

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

TENDER DOCUMENT

FOR

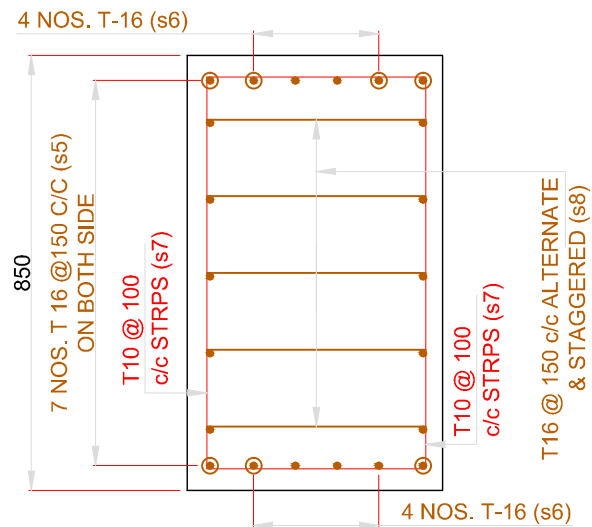
**Lining, Repair and Construction of Balance Works of Right Main Canal
& its Structures of Package-2 (RD 17.16 to 31.40 km) under North Koel
Reservoir Project, Jharkhand**

Estimated Cost (Rs. 43.97 Crores)

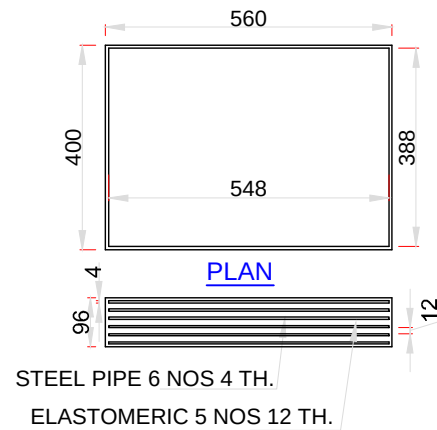
TENDER NO: WAP/NK/JHK/RMC-PKG-2/BALANCE/2026

TENDER DRAWINGS

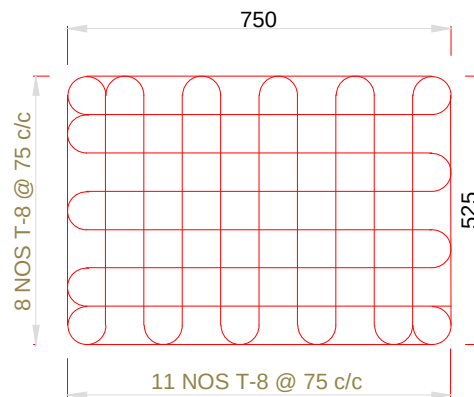




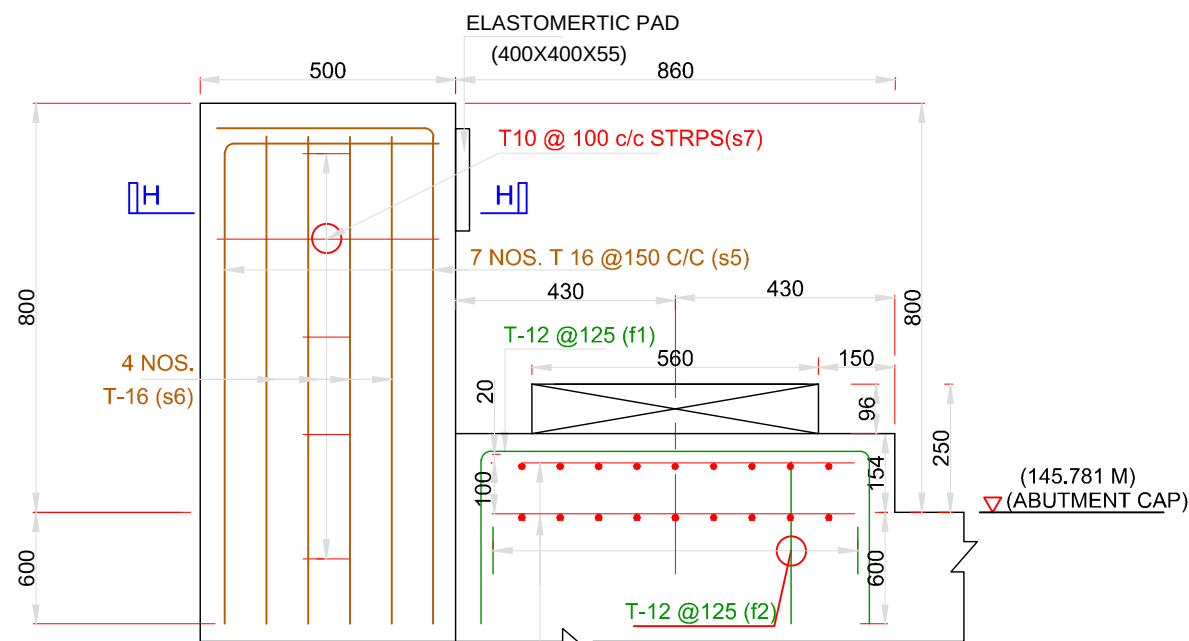
SECTION H-H
SCALE A



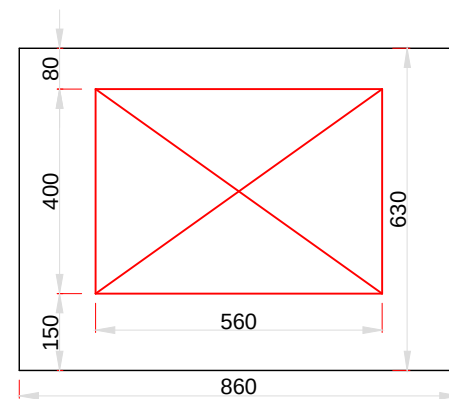
DETAILS OF
ELASTOMERIC BEARINGS
SCALE A



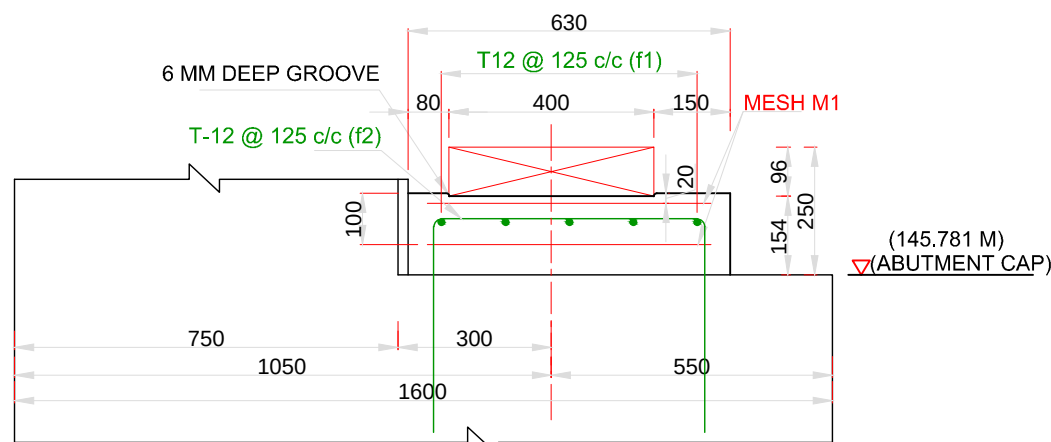
DETAIL OF MESH M1
(MESH BELOW BEARING LOCATION)
SCALE A



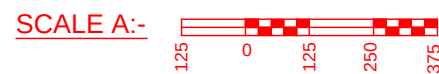
DETAIL 'Y'
SCALE A



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	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 25.110

Drawing No. :-

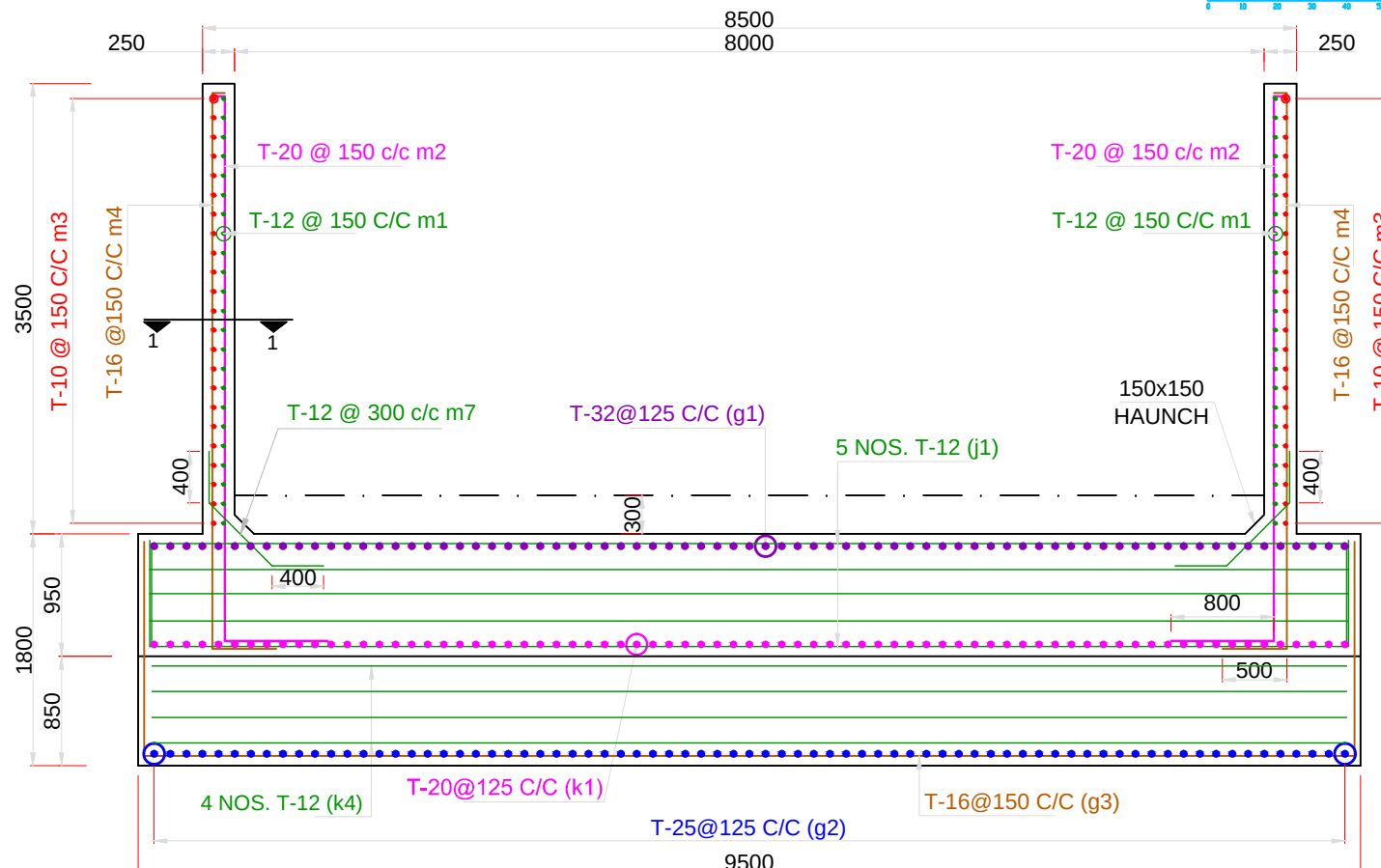
WAP/PKS/NORTH KOEL/RMC/BRG-17

06 of 12

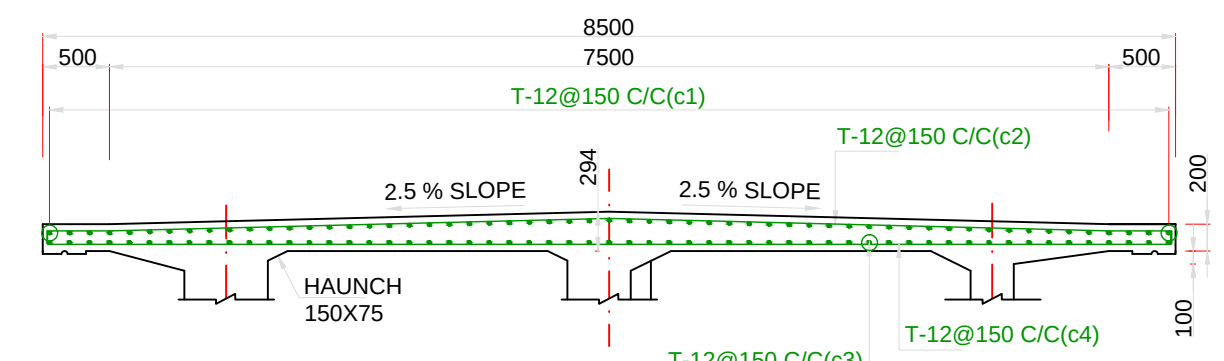
Drawn by:-

Checked by:-

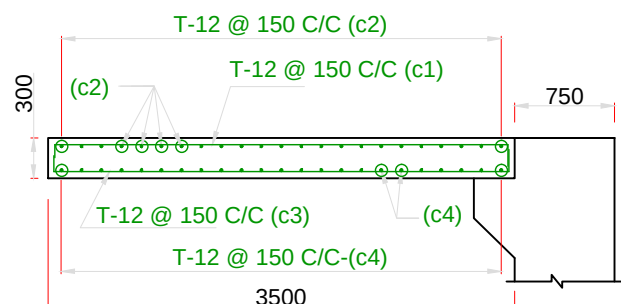
Approved by:-



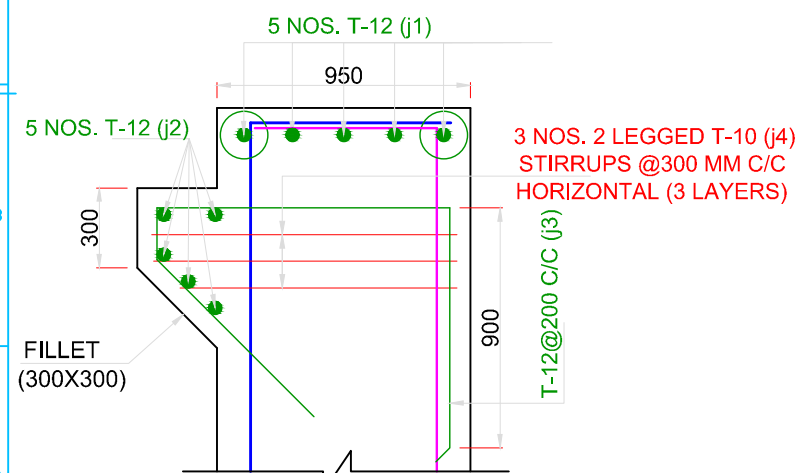
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL
SCALE A



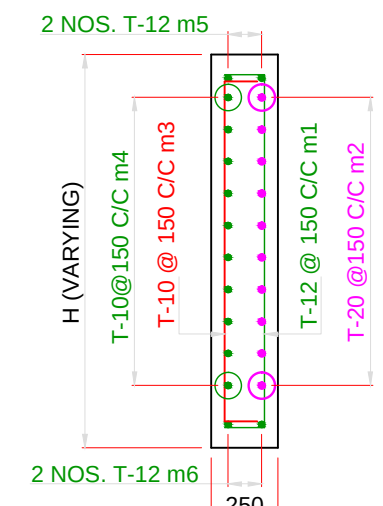
REINFORCEMENT IN APPROACH SLAB
SCALE A



SECTION OF APPROACH SLAB
SCALE A

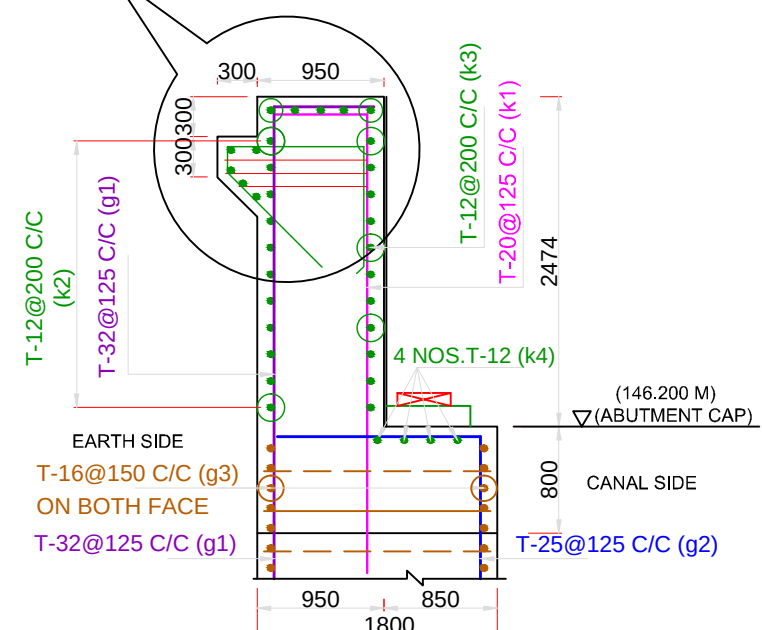


DETAIL '1'
SCALE B



SECTION AT 1-1
SCALE B

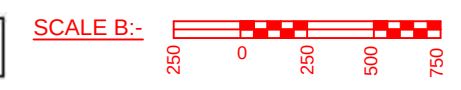
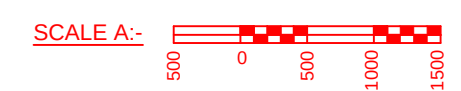
DETAIL '1'



REINFORCEMENT DETAILS IN SECTION OF DIRT
SCALE A

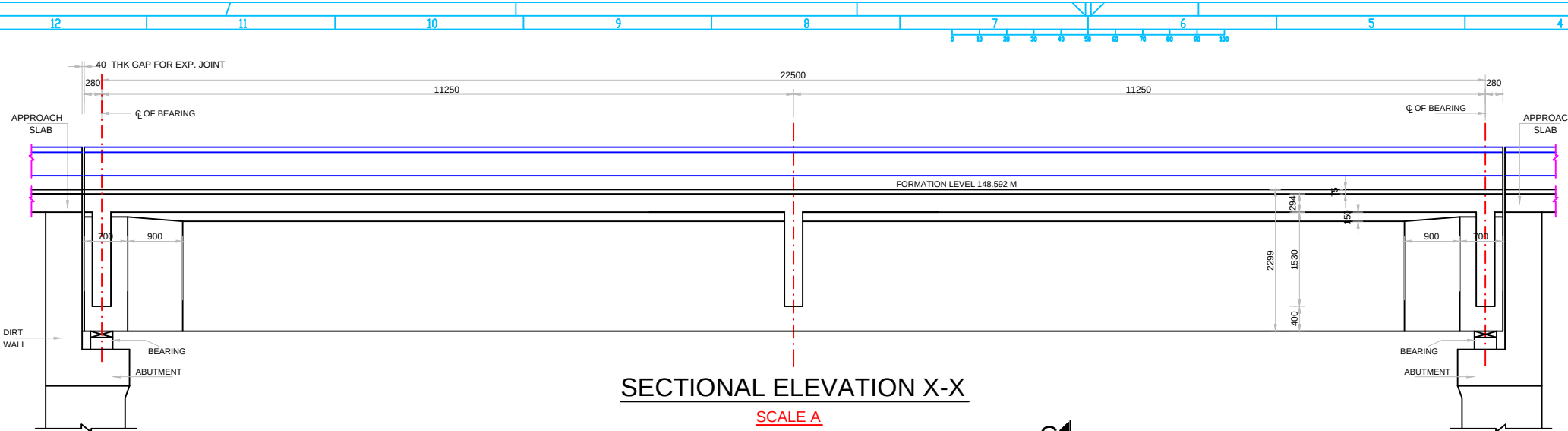
BARS BENDING SCHEDULE

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)
4	k1		20	125	51X2
5	k2		12	200	11X2
6	k3		12	200	11X2
7	k4		12	200	4X2
8	j1		12	-	5X2
9	j2		12	-	5X2
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	-
16	c1		12	150	56X2
17	c2		12	150	23X2
18	c3		12	150	56X2
19	c4		12	150	23X2



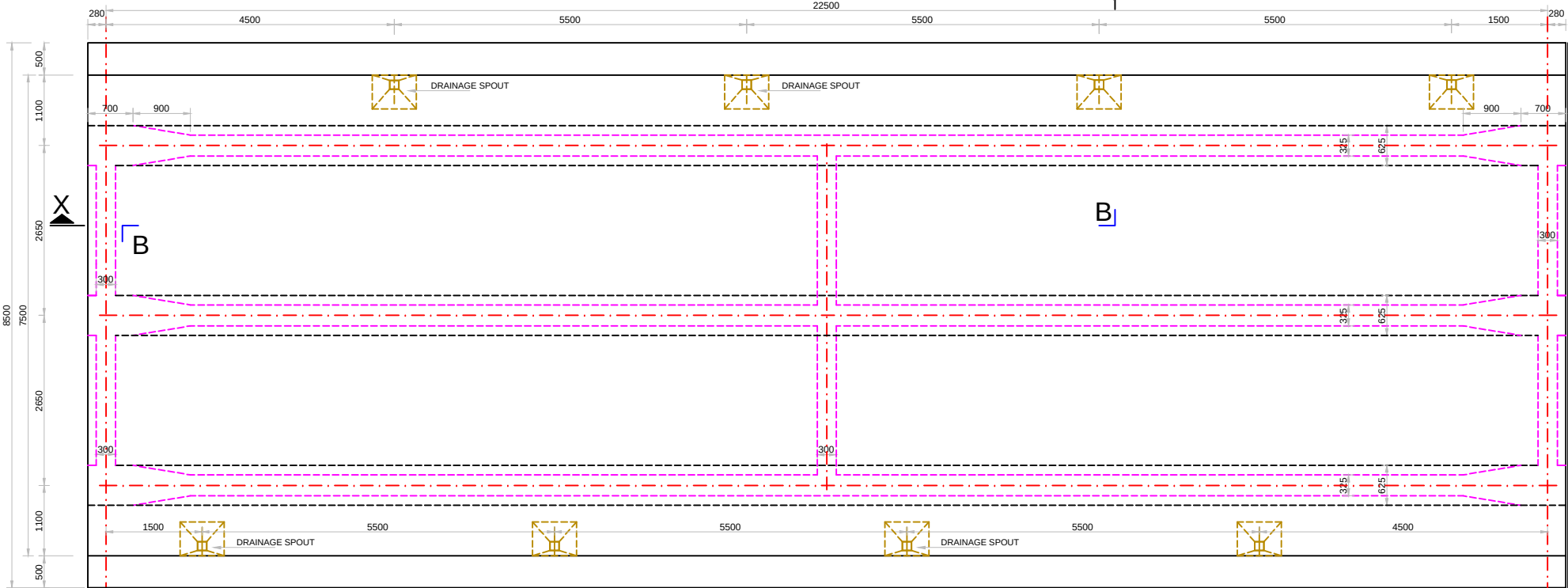
TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :- REINFORCEMENT DETAILS OF SCREEN WALL OF BRIDGE AT KM 25.110	Drawing No. :- WAP/PKS/NORTH KOEL/RMC/BRG-17
Drawn by:-	Checked by:-
Approved by:-	



SECTIONAL ELEVATION X-X

SCALE A

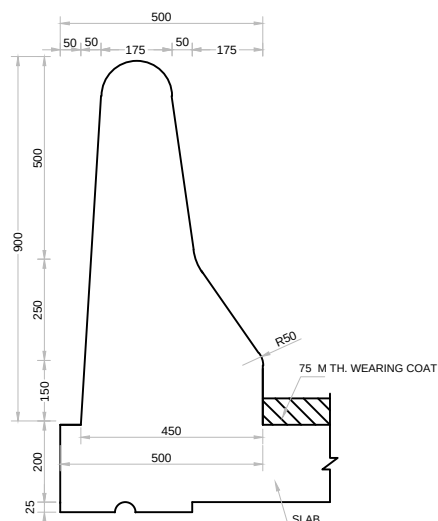


PLAN

SCALE A

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 IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. 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.
7. 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.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.

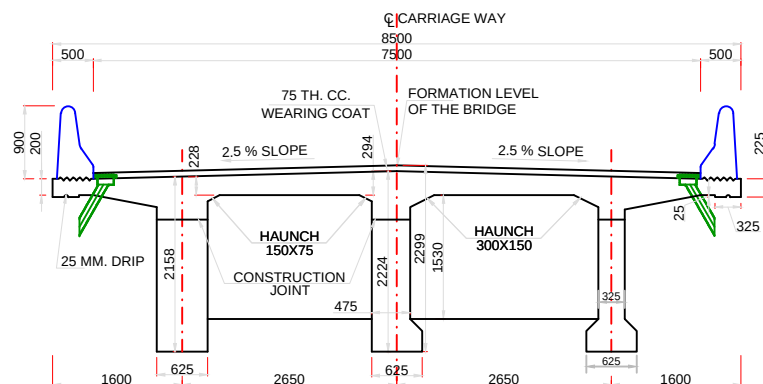
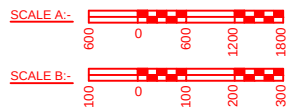


DETAILS OF CRASH BARRIER

SCALE B

REFERENCES:-

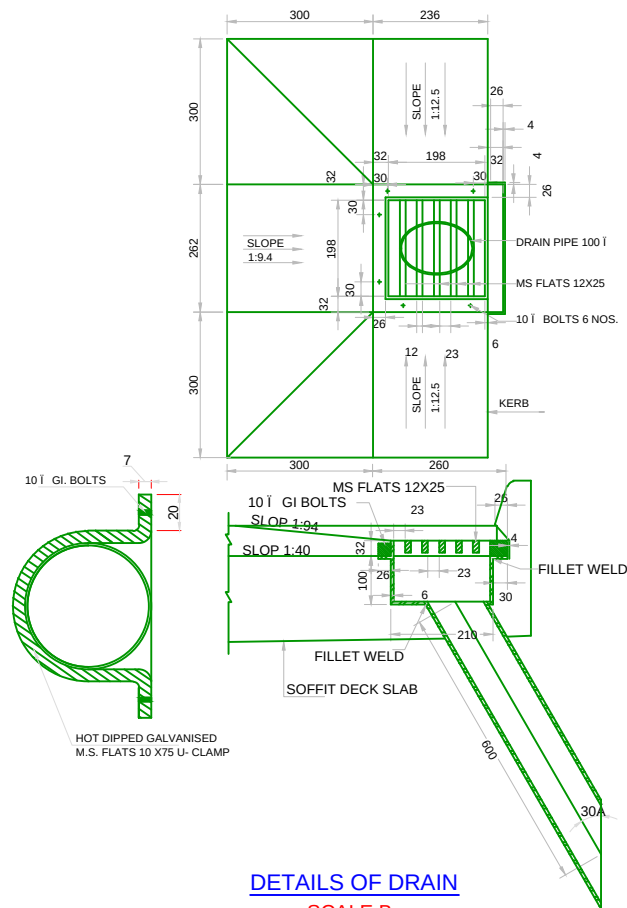
1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.



SECTION ABC

(FOR FULL SECTION REFER SHEET NO. 01 OF 09)

SCALE A



DETAILS OF DRAIN

SCALE B

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

DETAIL DRAWING OF DECK SLAB OF DLR BRIDGE AT KM 25.110

Drawing No. :-

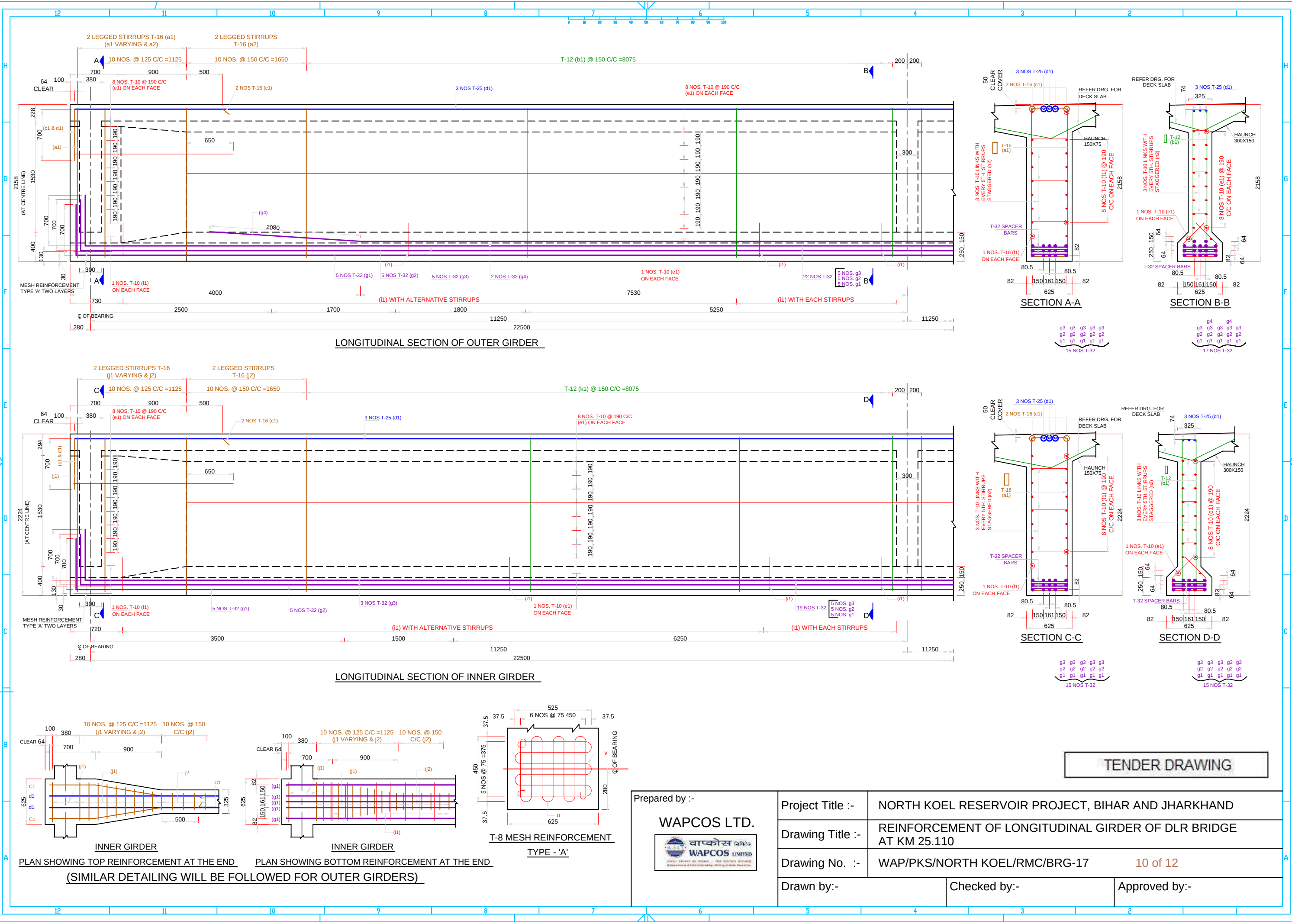
WAP/PKS/NORTH KOEL/RMC/BRG-17

08 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 DLR BRIDGE AT KM 25.110

Drawing No. :-

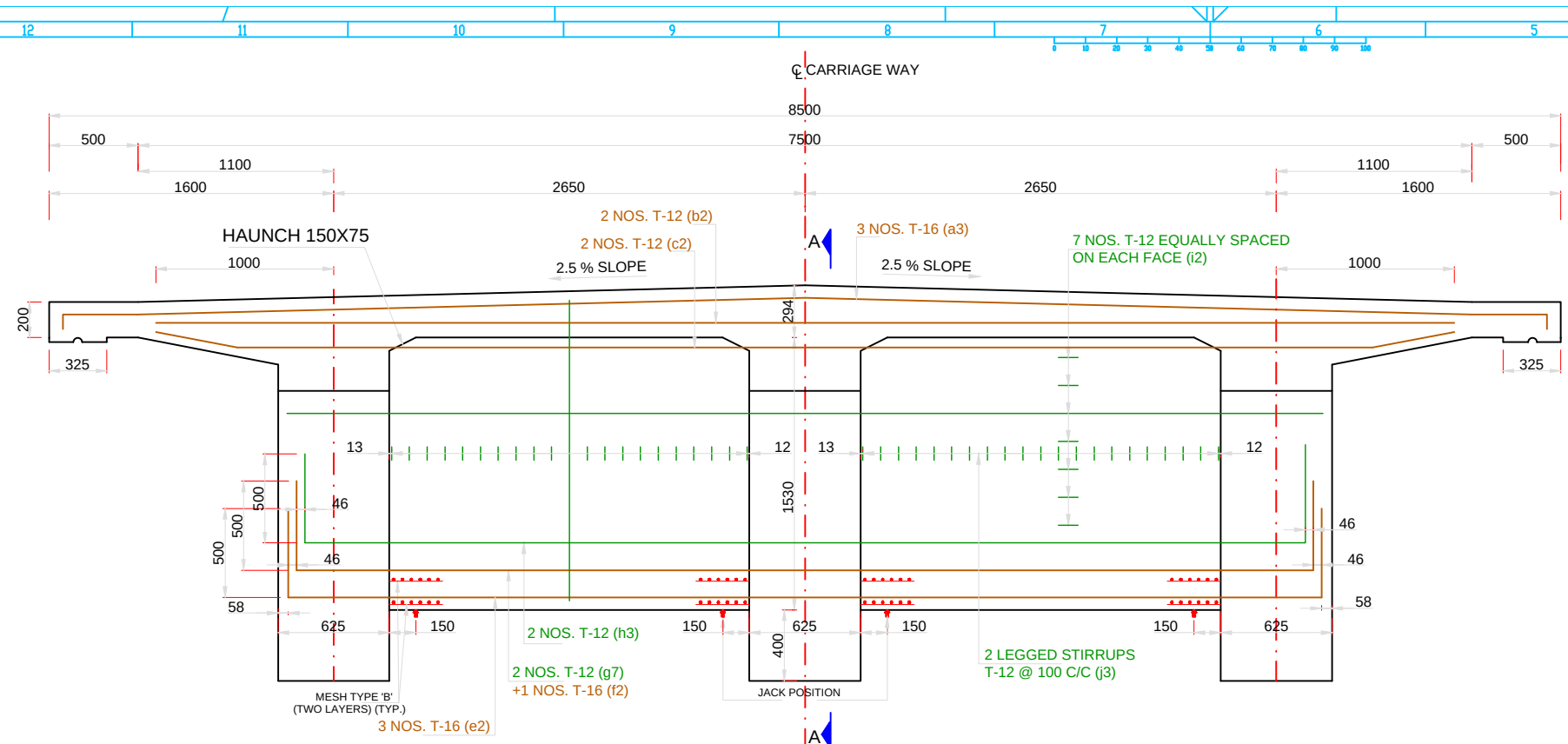
WAP/PKS/NORTH KOEL/RMC/BRG-17

10 of 12

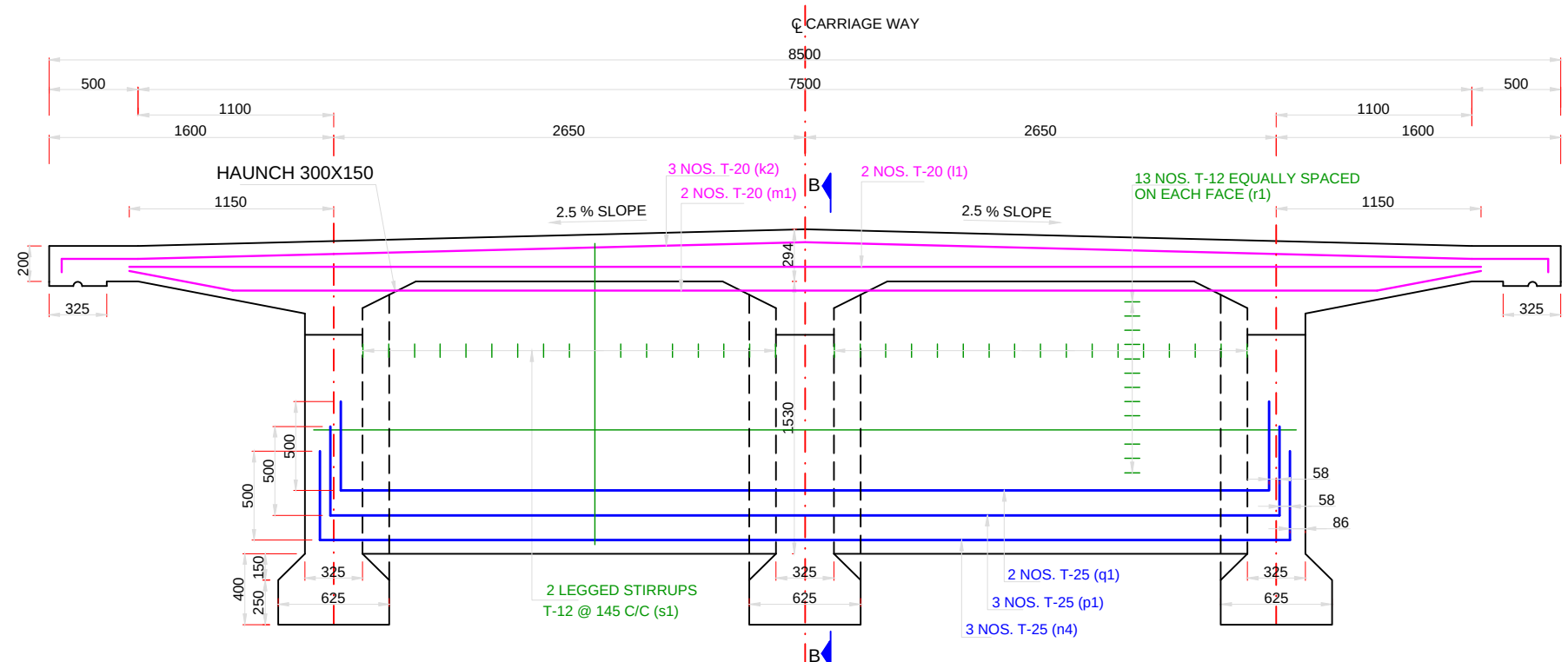
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Checked by:-

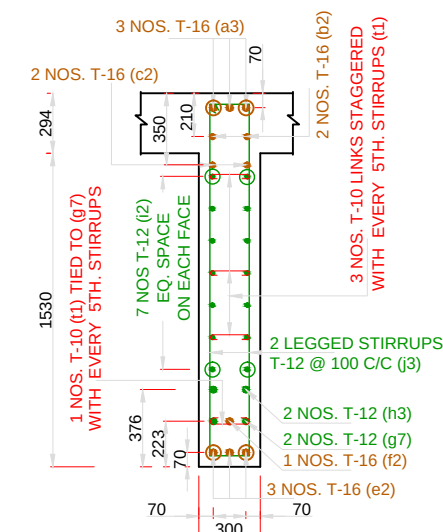
Approved by:-



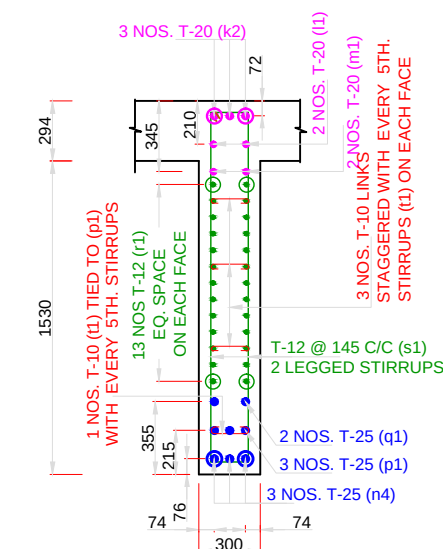
LONGITUDINAL SECTION OF END CROSS GIRDER



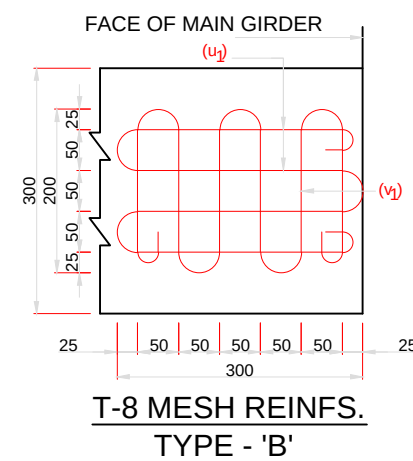
LONGITUDINAL SECTION
OF INTERMEDIATE CROSS GIRDER



SECTION A-A



SECTION B-B



T-8 MESH REINFS.
TYPE - 'B'

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 25.110

Drawing No. :-

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

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						
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						
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						
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 25.110

Drawing No. :-

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

12 of 12

Drawn by:-

Checked by:-

Approved by:-

**TENDER DOCUMENT
FOR
Lining, Repair & Construction of Right Main Canal and its Structures
from RD 0 to 32.46 km under North Koel Reservoir Project, Jharkhand and Bihar
Estimated Cost (Rs. 195.74 Crores)**

TENDER NO: WAP/INFRA./NK/RMC(P1)/2019

VOLUME -5

**TENDER DRAWINGS
Part-2g(Structures)**

Issued to M/s_____



**वाष्कोस लिमिटेड
WAPCOS LIMITED**

(भारत सरकार का उपक्रम)

जल संसाधन, नदी विकास व गंगा संरक्षण मंत्रालय

(A Government of India Undertaking)

Ministry of Water Resources, River Development & Ganga Rejuvenation

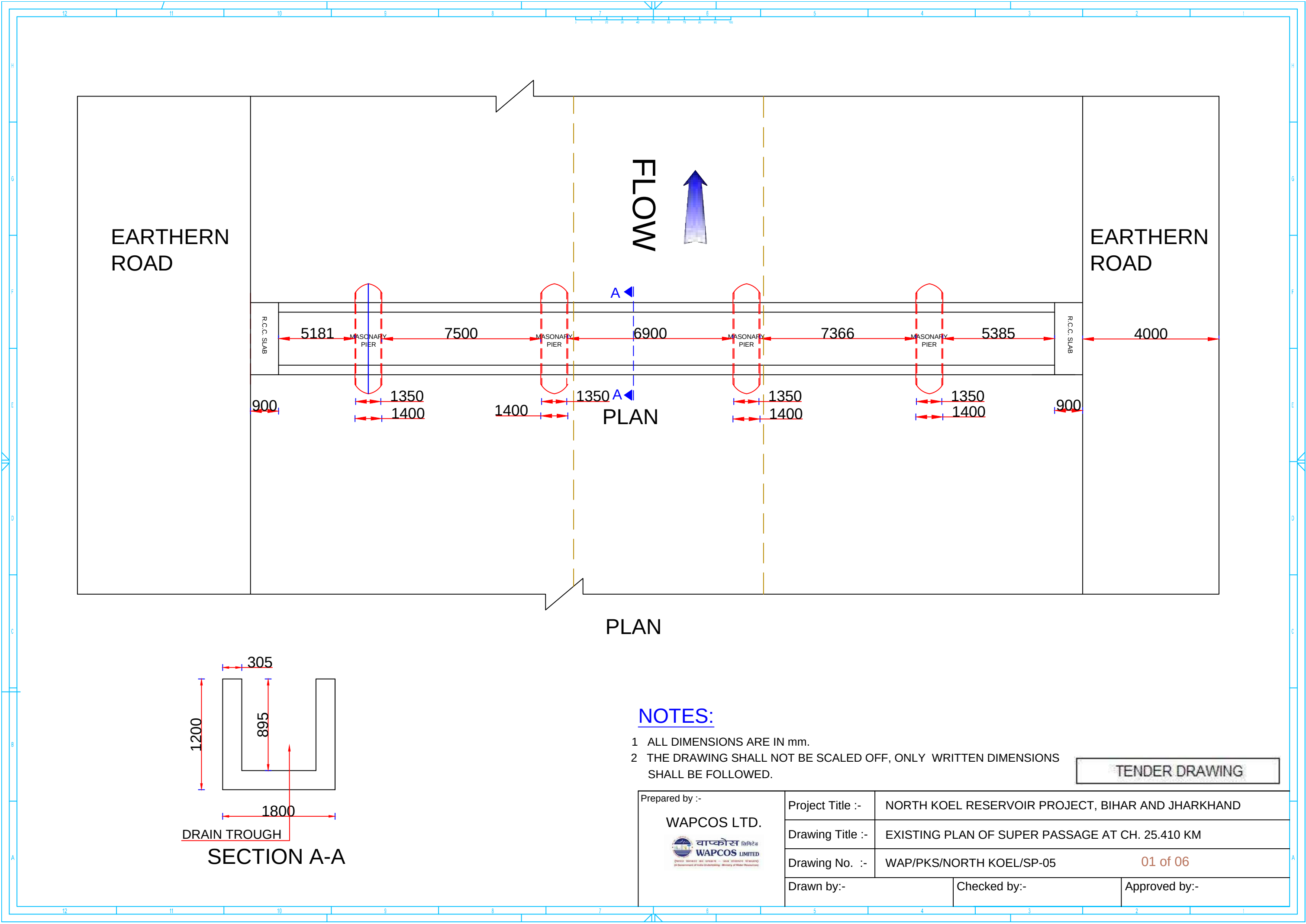
Tele-fax: +91-124-2397391,
Email: commercial@wapcos.co.in,



SUPER PASSAGE

AT

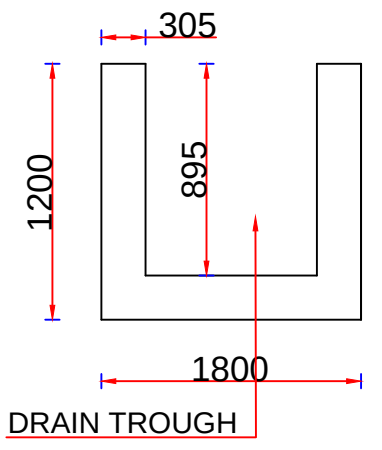
CH. 25.410 KM



FLOW

PLAN

PLAN

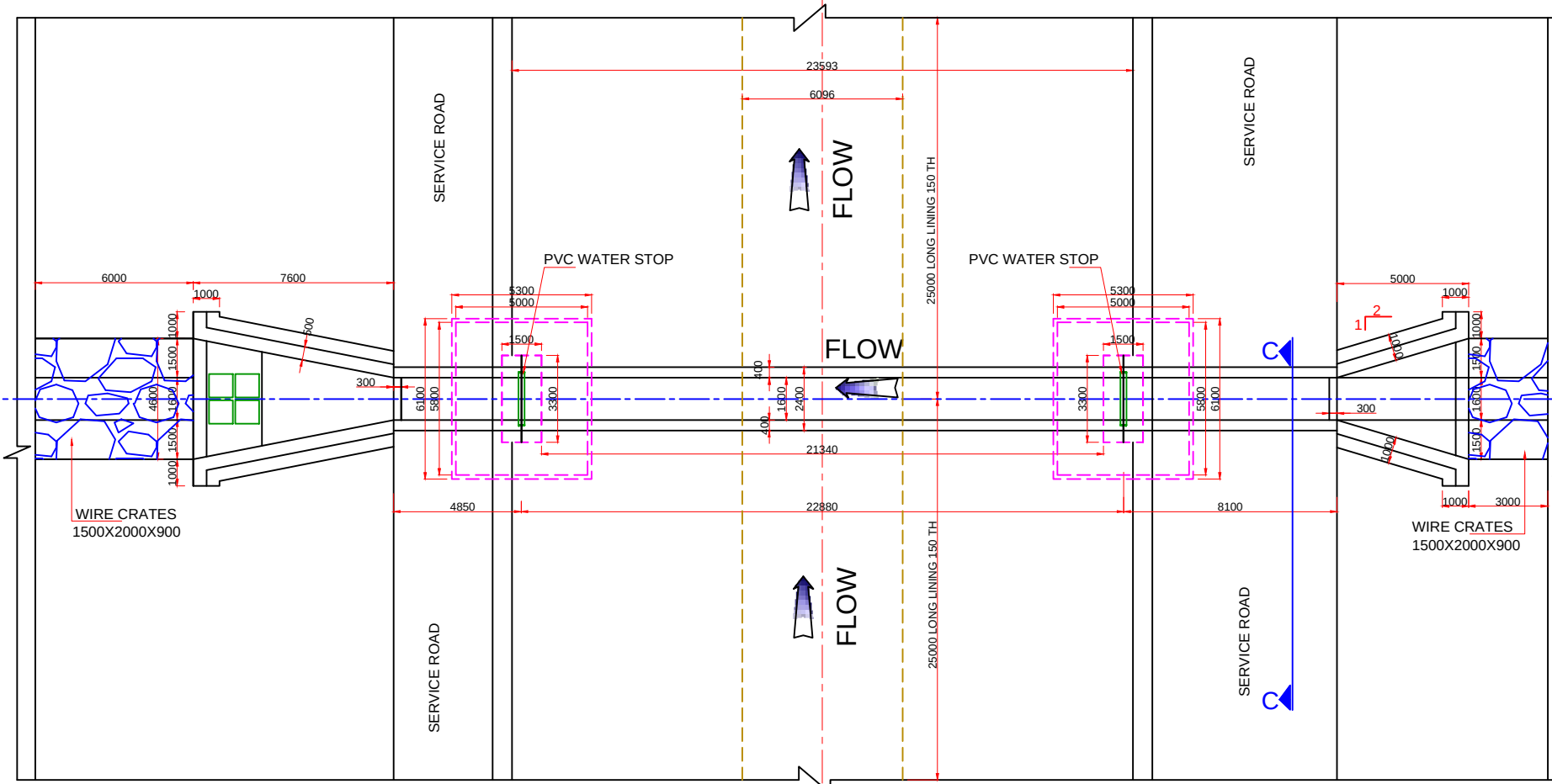
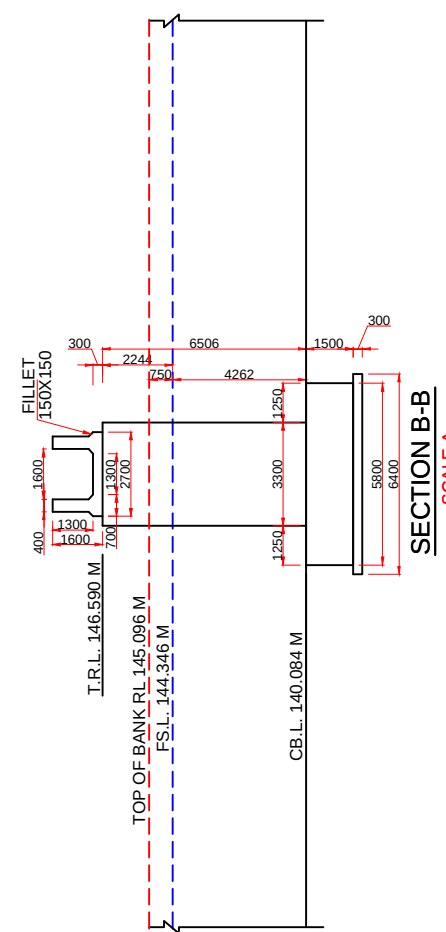
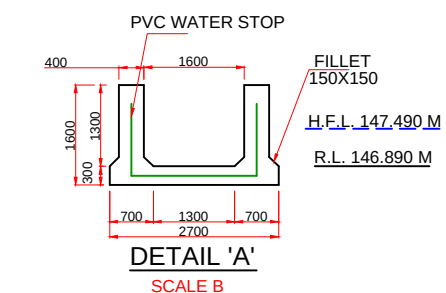
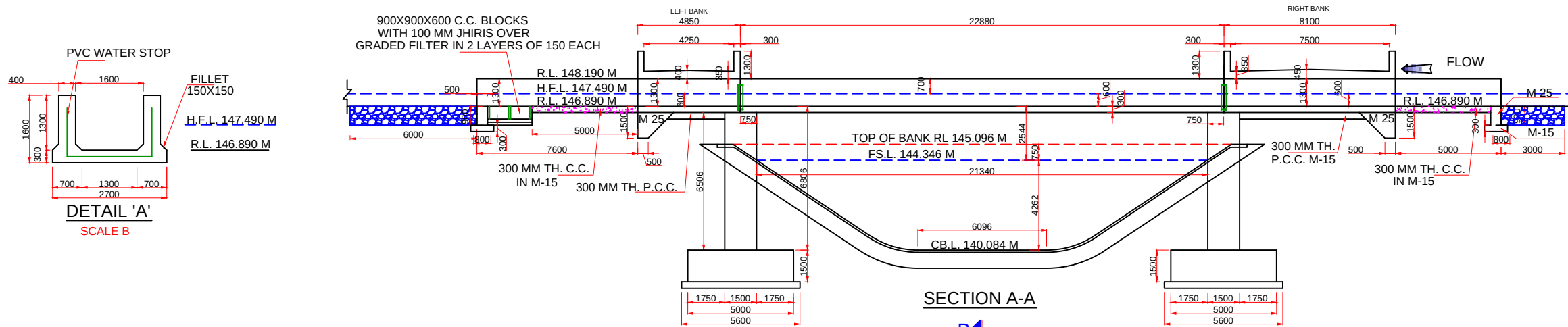


NOTES:

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

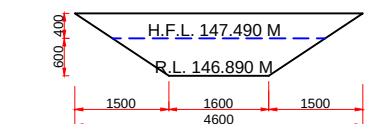
TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	EXISTING PLAN OF SUPER PASSAGE AT CH. 25.410 KM		
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-05	01 of 06	
	Drawn by:-	Checked by:-	Approved by:-	

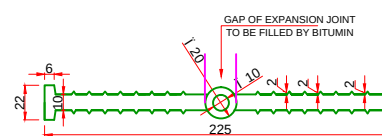


	RMC	DRAIN
DISCHARGE	80.900 CUMEC	1.440 CUMEC
BED WIDTH	6.096 M	1.600 M
WATER DEPTH	4.262 M	0.600 M
BED LEVEL	140.084 M	146.890 M
BED SLOPE	1/7000	1/935

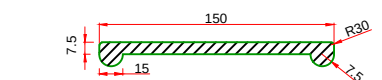
- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
 - DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 - EXPANSION JOINTS ARE PROVIDED AT LOCATIONS INDICATED IN DRAWING.
 - FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF SUPER PASSAGE :-
a) TROUGH M35
b) ABUTMENT M25
c) 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 FOUNDED 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.



