	n1		16	-	22960	8
15	q		10	200	2110	116

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u		10	-	3550	8
2	v		10	-	3506	8

CRASH BARRIER PER M						
1	x ₁		12	120	2125	9
2	x ₂		16	120	1165	9
3	x ₃		10	-	1000	12

A) H.Y.S.D. BARS						
S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a ₁	L1= VARYING FROM 1808 TO 1812 	16	125	5158	11X2X2
2	a ₂	L2= VARYING FROM 1800 TO 1804 VARYING FROM 193 TO 493 	16	150	4758	11X2X2
3	b ₁		12	150	4678	106X2
4	c ₁		16	-	2693	2X2X2
5	d ₁		25	-	24148	3X2
6	e ₁		10	-	19860	8X2X2
7	f ₁		10	-	2199	16X2X2
8	g ₁		32	-	24108	5X2
9	g ₂		32	-	23980	5X2
10	g ₃		32	-	23852	5X2
11	g ₄		32	-	19220	2X2
12	h ₁		10	-	1733	101X2
12	n ₂	L= VARYING FROM 213 TO 513 	10	-	583	18X2
14	n ₃		10	-	433	90X2

LONGITUDINAL INNER GIRDER							
1	i_1	L1=VARYING FROM 1856 TO 1860 L2 = VARYING FROM 1848 TO 1852 VARYING FROM 193 TO 493	16	125	5290	11X2X1	
2	i_2	 1856 1862 193	16	150	4890	11X2X1	
3	k_1	 1856 1862 193	12	150	4810	106X1	
4	c_1	 708 R=96 ELEVATION 636 166 913 500	16	-	2693	2X2X1	
5	d_1	 708 22932 R=96 708	25	-	24148	3X1	
6	e_1	 19860	10	-	19860	8X2X1	
7	f_1	 636 913 650 160	10	-	2199	16X2X1	
8	g_1	 716 R=192 22932 716	32	-	24108	5X1	
9	g_2	 716 R=192 22804 716	32	-	23980	5X1	
10	g_3	 716 R=192 22676 716	32	-	23852	5X1	
11	i_1	 450 450 485 315 493	10	-	1733	101X1	
12	n_2	 140 L 140 L = VARYING FROM 213 TO 513	10	-	583	18X1	
13	n_3	 140 213 140	10	-	433	90X1	

A) H.Y.S.D. BARS						
S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a ₃		16	-	5248	3X2
2	b ₂		16	-	4750	2X2
3	c ₂		16	-	4490	2X2
4	e ₂		16	-	5029	3X2
5	f ₂		16	-	4983	1X2
6	g ₇		12	-	5003	2X2
7	h ₃		12	-	4865	2X2
8	i ₂		12	-	4519	6X2X2
9	j ₃		12	100	3402	26X2
10	l ₁		10	-	416	20X2

MIDDLE CROSS GIRDERS						
1	k ₂		20	-	5222	3
2	l ₁		20	-	4800	2
3	m ₁		20	-	4310	2
4	n ₄		25	-	4570	3
5	p ₁		25	-	4454	3
6	q ₁		25	-	4336	2
7	r ₁		12	-	4911	10X2
8	s ₁		12	145	3202	22
9	t ₁		10	-	416	16

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
19	u ₁		10	-	1453	16
20	v ₁		10	-	1510	16

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 18.928 WITH THREE BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-12

12 of 12

Drawn by:-

Checked by:-

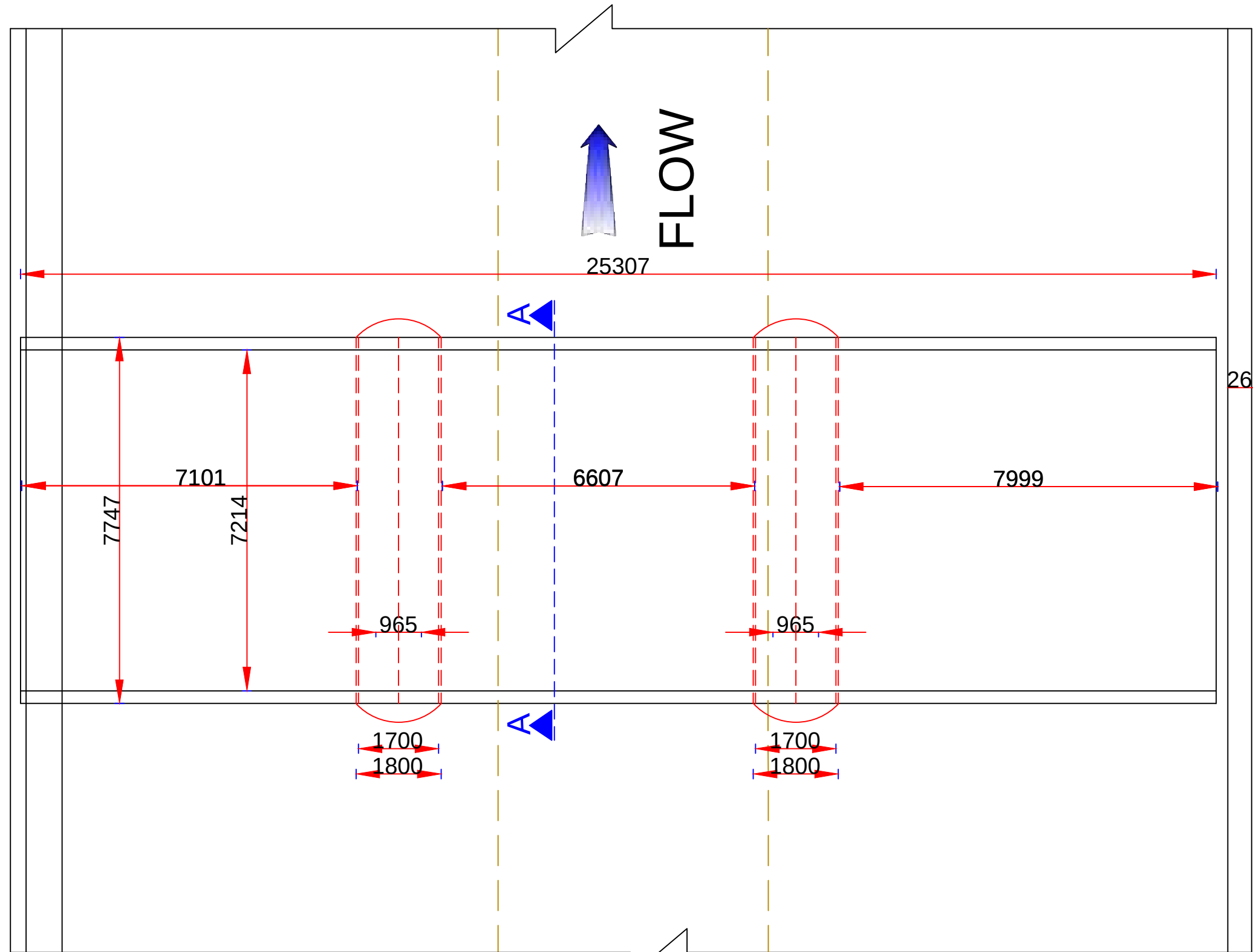
Approved by:-



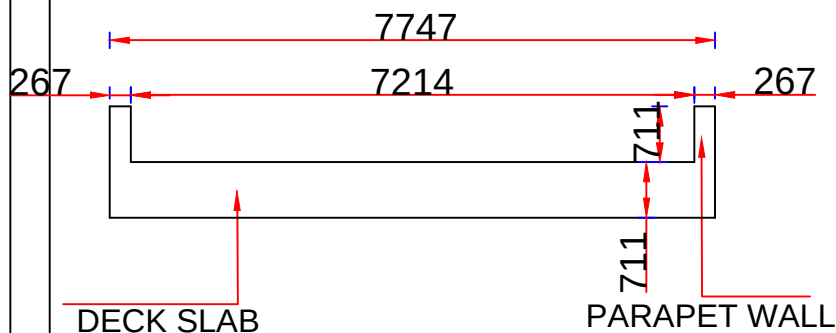
D.L.R. BRIDGE

AT

CH. 21.031 KM



PLAN



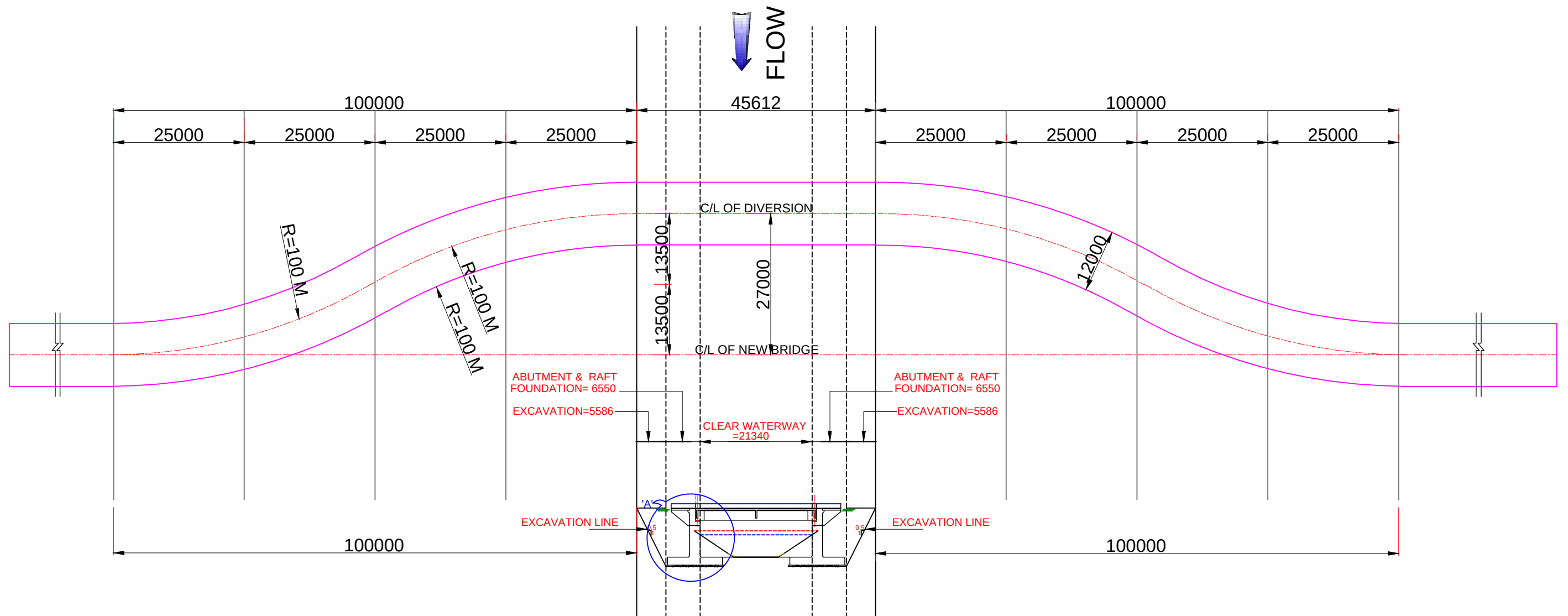
SECTION A-A

NOTES:

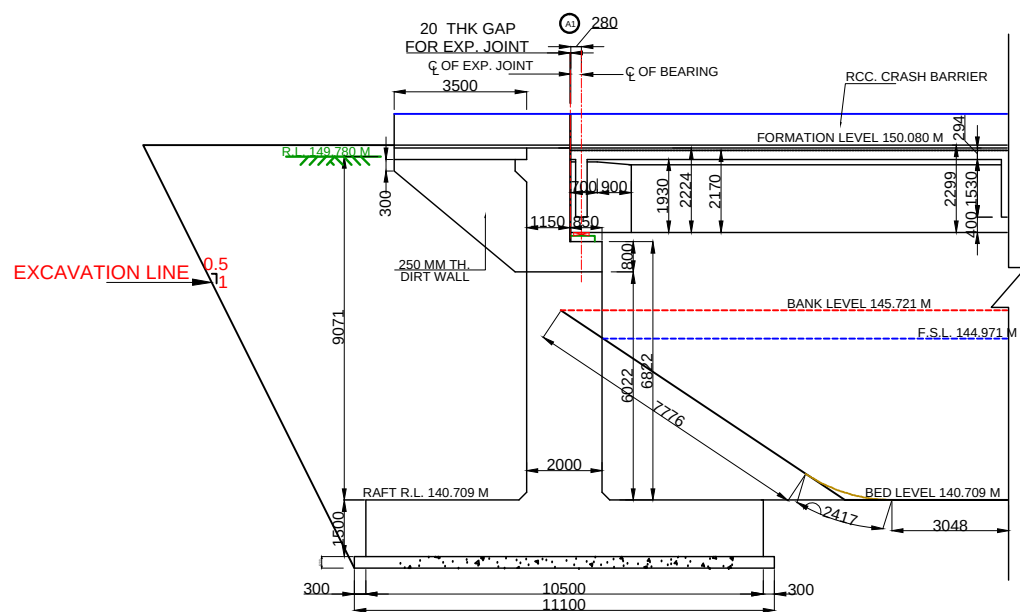
- 1 ALL DIMENSIONS ARE IN mm.
- 2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	EXISTING PLAN OF DOUBLE LANE ROAD BRIDGE AT CH. 21.031 KM		
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-13	01 of 12	
	Drawn by:-	Checked by:-	Approved by:-	



SKETCH OF DIVERSION PLAN AT KM 21.031 FOR D.L.R. BRIDGE



DETAIL SECTION AT 'A'

NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

SKETCH OF DIVERSION PLAN AT KM 21.031 FOR D.L.R. BRIDGE

Drawing No. :-

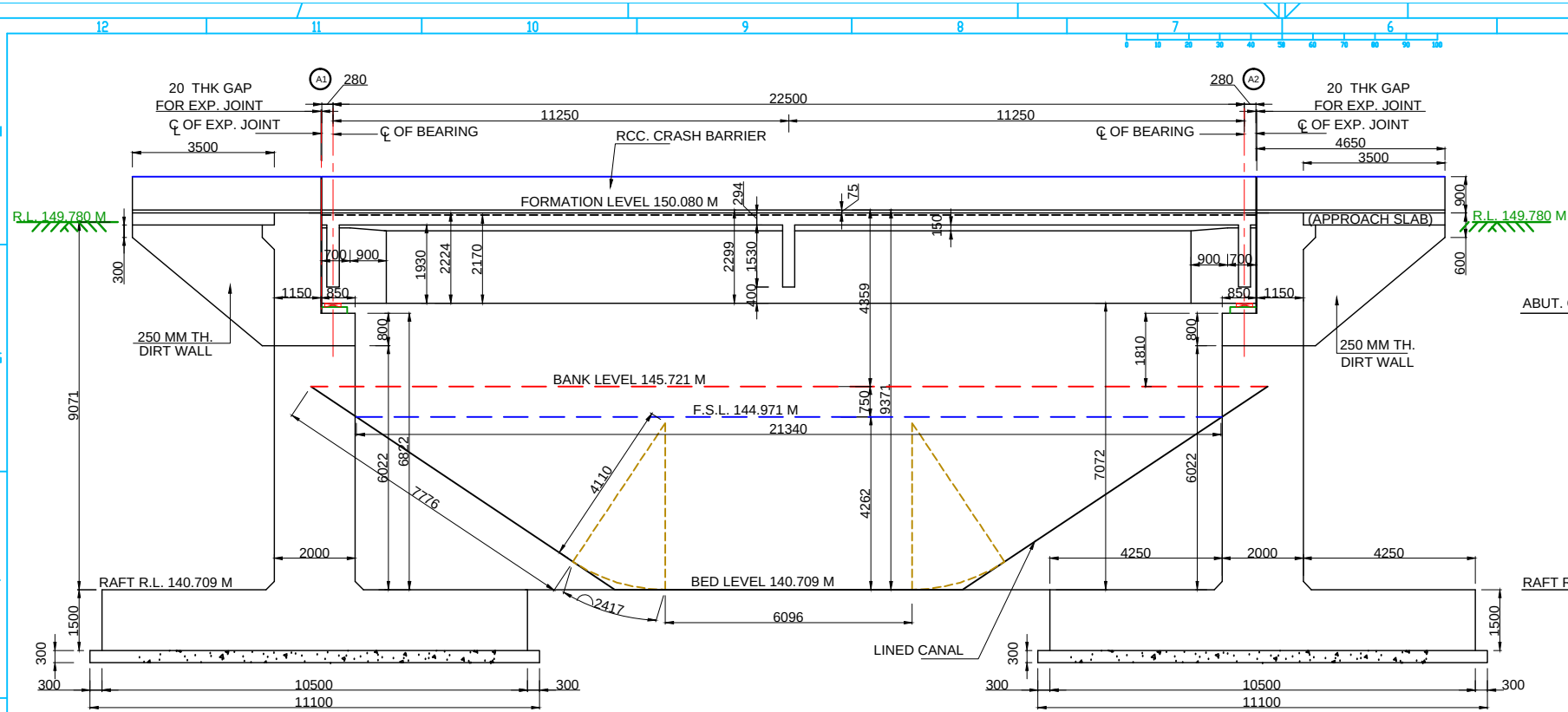
WAP/PKS/NORTH KOEL/RMC/BRG 13

02 of 12

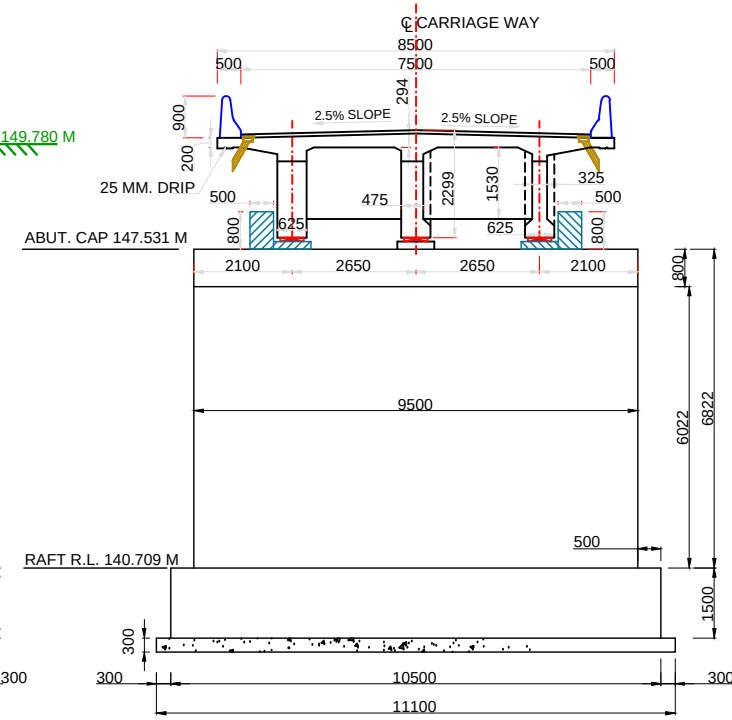
Drawn by:-

Checked by:-

Approved by:-



SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE
(SCALE A)



SIDE VIEW OF ABUTMENT
(SCALE A)

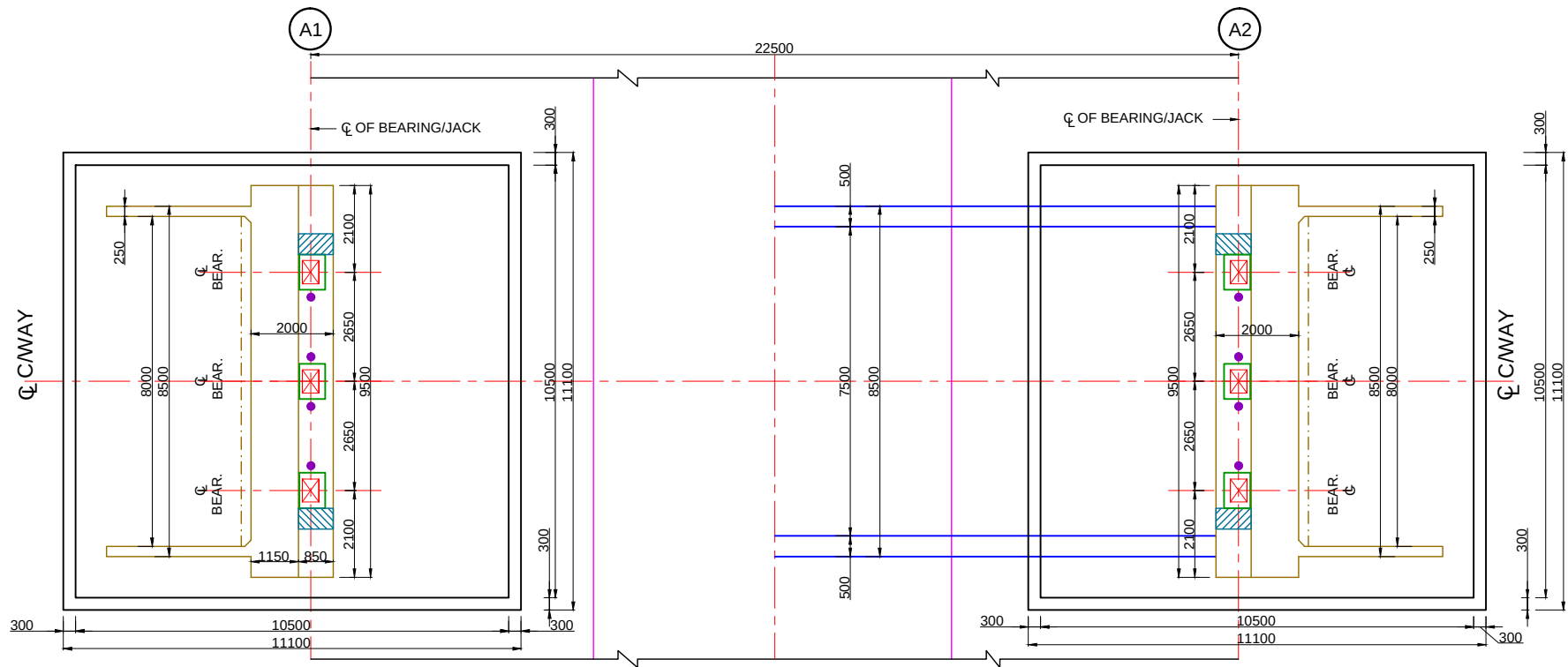
NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
- DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
- ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

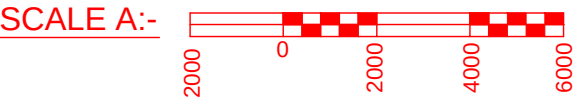
CANAL DISCHARGE	80.900 CUMEC
BED LEVEL	140.709 M
WATER DEPTH	4.262 M
F.S.L.	144.971 M
FREE BOARD	0.75 M
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a) RAFT	M35
b) ABUTMENT	M25
c) SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d) CRASH BARRIER	M30
e) PEDESTAL (SEISMIC)	M35
f) WEARING COAT	M30
- TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKWNESS ANGLE	0°
ROAD LEVEL	150.080 M
EX. ROAD LEVEL	149.780 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M
- SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM



HALF BOTTOM PLAN / HALF TOP PLAN
(SCALE A)



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

GENERAL ARRANGEMENT DRAWING OF DLR BRIDGE
AT KM 21.031

Drawing No. :-

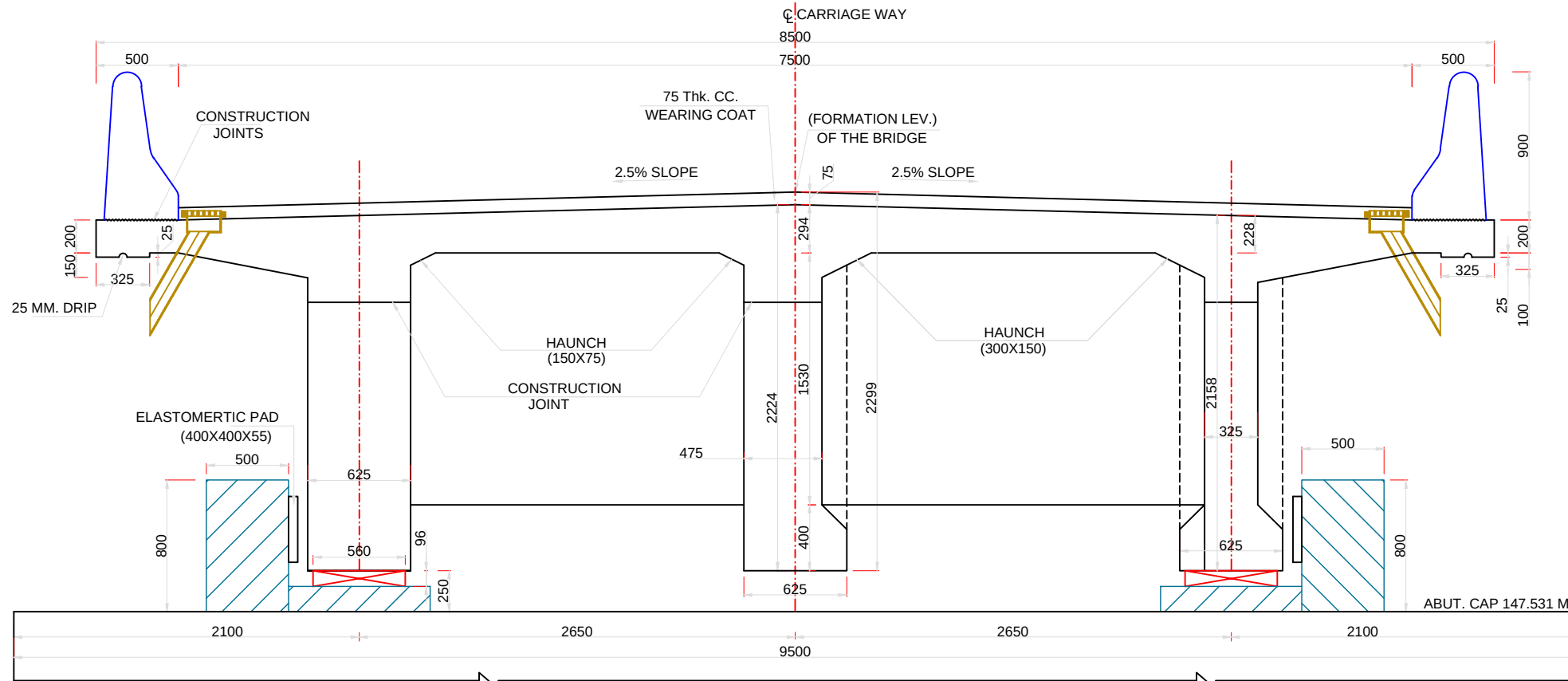
WAP/PKS/NORTH KOEL/RMC/BRG-13

03 of 12

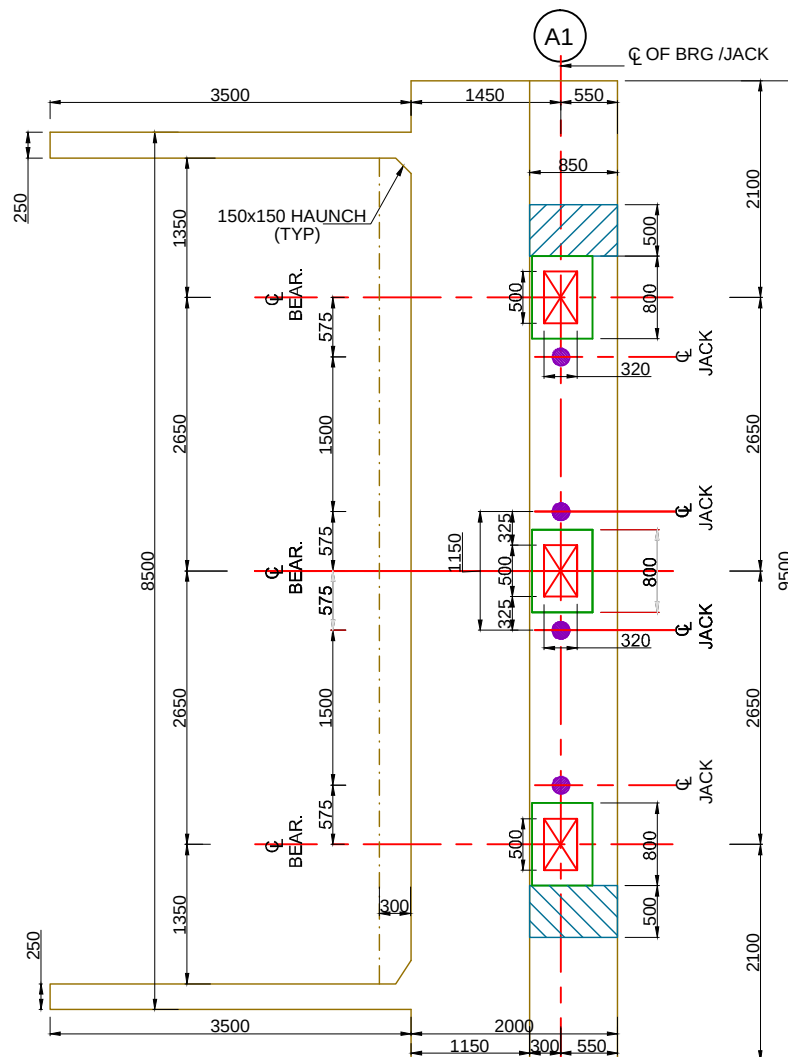
Drawn by:-

Checked by:-

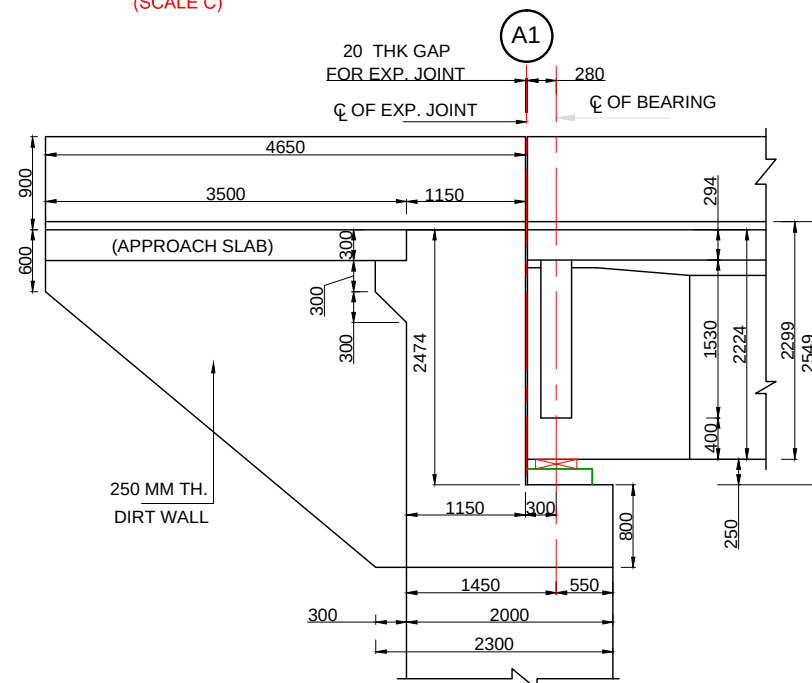
Approved by:-



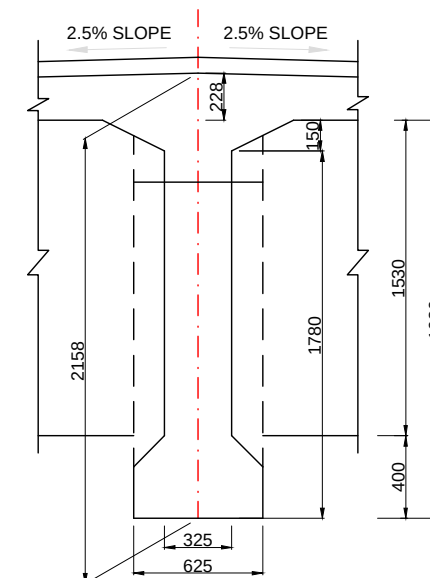
SECTION ABC OF SLAB AND GIRDERS
(REFER SHEET NO. 05 OF 09)
(SCALE C)



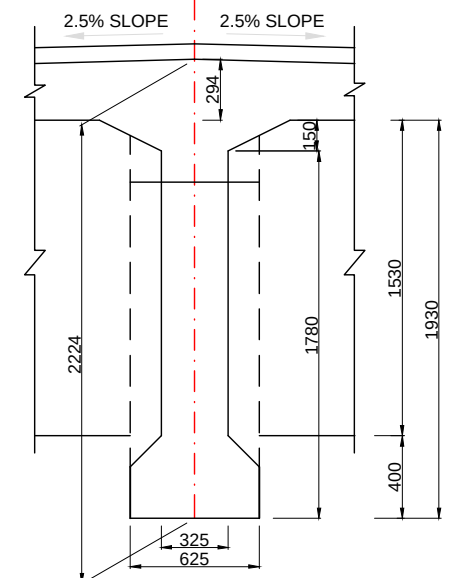
PLAN OF ABUTMENT AT BEARING LEVEL
(SCALE B)



DETAIL - 'D1'
(SCALE B)



**CROSS SECTION OF
RCC 'I' OUTER GIRDER**
(SCALE C)



**CROSS SECTION OF
RCC 'I' INTERMEDIATE GIRDER**
(SCALE C)

NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
- THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T-BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
- THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
- GRADE OF CONCRETE FOR T-BEAM AND SLAB SHALL BE M-35. CONFORMING TO I.S. 456
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
- H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
- DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
- THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN-AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
- CRASH BARRIER TYPE RAILING SHALL BE USED.
- THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
- ALL CONCRETE WORKS SHALL CONFORM TO IS; 456-2000.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

SECTION DETAILS OF G.A.D. OF DLR BRIDGE
AT KM 21.031

Drawing No. :-

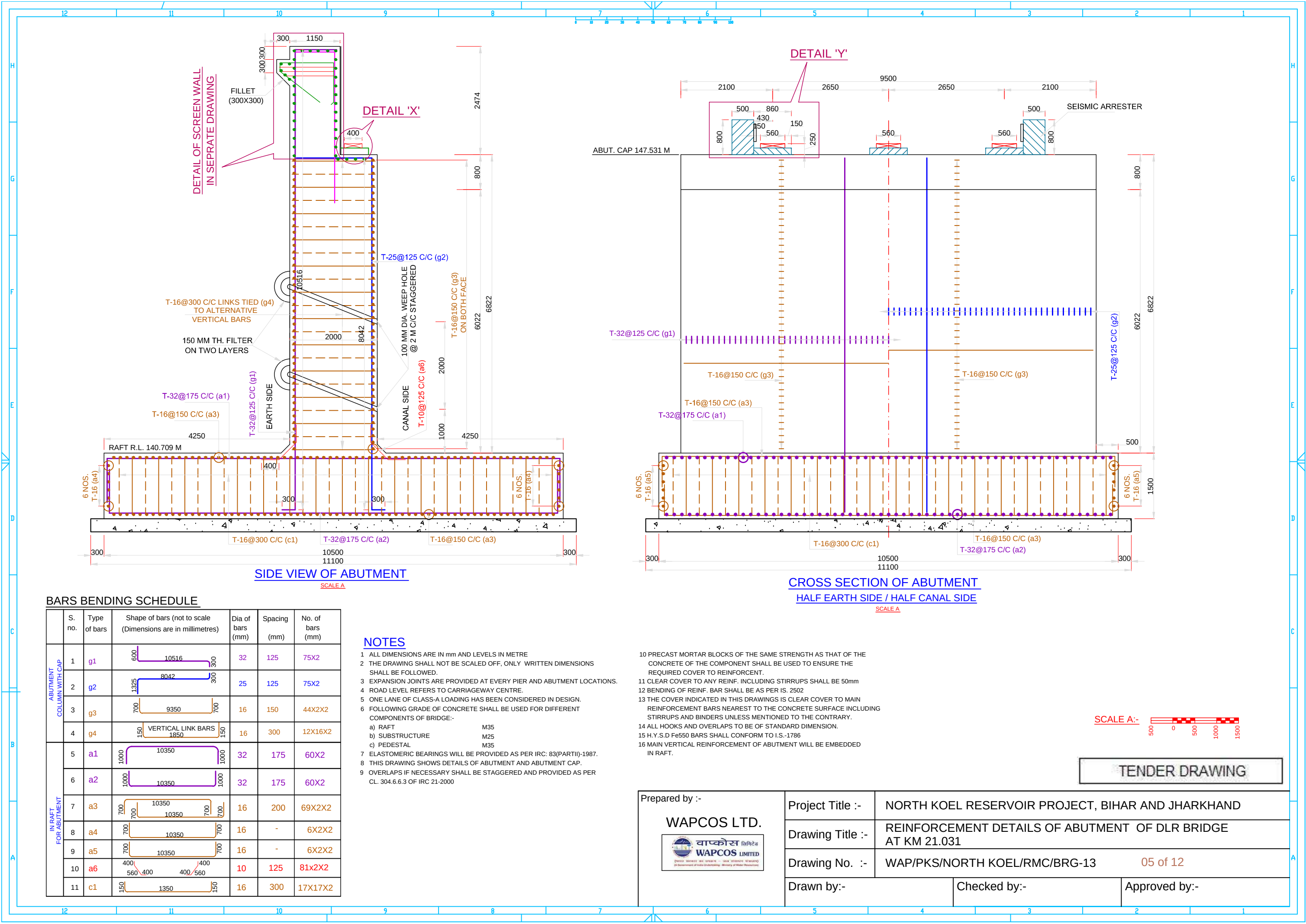
WAP/PKS/NORTH KOEL/RMC/BRG-13

04 of 12

Drawn by:-

Checked by:-

Approved by:-



BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1		32	125	75X2
	2	g2		25	125	75X2
	3	g3		16	150	44X2X2
	4	g4		16	300	12X16X2
IN RAFT FOR ABUTMENT	5	a1		32	175	60X2
	6	a2		32	175	60X2
	7	a3		16	200	69X2X2
	8	a4		16	-	6X2X2
	9	a5		16	-	6X2X2
	10	a6		10	125	81X2X2
	11	c1		16	300	17X17X2

NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-

a) RAFT	M35
b) SUBSTRUCTURE	M25
c) PEDESTAL	M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000

- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:-

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF ABUTMENT OF DLR BRIDGE AT KM 21.031

Drawing No. :-

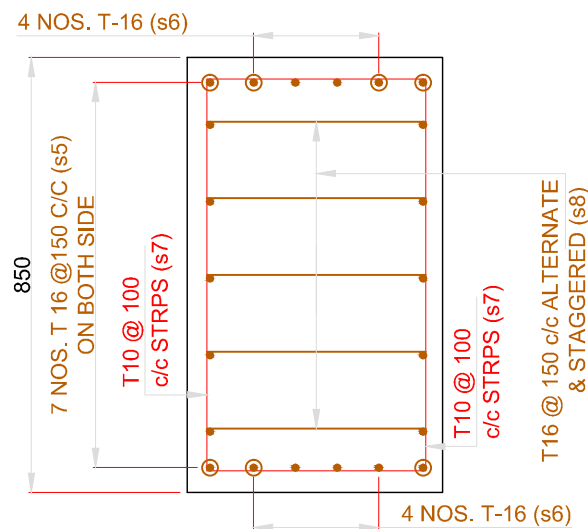
WAP/PKS/NORTH KOEL/RMC/BRG-13

05 of 12

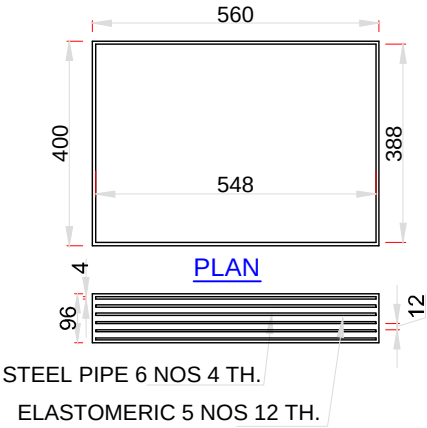
Drawn by:-

Checked by:-

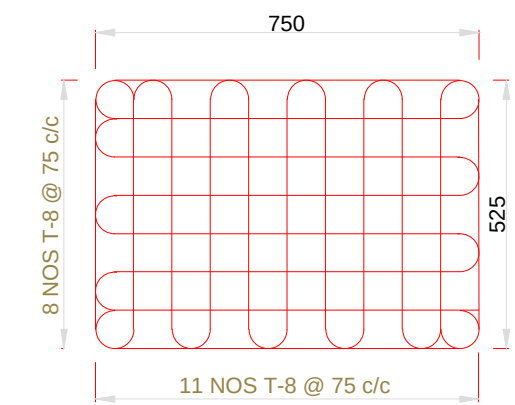
Approved by:-



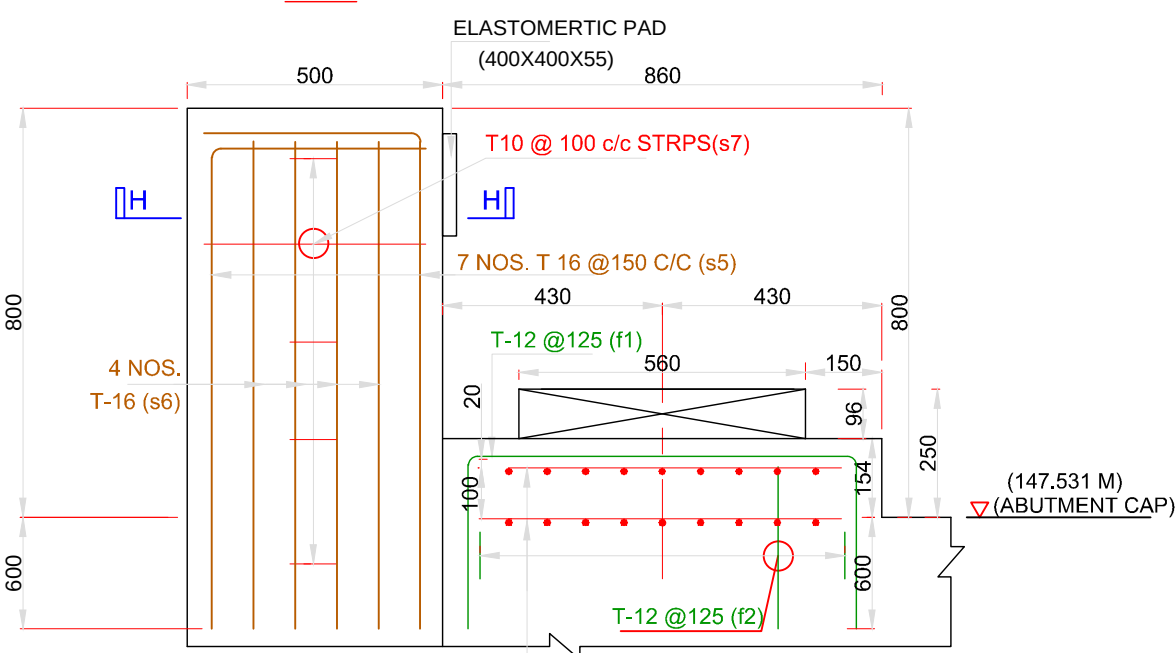
SECTION H-H
SCALE A



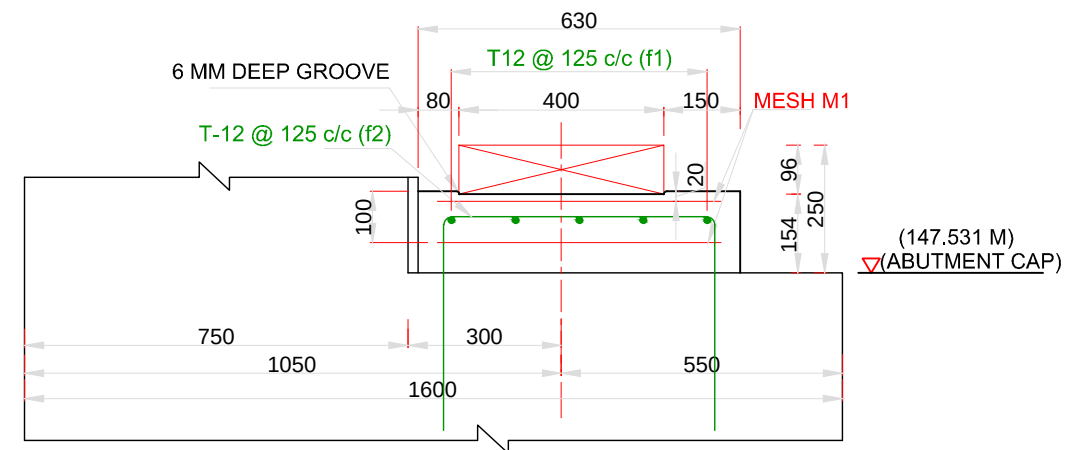
DETAILS OF
ELASTOMERIC BEARINGS
SCALE A



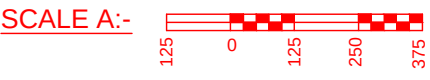
DETAIL OF MESH M1
(MESH BELOW BEARING LOCATION)
SCALE A



DETAIL 'Y'
SCALE A



DETAIL 'X'
SCALE A



BARS BENDING SCHEDULE

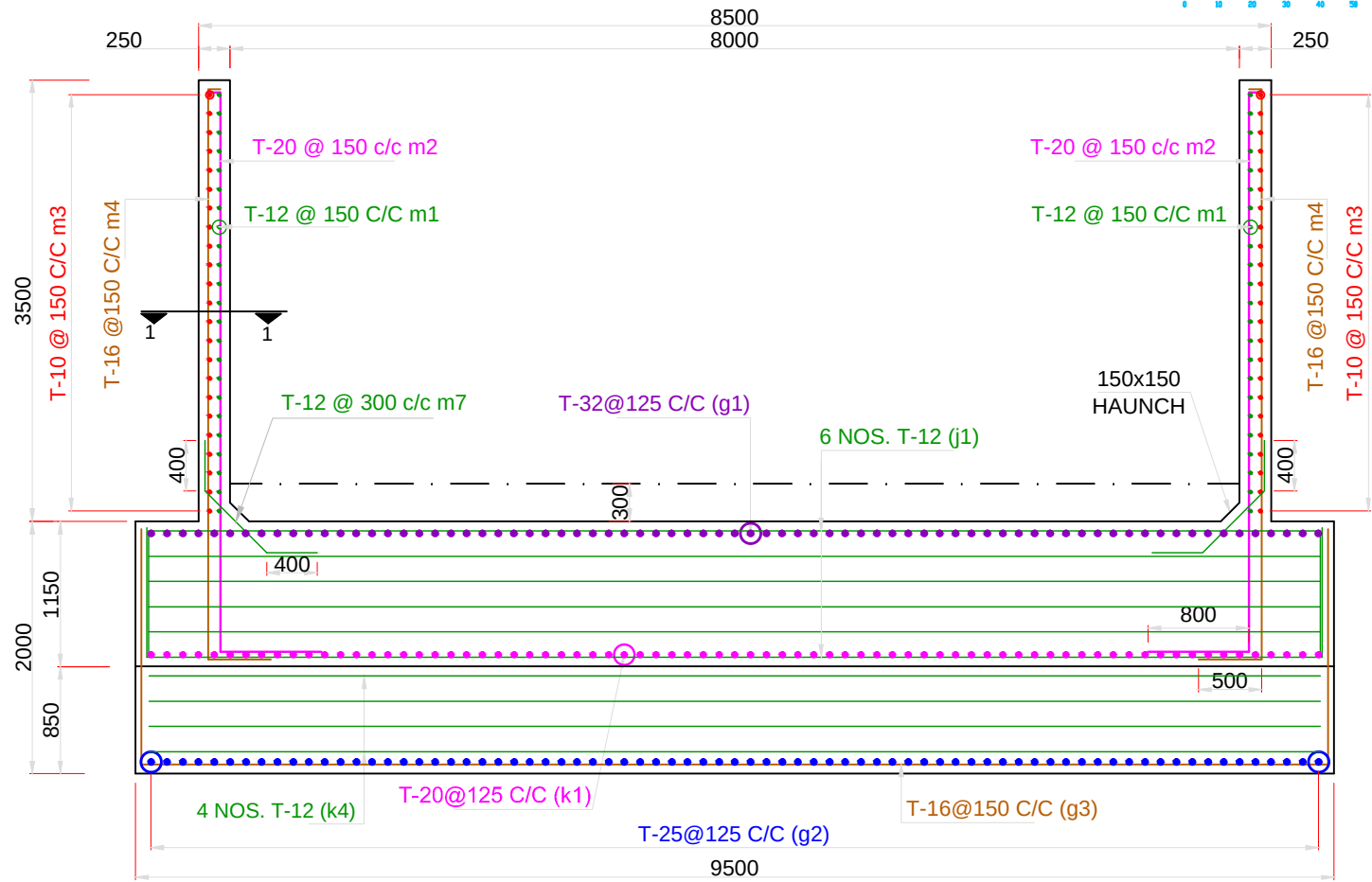
	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5		16	150	14X2X2
	2	s6		16	-	8X2X2
	3	s7		10	100	5X2X2
	4	s8		16	150	10X2
PEDESTAL FOR ABUTMENT	5	f1		12	125	5X3X2
	6	f2		12	125	5X3X2

NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - RAFT M35
 - SUBSTRUCTURE M25
 - PEDESTAL M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

TENDER DRAWING

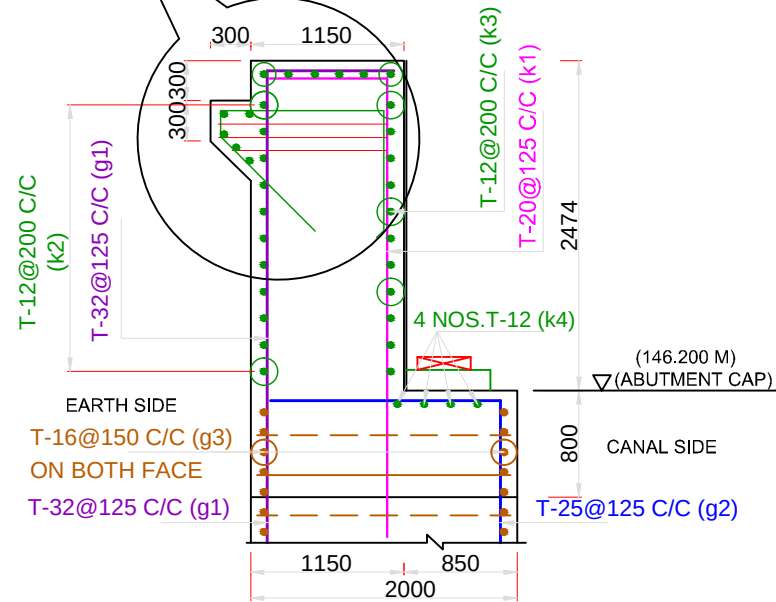
Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 21.031		
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-13		06 of 12
	Drawn by:-	Checked by:-	Approved by:-	



REINFORCEMENT DETAILS IN PLAN OF DIRT WALL

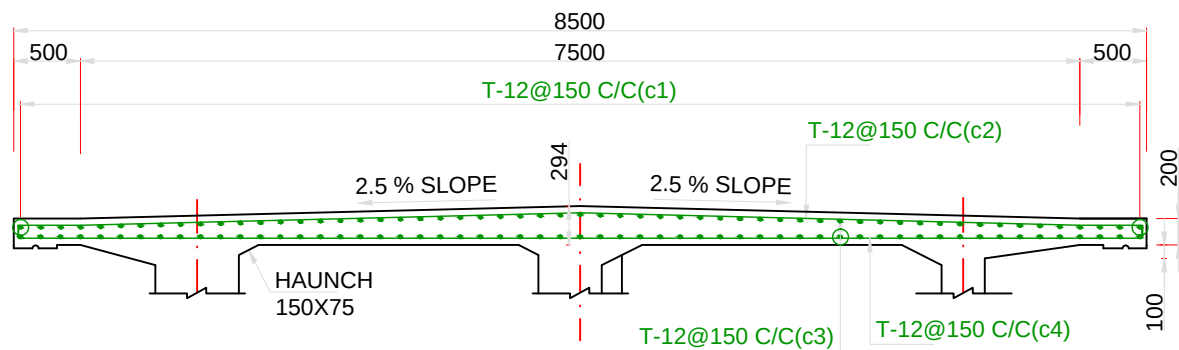
SCALE A

DETAIL '1'



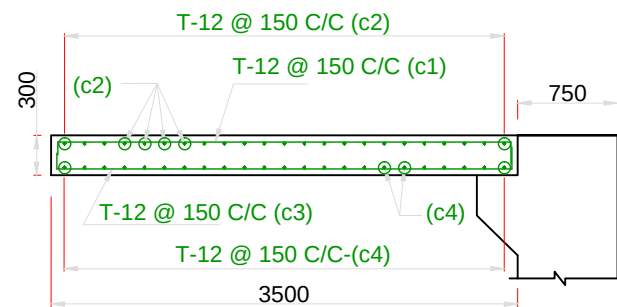
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



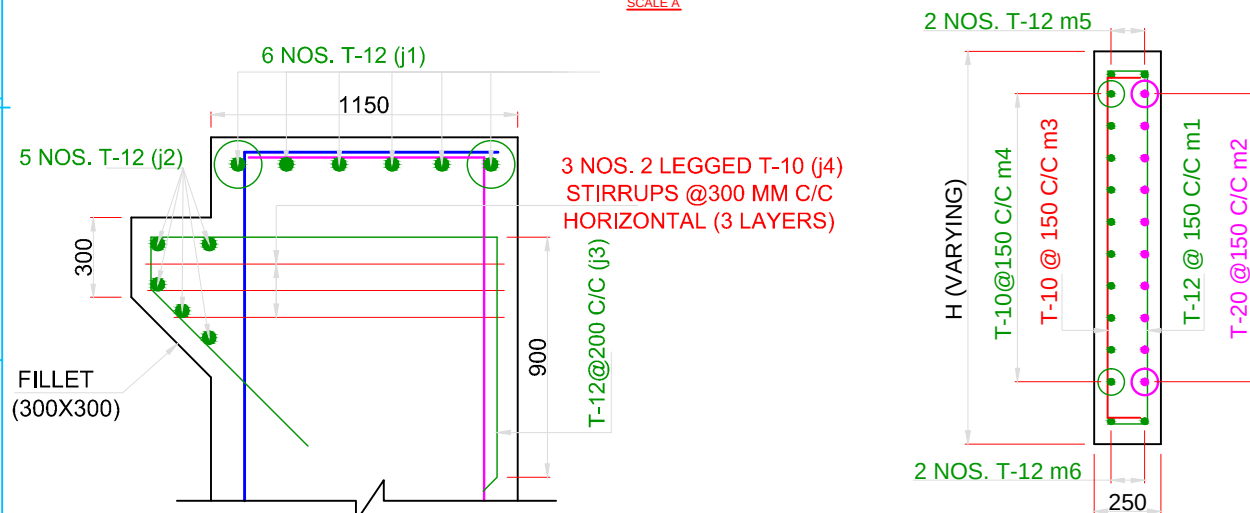
REINFORCEMENT IN APPROACH SLAB

SCALE A



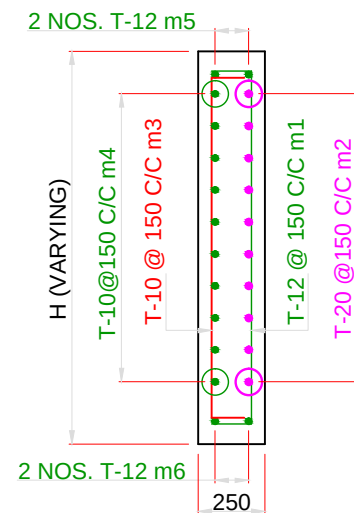
SECTION OF APPROACH SLAB

SCALE A



DETAIL '1'

SCALE B

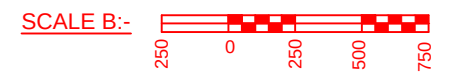
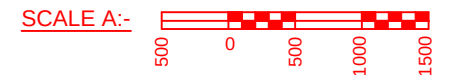


SECTION AT 1-1

SCALE B

BARS BENDING SCHEDULE

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
4	k1		20	125	51X2
5	k2		12	200	11X2
6	k3		12	200	11X2
7	k4		12	200	4X2
8	j1		12	-	6X2
9	j2		12	-	4X2
10	j3		12	-	41X2
11	j4		10	300	3X2
13	m1		12	150	44X2
14	m2		20	150	38X2
14	m3		10	150	44X2
15	m4		16	150	38X2
14	m5		12	-	4X2
14	m6		12	-	4X2
15	m7		12	300	8X2X2
16	c1		12	150	56X2
17	c2		12	150	23X2
18	c3		12	150	56X2
19	c4		12	150	23X2



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF SCREEN WALL OF BRIDGE AT KM 21.031

Drawing No. :-

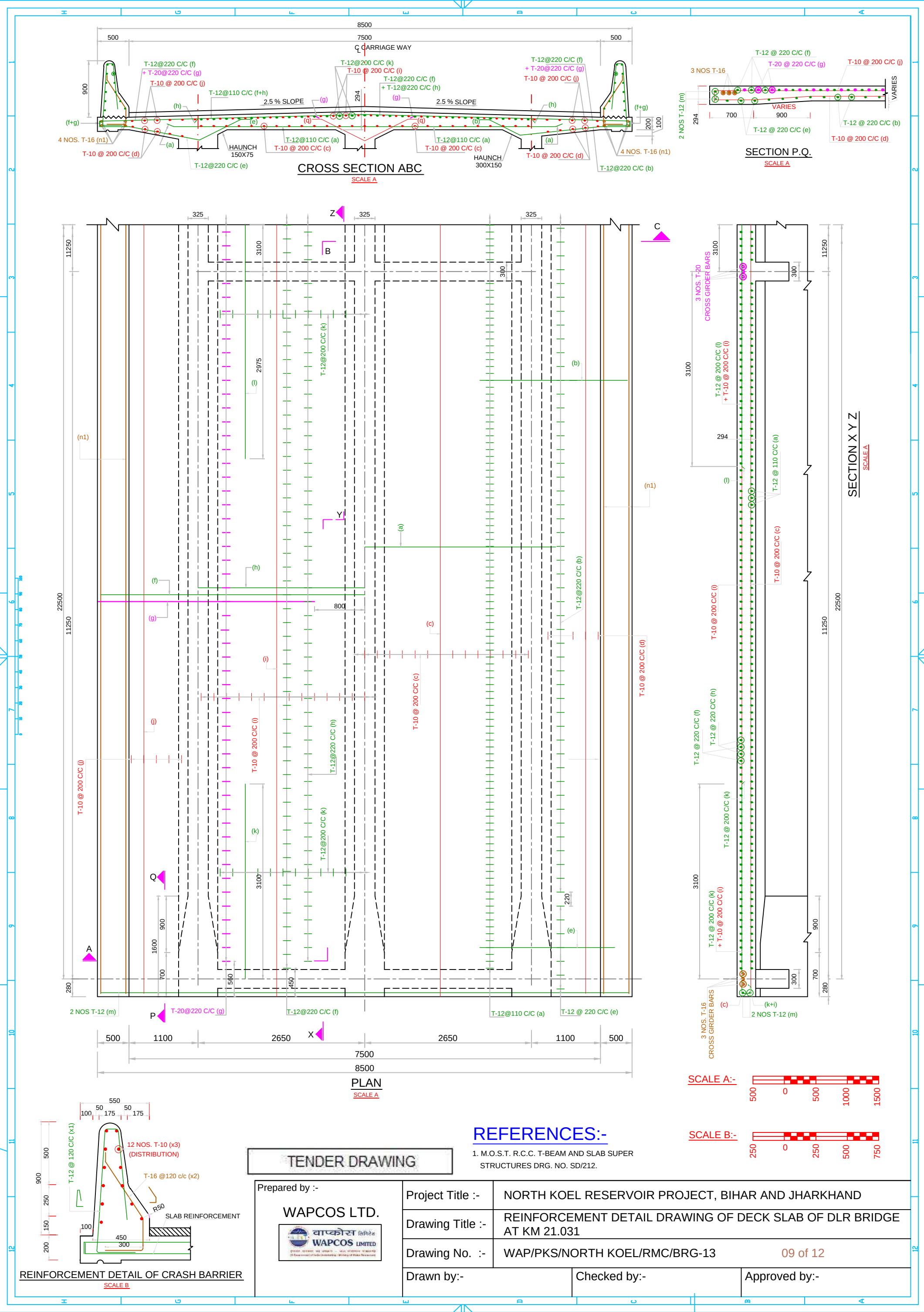
WAP/PKS/NORTH KOEL/RMC/BRG-13

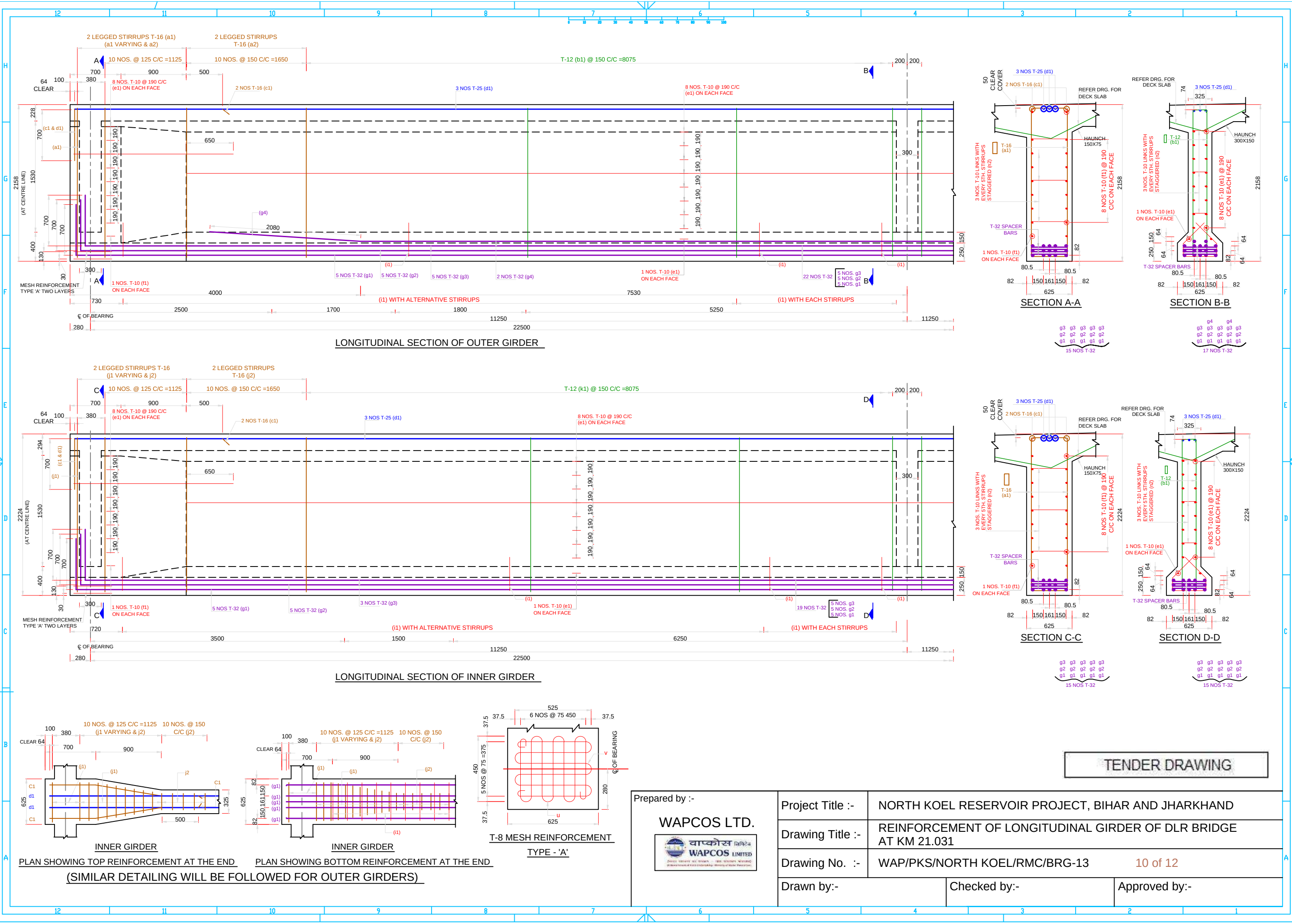
07 of 12

Drawn by:-

Checked by:-

Approved by:-





Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT OF LONGITUDINAL GIRDER OF DLR BRIDGE AT KM 21.031

Drawing No. :-

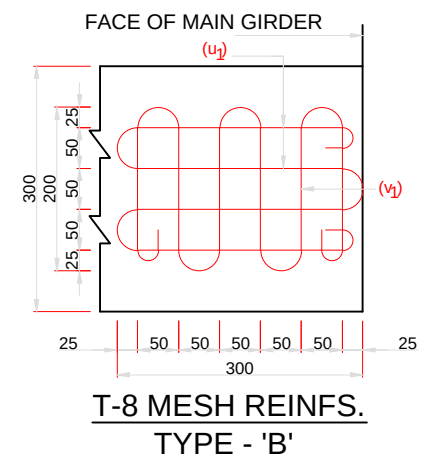
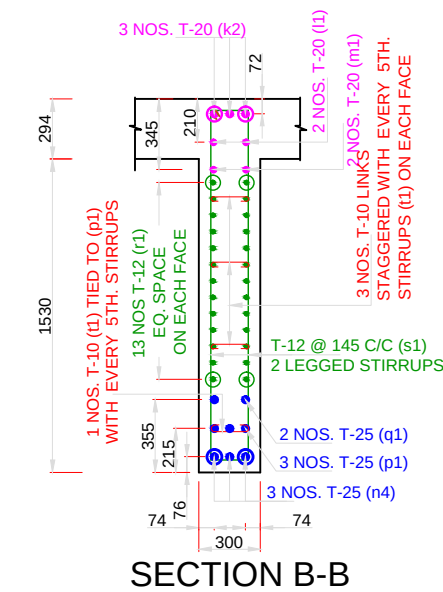
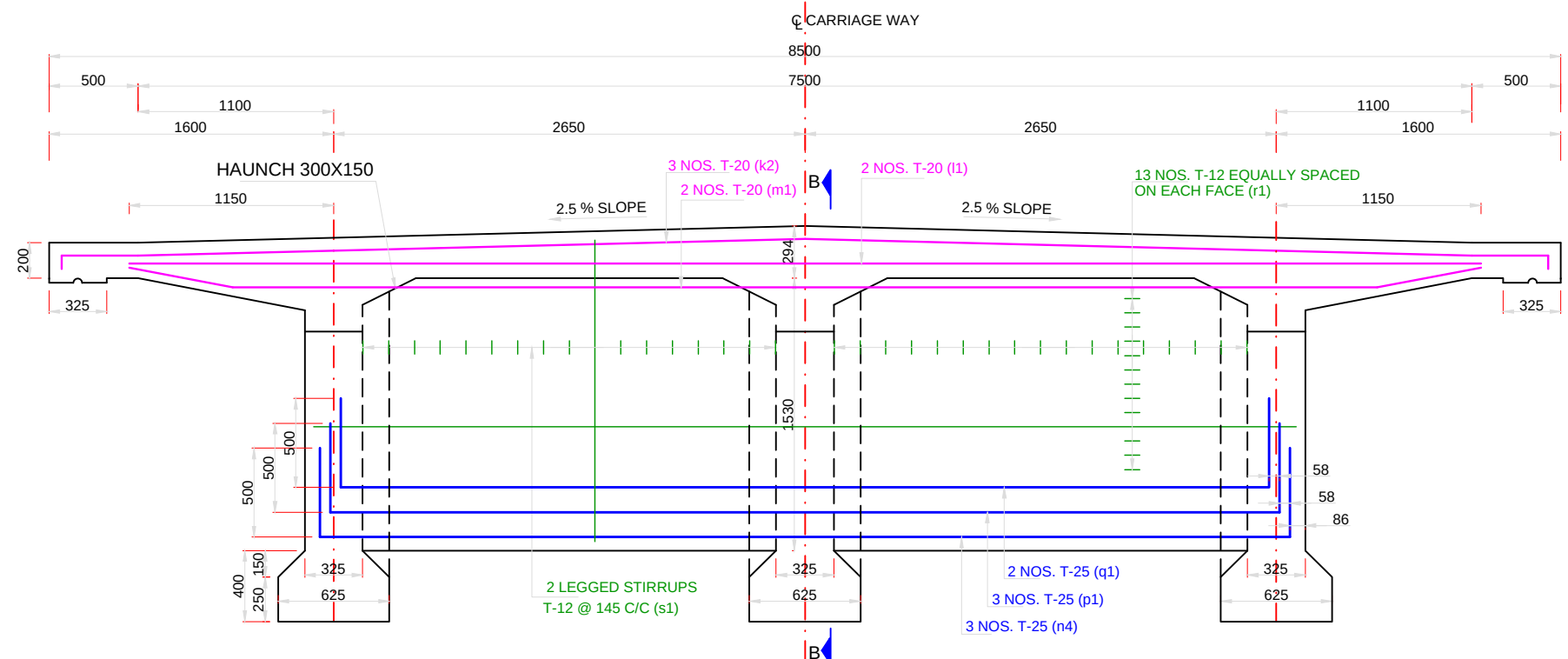
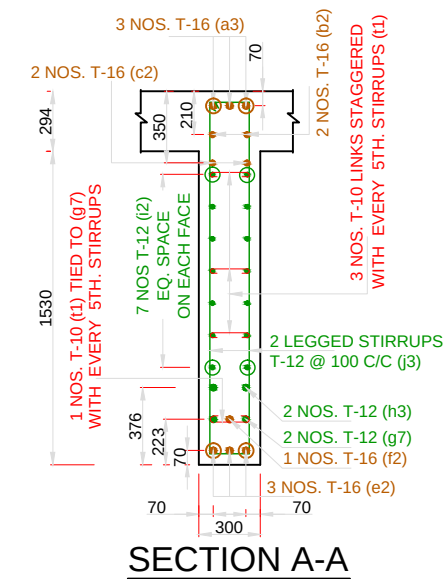
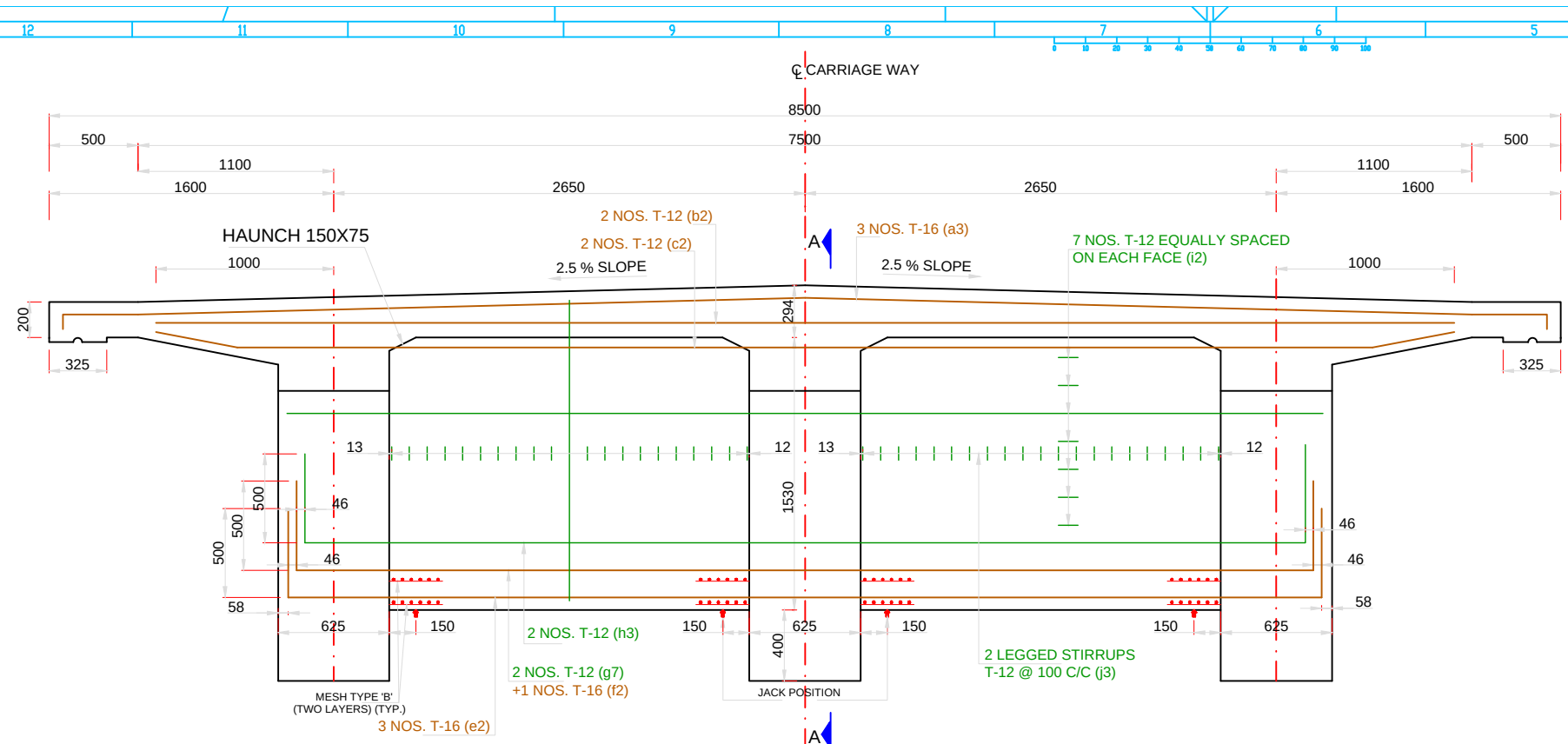
WAP/PKS/NORTH KOEL/RMC/BRG-13

10 of 12

Drawn by:-

Checked by:-

Approved by:-



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT OF CROSS GIRDER OF DLR BRIDGE AT KM 21.031

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-13

11 of 12

Drawn by:-

Checked by:-

Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a		12	110	5925	200
2	b		12	220	2976	182
3	c		10	200	23460	26
4	d		10	200	23388	10
5	e		12	220	2987	32
6	f		12	220	8482	100
7	g		20	220	3575	200
8	h		12	220	5304	100
9	i		10	200	23460	26
10	j		10	200	23388	12
10	k		12	200	3588	44
11	l		12	200	6200	22
12	m		12	-	8400	4
13	n1		16	-	22960	8
14	q		10	200	2110	116

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B) M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u		10	-	3550	8
2	v		10	-	3506	8

CRASH BARRIER PER M

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
1	x1		12	120	2125	9
2	x2		16	120	1165	9
3	x3		10	-	1000	12

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a1		16	125	5158	11X2X2
2	a2		16	150	4758	11X2X2
3	b1		12	150	4678	106X2
4	c1		16	-	2693	2X2X2
5	d1		25	-	24148	3X2
6	e1		10	-	19860	9X2X2
7	f1		10	-	2199	18X2X2
8	g1		32	-	24108	5X2
9	g2		32	-	23980	5X2
10	g3		32	-	23852	5X2
11	g4		32	-	19220	2X2
12	h1		10	-	1733	101X2
13	n2		10	-	583	18X2
14	n3		10	-	433	90X2

LONGITUDINAL INNER GIRDER

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
1	i1		16	125	5290	11X2X1
2	j2		16	150	4890	11X2X1
3	k1		12	150	4810	106X1
4	c1		16	-	2693	2X2X1
5	d1		25	-	24148	3X1
6	e1		10	-	19860	9X2X1
7	f1		10	-	2199	18X2X1
8	g1		32	-	24108	5X1
9	g2		32	-	23980	5X1
10	g3		32	-	23852	5X1
11	h1		10	-	1733	101X1
12	n2		10	-	583	18X1
13	n3		10	-	433	90X1

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a3		16	-	8438	3X2
2	b2		16	-	7300	2X2
3	c2		16	-	7204	2X2
4	e2		16	-	6729	3X2
5	f2		16	-	6637	1X2
6	g7		12	-	6637	2X2
7	h3		12	-	6565	2X2
8	i2		12	-	6219	7X2X2
9	j3		12	100	3833	21X2X2
10	t1		10	-	416	40X2

MIDDLE CROSS GIRDERS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
1	k2		20	-	8438	3
2	l1		20	-	7600	2
3	m1		20	-	7600	2
4	n4		25	-	6281	3
5	p1		25	-	6165	3
6	q1		25	-	6045	2
7	r1		12	-	6487	13X2
8	s1		12	145	3742	34
9	t1		10	-	416	38

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B) M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
19	u1		10	-	1453	16
20	v1		10	-	1510	16

TENDER DRAWING

REFERENCES:-

- M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

BAR BENDING SCHEDULE OF SUPER STRUCTURE OF DLR BRIDGE AT KM 21.031

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-13

12 of 12

Drawn by:-

Checked by:-

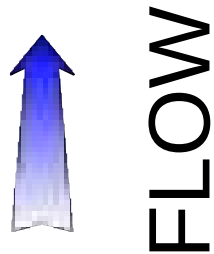
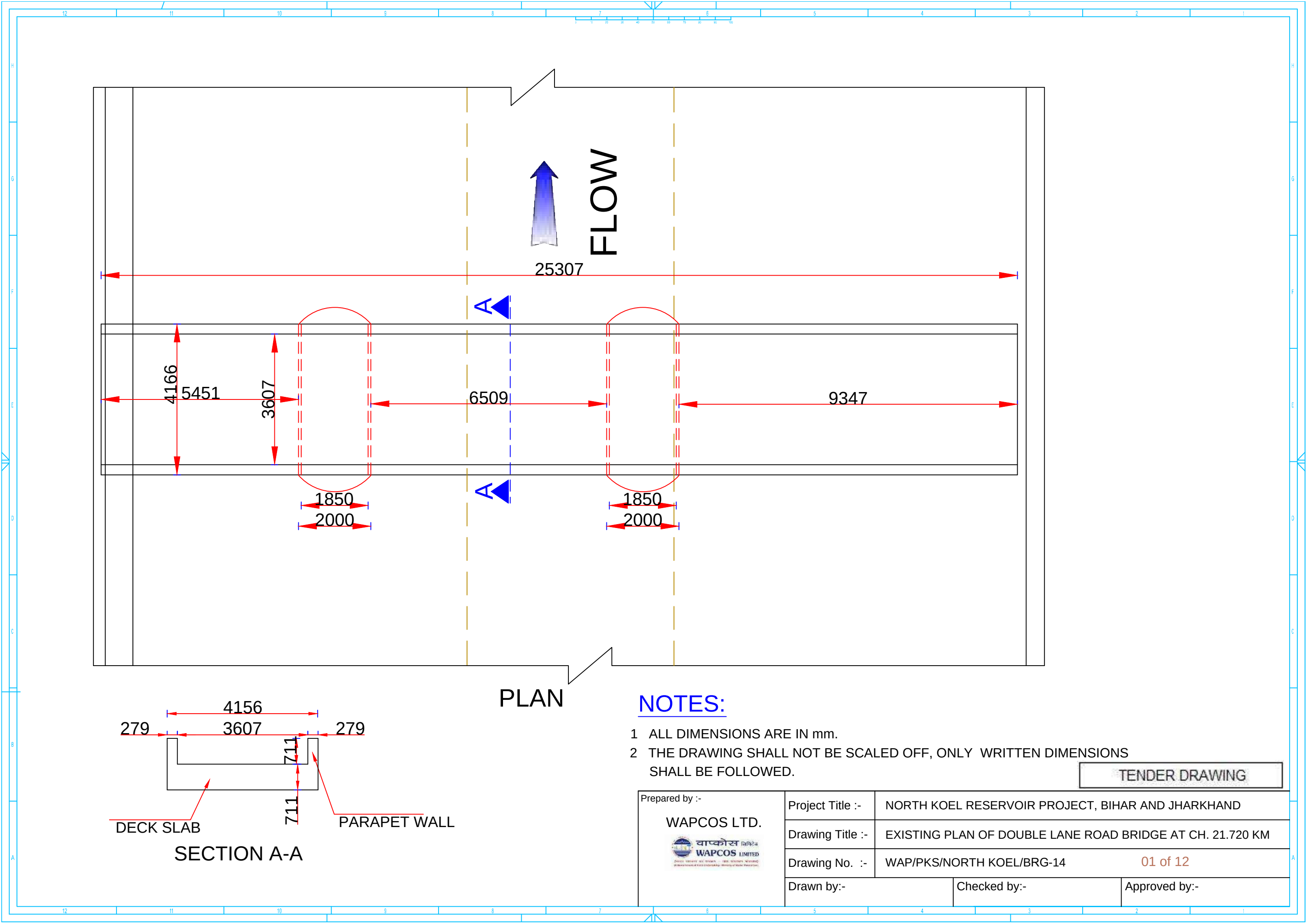
Approved by:-



S.L.R. BRIDGE

AT

CH. 21.720 KM



25307

4166

5451

3607

6509

9347

1850

2000

1850

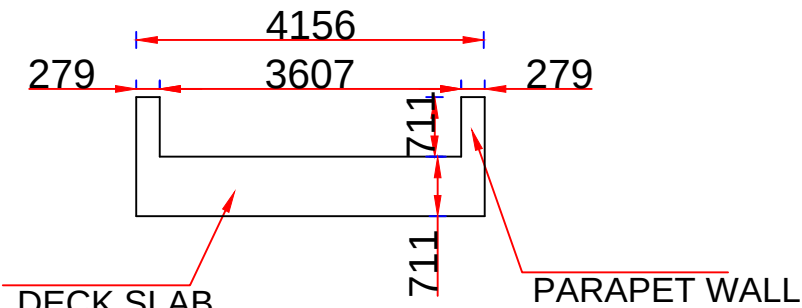
2000

PLAN

NOTES:

- 1 ALL DIMENSIONS ARE IN mm.
- 2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING



SECTION A-A

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

EXISTING PLAN OF DOUBLE LANE ROAD BRIDGE AT CH. 21.720 KM

Drawing No. :-

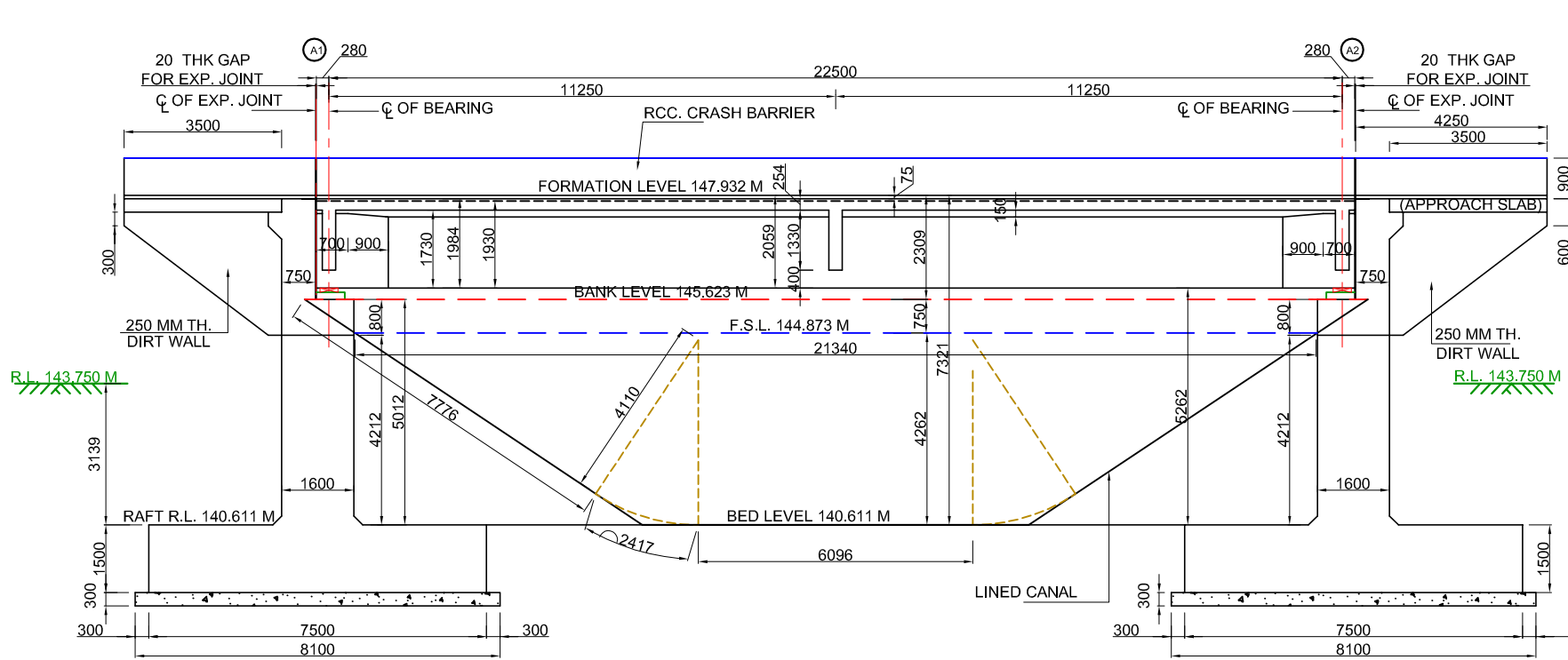
WAP/PKS/NORTH KOEL/BRG-14

01 of 12

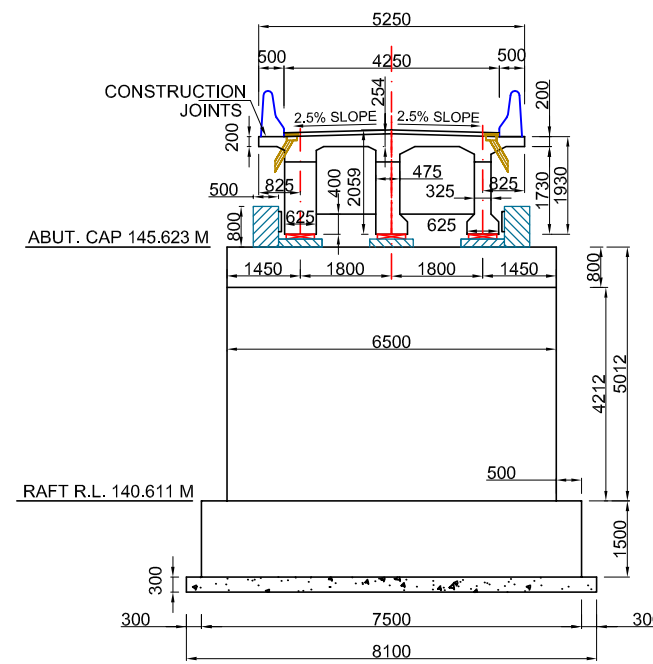
Drawn by:-

Checked by:-

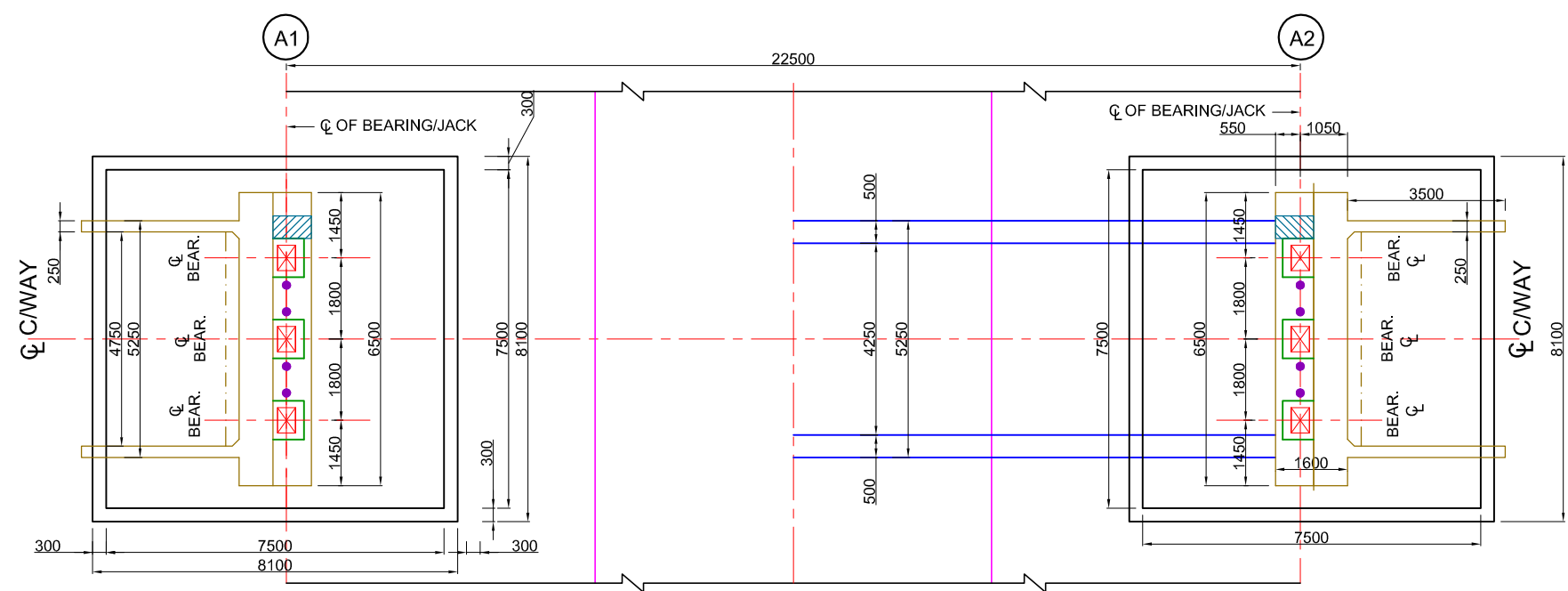
Approved by:-



SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE
(SCALE A)