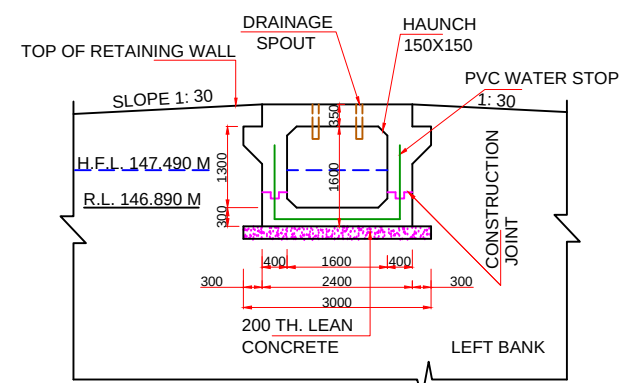
CROSS SECTION OF DRAIN



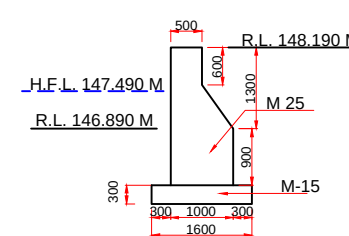
DETAILS OF TYPICAL PVC WATER STOP FOR EXPANSION/CONTRACTION JOINTS



DETAILS OF TYPICAL WATER STOP FOR CONSTRUCTION JOINT



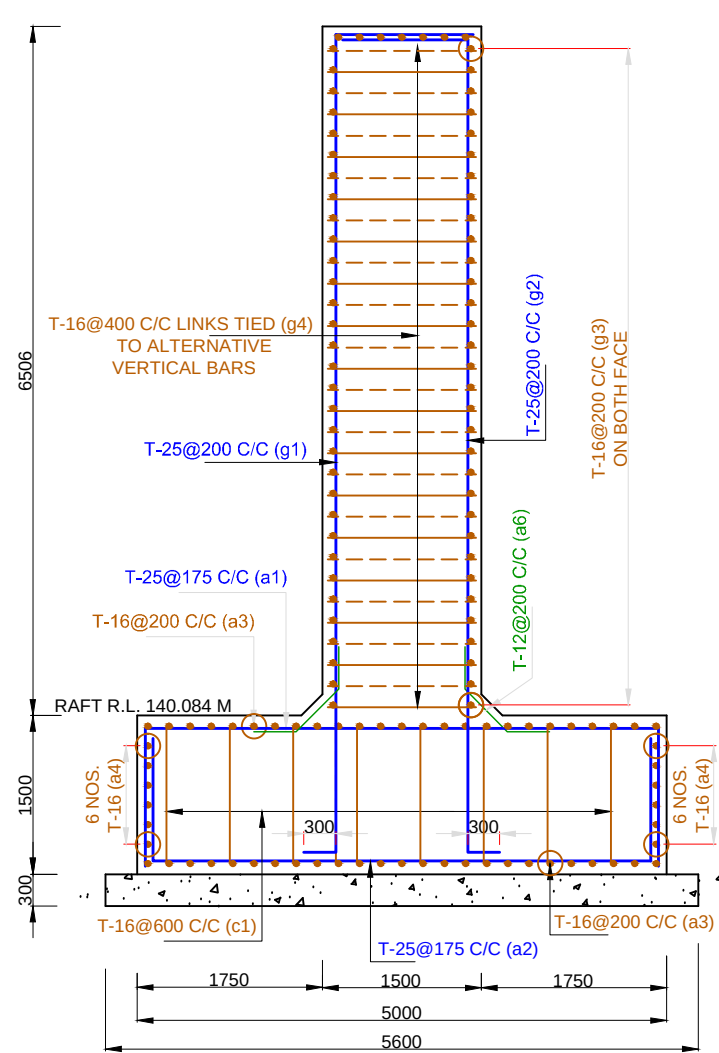
SECTION C-C (BOX TYPE SECTION UNDER ROAD)
SCALE B



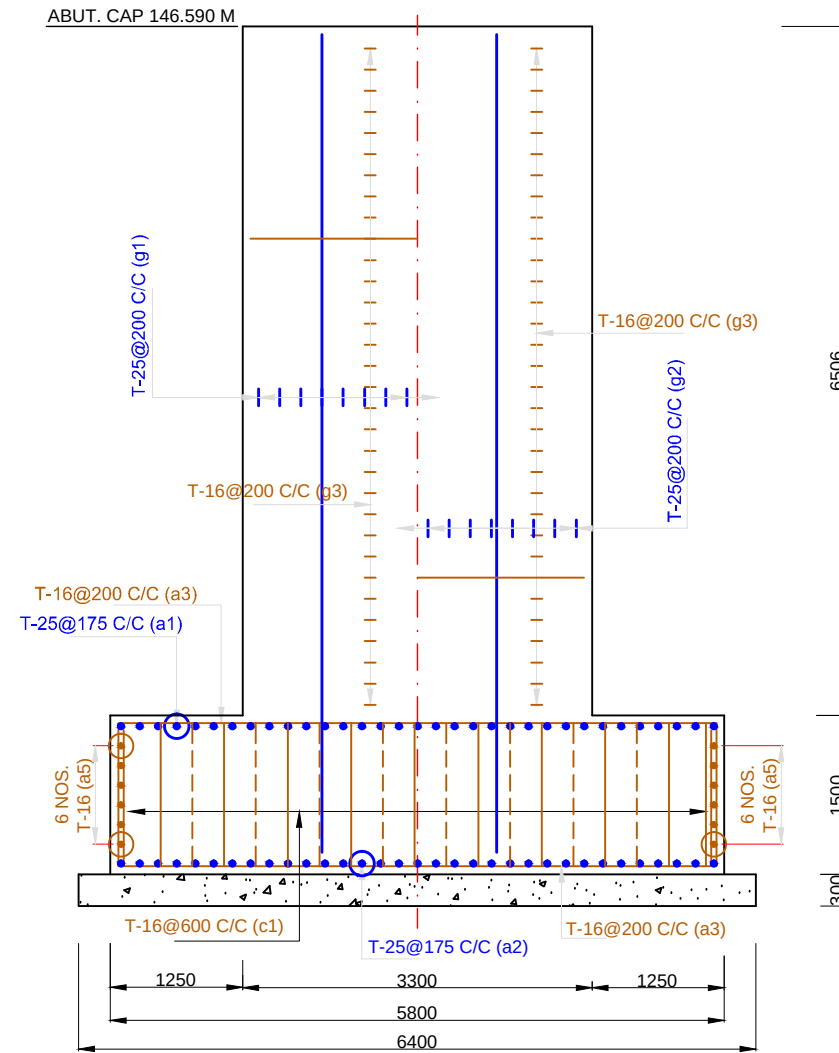
SECTION OF TRANSITION WALL
SCALE B

TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :- GENERAL ARRANGEMENT DRAWING OF SUPER PASSAGE KM 25.410	
Drawing No. :- WAP/PKS/NORTH KOEL/SP-05	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	32X2X2
	4	g4		16	400	16X8X2
IN RAFT FOR ABUTMENT	5	a1		25	175	33X2
	6	a2		25	175	33X2
	7	a3		16	200	25X2X2
	8	a4		16	-	6X2X2
	9	a5		16	-	6X2X2
	10	a6		12	200	16X2X2
	11	c1		16	600	8X10X2

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 SUPER PASSAGE AT KM 25.410

Drawing No. :-

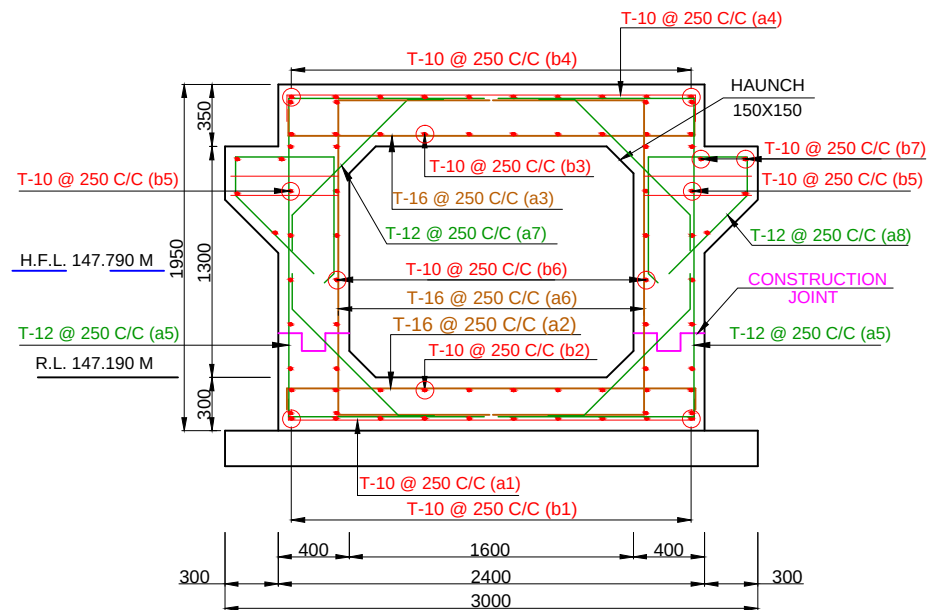
WAP/PKS/NORTH KOEL/SP-05

03 of 06

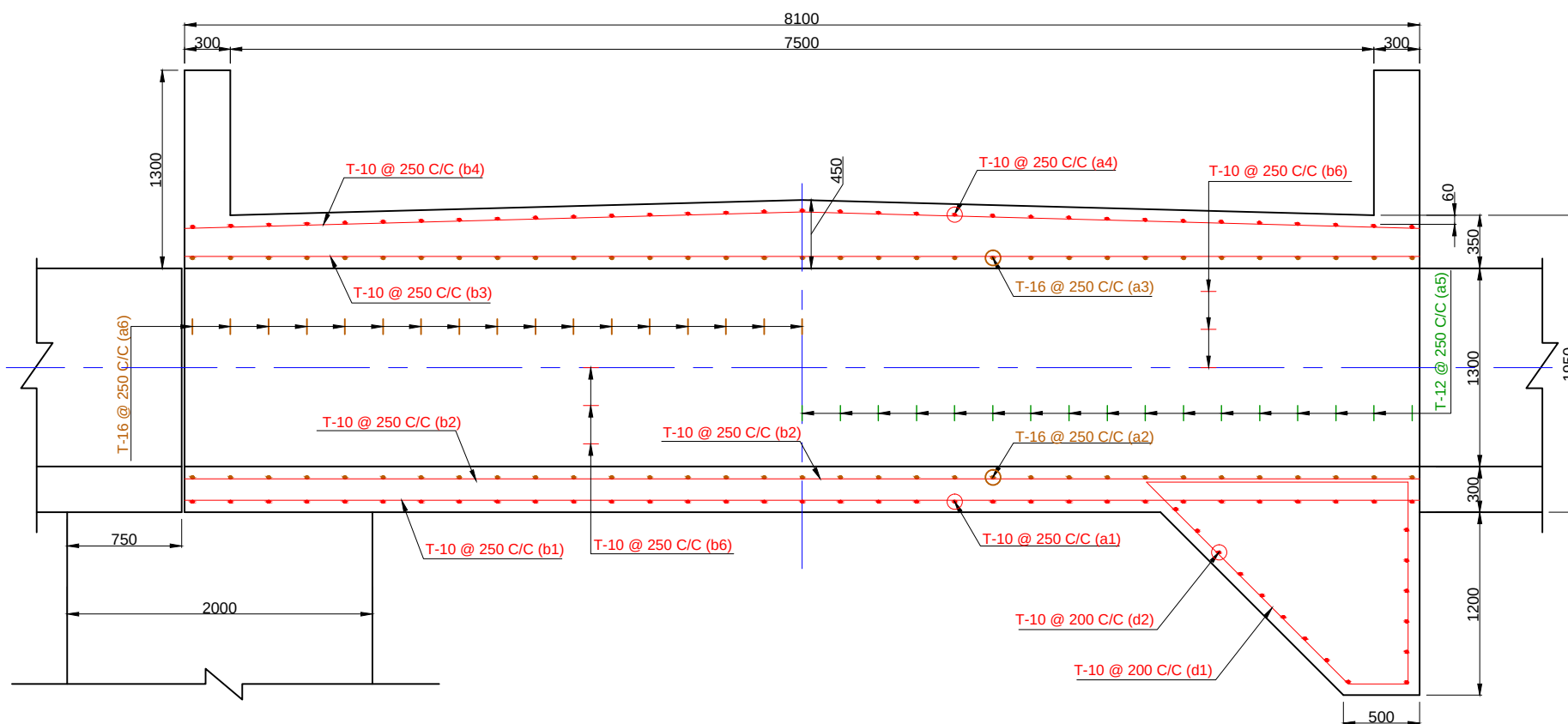
Drawn by:-

Checked by:-

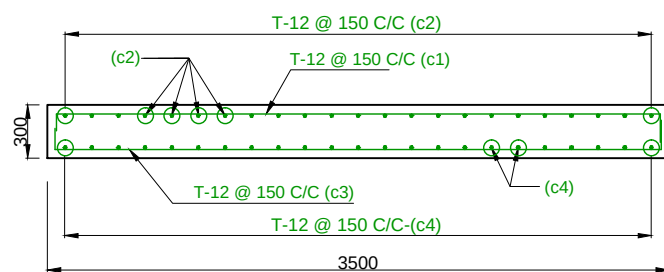
Approved by:-



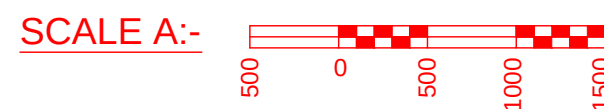
REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)
SECTION C-C



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 25.410

Drawing No. :-

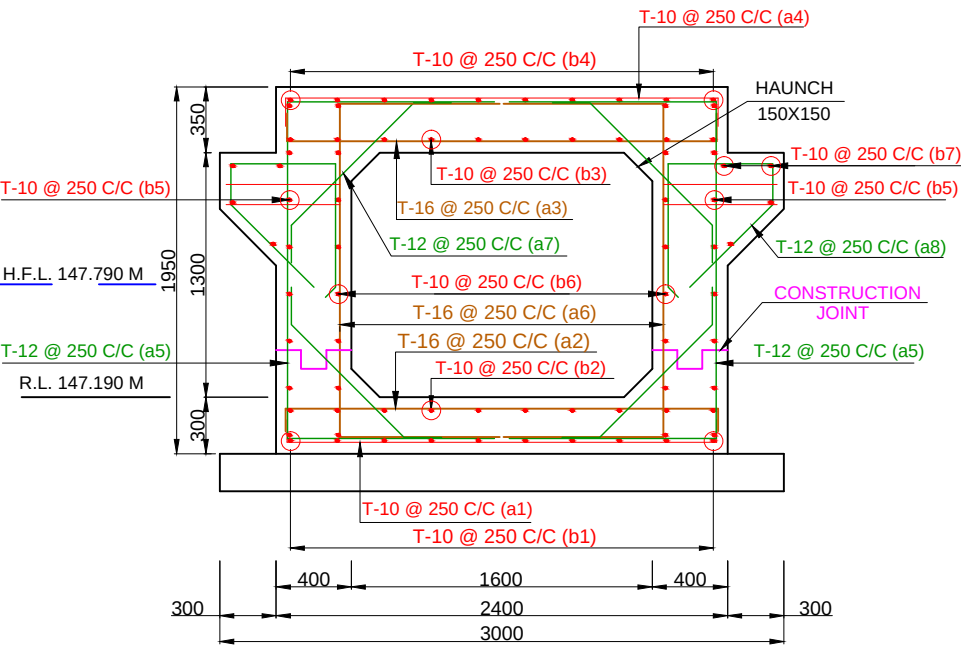
WAP/PKS/NORTH KOEL/SP-05

05 of 06

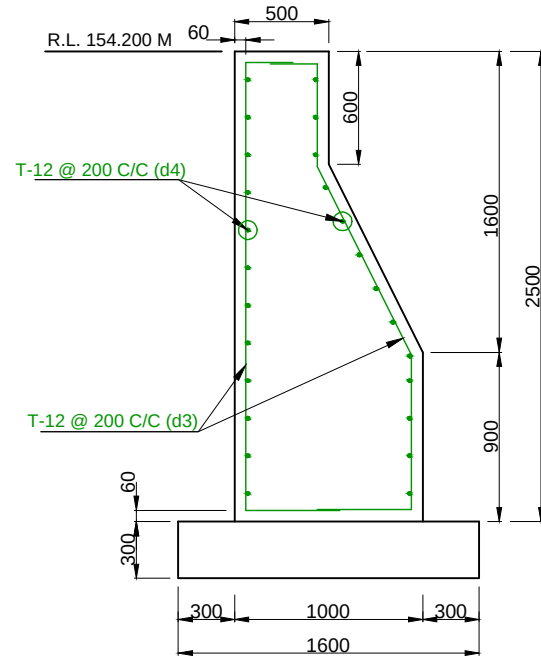
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Checked by:-

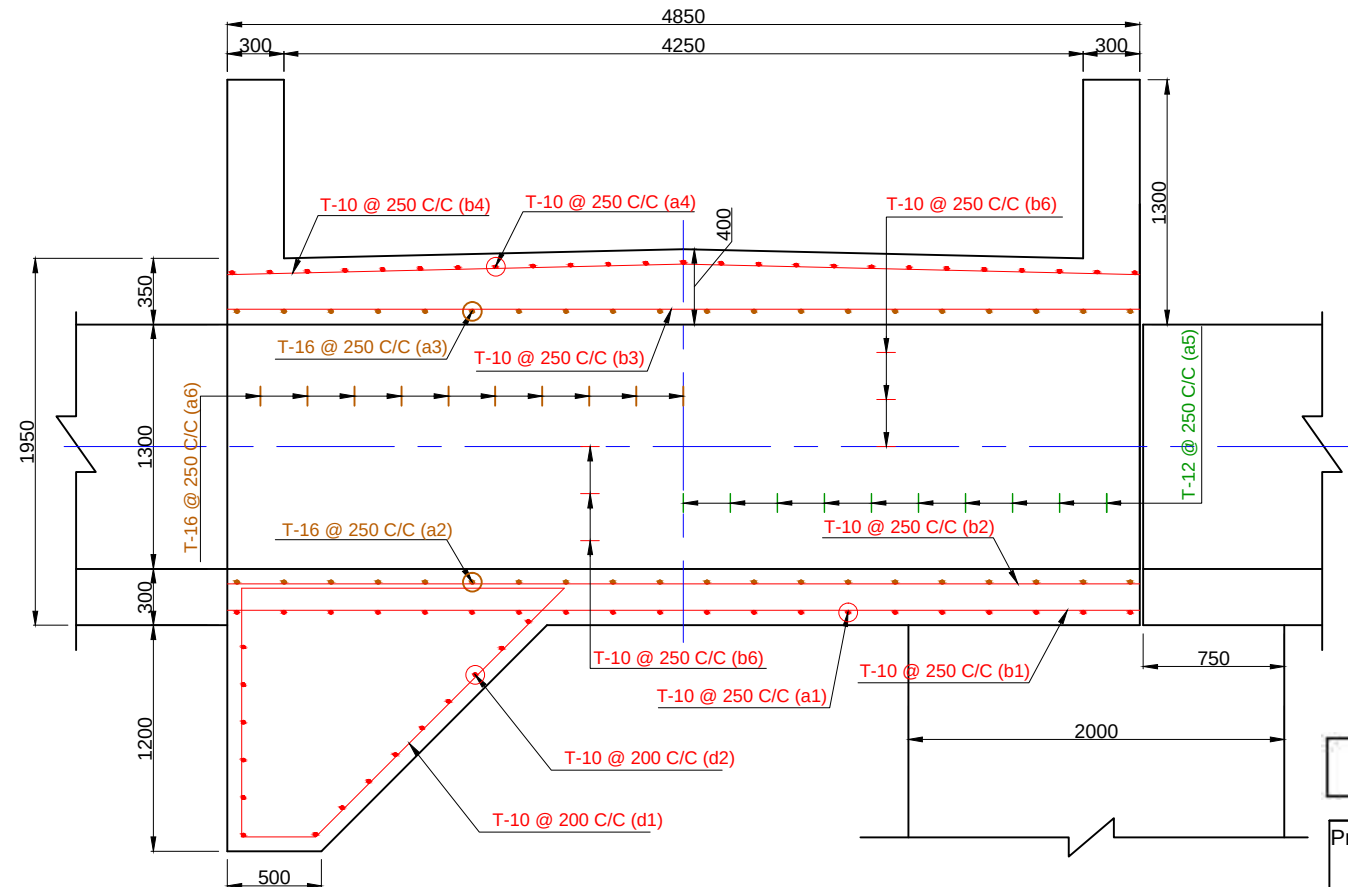
Approved by:-



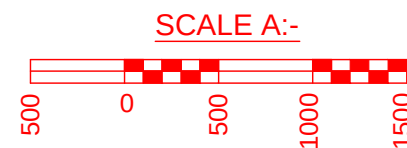
REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)
SECTION C-C



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 25.410

Drawing No. :-

WAP/PKS/NORTH KOEL/SP-05

06 of 06

Drawn by:-

Checked by:-

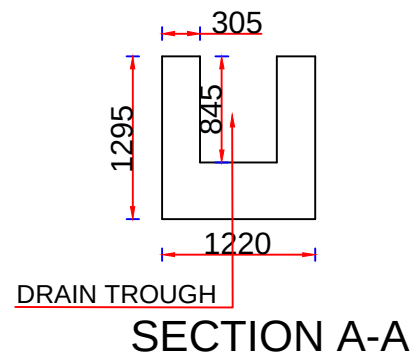
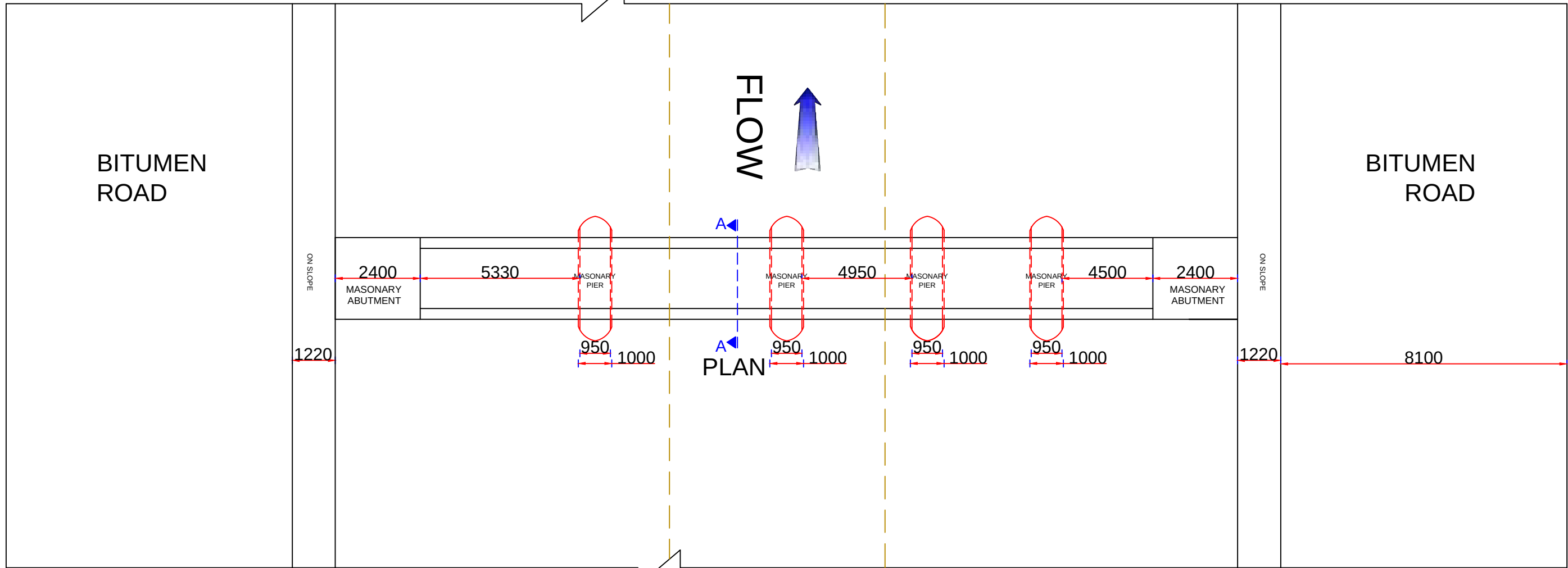
Approved by:-



SUPER PASSAGE

AT

CH. 25.878 KM



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. 25.878 KM

Drawing No. :-

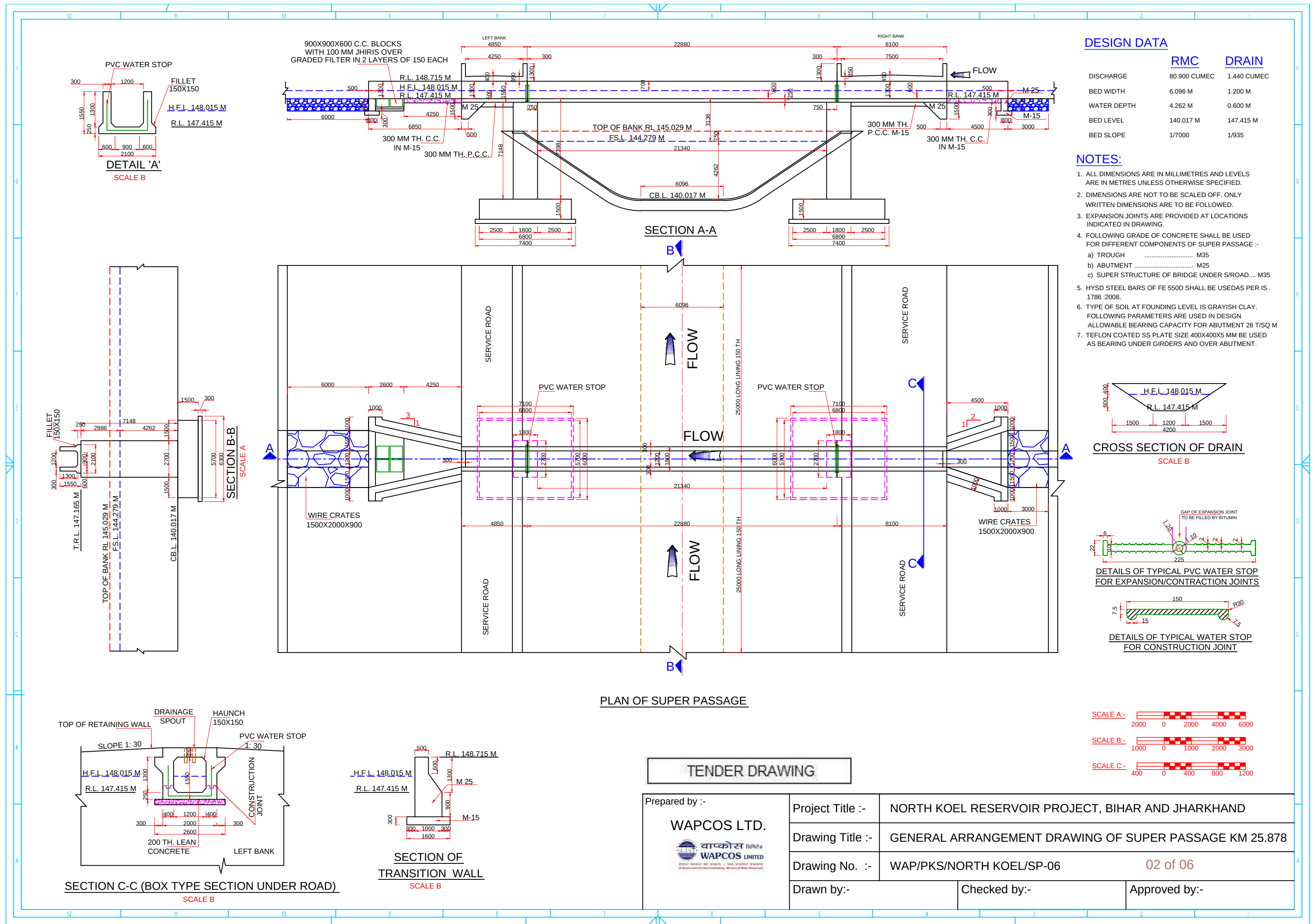
WAP/PKS/NORTH KOEL/SP-06

01 of 06

Drawn by:-

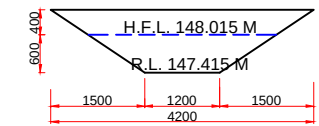
Checked by:-

Approved by:-

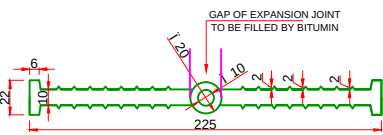


	RMC	DRAIN
DISCHARGE	80.900 CUMEC	1.440 CUMEC
BED WIDTH	6.096 M	1.200 M
WATER DEPTH	4.262 M	0.600 M
BED LEVEL	140.017 M	147.415 M
BED SLOPE	1/7000	1/935

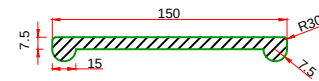
- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
 - DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 - EXPANSION JOINTS ARE PROVIDED AT LOCATIONS INDICATED IN DRAWING.
 - FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT 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.



CROSS SECTION OF DRAIN
SCALE B



DETAILS OF TYPICAL PVC WATER STOP FOR EXPANSION/CONTRACTION JOINTS

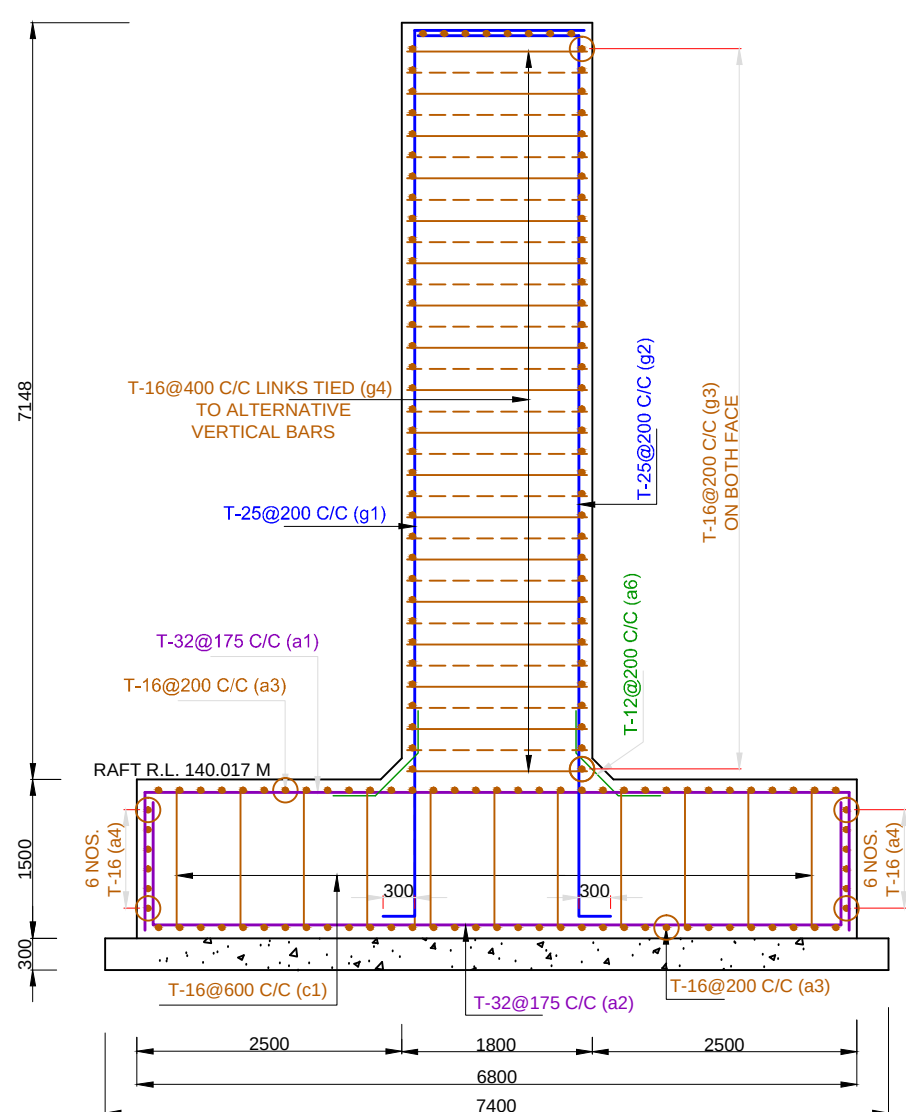


DETAILS OF TYPICAL WATER STOP FOR CONSTRUCTION JOINT

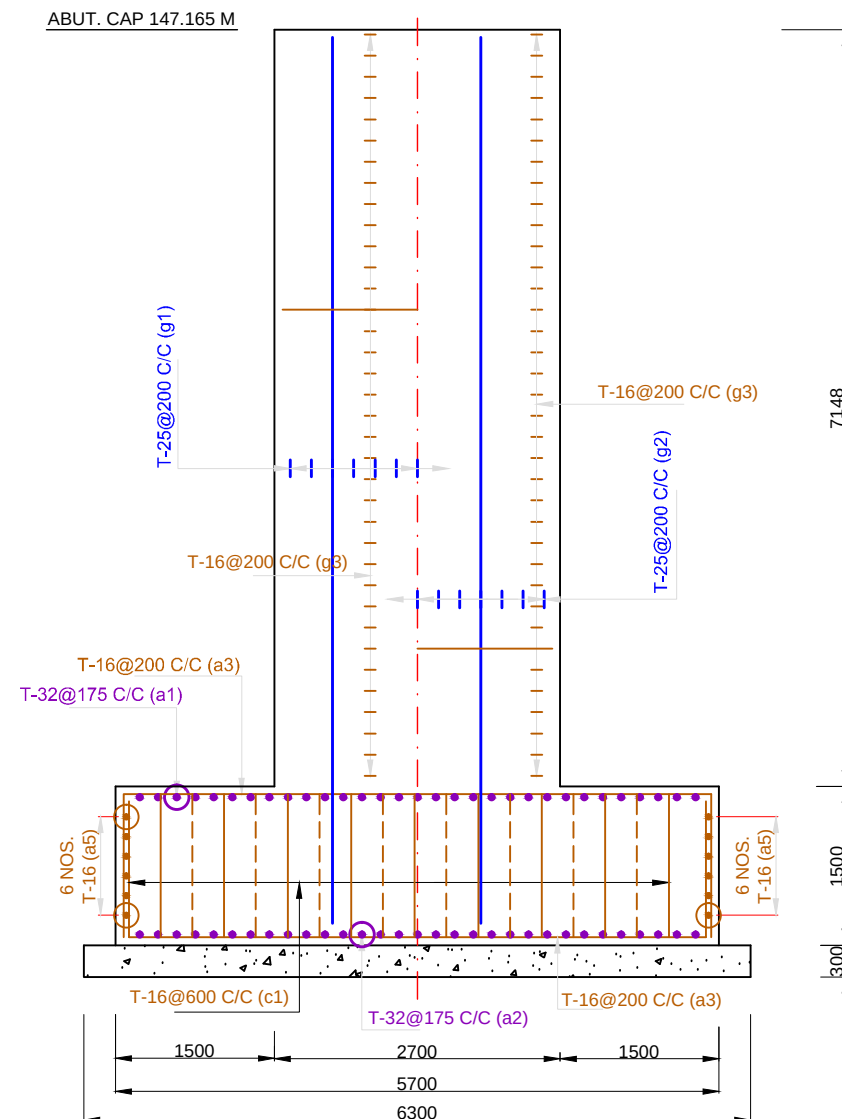


TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :- GENERAL ARRANGEMENT DRAWING OF SUPER PASSAGE KM 25.878
Drawing No. :- WAP/PKS/NORTH KOEL/SP-06	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	13X2
	2	g2		25	200	13X2
	3	g3		16	200	35X2X2
	4	g4		16	400	17X6X2
IN RAFT FOR ABUTMENT	5	a1		32	175	32X2
	6	a2		32	175	32X2
	7	a3		16	200	34X2X2
	8	a4		16	-	6X2X2
	9	a5		16	-	6X2X2
	10	a6		12	200	13X2X2
	11	c1		16	600	11X8X2

NOTES

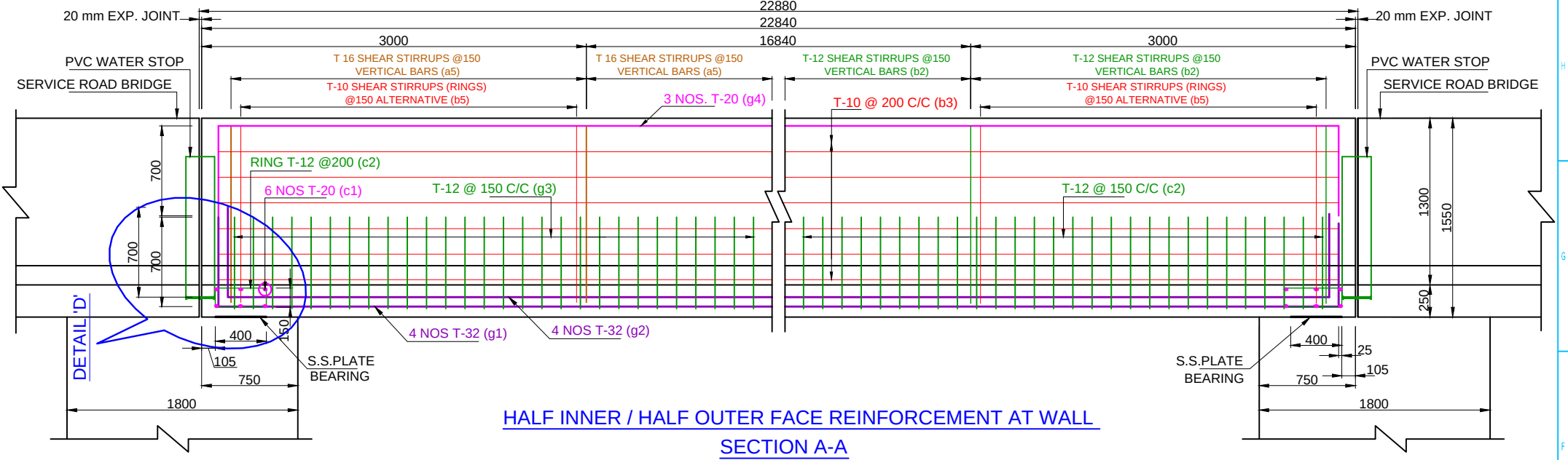
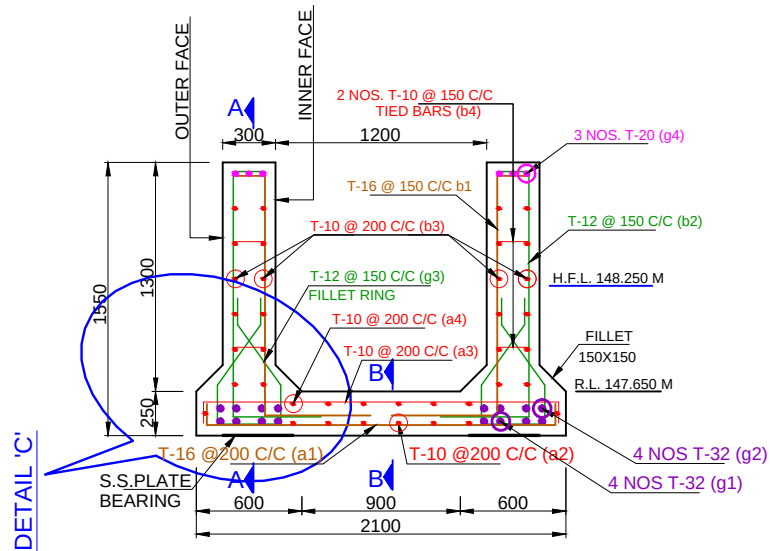
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.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

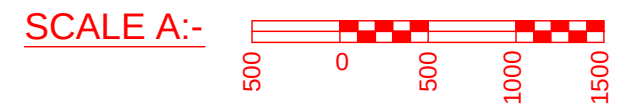
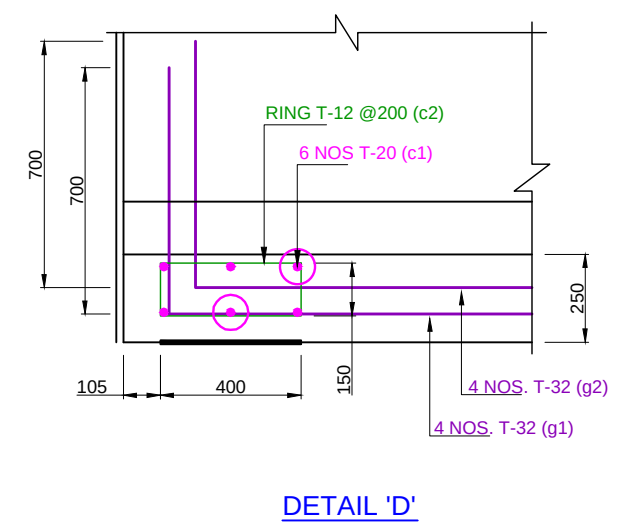
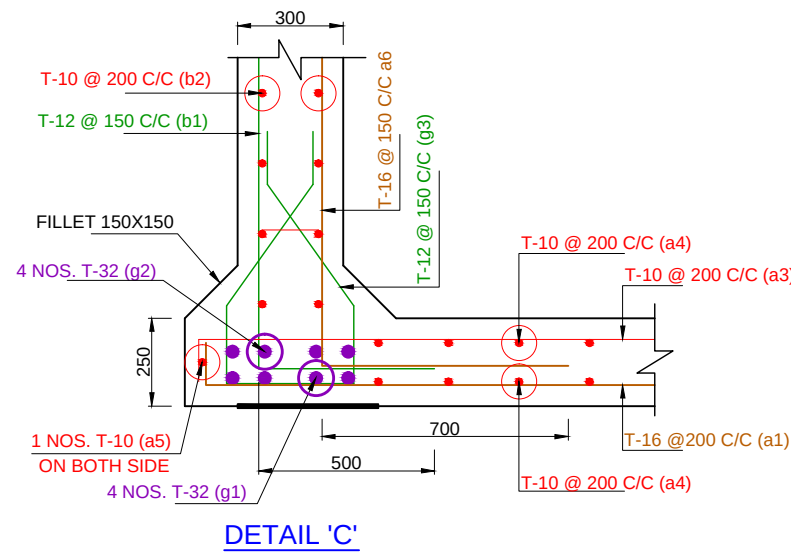
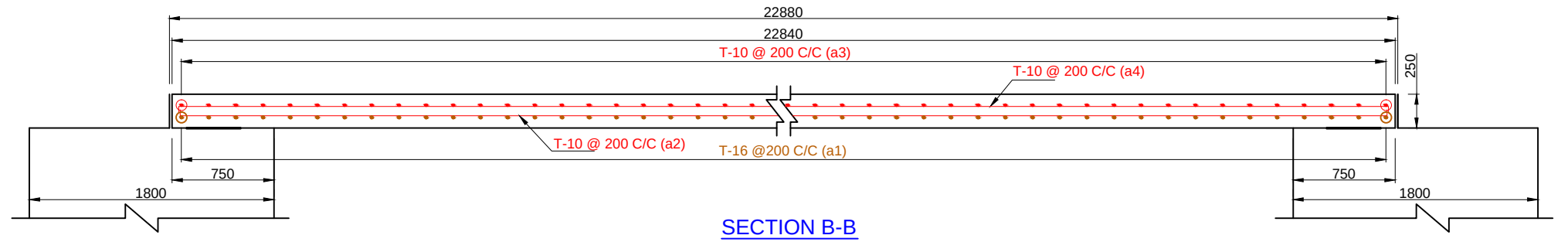
TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SUPER PASSAGE AT KM 25.878	
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-06	03 of 06
	Drawn by:-	Checked by:-	Approved by:-



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)
1	a1	150 1980 150	16	200	115
2	a2	150 22730 150	10	200	6
3	a3	150 1980 150	10	200	115
4	a4	150 22730 150	10	200	6
5	a5	150 22730 150	10	-	2
6	b1	280 1325 280 700 700 1325	16	150	155X2
7	b2	280 1325 280 500 500 1325	12	150	155X2
8	b3	150 22730 150	10	200	6X2X2
9	b4	75 280 75	10	200	39X2X2
10	b5	75 1325 75	10	200	39X2X2
11	c1	75 1980 75	20	-	6X2X2
12	c2	150 400 150	12	200	3X2X2
13	g1	700 22730 700	32	-	4X2
14	g2	700 22638 700	32	-	4X2
15	g3	FILLET RING 150 270 150 360 270 150	12	150	155X2
16	g4	75 22730 75	20	-	3X2



TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAILS OF SUPER PASSAGE KM 25.878