SIDE VIEW OF ABUTMENT
(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN
(SCALE A)

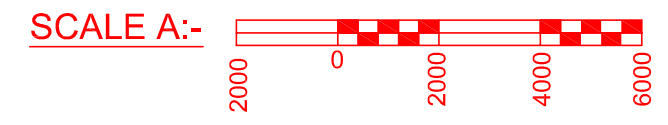
NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
- DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
- ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	80.900 CUMEC
BED LEVEL	140.611 M
WATER DEPTH	4.262 M
F.S.L.	144.873 M
FREE BOARD	0.75 M
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

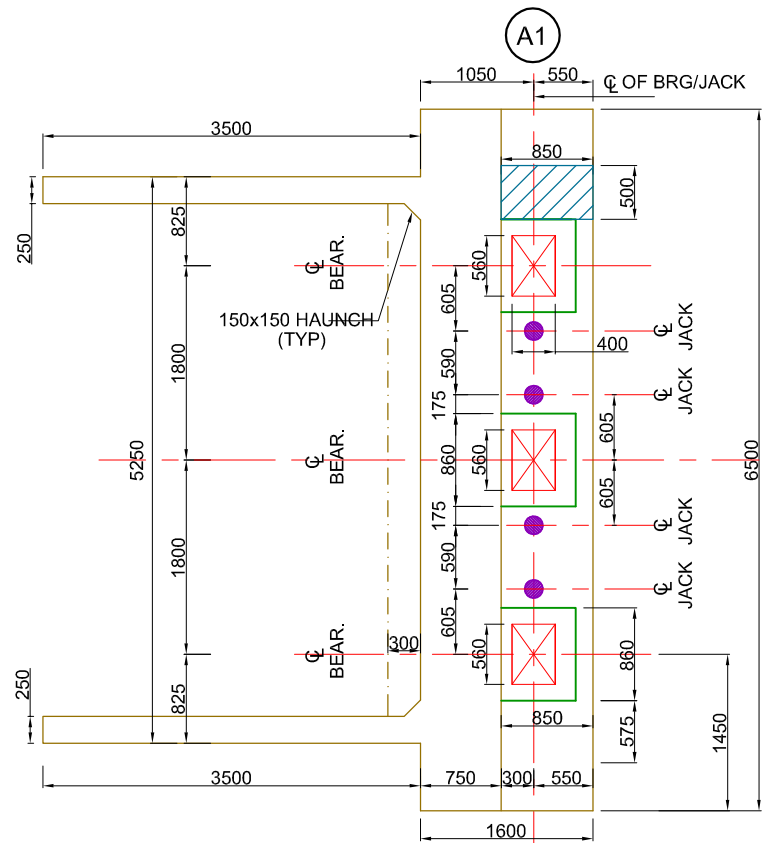
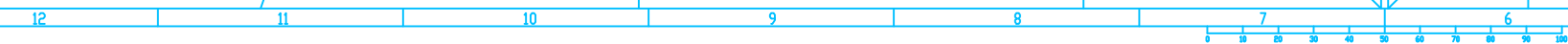
a) RAFT	M35
b) ABUTMENT	M25
c) SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d) CRASH BARRIER	M30
e) PEDESTAL (SEISMIC)	M35
f) WEARING COAT	M30
- TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0°
ROAD LEVEL	147.932 M
EX. ROAD LEVEL	143.750 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M
- SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

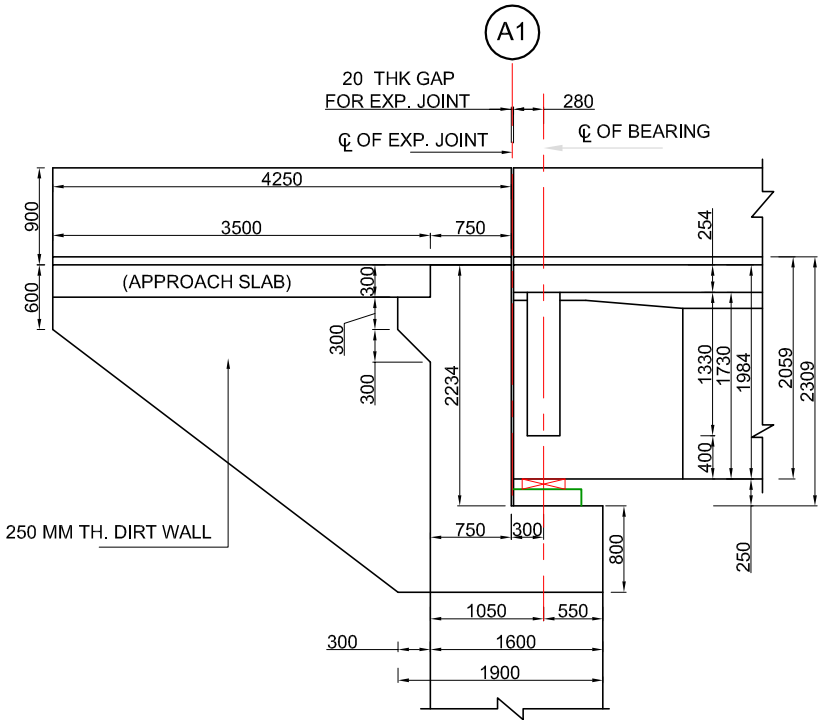


TENDER DRAWING

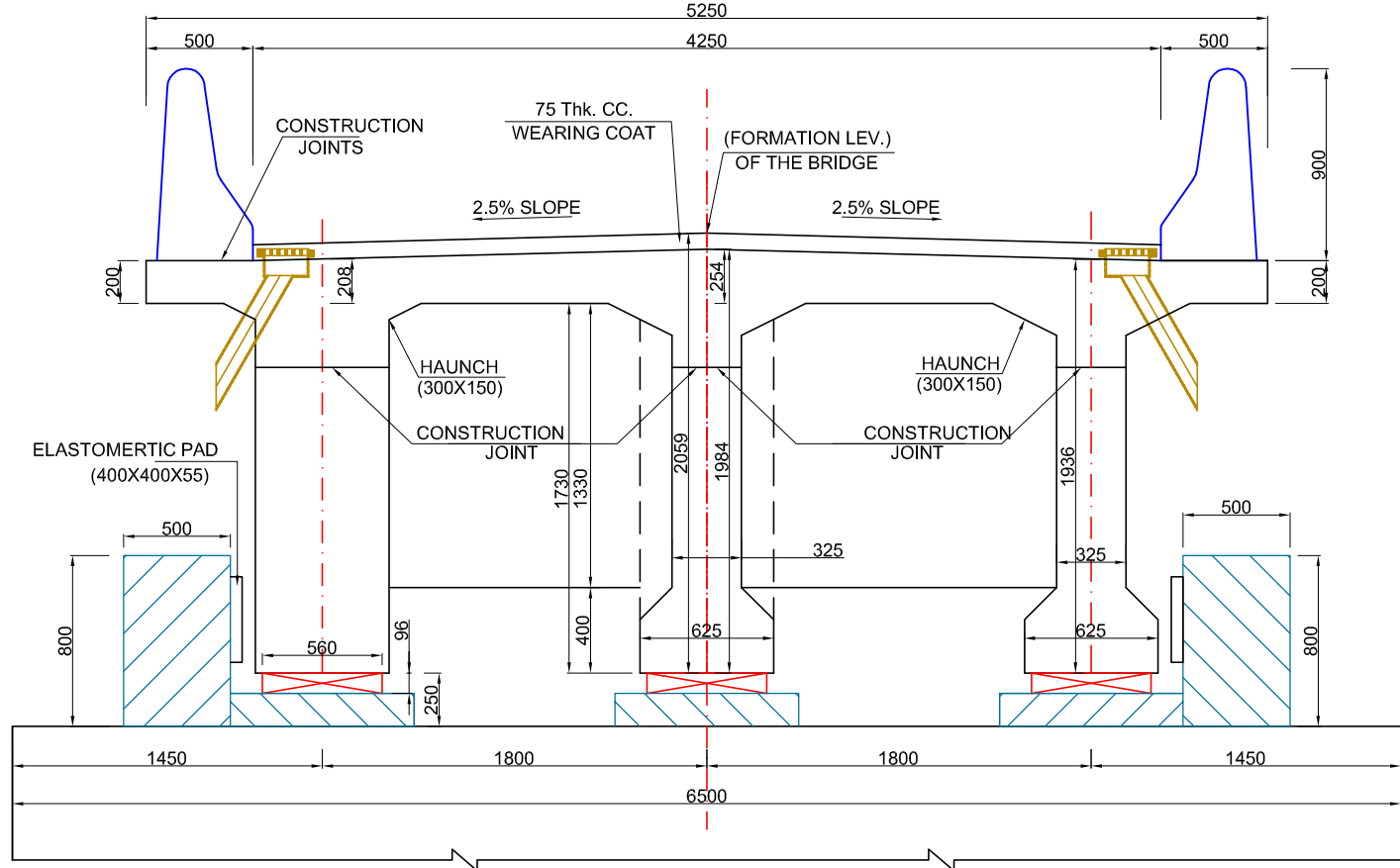
Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 21.720 WITH THREE BEAMS		
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-14		03 of 12
	Drawn by:-	Checked by:-	Approved by:-	



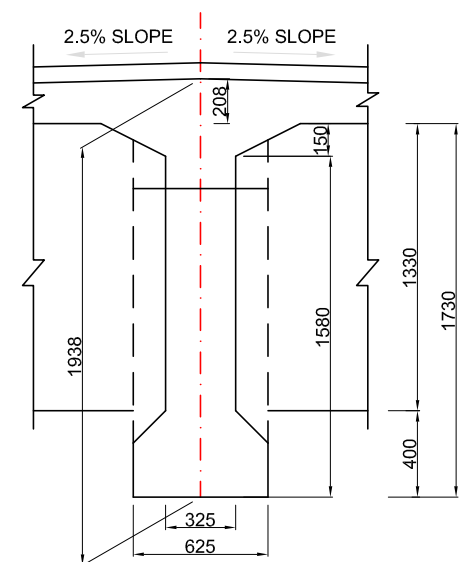
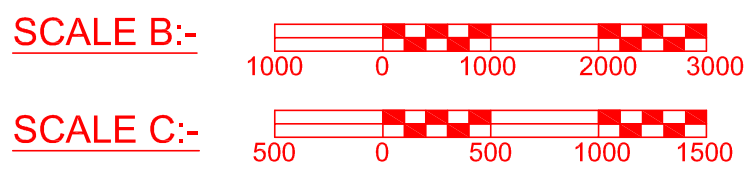
PLAN OF ABUTMENT AT BEARING LEVEL
(SCALE B)



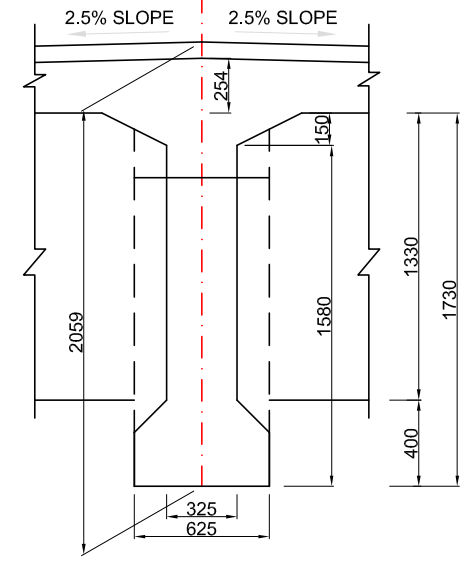
DETAIL - 'D1'
(SCALE B)



CROSS SECTION OF GIRDERS
(SCALE C)



CROSS SECTION OF
RCC 'I' OUTER GIRDER
(SCALE C)



CROSS SECTION OF
RCC 'I' INTERMEDIATE GIRDER
(SCALE C)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.

ABUT. CAP 145.623 M

TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR BRIDGE AT KM 21.720 WITH THREE BEAMS		
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-14	04 of 12	
	Drawn by:-	Checked by:-	Approved by:-	

12 11 10 9 8 7 6 5 4 3 2 1

H

G

F

E

D

C

B

A

H

G

F

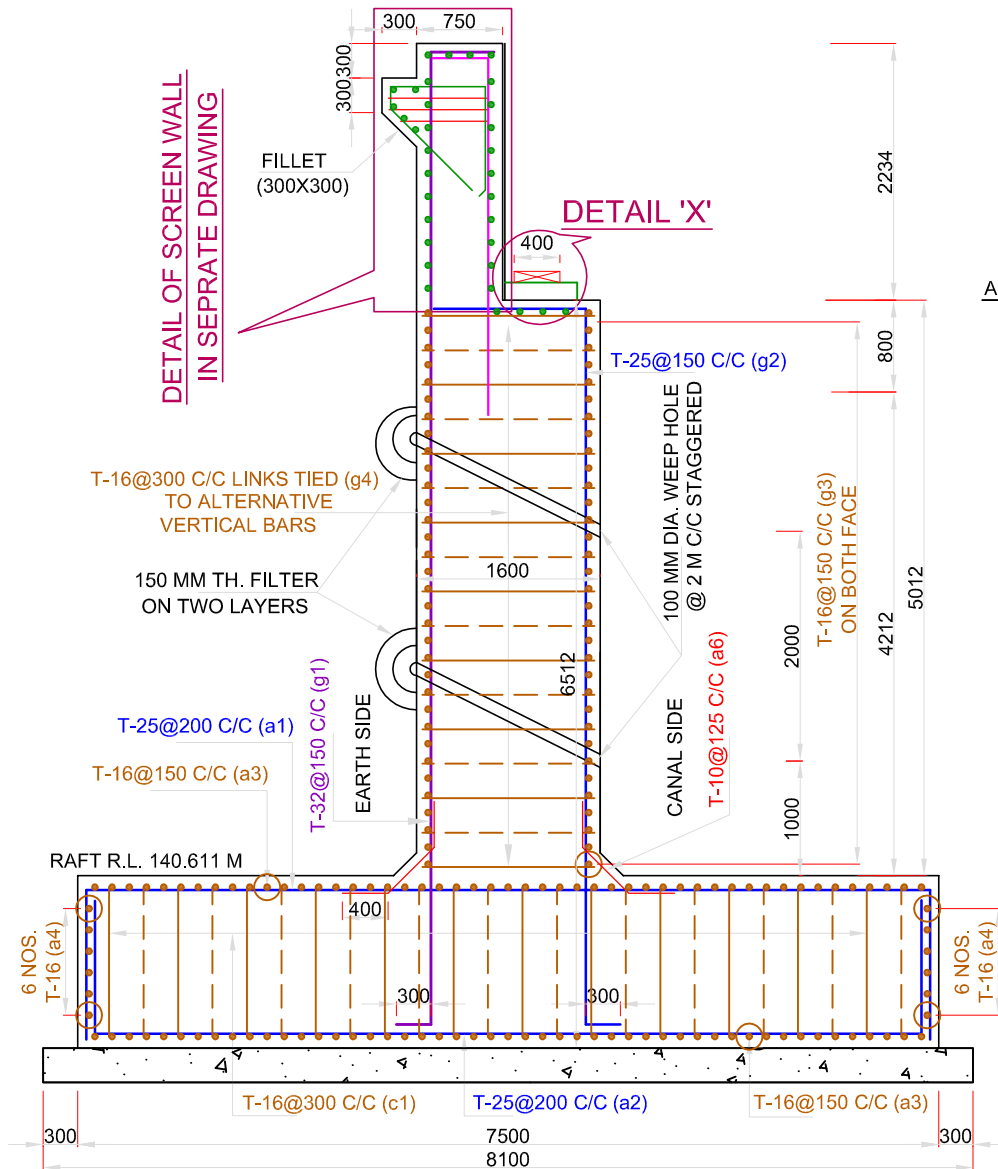
E

D

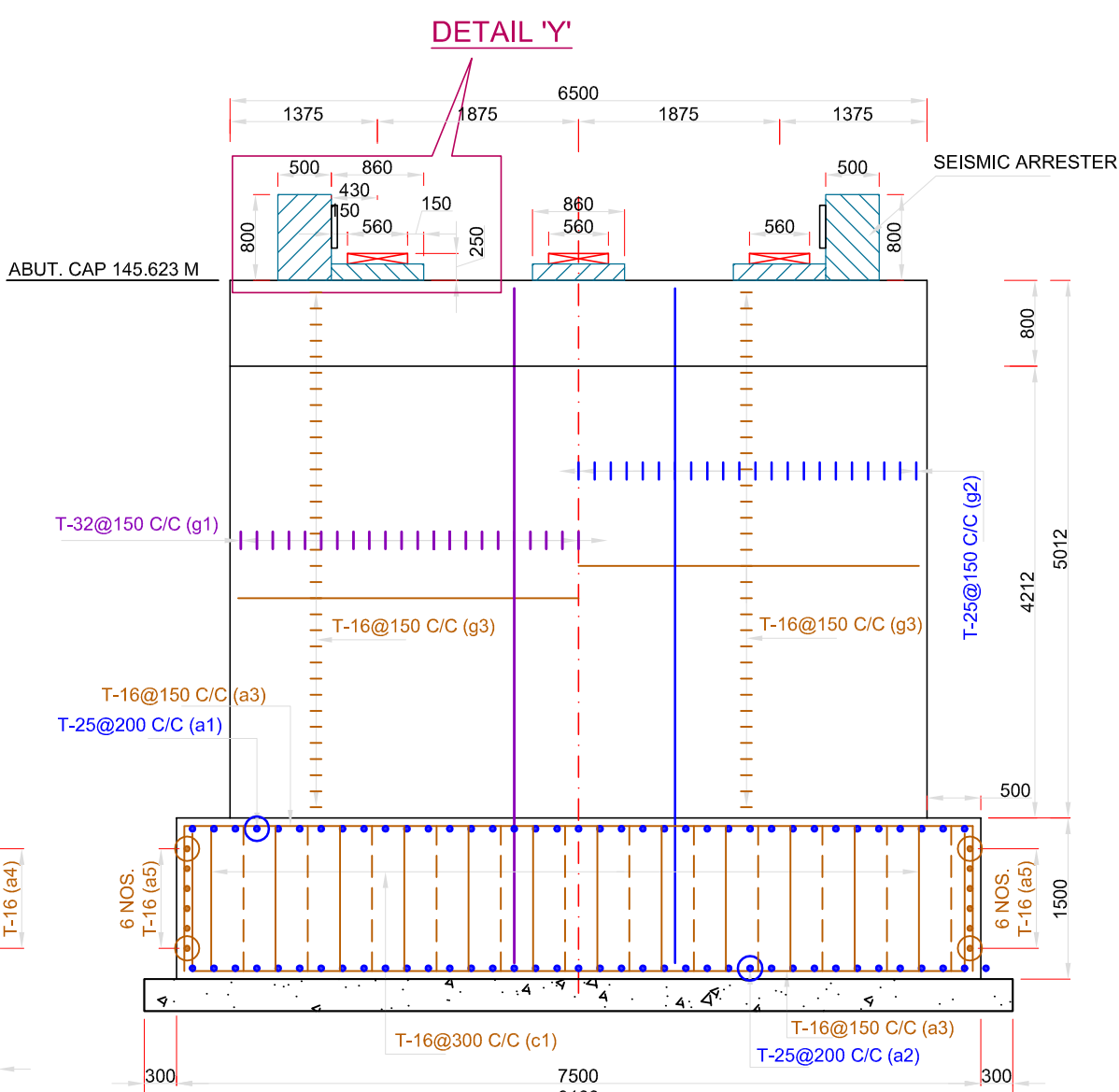
C

B

A



SIDE VIEW OF ABUTMENT
SCALE A



CROSS SECTION OF ABUTMENT
HALF EARTH SIDE / HALF CANAL SIDE
SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1		32	150	42X2
	2	g2		25	150	42X2
	3	g3		16	150	32X2X2
	4	g4		16	300	9X11X2
IN RAFT FOR ABUTMENT	5	a1		25	200	37X2
	6	a2		25	200	37X2
	7	a3		16	150	49X2X2
	8	a4		16	-	6X2X2
	9	a5		16	-	6X2X2
	10	a6		10	125	59X2X2
	11	c1		16	300	13X13X2

NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - RAFT M35
 - SUBSTRUCTURE M25
 - PEDESTAL M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:-
500 0 500 1000 1500

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 21.720 WITH THREE BEAMS

Drawing No. :-

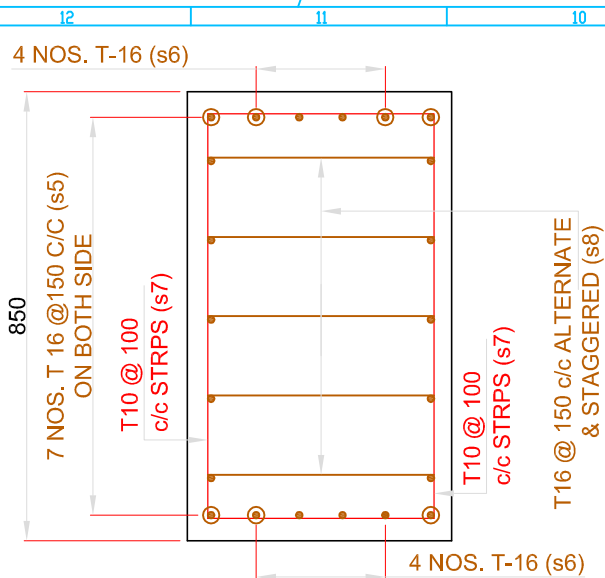
WAP/PKS/NORTH KOEL/RMC/BRG-14

05 of 12

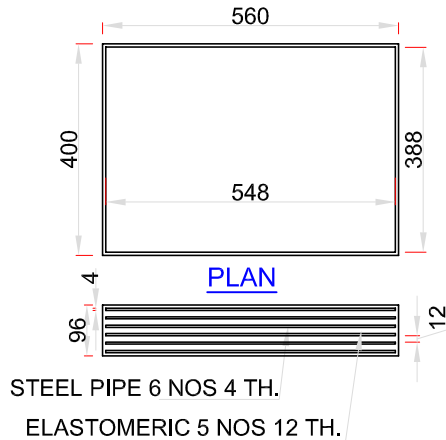
Drawn by:-

Checked by:-

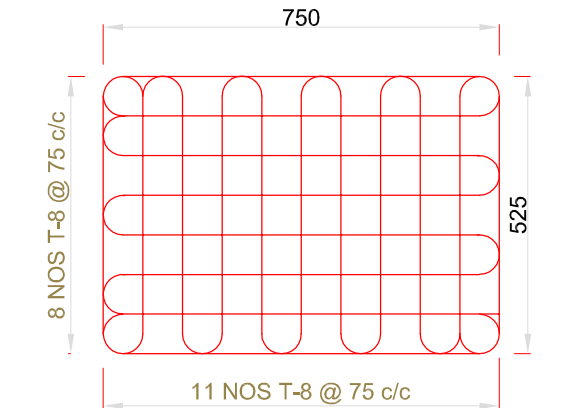
Approved by:-



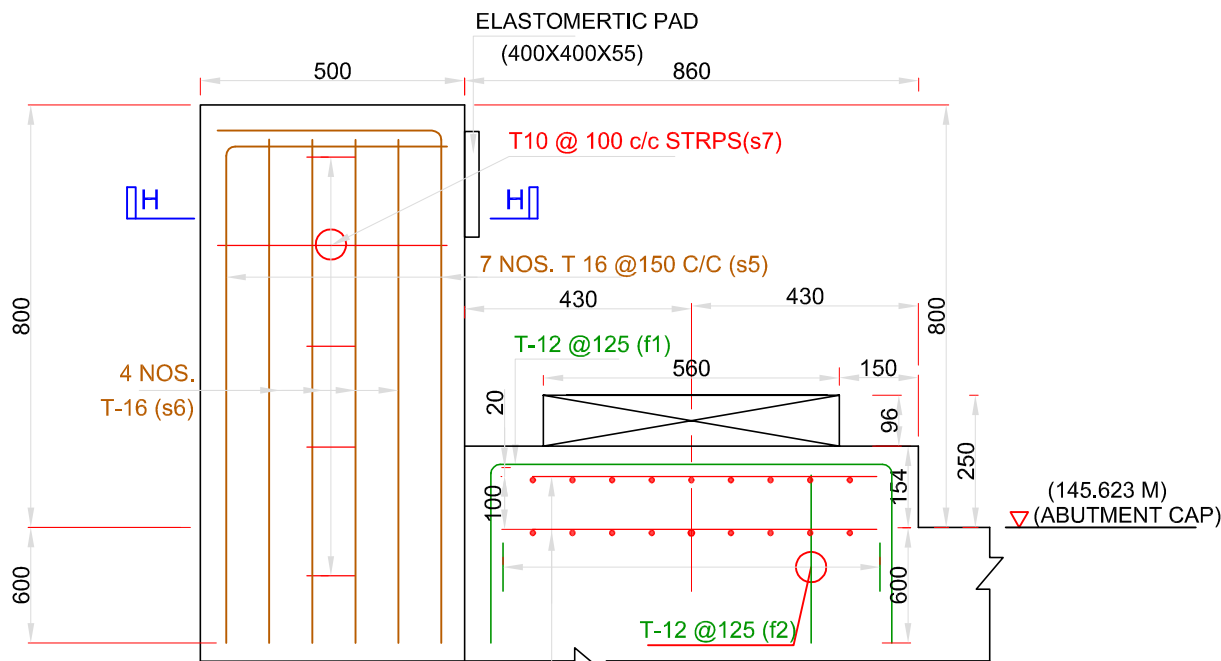
SECTION H-H
SCALE A



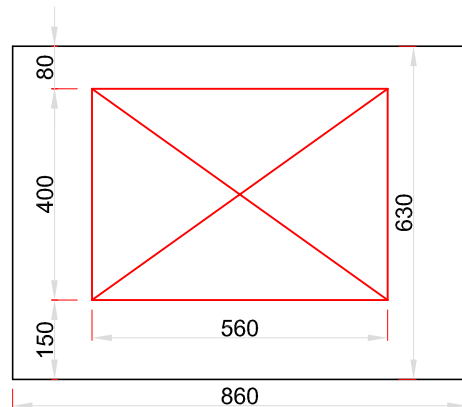
DETAILS OF
ELASTOMERIC BEARINGS
SCALE A



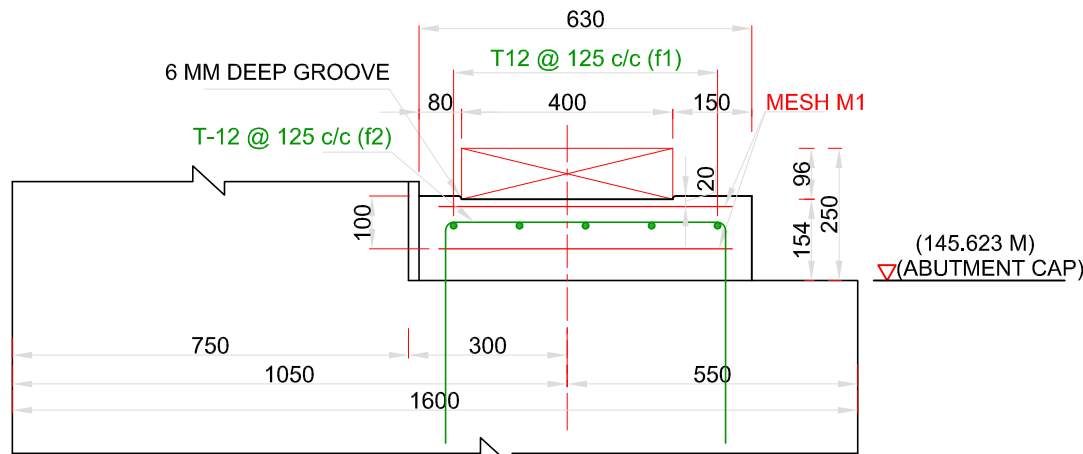
DETAIL OF MESH M1
(MESH BELOW BEARING LOCATION)
SCALE A



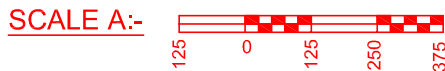
DETAIL 'Y'
SCALE A



PLAN
SCALE A



DETAIL 'X'
SCALE A



BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5		16	150	14X2X2
	2	s6		16	-	8X2X2
	3	s7		10	100	5X2X2
	4	s8		16	150	5X2X2
PEDESTAL FOR ABUTMENT	5	f1		12	125	5X3X3
	6	f2		12	125	5X3X3

NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - RAFT M35
 - SUBSTRUCTURE M25
 - PEDESTAL M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 21.720 WITH THREE BEAMS

Drawing No. :-

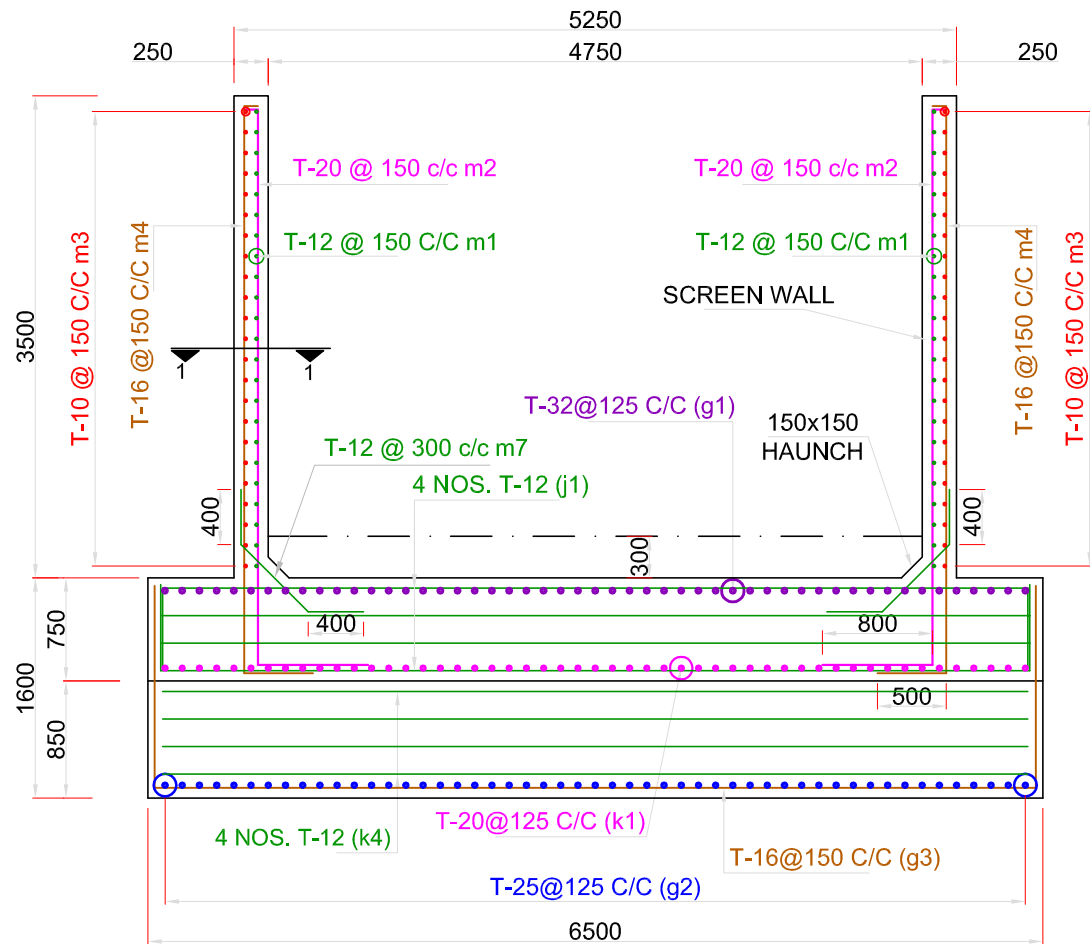
WAP/PKS/NORTH KOEL/RMC/BRG-14

06 of 12

Drawn by:-

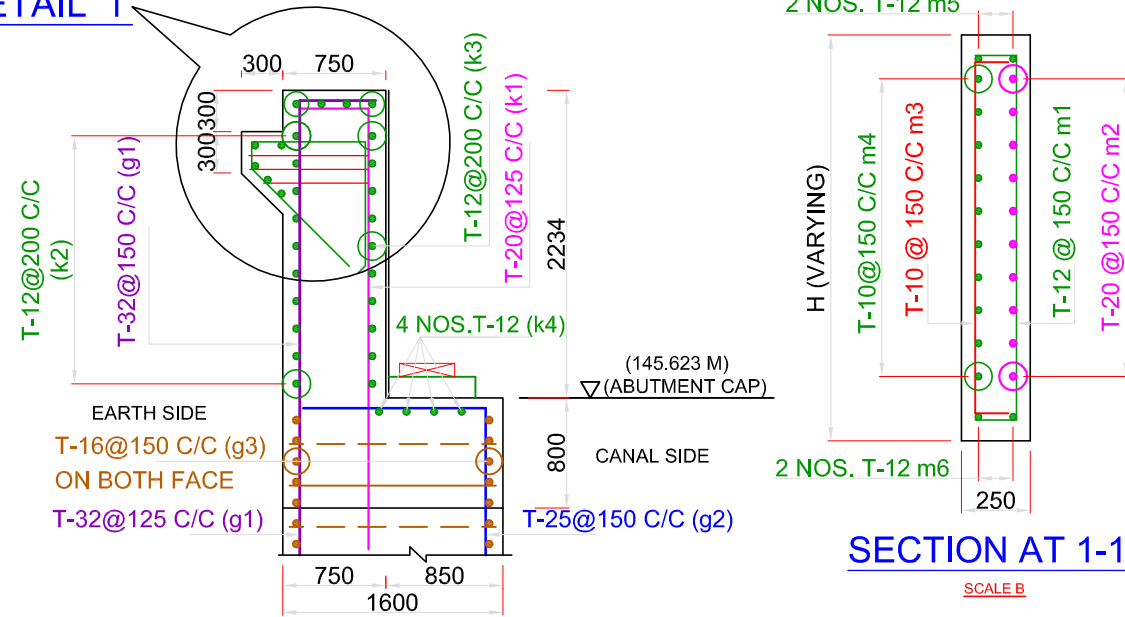
Checked by:-

Approved by:-

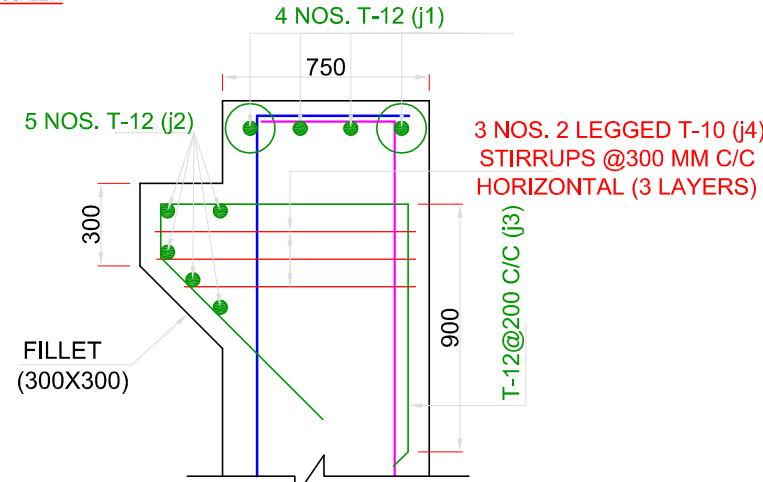


REINFORCEMENT DETAILS IN PLAN OF DIRT WALL
SCALE A

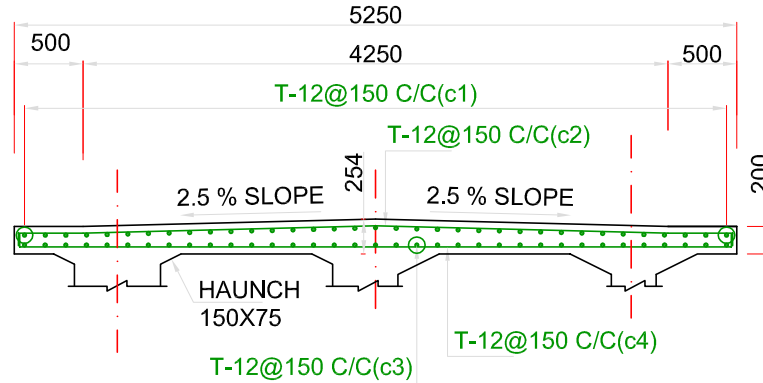
DETAIL '1'



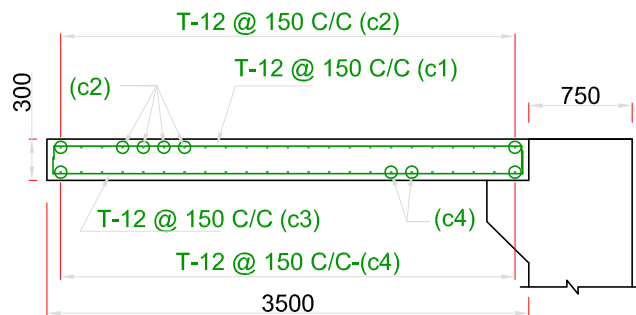
REINFORCEMENT DETAILS IN
SECTION OF DIRT
SCALE A



DETAIL '1'
SCALE B



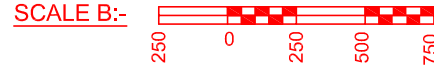
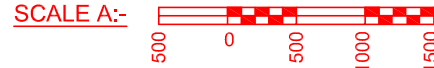
REINFORCEMENT IN APPROACH SLAB
SCALE A



SECTION OF APPROACH SLAB
SCALE A

BARS BENDING SCHEDULE

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
1	k1		20	125	51X2
2	k2		12	200	10X2
3	k3		12	200	10X2
4	k4		12	200	4X2
5	j1		12	-	4X2
6	j2		12	-	5X2
7	j3		12	-	24X2
8	j4		10	300	3X2
9	m1		12	150	44X2
10	m2		20	150	40X2
11	m3		10	150	44X2
12	m4		16	150	40X2
13	m5		12	-	4X2
14	m6		12	-	4X2
15	m7		12	300	8X2X2
16	c1		12	150	34X2
17	c2		12	150	23X2
18	c3		12	150	34X2
19	c4		12	150	23X2



NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS CRITICAL HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - RAFT M35
 - SUBSTRUCTURE M25
 - PEDESTAL M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF PIER AND PIER CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 21.720 WITH THREE BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-14

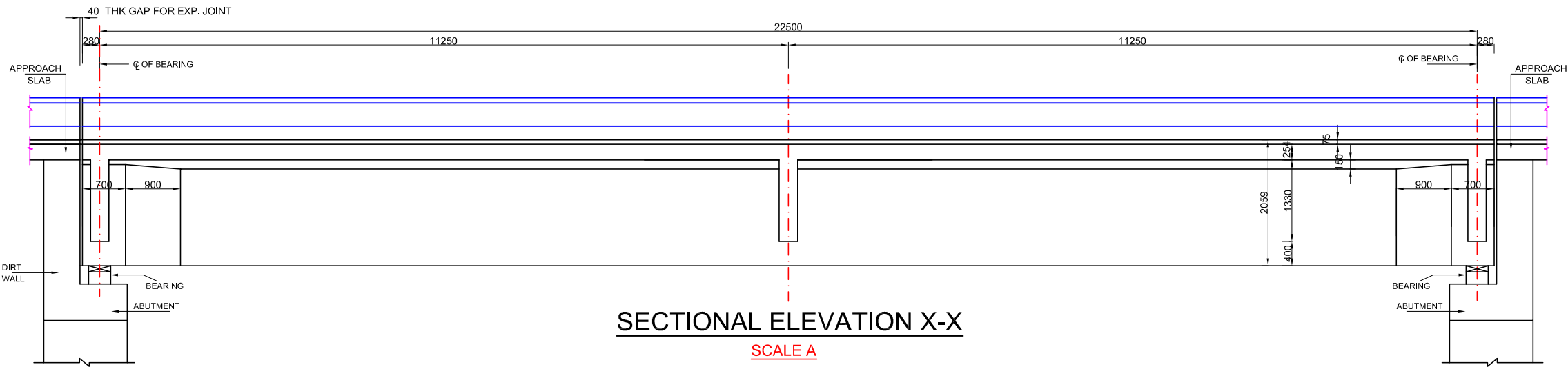
07 of 12

Drawn by:-

Checked by:-

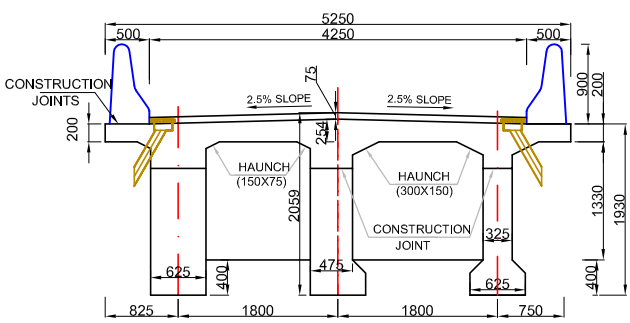
Approved by:-

TENDER DRAWING



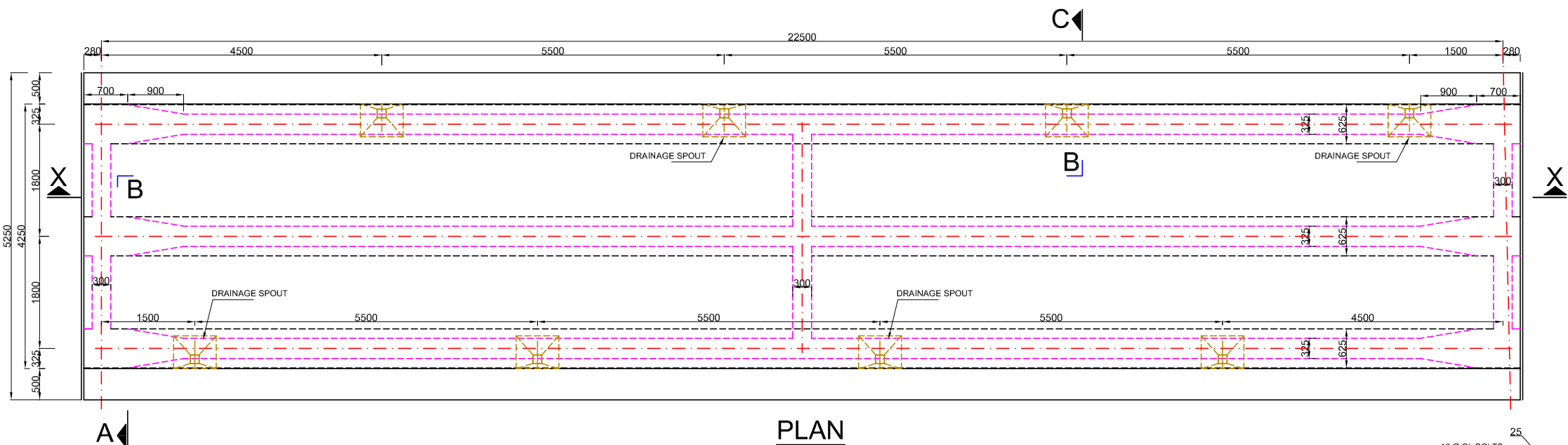
SECTIONAL ELEVATION X-X

SCALE A



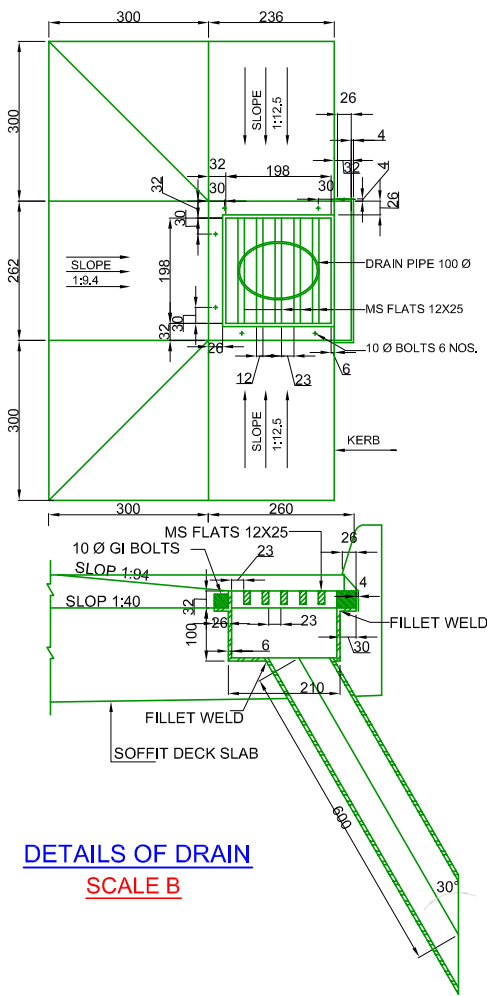
SECTION ABC

SCALE A



PLAN

SCALE A

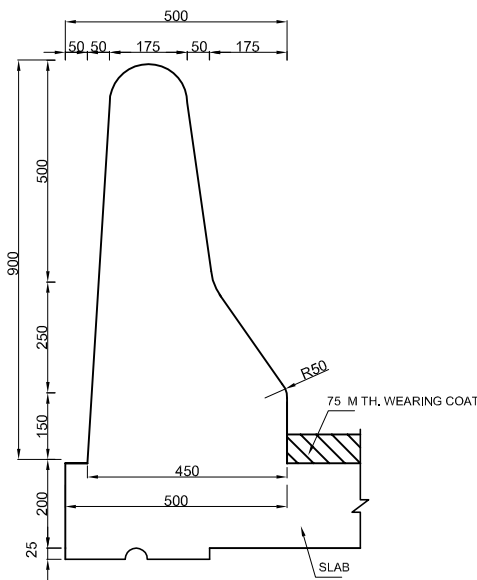


DETAILS OF DRAIN

SCALE B

NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
- THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T-BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
- THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
- GRADE OF CONCRETE FOR T-BEAM AND SLAB SHALL BE M-35. CONFORMING TO IS 456.
- 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
- DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
- THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN-AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
- REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
- THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
- CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.