Drawing No. :-

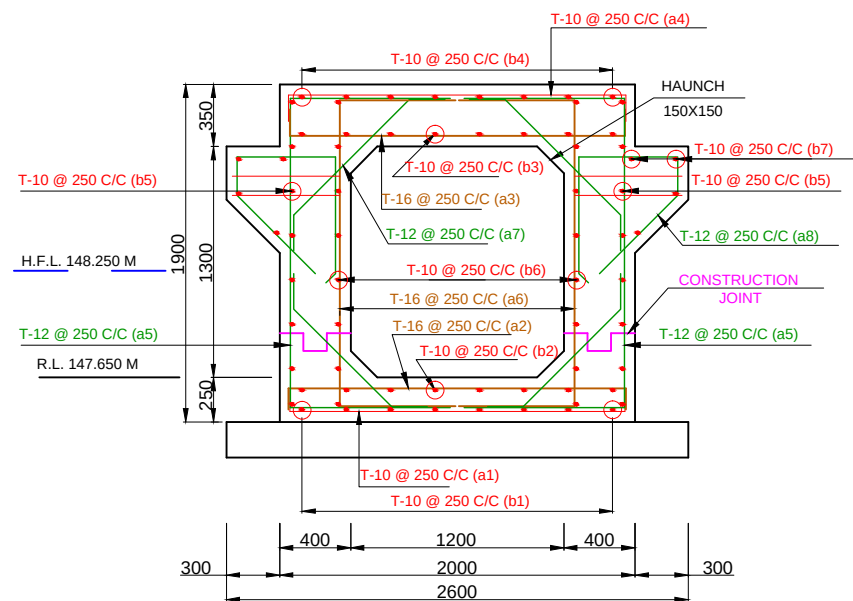
WAP/PKS/NORTH KOEL/SP-06

04 of 06

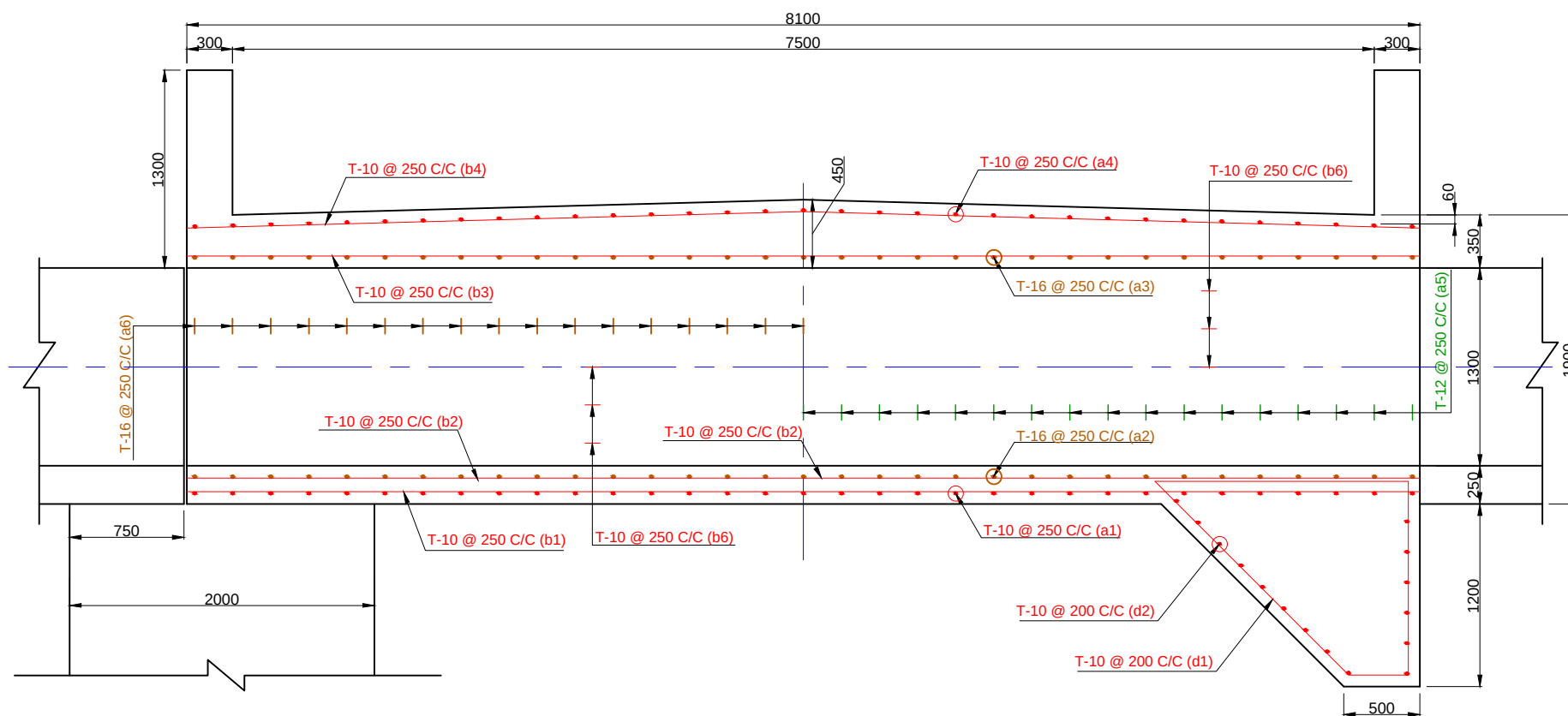
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Checked by:-

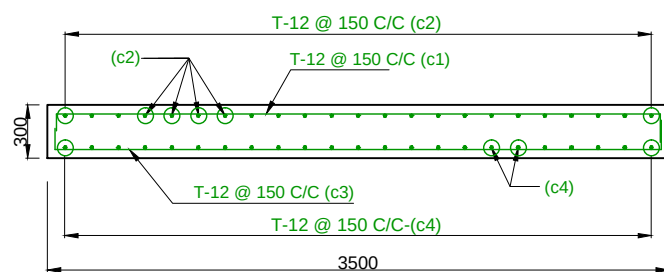
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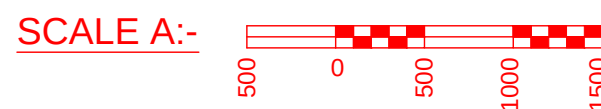
REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)
SECTION C-C



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 1880 150	10	250	33X1
2	a2	150 1880 150	16	250	33X1
3	a3	150 1880 150	16	250	33X1
4	a4	150 1880 150	10	250	33X1
5	a5	1780 1100 1780 1100 1780	12	250	33X2
6	a6	1780 850 1780 850 1780	16	250	33X2
7	a7	200 200 200 200	12	250	33X4
8	a8	655 555 620 215	12	250	33X2
9	b1	150 7980 150	16	250	33X1
10	b2	150 7980 150	16	250	33X1
11	b3	150 7980 150	10	250	33X1
12	b4	150 7980 150	10	250	33X1
13	b5	7980 7980	10	250	33X8X2
14	b6	7980 7980	10	250	33X8X2
15	b7	150 7980 150	10	250	33X4X2
16	d1	1322 1666 393 1799	10	200	11X1
17	d2	150 1880 150	10	200	11X15
18	c1	150 3500 150	12	150	-
19	c2	150 450 3750 3750 450 150	12	150	-
20	c3	150 3500 150	12	150	-
21	c4	150 8400 150	12	150	-

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 25.878

Drawing No. :-

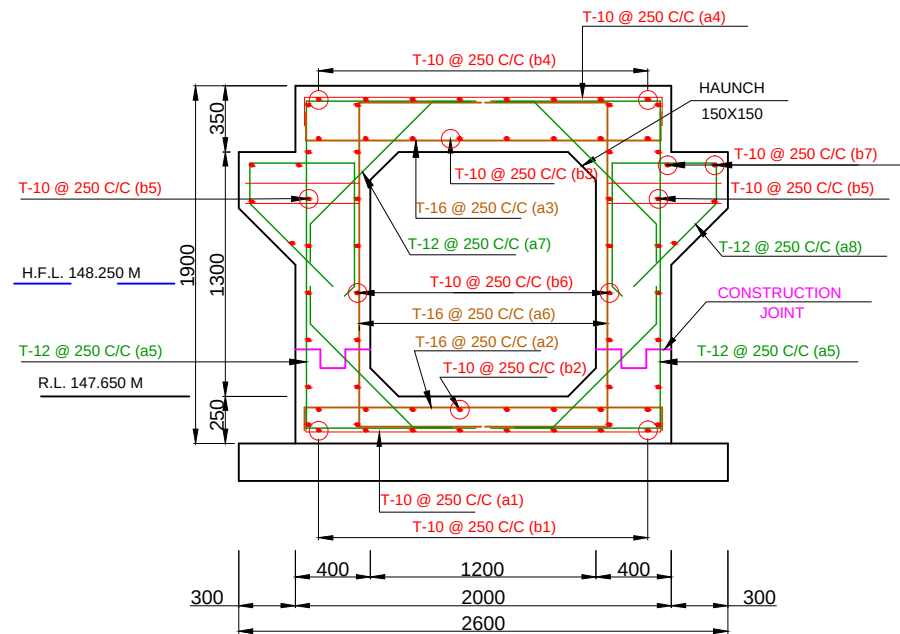
WAP/PKS/NORTH KOEL/SP-06

05 of 06

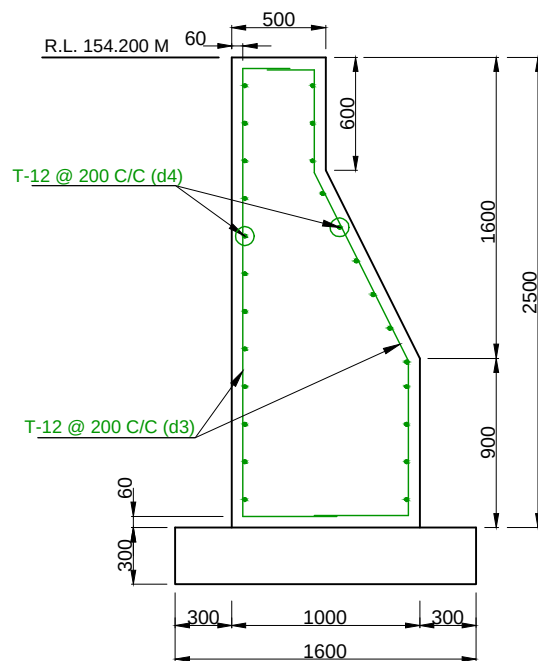
Drawn by:-

Checked by:-

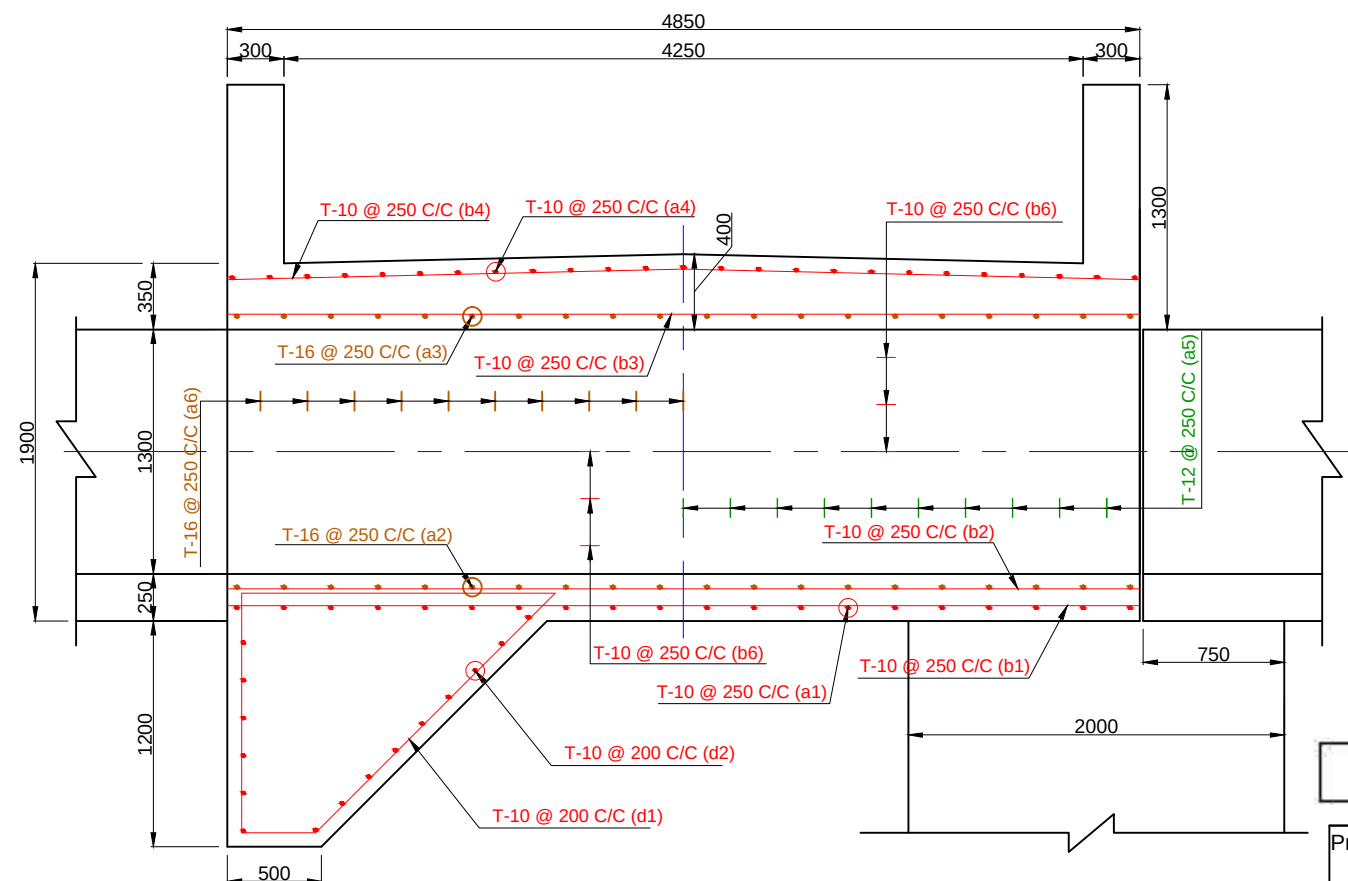
Approved by:-



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



REINFORCEMENT IN TRANSITION WALL



HALF INNER / HALF OUTER
LEFT BANK



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 1880 150	10	250	20X1
2	a2	150 1880 150	16	250	20X1
3	a3	150 1880 150	16	250	20X1
4	a4	150 1880 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	200 200 200 200	12	250	20X4
8	a8	655 555 215 620	12	250	20X2
9	b1	150 4730 150	16	250	20X1
10	b2	150 4730 150	16	250	20X1
11	b3	150 4730 150	10	250	20X1
12	b4	150 4730 150	10	250	20X1
13	b5	4730 4730	10	250	20X8X2
14	b6	4730 4730	10	250	20X8X2
15	b7	150 4730 150	10	250	20X4X2
16	d1	1716 1322 1870 393	10	200	11X1
17	d2	150 2280 150	10	200	11X15
18	d3	2380 250 500 500 555 118 819	12	200	-
19	d4	150 150	12	200	-

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 25.878

Drawing No. :-

WAP/PKS/NORTH KOEL/SP-06

06 of 06

Drawn by:-

Checked by:-

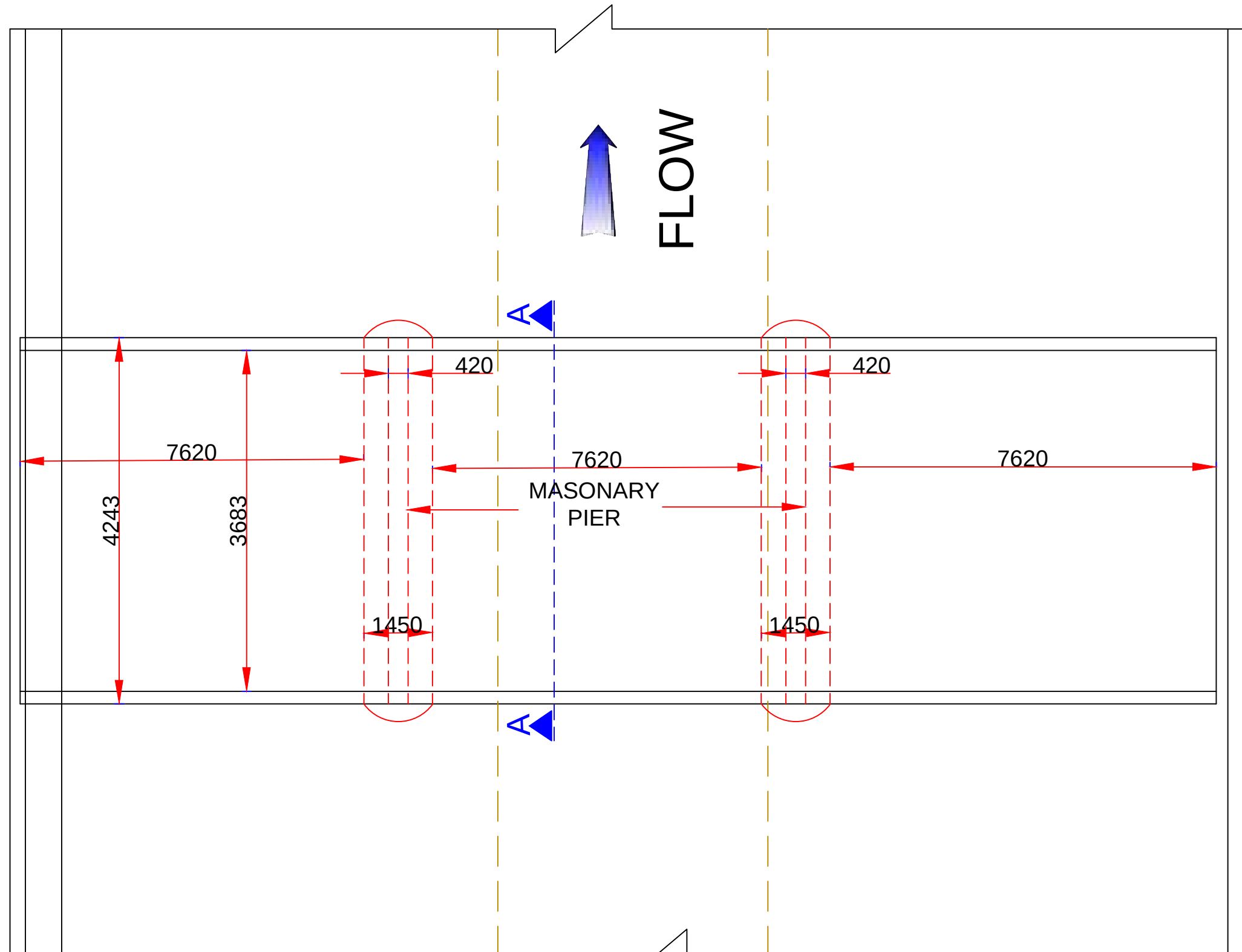
Approved by:-



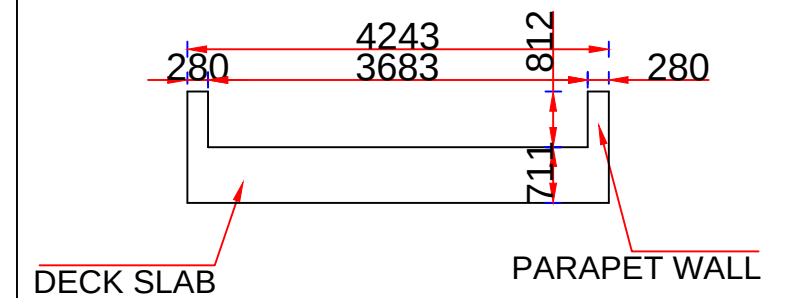
S.L.R. BRIDGE

AT

CH. 25.954 KM



PLAN



SECTION A-A

TENDER DRAWING

NOTES:

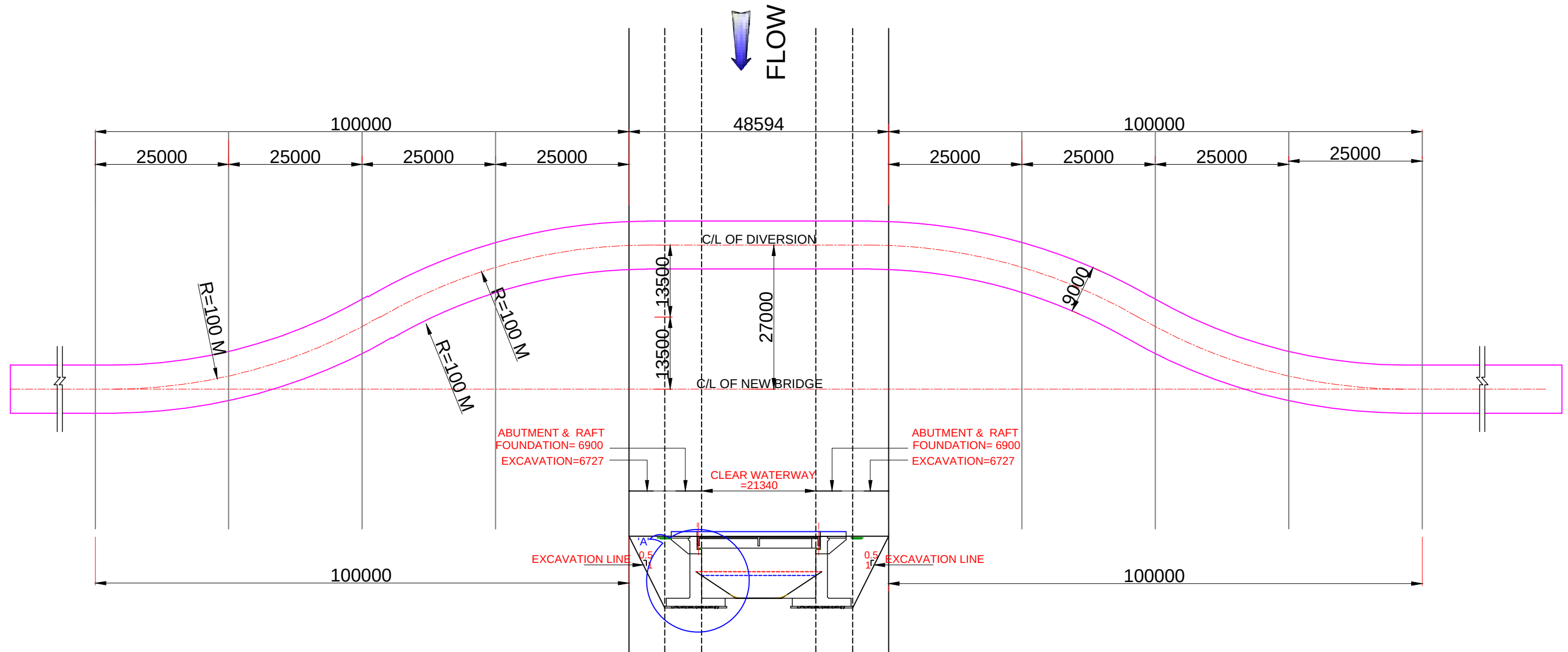
- 1 ALL DIMENSIONS ARE IN mm.
- 2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

Prepared by :-

WAPCOS LTD.



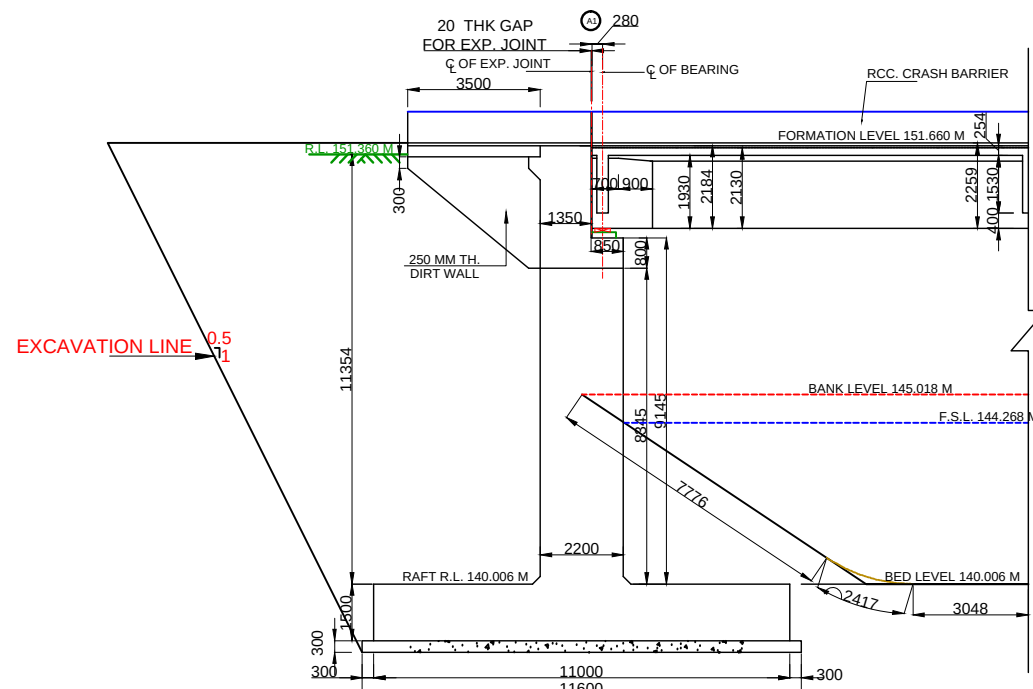
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
Drawing Title :-	EXISTING PLAN OF DOUBLE LANE ROAD BRIDGE AT CH. 25.954 KM		
Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-18	01 of 12	
Drawn by:-	Checked by:-	Approved by:-	



SKETCH OF DIVERSION PLAN AT KM 25.954 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 25.954 FOR S.L.R. BRIDGE

Drawing No. :-

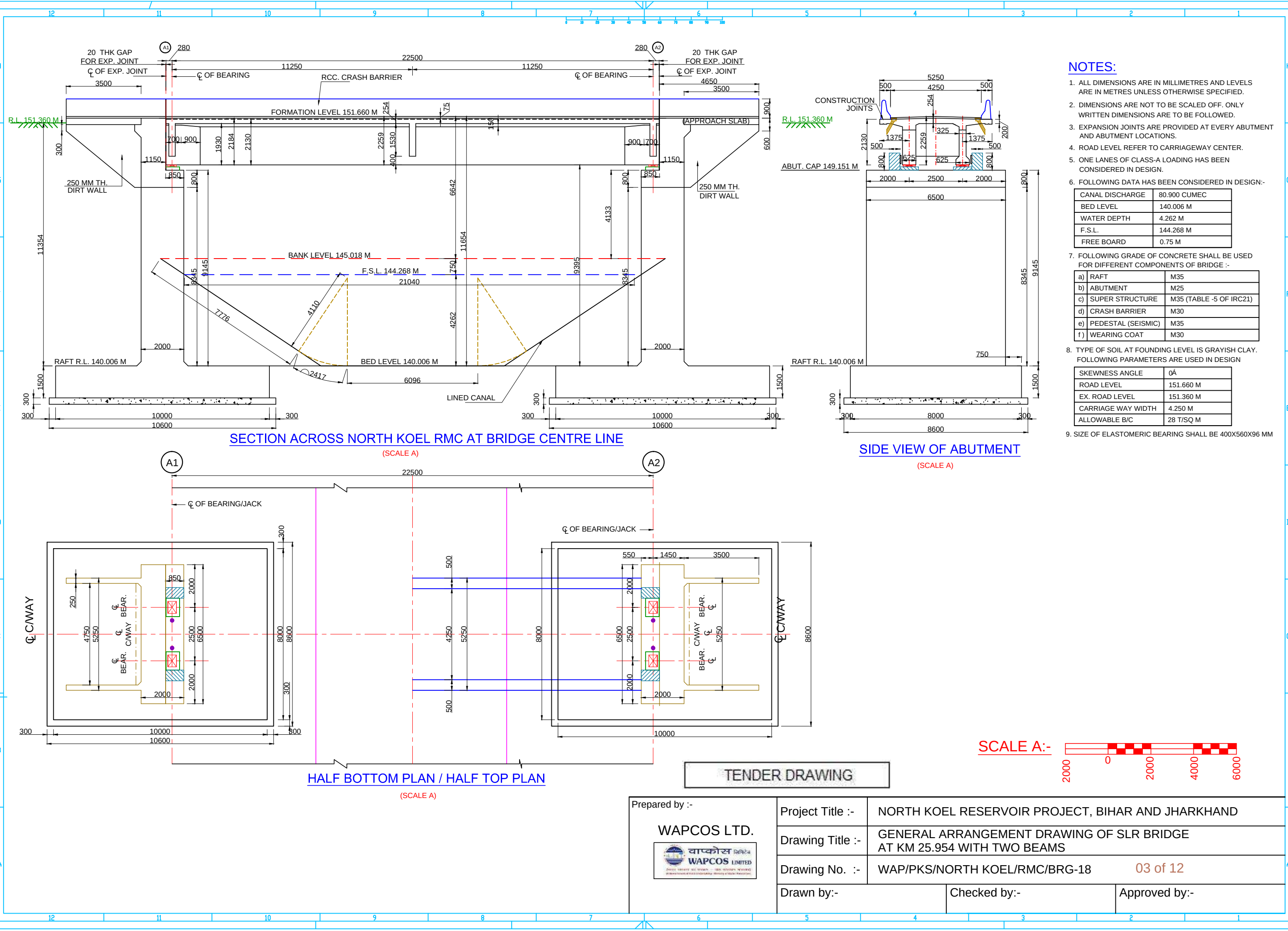
WAP/PKS/NORTH KOEL/RMC/BRG 18

02 of 12

Drawn by:-

Checked by:-

Approved by:-

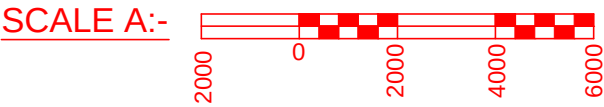


- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
 4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.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

CANAL DISCHARGE	80.900 CUMEC
BED LEVEL	140.006 M
WATER DEPTH	4.262 M
F.S.L.	144.268 M
FREE BOARD	0.75 M
 7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

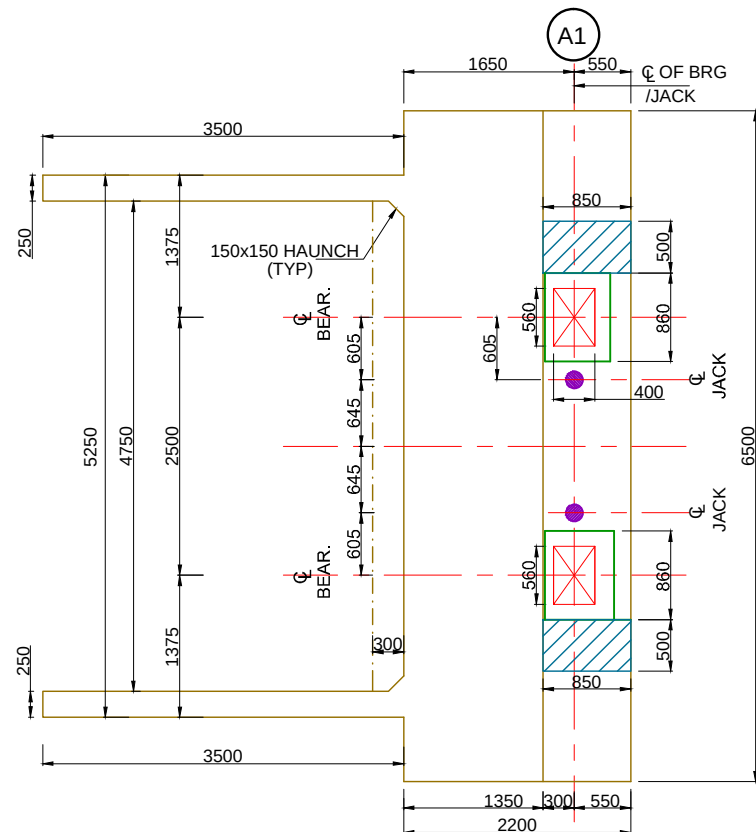
a) RAFT	M35
b) ABUTMENT	M25
c) SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d) CRASH BARRIER	M30
e) PEDESTAL (SEISMIC)	M35
f) WEARING COAT	M30
 8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0°
ROAD LEVEL	151.660 M
EX. ROAD LEVEL	151.360 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M
 9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

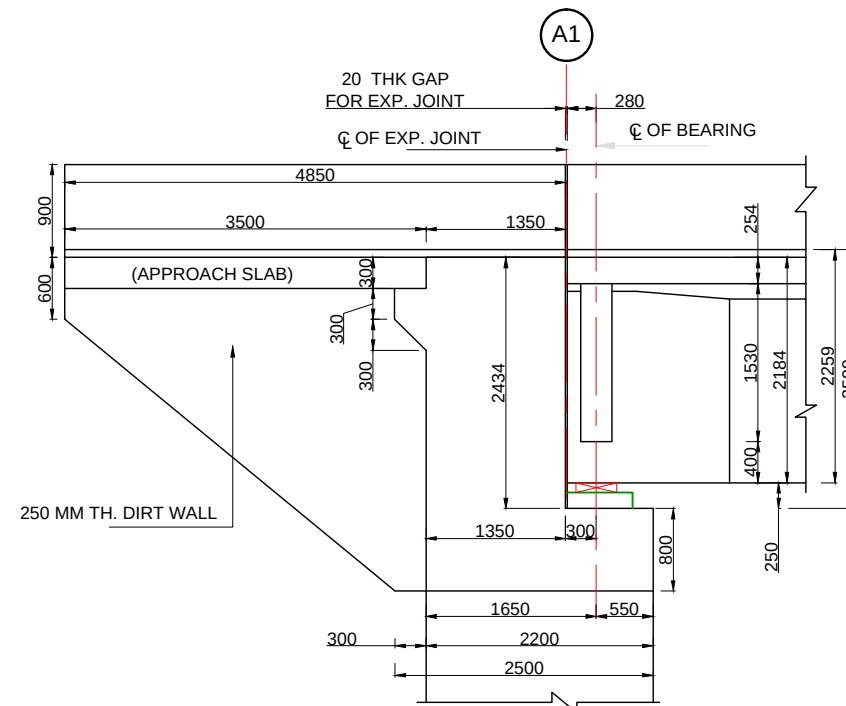


TENDER DRAWING

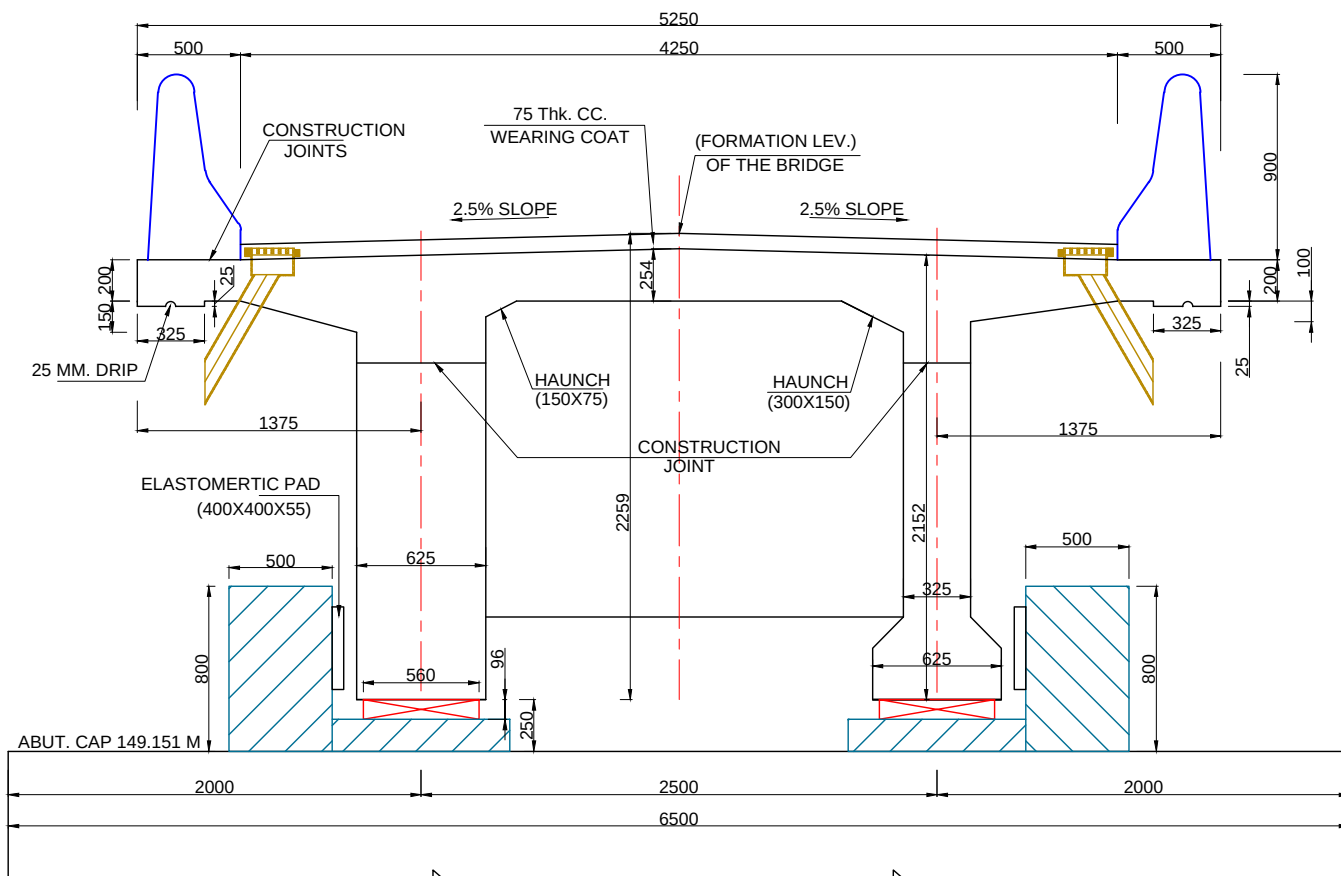
Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 25.954 WITH TWO BEAMS		
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-18		03 of 12
	Drawn by:-	Checked by:-	Approved by:-	



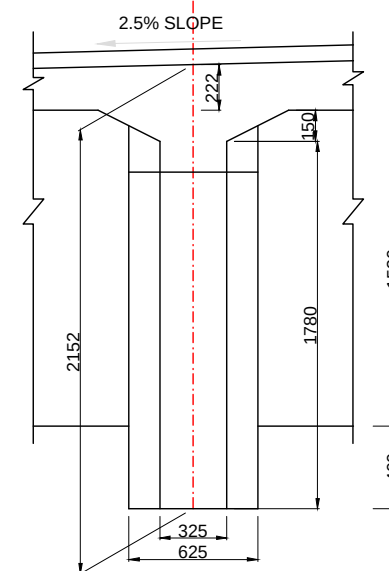
PLAN OF ABUTMENT AT BEARING LEVEL
(SCALE B)



DETAIL - 'D1'
(SCALE B)



CROSS SECTION OF GIRDERS
(SCALE C)



CROSS SECTION OF RCC 'I' 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.

SCALE B:-



SCALE C:-



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 25.954 WITH TWO BEAMS

Drawing No. :-

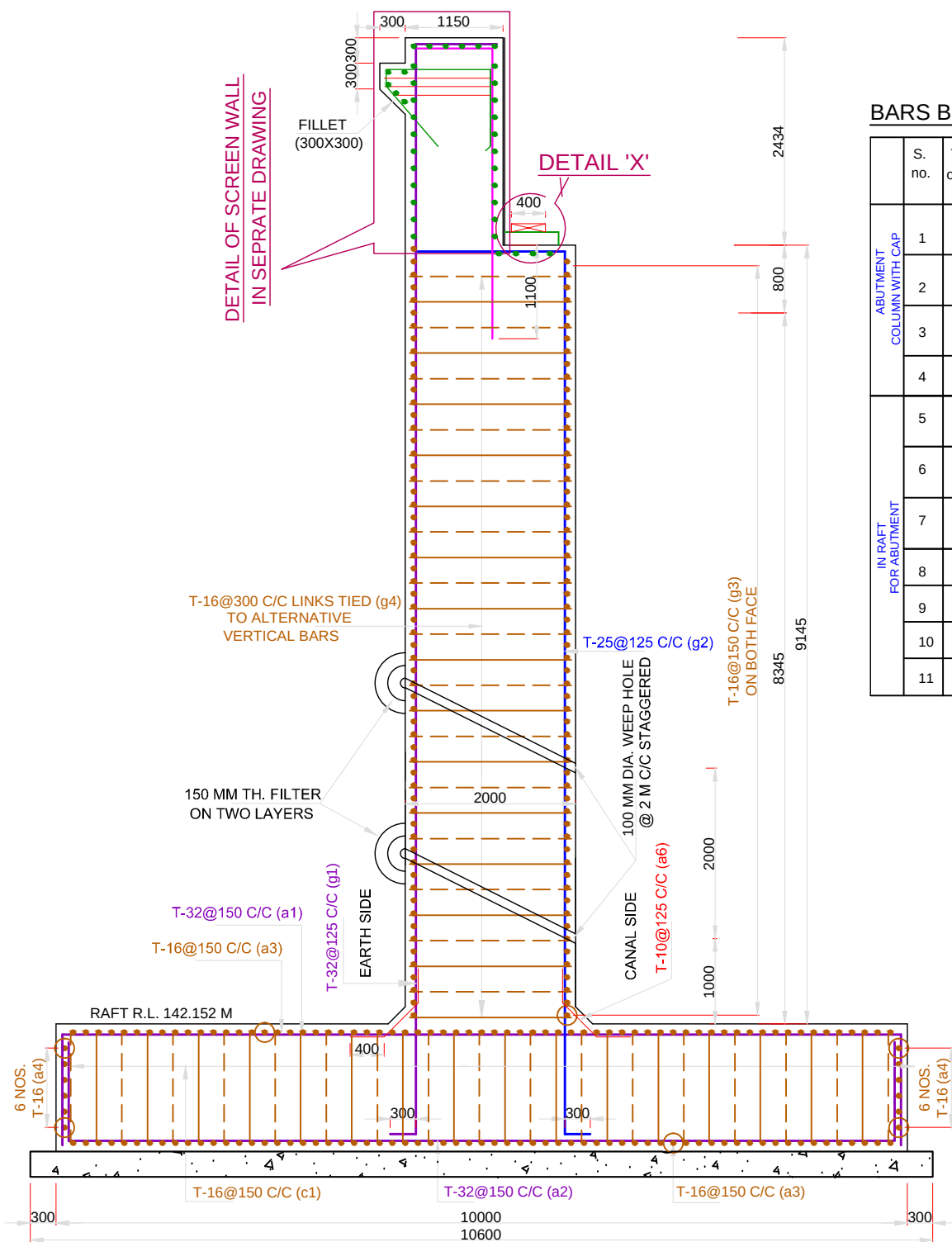
WAP/PKS/NORTH KOEL/RMC/BRG-18

04 of 12

Drawn by:-

Checked by:-

Approved by:-



SIDE VIEW OF ABUTMENT
SCALE A

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:-

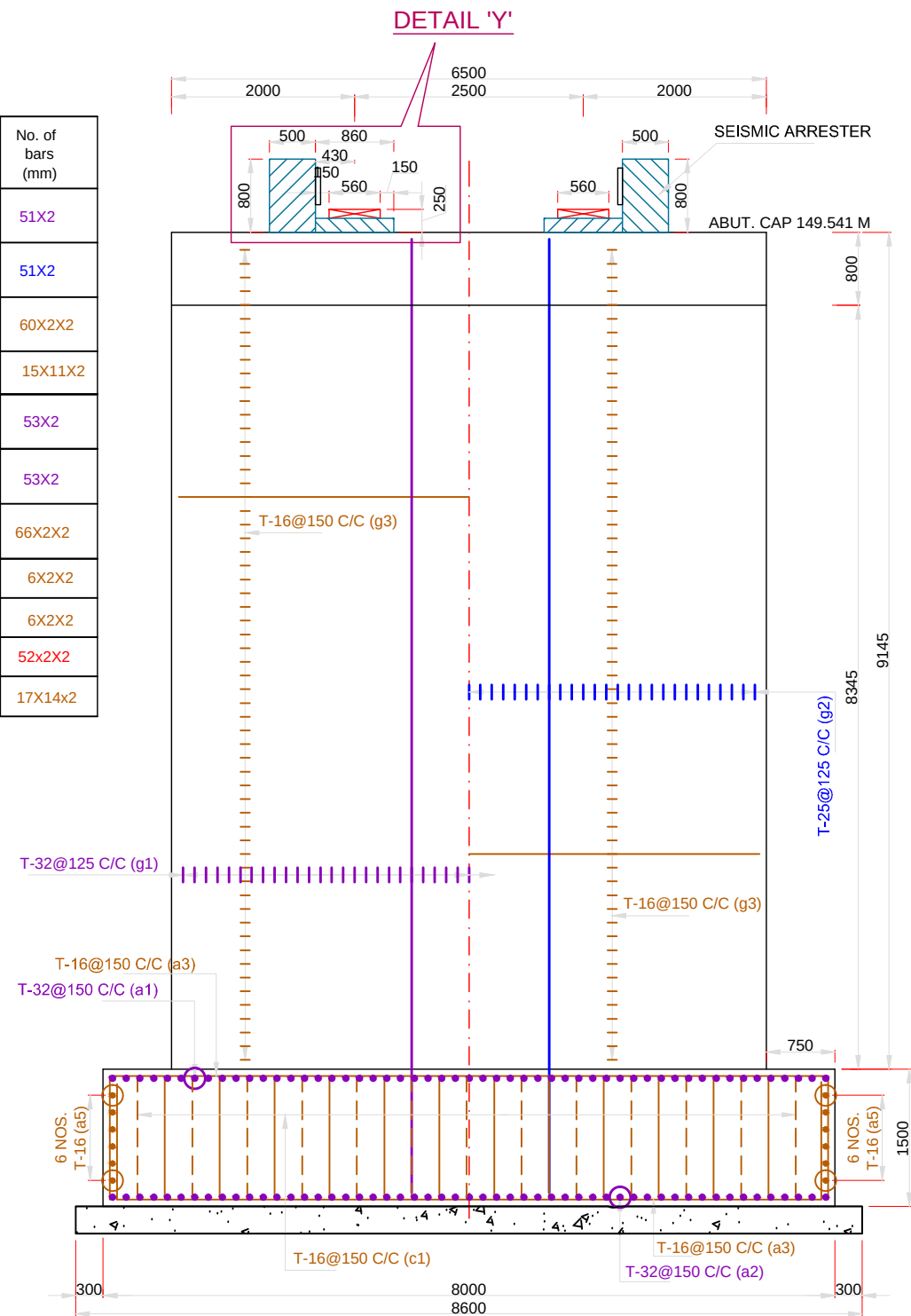
a) RAFT	M35
b) SUBSTRUCTURE	M25
c) PEDESTAL	M35
- ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
- THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
- OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
- PRECAST MORTAR BLOCKS OF THE SAME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



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	12854	32	125	51X2
2	g2	10645	25	125	51X2
3	g3	6350	16	150	60X2X2
4	g4	VERTICAL LINK BARS 1850	16	300	15X11X2
5	a1	9850	32	150	53X2
6	a2	9850	32	150	53X2
7	a3	7850	16	150	66X2X2
8	a4	7850	16	-	6X2X2
9	a5	9850	16	-	6X2X2
10	a6	400 560 400 560	10	125	52x2X2
11	c1	1350	16	300	17X14x2



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

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 25.954 WITH TWO BEAMS

Drawing No. :-

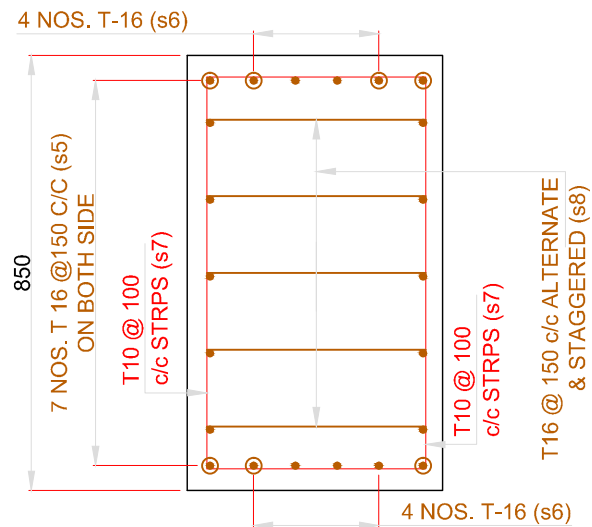
WAP/PKS/NORTH KOEL/RMC/BRG-18

05 of 12

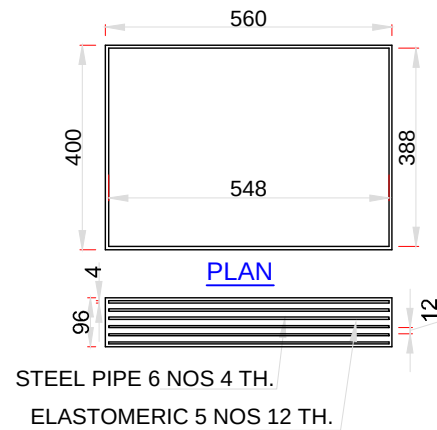
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Checked by:-

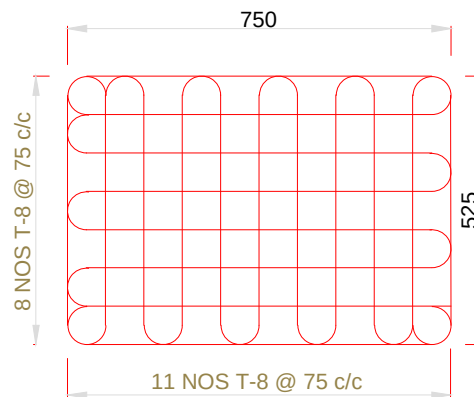
Approved by:-



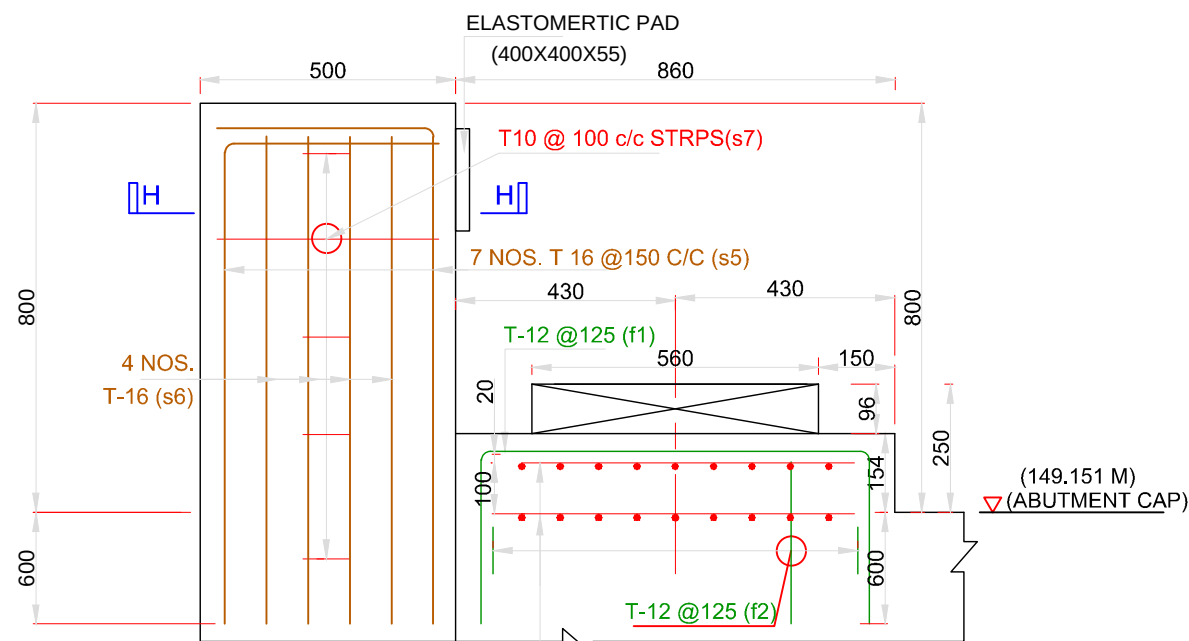
SECTION H-H
SCALE A



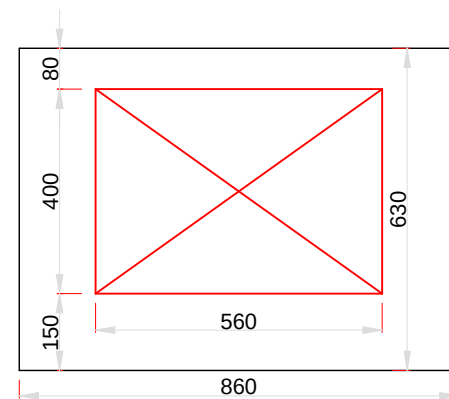
DETAILS OF
ELASTOMERIC BEARINGS
SCALE A



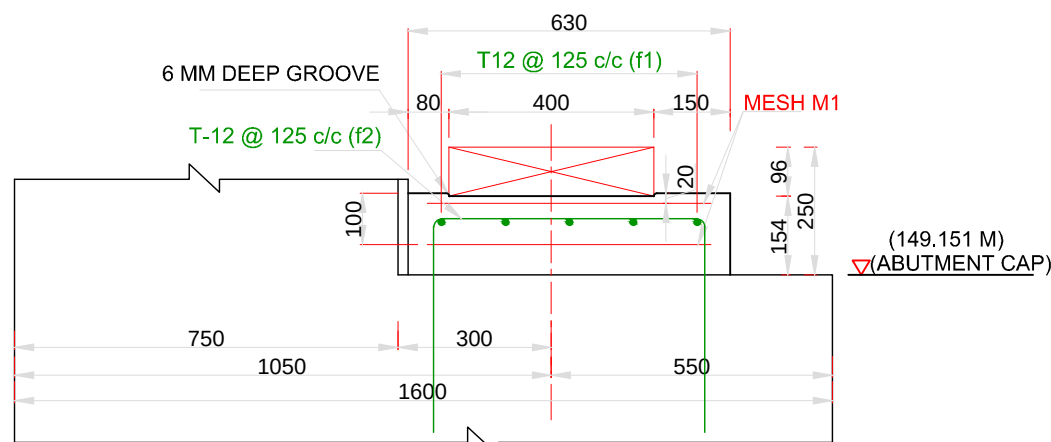
DETAIL OF MESH M1
(MESH BELOW BEARING LOCATION)
SCALE A



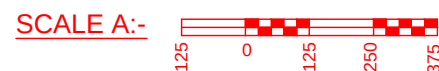
DETAIL 'Y'
SCALE A



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	5X2X2
	6	f2		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 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 REINFORCENT.
- 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 25.954 WITH TWO BEAMS

Drawing No. :-

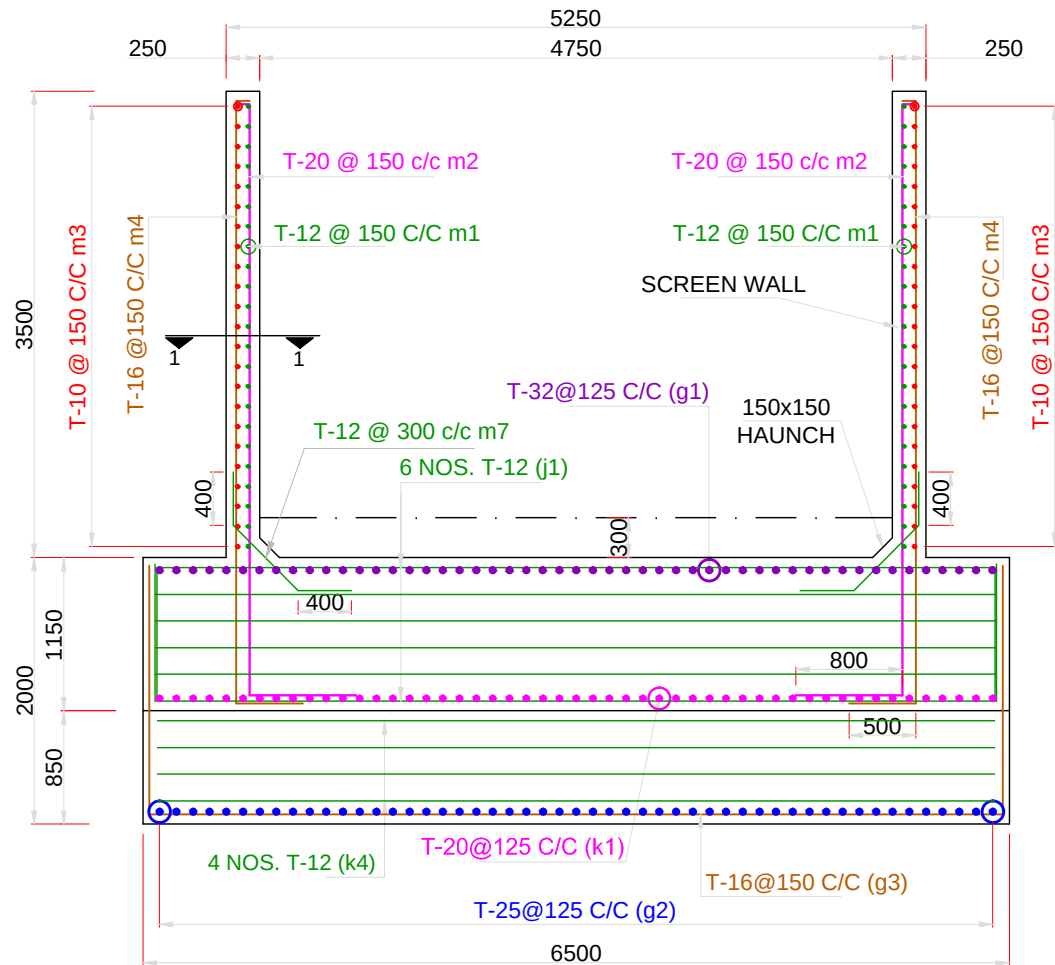
WAP/PKS/NORTH KOEL/RMC/BRG-18

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Drawn by:-

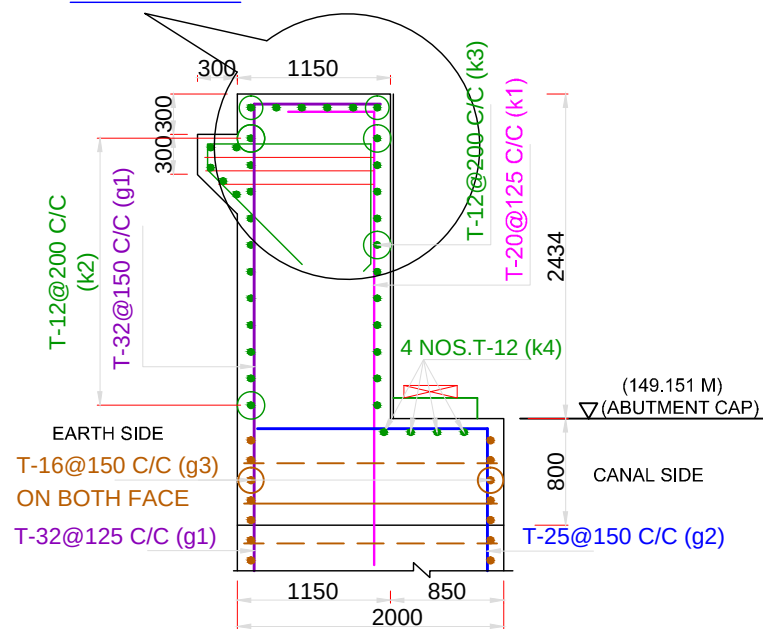
Checked by:-

Approved by:-

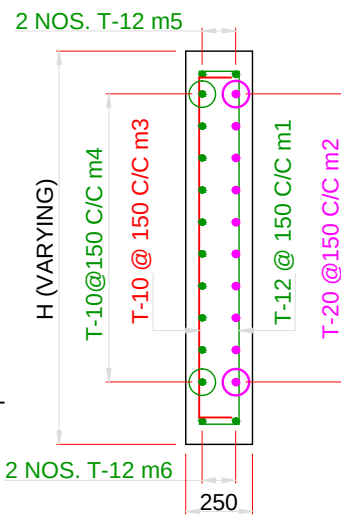


REINFORCEMENT DETAILS IN PLAN OF DIRT WALL
SCALE A

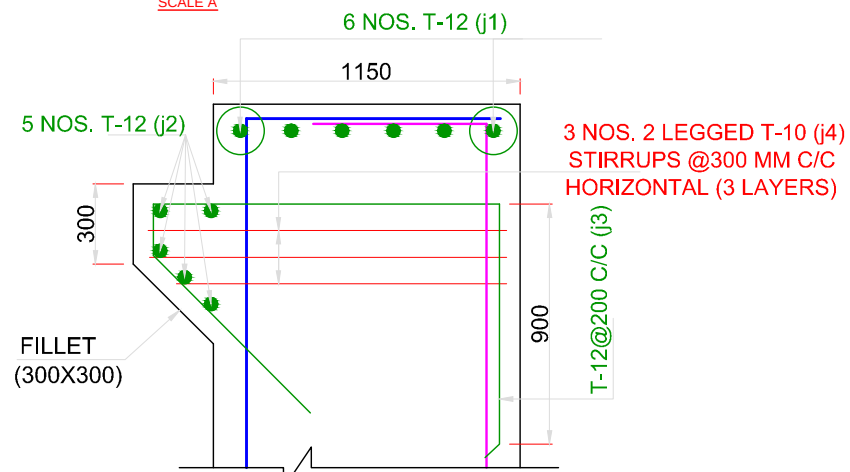
DETAIL '1'



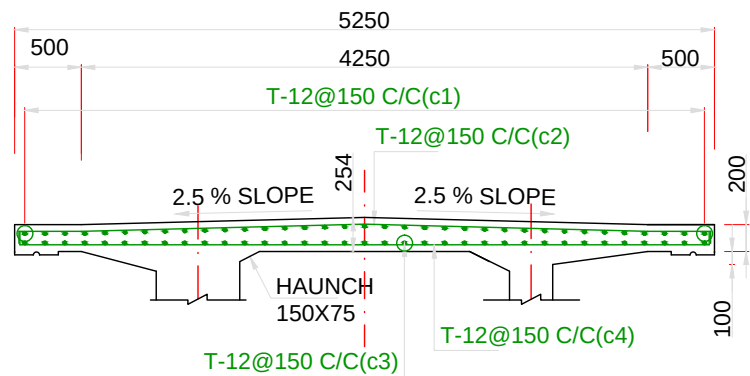
REINFORCEMENT DETAILS IN
SECTION OF DIRT
SCALE A



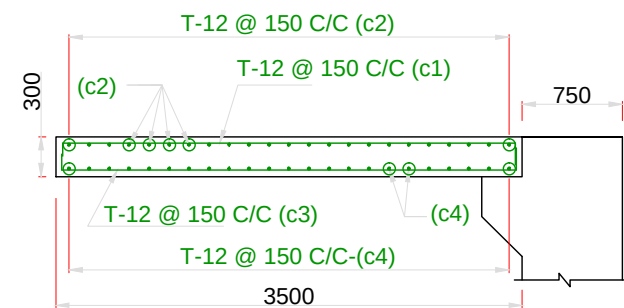
SECTION AT 1-1
SCALE B



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	700 3459	20	125	51X2
2	k2	150 6350 150	12	200	11X2
3	k3	150 6350 150	12	200	11X2
4	k4	150 6350 150	12	200	4X2
5	j1	150 6350 150	12	-	6X2
6	j2	150 6350 150	12	-	5X2
7	j3	1550 195 900 900	12	-	24X2
8	j4	LV= 6350 6350 1390	10	300	3X2
9	m1	150 1718 150	12	150	44X2
10	m2	150 4425 800 4425 800	20	150	40X2
11	m3	150 1718 150	10	150	44X2
12	m4	150 4425 500 4425 500	16	150	40X2
13	m5	500 3350 500	12	-	4X2
14	m6	400 4085 400	12	-	4X2
15	m7	400 600 400	12	300	8X2X2
16	c1	150 3350 150	12	150	34X2
17	c2	150 450 2125 2125 450 150	12	150	23X2
18	c3	150 3350 150	12	150	34X2
19	c4	150 5150 150	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:-

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 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.

SCALE A:-

SCALE B:-

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 25.954 WITH TWO BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-18

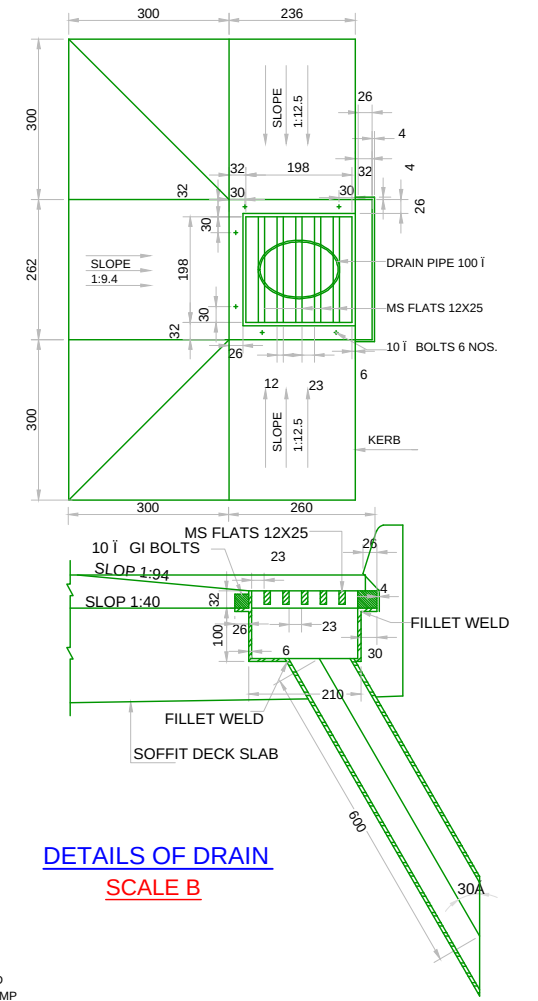
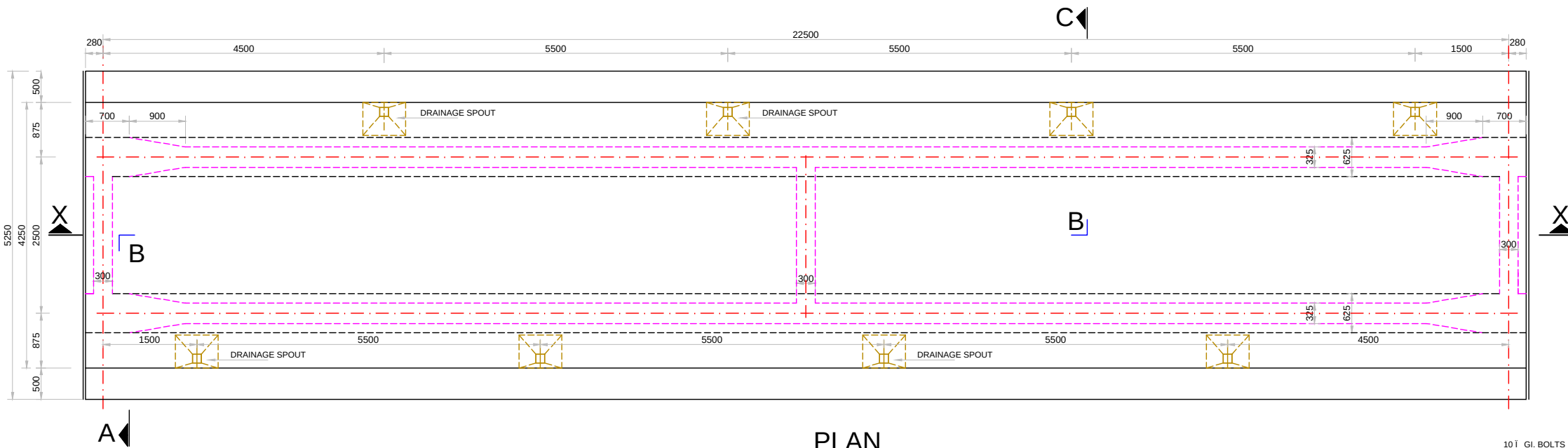
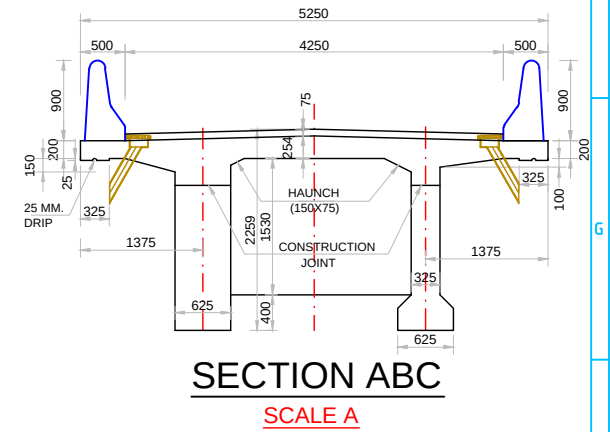
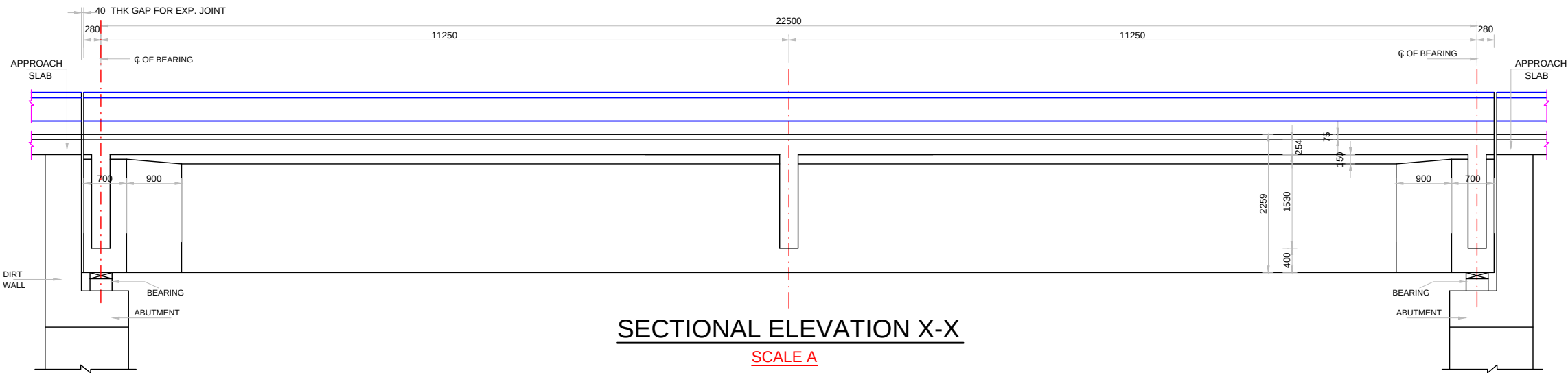
07 of 12

Drawn by:-

Checked by:-

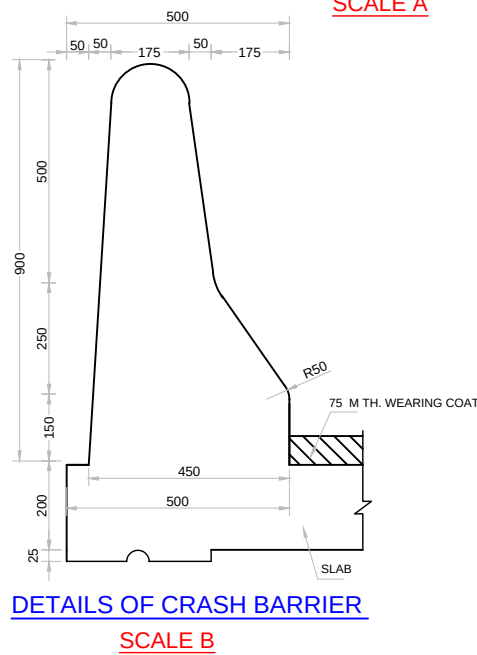
Approved by:-

TENDER DRAWING



NOTES

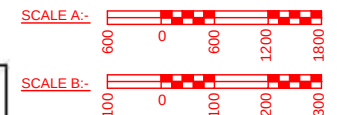
1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T-BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. 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.
7. 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.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.



REFERENCES:-

1. 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 25.954 WITH TWO BEAMS

Drawing No. :-

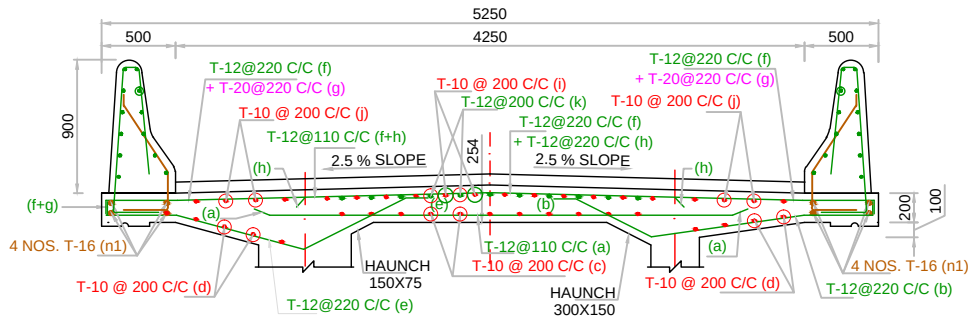
WAP/PKS/NORTH KOEL/RMC/BRG-18

08 of 12

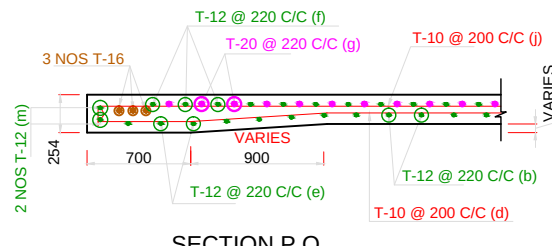
Drawn by:-

Checked by:-

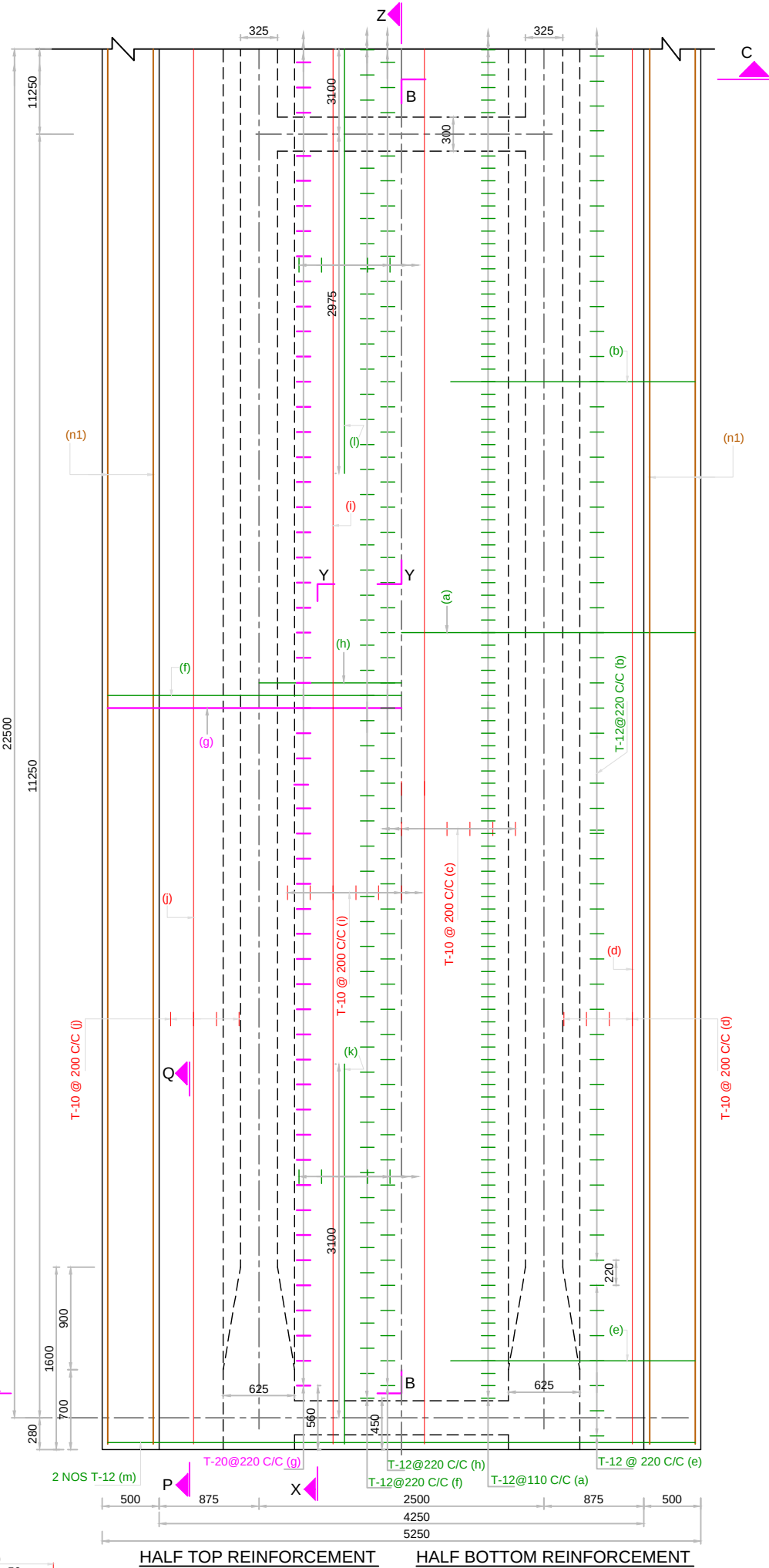
Approved by:-



CROSS SECTION ABC
SCALE A

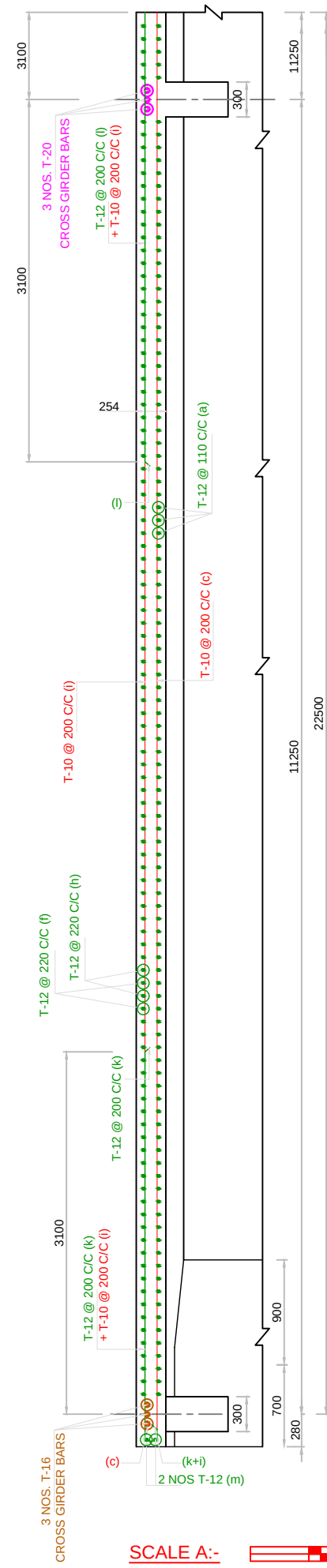


SECTION P.Q.
SCALE A

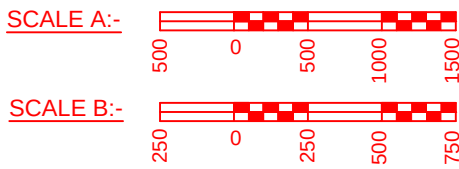


HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

PLAN
SCALE A



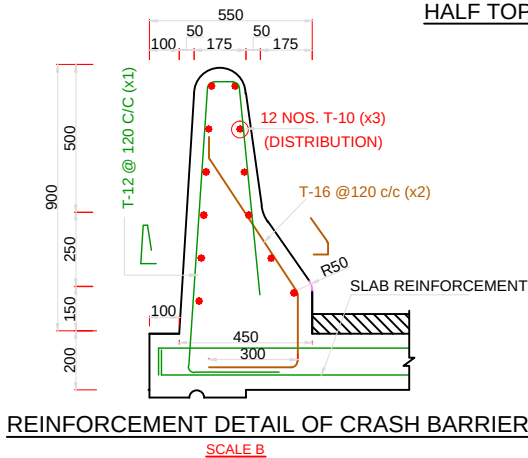
SECTION X.Y.Z
SCALE A



REFERENCES:-

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

TENDER DRAWING



SCALE B

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF DLR BRIDGE AT KM 25.954 WITH TWO BEAMS

Drawing No. :-

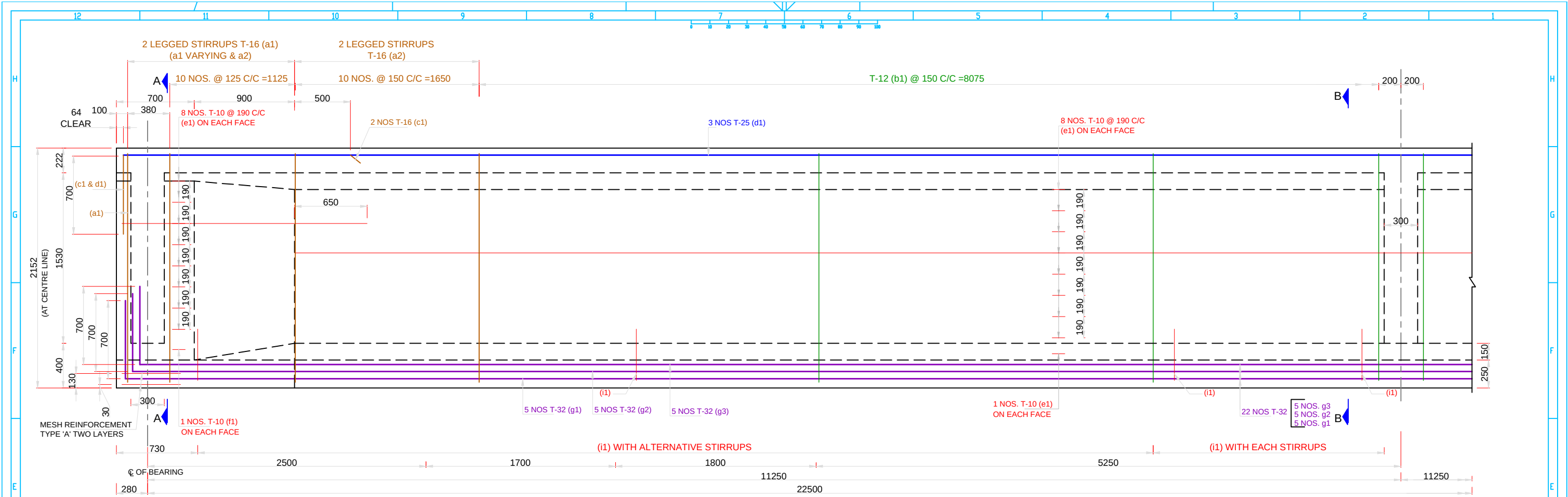
WAP/PKS/NORTH KOEL/RMC/BRG-18

09 of 12

Drawn by:-

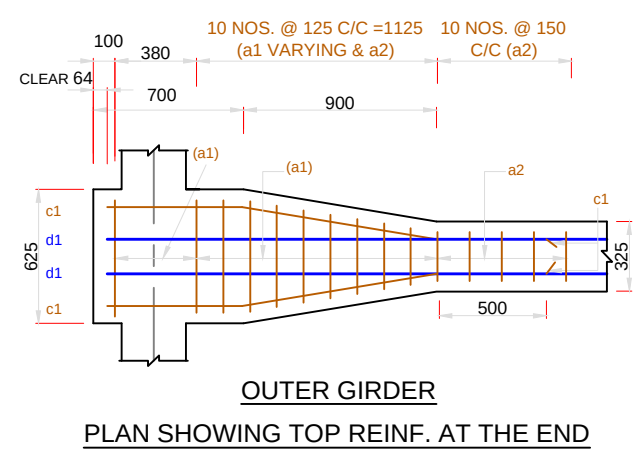
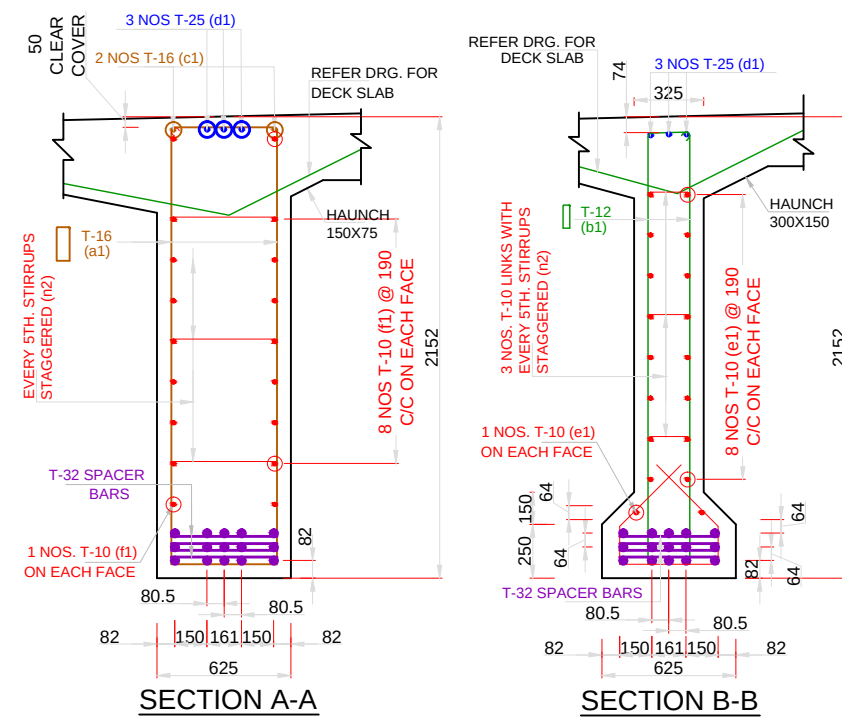
Checked by:-

Approved by:-



LONGITUDINAL SECTION OF OUTER GIRDER

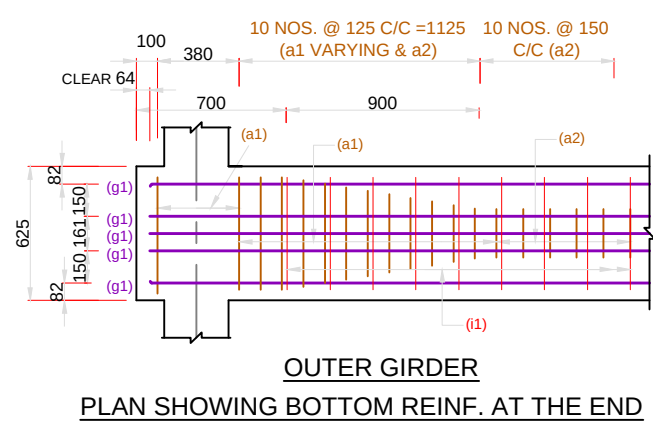
SCALE A



OUTER GIRDER

PLAN SHOWING TOP REINF. AT THE END

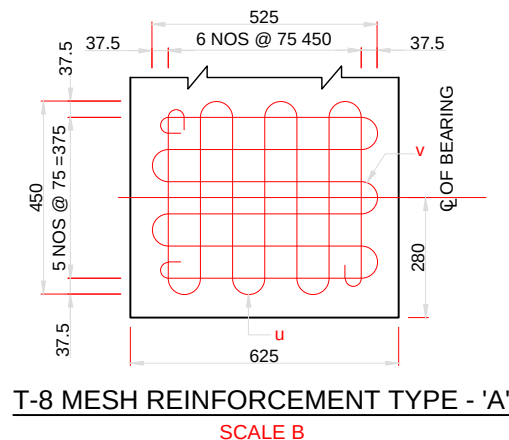
SCALE A



OUTER GIRDER

PLAN SHOWING BOTTOM REINF. AT THE END

SCALE A

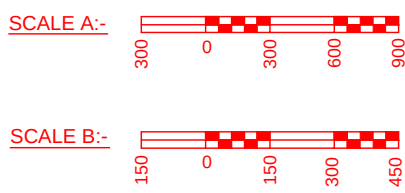


T-8 MESH REINFORCEMENT TYPE - 'A'

SCALE B

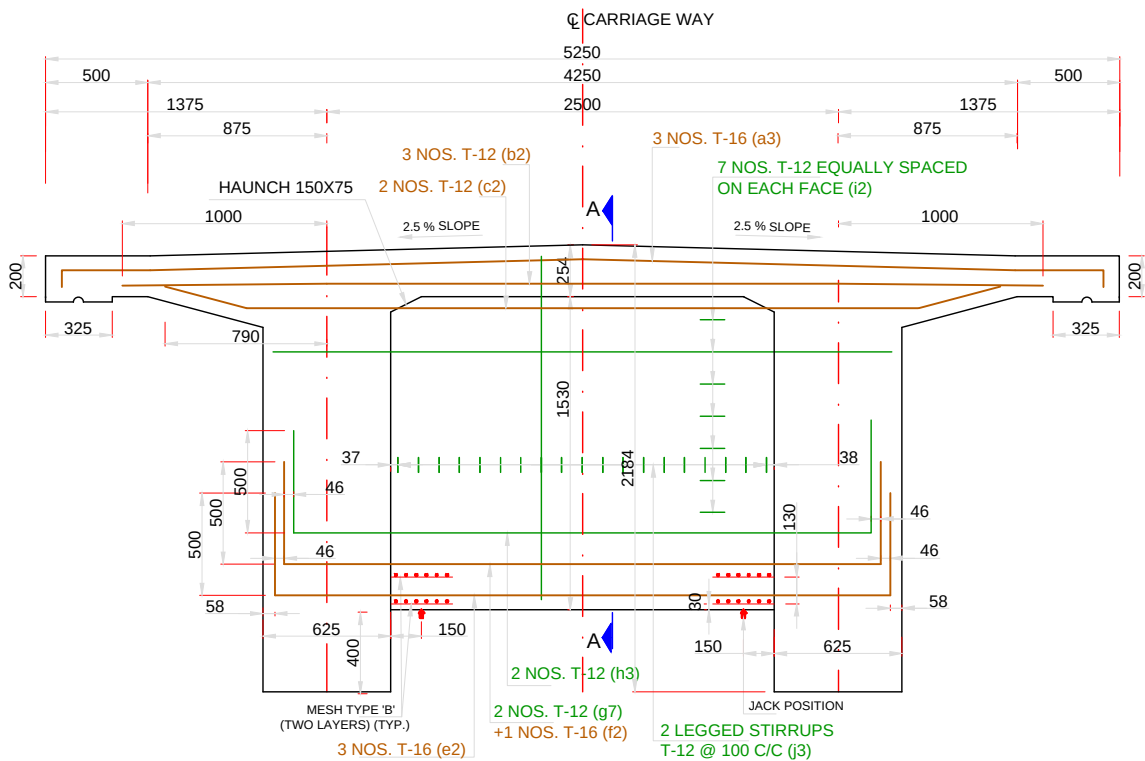
REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER
STRUCTURES DRG. NO. SD/214.



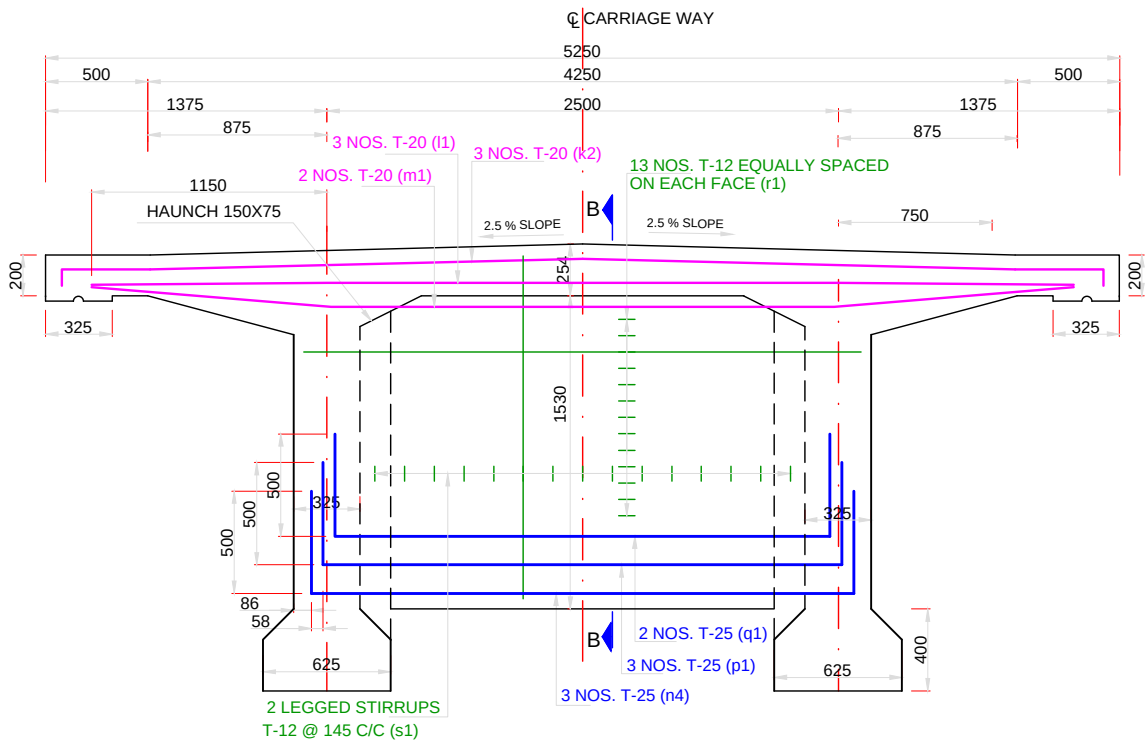
Prepared by :- WAPCOS LTD. 	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :- REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 25.954 WITH TWO BEAMS
	Drawing No. :- WAP/PKS/NORTH KOEL/RMC/BRG-18 10 of 12
Drawn by:-	Checked by:-
	Approved by:-

TENDER DRAWING



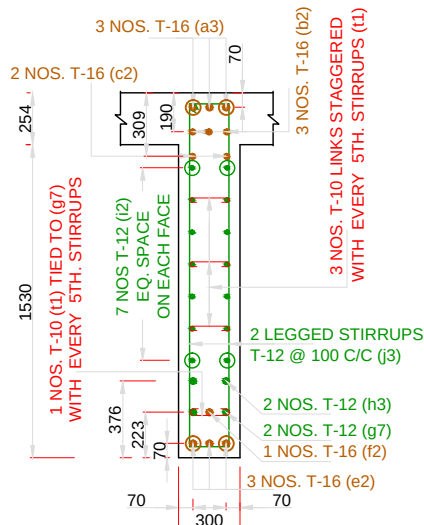
LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A



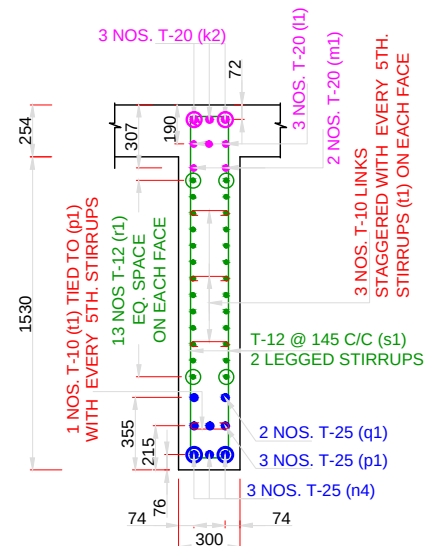
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION A-A

SCALE A

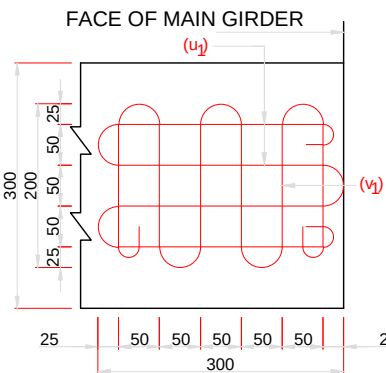


SECTION B-B

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

REFERENCES:-

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

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 25.954 WITH TWO BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-18

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	3125	200
2	b		12	220	2976	182
3	c		10	200	23460	11
4	d		10	200	23388	8
5	e		12	220	2987	32
6	f		12	220	5304	100
7	g		20	220	5182	100
8	h		12	220	2502	100
9	i		10	200	23710	12
10	j		10	200	23638	8
11	k		12	200	3588	20
12	l		12	200	6200	10
13	m		12	-	5150	4
14	n ₁		16	-	23210	8

CRASH BARRIER PER M

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

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	8
20	v ₁		10	-	1510	8

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		16	125	5146	11X2X2
2	a ₂		16	150	4746	11X2X2
3	b ₁		12	150	4666	106X2
4	c ₁		16	-	2693	2X2X2
5	d ₁		25	-	24148	3X2
6	e ₁		10	-	19860	9X2X2
7	f ₁		10	-	2199	18X2X2
8	g ₁		32	-	24108	5X2
9	g ₂		32	-	23980	5X2
10	g ₃		32	-	23852	5X2
11	i ₁		10	-	1733	101X2
12	n ₂		10	-	583	18X2
13	n ₃		10	-	433	90X2

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

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	-	4500	2X2
3	c ₂		16	-	4107	2X2
4	e ₂		16	-	3945	3X2
5	f ₂		16	-	3903	1X2
6	g ₇		12	-	3919	2X2
7	h ₃		12	-	2815	2X2
8	i ₂		12	-	3187	7X2X2
9	j ₃		12	100	3797	19X2
10	t ₁		10	-	416	20X2
MIDDLE CROSS GIRDERS						
1	k ₂		20	-	5222	3
2	l ₁		20	-	4800	2
3	m ₁		20	-	4810	2
4	n ₄		25	-	3470	3
5	p ₁		25	-	3353	3
6	q ₁		25	-	3237	2
7	r ₁		12	-	3711	13X2
8	s ₁		12	145	3794	15
9	t ₁		10	-	416	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 25.954 WITH TWO BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-18

12 of 12

Drawn by:-

Checked by:-

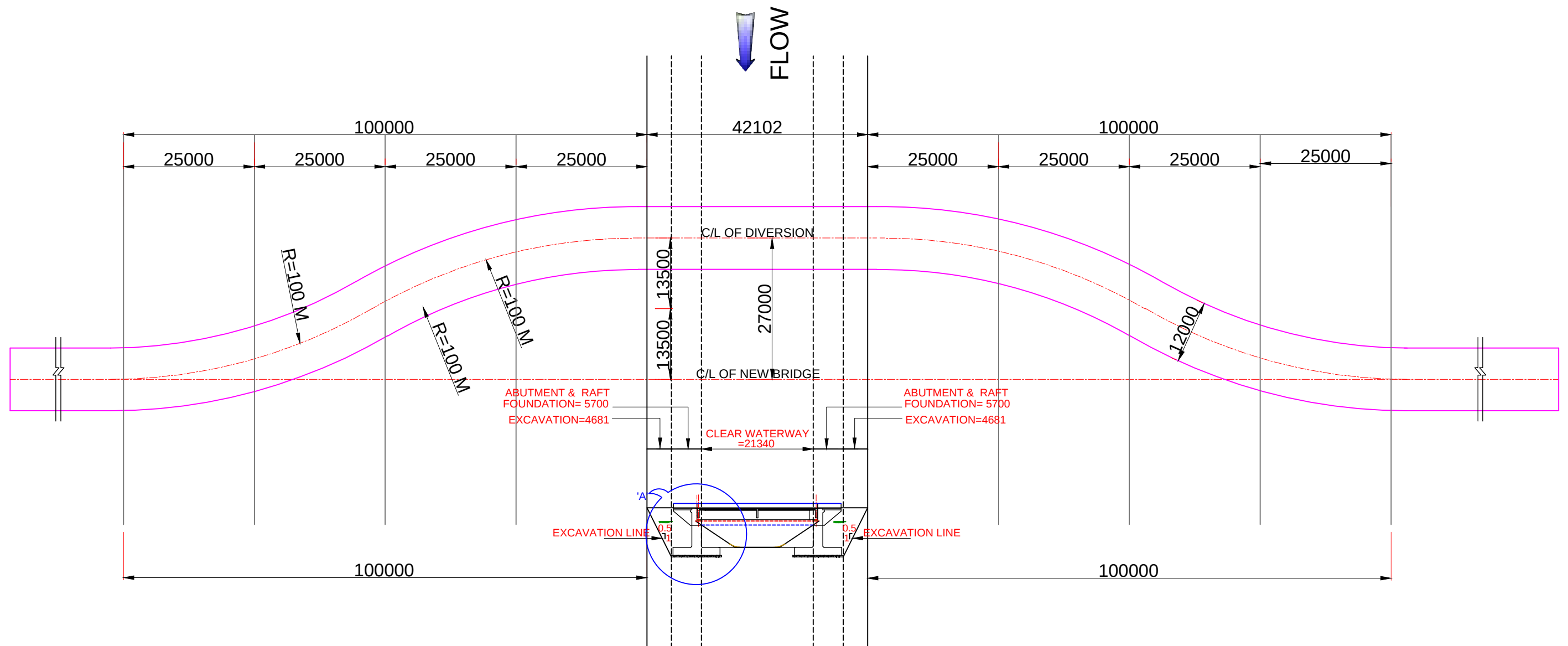
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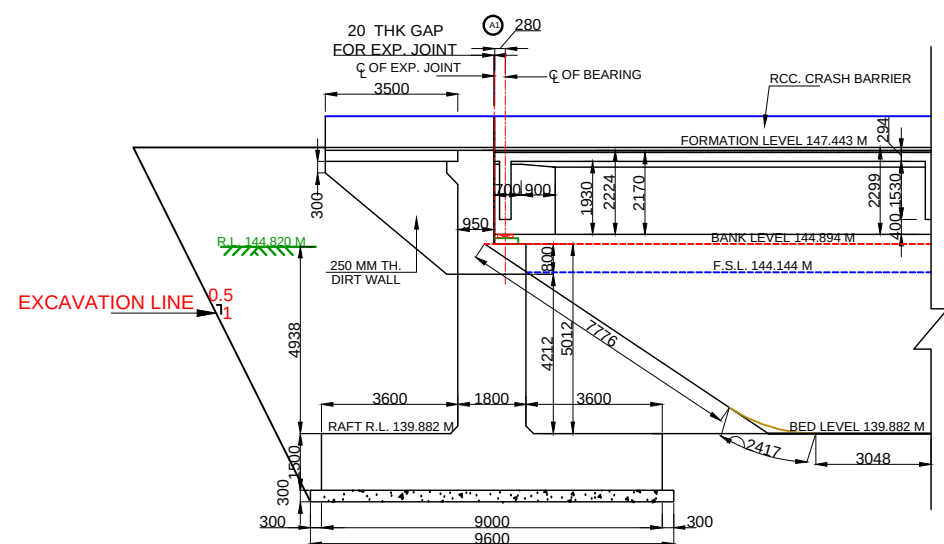
D.L.R. BRIDGE

AT

CH. 26.822 KM



SKETCH OF DIVERSION PLAN AT KM 26.822 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 26.822 FOR D.L.R. BRIDGE

Drawing No. :-

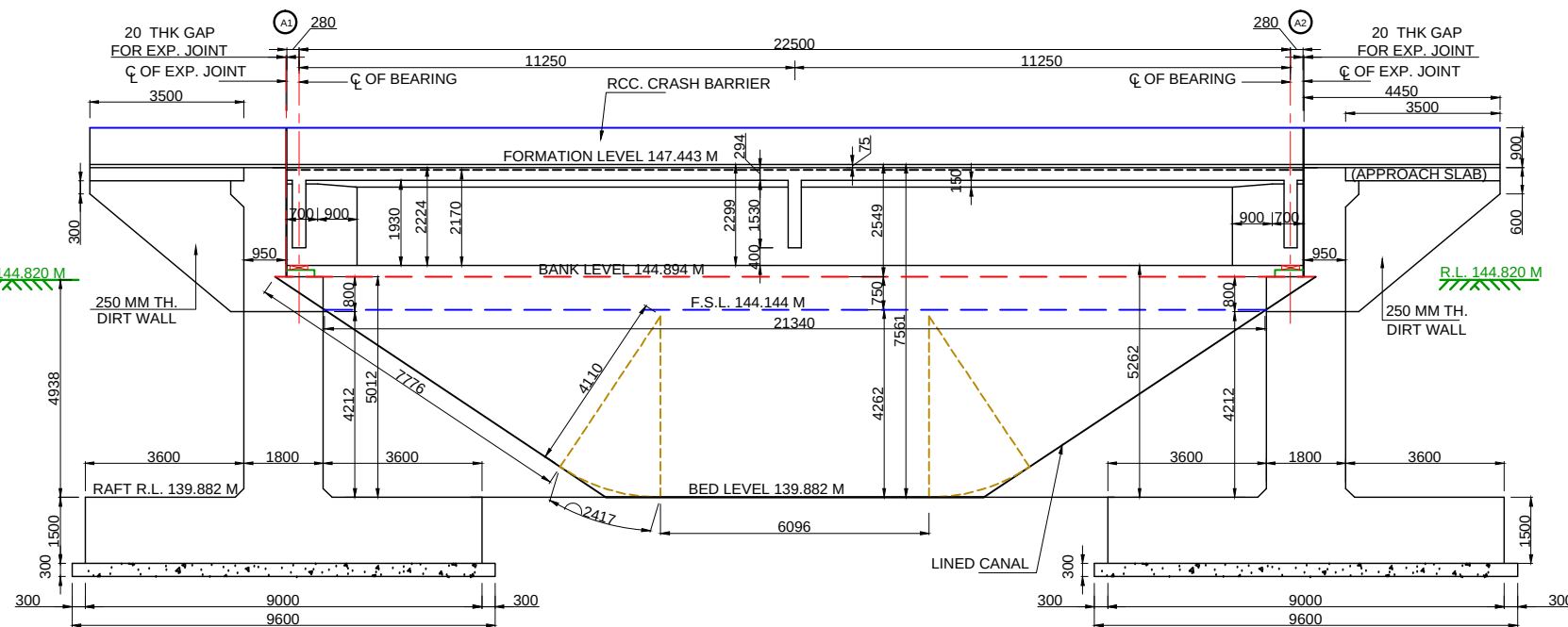
WAP/PKS/NORTH KOEL/RMC/BRG 19

02 of 12

Drawn by:-

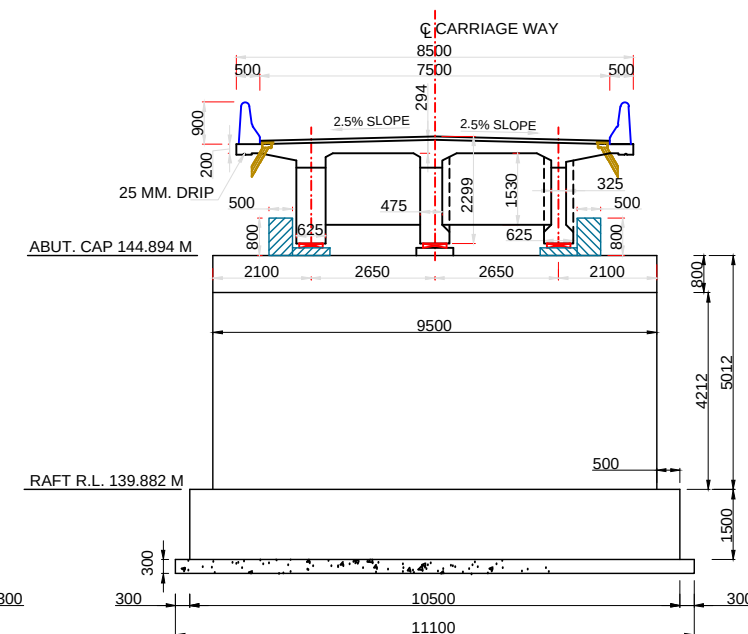
Checked by:-

Approved by:-



SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)

NOTES:

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 AND ABUTMENT LOCATIONS.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.