DETAILS OF CRASH BARRIER

SCALE B

REFERENCES:-

- M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 21.720 WITH THREE BEAMS

Drawing No. :-

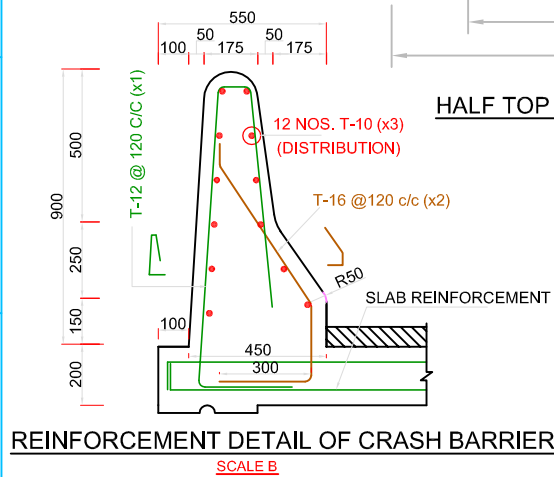
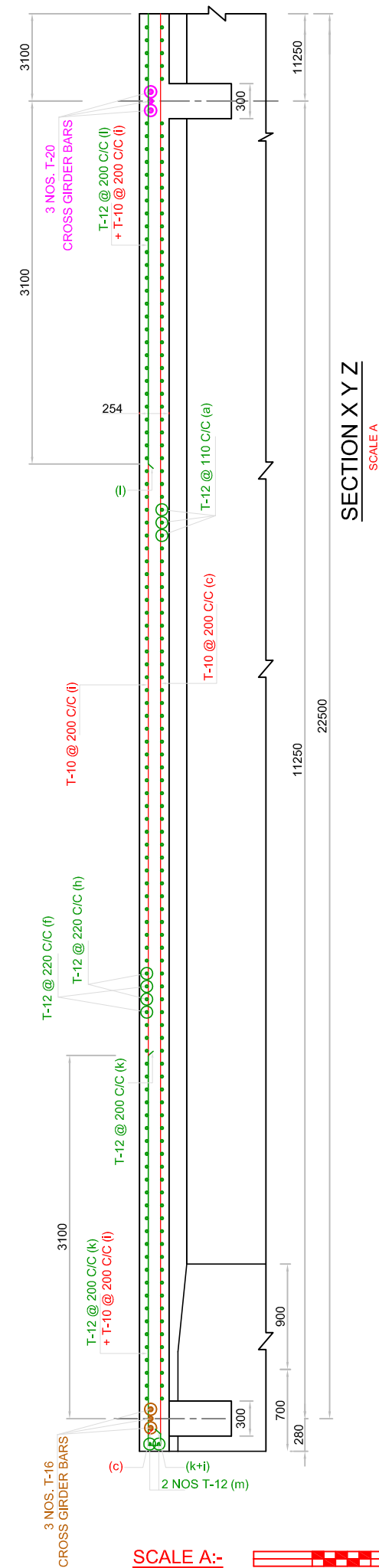
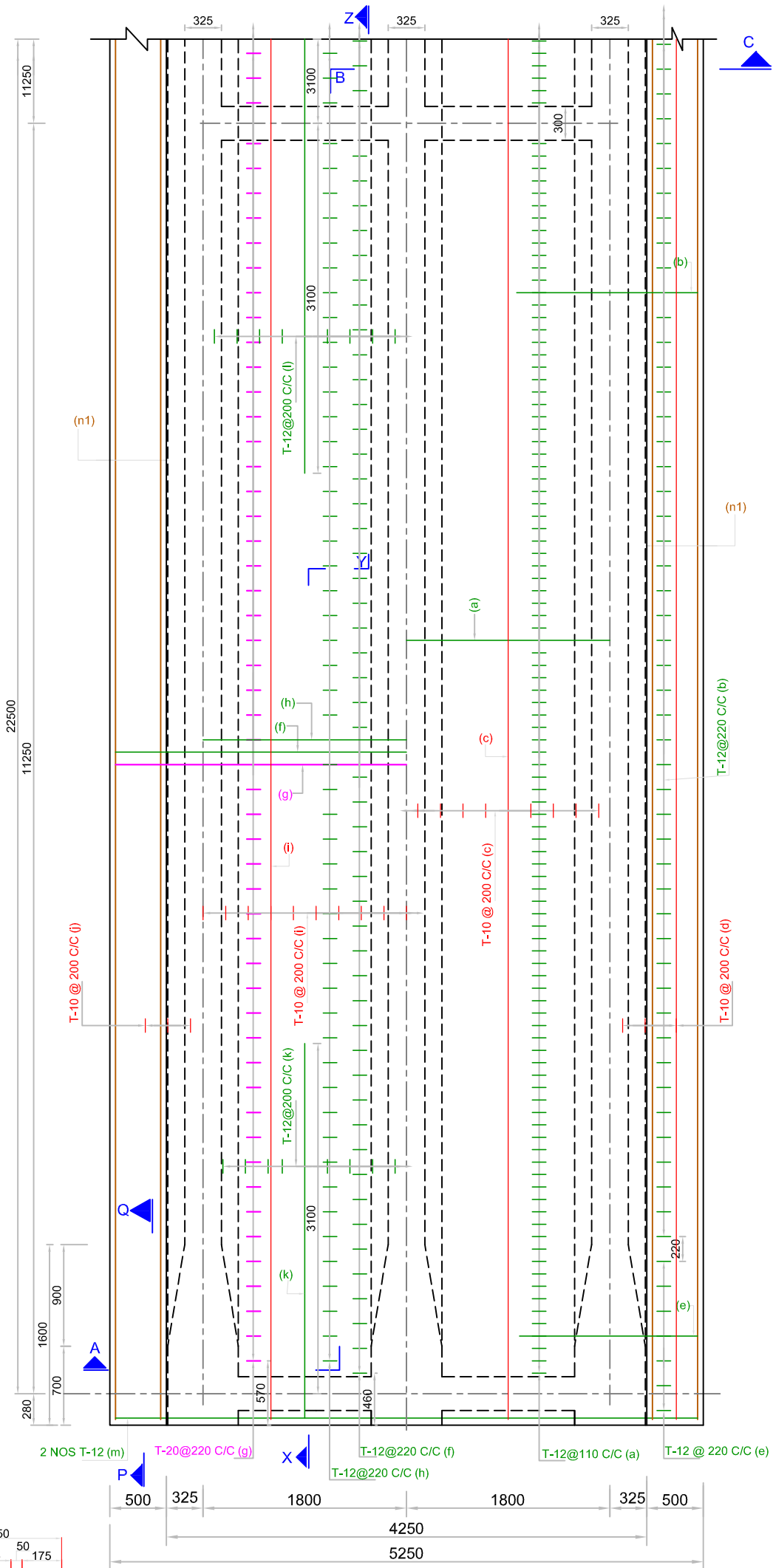
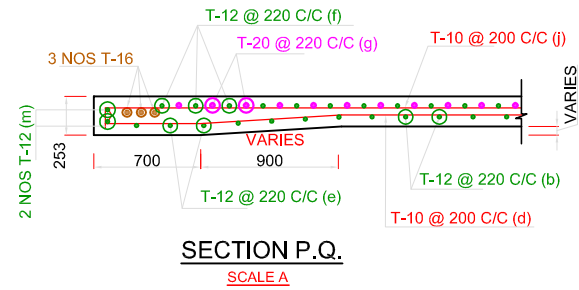
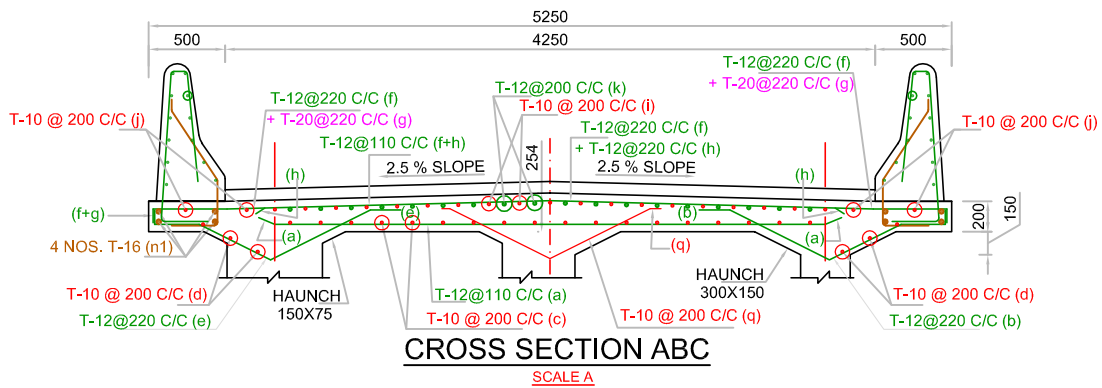
WAP/PKS/NORTH KOEL/RMC/BRG-14

08 of 12

Drawn by:-

Checked by:-

Approved by:-

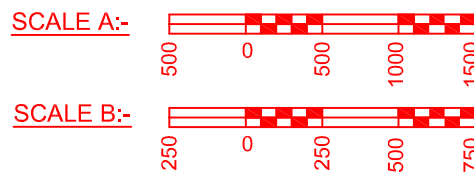


HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

PLAN
SCALE A

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER
STRUCTURES DRG. NO. SD/212.



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE
AT KM 21.720 WITH THREE BEAMS

Drawing No. :-

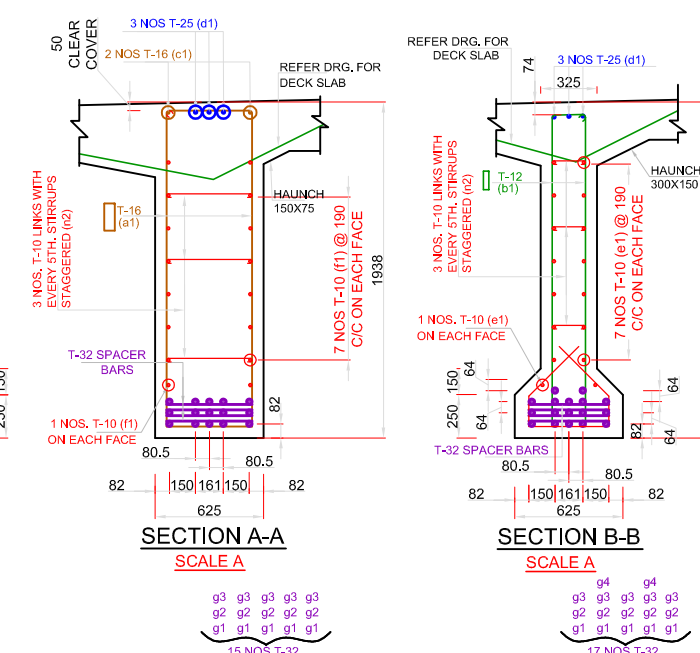
WAP/PKS/NORTH KOEL/RMC/BRG-14

09 of 12

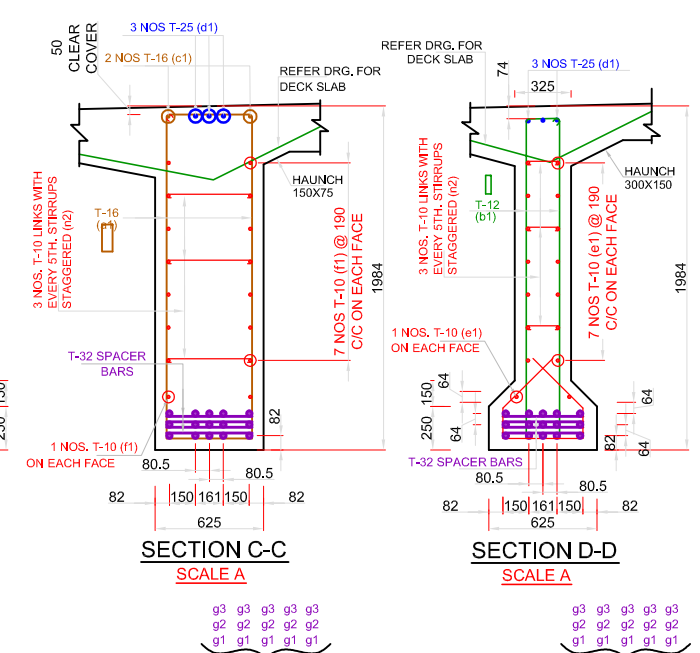
Drawn by:-

Checked by:-

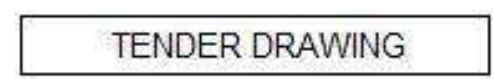
Approved by:-



SECTION B-E
SCALE A

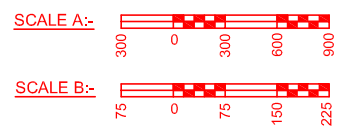


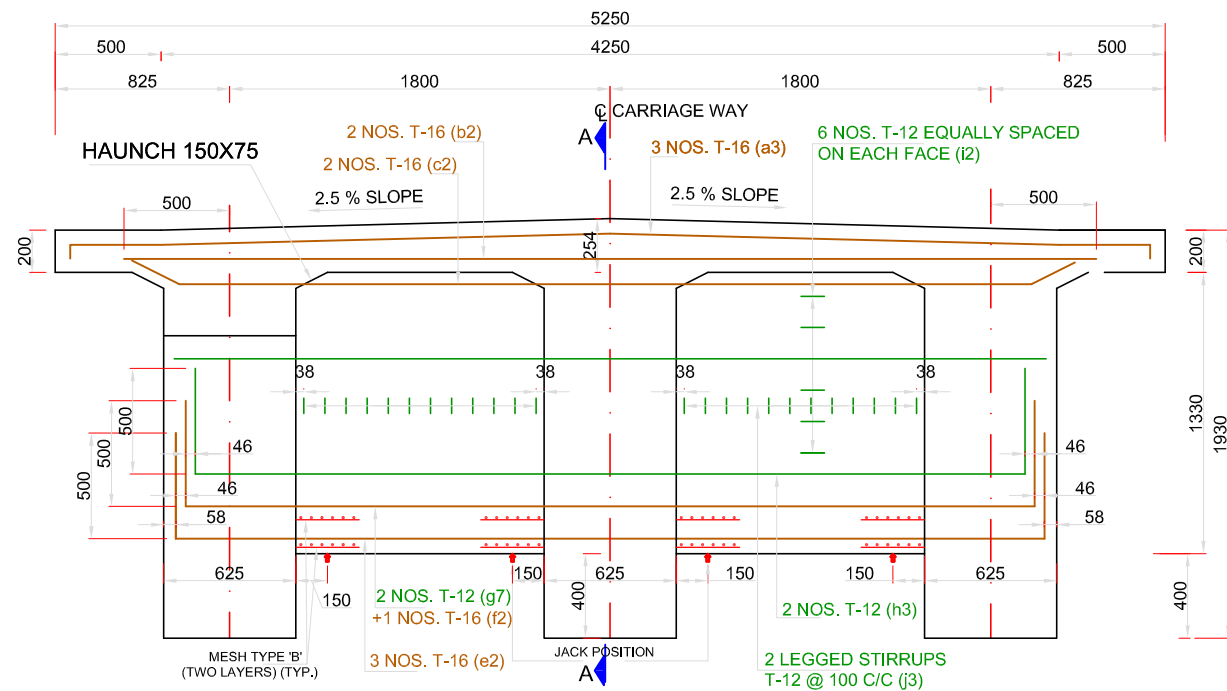
SECTION D-D
SCALE A



वाष्कोस लिमिटेड
WAPCOS LIMITED
 (भारत सरकार का उपकरण - जल संसाधन विभाग)
 A Government of India Undertaking - Ministry of Water Resources

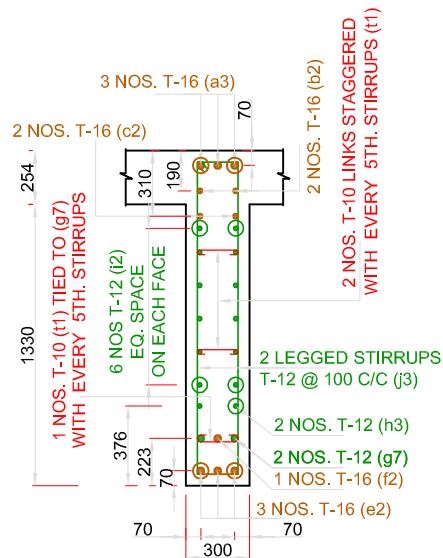
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 21.720 WITH THREE BEAMS		
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-14		10 of 12
Drawn by:-		Checked by:-	Approved by:-





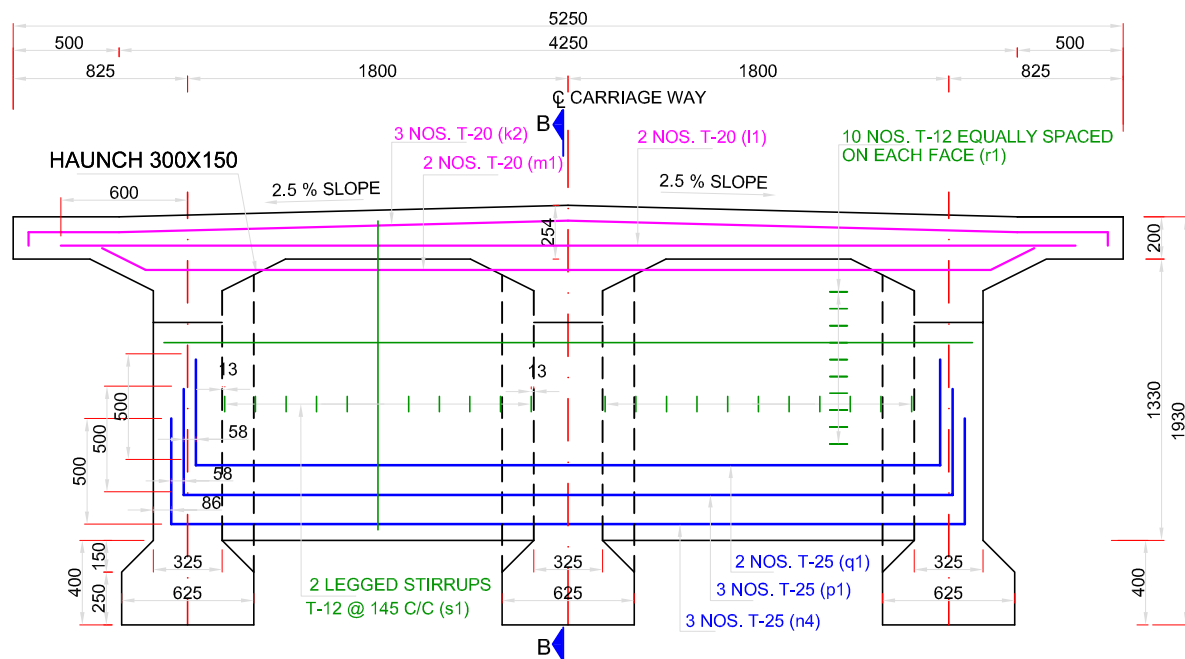
LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A



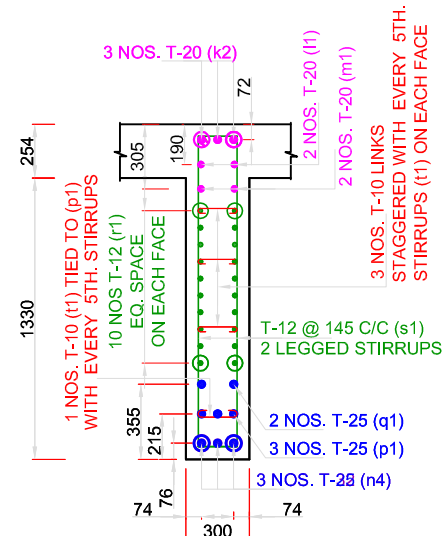
SECTION A-A

SCALE A



LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A

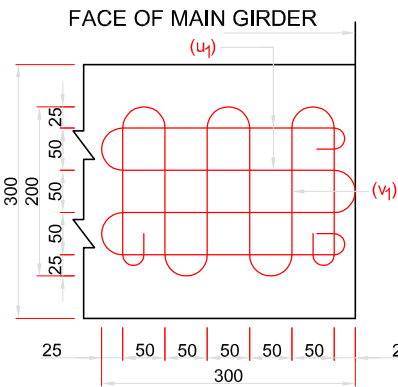


SECTION B-B

SCALE A

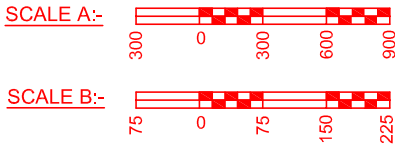
NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
- THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T-BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
- THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
- GRADE OF CONCRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
- H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
- DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
- THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN-AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
- CRASH BARRIER TYPE RAILING SHALL BE USED.
- THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
- ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



T-8 MESH REINFS.
TYPE - 'B'

SCALE B



TENDER DRAWING

REFERENCES:-

- M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

WAPCOS LTD.



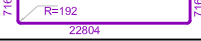
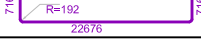
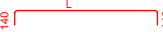
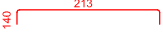
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 21.720 WITH THREE BEAMS		
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-14		11 of 12
Drawn by:-	Checked by:-	Approved by:-	

A) H.Y.S.D. BARS						
S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a		12	110	3600	200
2	b		12	220	1927	182
3	c		10	200	23460	19
4	d		10	200	23460	6
5	e		12	220	1927	32
6	f		12	220	5304	100
7	g		20	220	5182	100
8	h		12	220	3732	100
9	i		10	200	23460	19
10	j		10	200	23388	6
11	k		12	200	3588	36
12	l		12	200	6200	18
13	m		12	-	5150	4
14	n1		16	-	22960	8
15	q		10	200	2110	116

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u		10	-	3550	8
2	v		10	-	3506	8

CRASH BARRIER PER M						
1	x1		12	120	2125	9
2	x2		16	120	1165	9
3	x3		10	-	1000	12

A) H.Y.S.D. BARS						
S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a ₁	L1=VARYING FROM 1808 TO 1812 L2 = VARYING FROM 1800 TO 1804 VARYING FROM 193 TO 493	16	125	5158	11X2X2
2	a ₂	 193 1804 1808 193	16	150	4758	11X2X2
3	b ₁	 193 1804 1808 193	12	150	4678	106X2
4	c ₁	 708 R=96 ELEVATION 636 913 500 166	16	-	2693	2X2X2
5	d ₁	 708 R=96 22932 708	25	-	24148	3X2
6	e ₁	 19860 160	10	-	19860	8X2X2
7	f ₁	 636 913 650 160	10	-	2199	16X2X2
8	g ₁	 716 R=192 22932 716	32	-	24108	5X2
9	g ₂	 716 R=192 22804 716	32	-	23980	5X2
10	g ₃	 716 R=192 22676 716	32	-	23852	5X2
11	g ₄	 2060 15060 2060	32	-	19220	2X2
12	h ₁	 450 450 493 315 485	10	-	1733	101X2
12	n ₂	 140 L 140 L = VARYING FROM 213 TO 513	10	-	583	18X2
14	n ₃	 140 213 140	10	-	433	90X2

LONGITUDINAL INNER GIRDER							
1	i_1	L1=VARYING FROM 1856 TO 1860 	L2 = VARYING FROM 1848 TO 1852 VARYING FROM 193 TO 493	16	125	5290	11X2X1
2	i_2			16	150	4890	11X2X1
3	k_1			12	150	4810	106X1
4	c_1			16	-	2693	2X2X1
5	d_1			25	-	24148	3X1
6	e_1			10	-	19860	8X2X1
7	f_1			10	-	2199	16X2X1
8	g_1			32	-	24108	5X1
9	g_2			32	-	23980	5X1
10	g_3			32	-	23852	5X1
11	i_1			10	-	1733	101X1
12	n_2		L = VARYING FROM 213 TO 513	10	-	583	18X1
13	n_3			10	-	433	90X1

A) H.Y.S.D. BARS						
S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a3		16	-	5248	3X2
2	b2		16	-	4750	2X2
3	c2		16	-	4490	2X2
4	e2		16	-	5029	3X2
5	f2		16	-	4983	1X2
6	g7		12	-	5003	2X2
7	h3		12	-	4865	2X2
8	i2		12	-	4519	6X2X2
9	j3		12	100	3402	26X2
10	t1		10	-	416	20X2

MIDDLE CROSS GIRDERS						
1	k2		20	-	5222	3
2	l1		20	-	4800	2
3	m1		20	-	4310	2
4	n4		25	-	4570	3
5	p1		25	-	4454	3
6	q1		25	-	4336	2
7	r1		12	-	4911	10X2
8	s1		12	145	3202	22
9	t1		10	-	416	16

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
19	u1		10	-	1453	16
20	v1		10	-	1510	16

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 21.720 WITH THREE BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-14

12 of 12

Drawn by:-

Checked by:-

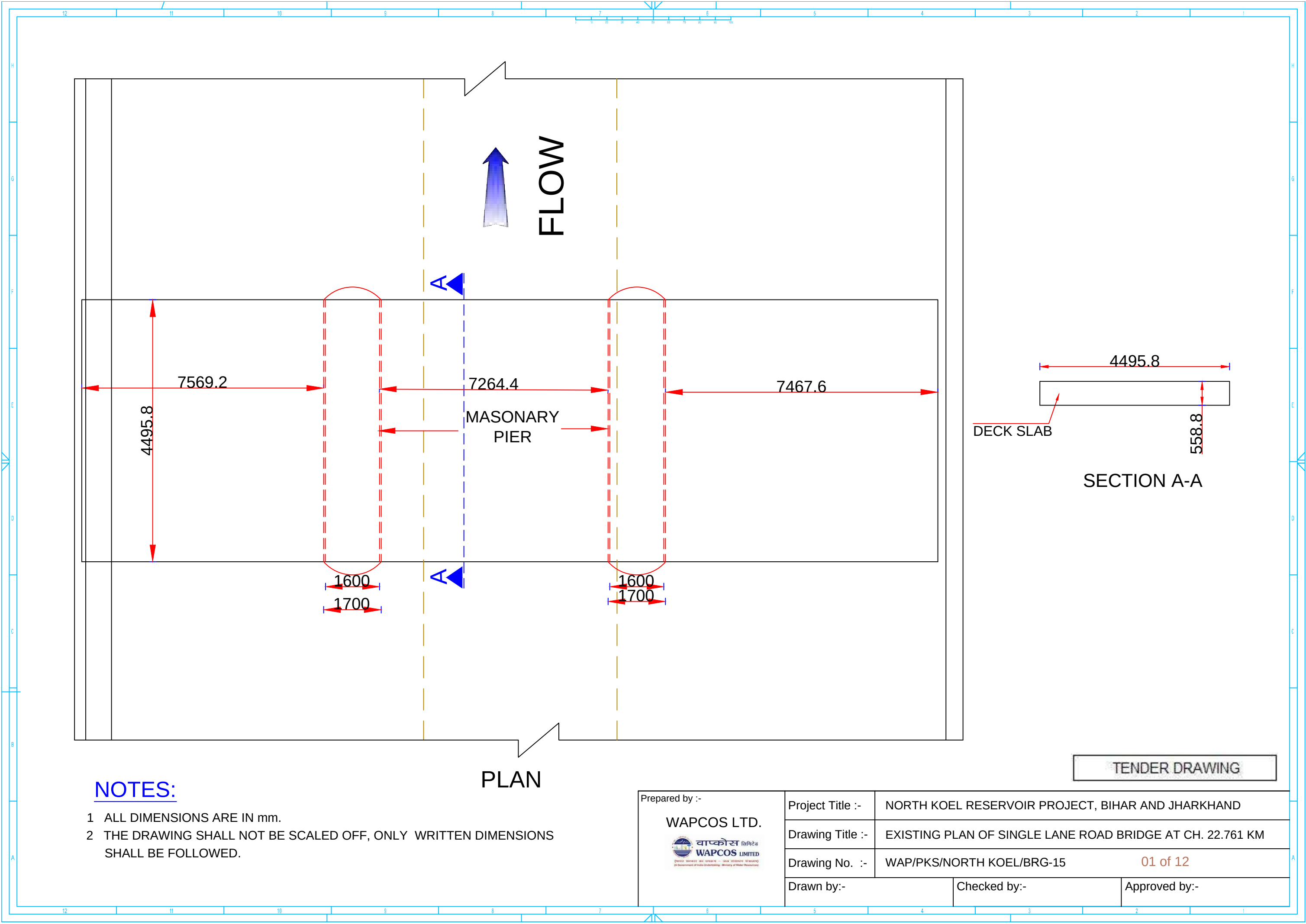
Approved by:-



S.L.R. BRIDGE

AT

CH. 22.761 KM



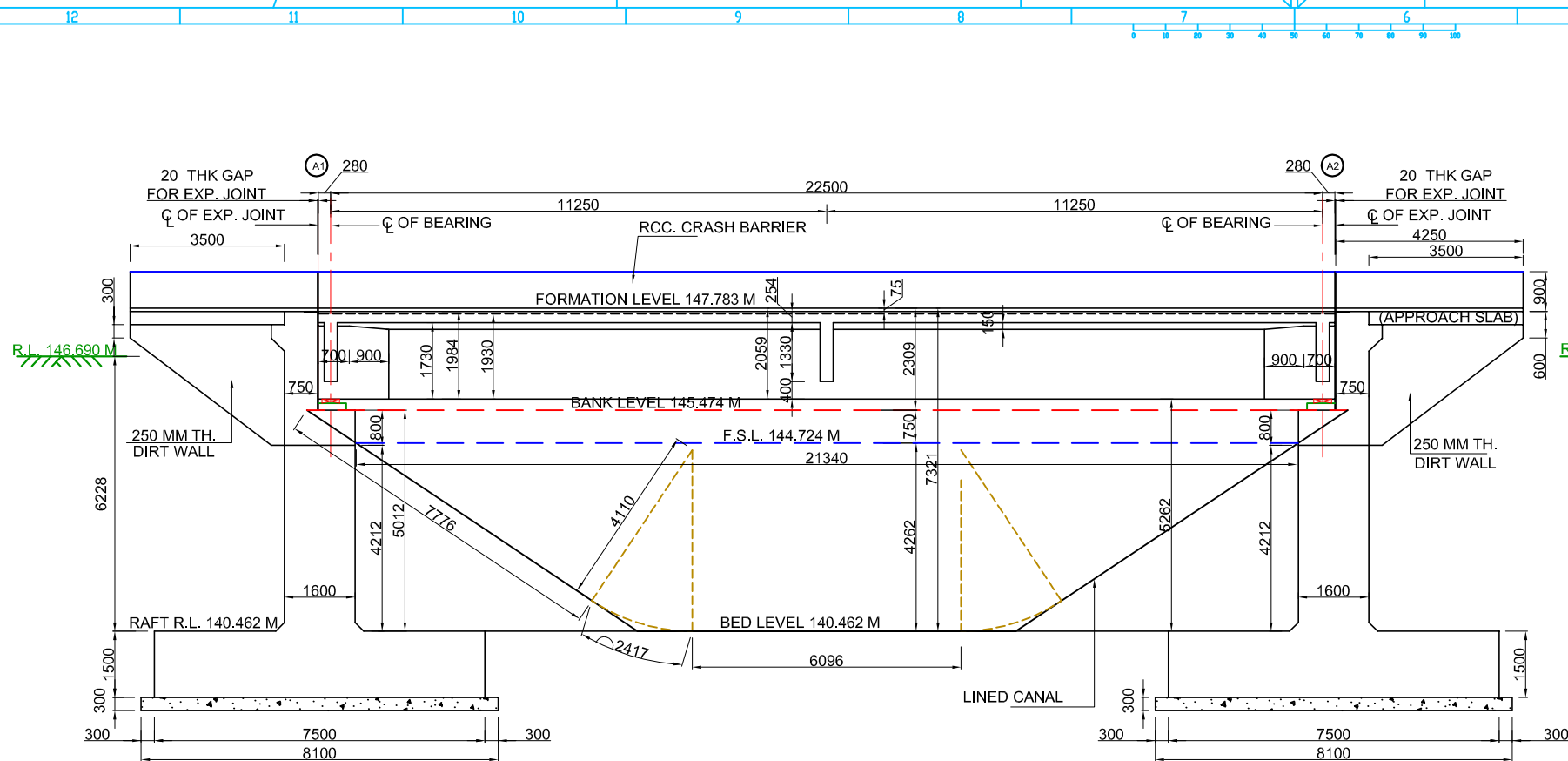
PLAN

TENDER DRAWING

NOTES:

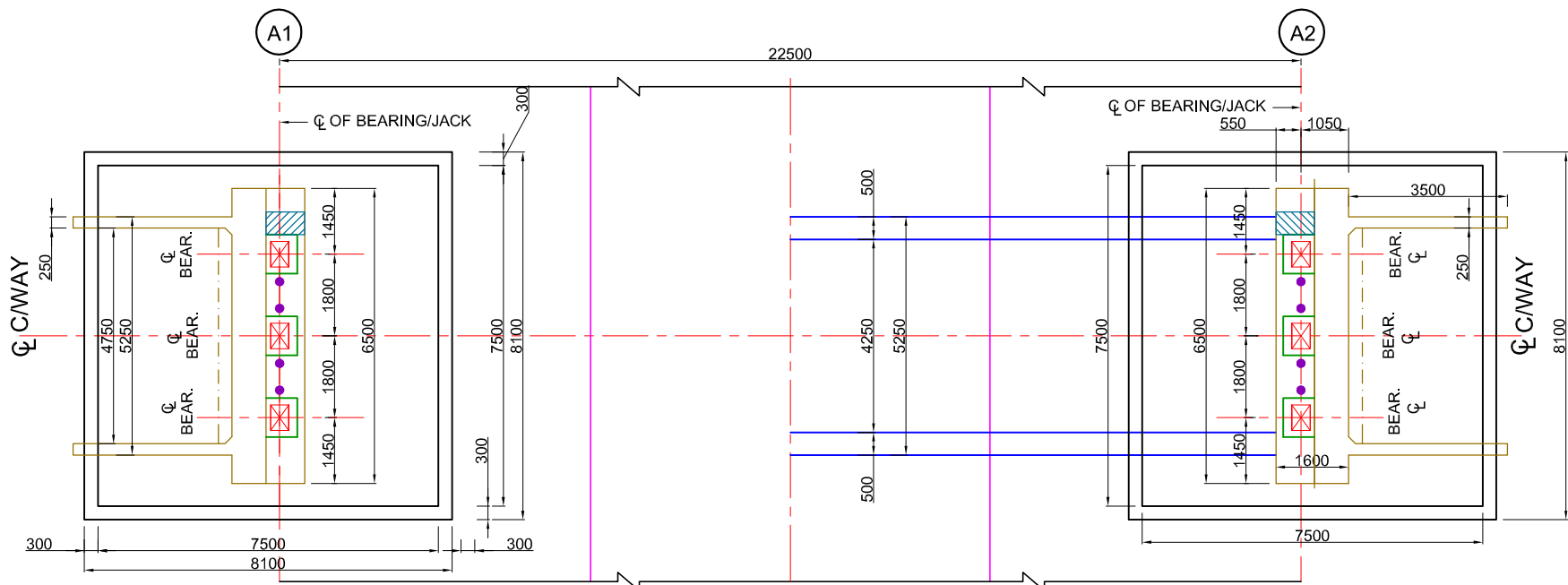
- 1 ALL DIMENSIONS ARE IN mm.
- 2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

Prepared by :- WAPCOS LTD.  वाप्कोस लिमिटेड WAPCOS LIMITED (A Government of India Undertaking, Ministry of Water Resources)	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	EXISTING PLAN OF SINGLE LANE ROAD BRIDGE AT CH. 22.761 KM		
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-15	01 of 12	
	Drawn by:-	Checked by:-	Approved by:-	



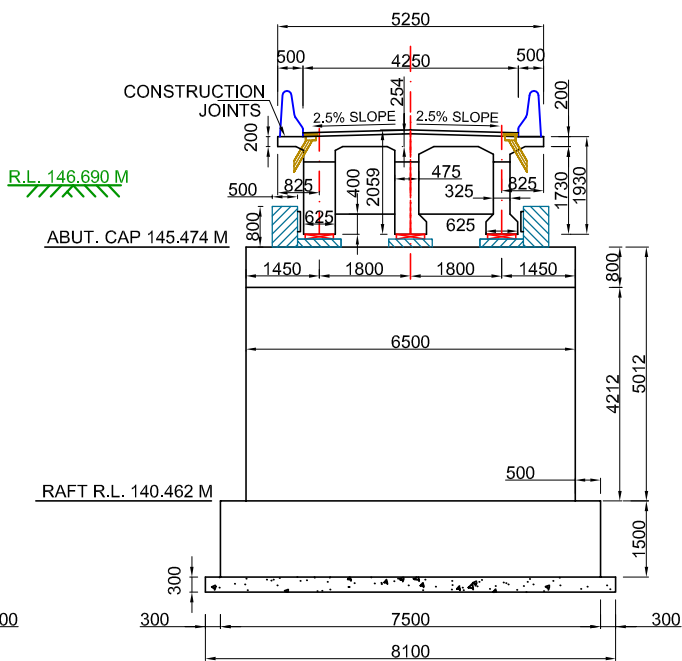
SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)

NOTES:

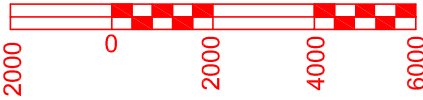
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
- DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
- ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	80.900 CUMEC
BED LEVEL	140.462 M
WATER DEPTH	4.262 M
F.S.L.	144.724 M
FREE BOARD	0.75 M
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a) RAFT	M35
b) ABUTMENT	M25
c) SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d) CRASH BARRIER	M30
e) PEDESTAL (SEISMIC)	M35
f) WEARING COAT	M30
- TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0°
ROAD LEVEL	147.783 M
EX. ROAD LEVEL	146.690 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M
- SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 22.761 WITH THREE BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-15

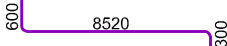
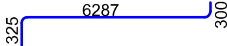
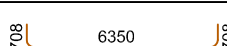
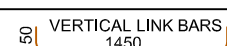
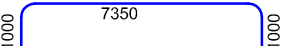
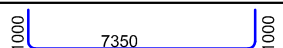
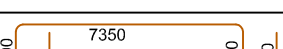
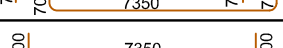
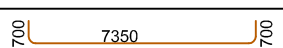
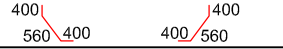
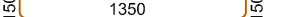
03 of 12

Drawn by:-

Checked by:-

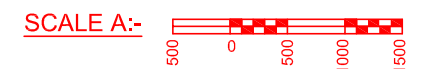
Approved by:-



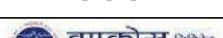
	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH GAP	1	g1		32	150	42X2
	2	g2		25	150	42X2
	3	g3		16	150	32X2X2
	4	g4		16	300	9X11X2
IN RAFT FOR ABUTMENT	5	a1		25	200	37X2
	6	a2		25	200	37X2
	7	a3		16	150	49X2X2
	8	a4		16	-	6X2X2
	9	a5		16	-	6X2X2
	10	a6		10	125	59X2X2
	11	c1		16	300	13X13X2

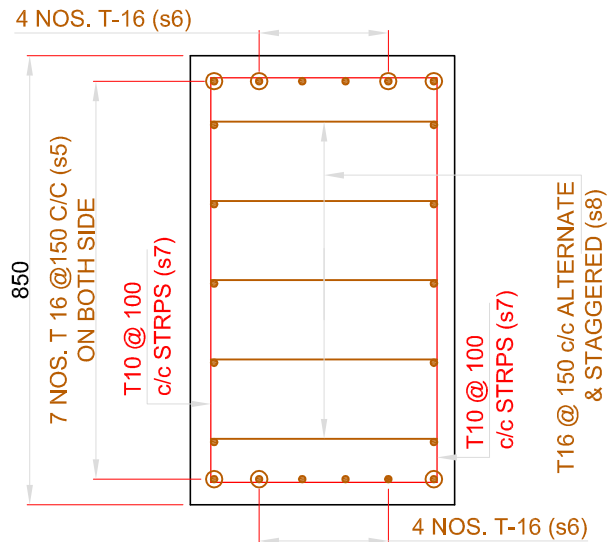
- 1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- 2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- 4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- 5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- 6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - a) RAFT M35
 - b) SUBSTRUCTURE M25
 - c) PEDESTAL M35
- 7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- 8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- 9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- 10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCET.

- 11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- 12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- 13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- 14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- 15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- 16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

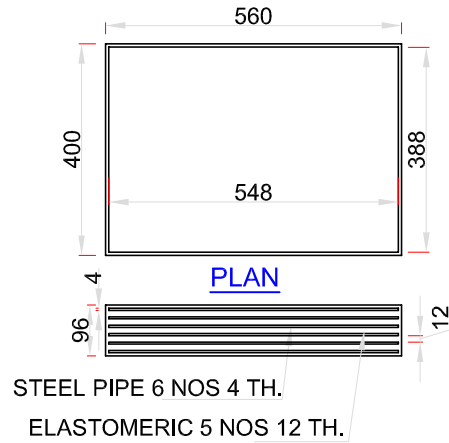


TENDER DRAWING

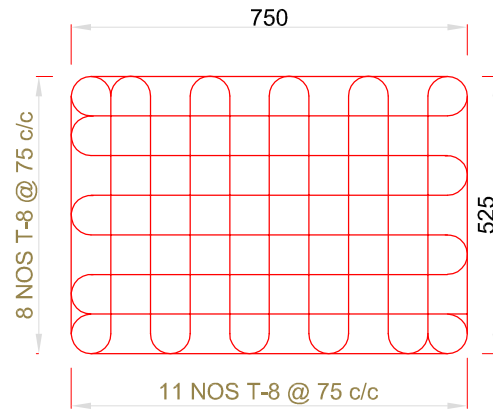
Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 22.761 WITH THREE BEAMS		
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-15 05 of 12		
	Drawn by:-	Checked by:-	Approved by:-	



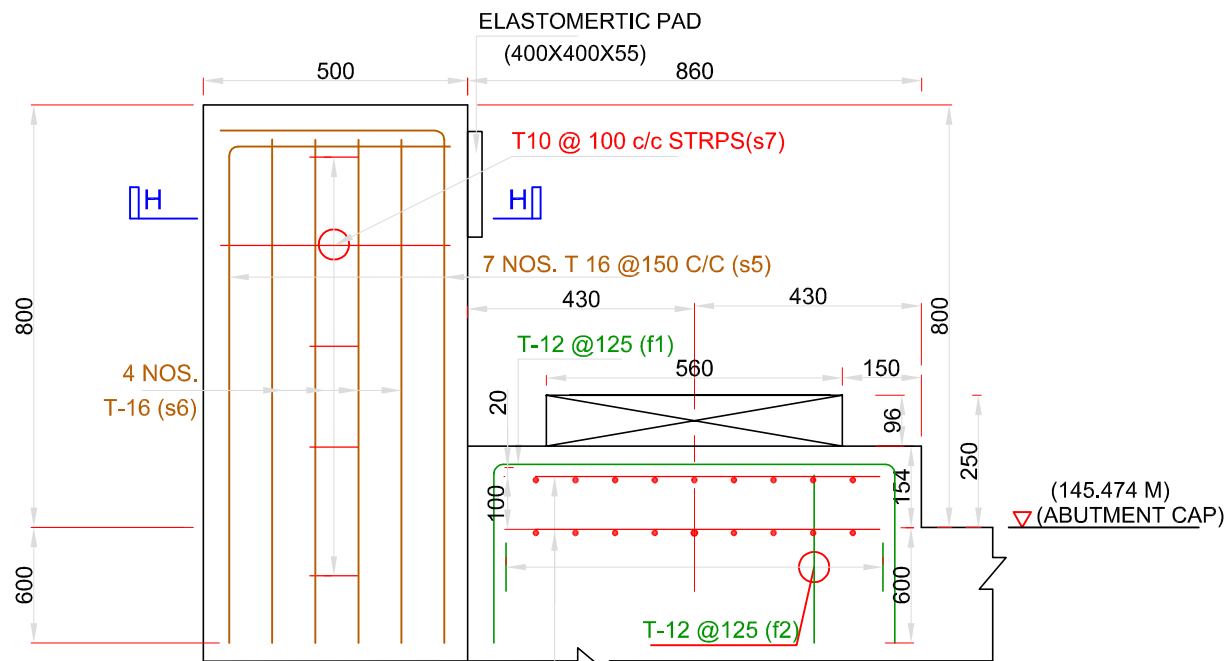
SECTION H-H
SCALE A



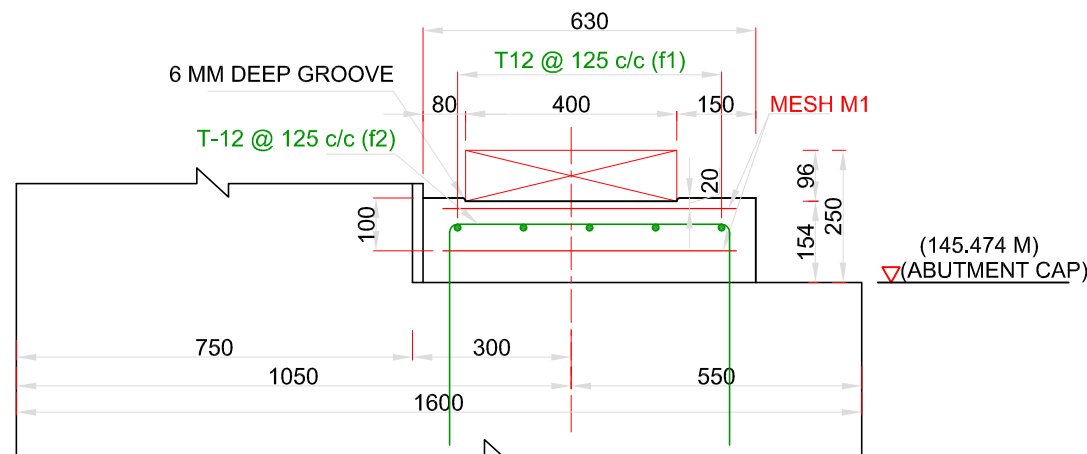
DETAILS OF
ELASTOMERIC BEARINGS
SCALE A



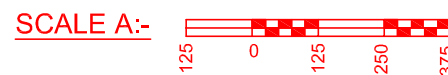
DETAIL OF MESH M1
(MESH BELOW BEARING LOCATION)
SCALE A



2 LAYERS OF
MESH TYPE-1
DETAIL 'Y'
SCALE A



DETAIL 'X'
SCALE A



BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5		16	150	14X2X2
	2	s6		16	-	8X2X2
	3	s7		10	100	5X2X2
	4	s8		16	150	5X2X2
PEDESTAL FOR ABUTMENT	5	f1		12	125	5X3X3
	6	f2		12	125	5X3X3

NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - RAFT M35
 - SUBSTRUCTURE M25
 - PEDESTAL M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

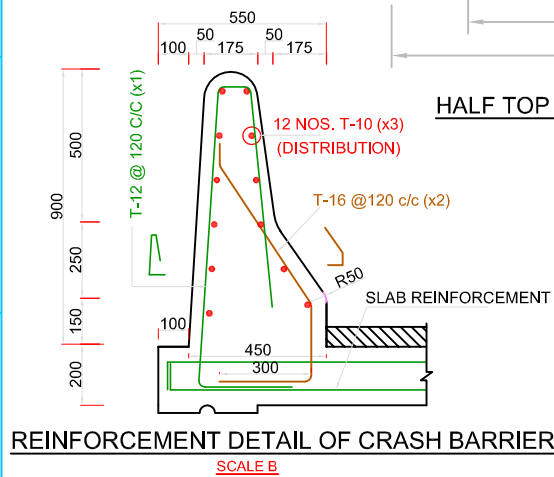
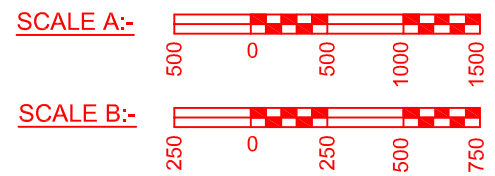
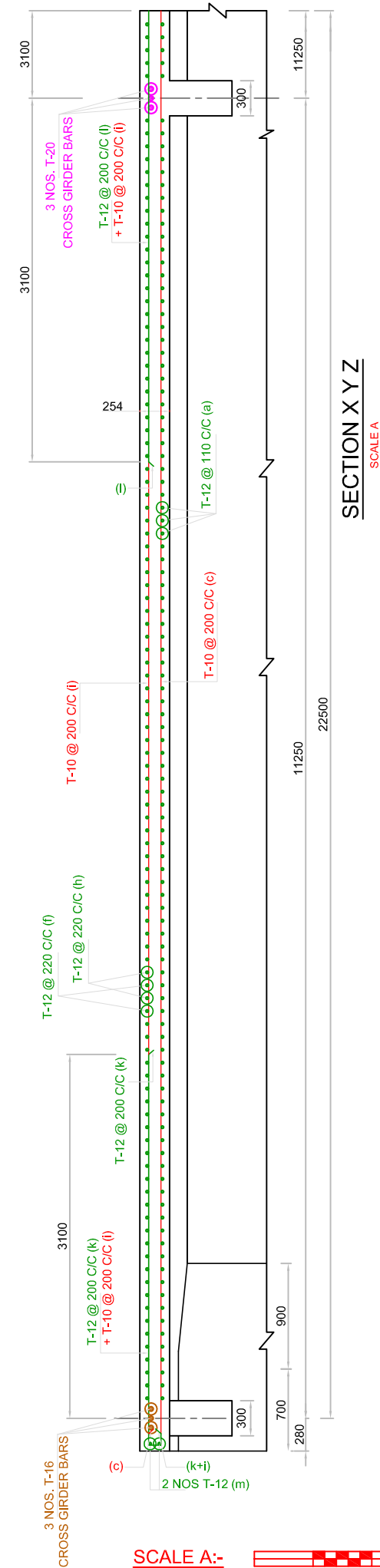
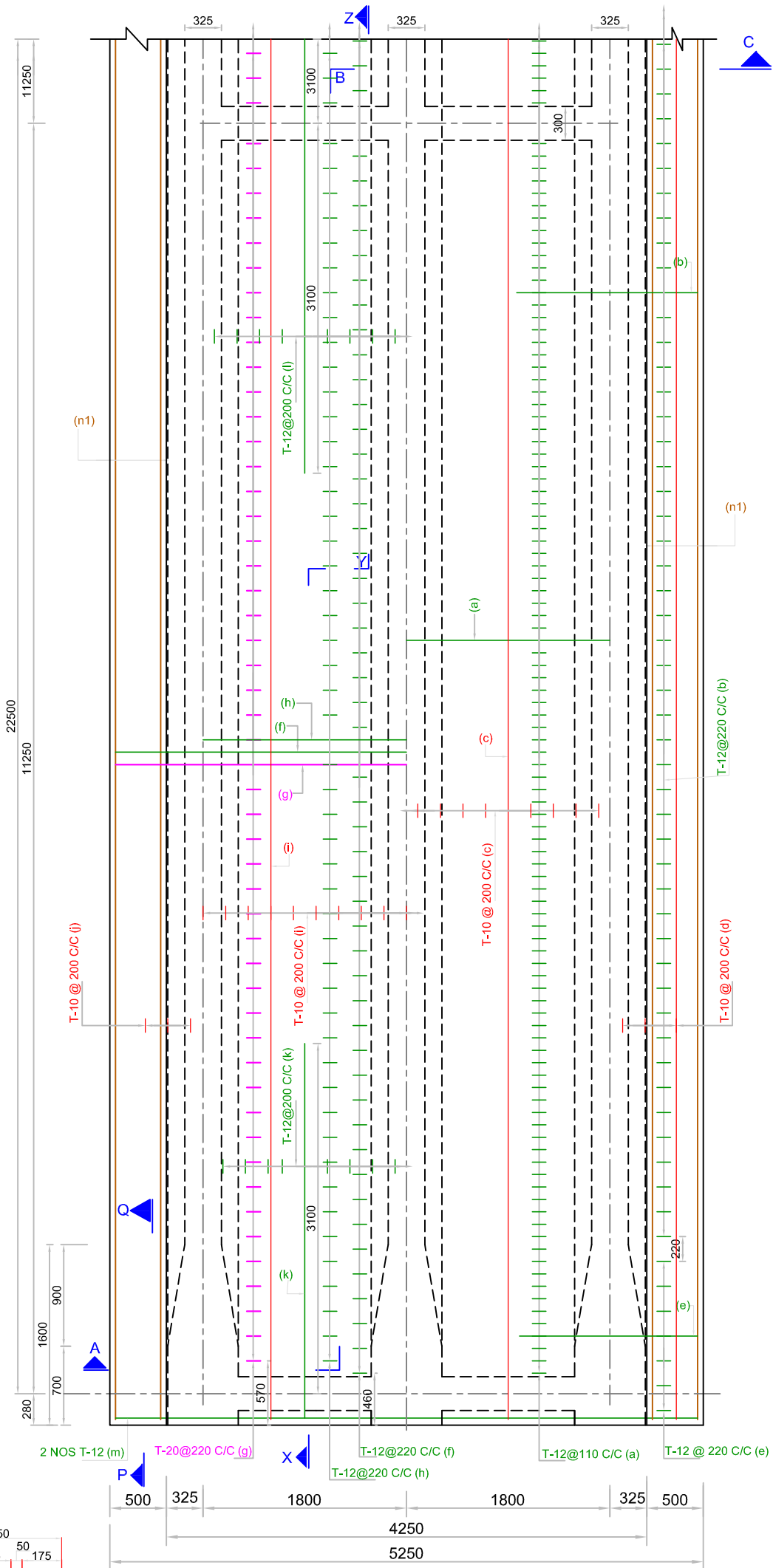
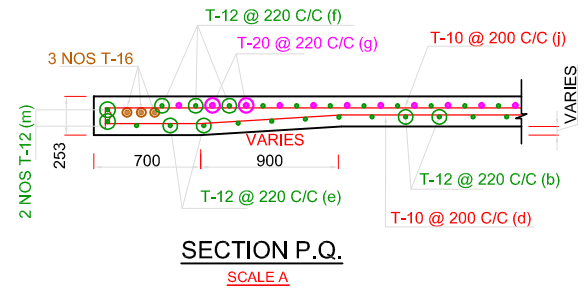
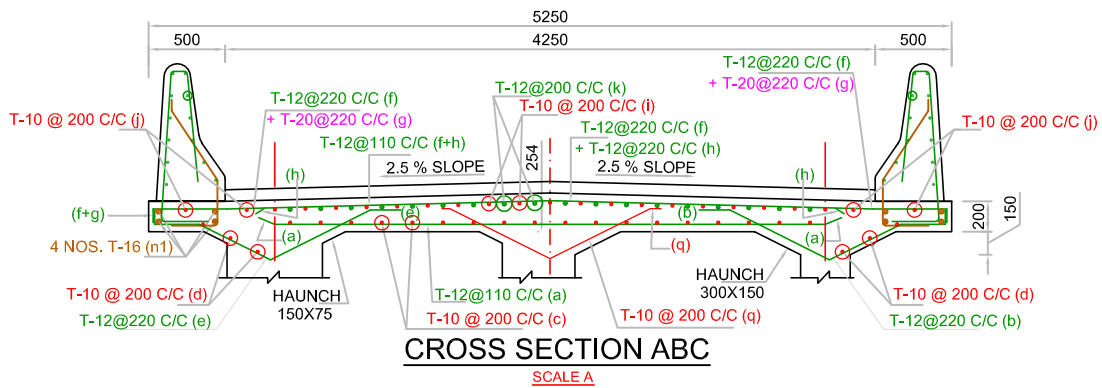
TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 22.761 WITH THREE BEAMS		
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-15	06 of 12	
Drawn by:-	Checked by:-	Approved by:-	



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 22.761 WITH THREE BEAMS

Drawing No. :-

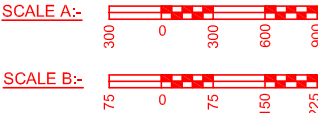
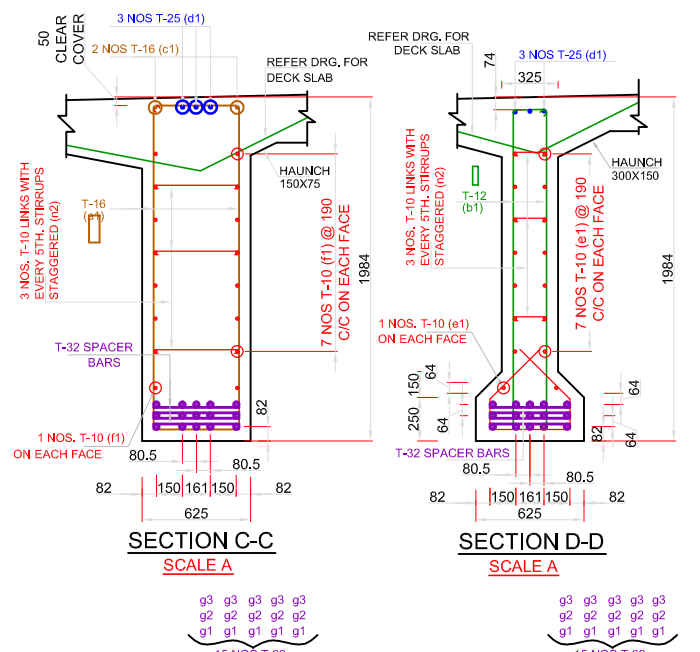
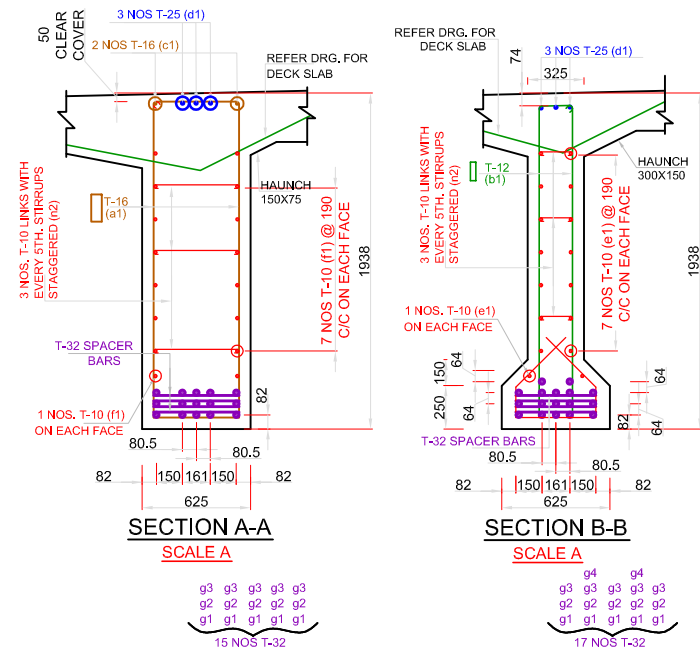
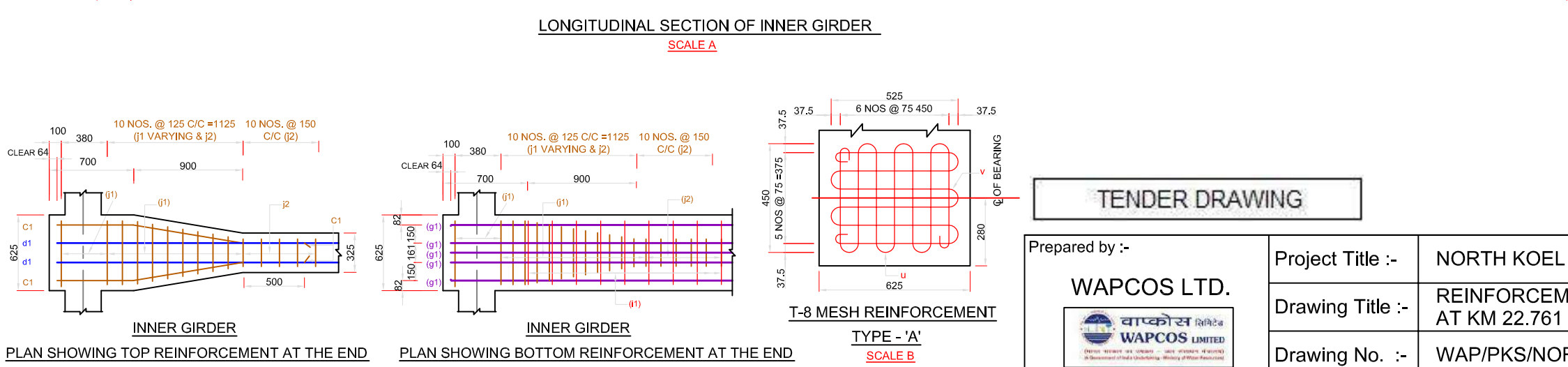
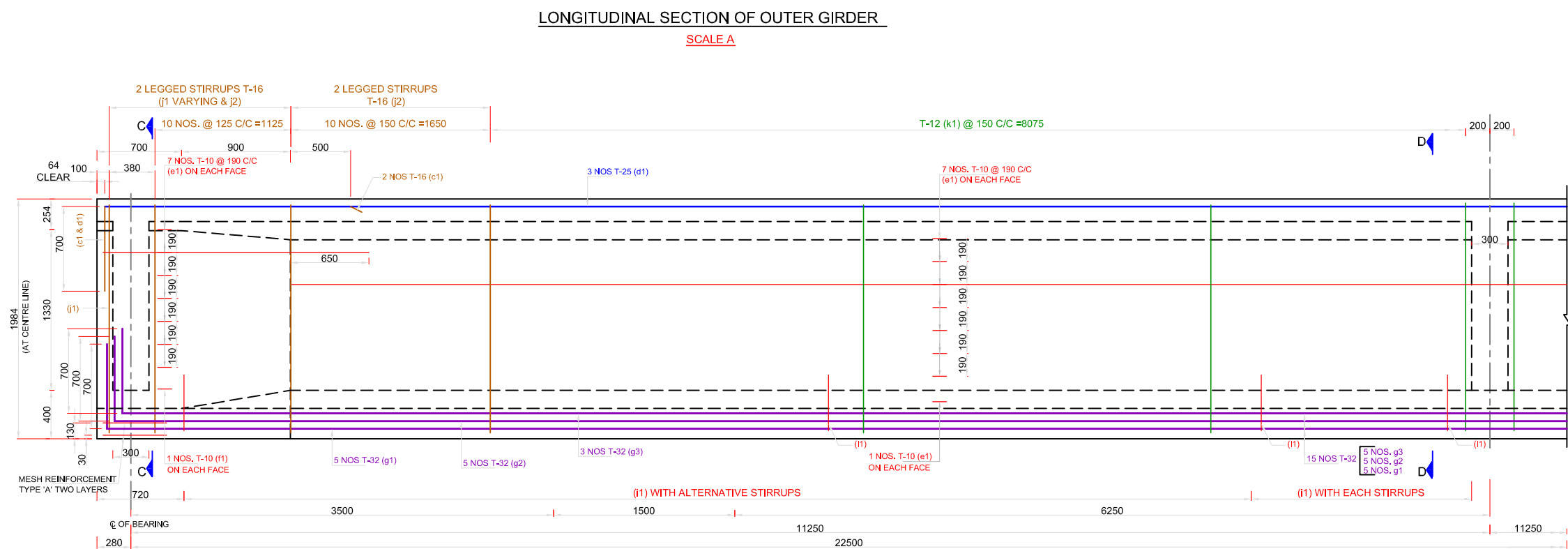
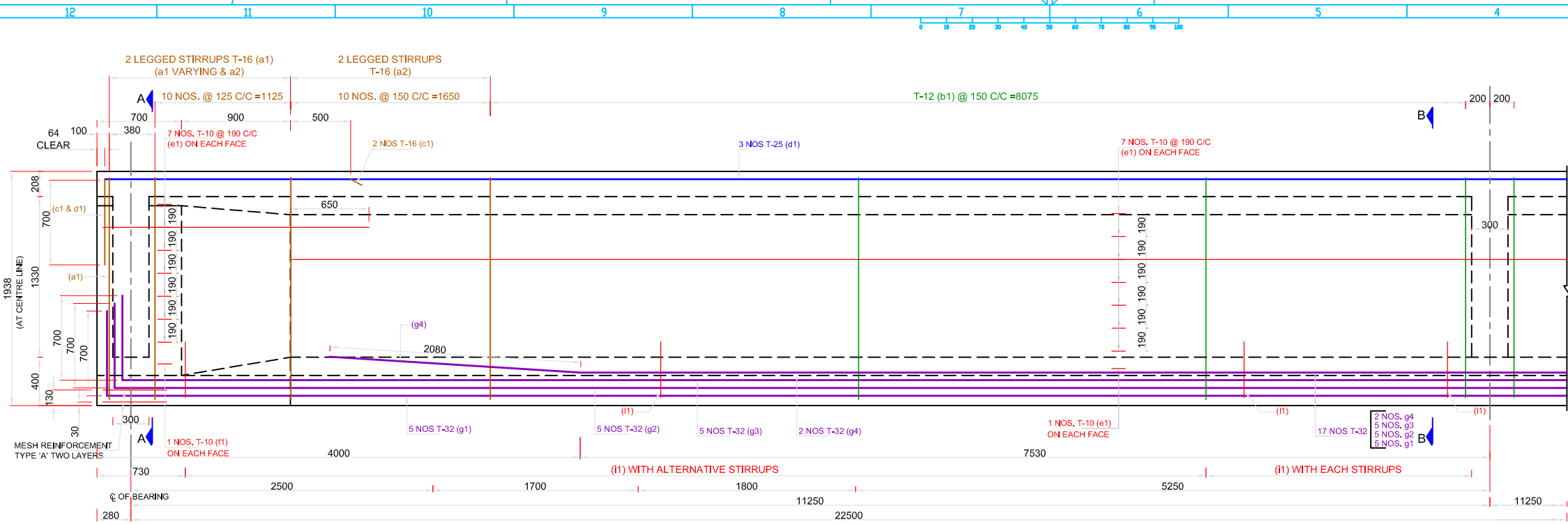
WAP/PKS/NORTH KOEL/RMC/BRG-15

09 of 12

Drawn by:-

Checked by:-

Approved by:-



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 22.761 WITH THREE BEAMS		
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-15		10 of 12
Drawn by:-	Checked by:-	Approved by:-	



- Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a		12	110	3600	200
2	b		12	220	1927	182
3	c		10	200	23460	19
4	d		10	200	23460	6
5	e		12	220	1927	32
6	f		12	220	5304	100
7	g		20	220	5182	100
8	h		12	220	3732	100
9	i		10	200	23460	19
10	j		10	200	23388	6
11	k		12	200	3588	36
12	l		12	200	6200	18
13	m		12	-	5150	4
14	n1		16	-	22960	8
15	q		10	200	2110	116

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
--------	--------------	---	------------------	---------	-------------------------	-------------

B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)

1	u		10	-	3550	8
2	v		10	-	3506	8

CRASH BARRIER PER M

1	x1		12	120	2125	9
2	x2		16	120	1165	9
3	x3		10	-	1000	12

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a1		16	125	5158	11X2X2
2	a2		16	150	4758	11X2X2
3	b1		12	150	4678	106X2
4	c1		16	-	2693	2X2X2
5	d1		25	-	24148	3X2
6	e1		10	-	19860	8X2X2
7	f1		10	-	2199	16X2X2
8	g1		32	-	24108	5X2
9	g2		32	-	23980	5X2
10	g3		32	-	23852	5X2
11	g4		32	-	19220	2X2
12	h1		10	-	1733	101X2
12	n2		10	-	583	18X2
14	n3		10	-	433	90X2

LONGITUDINAL INNER GIRDER

1	i1		16	125	5290	11X2X1
2	i2		16	150	4890	11X2X1
3	k1		12	150	4810	106X1
4	c1		16	-	2693	2X2X1
5	d1		25	-	24148	3X1
6	e1		10	-	19860	8X2X1
7	f1		10	-	2199	16X2X1
8	g1		32	-	24108	5X1
9	g2		32	-	23980	5X1
10	g3		32	-	23852	5X1
11	i1		10	-	1733	101X1
12	n2		10	-	583	18X1
13	n3		10	-	433	90X1

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a3		16	-	5248	3X2
2	b2		16	-	4750	2X2
3	c2		16	-	4490	2X2
4	e2		16	-	5029	3X2
5	f2		16	-	4983	1X2
6	g7		12	-	5003	2X2
7	h3		12	-	4865	2X2
8	i2		12	-	4519	6X2X2
9	j3		12	100	3402	26X2
10	t1		10	-	416	20X2

MIDDLE CROSS GIRDERS

1	k2		20	-	5222	3
2	l1		20	-	4800	2
3	m1		20	-	4310	2
4	n4		25	-	4570	3
5	p1		25	-	4454	3
6	q1		25	-	4336	2
7	r1		12	-	4911	10X2
8	s1		12	145	3202	22
9	t1		10	-	416	16

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
--------	--------------	---	------------------	---------	-------------------------	-------------

B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)

19	u1		10	-	1453	16
20	v1		10	-	1510	16

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 22.761 WITH THREE BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-15

12 of 12

Drawn by:-

Checked by:-

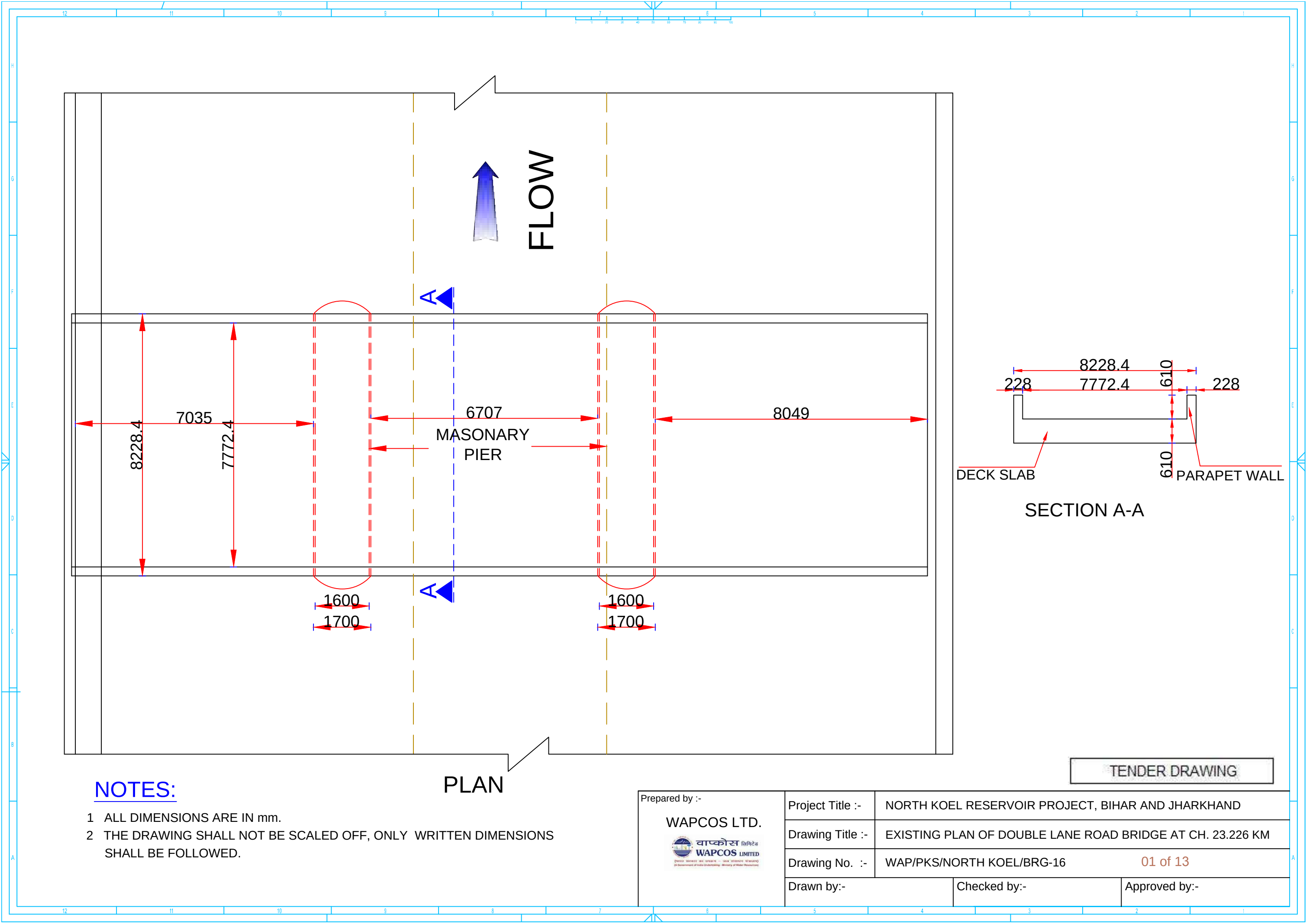
Approved by:-

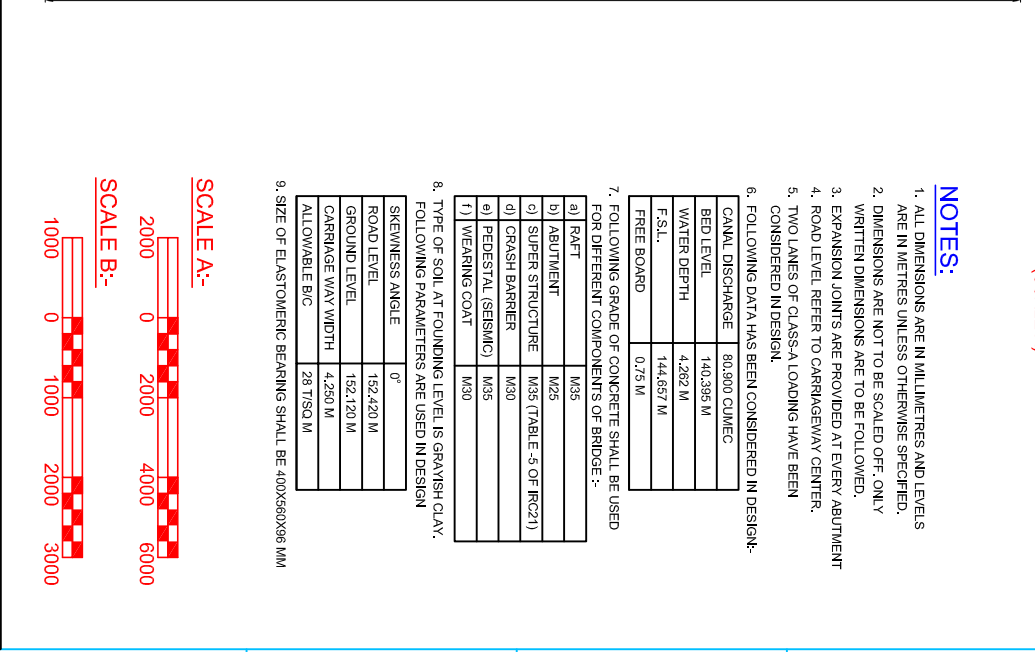
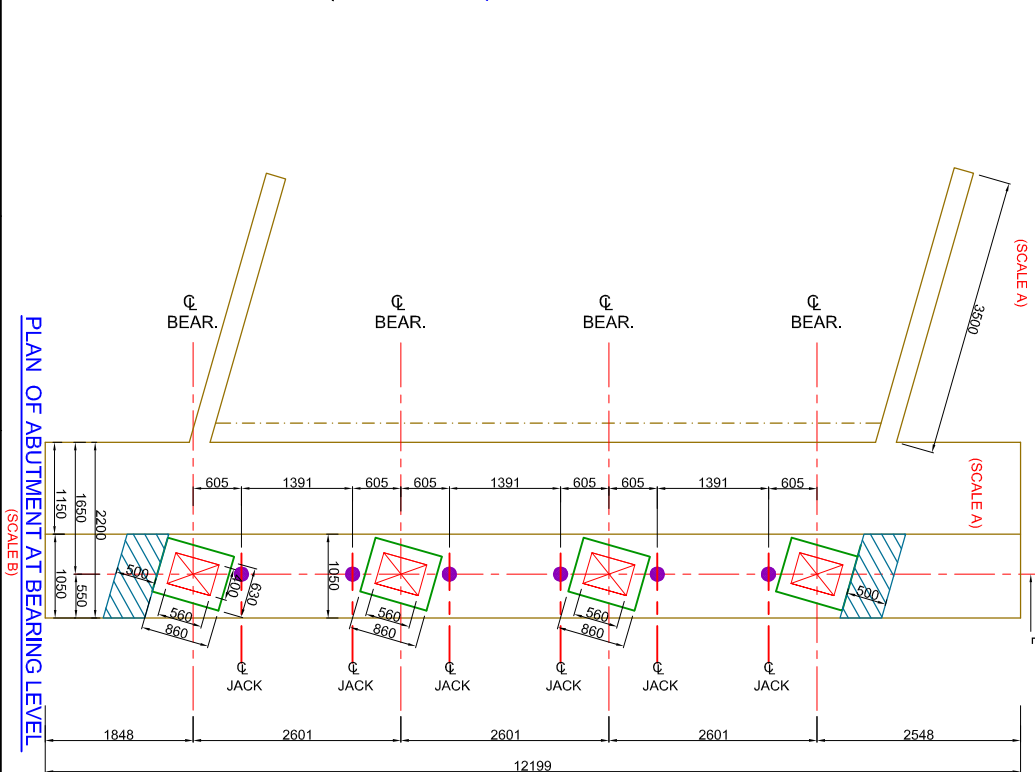
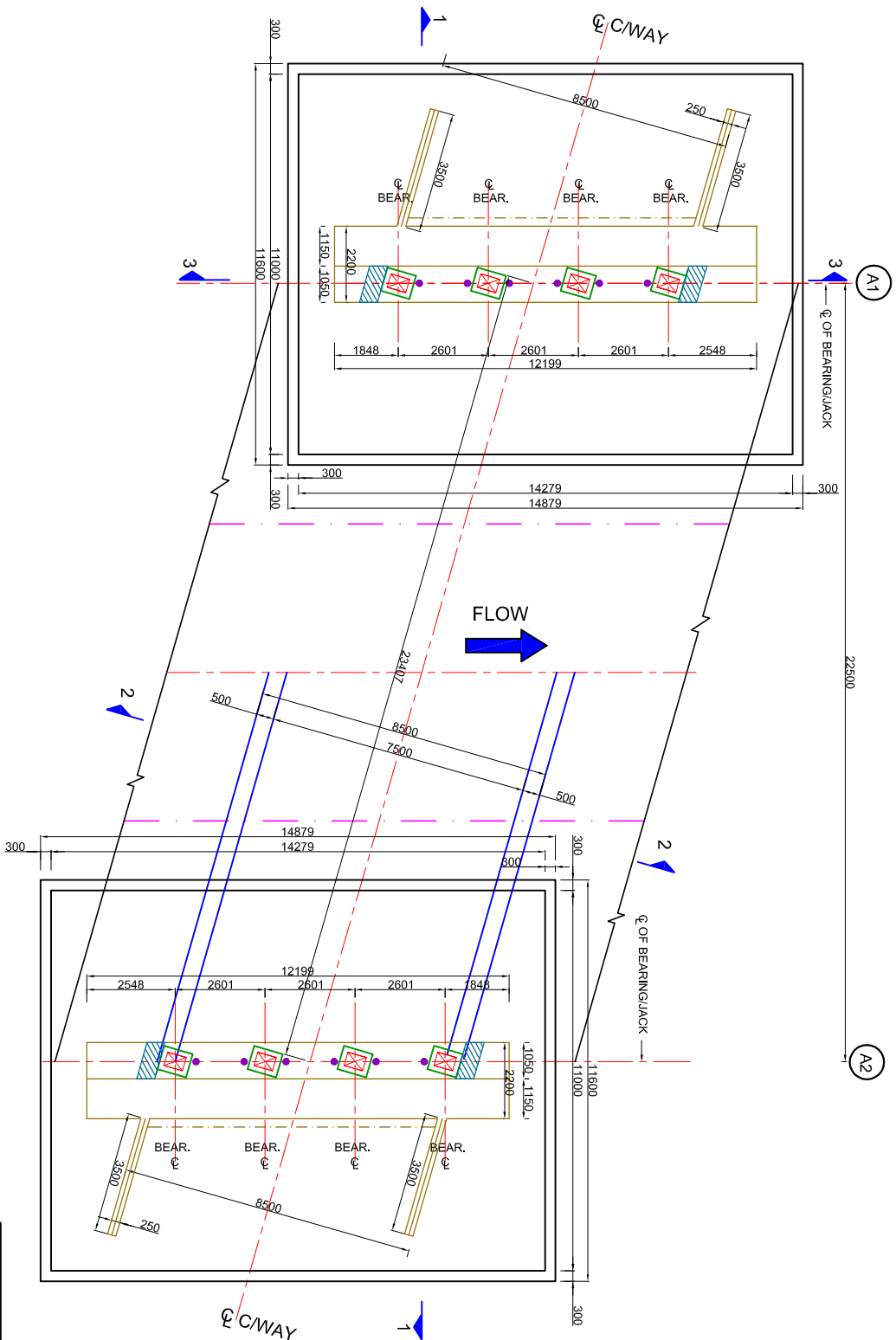
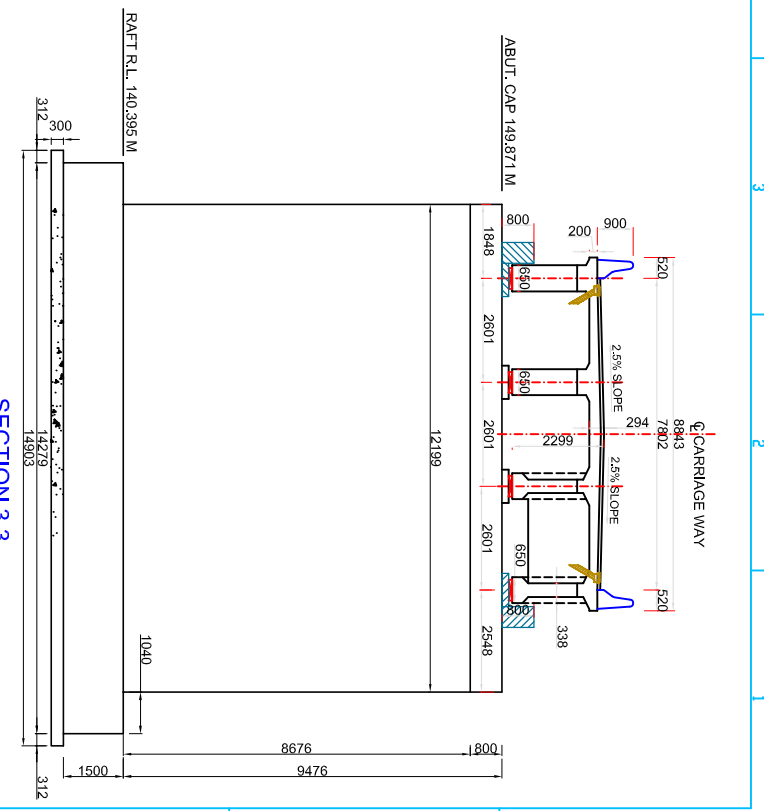
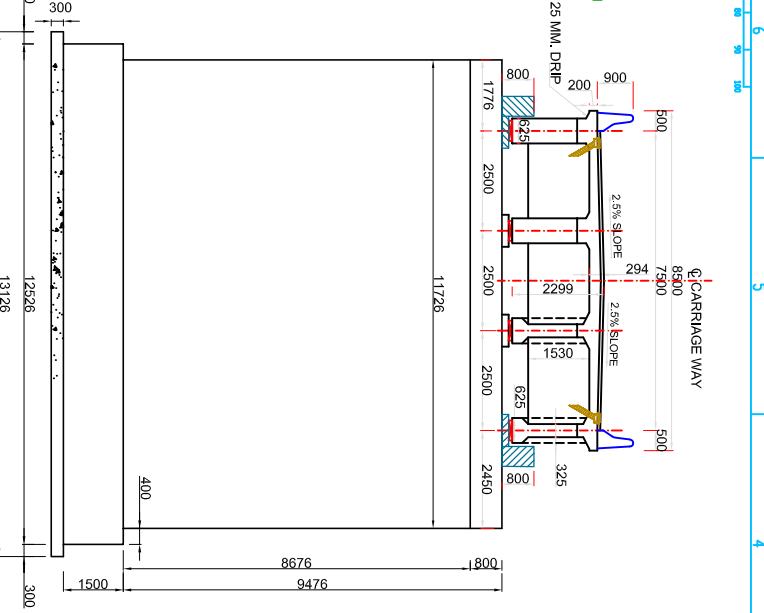
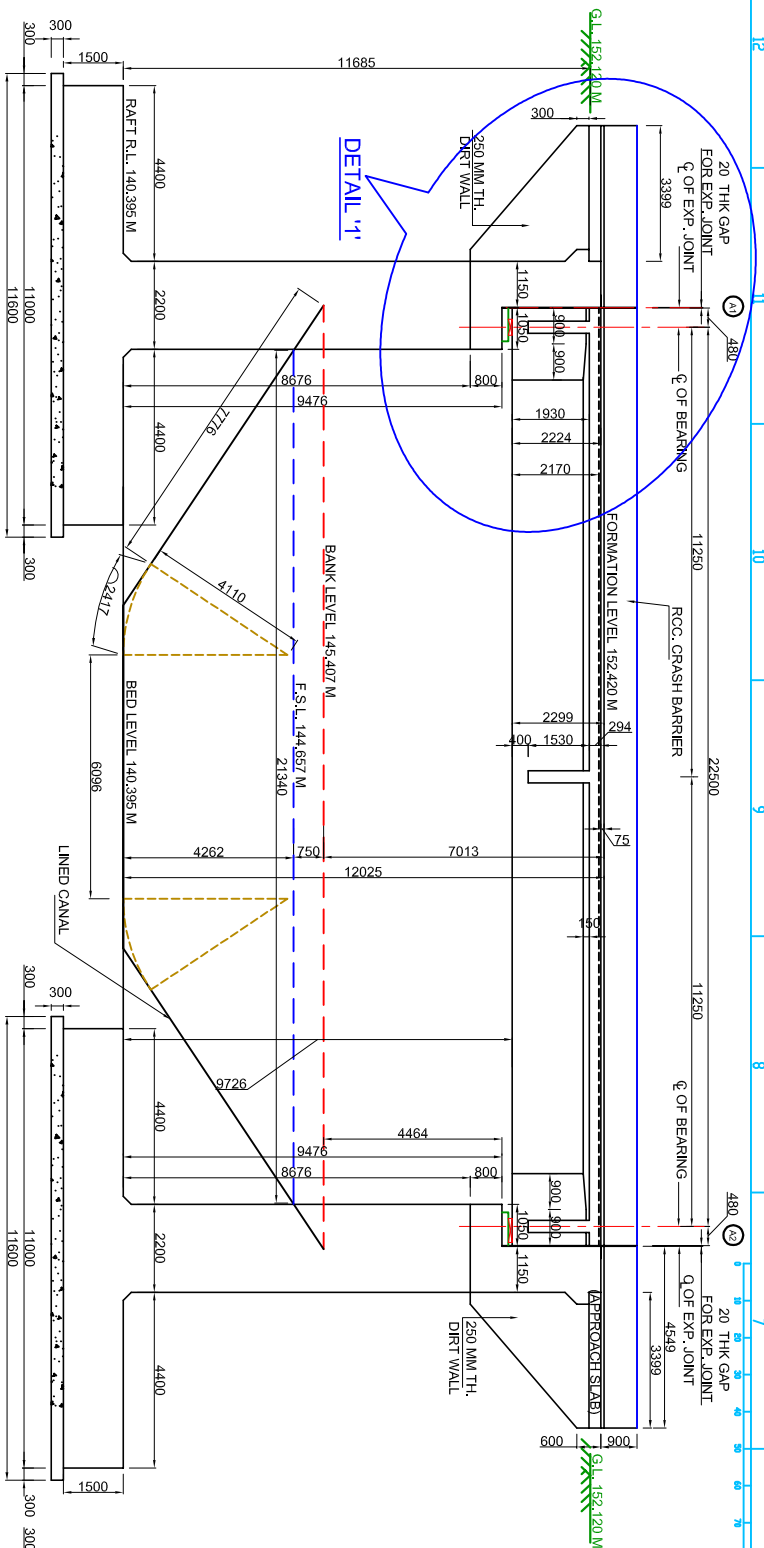


D.L.R. BRIDGE

AT

CH. 23.226 KM





NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF, ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. TWO LANES OF CLASS-A LOADING HAVE BEEN CONSIDERED IN DESIGN.