6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	80.900 CUMEC
BED LEVEL	139.882 M
WATER DEPTH	4.262 M
F.S.L.	144.144 M
FREE BOARD	0.75 M

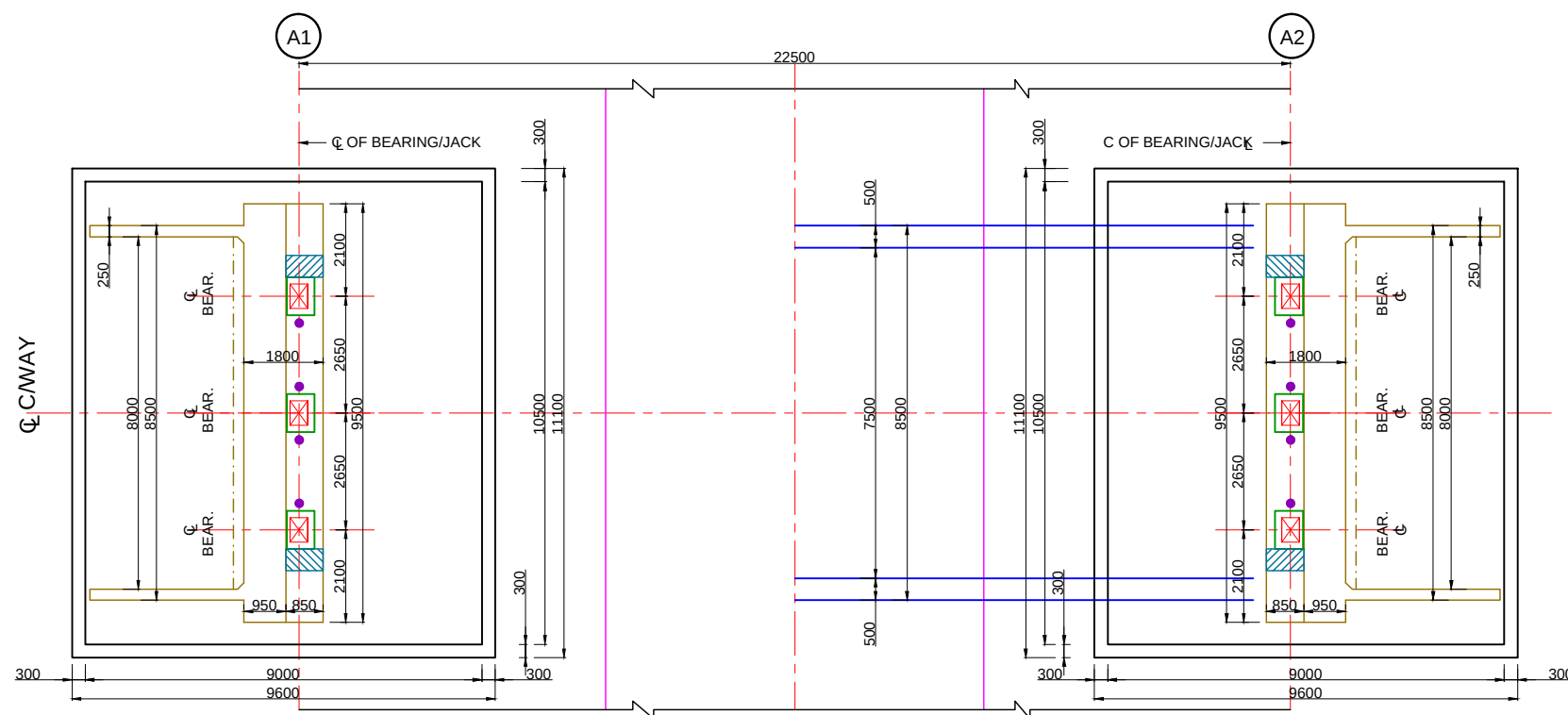
7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

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

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

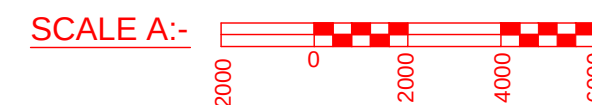
SKWNESS ANGLE	0°
ROAD LEVEL	147.443 M
EX. ROAD LEVEL	144.820 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M

9. 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 26.822

Drawing No. :-

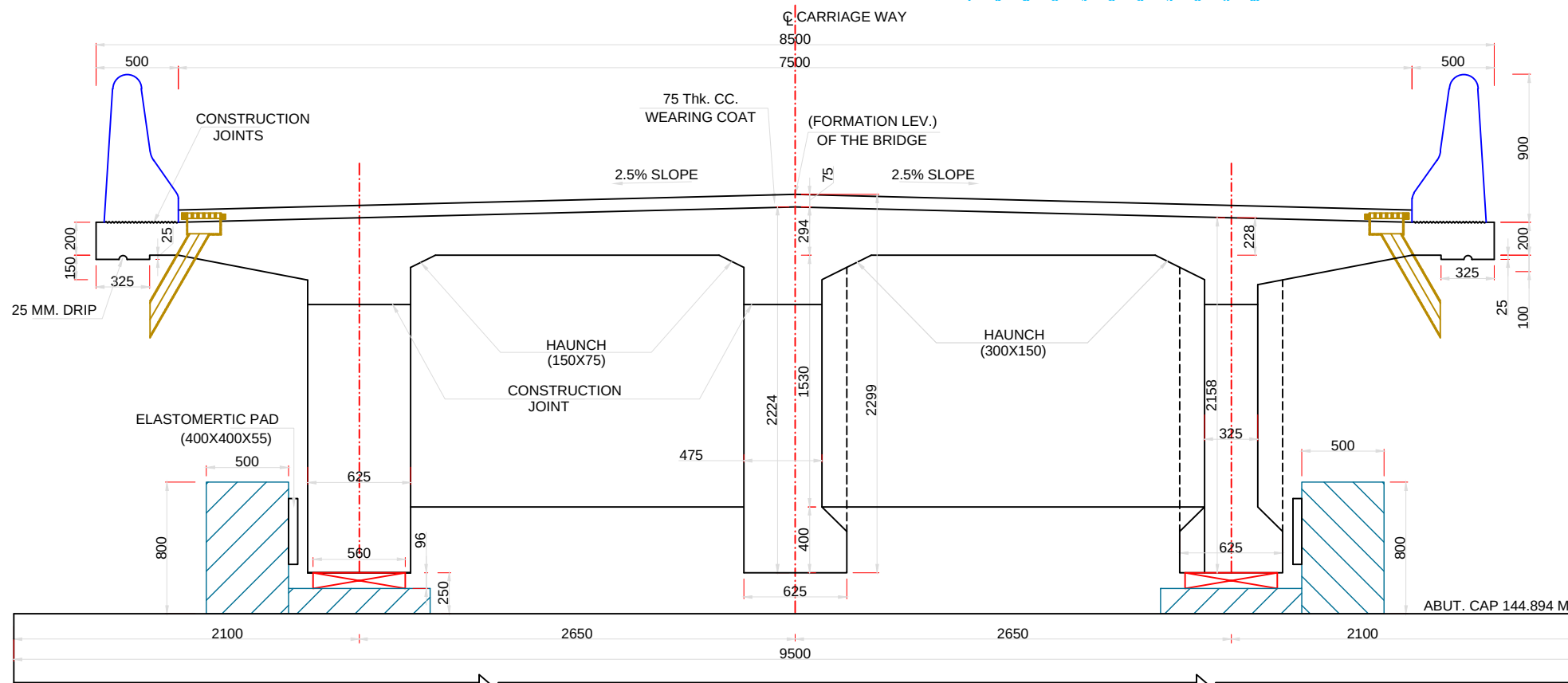
WAP/PS/NORTH KOEL/RMC/BRG-19

03 of 12

Drawn by:-

Checked by:-

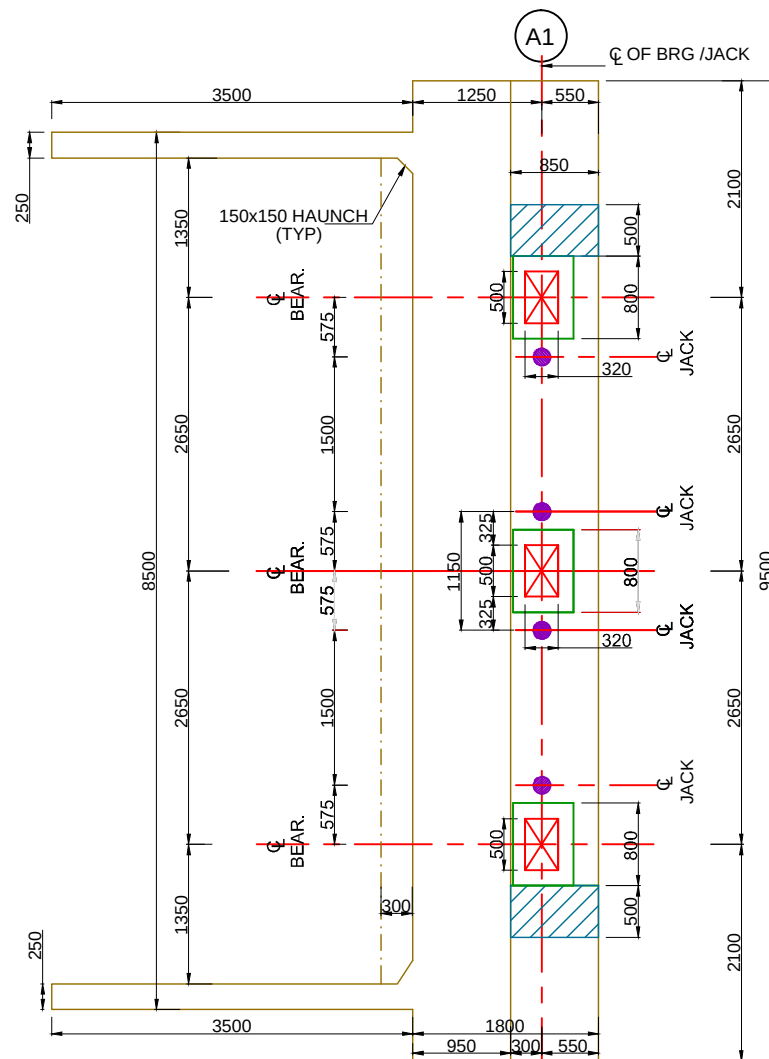
Approved by:-



SECTION ABC OF SLAB AND GIRDERS

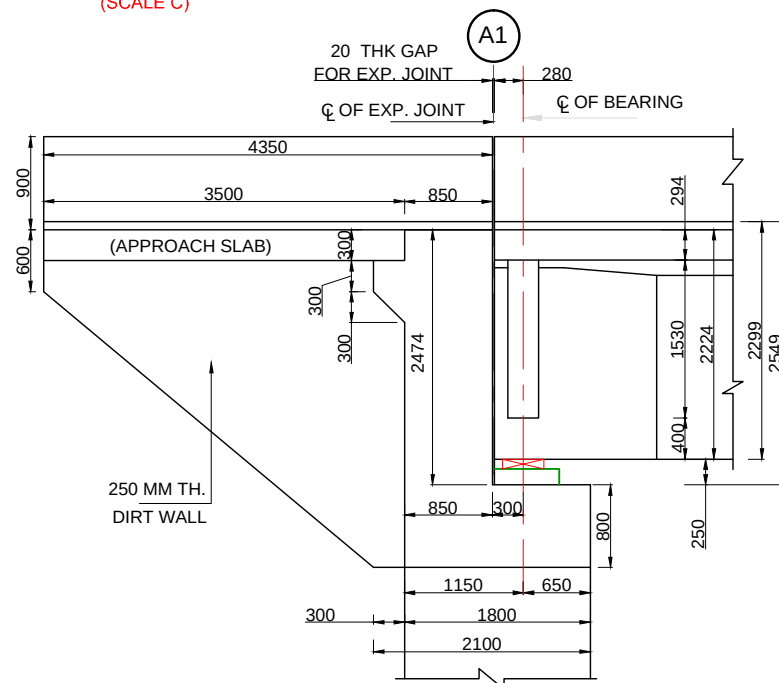
(REFER SHEET NO. 05 OF 09)

(SCALE C)



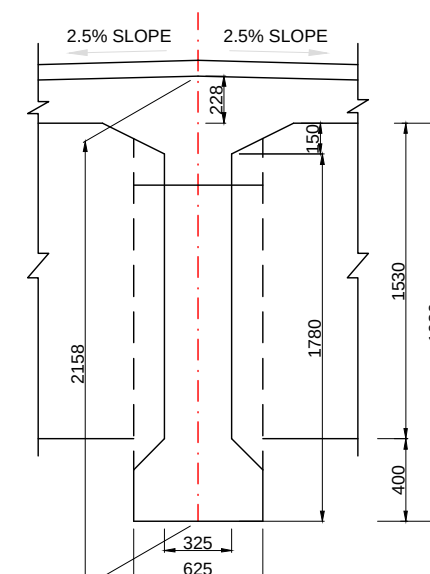
PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)



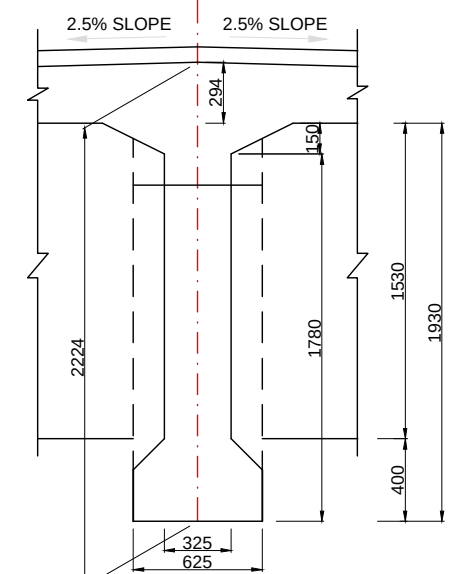
DETAIL - 'D1'

(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 26.822

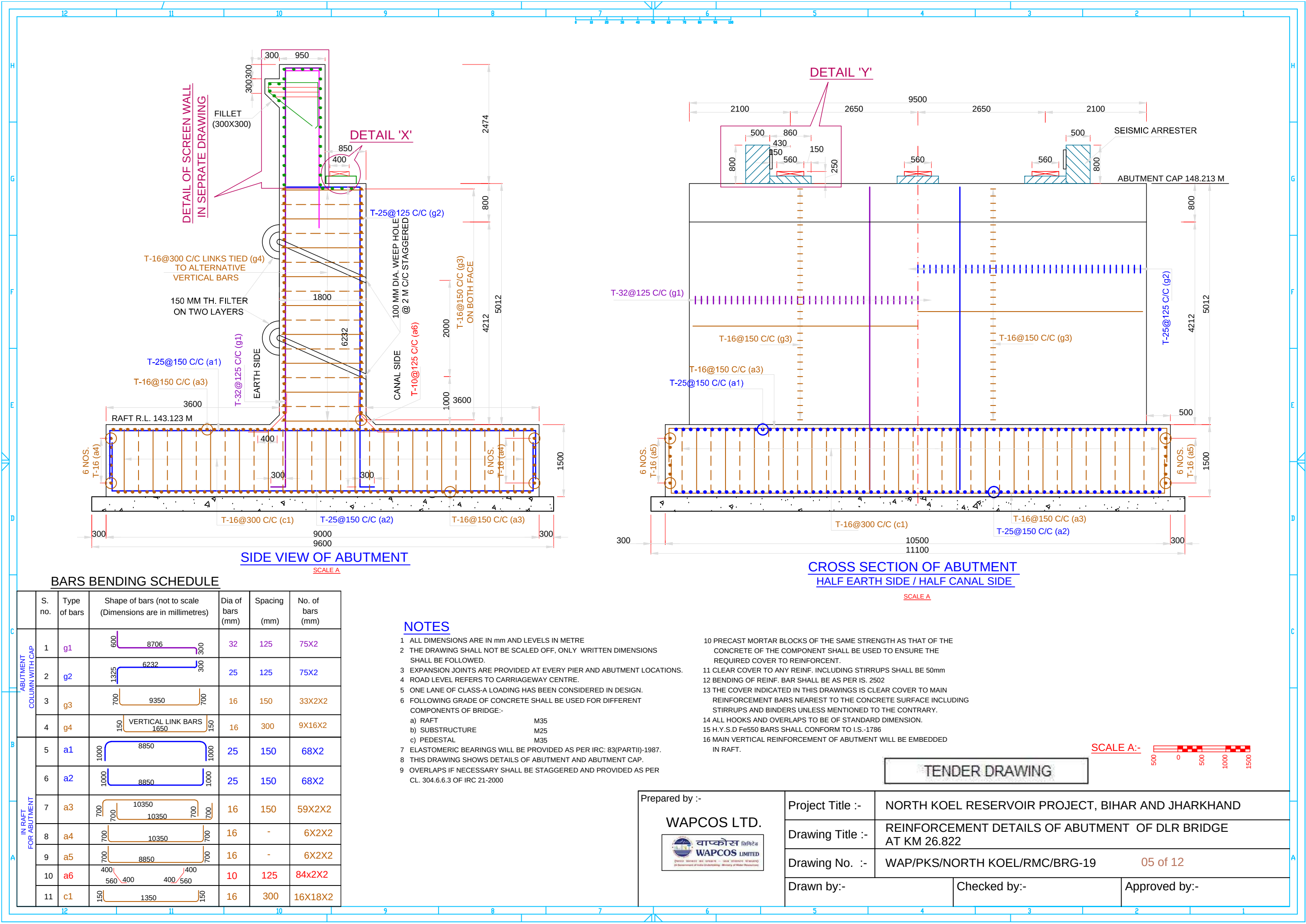
Drawing No. :- WAP/PKS/NORTH KOEL/RMC/BRG-19

04 of 12

Drawn by:-

Checked by:-

Approved by:-

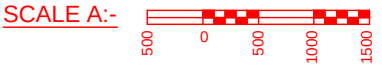


NOTES

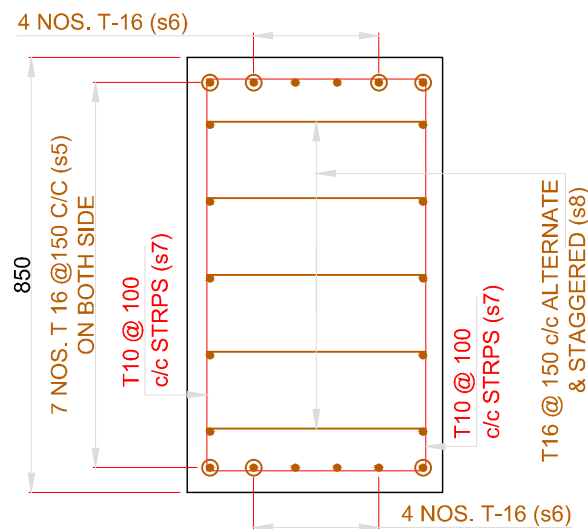
- 1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- 2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- 4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- 5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED 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 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.

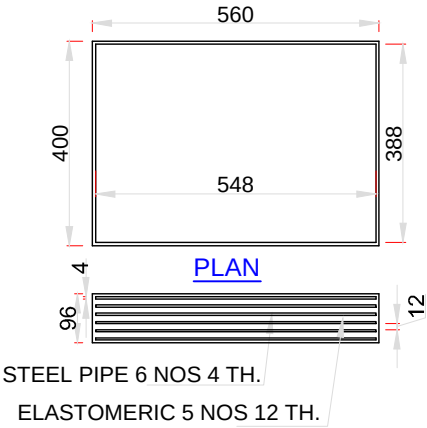
TENDER DRAWING



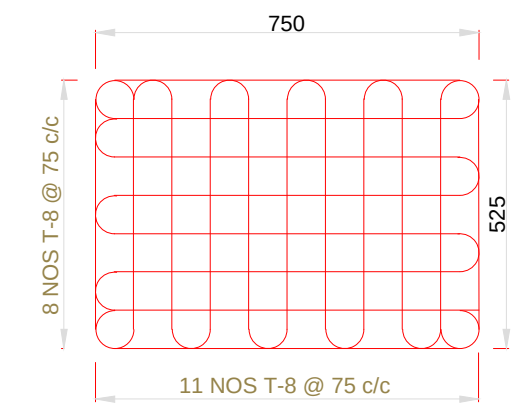
Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF DLR BRIDGE AT KM 26.822	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-19	05 of 12
	Drawn by:-	Checked by:-	Approved by:-



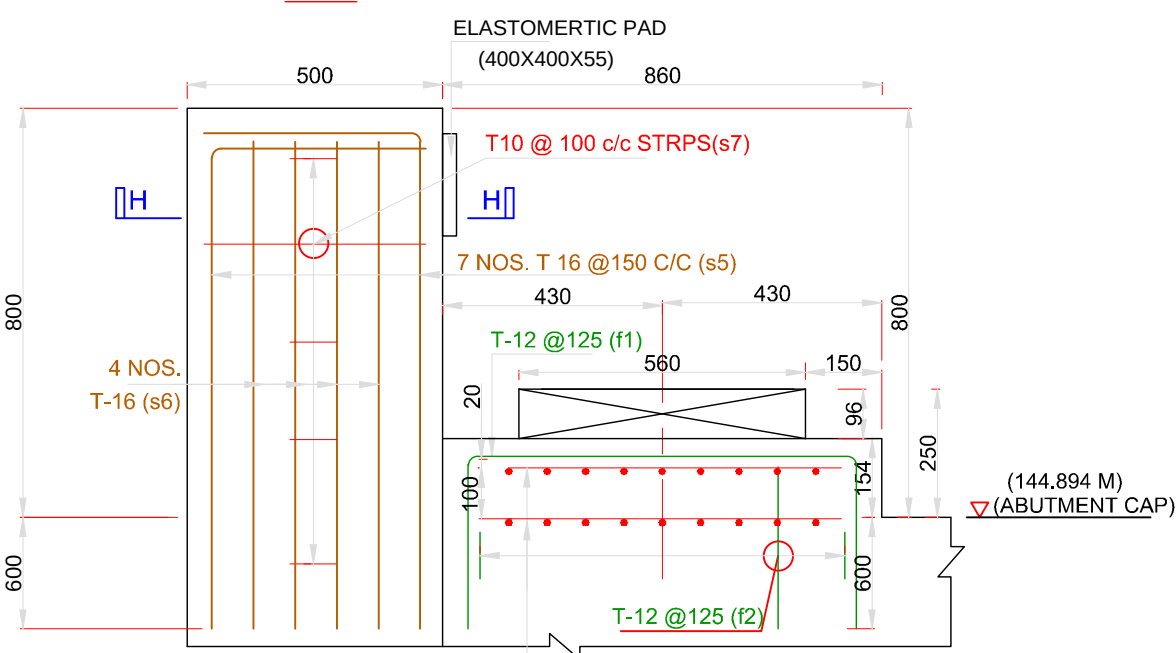
SECTION H-H
SCALE A



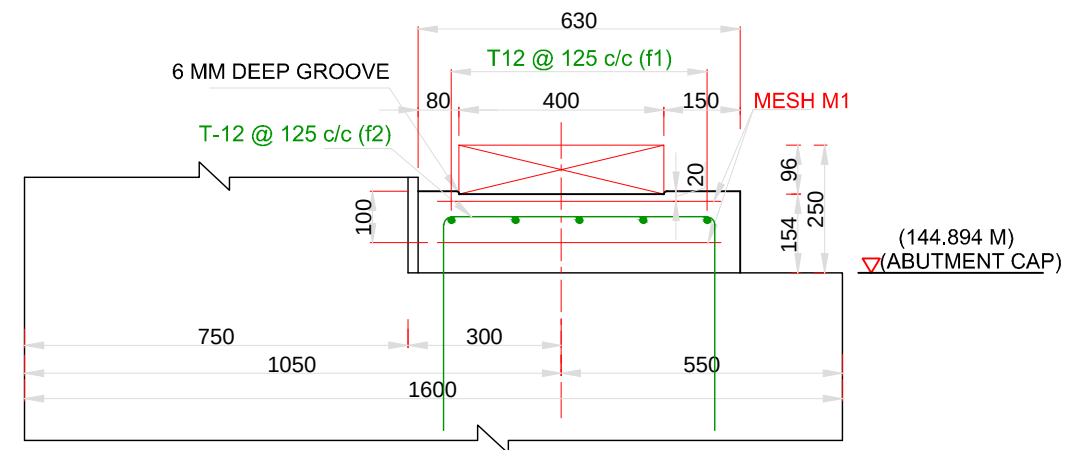
DETAILS OF
ELASTOMERIC BEARINGS
SCALE A



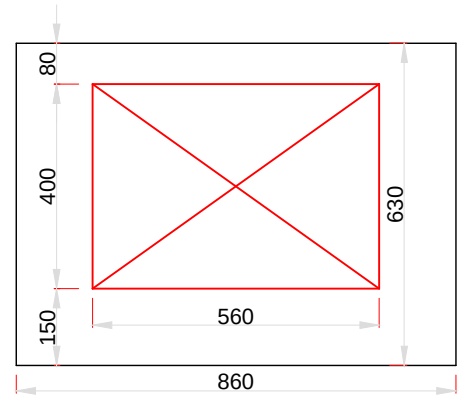
DETAIL OF MESH M1
(MESH BELOW BEARING LOCATION)
SCALE A



DETAIL 'Y'
SCALE A



DETAIL 'X'
SCALE A



PLAN
SCALE A

BARS BENDING SCHEDULE

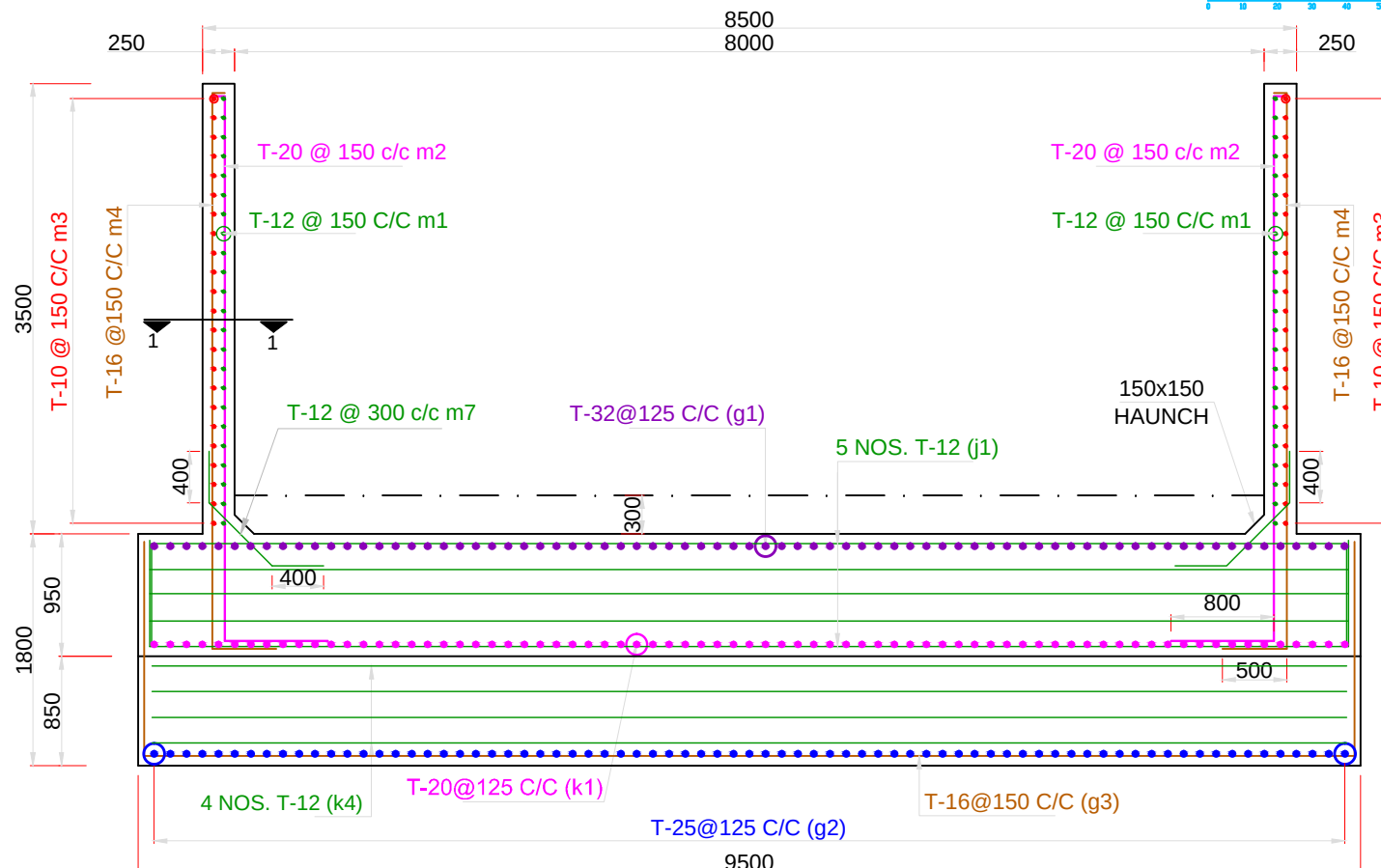
	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5		16	150	14X2X2
	2	s6		16	-	8X2X2
	3	s7		10	100	5X2X2
	4	s8		16	150	10X2
PEDESTAL FOR ABUTMENT	5	f1		12	125	5X3X2
	6	f2		12	125	5X3X2

NOTES

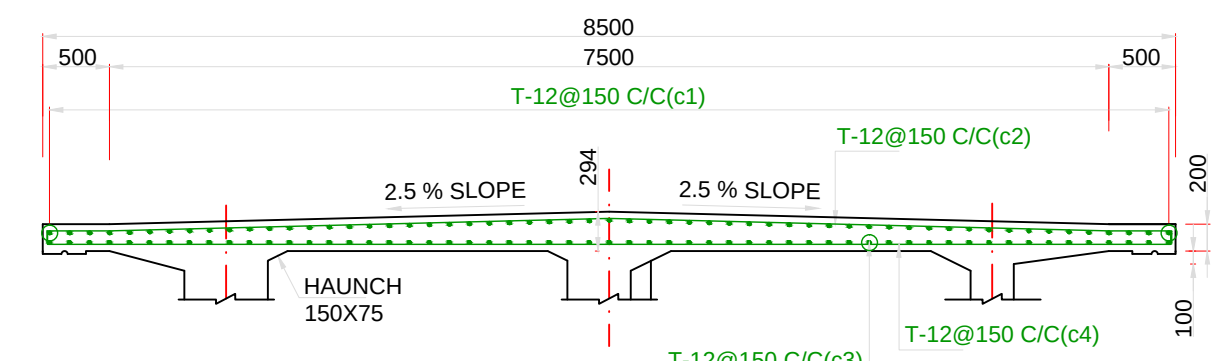
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.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

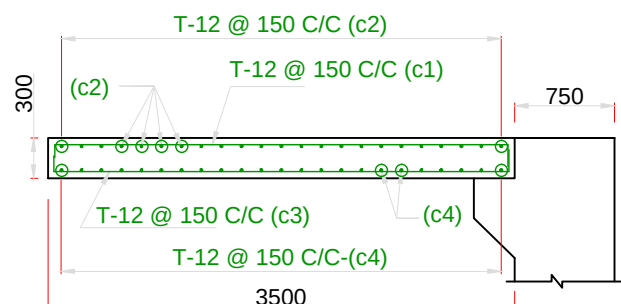
Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 26.822	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-19	06 of 12
	Drawn by:-	Checked by:-	Approved by:-



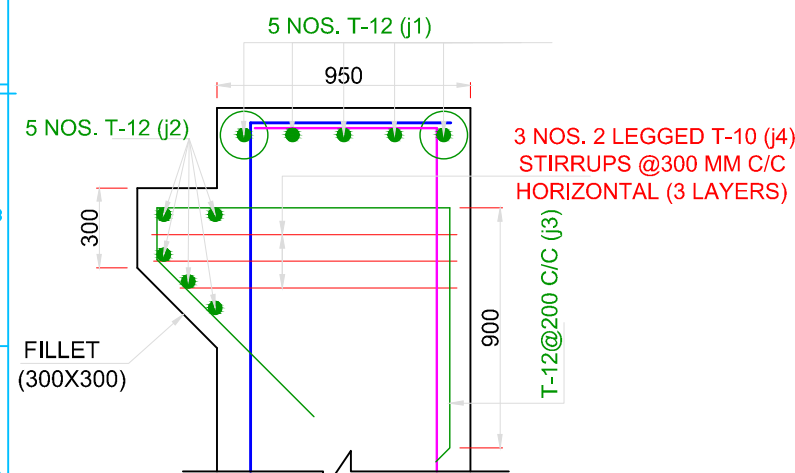
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL
SCALE A



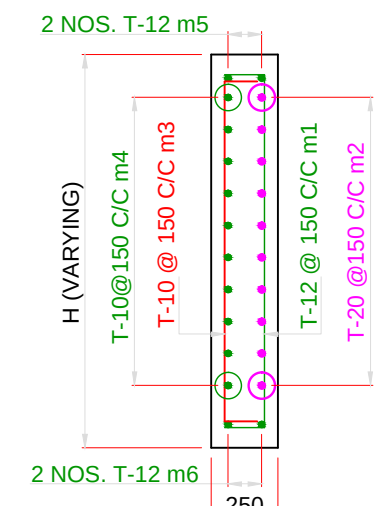
REINFORCEMENT IN APPROACH SLAB
SCALE A



SECTION OF APPROACH SLAB
SCALE A

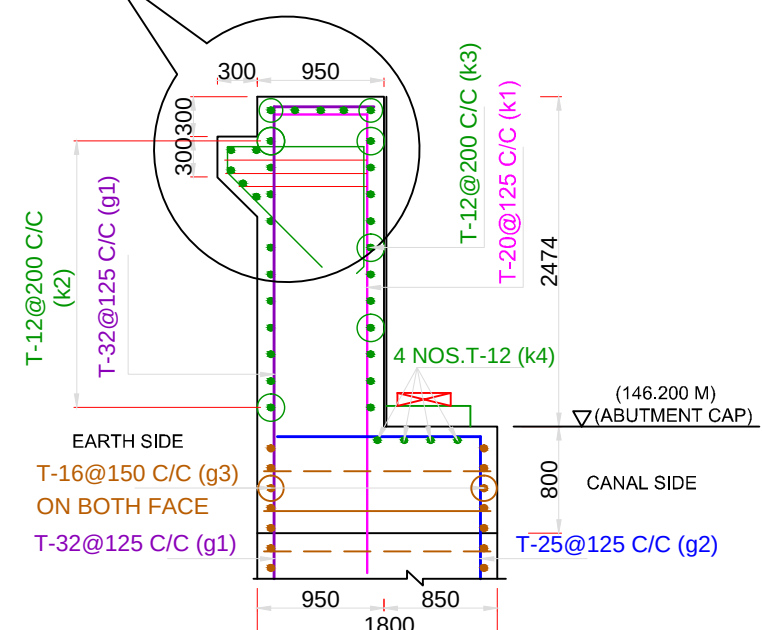


DETAIL '1'
SCALE B



SECTION AT 1-1
SCALE B

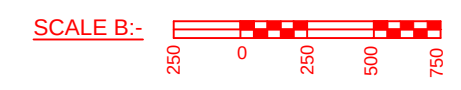
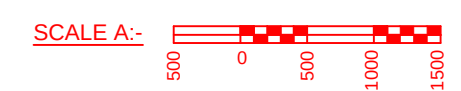
DETAIL '1'



REINFORCEMENT DETAILS IN SECTION OF DIRT
SCALE A

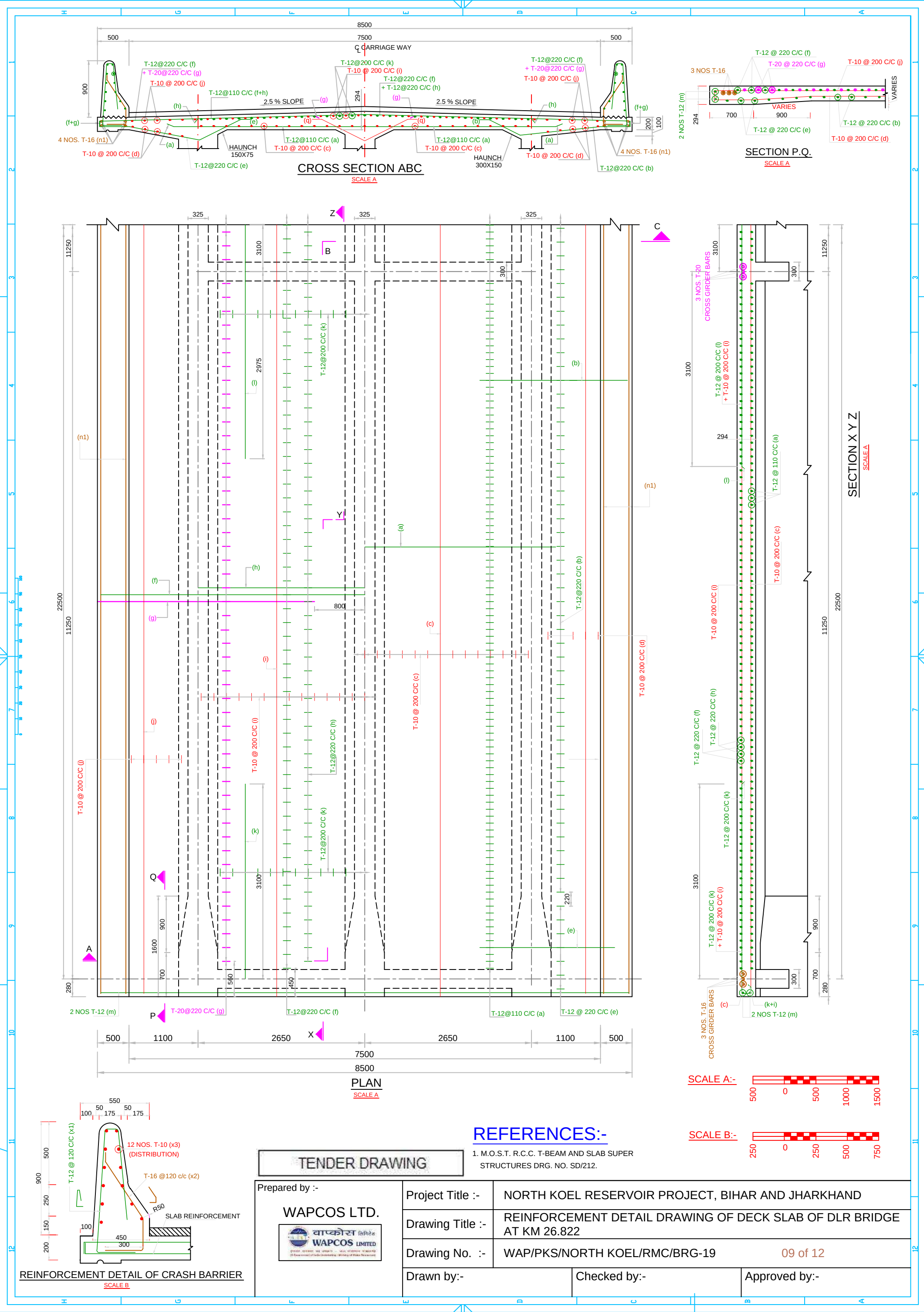
BARS BENDING SCHEDULE

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)
4	k1		20	125	51X2
5	k2		12	200	11X2
6	k3		12	200	11X2
7	k4		12	200	4X2
8	j1		12	-	5X2
9	j2		12	-	5X2
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	-
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 26.822	Drawing No. :- WAP/PKS/NORTH KOEL/RMC/BRG-19
Drawn by:-	Checked by:-
Approved by:-	



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 DLR BRIDGE AT KM 26.822

Drawing No. :-

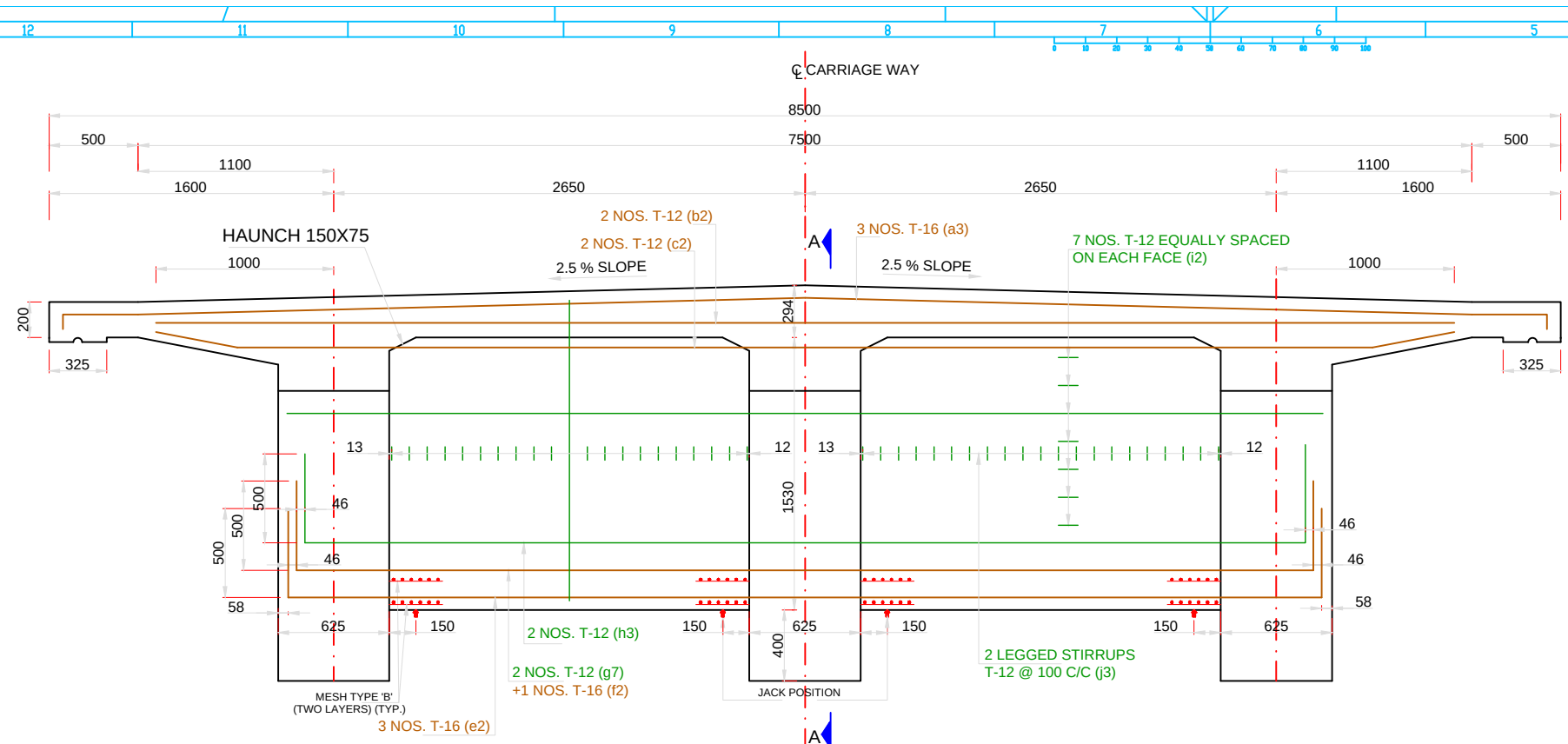
WAP/PKS/NORTH KOEL/RMC/BRG-19

09 of 12

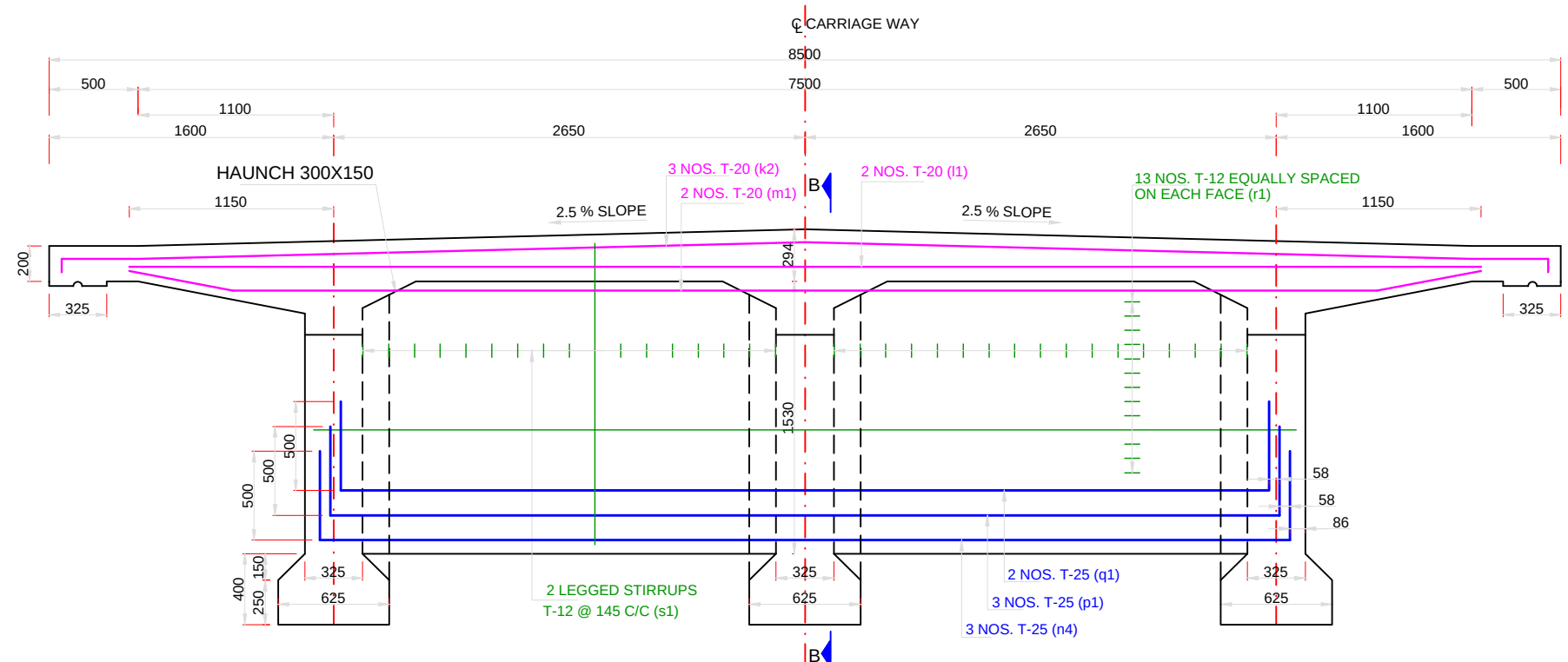
Drawn by:-

Checked by:-

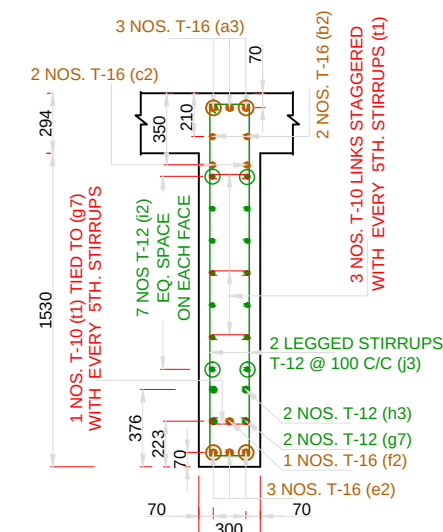
Approved by:-



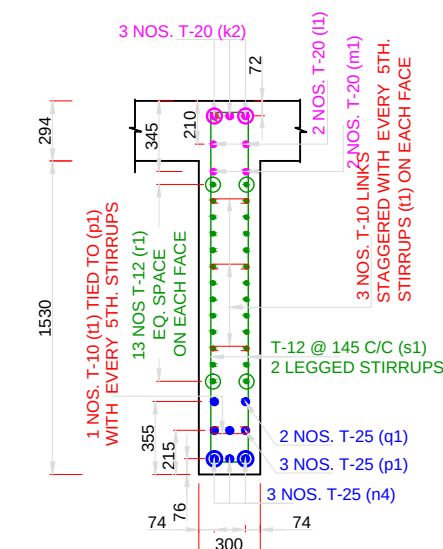
LONGITUDINAL SECTION OF END CROSS GIRDER



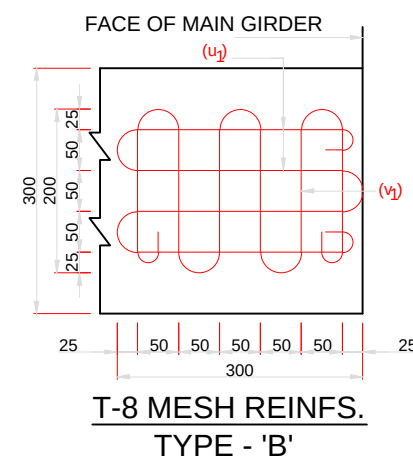
LONGITUDINAL SECTION
OF INTERMEDIATE CROSS GIRDER



SECTION A-A



SECTION B-B



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 26.822

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-19

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	n ₁		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						
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		16	125	5158	11X2X2
2	a ₂		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	9X2X2
7	f ₁		10	-	2199	18X2X2
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	i ₁		10	-	1733	101X2
13	n ₂		10	-	583	18X2
14	n ₃		10	-	433	90X2

LONGITUDINAL INNER GIRDER						
1	i ₁		16	125	5290	11X2X1
2	j 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	9X2X1
7	f ₁		10	-	2199	18X2X1
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		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	a ₃		16	-	8438	3X2
2	b ₂		16	-	7300	2X2
3	c ₂		16	-	7204	2X2
4	e ₂		16	-	6729	3X2
5	f ₂		16	-	6637	1X2
6	g ₇		12	-	6637	2X2
7	h ₃		12	-	6565	2X2
8	i ₂		12	-	6219	7X2X2
9	j ₃		12	100	3833	21X2X2
10	t ₁		10	-	416	40X2

MIDDLE CROSS GIRDERS						
1	k ₂		20	-	8438	3
2	l ₁		20	-	7600	2
3	m ₁		20	-	7600	2
4	n ₄		25	-	6281	3
5	p ₁		25	-	6165	3
6	q ₁		25	-	6045	2
7	r ₁		12	-	6487	13X2
8	s ₁		12	145	3742	34
9	t ₁		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	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 DLR BRIDGE AT KM 26.822

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-19

12 of 12

Drawn by:-

Checked by:-

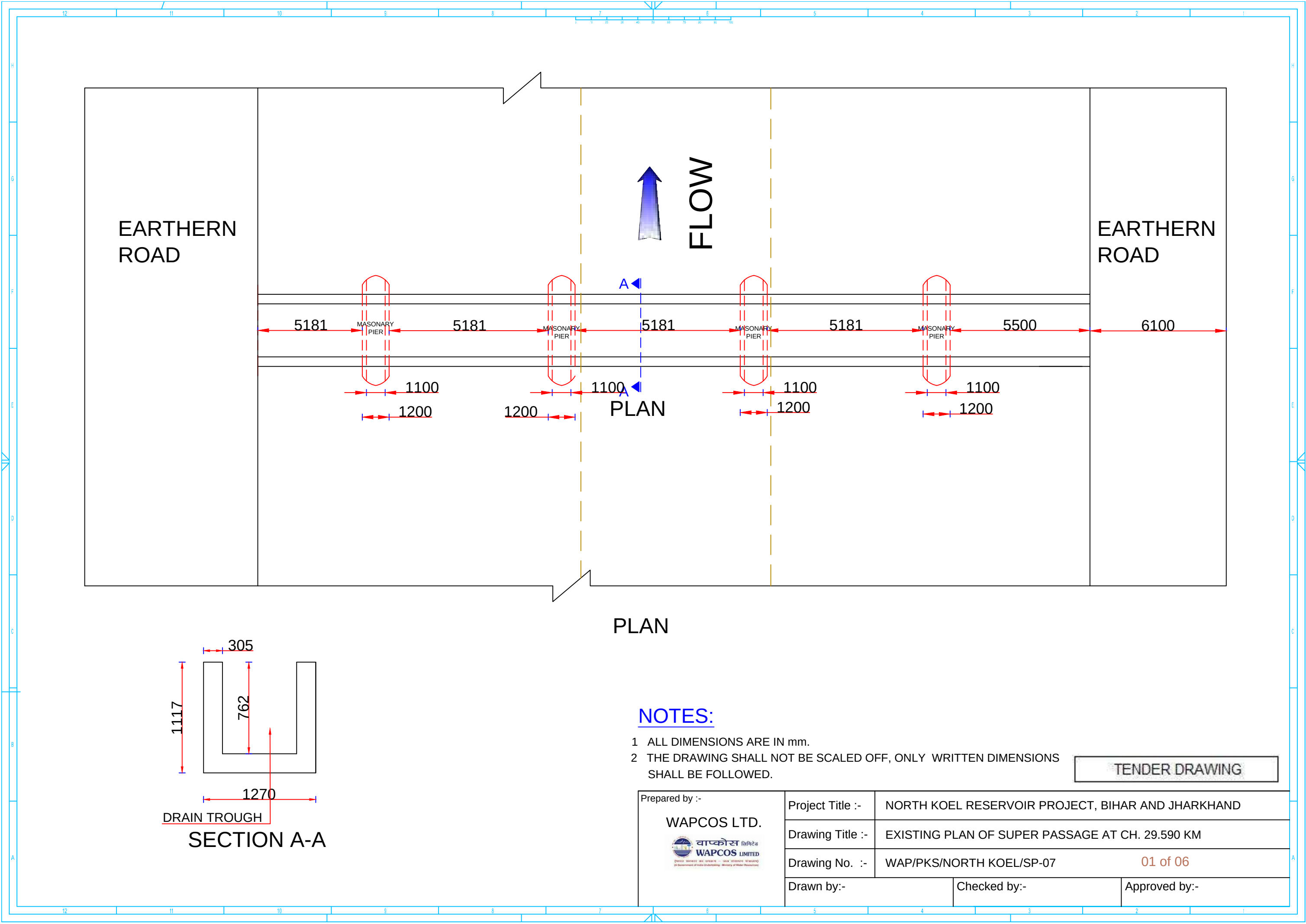
Approved by:-



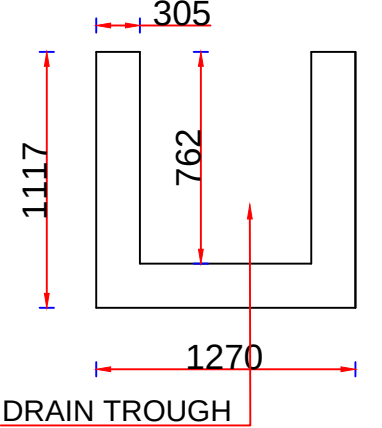
SUPER PASSAGE

AT

CH. 29.590 KM



PLAN

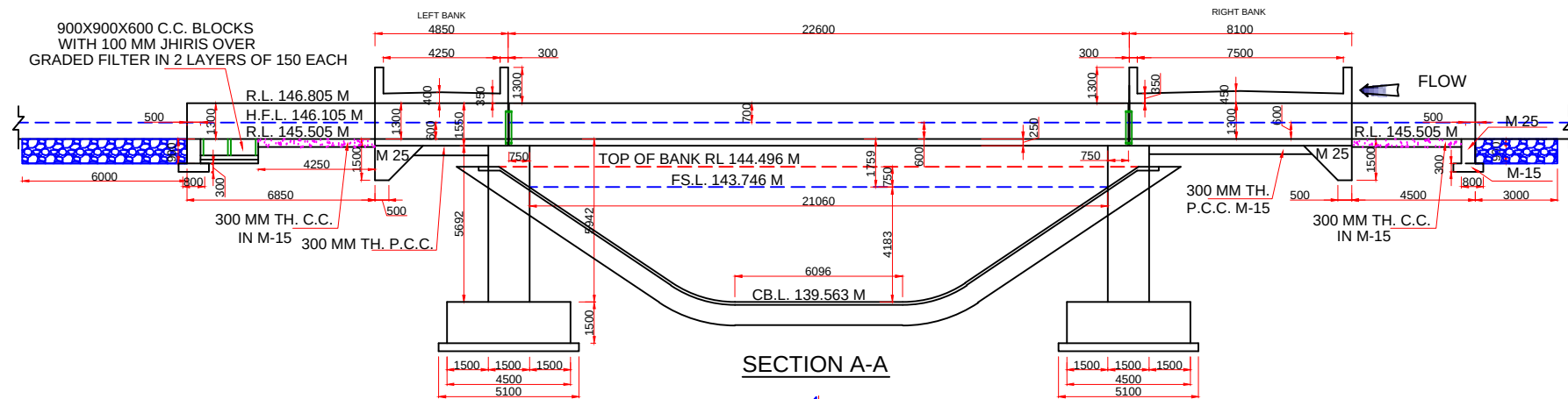


NOTES:

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

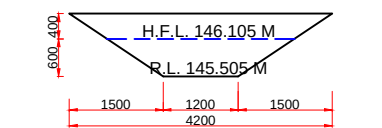
TENDER DRAWING

Prepared by :- WAPCOS LTD.  वाप्कोस लिमिटेड WAPCOS LIMITED (A Government of India Undertaking, Ministry of Power, Government of India)	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	EXISTING PLAN OF SUPER PASSAGE AT CH. 29.590 KM		
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-07	01 of 06	
	Drawn by:-	Checked by:-		Approved by:-

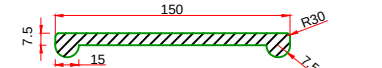


NOTES:

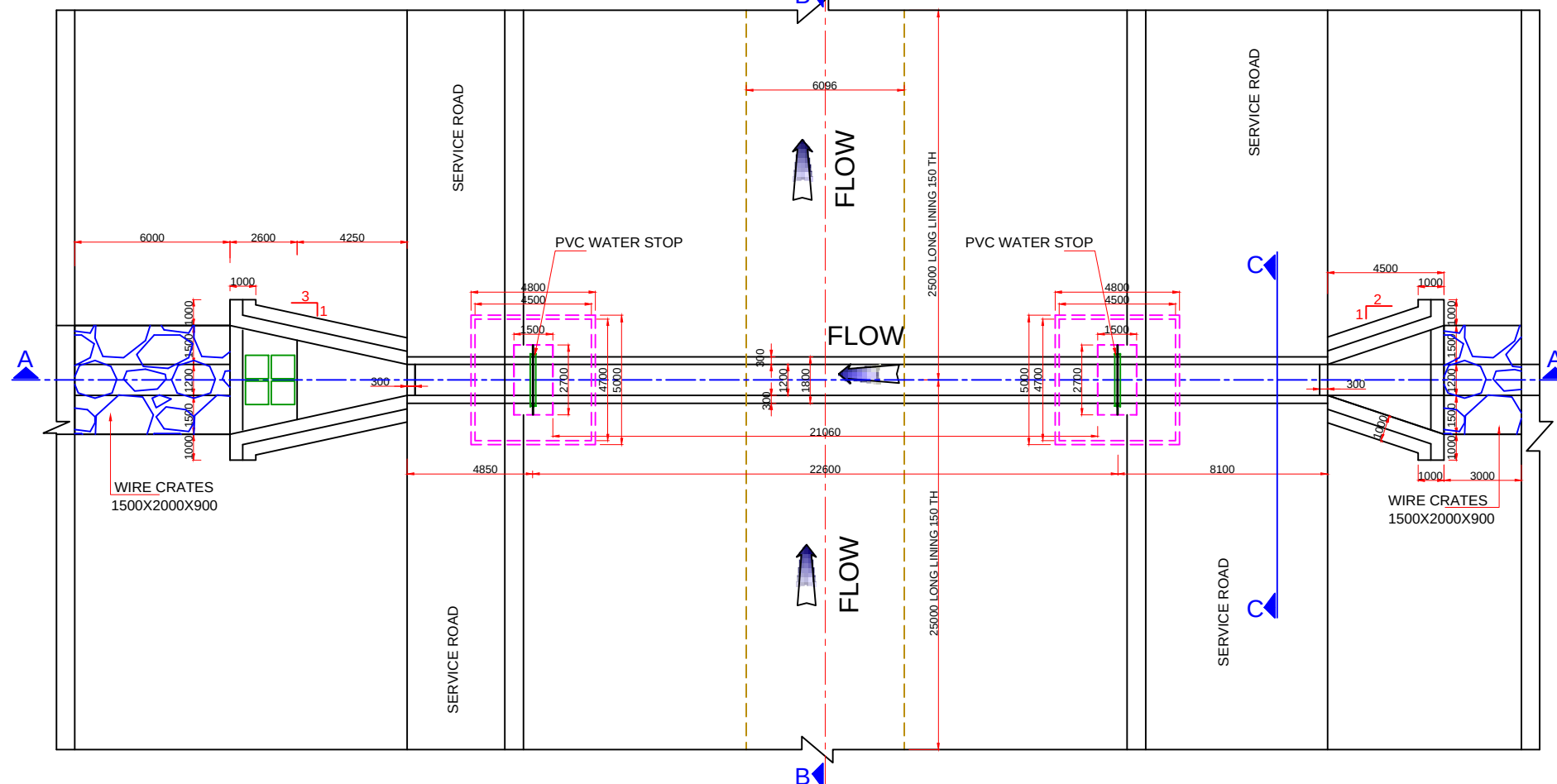
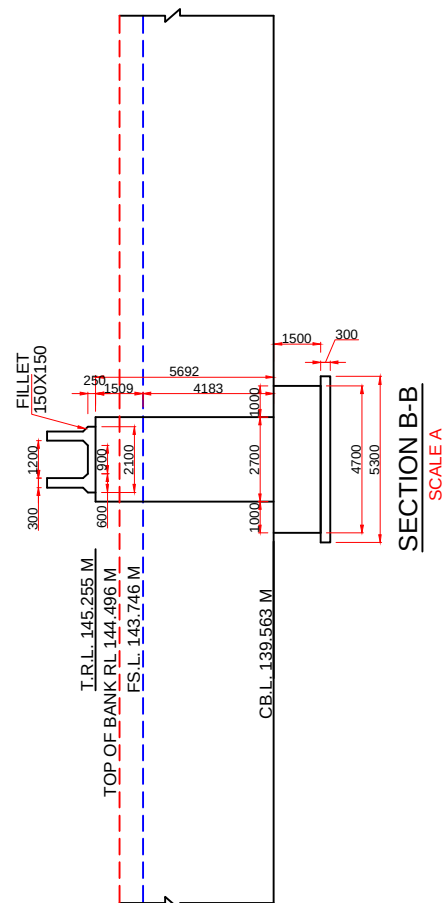
1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT LOCATIONS INDICATED IN DRAWING.
4. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT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



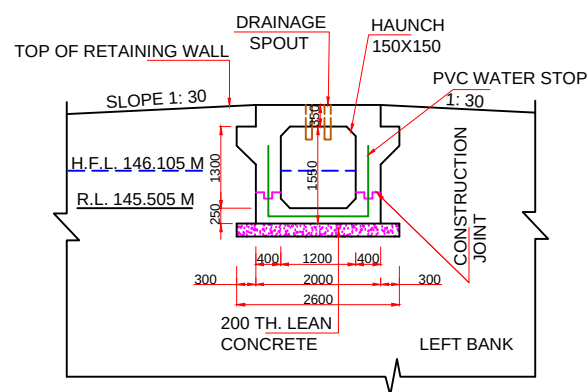
DETAILS OF TYPICAL PVC WATER STOP FOR EXPANSION/CONTRACTION JOINTS



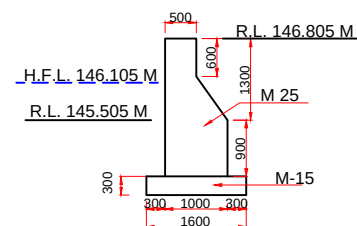
DETAILS OF TYPICAL WATER STOP FOR CONSTRUCTION JOINT



PLAN OF SUPER PASSAGE



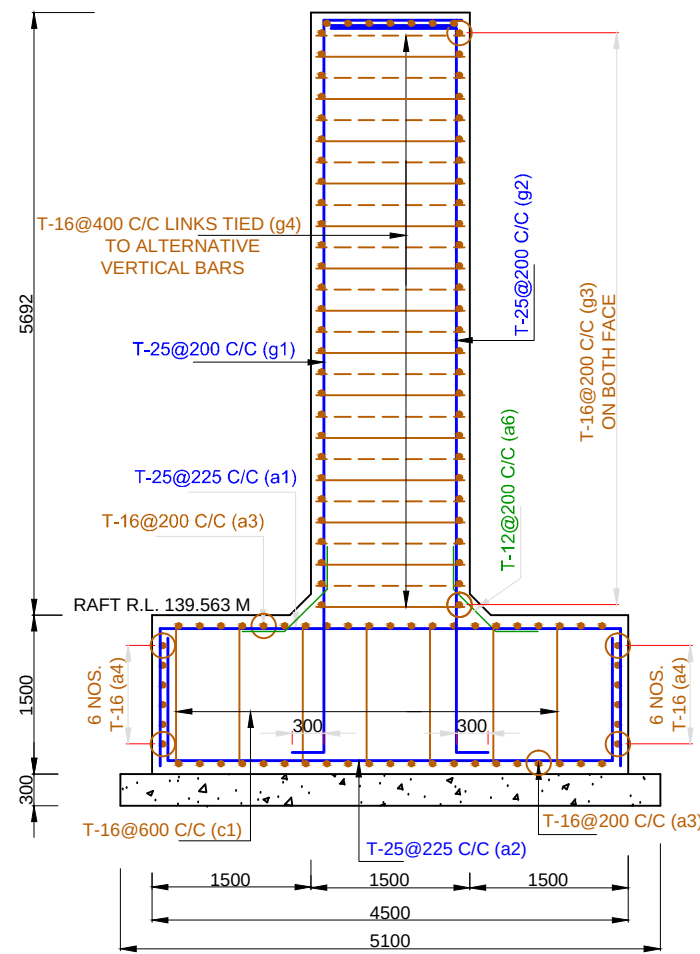
SECTION C-C (BOX TYPE SECTION UNDER ROAD)
SCALE B



SECTION OF
TRANSITION WALL
SCALE B

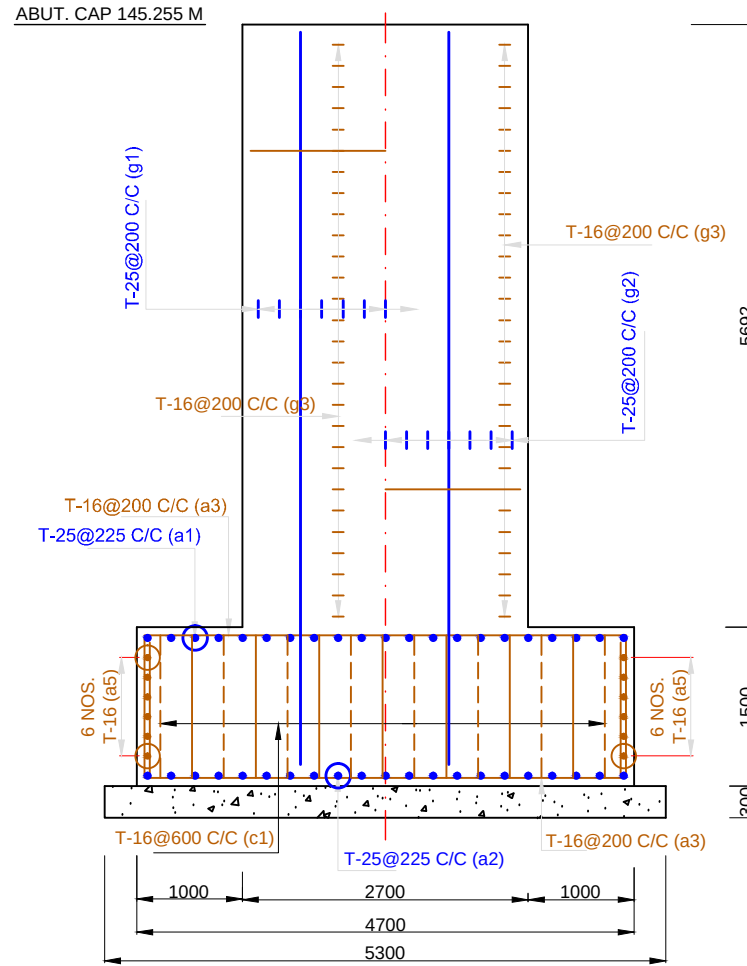
TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SUPER PASSAGE KM 29.590		
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-07 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	13X2
	2	g2		25	200	13X2
	3	g3		16	200	28X2X2
	4	g4		16	400	13X5X2
IN RAFT FOR ABUTMENT	5	a1		25	225	21X2
	6	a2		25	225	21X2
	7	a3		16	200	22X2X2
	8	a4		16	-	6X2X2
	9	a5		16	-	6X2X2
	10	a6		12	200	13X2X2
	11	c1		16	600	7X7X2

NOTES

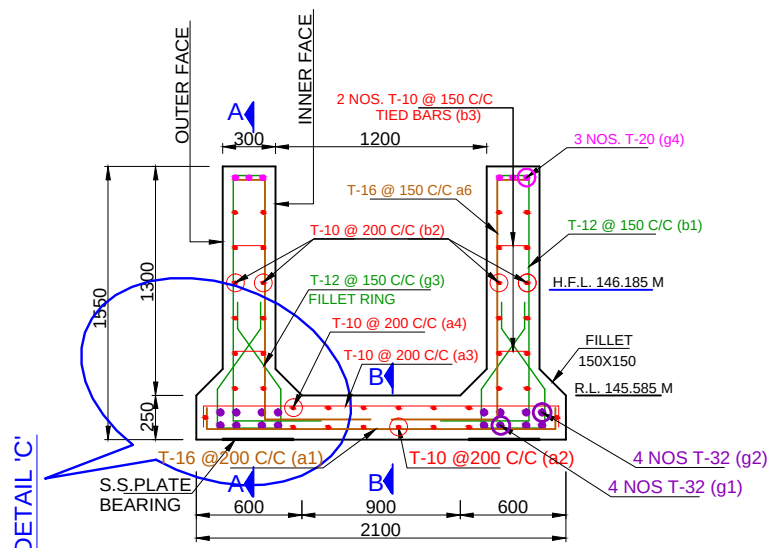
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.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

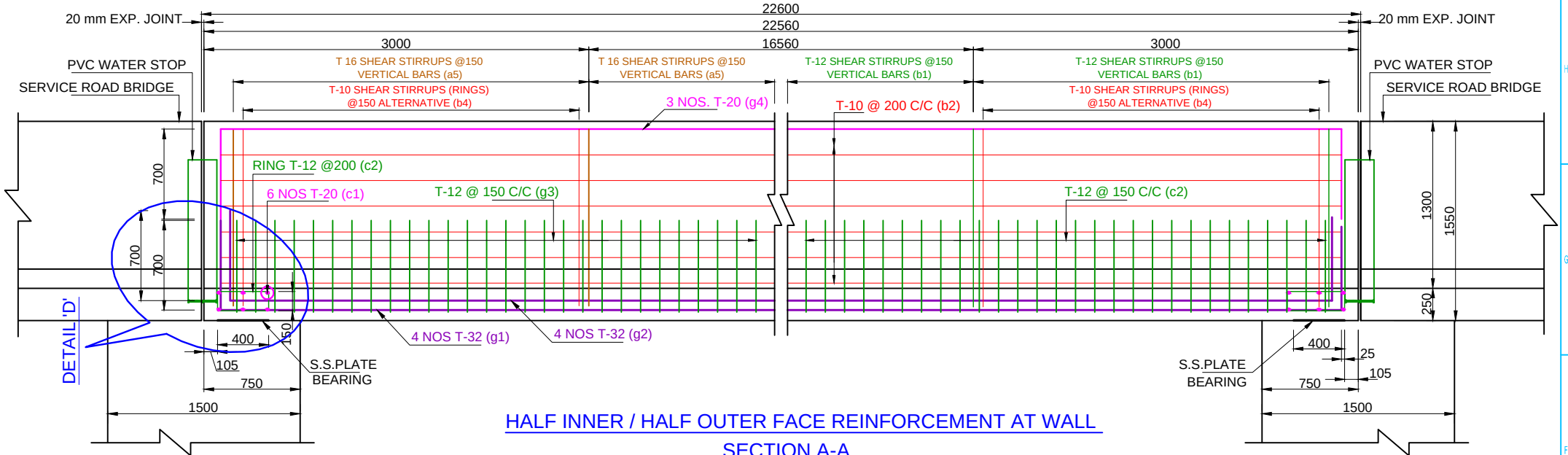
SCALE A:-
500 0 500 1000 1500

TENDER DRAWING

Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SUPER PASSAGE AT KM 29.590	
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-07	03 of 06
	Drawn by:-	Checked by:-	Approved by:-



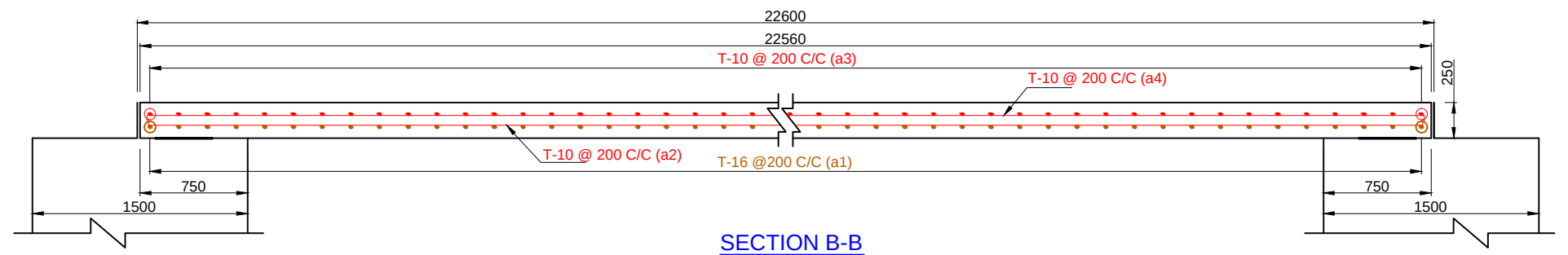
REINFORCEMENT IN SUPER PASSAGE



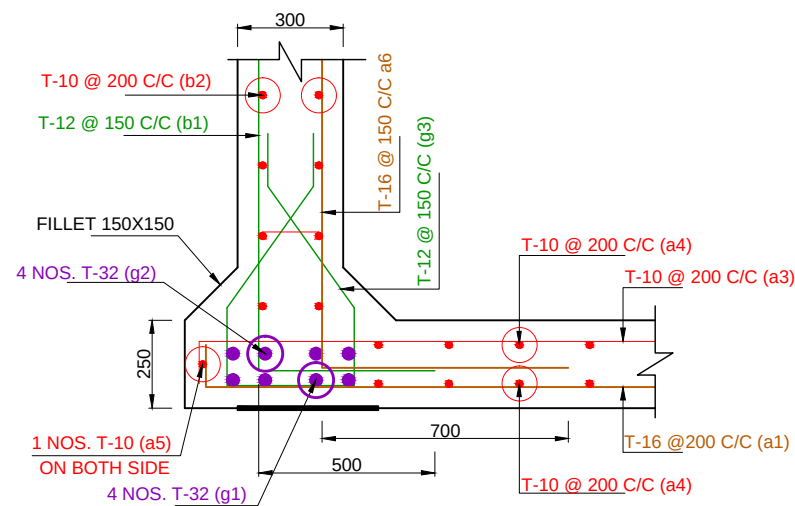
SECTION A-A
HALF INNER / HALF OUTER FACE REINFORCEMENT AT WALL

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

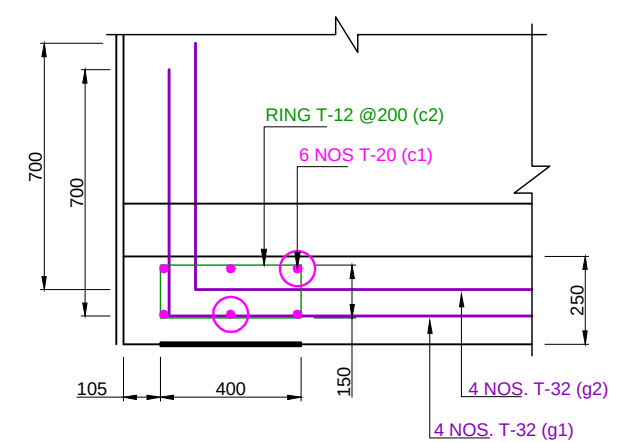
S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
1	a1	150 1980 150	16	200	115
2	a2	150 22450 150	10	200	7
3	a3	150 1980 150	10	200	115
4	a4	150 22450 150	10	200	7
5	a5	150 22450 150	10	-	2
6	a6	280 1325 280 700 700 1325	16	150	155X2
7	b1	280 1325 280 500 500 1325	12	150	155X2
8	b2	150 22450 150	10	200	6X2X2
9	b3	75 280 75	10	200	78X4
10	b4	75 1325 75	10	200	78X4
11	c1	75 1980 75	20	-	6X2X2
12	c2	150 400 150	12	200	3X2X2
13	g1	700 22450 700	32	-	4X2
14	g2	700 22450 700	32	-	4X2
15	g3	150 270 150 360 270 150	12	150	155X2
16	g4	75 22450 75	20	-	3X2



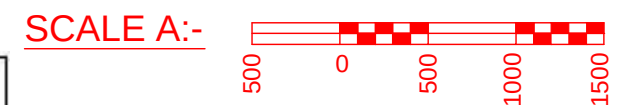
SECTION B-B



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 29.590

Drawing No. :-

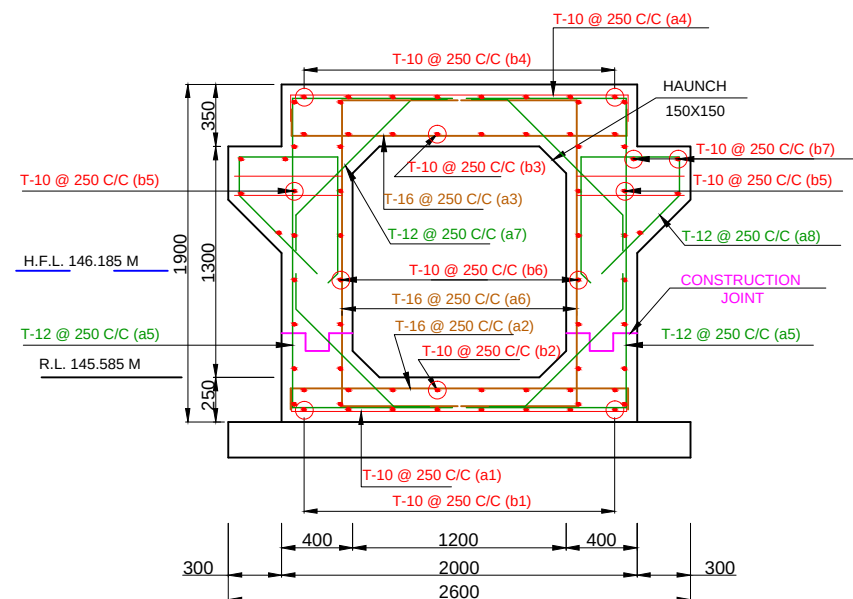
WAP/PKS/NORTH KOEL/SP-07

04 of 06

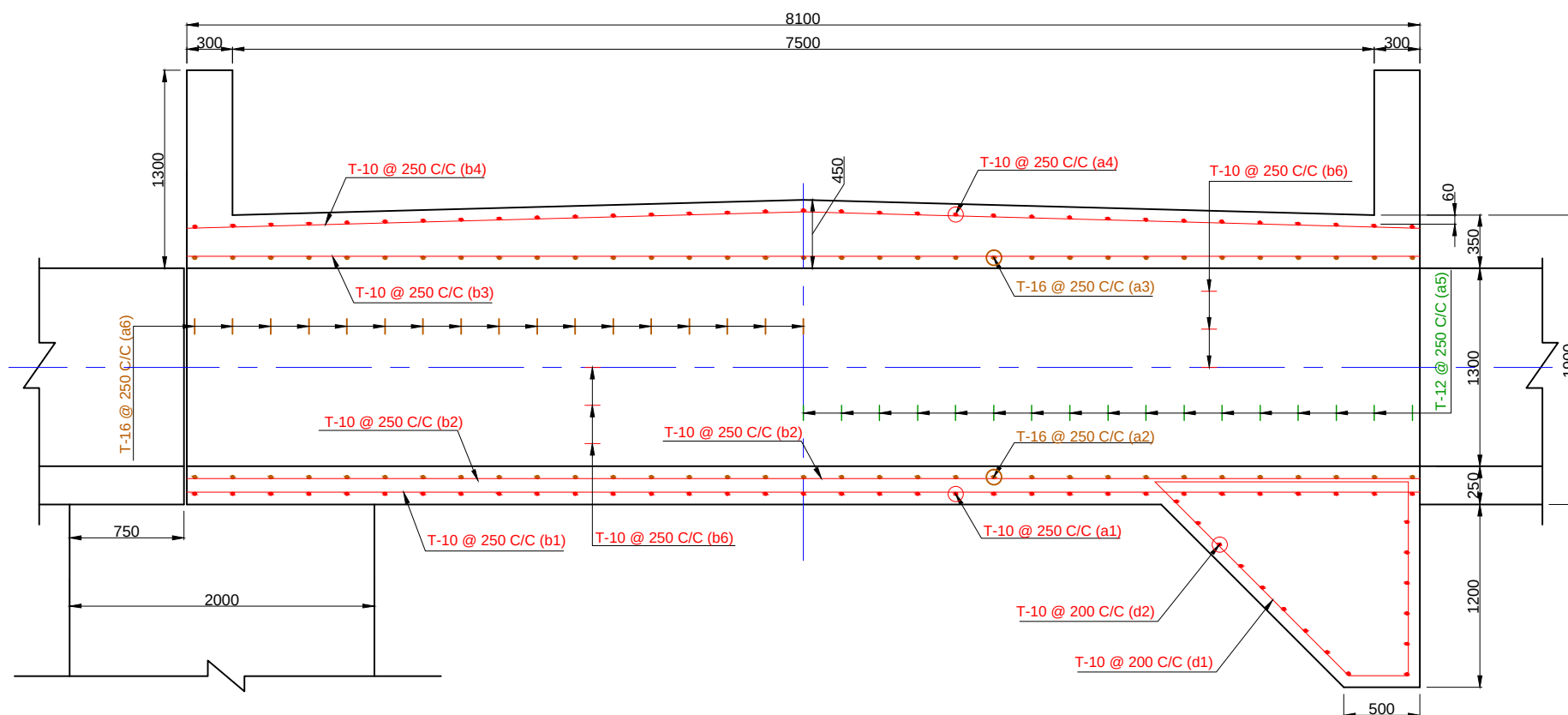
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Checked by:-

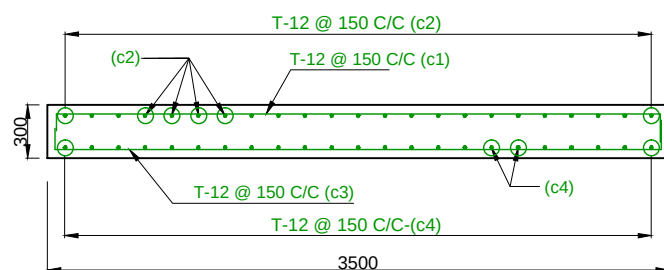
Approved by:-



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

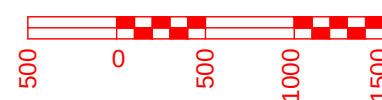


HALF INNER / HALF OUTER
RIGHT BANK



SECTION OF APPROACH SLAB

SCALE A:-



TENDER DRAWING

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 1880 150	10	250	33X1
2	a2	150 1880 150	16	250	33X1
3	a3	150 1880 150	16	250	33X1
4	a4	150 1880 150	10	250	33X1
5	a5	1100 1100 1780 1100 1780	12	250	33X2
6	a6	850 850 1780 850 1780	16	250	33X2
7	a7	200 200 200 200	12	250	33X4
8	a8	655 555 620 215	12	250	33X2
9	b1	150 7980 150	16	250	33X1
10	b2	150 7980 150	16	250	33X1
11	b3	150 7980 150	10	250	33X1
12	b4	150 7980 150	10	250	33X1
13	b5	7980 7980	10	250	33X8X2
14	b6	7980 7980	10	250	33X8X2
15	b7	150 7980 150	10	250	33X4X2
16	d1	1322 1666 393 1799	10	200	11X1
17	d2	150 1880 150	10	200	11X15
18	c1	150 3500 150	12	150	-
19	c2	150 450 3750 3750 450 150	12	150	-
20	c3	150 3500 150	12	150	-
21	c4	150 8400 150	12	150	-

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 29.590

Drawing No. :-

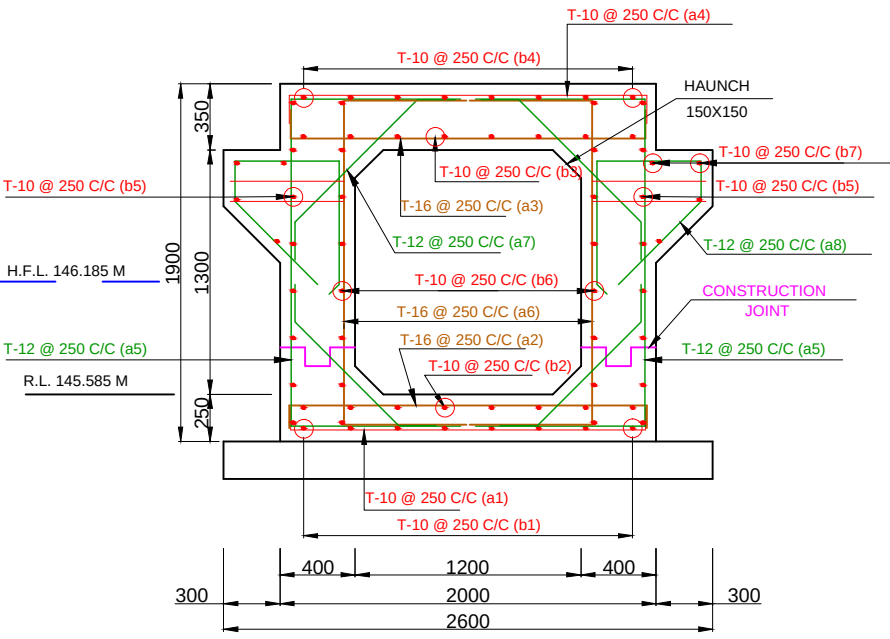
WAP/PKS/NORTH KOEL/SP-07

05 of 06

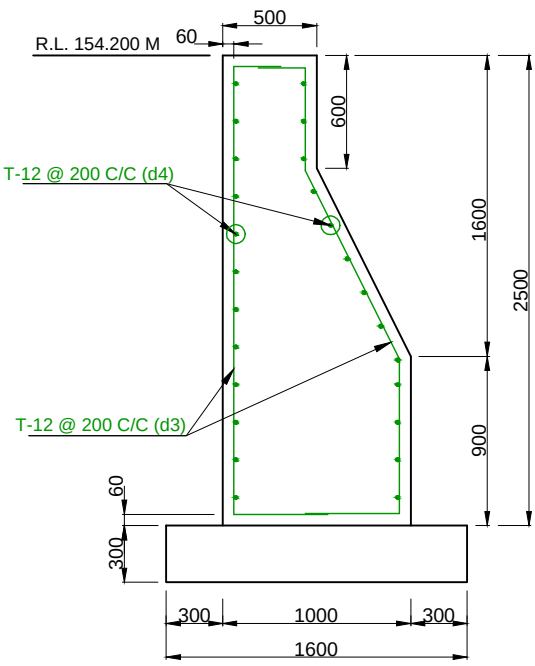
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Checked by:-

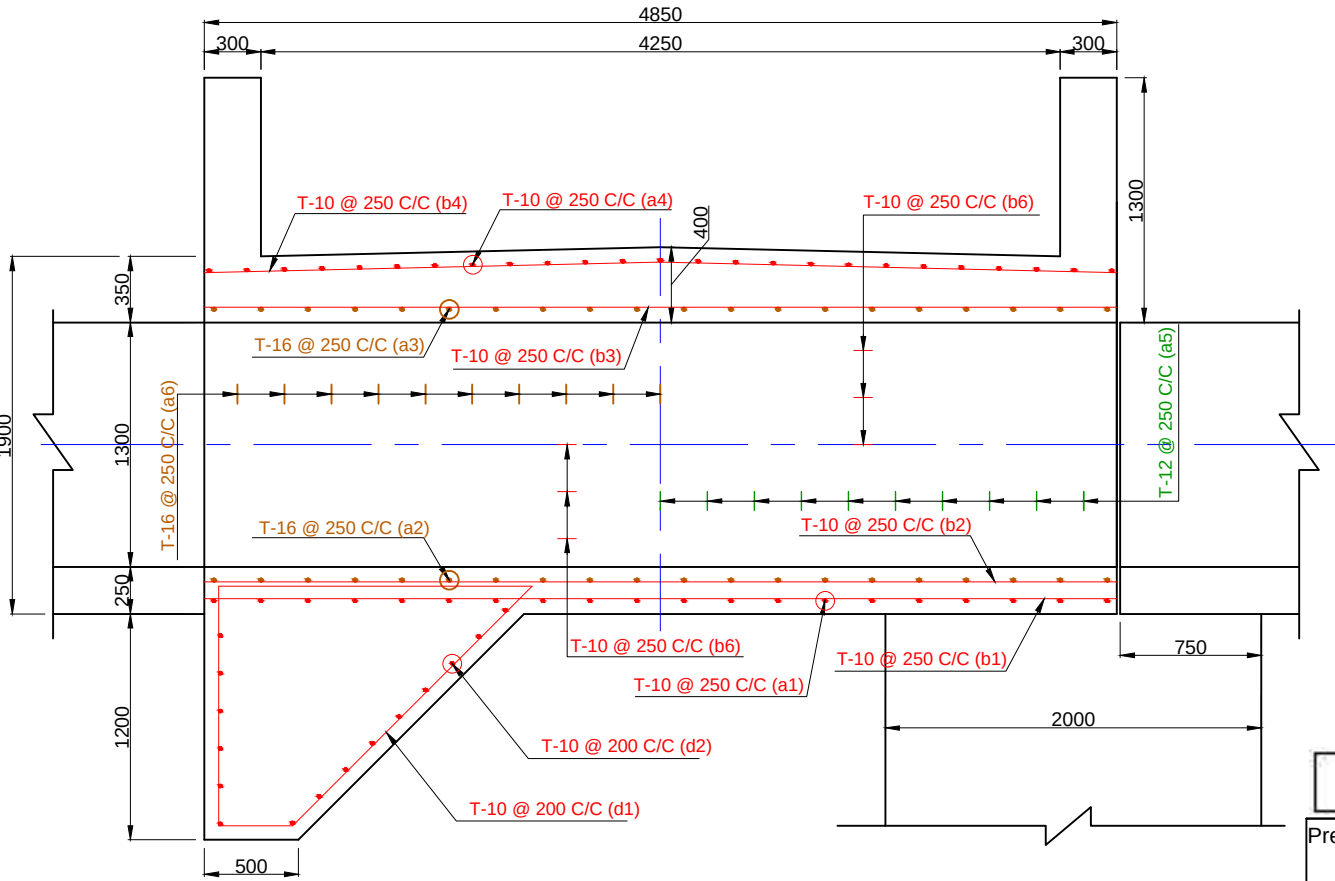
Approved by:-



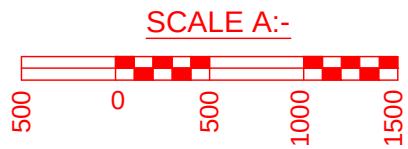
REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)
SECTION C-C



REINFORCEMENT IN TRANSITION WALL



HALF INNER / HALF OUTER
LEFT BANK



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 1880 150	10	250	20X1
2	a2	150 1880 150	16	250	20X1
3	a3	150 1880 150	16	250	20X1
4	a4	150 1880 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	200 200 200 200	12	250	20X4
8	a8	655 555 215 620	12	250	20X2
9	b1	150 4730 150	16	250	20X1
10	b2	150 4730 150	16	250	20X1
11	b3	150 4730 150	10	250	20X1
12	b4	150 4730 150	10	250	20X1
13	b5	4730 4730	10	250	20X8X2
14	b6	4730 4730	10	250	20X8X2
15	b7	150 4730 150	10	250	20X4X2
16	d1	1716 1322 1870 393	10	200	11X1
17	d2	150 2280 150	10	200	11X15
18	d3	2380 250 500 500 555 118 819	12	200	-
19	d4	150 150	12	200	-