7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-	
a) RAFT	M35
b) ABUTMENT	M25
c) SUPER STRUCTURE	M25 (TABLE 5-5 OF IRC21)
d) CRASH BARRIER	M30
e) PEDESTAL (SEISMIC)	M35
f) WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY.

FOLLOWING PARAMETERS ARE USED IN DESIGN	
SKENNESS ANGLE	0°
ROAD LEVEL	152.420 M
GROUND LEVEL	152.120 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE BVC	28 T/SD M

9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-



SCALE B:-



HALF BOTTOM PLAN / HALF TOP PLAN (SCALE A)

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

GENERAL ARRANGEMENT DRAWING OF DLR SKEW BRIDGE AT KM 23.226 WITH FOUR BEAMS

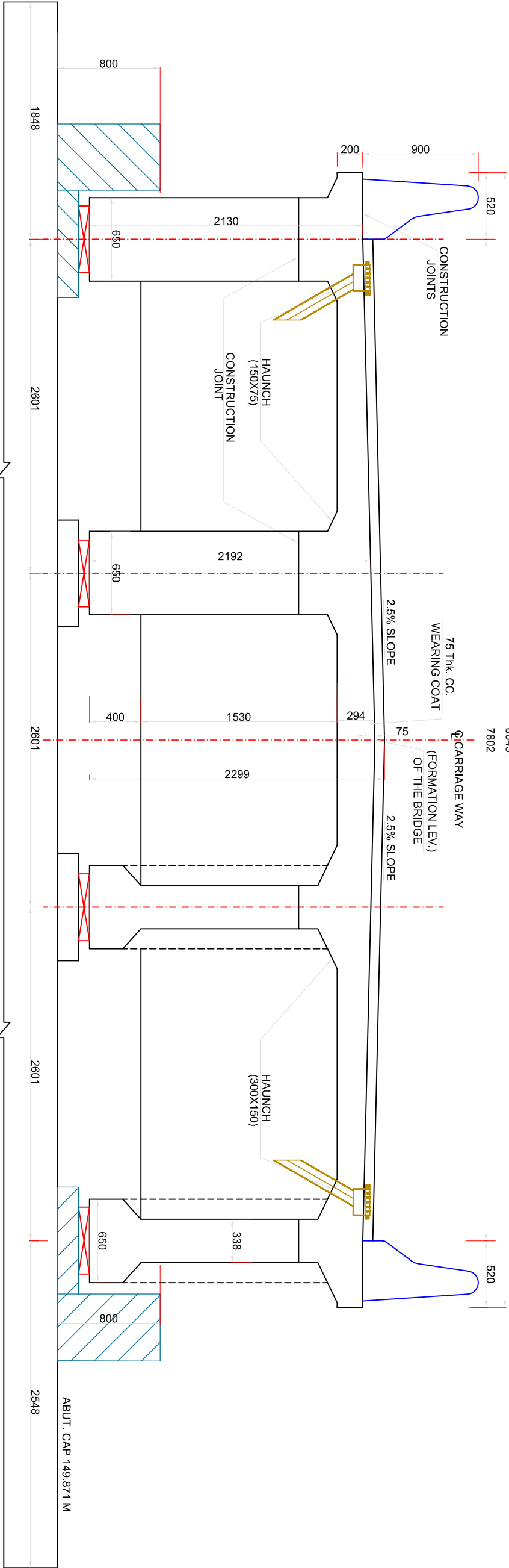
Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-16

Drawn by:-

Checked by:-

Approved by:-



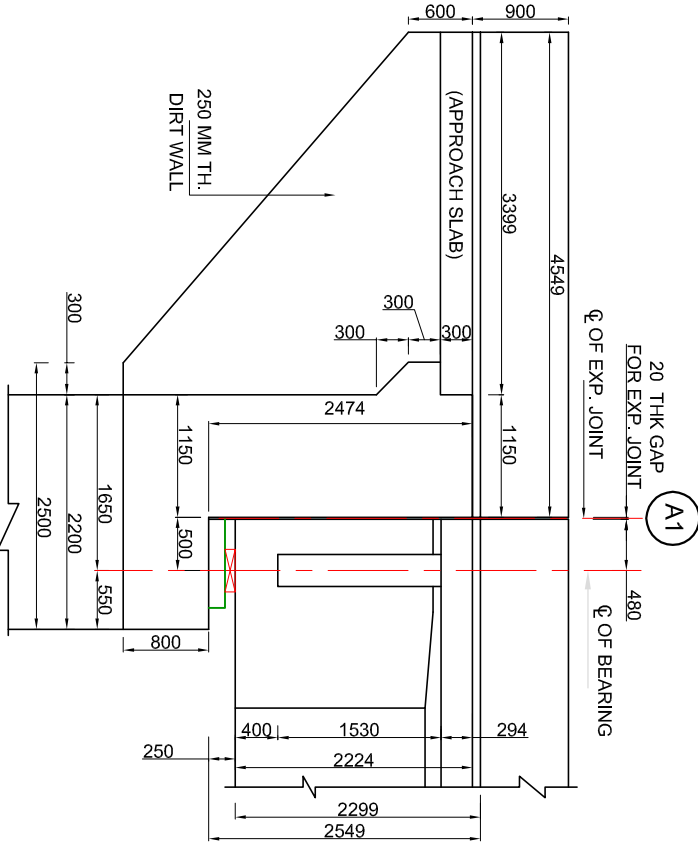
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T-BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCRETE FOR T-BEAM AND SLAB SHALL BE M-35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D F650 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN-AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS: 456- 2000.

SECTION 3-3

ALONG THE CANAL AT C/L OF BEARING

(SCALE C)



DETAIL - 'D1'

(SCALE B)

SCALE B:-



SCALE C:-



Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

SECTION DETAILS OF G.A.D. OF DLR SKEW BRIDGE AT KM 23.226 WITH FOUR BEAMS

Drawing No. :-

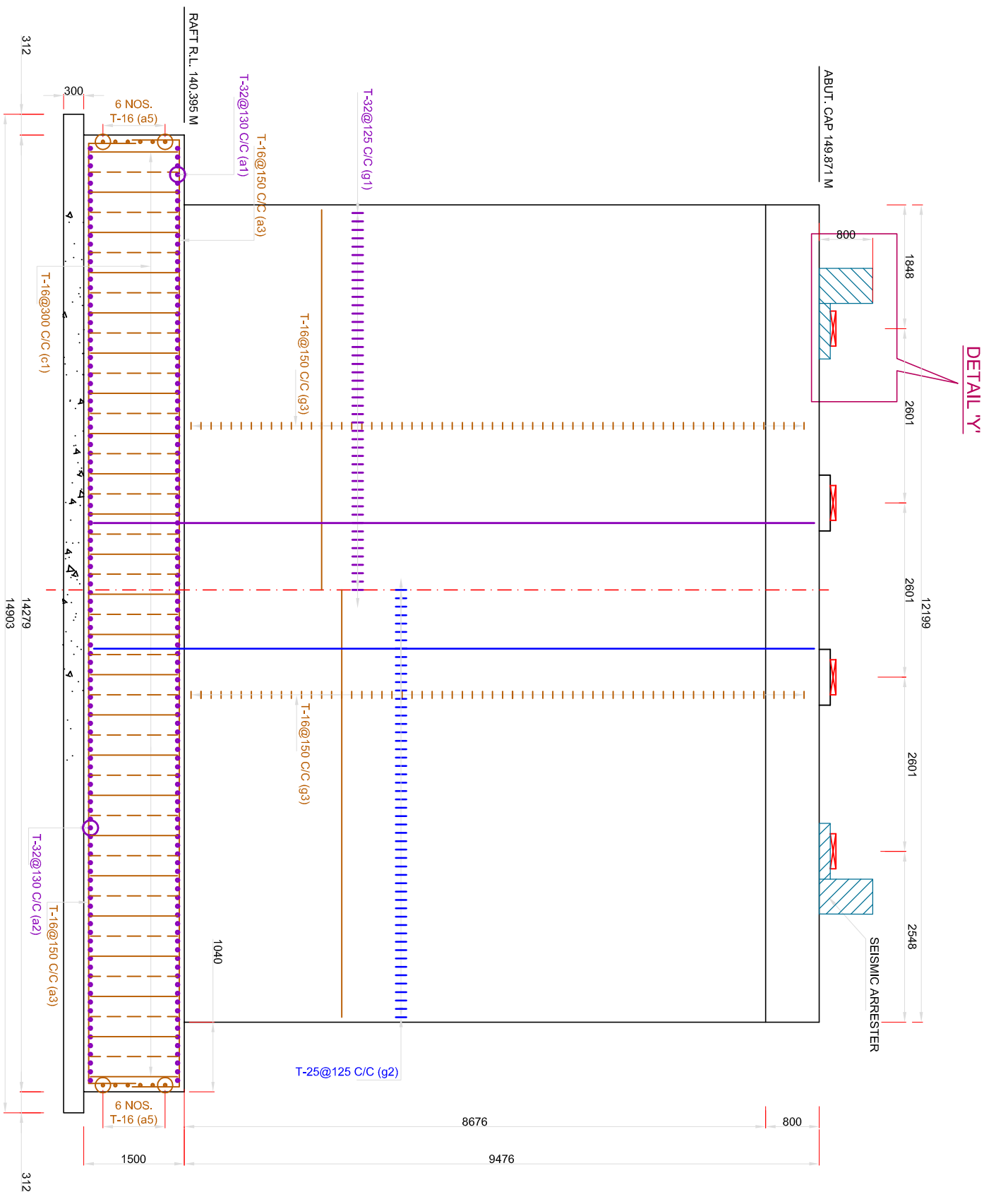
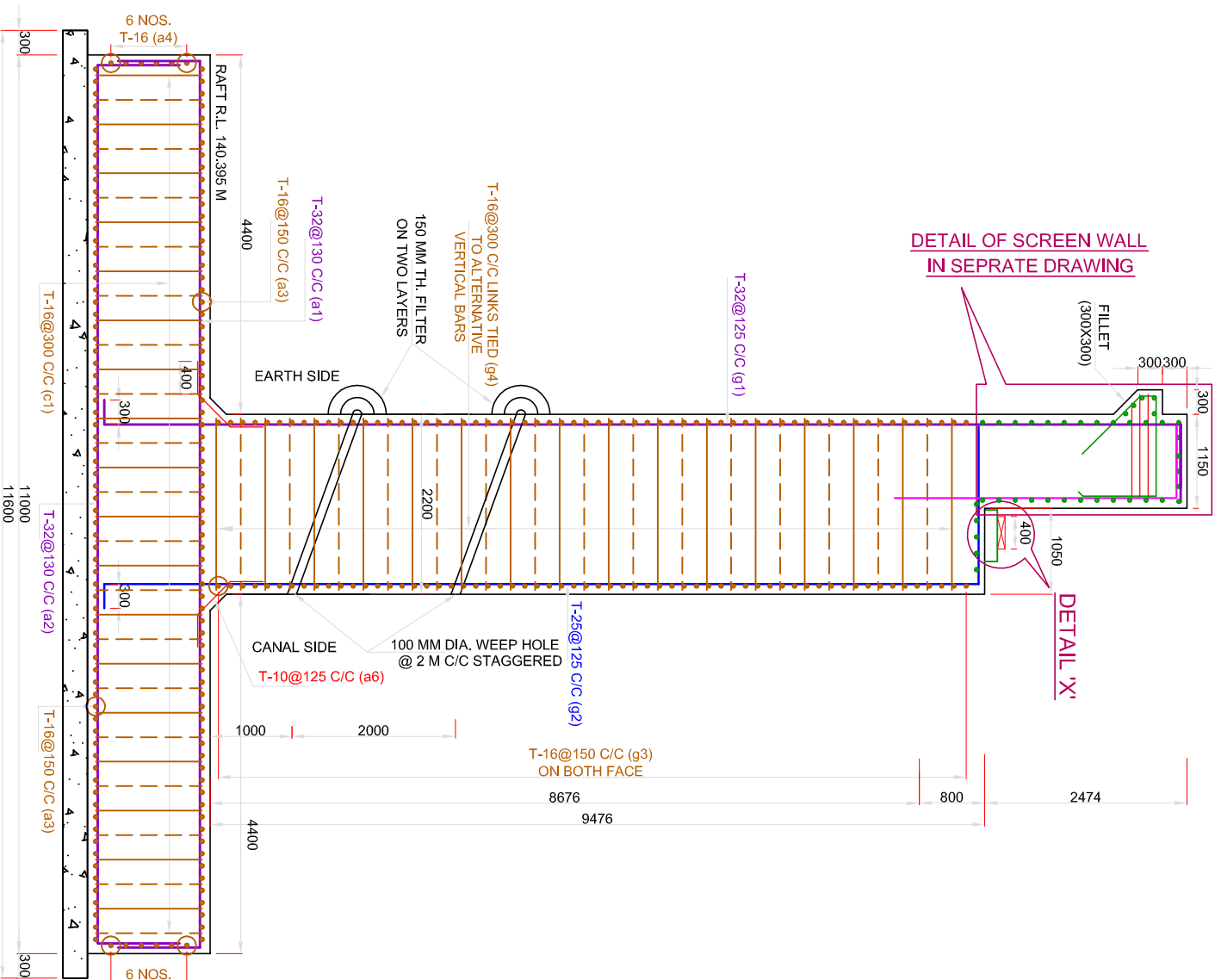
WAP/PKS/NORTH KOEL/RMC/BRG-16

Drawn by:-

Checked by:-

Approved by:-

04 of 13



SIDE VIEW OF ABUTMENT

SCALE A

NOTES

- 1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- 2 THE DRAWING SHALL NOT BE SCALED OFF. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 3 EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT LOCATIONS.
- 4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- 5 TWO LANES OF CLASS-A LOADING HAVE BEEN CONSIDERED IN DESIGN.
- 6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:
 - a) RAFT M35
 - b) SUBSTRUCTURE M25
 - c) PEDESTAL M35
- 7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PART II) 1987
- 8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- 9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.3 OF IRC 21-2000
- 10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
- 11 CLEAR COVER TO ANY REINF. INCLUDING STRIRUPS SHALL BE 50mm
- 12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2902
- 13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STRIRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- 14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- 15 H.Y.S.D F6550 BARS SHALL CONFORM TO IS.-1786
- 16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

IN RAFT FOR ABUTMENT						ABUTMENT COLUMN WITH CAP		
S. no. of bars	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)			
1	g1		32	125	97X2			
2	g2		25	125	97X2			
3	g3		16	150	63X2X2			
4	g4		16	300	16X20X2			
5	a1		32	130	110X2			
6	a2		32	130	110X2			
7	a3		16	150	73X2X2			
8	a4		16	-	63X2X2			
9	a5		16	-	63X2X2			
10	a6		10	125	97X2X2			
11	c1		16	300	18X2X2			

BARS BENDING SCHEDULE

CROSS SECTION OF ABUTMENT

SCALE A

TENDER DRAWING

SCALE A:



Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

SECTION DETAILS OF G.A.D. OF DLR SKEW BRIDGE
AT KM 23.226 WITH FOUR BEAMS

Drawing No. :-

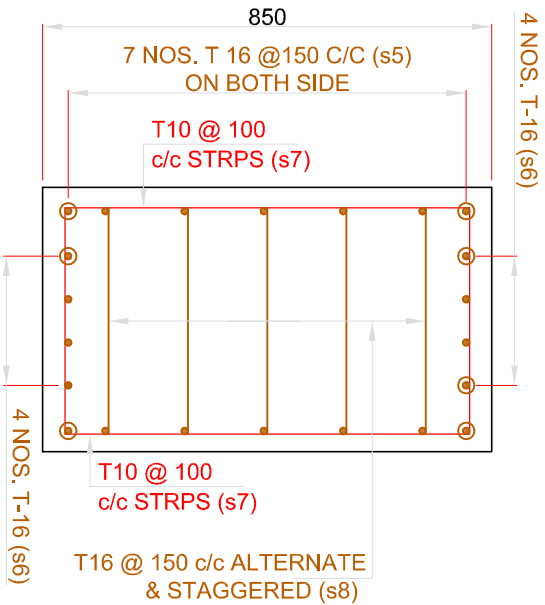
WAP/PKS/NORTH KOEL/RMC/BRG-16

05 of 13

Drawn by:-

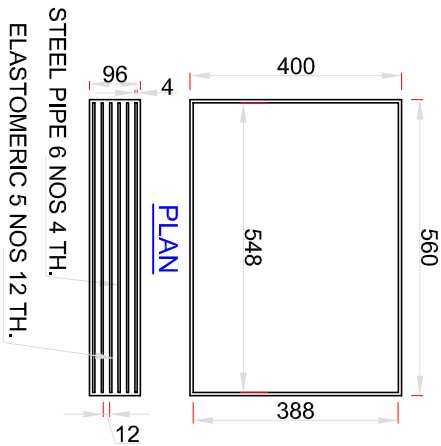
Checked by:-

Approved by: -



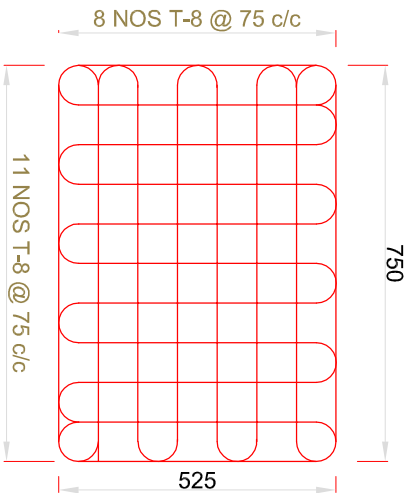
SECTION H-H

SCALE A



DETAILS OF ELASTOMERIC BEARINGS

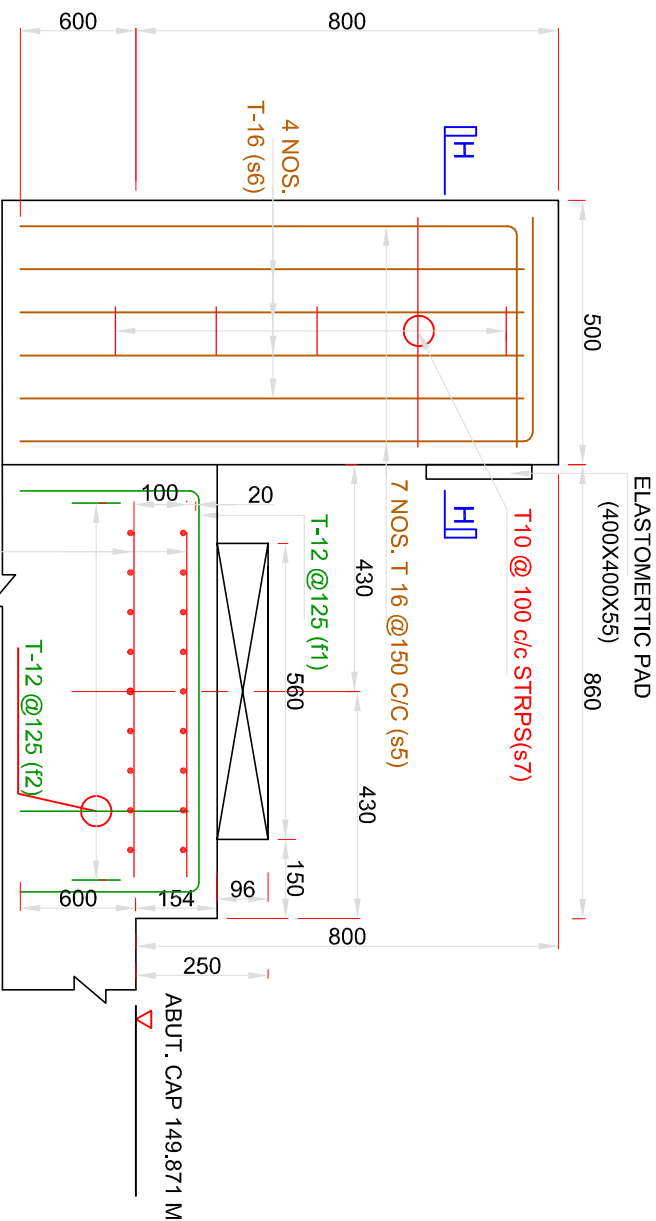
SCALE A



DETAIL OF MESH M1

(MESH BELOW BEARING LOCATION)

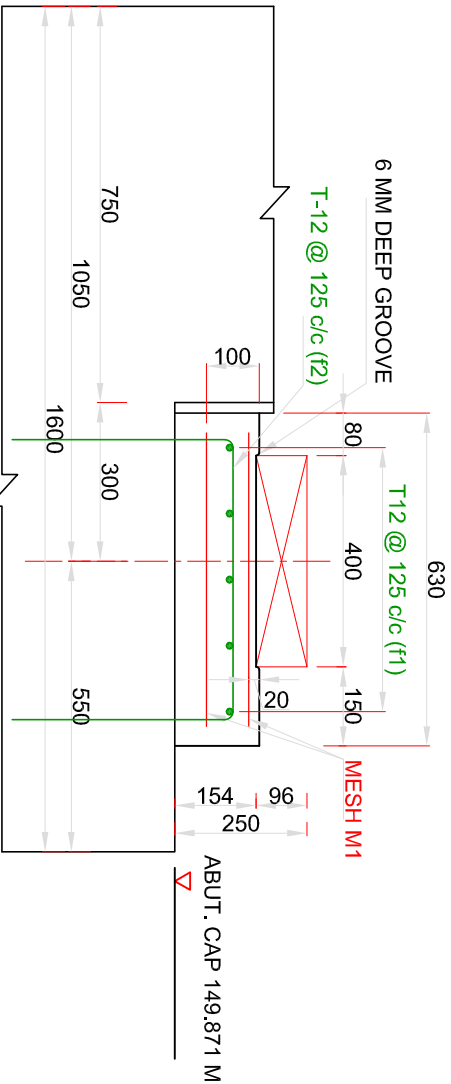
SCALE A



2 LAYERS OF MESH TYPE-1

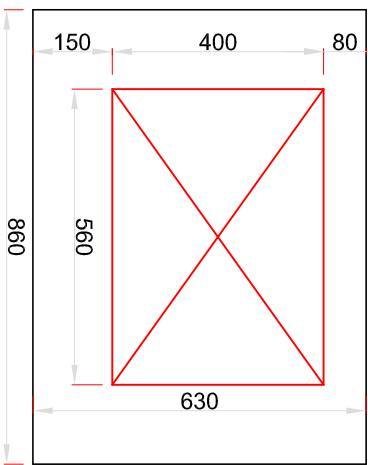
DETAIL 'Y'

SCALE A



DETAIL 'X'

SCALE A



PLAN

SCALE A

BARS BENDING SCHEDULE					
S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
1	s5	400 1350	16	150	14X2X2
2	s6	150 1350 150	16	-	8X2X2
3	s7	400 750 400 750	10	100	5X2X2
4	s8	150 400 150	16	150	5X2X2
5	f1	633 730 633	12	125	5X2X2
6	f2	633 530 633	12	125	5X2X2

NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- TWO LANES OF CLASS-A LOADING HAVE BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - RAFT M35
 - SUBSTRUCTURE M25
 - PEDESTAL M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :- REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL OF DLR SKEW BRIDGE AT KM 23.226 WITH FOUR BEAMS

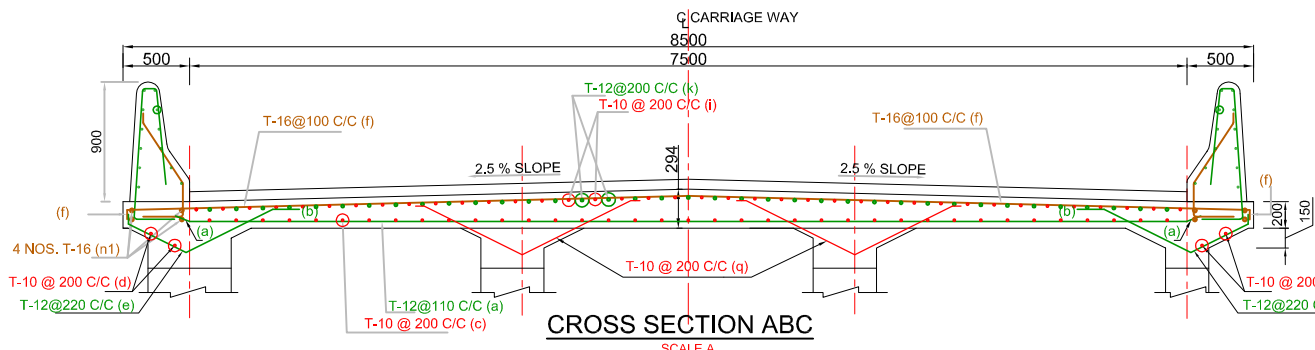
Drawing No. :- WAP/PKS/NORTH KOEL/RMC/BRG-16

06 of 13

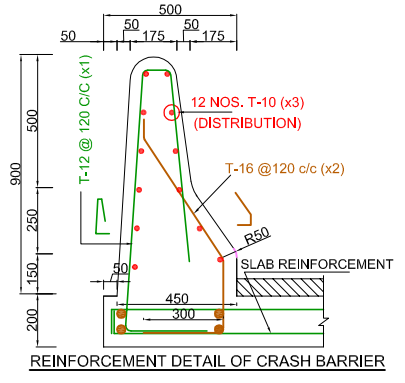
Drawn by:-

Checked by:-

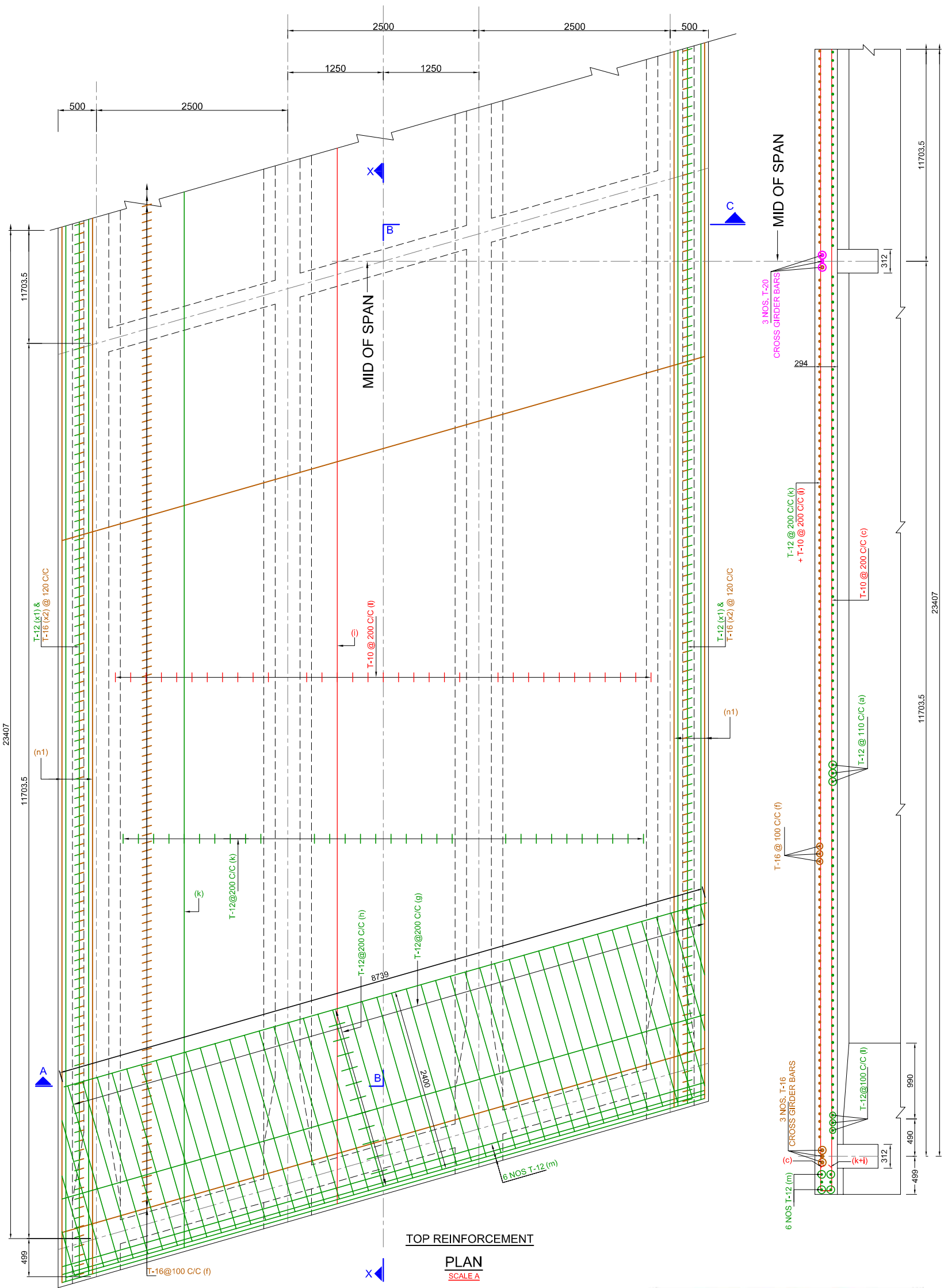
Approved by:-



CROSS SECTION ABC
SCALE A



SCALE B



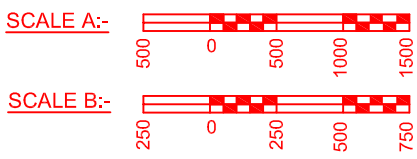
PLAN
SCALE A

SECTIONAL ELEVATION X-X
SCALE A

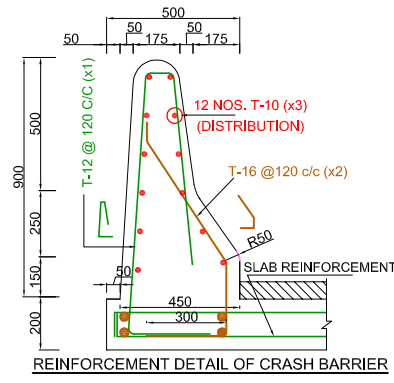
REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

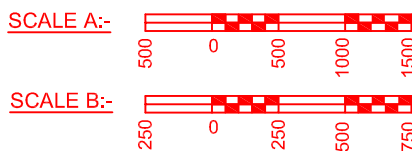
TENDER DRAWING



Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	TOP REINFORCEMENT DRAWING OF DECK SLAB OF DLR BRIDGE AT KM 23.226 WITH FOUR BEAMS		
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-16		09 of 13
	Drawn by:-	Checked by:-	Approved by:-	

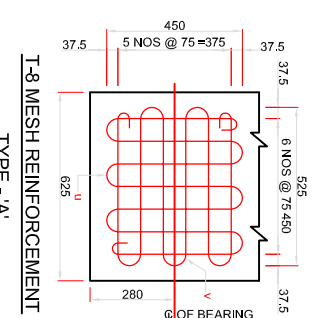
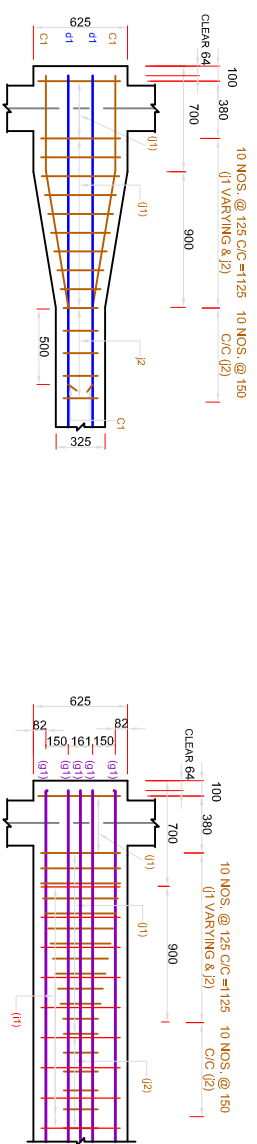
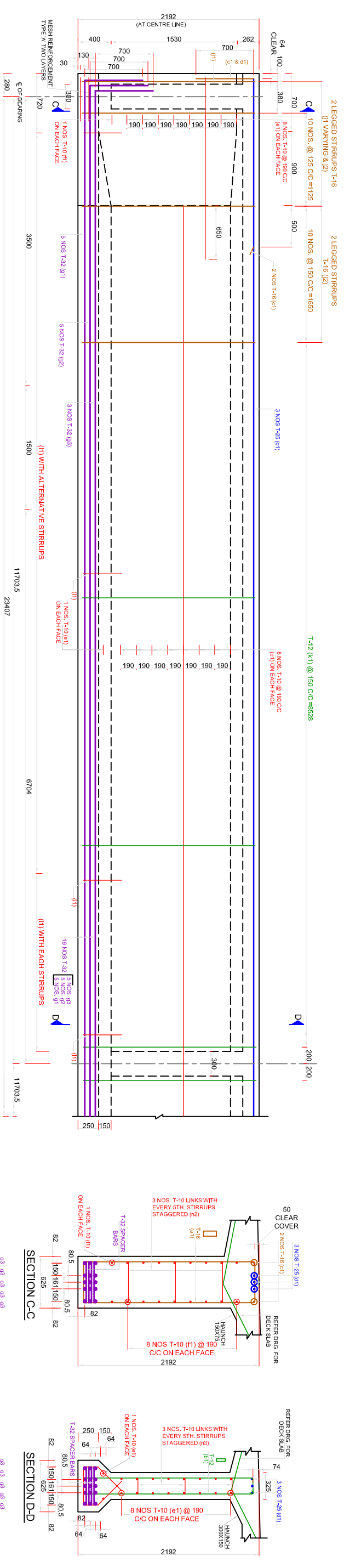
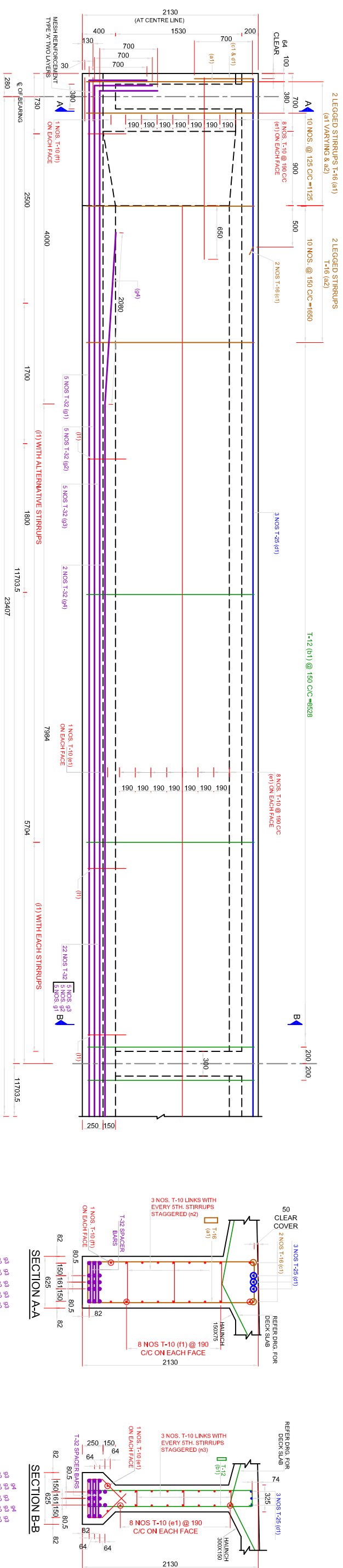


1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER
STRUCTURES DRG. NO. SD/212.



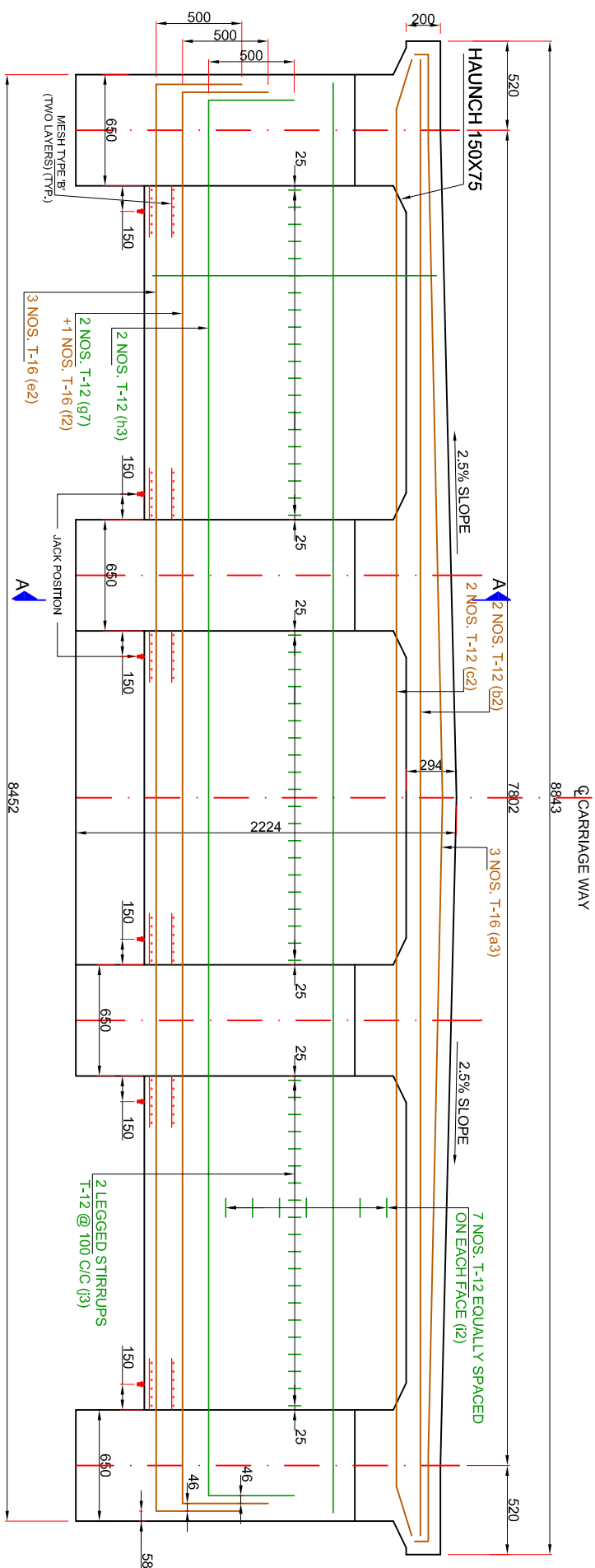
वाष्कोस लिमिटेड
WAPCOS LIMITED
एक निर्यातकृत संस्था - एन.डी.एस.सी. द्वारा नियंत्रित
A Government of India Undertaking - Ministry of New Resources

Approved by:-



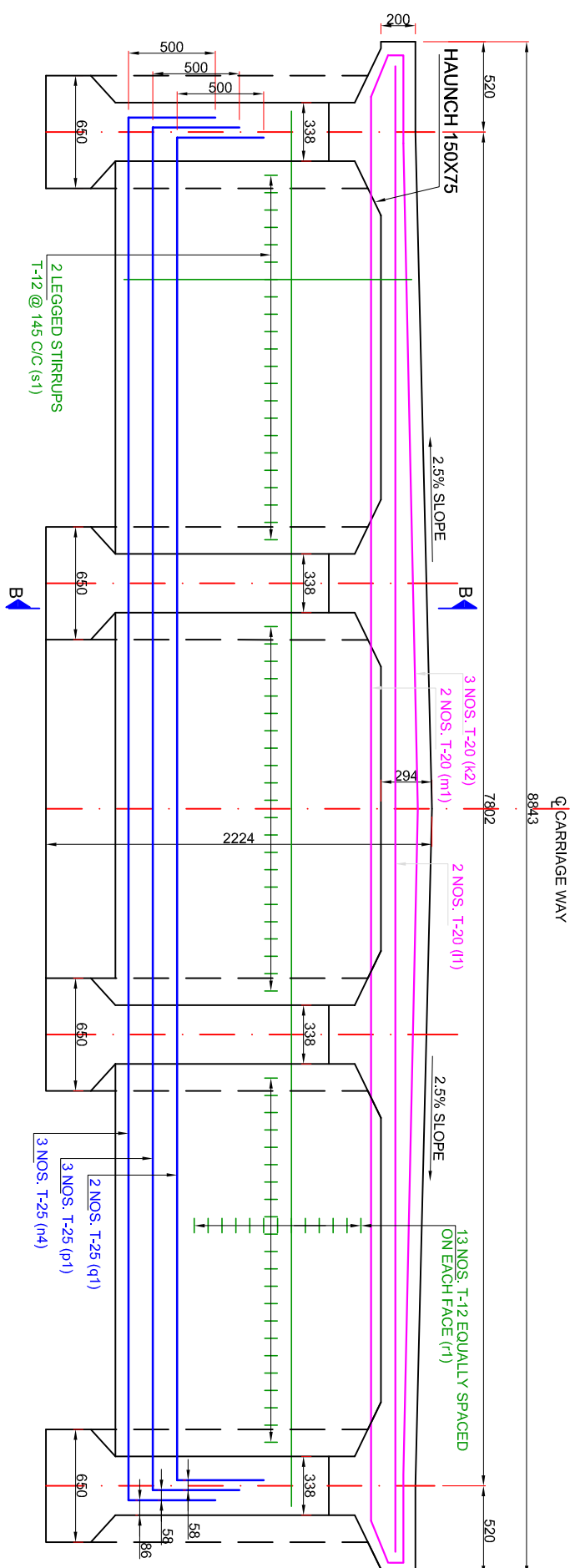
TENDER DRAWING

Prepared by :-  WAPCOS LTD.		
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF DLR SKEW BRIDGE AT KM 23.226 WITH FOUR BEAMS	
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-16	11 of 13
Drawn by:-	Checked by:-	Approved by:-



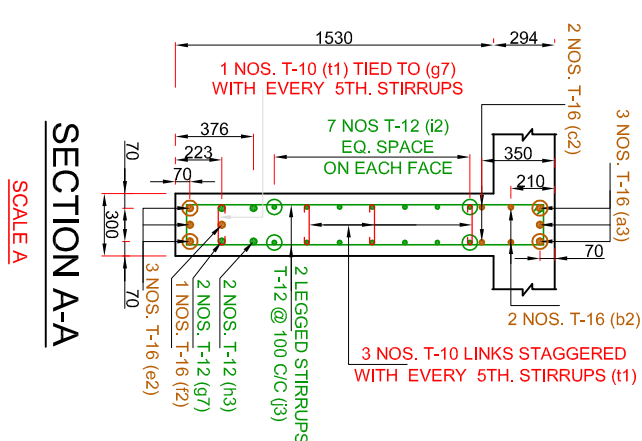
LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A



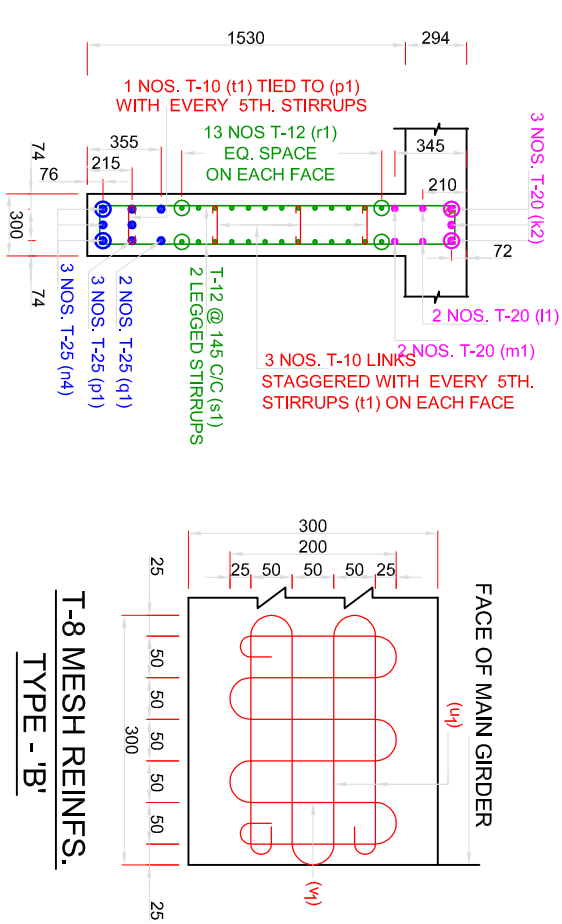
LONGITUDINAL SECTION

SCALE A



SECTION A-A

SCALE A



SECTION B-B

SCALE A



Prepared by :-			
			
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF DLR SKEW BRIDGE AT KM 23.226 WITH FOUR BEAMS		
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-16	12 of 13	
Drawn by:-	Checked by:-	Approved by:-	

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a		12	110	8125	198
2	b		12	220	1503	190
3	c		10	200	24823	37
4	d		10	200	24846	4
5	e		12	220	1503	32
6	f		16	100	8890	228
7	g		12	200	2550	40X2 + 7X2
8	h		12	200	8739	13X2
9	i		10	200	24805	33
10	k		12	200	24805	30
11	l		12	100	4358	25X2
12	m		12	-	8738	3X2
13	n ₁		16	-	24395	4X2
14	q		10	200	2034	122X2

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
--------	--------------	--	------------------	---------	-------------------------	-------------

LONGITUDINAL OUTER GIRDERS (2 NOS.)						
1	a1		16	125	5158	15X2X2
2	a2		16	150	4758	11X2X2
3	b1		12	150	4678	138X2
4	c1		16	-	2693	2X2X2
5	d1		25	-	25055	3X2
6	e1		10	-	20767	9X2X2
7	f1		10	-	2199	18X2X2
8	g1		32	-	25015	5X2
9	g2		32	-	24887	5X2
10	g3		32	-	24759	5X2
11	g4		32	-	21567	2X2
12	h1		10	-	1733	95X2
12	p2		10	-	583	18X2
14	n3		10	-	433	99X2

LONGITUDINAL INNER GIRDER (2 NOS.)

1	I1		16	125	5290	15X2X2
2	I2		16	150	4890	11X2X2
3	k1		12	150	4810	138X2
4	c1		16	-	2693	2X2X2
5	d1		25	-	25055	3X2
6	e1		10	-	20767	9X2X2
7	f1		10	-	2199	18X2X2
8	g1		32	-	25015	5X2
9	g2		32	-	24887	5X2
10	g3		32	-	24759	5X2
11	h1		10	-	1733	95X2
12	p2		10	-	583	18X2
13	n3		10	-	433	99X2

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
--------	--------------	--	------------------	---------	-------------------------	-------------

END CROSS GIRDERS						
1	a3		16	-	8838	3X2
2	b2		16	-	8655	2X2
3	c2		16	-	8578	2X2
4	e2		16	-	9222	3X2
5	f2		16	-	9108	1X2
6	g7		12	-	9149	2X2
7	h3		12	-	9057	2X2
8	I2		12	-	8585	7X2X2
9	j3		12	100	3881	20X3X2
10	I1		10	-	416	15X3X2

MIDDLE CROSS GIRDERS

1	k2		20	-	8814	3X1
2	I1		20	-	8751	2X1
3	m1		20	-	8578	2X1
4	n4		25	-	8712	3X1
5	p1		25	-	8596	3X1
6	q1		25	-	8489	2X1
7	r1		12	-	8917	13X2X1
8	s1		12	145	3881	20X3X1
9	t1		10	-	416	15X3X1

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
B/M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
1	u1		10	-	1453	24
2	v1		10	-	1510	24

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

BAR BENDING SCHEDULE OF SUPER STRUCTURE OF DLR SKEW AT KM 23.226 WITH FOUR BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-16

13 of 13

Drawn by:-

Checked by:-

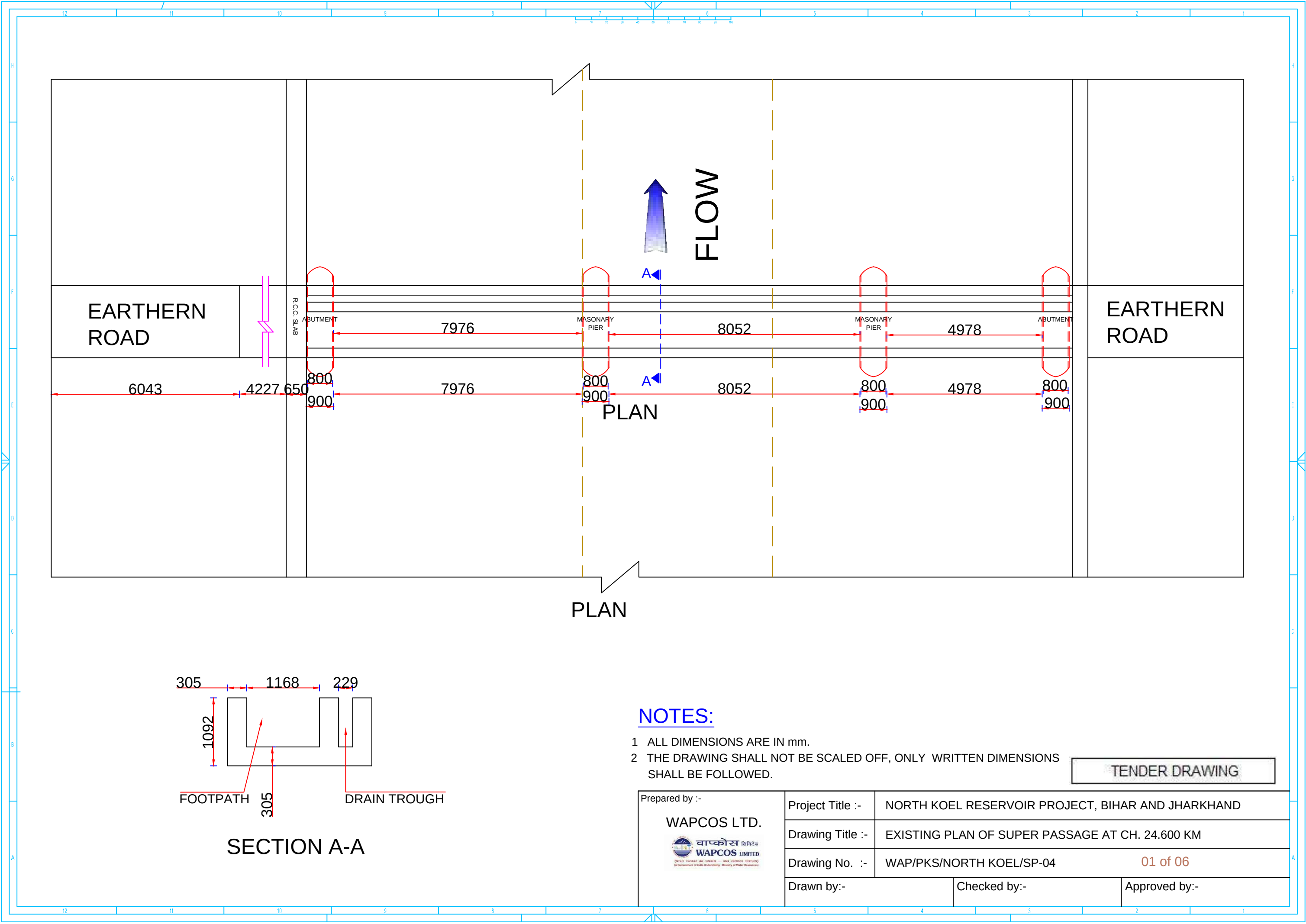
Approved by:-



SUPER PASSAGE

AT

CH. 24.600 KM



EARTHERN
ROAD

EARTHERN
ROAD

FLOW

PLAN

PLAN

SECTION A-A

NOTES:

- 1 ALL DIMENSIONS ARE IN mm.
- 2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

EXISTING PLAN OF SUPER PASSAGE AT CH. 24.600 KM

Drawing No. :-

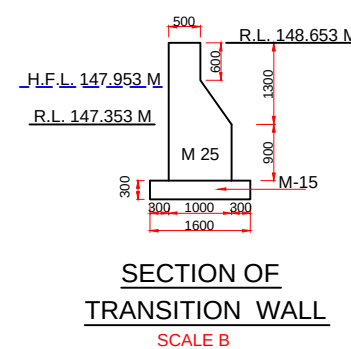
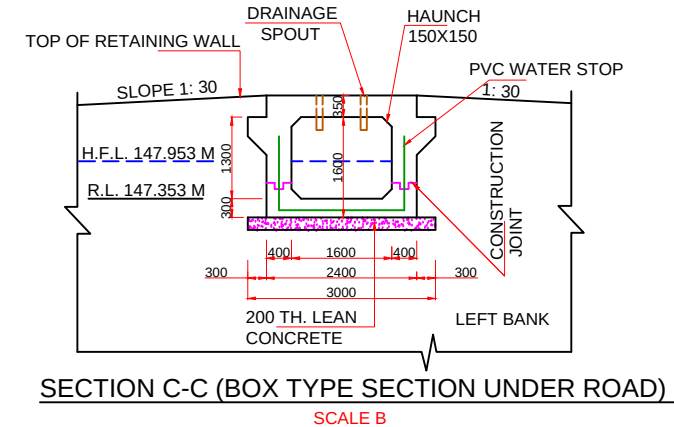
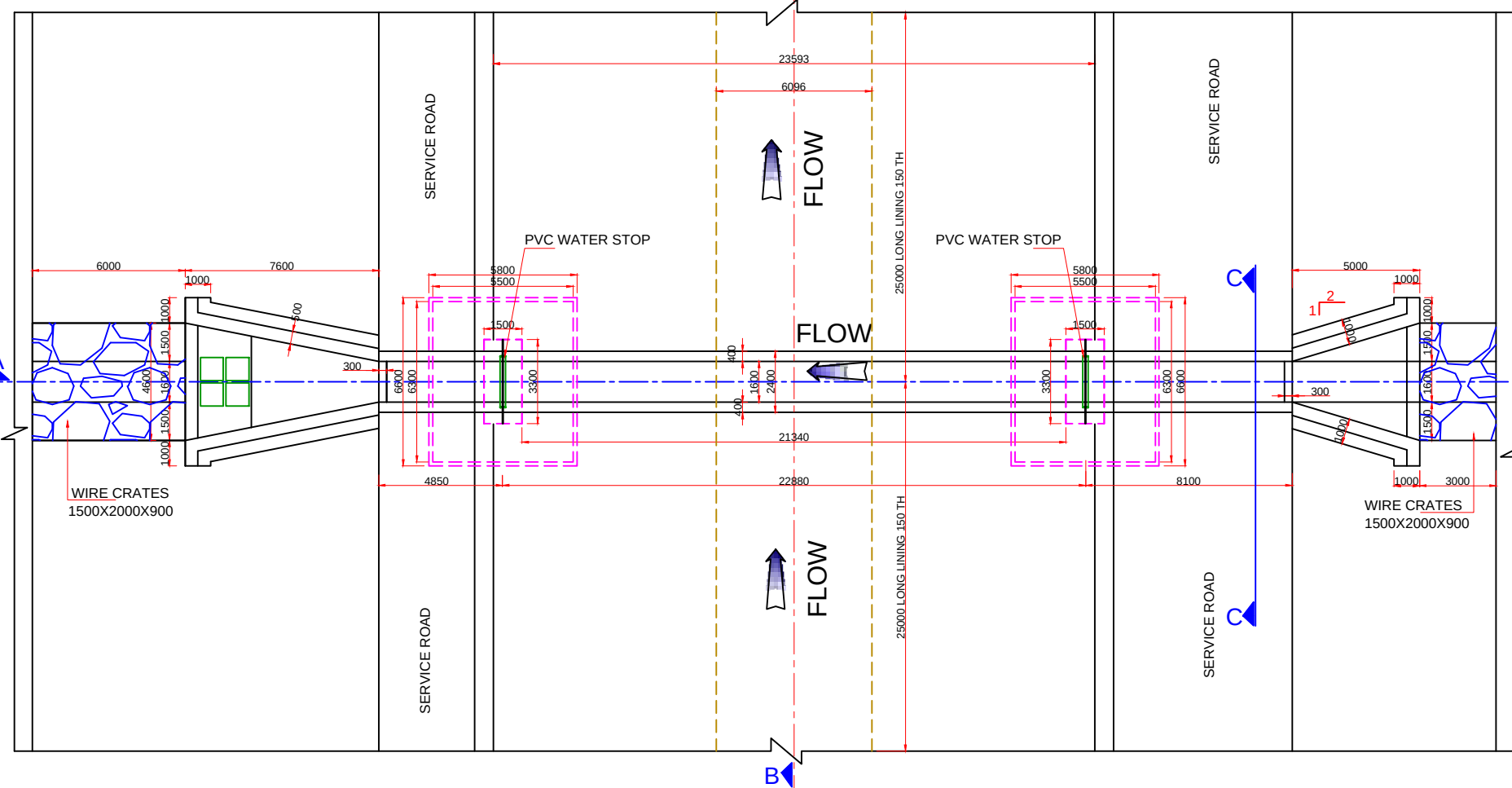
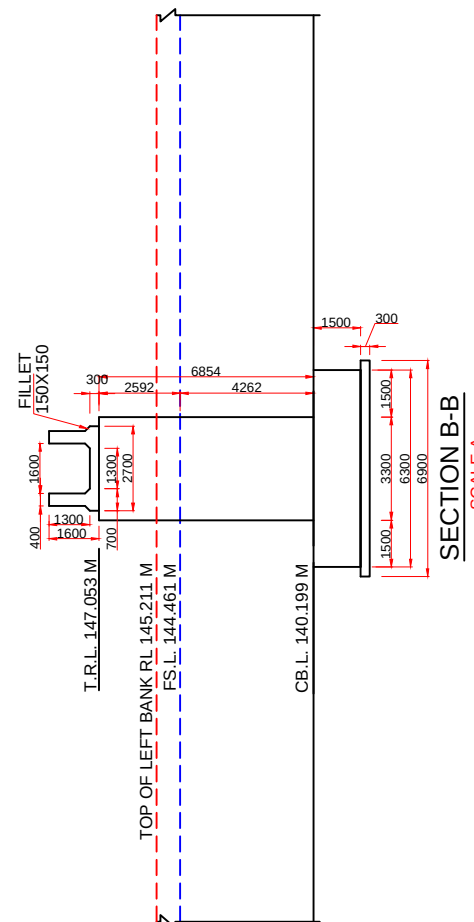
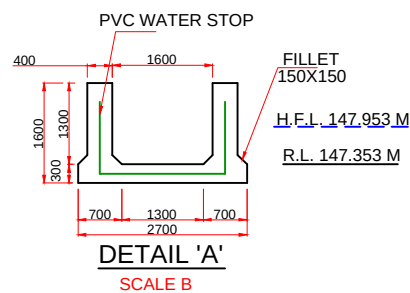
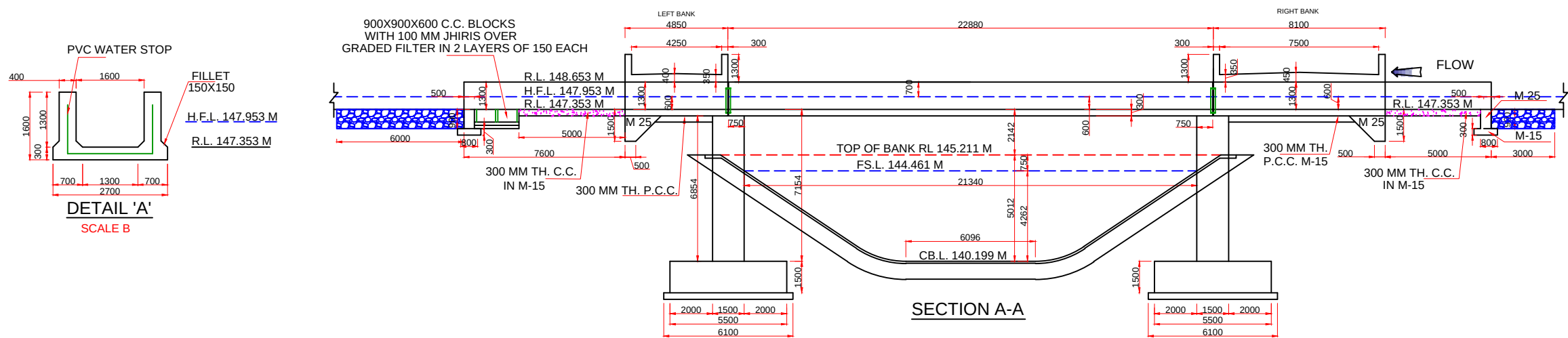
WAP/PKS/NORTH KOEL/SP-04

01 of 06

Drawn by:-

Checked by:-

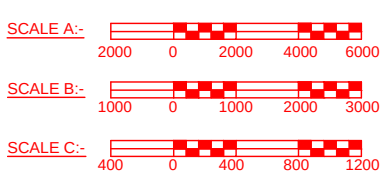
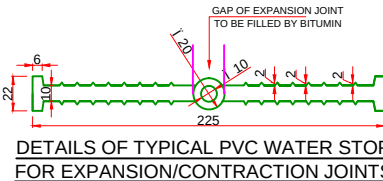
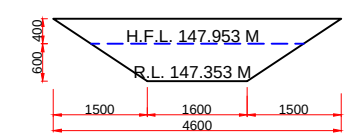
Approved by:-



DESIGN DATA		
	RMC	DRAIN
DISCHARGE	84.15 CUMEC	1.920 CUMEC
BED WIDTH	6.096 M	1.600 M
WATER DEPTH	4.340 M	0.600 M
BED LEVEL	140.199 M	147.353 M
BED SLOPE	1/7000	1/935

NOTES:

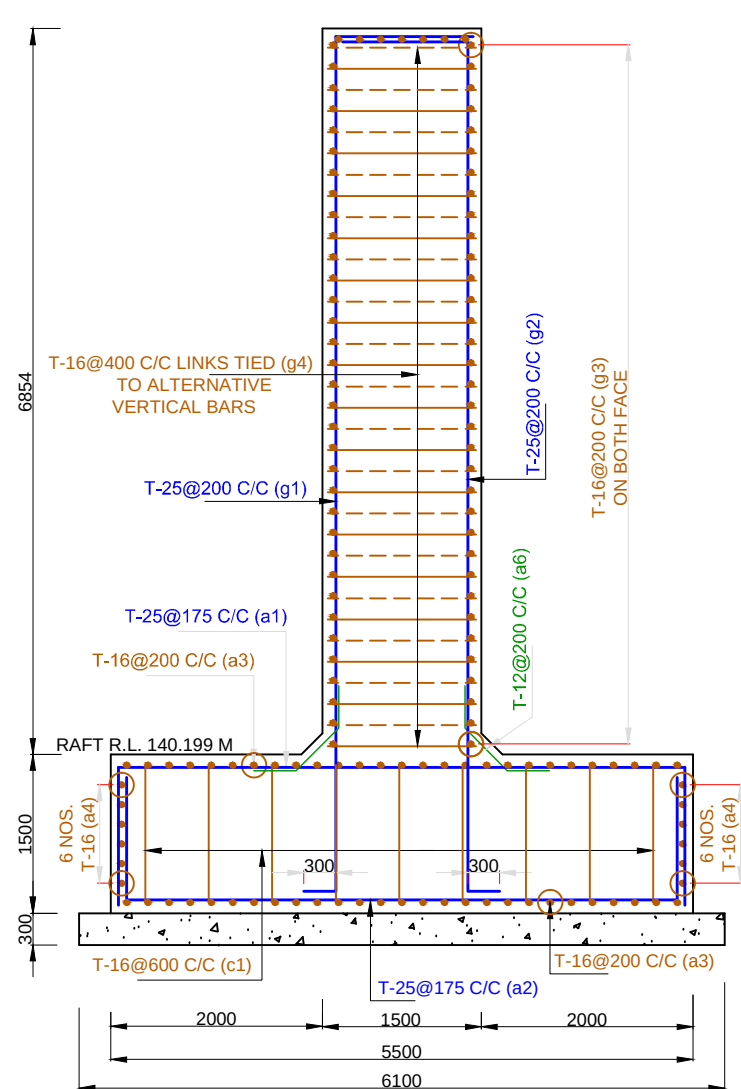
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
- DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT LOCATIONS INDICATED IN DRAWING.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF SUPER PASSAGE :-
 - TROUGH M35
 - ABUTMENT M25
 - SUPER STRUCTURE OF BRIDGE UNDER S/ROAD.... M35
- HYSD STEEL BARS OF FE 550D SHALL BE USED AS PER IS : 1786 :2008.
- TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN
ALLOWABLE BEARING CAPACITY FOR ABUTMENT 28 T/SQ M
- TEFLON COATED SS PLATE SIZE 400X400X5 MM BE USED AS BEARING UNDER GIRDERS AND OVER ABUTMENT.



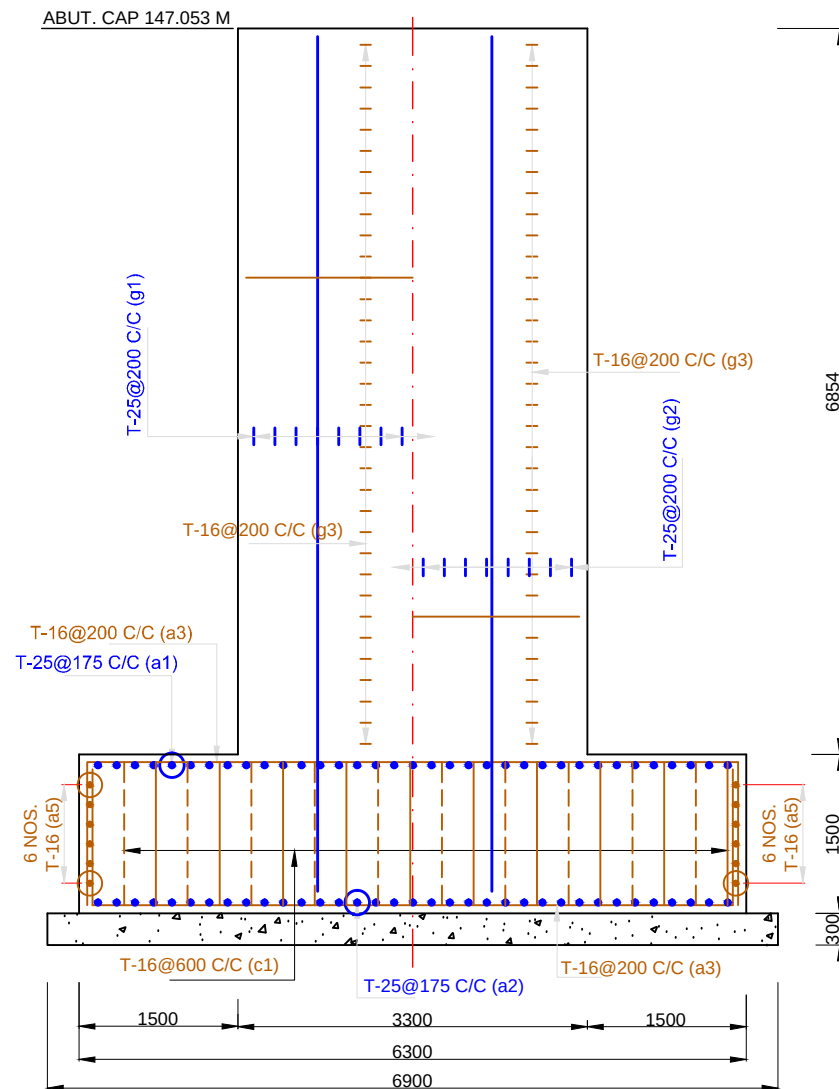
PLAN OF SUPER PASSAGE

TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :- GENERAL ARRANGEMENT DRAWING OF SUPER PASSAGE KM 24.600
Drawing No. :- WAP/PKS/NORTH KOEL/SP-04	02 of 06
Drawn by:-	Checked by:-
	Approved by:-



SIDE VIEW OF ABUTMENT
SCALE A



CROSS SECTION OF ABUTMENT
HALF EARTH SIDE / HALF CANAL SIDE
SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1		25	200	16X2
	2	g2		25	200	16X2
	3	g3		16	200	34X2X2
	4	g4		16	400	16X8
IN RAFT FOR ABUTMENT	5	a1		25	175	36X2
	6	a2		25	175	36X2
	7	a3		16	200	27X2X2
	8	a4		16	-	6X2X2
	9	a5		16	-	6X2X2
	10	a6		12	200	16X2X2
	11	c1		16	600	9X11X2

NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
 - RAFT M35
 - SUBSTRUCTURE M25
 - PEDESTAL M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.

- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:-

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF ABUTMENT OF SUPER PASSAGE AT KM 24.600

Drawing No. :-

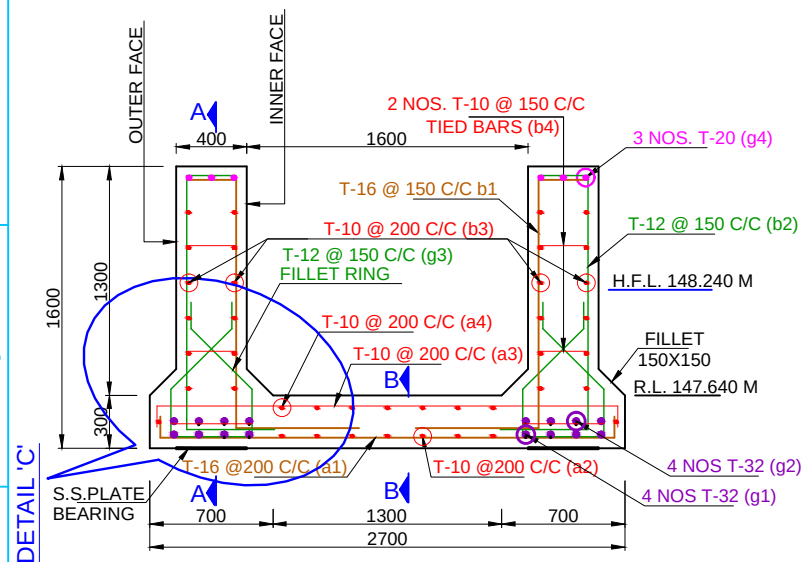
WAP/PKS/NORTH KOEL/SP-04

03 of 06

Drawn by:-

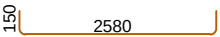
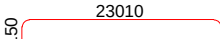
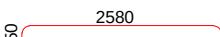
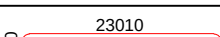
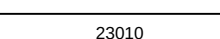
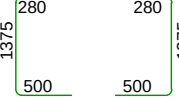
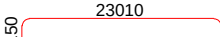
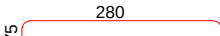
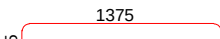
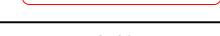
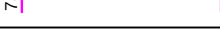
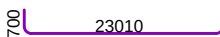
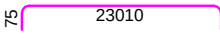
Checked by:-

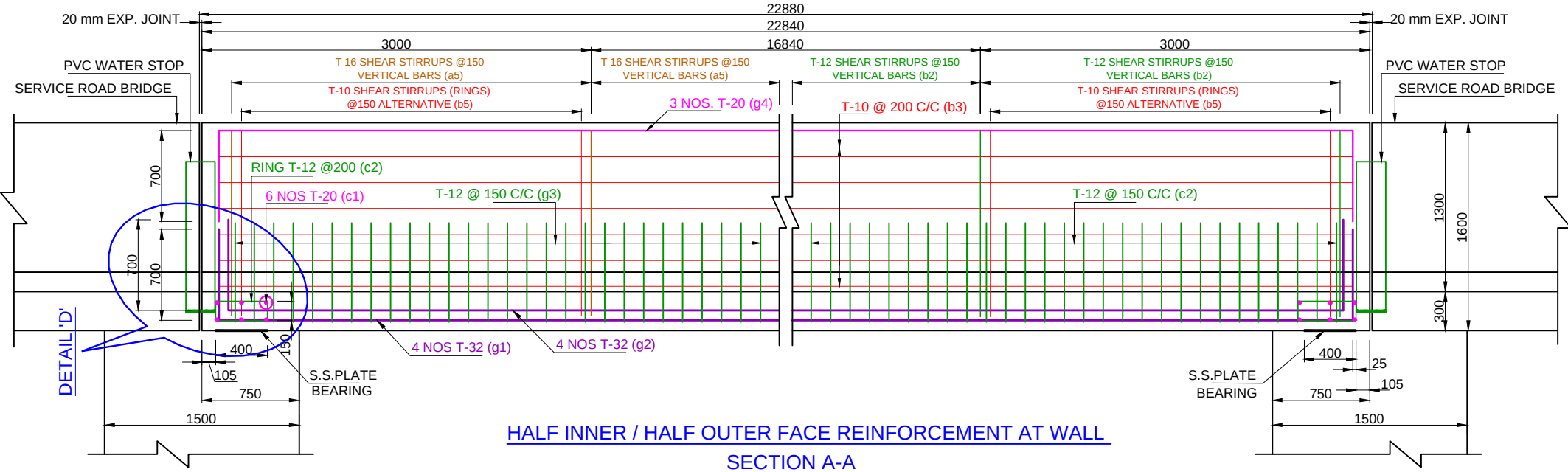
Approved by:-



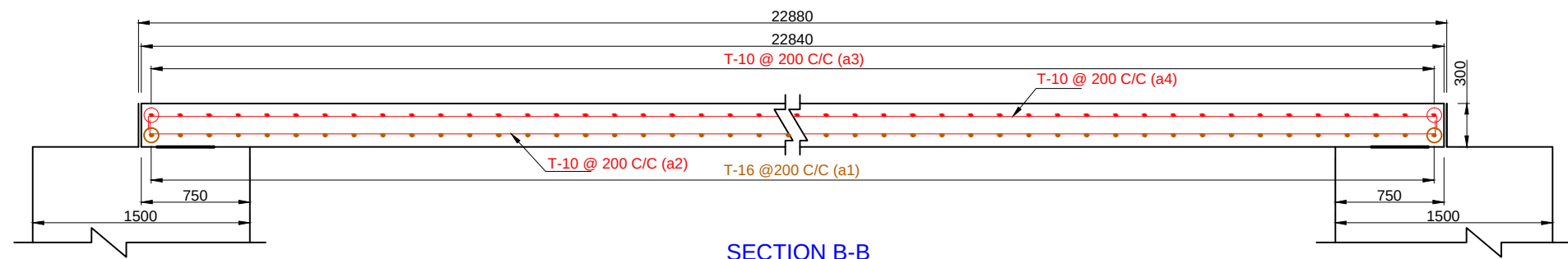
REINFORCEMENT IN SUPER PASSAGE

BARS BENDING SCHEDULE H.Y.S.D. Fe 550

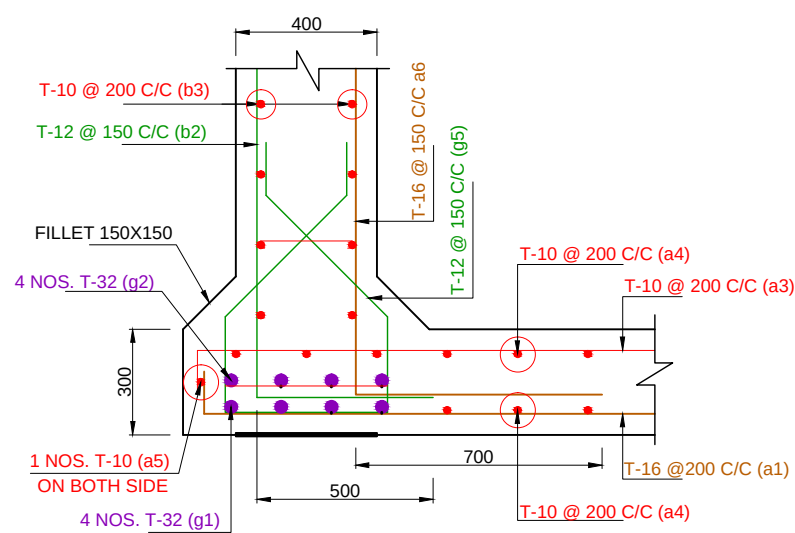
	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SLAB	1	a1		16	200	115
	2	a2		10	200	7
	3	a3		10	200	115
	4	a4		10	200	7
	5	a5		10	-	2
GIRDER	6	b1		16	150	155X2
	7	b2		12	150	155X2
	8	b3		10	200	6X2X2
	9	b4		10	200	39X2X2
	10	b5		10	200	40X2
	11	c1		20	-	6X2X2
	12	c2		12	200	3X2X2
	13	g1		32	-	4X2
	14	g2		32	-	4X2
	15	g3		12	150	155X2
	16	g4		20	-	3X2



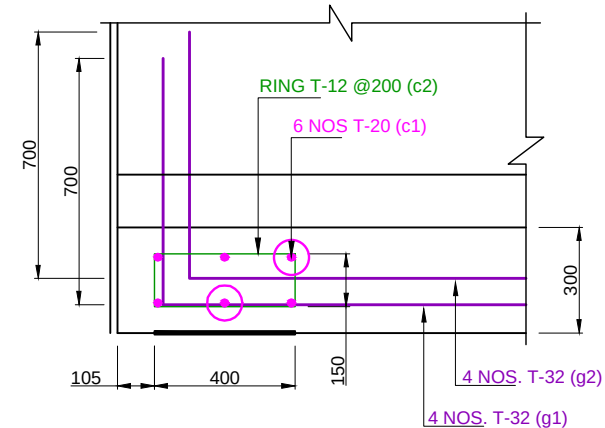
SECTION A-A



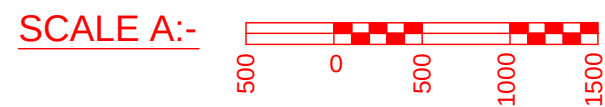
SECTION B-B



DETAIL 'C'

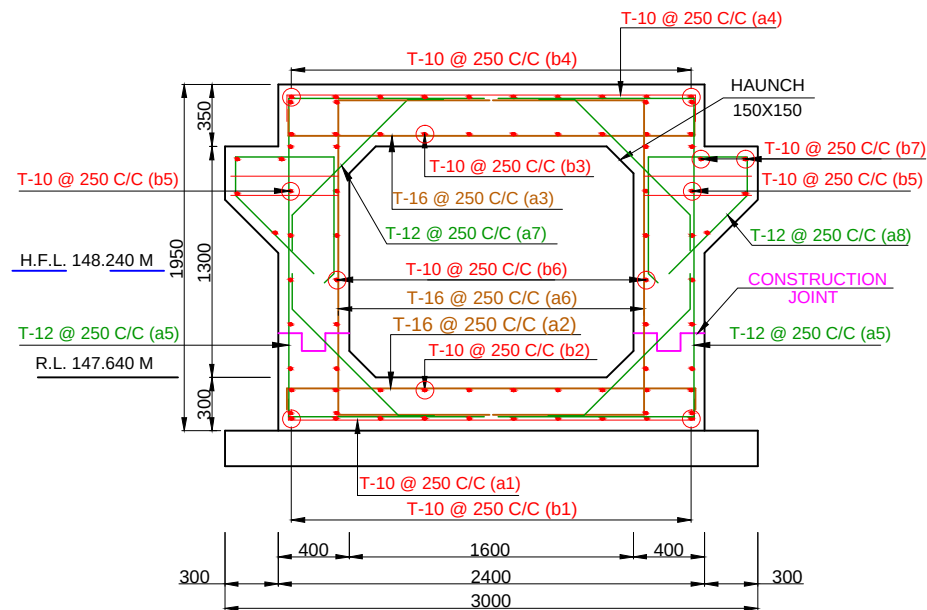


DETAIL 'D'