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 29.590

Drawing No. :-

WAP/PKS/NORTH KOEL/SP-07

06 of 06

Drawn by:-

Checked by:-

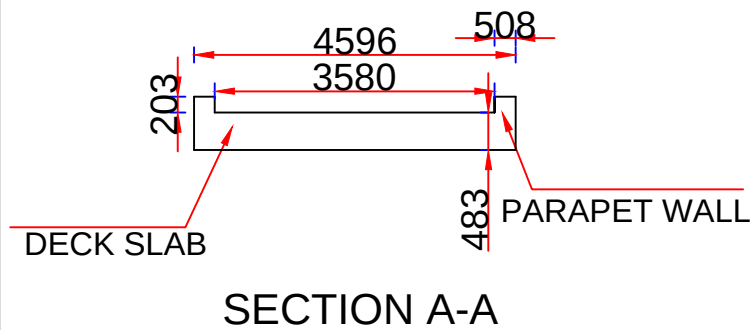
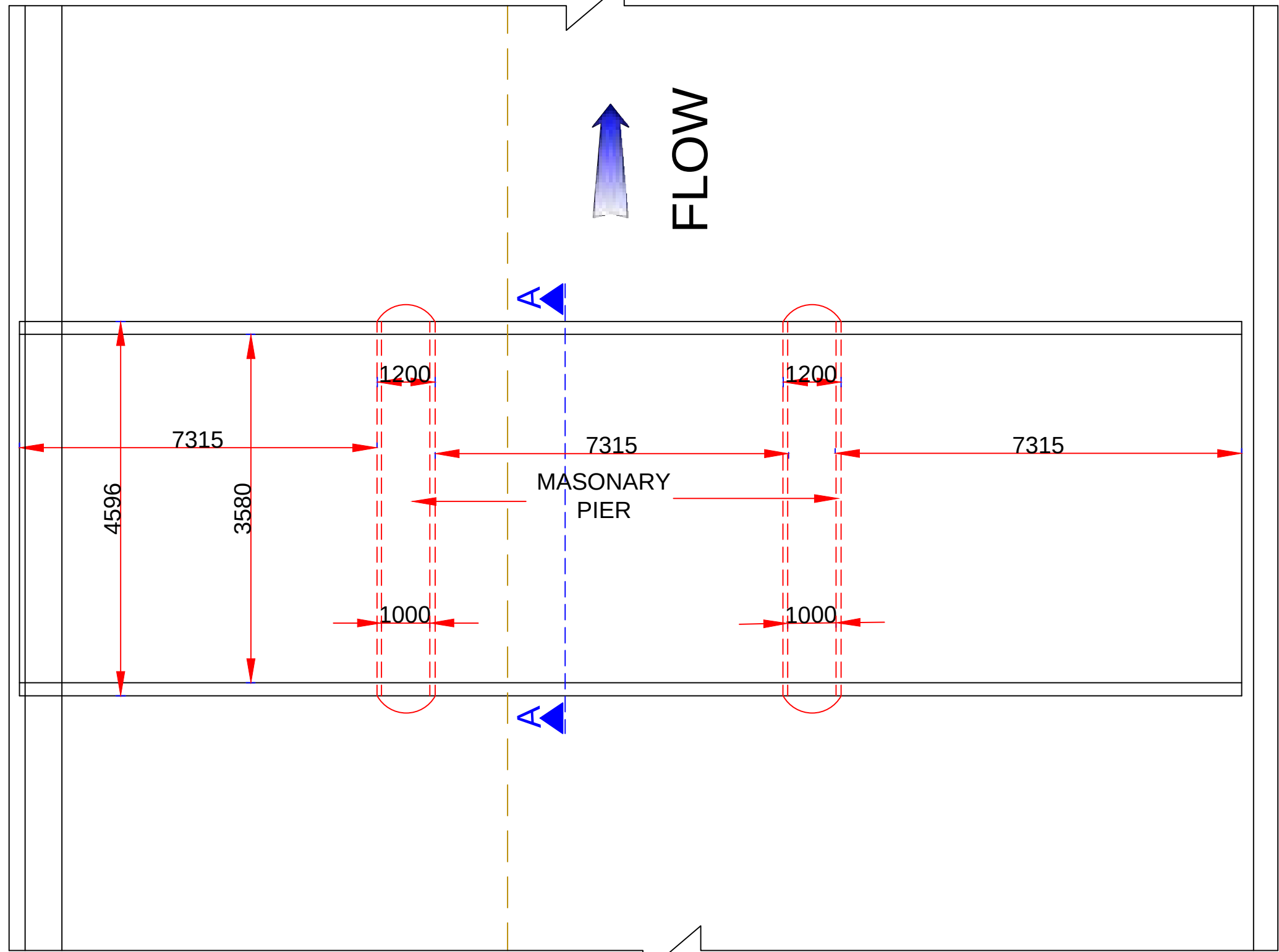
Approved by:-



CART BRIDGE

AT

CH. 30.029 KM



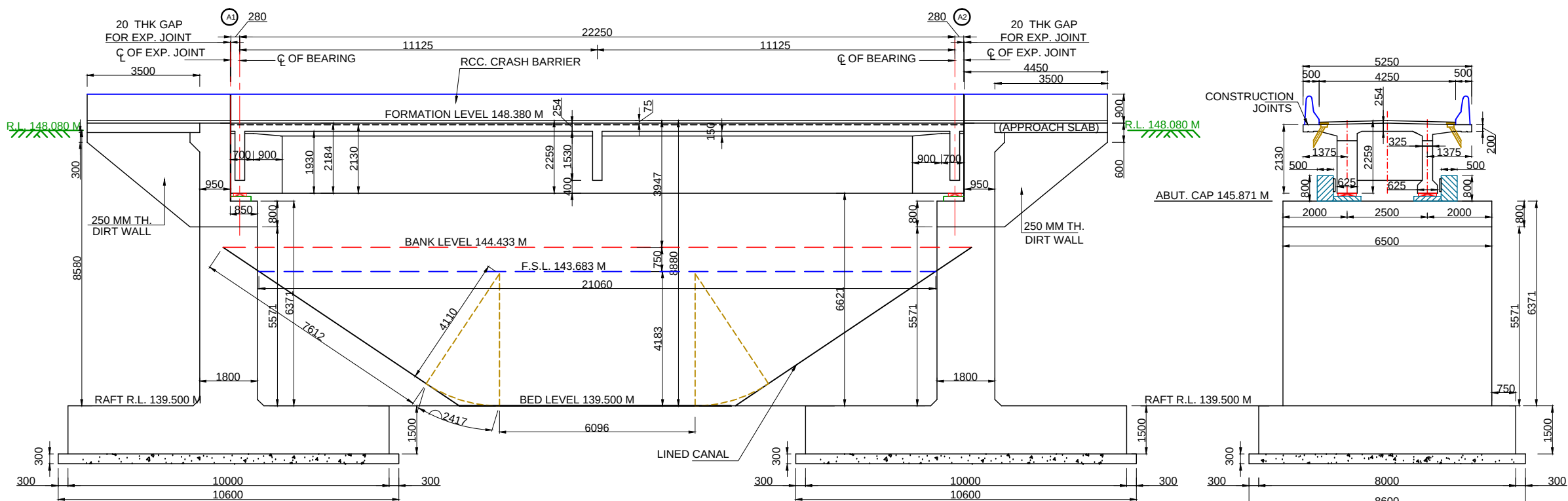
TENDER DRAWING

NOTES:

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

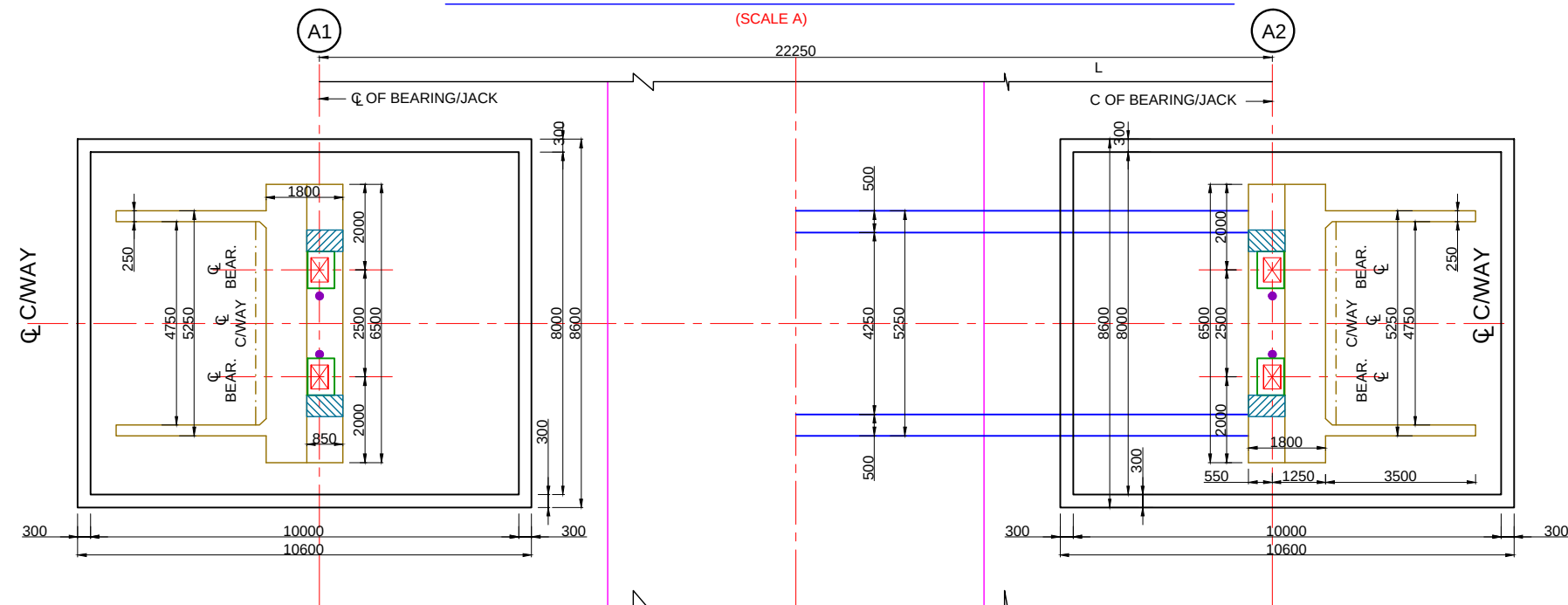
PLAN

Prepared by :- WAPCOS LTD. 	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
	Drawing Title :-	EXISTING PLAN OF CART BRIDGE AT CH. 30.029 KM		
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-20	01 of 12	
	Drawn by:-	Checked by:-	Approved by:-	



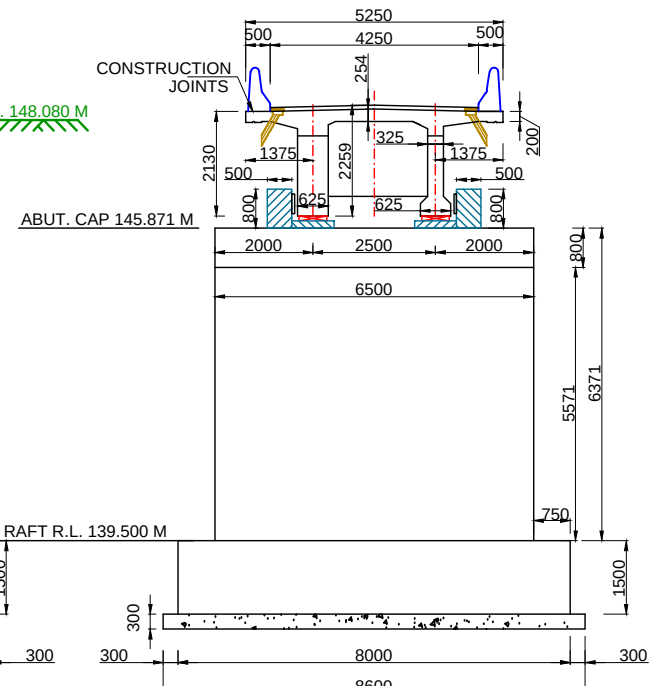
SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(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	139.500 M
WATER DEPTH	4.183 M
F.S.L.	143.683 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	148.380 M
EX. ROAD LEVEL	148.080 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 30.029 WITH TWO BEAMS

Drawing No. :-

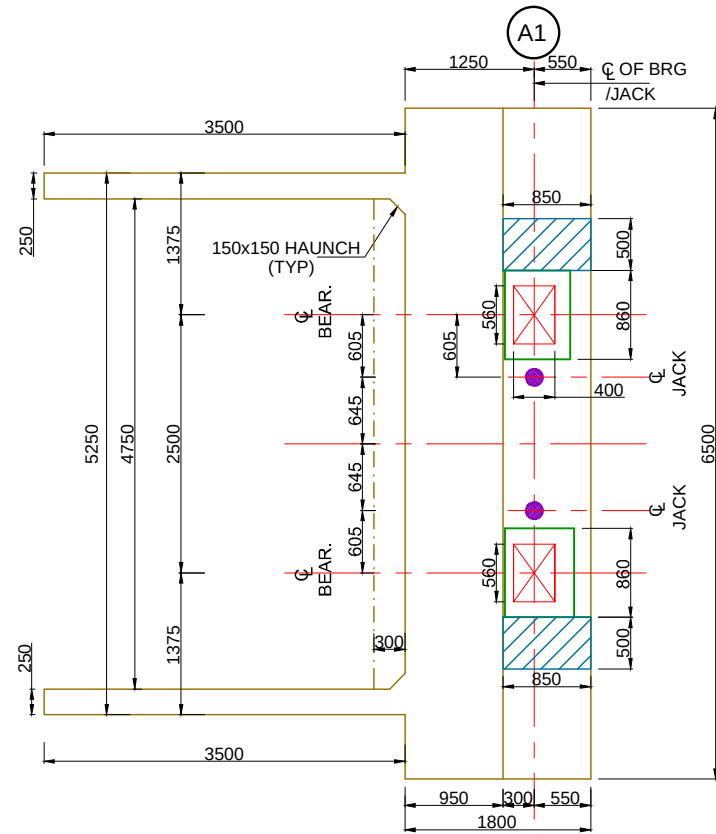
WAP/PKS/NORTH KOEL/RMC/BRG-20

03 of 12

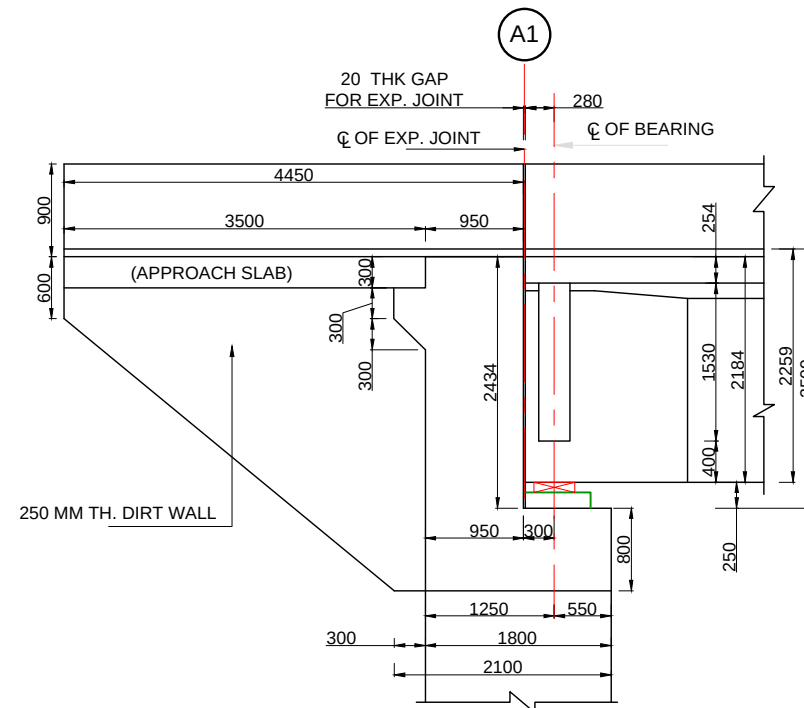
Drawn by:-

Checked by:-

Approved by:-



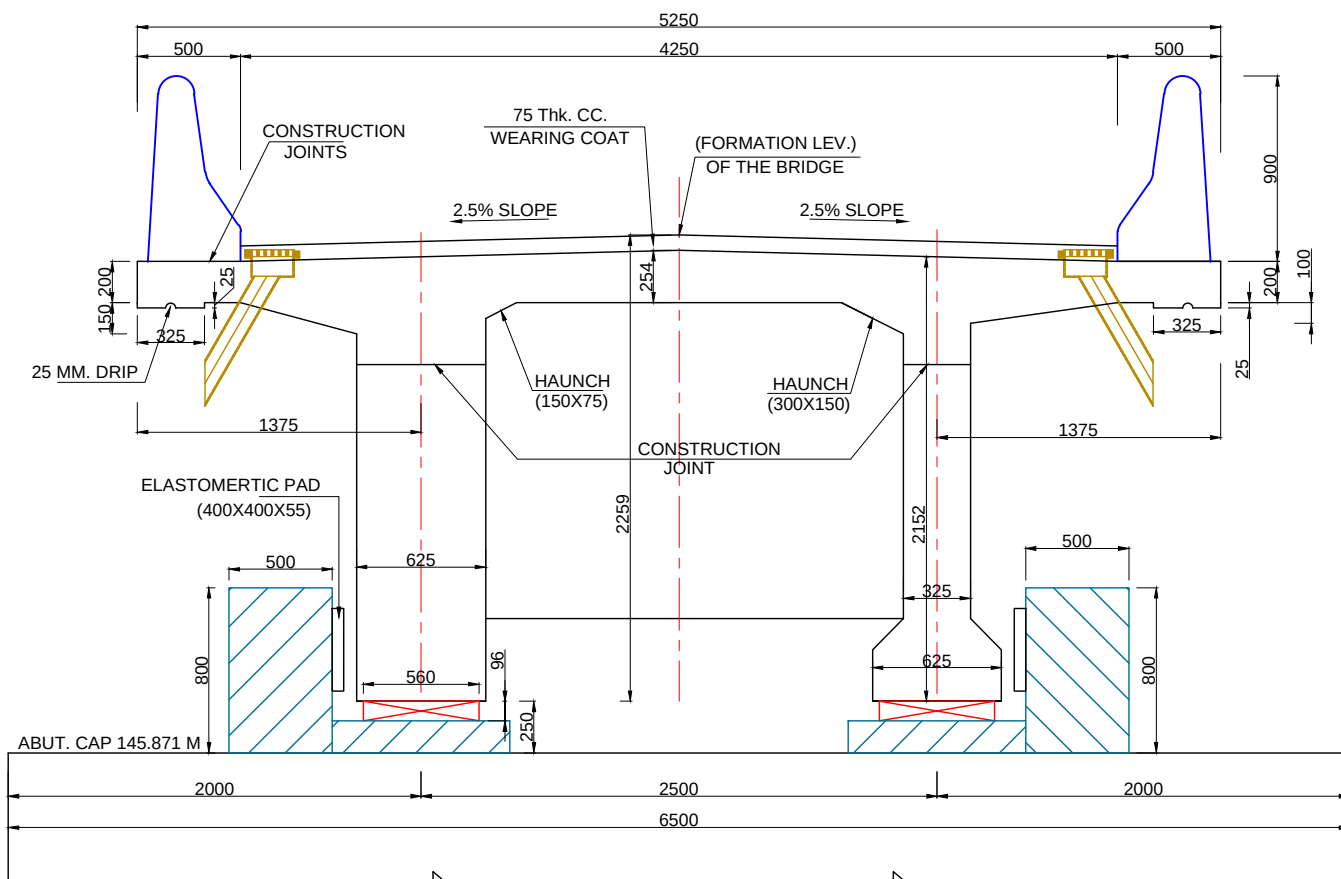
PLAN OF ABUTMENT AT BEARING LEVEL
(SCALE B)



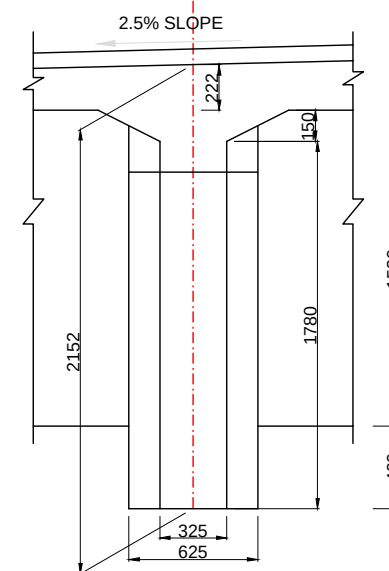
DETAIL - 'D1'
(SCALE B)

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.

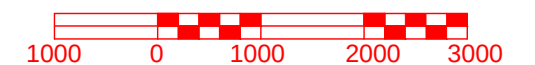


CROSS SECTION OF GIRDERS
(SCALE C)



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

SCALE B:-



SCALE C:-



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 30.029 WITH TWO BEAMS

Drawing No. :-

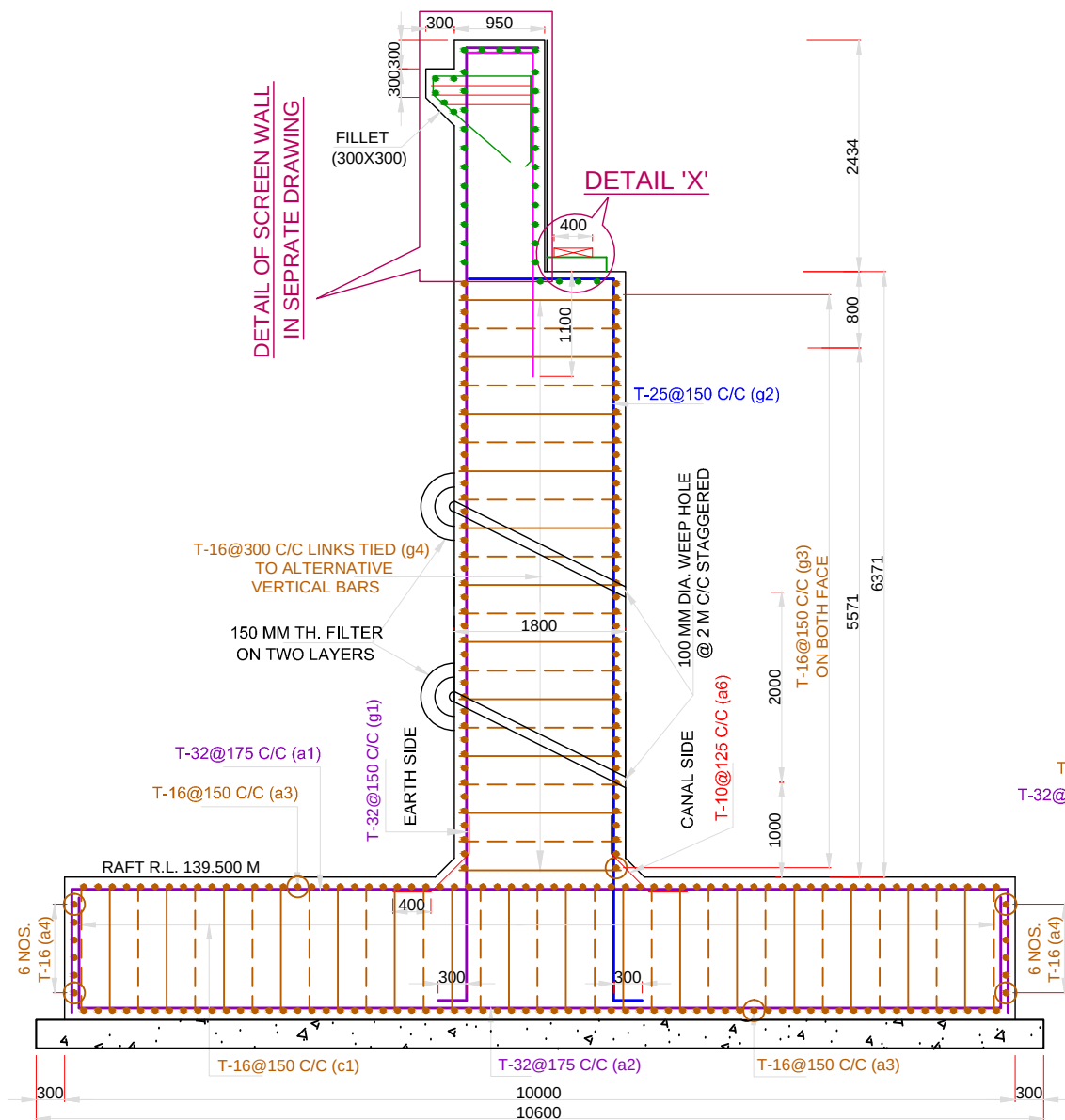
WAP/PKS/NORTH KOEL/RMC/BRG-20

04 of 12

Drawn by:-

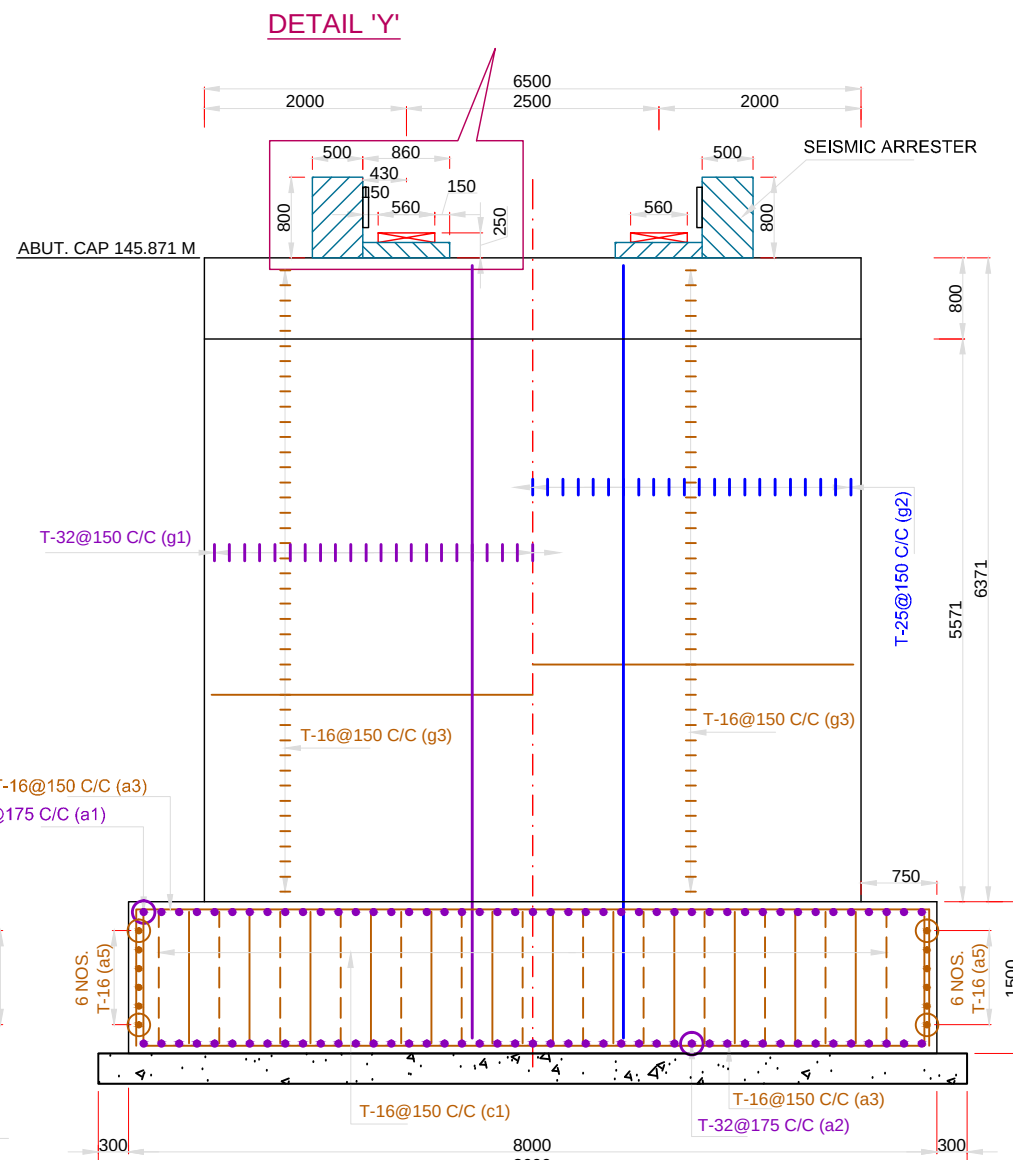
Checked by:-

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)
1	g1		32	150	42X2
2	g2		25	150	42X2
3	g3		16	150	41X2X2
4	g4		16	300	11X11X2
5	a1		32	175	45X2
6	a2		32	175	45X2
7	a3		16	150	66X2X2
8	a4		16	-	6X2X2
9	a5		16	-	6X2X2
10	a6		10	125	52X2X2
11	c1		16	300	17X14X2

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.

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 30.029 WITH TWO BEAMS

Drawing No. :-

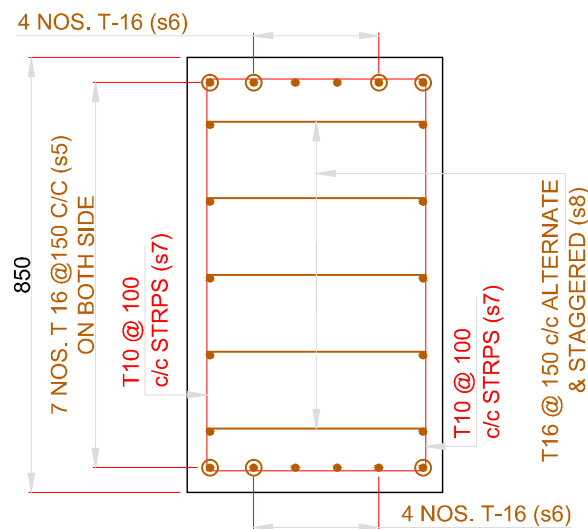
WAP/PKS/NORTH KOEL/RMC/BRG-20

05 of 12

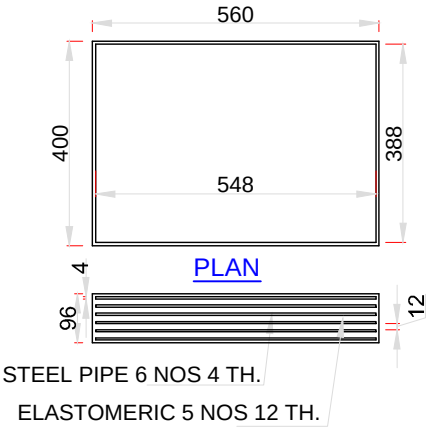
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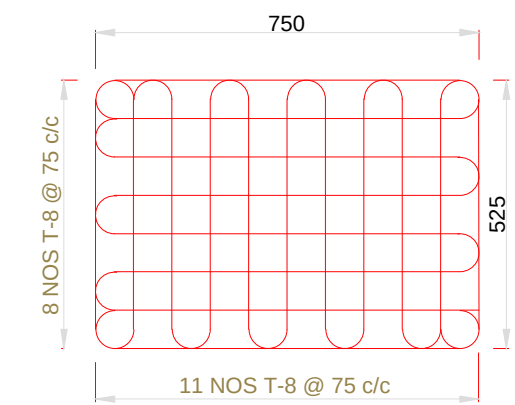
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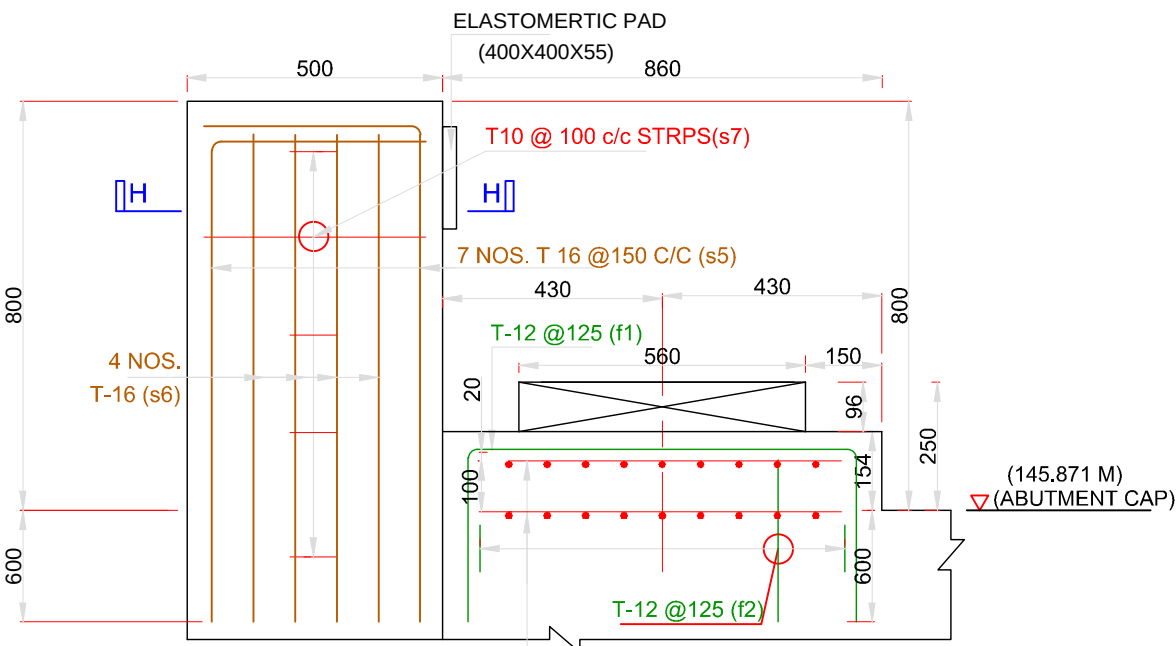
SECTION H-H
SCALE A



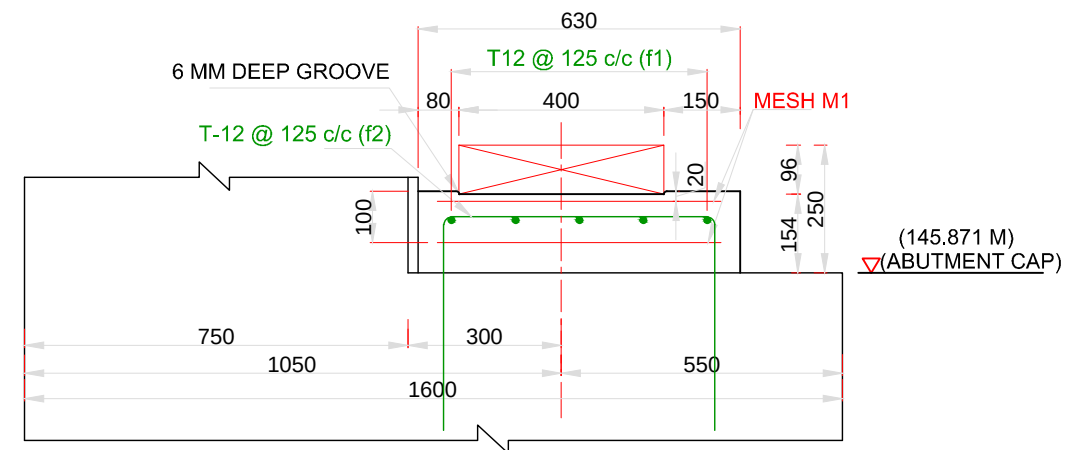
DETAILS OF ELASTOMERIC BEARINGS
SCALE A



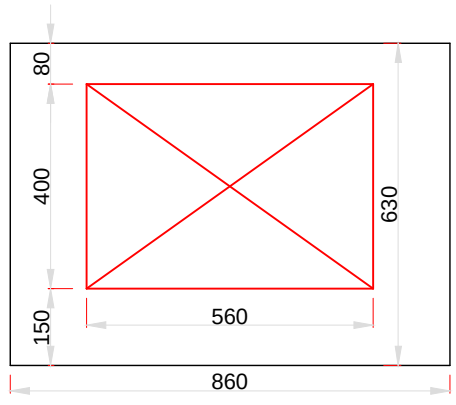
DETAIL OF MESH M1
(MESH BELOW BEARING LOCATION)
SCALE A



DETAIL 'Y'
SCALE A



DETAIL 'X'
SCALE A



PLAN
SCALE A

BARS BENDING SCHEDULE

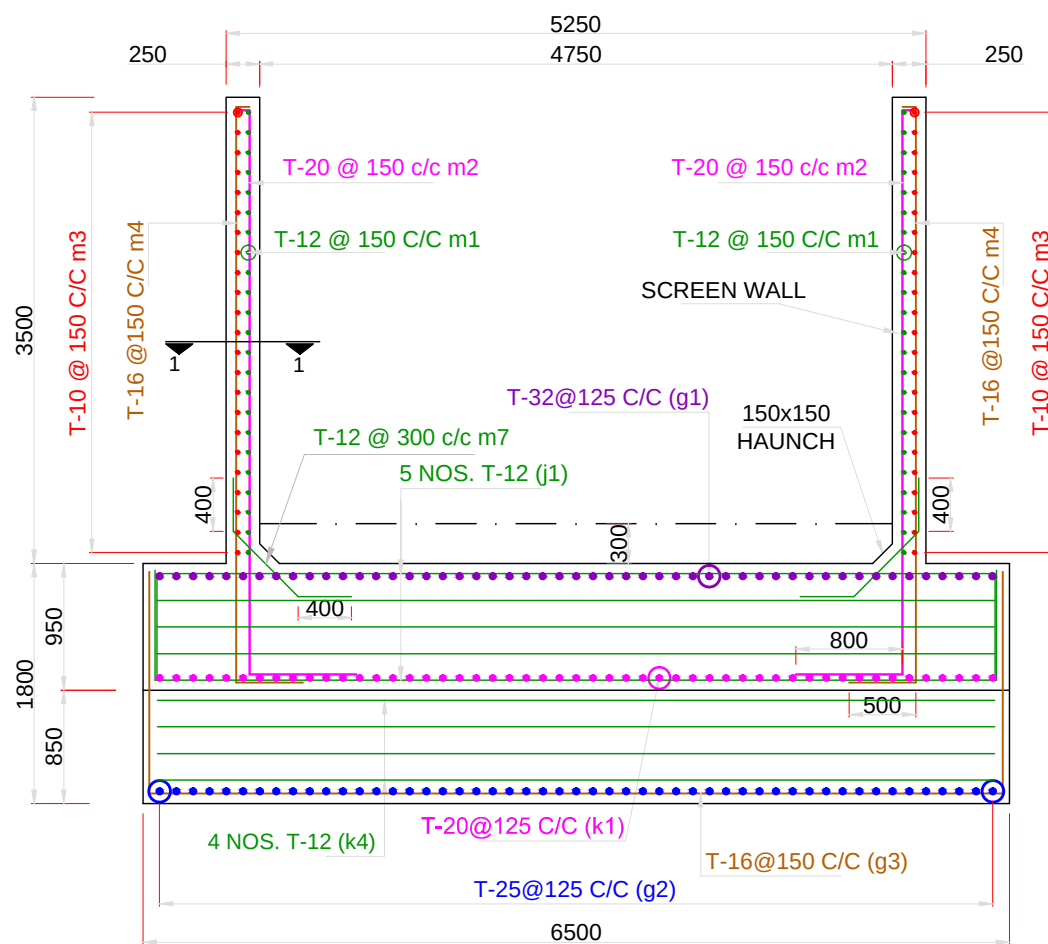
	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres))	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5		16	150	14X2X2
	2	s6		16	-	8X2X2
	3	s7		10	100	5X2X2
	4	s8		16	150	5x2x2
PEDESTAL FOR ABUTMENT	5	f1		12	125	5X2X2
	6	f2		12	125	5X2X2

NOTES

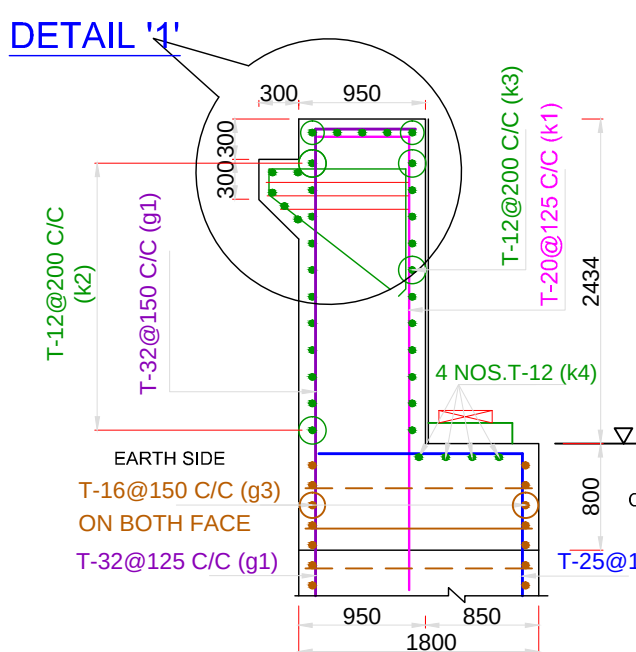
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
- THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
- ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
- ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.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

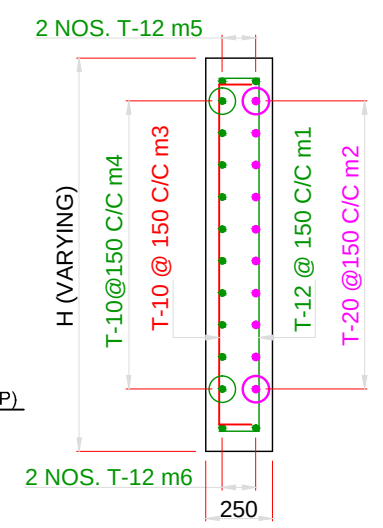
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	Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 30.029 WITH TWO BEAMS		
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-20		06 of 12
	Drawn by:-	Checked by:-	Approved by:-	



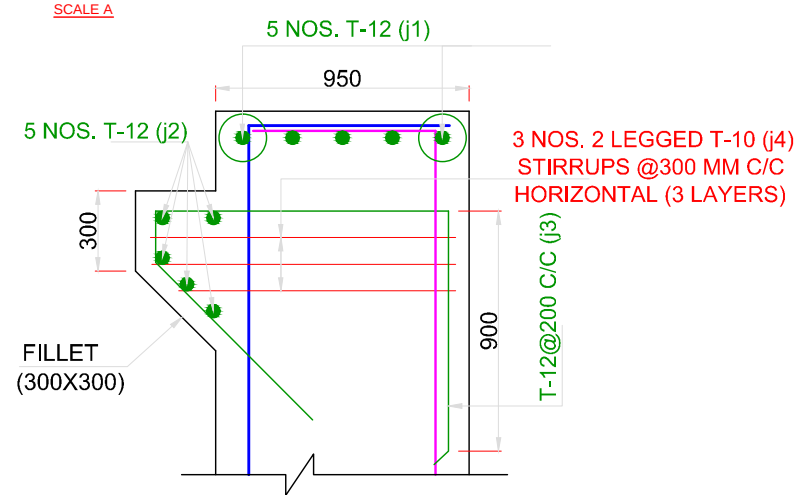
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL
SCALE A



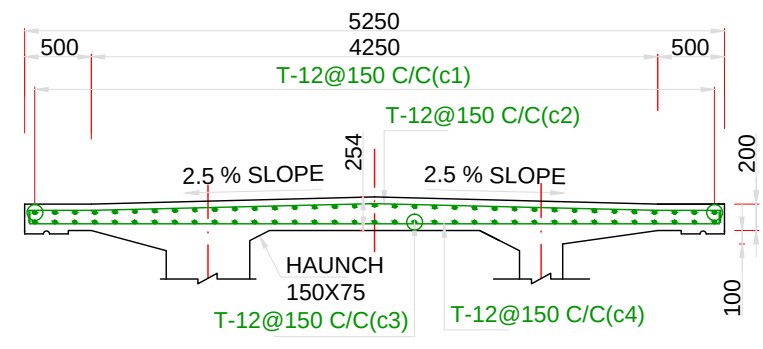
REINFORCEMENT DETAILS IN
SECTION OF DIRT
SCALE A



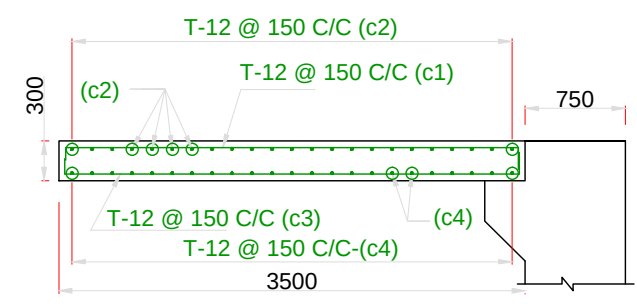
SECTION AT 1-1
SCALE B



DETAIL '1'
SCALE B



REINFORCEMENT IN APPROACH SLAB
SCALE A



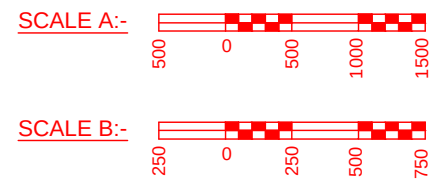
SECTION OF APPROACH SLAB
SCALE A

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	11X2
3	k3		12	200	11X2
4	k4		12	200	4X2
5	j1		12	-	5X2
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

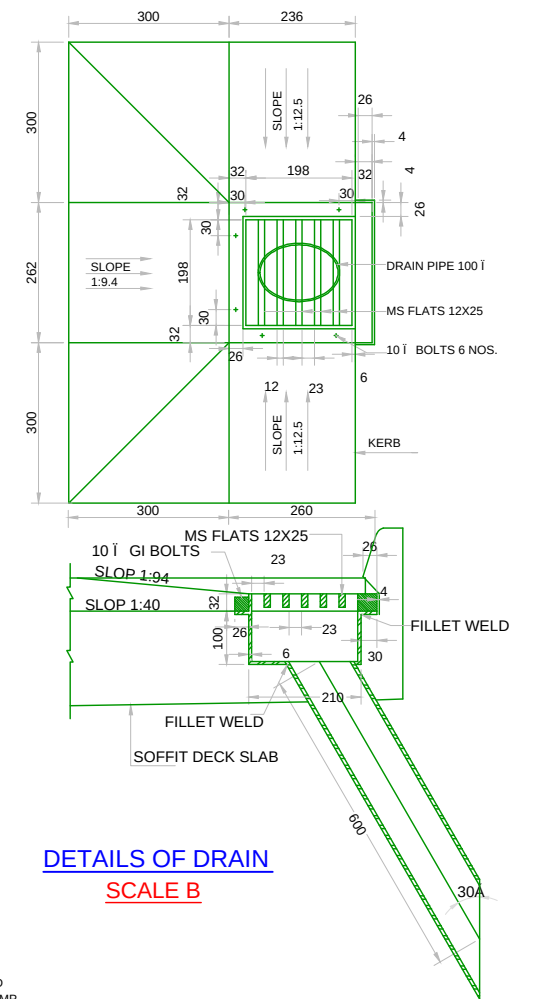
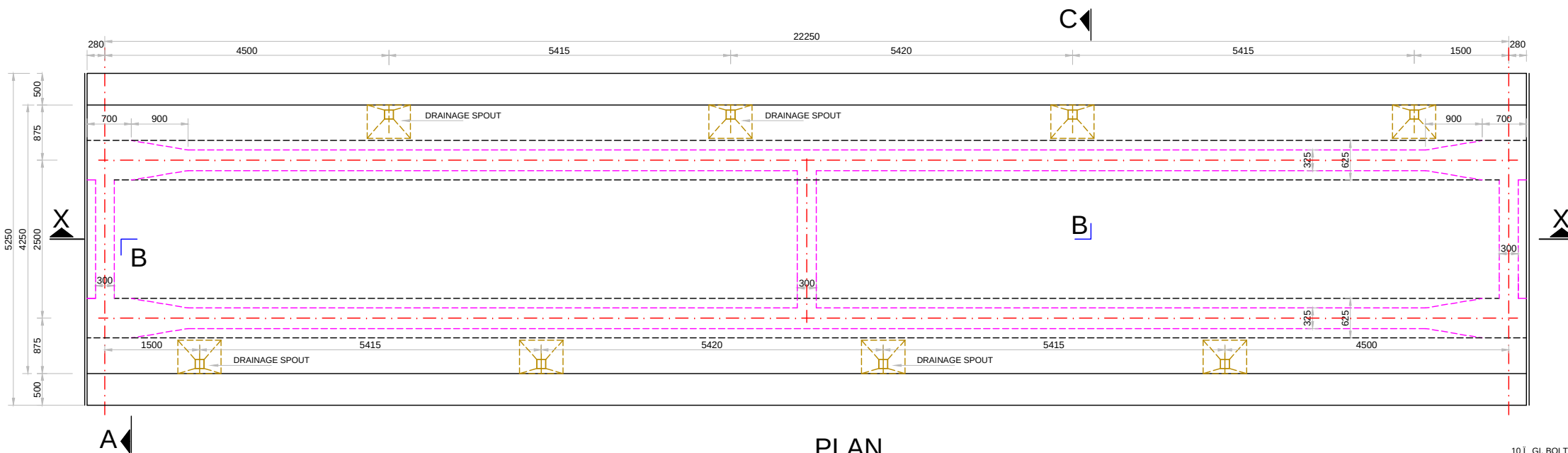
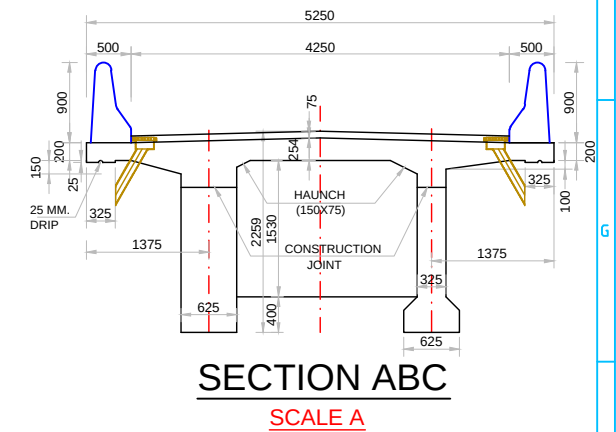
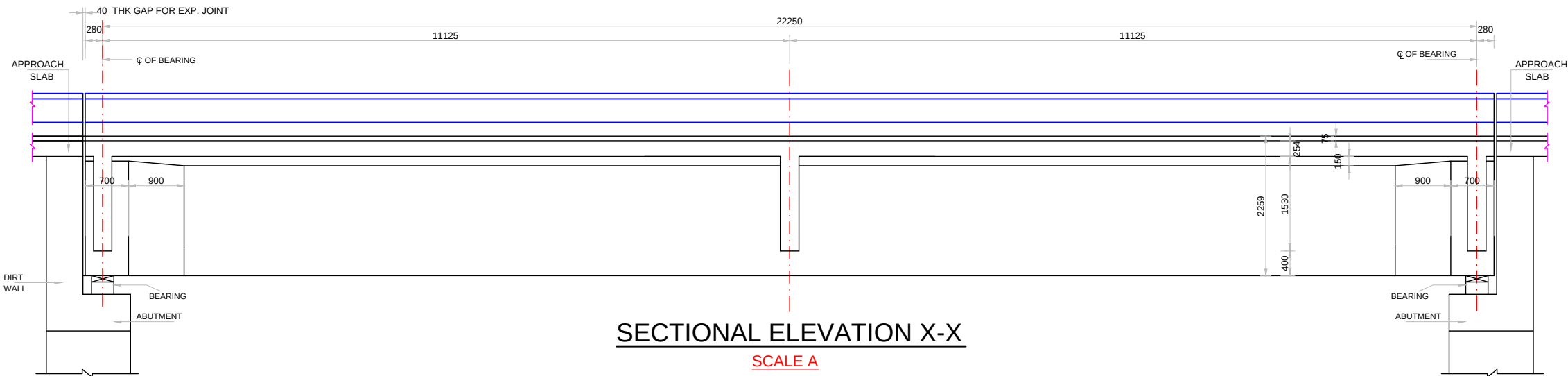
NOTES

- 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.