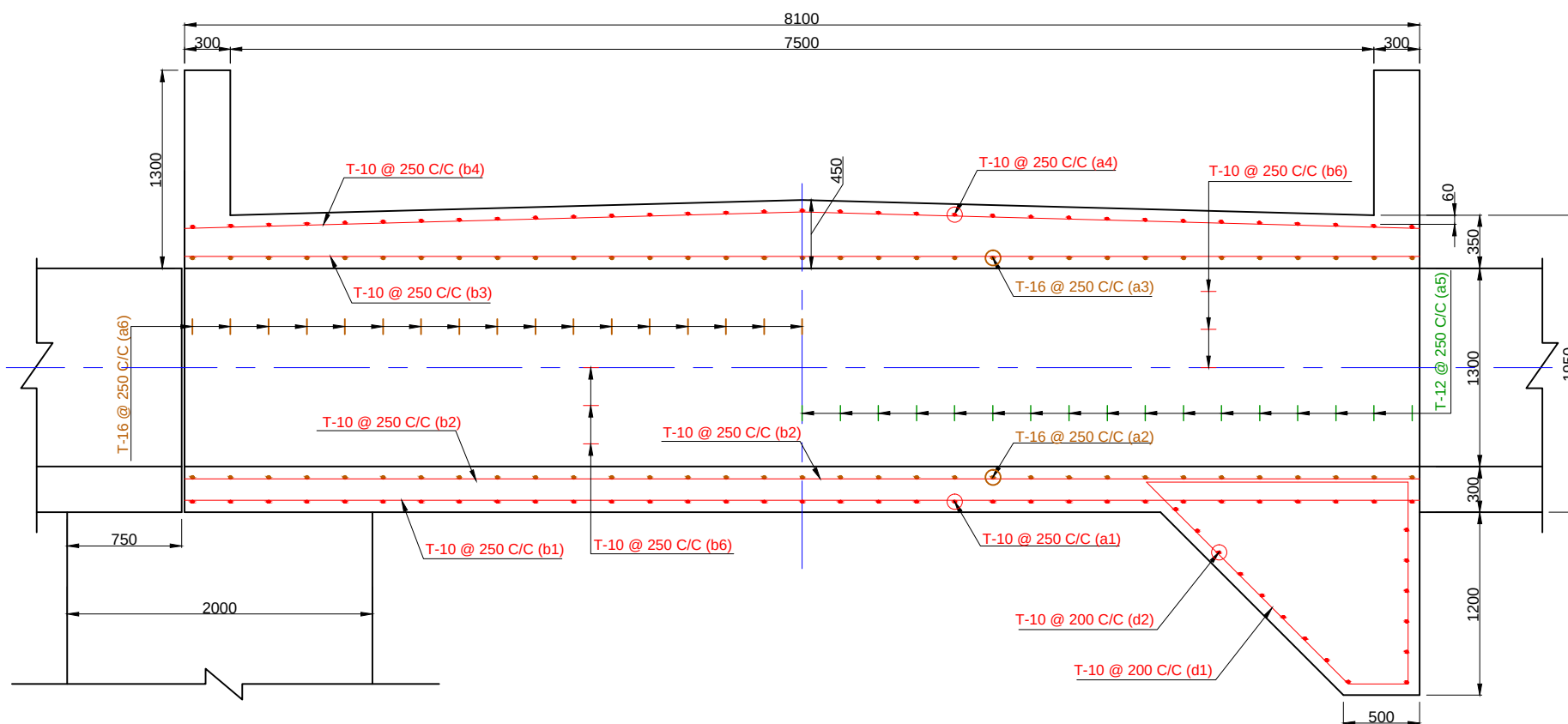


TENDER DRAWING

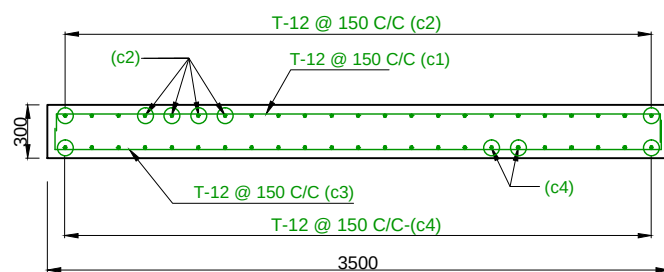
Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	REINFORCEMENT DETAILS OF SUPER PASSAGE KM 24.600	
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-04	04 of 06
	Drawn by:-	Checked by:-	Approved by:-



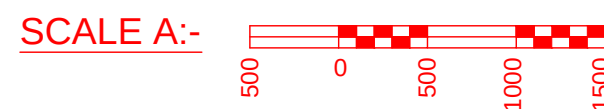
REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)
SECTION C-C



HALF INNER / HALF OUTER
RIGHT BANK



SECTION OF APPROACH SLAB



REINFORCEMENT SCHEDULE

S. NO.	TYPE OF BARS	SHAPE OF BARS DIMENSIONS NOT TO SCALE IN MM	DIA OF BARS (MM)	SPACING (MM)	NO. OF BARS (MM)
1	a1	150 2280 150	10	250	33X1
2	a2	150 2280 150	16	250	33X1
3	a3	150 2280 150	16	250	33X1
4	a4	150 2280 150	10	250	33X1
5	a5	1100 1100 1830 1100 1830	12	250	33X2
6	a6	850 850 1830 850 1830	16	250	33X2
7	a7	200 850 200 850 200	12	250	33X2
8	a8	655 555 620 215	12	250	33X2
9	b1	150 7980 150	10	250	10X1
10	b2	150 7980 150	10	250	10X1
11	b3	150 7980 150	10	250	10X1
12	b4	150 7980 150	10	250	10X1
13	b5	7980 7980	10	250	7X2
14	b6	7980 7980	10	250	7X2
15	b7	150 7980 150	10	250	4X2
16	d1	1716 1322 393 1810	10	200	11X1
17	d2	150 2280 150	10	200	16X1
18	c1	150 3500 150	12	150	23
19	c2	150 450 3750 3750 450 150	12	150	23
20	c3	150 3500 150	12	150	23
21	c4	150 8400 150	12	150	23

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF BOX BRIDGE (RIGHT BANK)
SUPER PASSAGE AT KM 24.600

Drawing No. :-

WAP/PKS/NORTH KOEL/SP-04

05 of 06

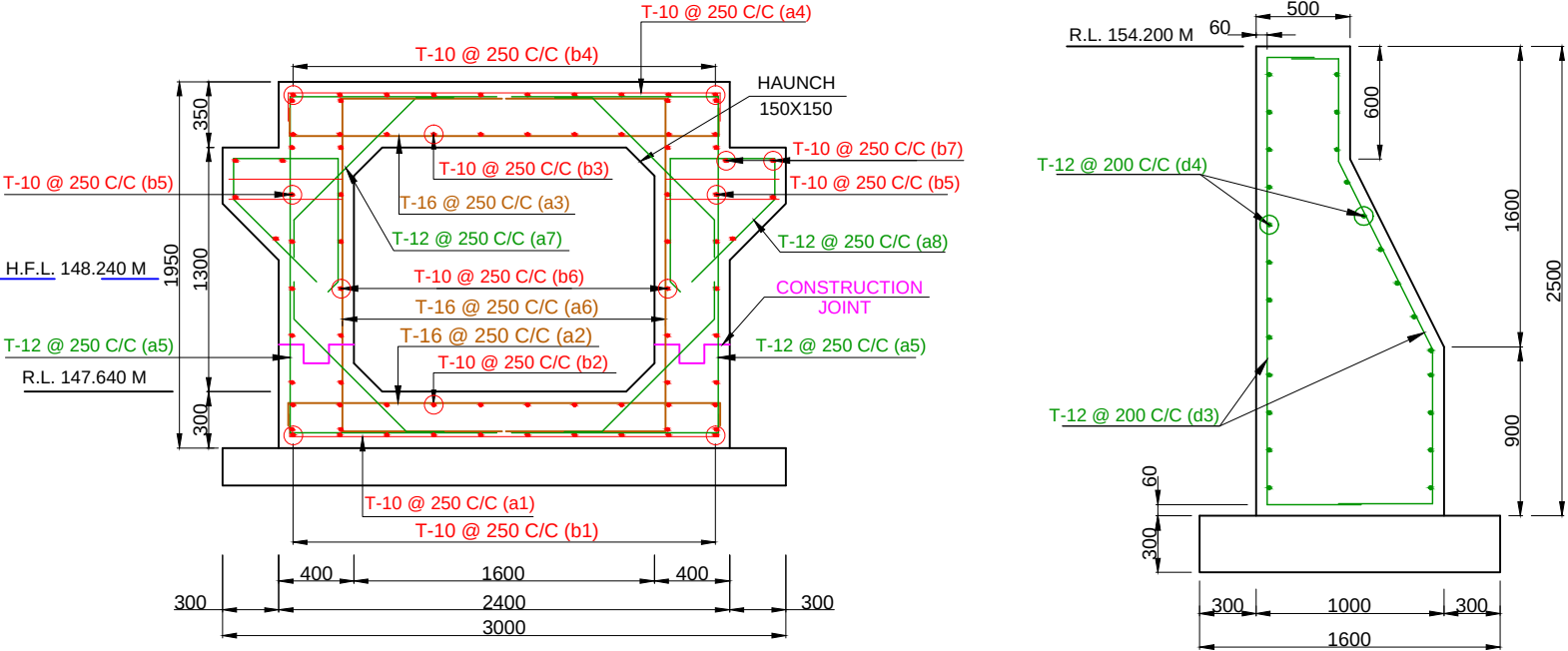
Drawn by:-

Checked by:-

Approved by:-

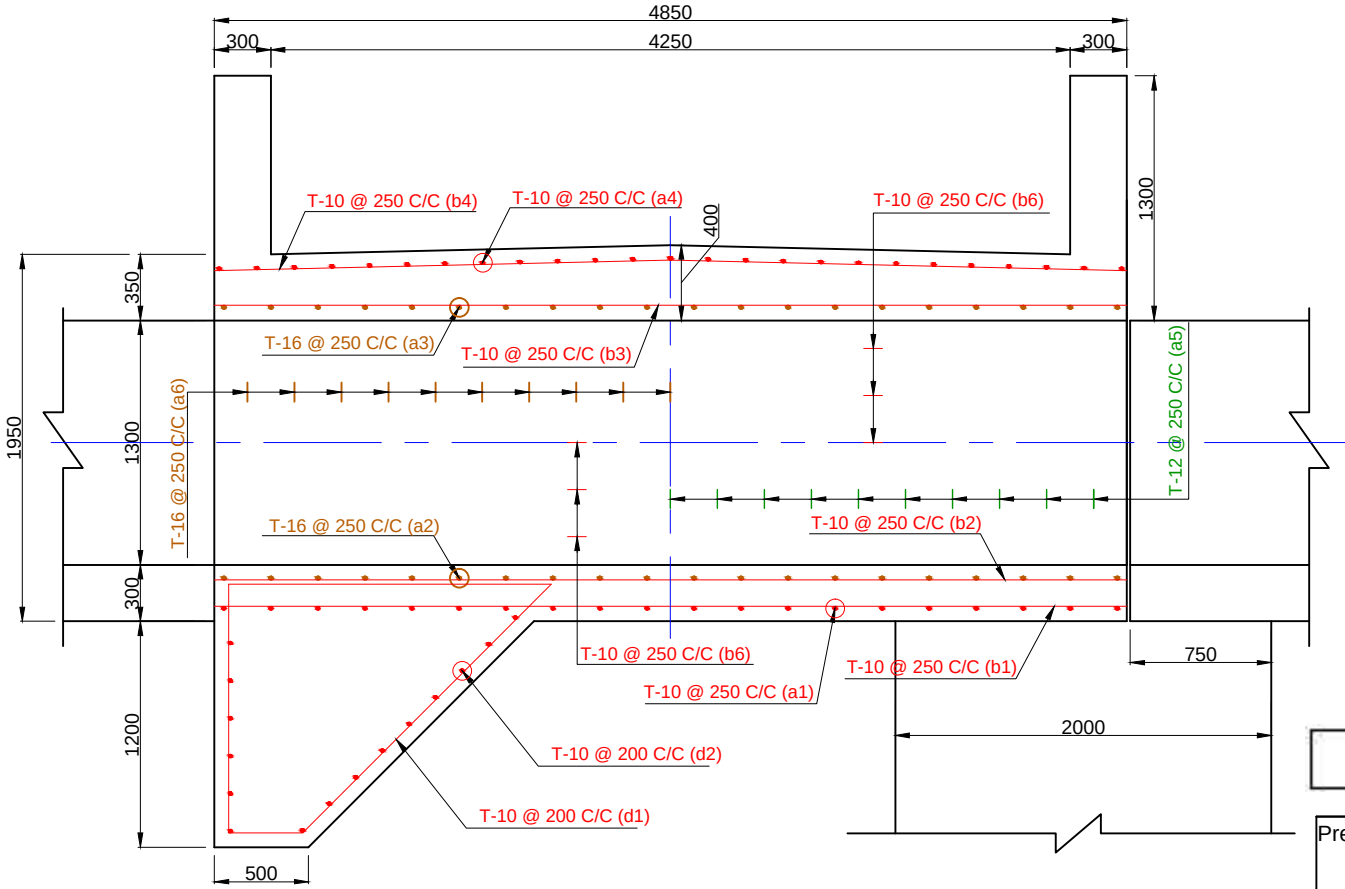
REINFORCEMENT SCHEDULE

S. NO.	TYPE OF BARS	SHAPE OF BARS DIMENSIONS NOT TO SCALE IN MM	DIA OF BARS (MM)	SPACING (MM)	NO. OF BARS (MM)
1	a1	150 2280 150	10	250	20X1
2	a2	150 2280 150	16	250	20X1
3	a3	150 2280 150	16	250	20X1
4	a4	150 2280 150	10	250	20X1
5	a5	1100 1100 1830 1100 1830	12	250	20X2
6	a6	850 850 1830 850 1830	16	250	20X2
7	a7	200 850 200 850 200	12	250	20X2
8	a8	655 555 215 620	12	250	20X2
9	b1	150 4730 150	10	250	10X1
10	b2	150 4730 150	10	250	10X1
11	b3	150 4730 150	10	250	10X1
12	b4	150 4730 150	10	250	10X1
13	b5	4730 4730	10	250	8X2
14	b6	4730 4730	10	250	8X2
15	b7	150 4730 150	10	250	4X2
16	d1	1716 1322 1870 393	10	200	11X1
17	d2	150 2280 150	10	200	16X1
18	d3	2380 250 500 500 555 118 819	12	200	30X2X2
19	d4	150 150	12	200	29X2X2

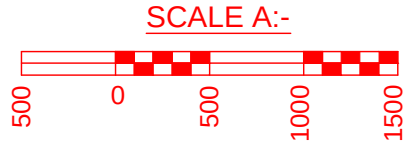


REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)
SECTION C-C

REINFORCEMENT IN TRANSITION WALL



HALF INNER / HALF OUTER
LEFT BANK



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF BOX BRIDGE (LEFT BANK)
SUPER PASSAGE AT KM 24.600

Drawing No. :-

WAP/PKS/NORTH KOEL/SP-04

06 of 06

Drawn by:-

Checked by:-

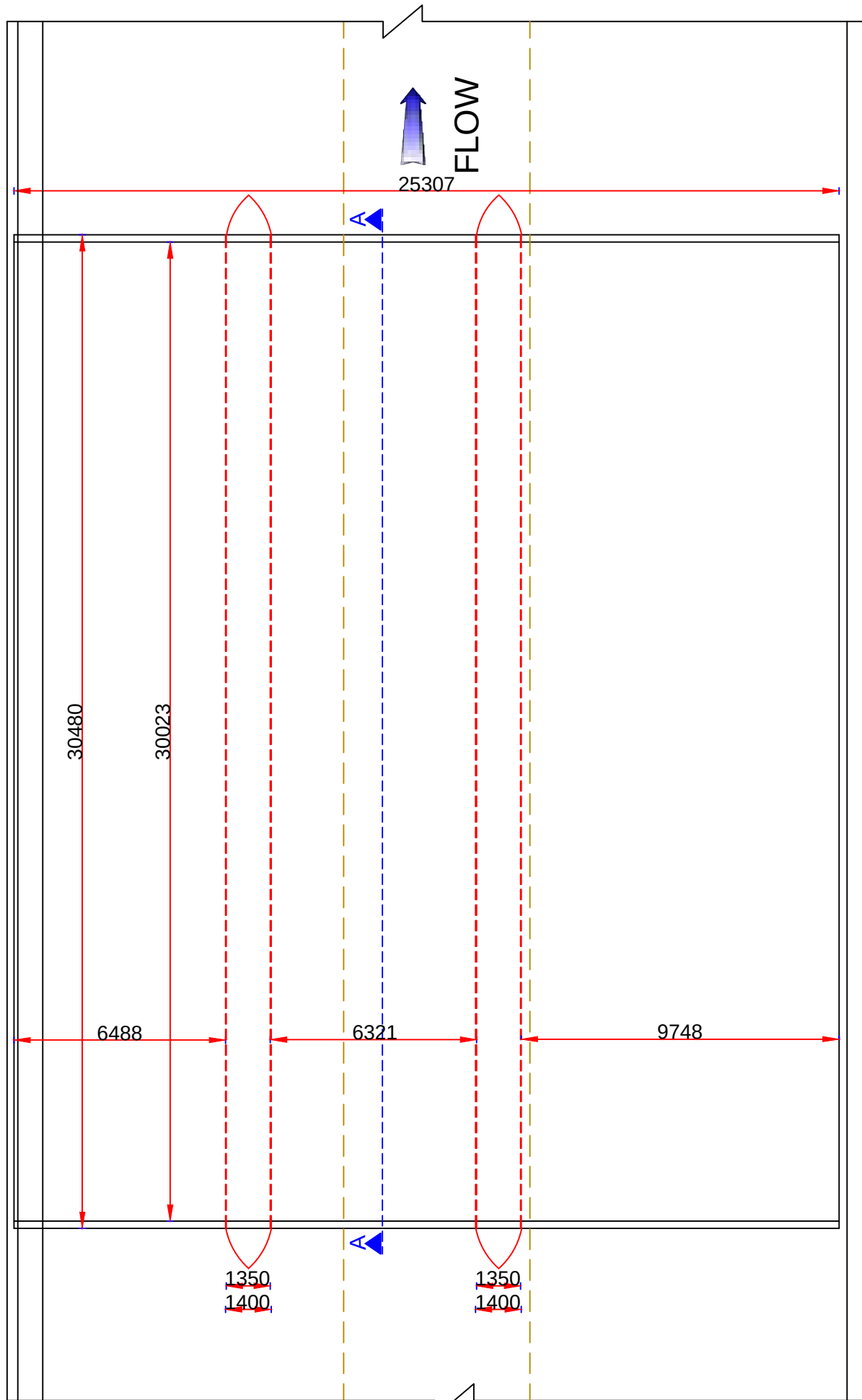
Approved by:-



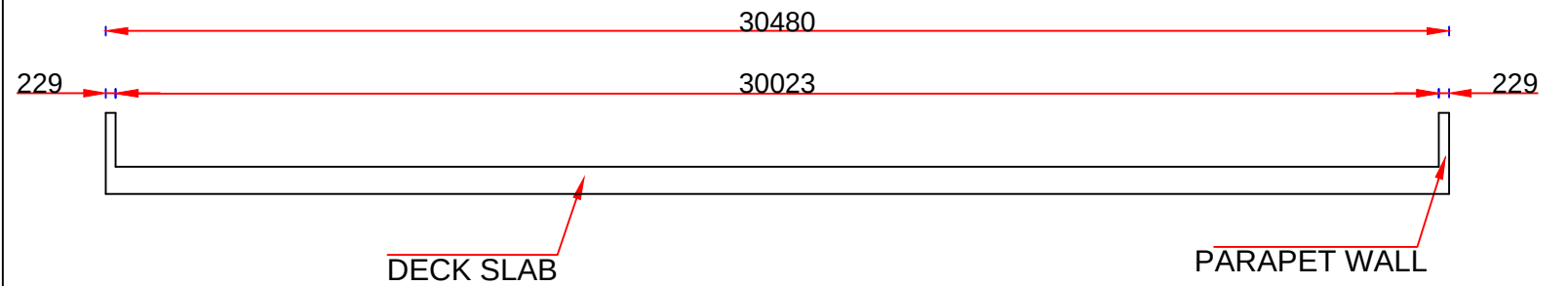
CART BRIDGE

AT

CH. 25.110 KM



PLAN



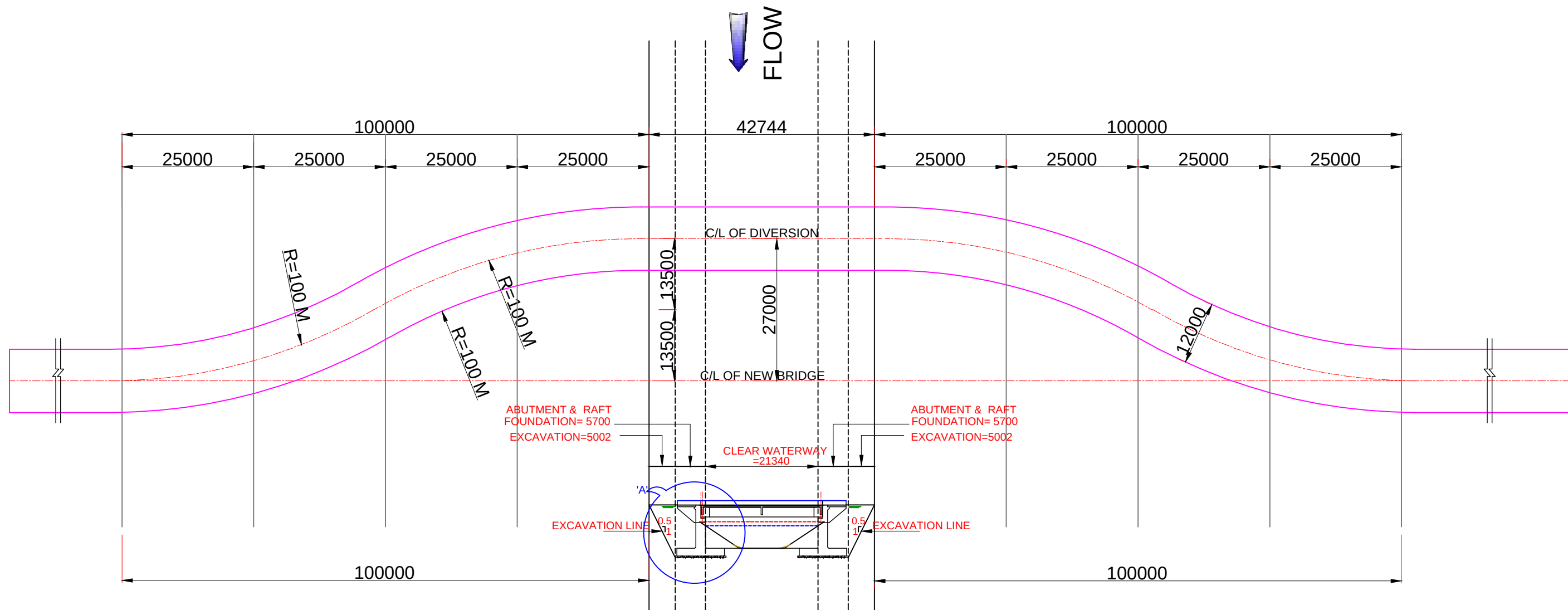
SECTION A-A

NOTES:

- 1 ALL DIMENSIONS ARE IN mm.
- 2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

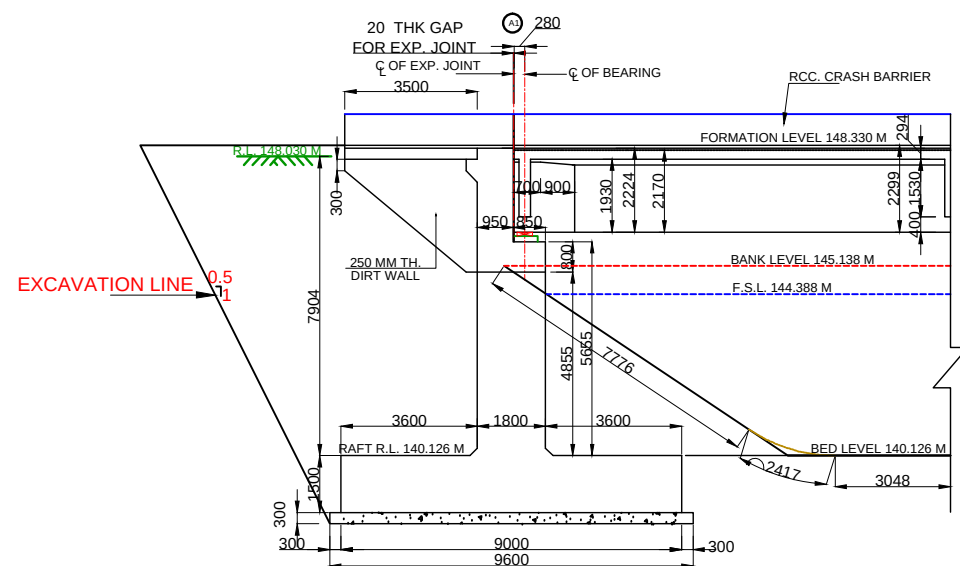
Prepared by :- WAPCOS LTD.  वाष्कोस लिमिटेड WAPCOS LIMITED (A Government of India Undertaking, Ministry of Public Relations)	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	EXISTING PLAN OF CART BRIDGE AT CH. 25.110 KM		
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-17		01 of 12
	Drawn by:-	Checked by:-	Approved by:-	



SKETCH OF DIVERSION PLAN AT KM 25.110 FOR D.L.R. BRIDGE

NOTES:-

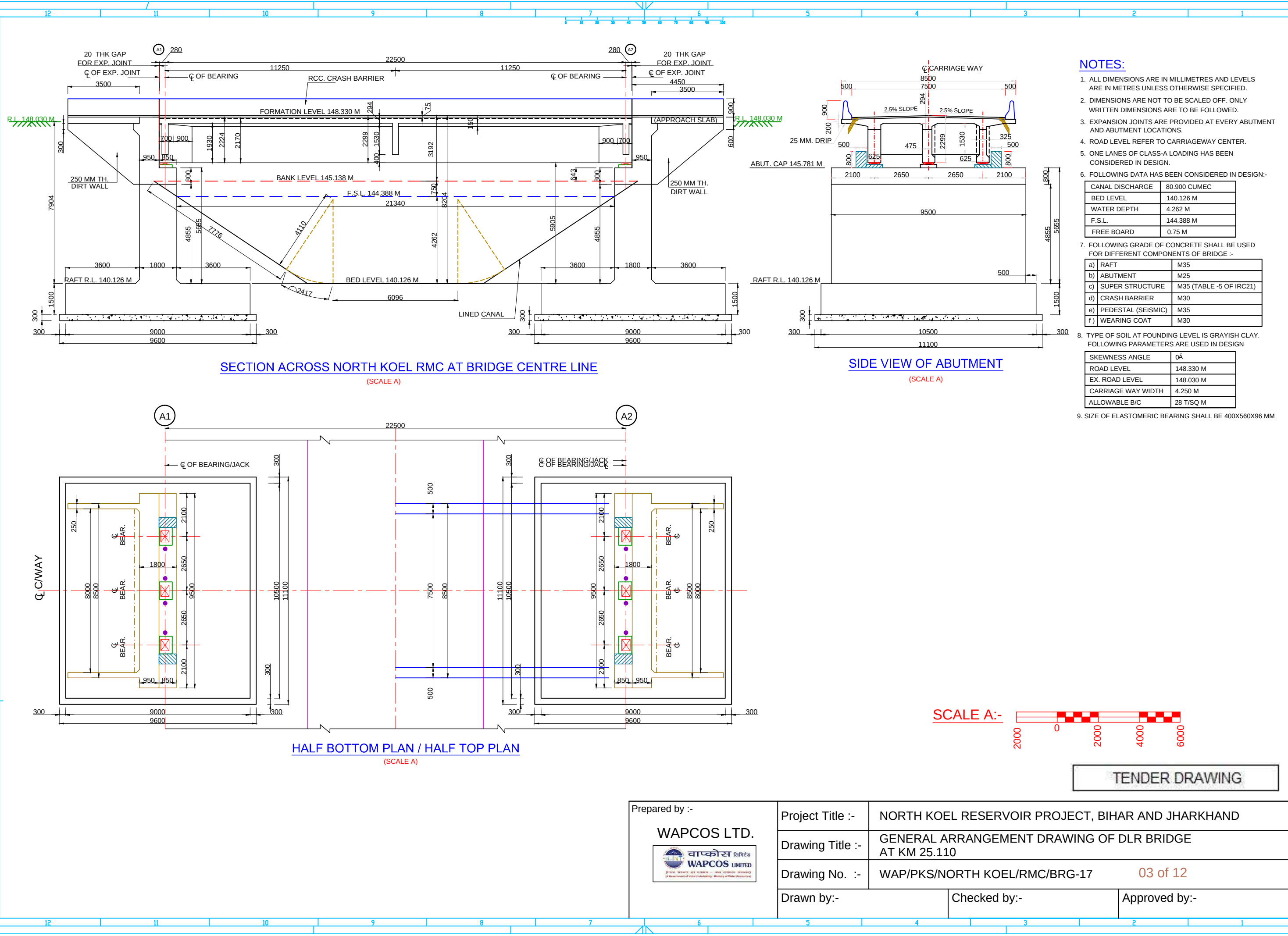
1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.



DETAIL SECTION AT 'A'

TENDER DRAWING

Prepared by :- WAPCOS LTD.  (एनएसएल सरकार का उपक्रम - जल संसाधन विभाग) (A Government of India Undertaking - Ministry of Water Resources)	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 25.110 FOR D.L.R. BRIDGE		
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 17	02 of 12	
	Drawn by:-	Checked by:-	Approved by:-	

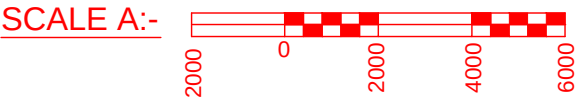


- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
 - DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 - EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
 - ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
 - ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
 - FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	80.900 CUMEC
BED LEVEL	140.126 M
WATER DEPTH	4.262 M
F.S.L.	144.388 M
FREE BOARD	0.75 M
 - FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a) RAFT	M35
b) ABUTMENT	M25
c) SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d) CRASH BARRIER	M30
e) PEDESTAL (SEISMIC)	M35
f) WEARING COAT	M30
 - TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKWNESS ANGLE	0°
ROAD LEVEL	148.330 M
EX. ROAD LEVEL	148.030 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M
 - SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

GENERAL ARRANGEMENT DRAWING OF DLR BRIDGE
AT KM 25.110

Drawing No. :-

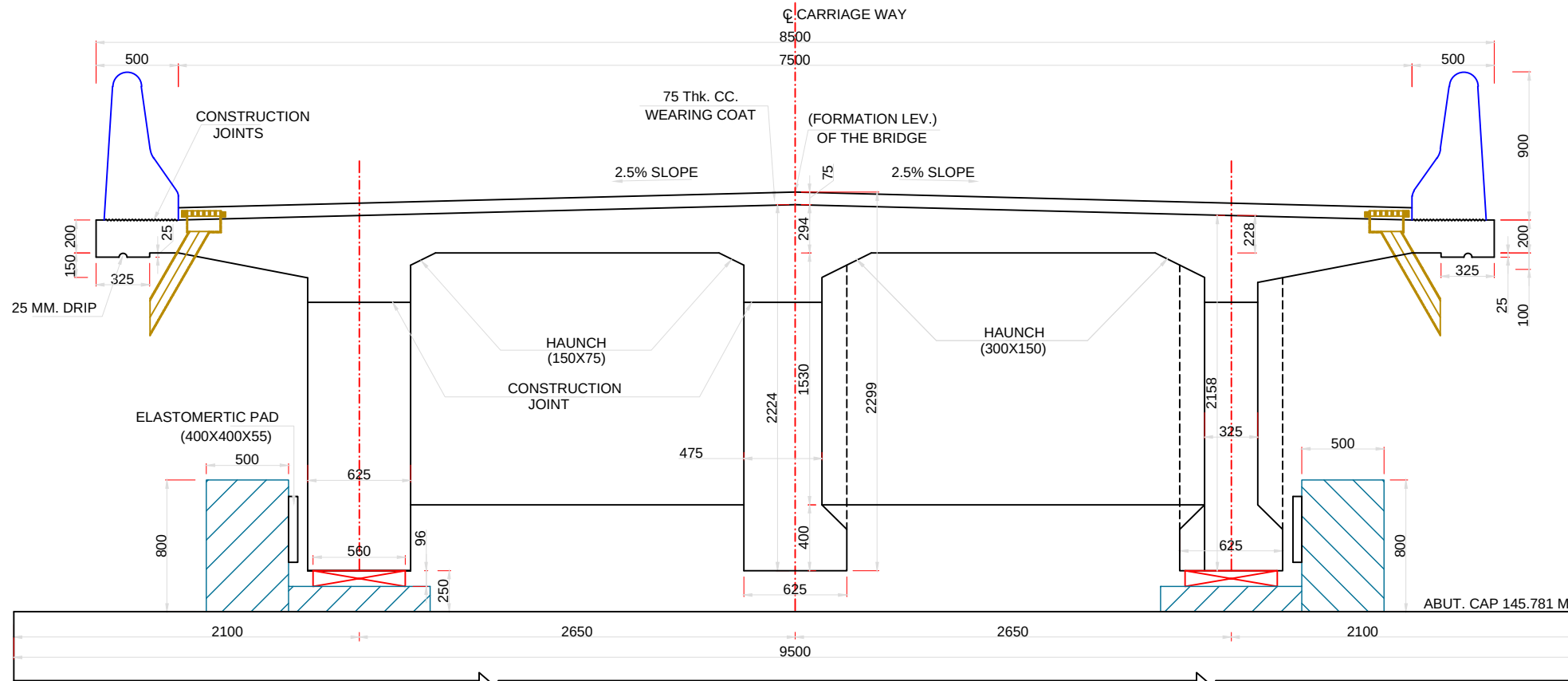
WAP/PKS/NORTH KOEL/RMC/BRG-17

03 of 12

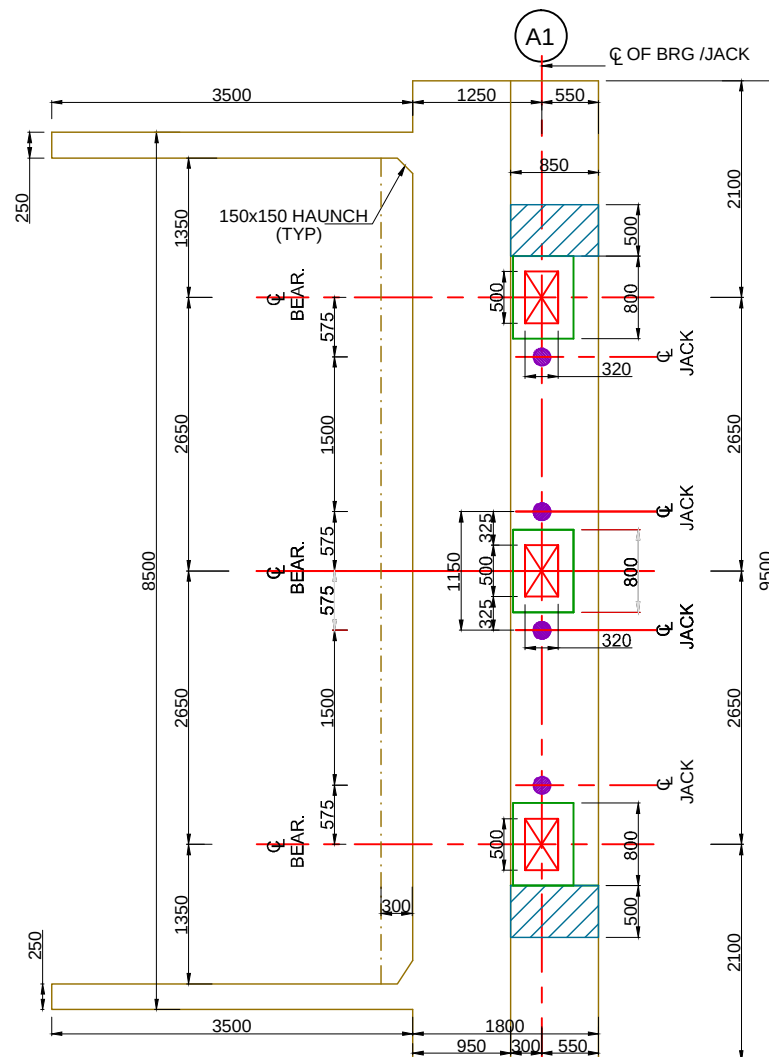
Drawn by:-

Checked by:-

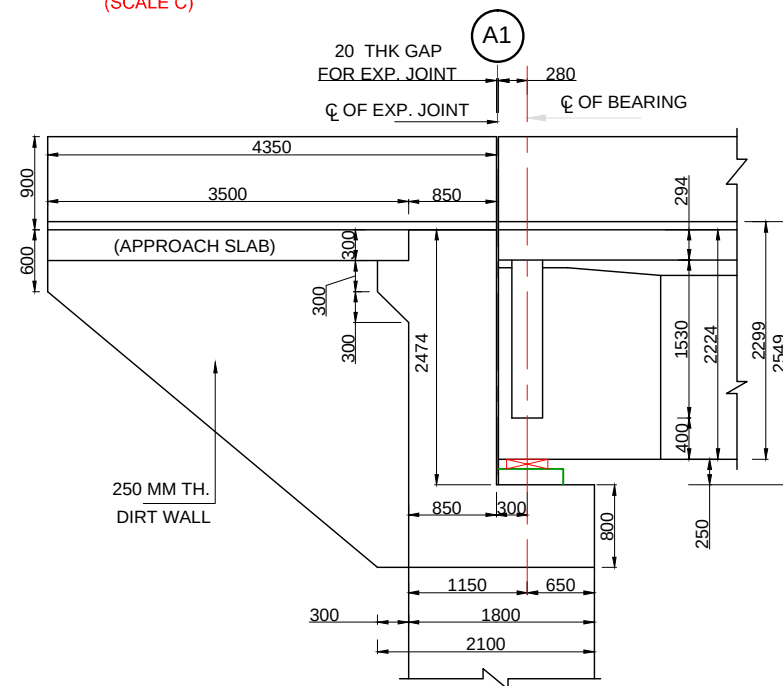
Approved by:-



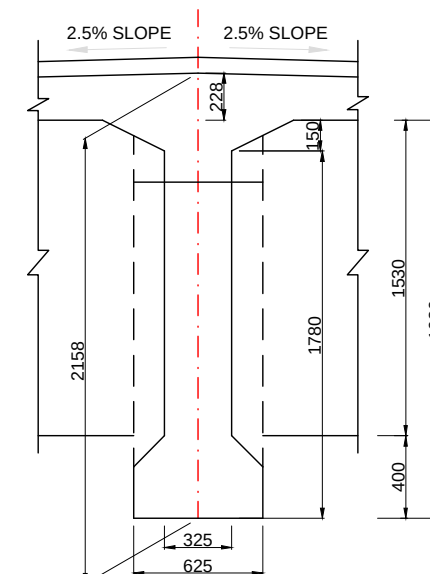
SECTION ABC OF SLAB AND GIRDERS
(REFER SHEET NO. 05 OF 09)
(SCALE C)



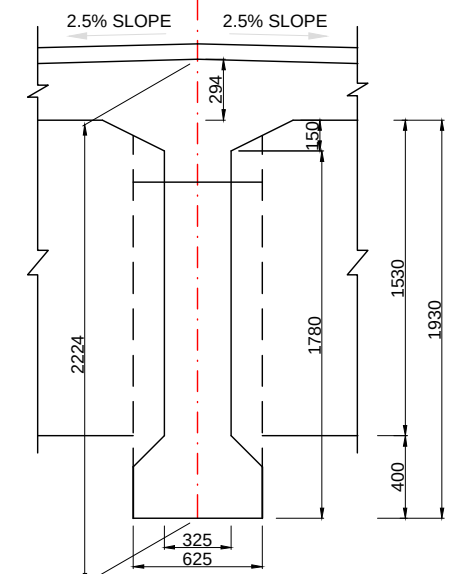
PLAN OF ABUTMENT AT BEARING LEVEL
(SCALE B)



DETAIL - 'D1'
(SCALE P)



**CROSS SECTION OF
RCC 'I' OUTER GIRDER**
(SCALE C)



**CROSS SECTION OF
RCC 'I' INTERMEDIATE GIRDER**
(SCALE C)

NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
- THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T-BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
- THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
- GRADE OF CONCRETE FOR T-BEAM AND SLAB SHALL BE M-35. CONFORMING TO I.S. 456
- PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
- H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
- THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
- BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
- DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
- THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN-AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
- CRASH BARRIER TYPE RAILING SHALL BE USED.
- THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
- ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :- SECTION DETAILS OF G.A.D. OF DLR BRIDGE AT KM 25.110

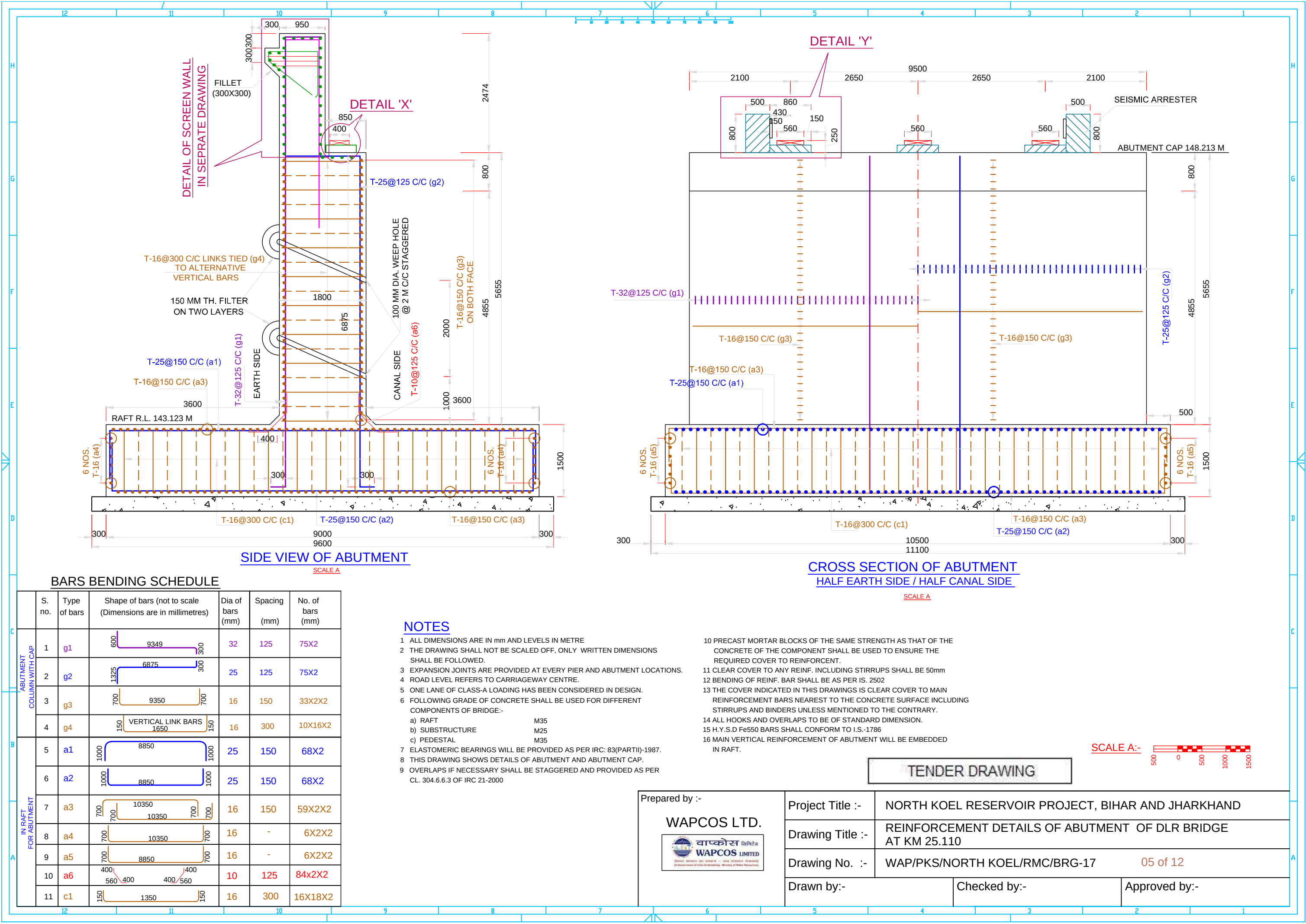
Drawing No. :- WAP/PKS/NORTH KOEL/RMC/BRG-17

04 of 12

Drawn by:-

Checked by:-

Approved by:-



BARS BENDING SCHEDULE

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
1	g1		32	125	75X2
2	g2		25	125	75X2
3	g3		16	150	33X2X2
4	g4		16	300	10X16X2
5	a1		25	150	68X2
6	a2		25	150	68X2
7	a3		16	150	59X2X2
8	a4		16	-	6X2X2
9	a5		16	-	6X2X2
10	a6		10	125	84X2X2
11	c1		16	300	16X18X2

NOTES

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
- FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-

a) RAFT	M35
b) SUBSTRUCTURE	M25
c) PEDESTAL	M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000

- 10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCMENT.
- 11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
- 12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
- 13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
- 14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
- 15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
- 16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF ABUTMENT OF DLR BRIDGE AT KM 25.110

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-17

05 of 12

Drawn by:-

Checked by:-

Approved by:-