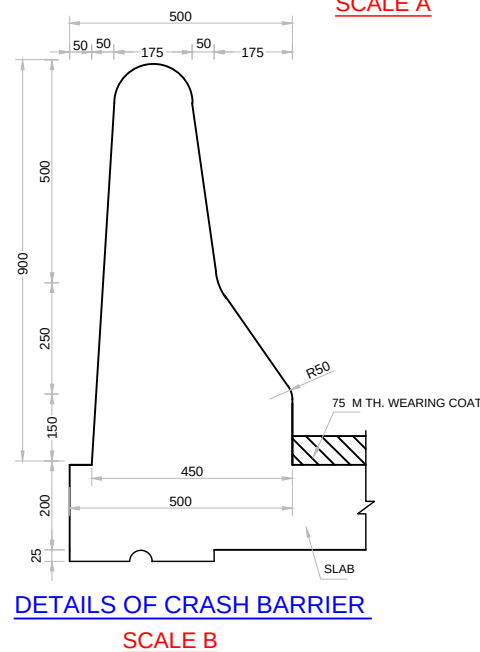
Prepared by :- WAPCOS LTD. 	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :- REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 30.029 WITH TWO BEAMS
Drawing No. :- WAP/PKS/NORTH KOEL/RMC/BRG-20	07 of 12
Drawn by:-	Checked by:-
	Approved by:-

TENDER DRAWING



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 IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. 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.
7. 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.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.



REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPERSTRUCTURES 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 30.029 WITH TWO BEAMS

Drawing No. :-

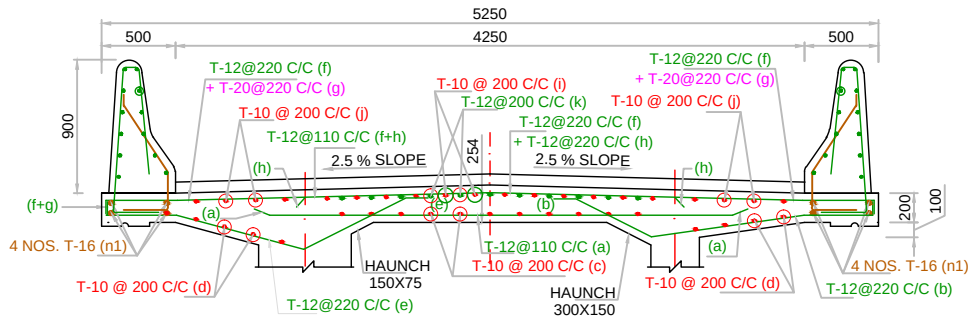
WAP/PKS/NORTH KOEL/RMC/BRG-20

08 of 12

Drawn by:-

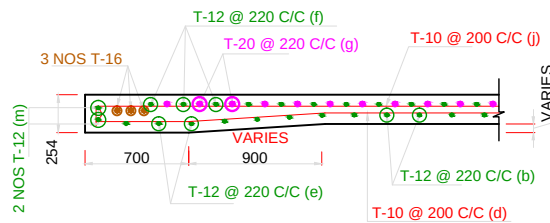
Checked by:-

Approved by:-



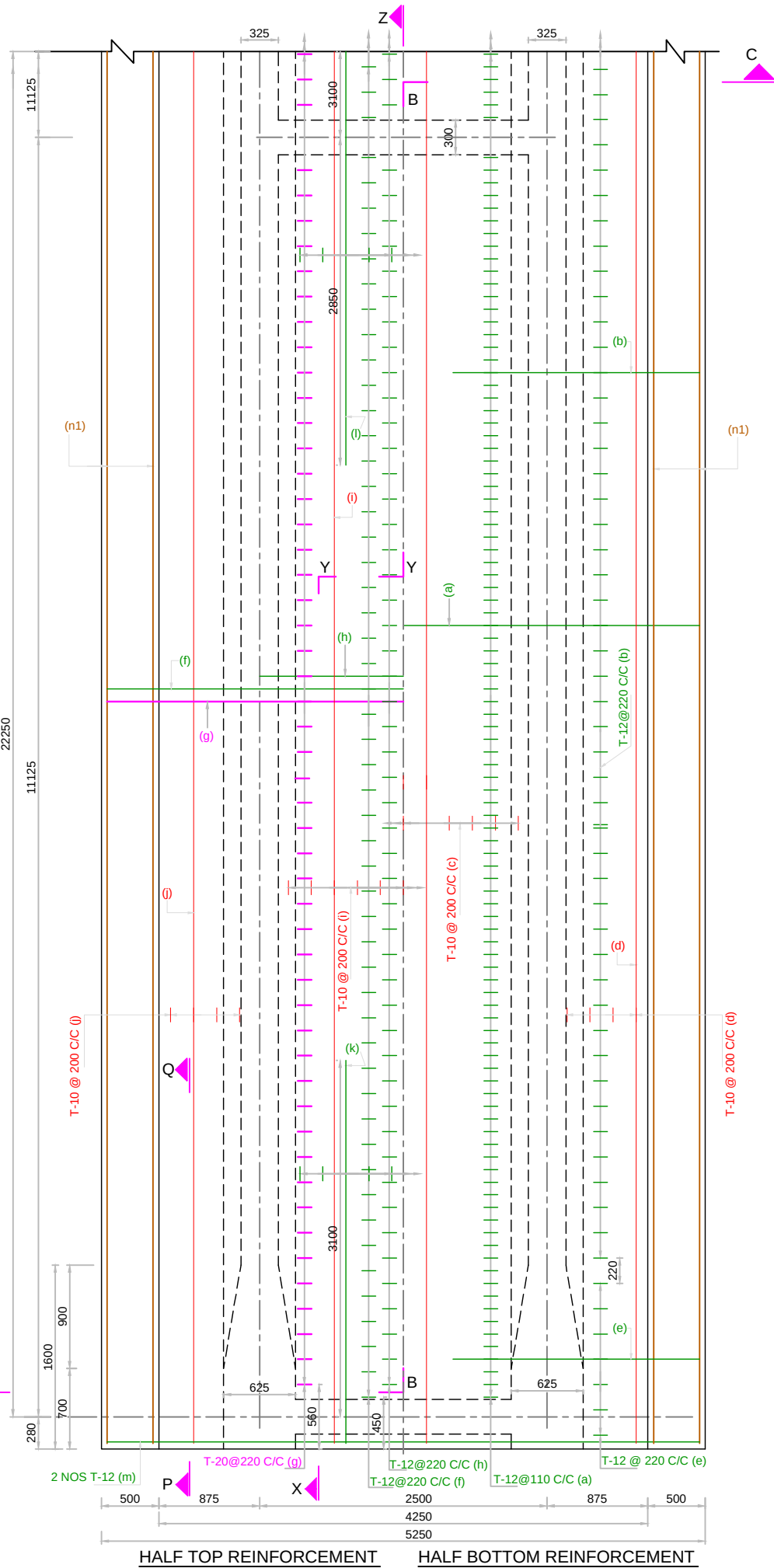
CROSS SECTION ABC

SCALE A



SECTION P.Q.

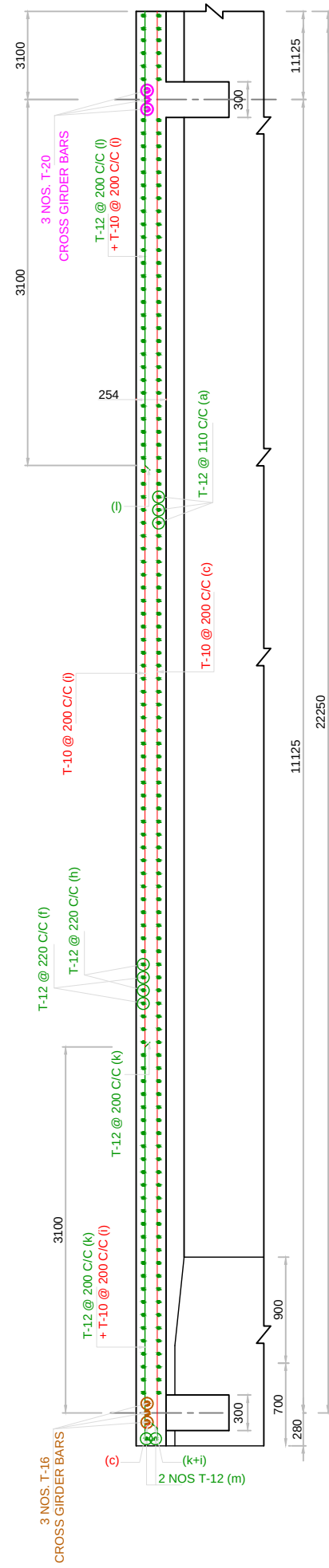
SCALE A



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

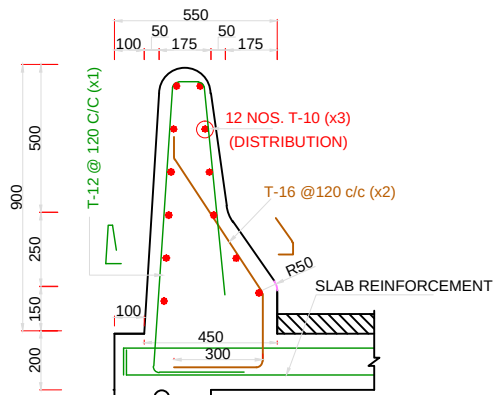
PLAN

SCALE A



SECTION X Y Z

SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

REFERENCES:-

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

SCALE A:-

SCALE B:-

TENDER DRAWING

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF DLR BRIDGE AT KM 30.029 WITH TWO BEAMS

Drawing No. :-

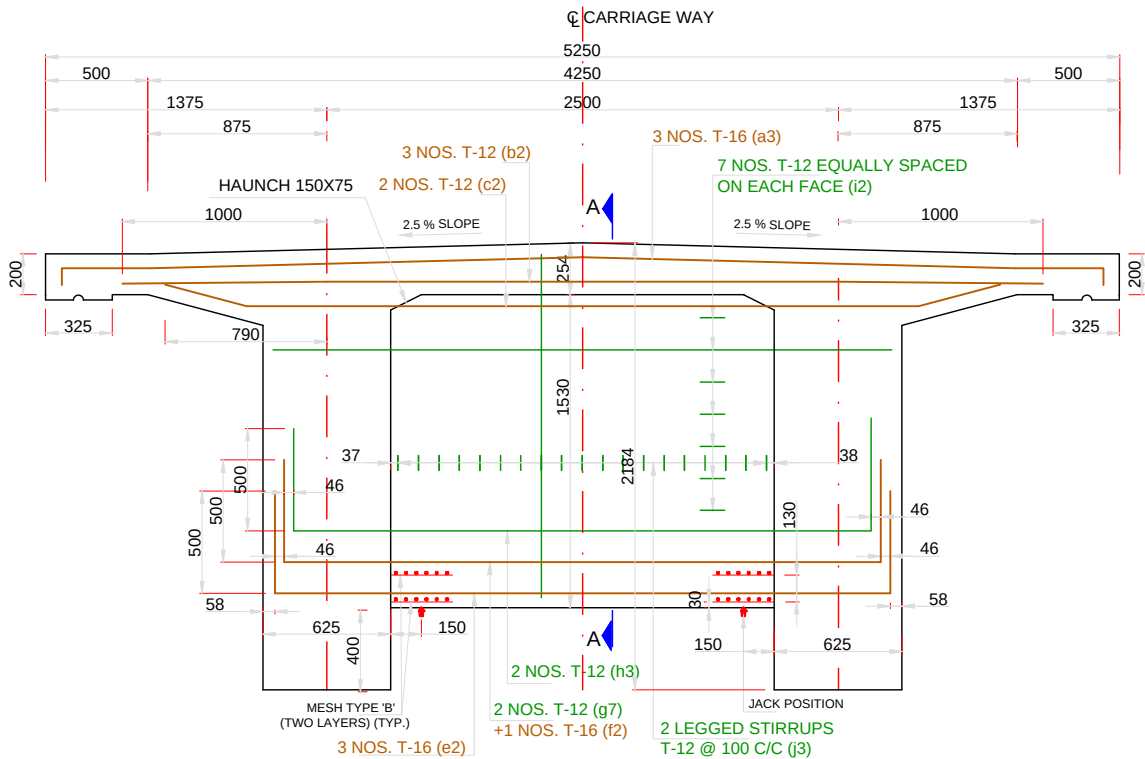
WAP/PKS/NORTH KOEL/RMC/BRG-20

09 of 12

Drawn by:-

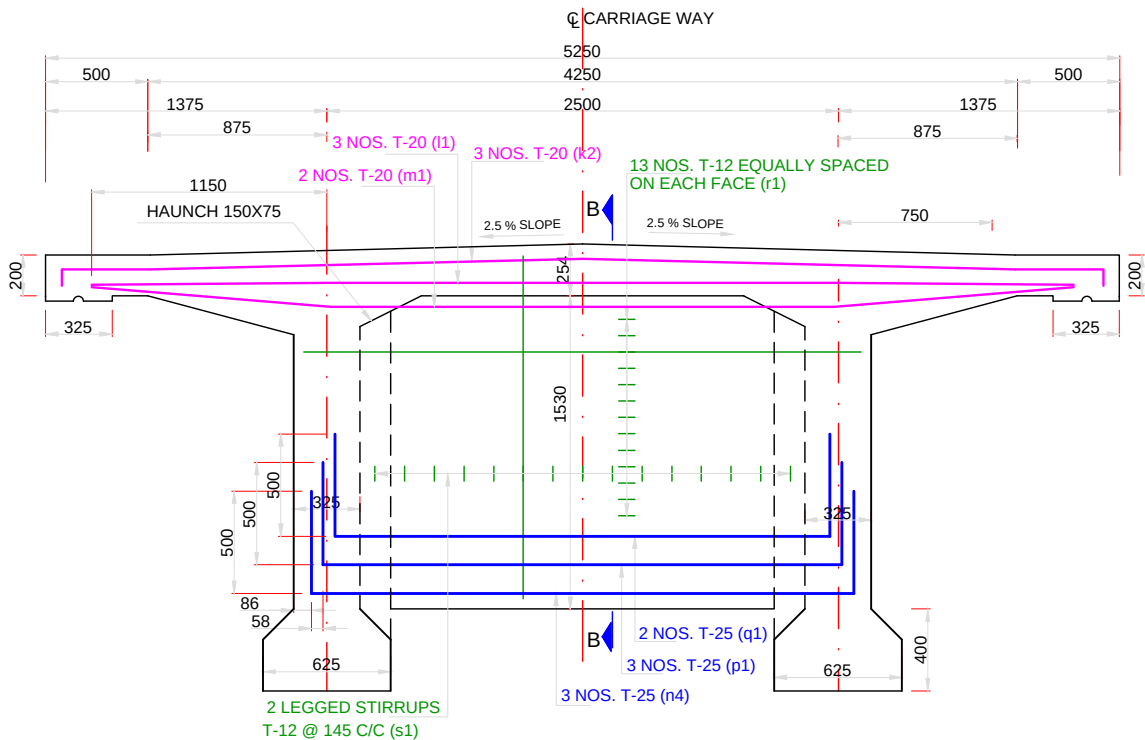
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Approved by:-



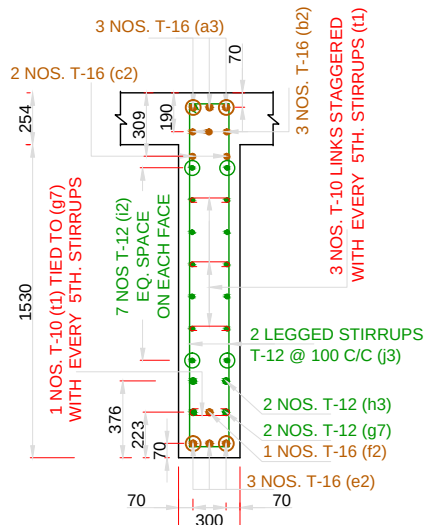
LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A



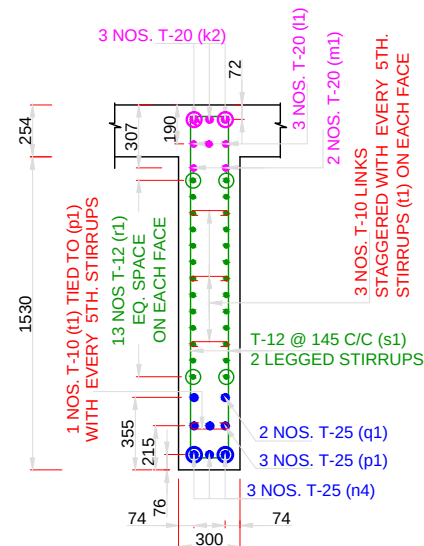
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION A-A

SCALE A

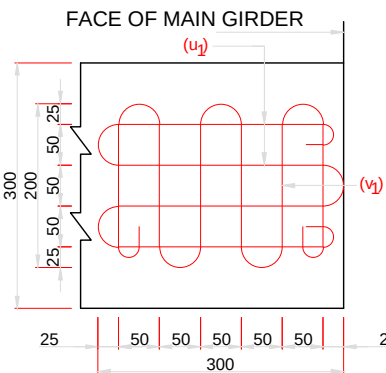


SECTION B-B

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

REFERENCES:-

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

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 30.029 WITH TWO BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-20

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	3125	198
2	b		12	220	2976	180
3	c		10	200	22960	11
4	d		10	200	22638	8
5	e		12	220	2987	32
6	f		12	220	5304	98
7	g		20	220	5182	98
8	h		12	220	2502	98
9	i		10	200	23210	12
10	j		10	200	23138	8
11	k		12	200	3588	20
12	l		12	200	6200	10
13	m		12	-	5150	4
14	n ₁		16	-	23210	8

CRASH BARRIER PER M

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

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	8
20	v ₁		10	-	1510	8

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		16	125	5146	11X2X2
2	a ₂		16	150	4746	11X2X2
3	b ₁		12	150	4666	104X2
4	c ₁		16	-	2693	2X2X2
5	d ₁		25	-	23898	3X2
6	e ₁		10	-	19610	9X2X2
7	f ₁		10	-	2199	18X2X2
8	g ₁		32	-	23858	5X2
9	g ₂		32	-	23730	5X2
10	g ₃		32	-	23602	5X2
11	i ₁		10	-	1733	101X2
12	n ₂		10	-	583	18X2
13	n ₃		10	-	433	90X2

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

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	-	4500	2X2
3	c ₂		16	-	4107	2X2
4	e ₂		16	-	3945	3X2
5	f ₂		16	-	3903	1X2
6	g ₇		12	-	3919	2X2
7	h ₃		12	-	2815	2X2
8	i ₂		12	-	3187	7X2X2
9	j ₃		12	100	3797	19X2
10	t ₁		10	-	416	20X2
MIDDLE CROSS GIRDERS						
1	k ₂		20	-	5222	3
2	l ₁		20	-	4800	2
3	m ₁		20	-	4810	2
4	n ₄		25	-	3470	3
5	p ₁		25	-	3353	3
6	q ₁		25	-	3237	2
7	r ₁		12	-	3711	13X2
8	s ₁		12	145	3794	15
9	t ₁		10	-	416	16

TENDER DRAWING

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 30.029 WITH TWO BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-20

12 of 12

Drawn by:-

Checked by:-

Approved by:-

REFERENCES:-

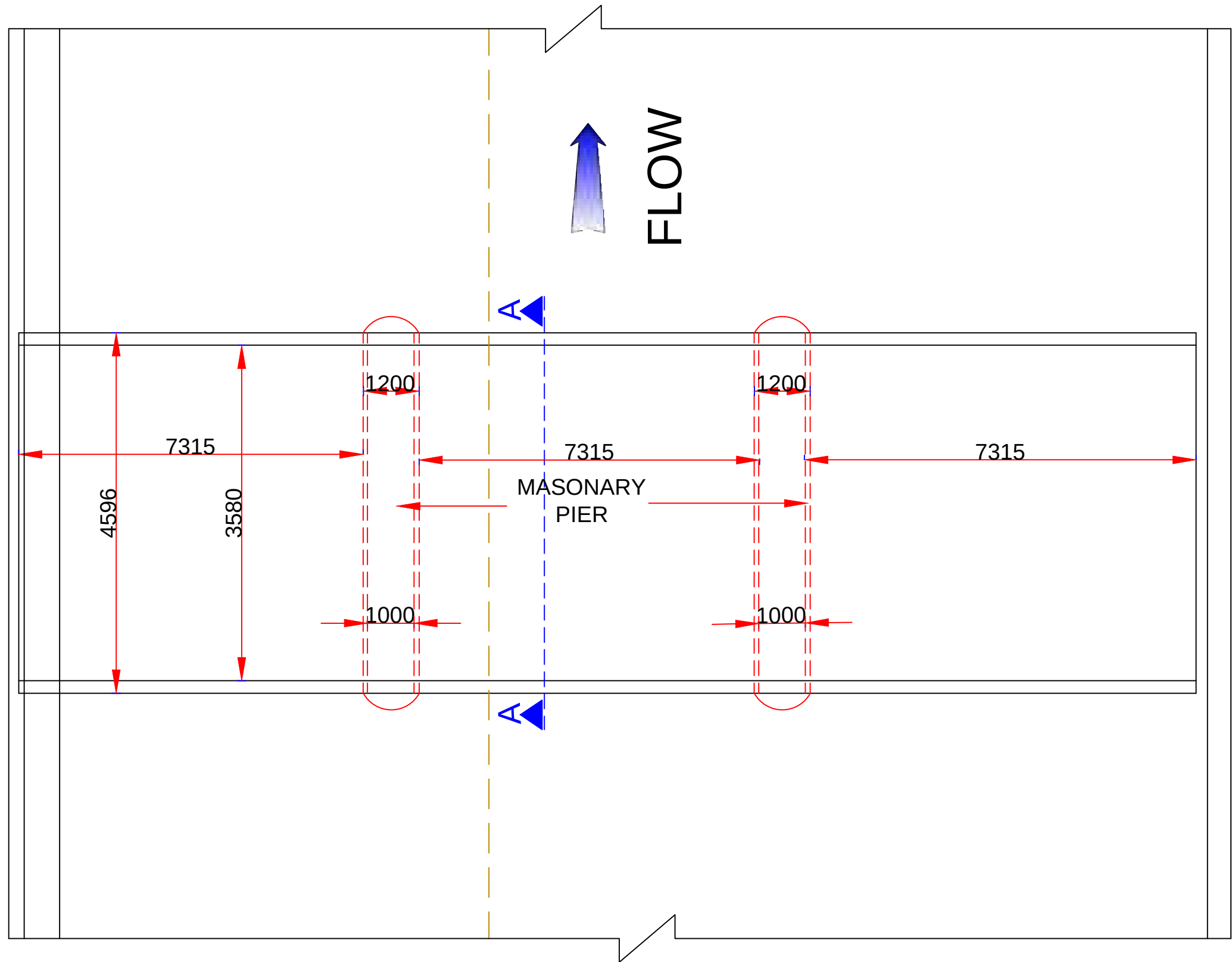
1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2



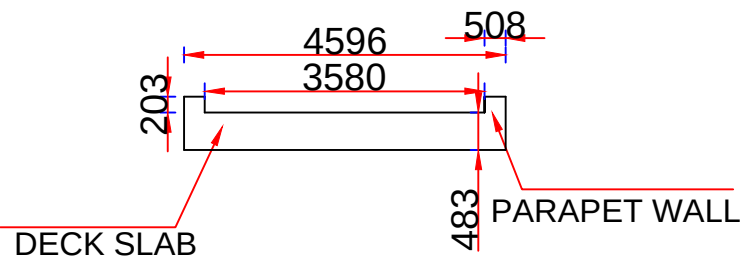
S.L.R. BRIDGE

AT

CH. 31.029 KM



PLAN



SECTION A-A

TENDER DRAWING

NOTES:

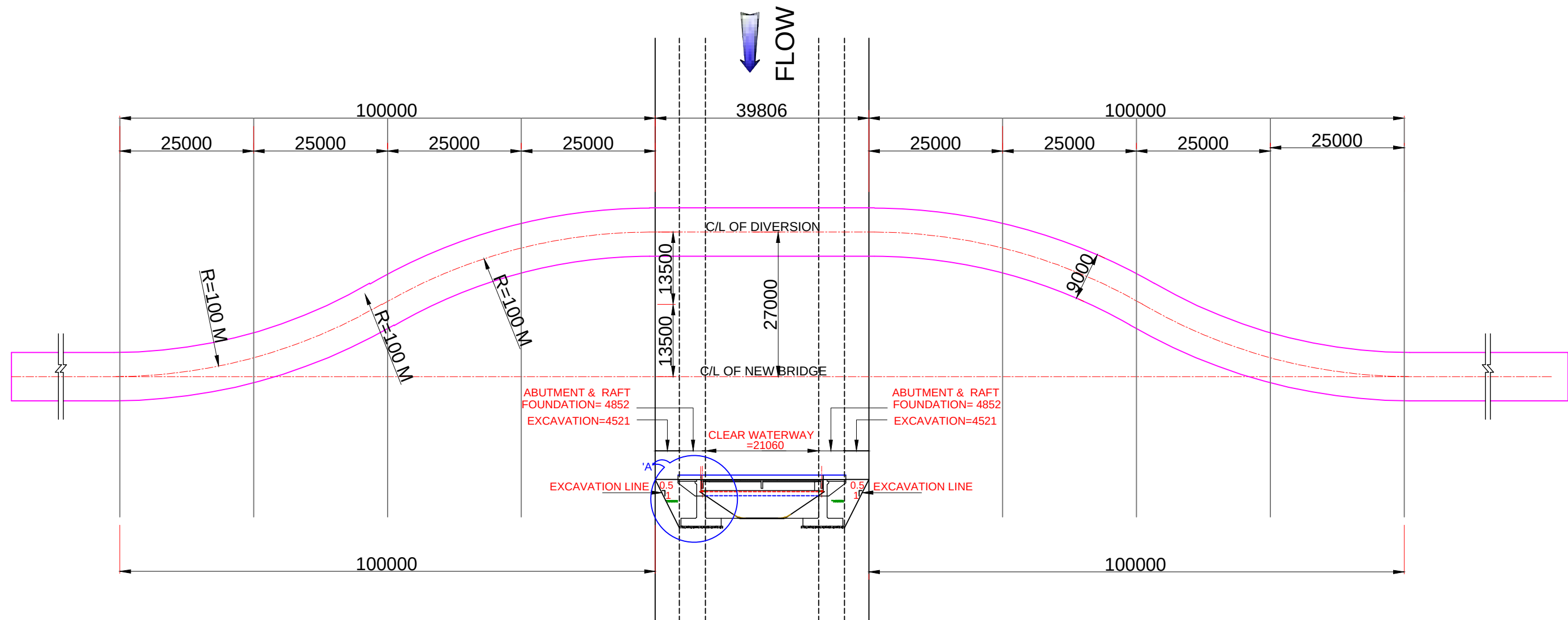
- 1 ALL DIMENSIONS ARE IN mm.
- 2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

Prepared by :-

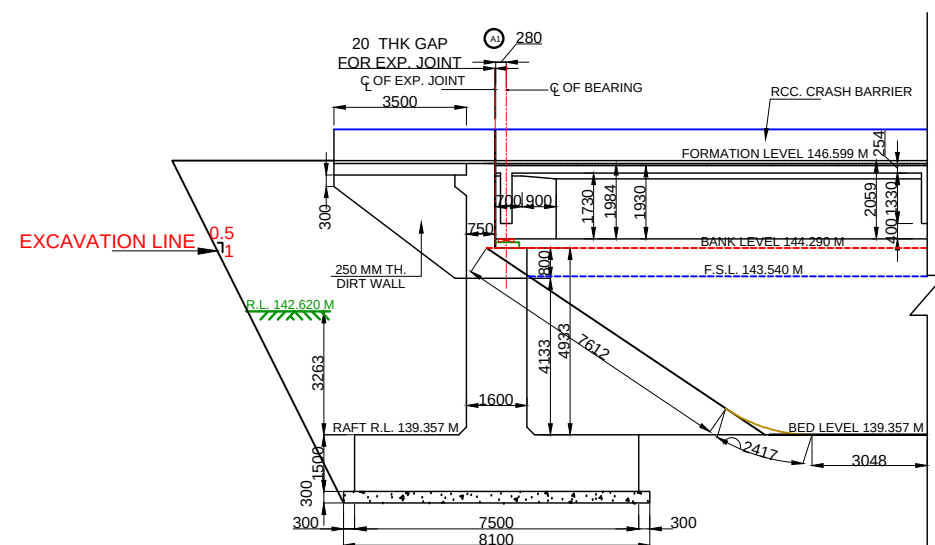
WAPCOS LTD.



Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND		
Drawing Title :-	EXISTING PLAN OF CART BRIDGE AT CH. 30.029 KM		
Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-21	01 of 12	
Drawn by:-	Checked by:-	Approved by:-	



SKETCH OF DIVERSION PLAN AT KM 31.029 FOR S.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 31.029 FOR S.L.R. BRIDGE

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG 21

02 of 12

Drawn by:-

Checked by:-

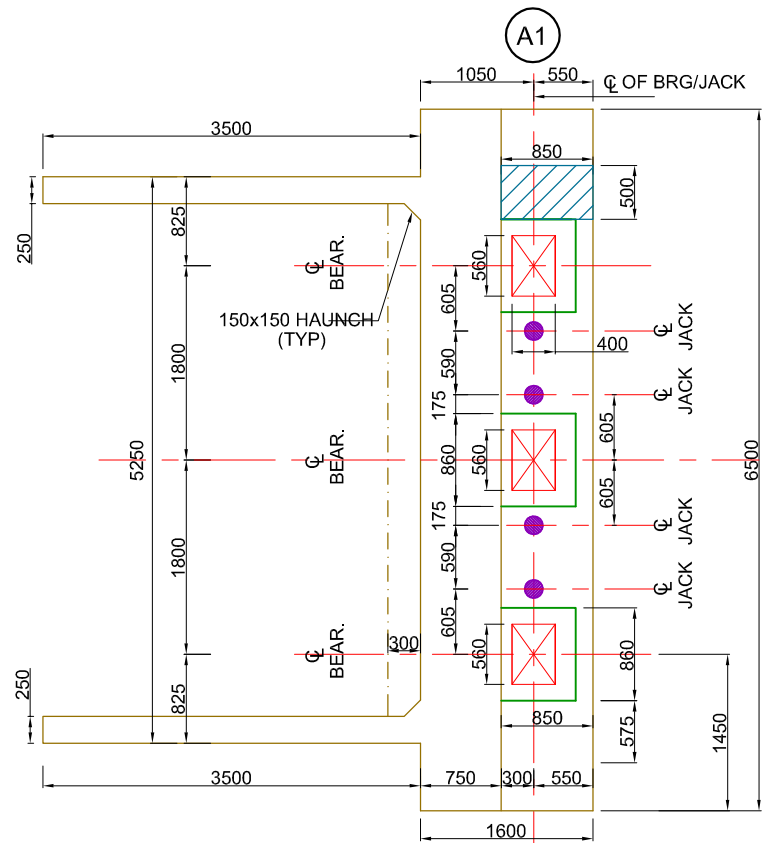
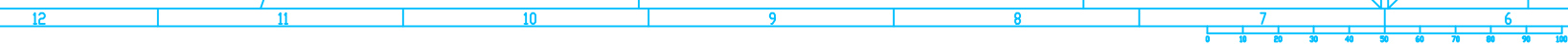
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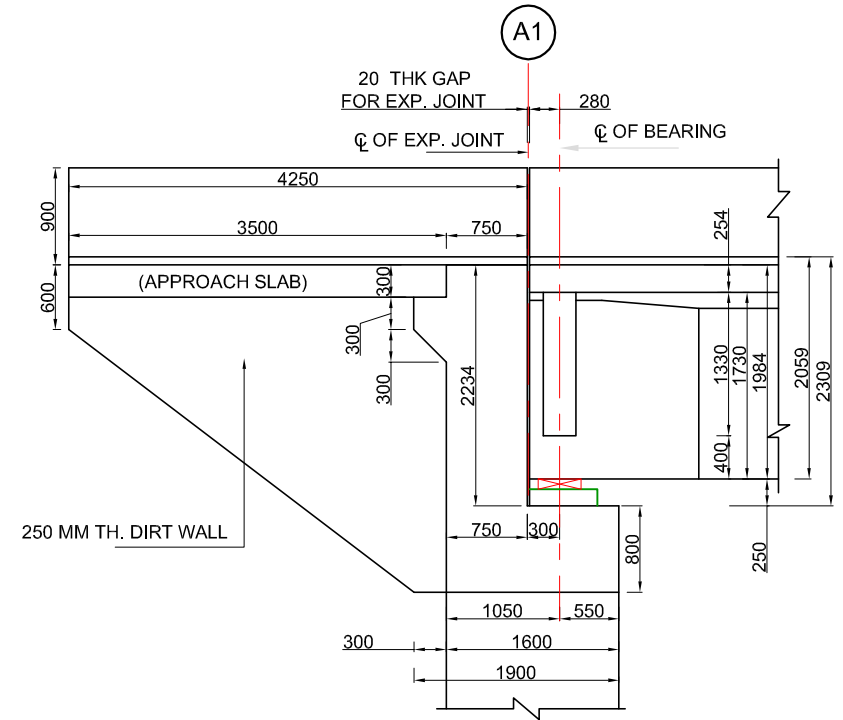
9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM



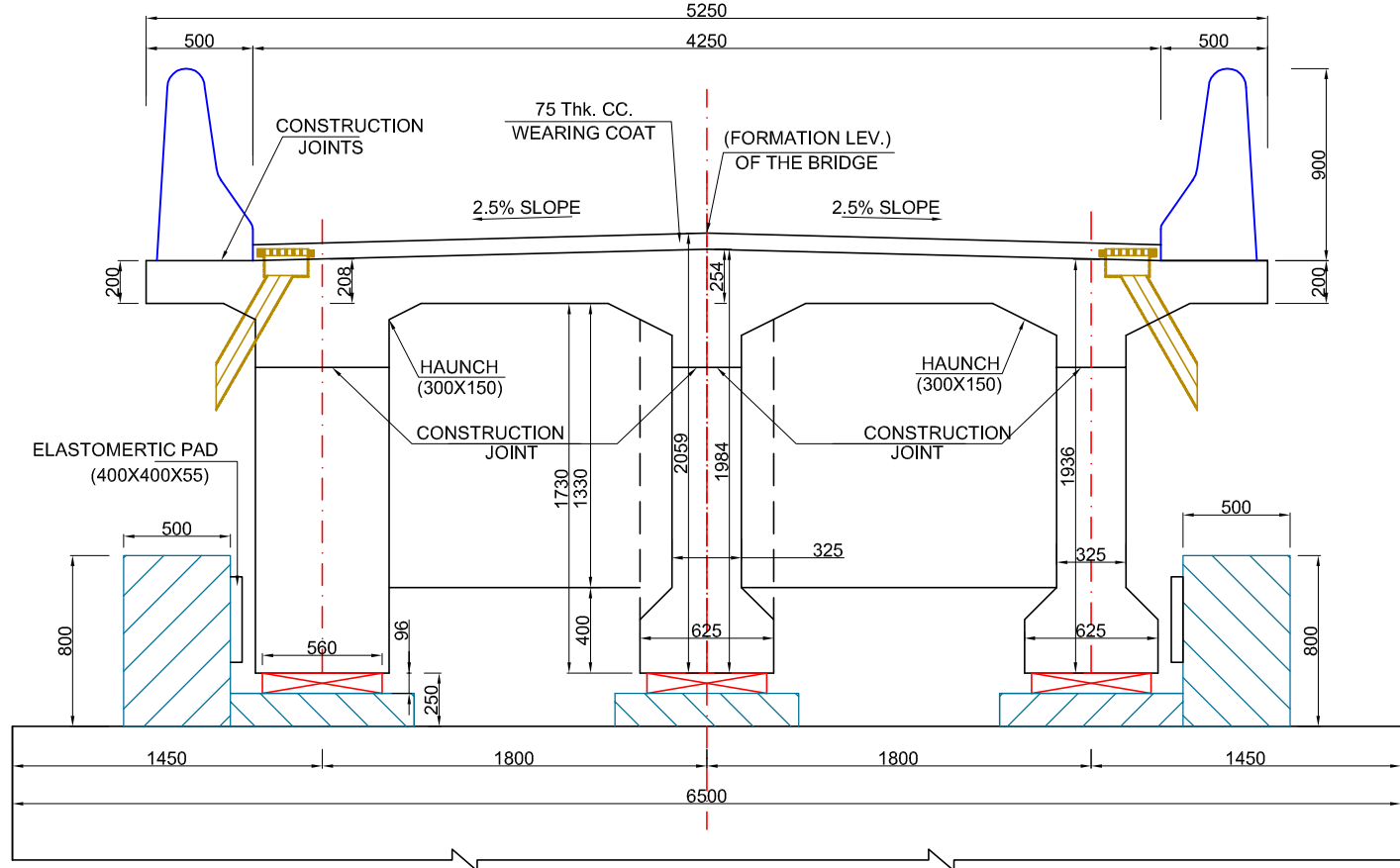
Approved by:-



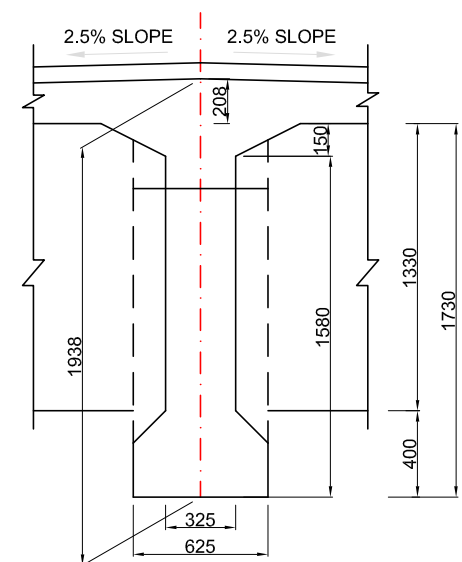
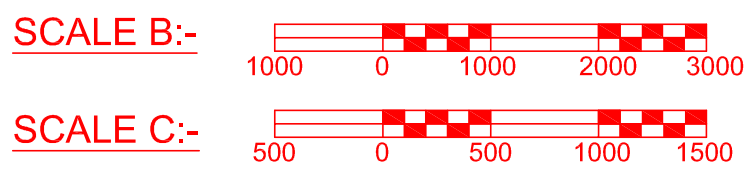
PLAN OF ABUTMENT AT BEARING LEVEL
(SCALE B)



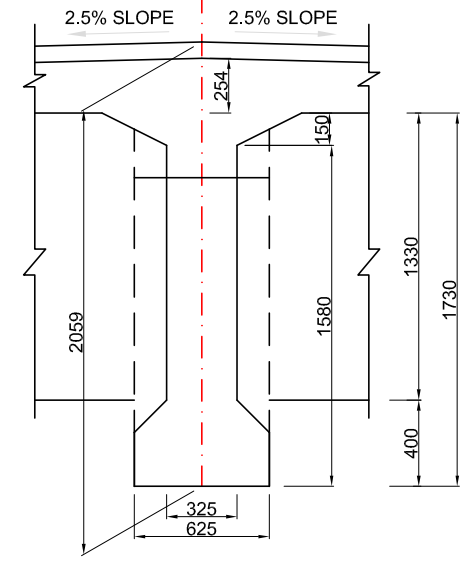
DETAIL - 'D1'
(SCALE B)



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 144.290 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 31.029 WITH THREE BEAMS		
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-21		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

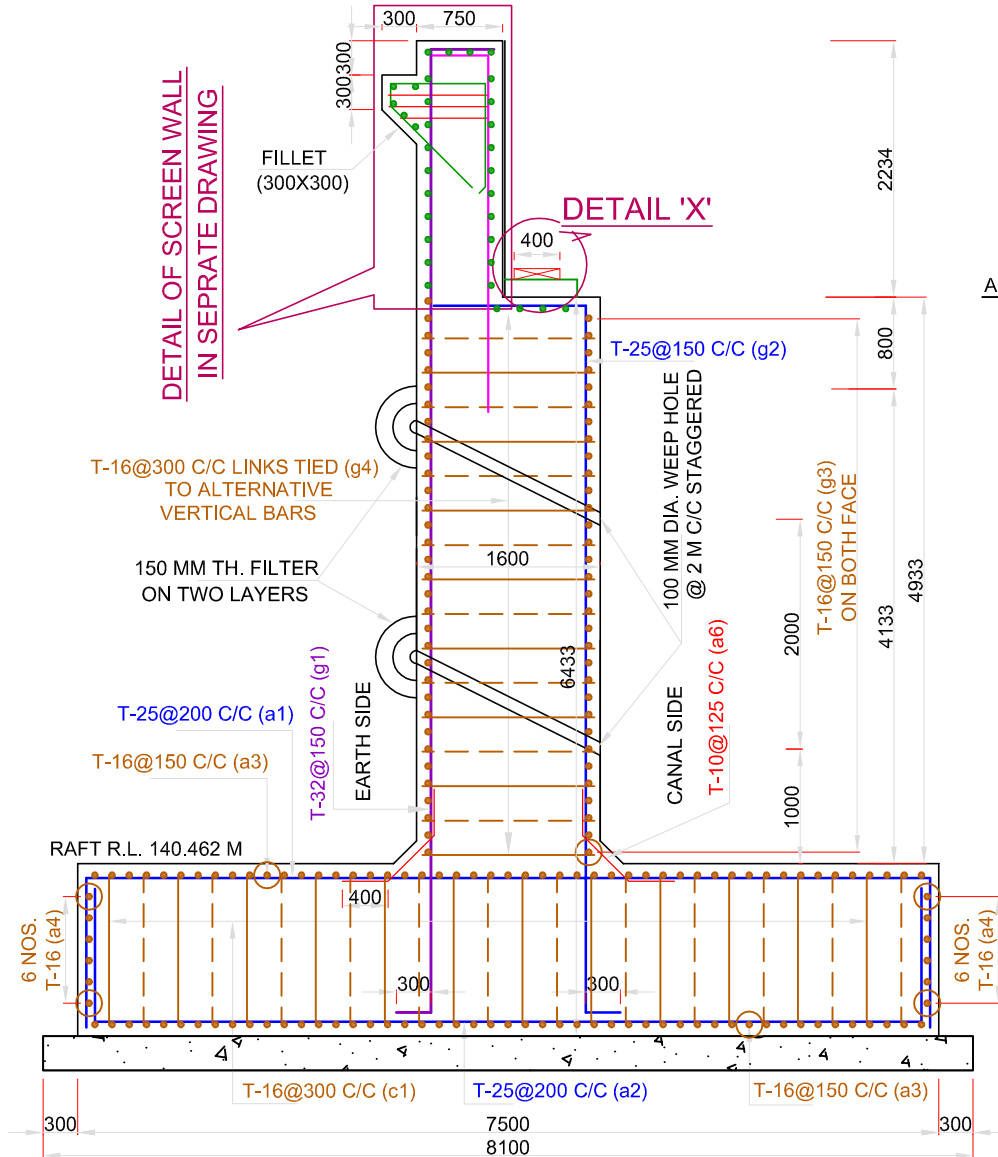
E

D

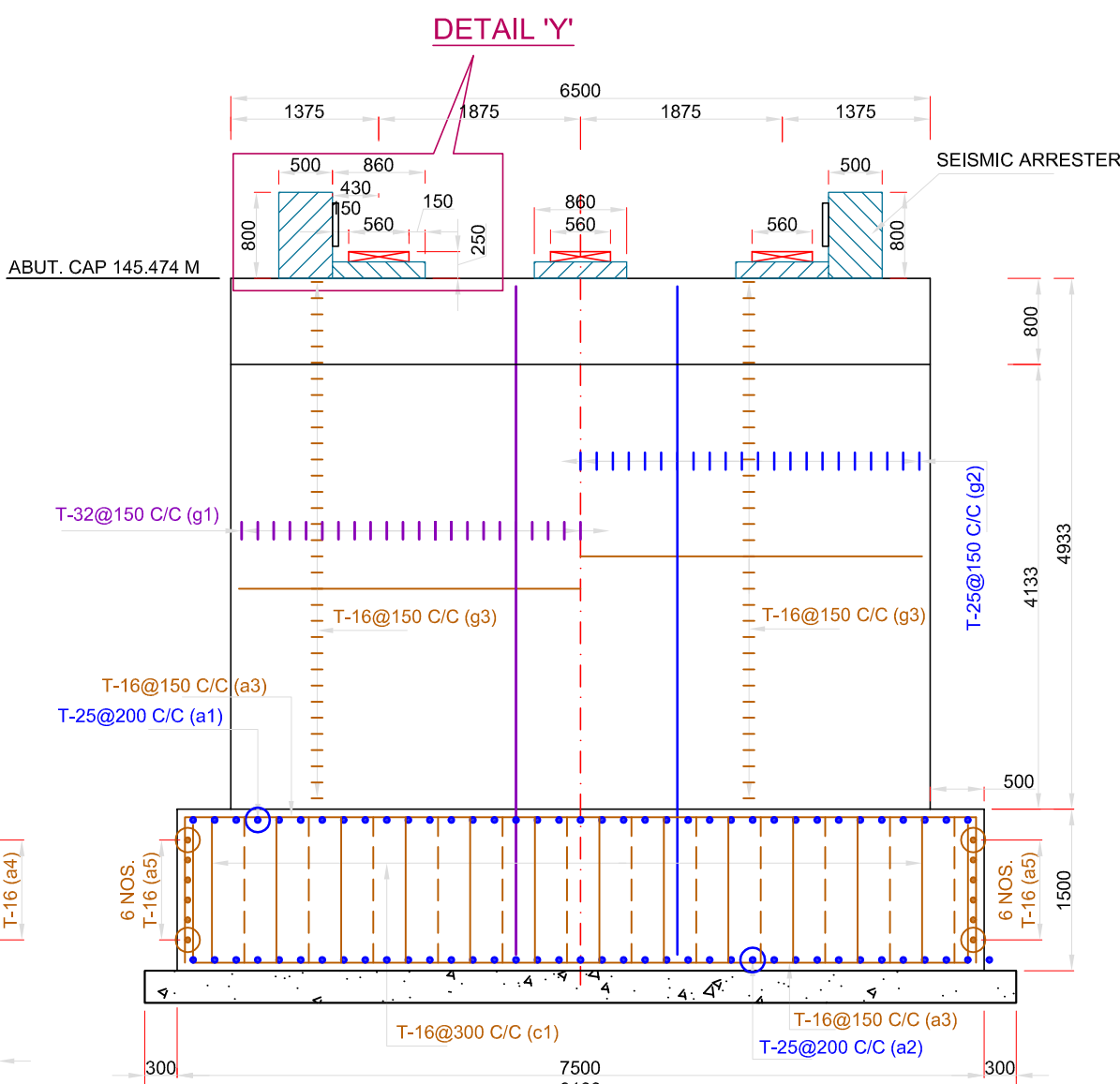
C

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 31.029 WITH THREE BEAMS

Drawing No. :-

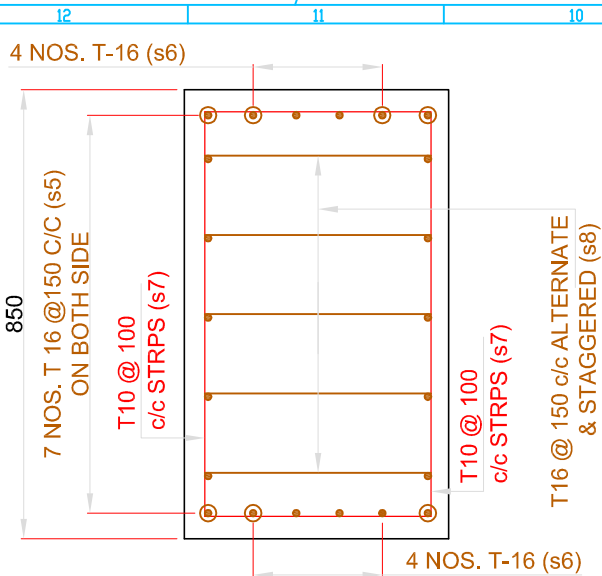
WAP/PKS/NORTH KOEL/RMC/BRG-21

05 of 12

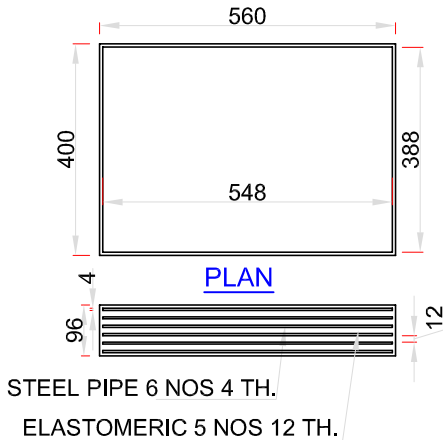
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Checked by:-

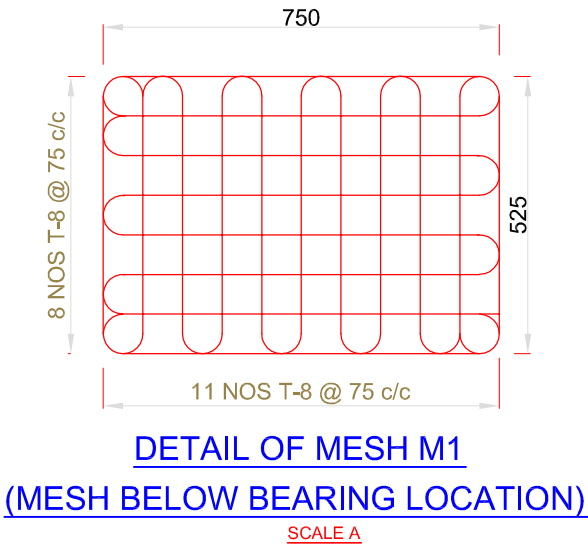
Approved by:-



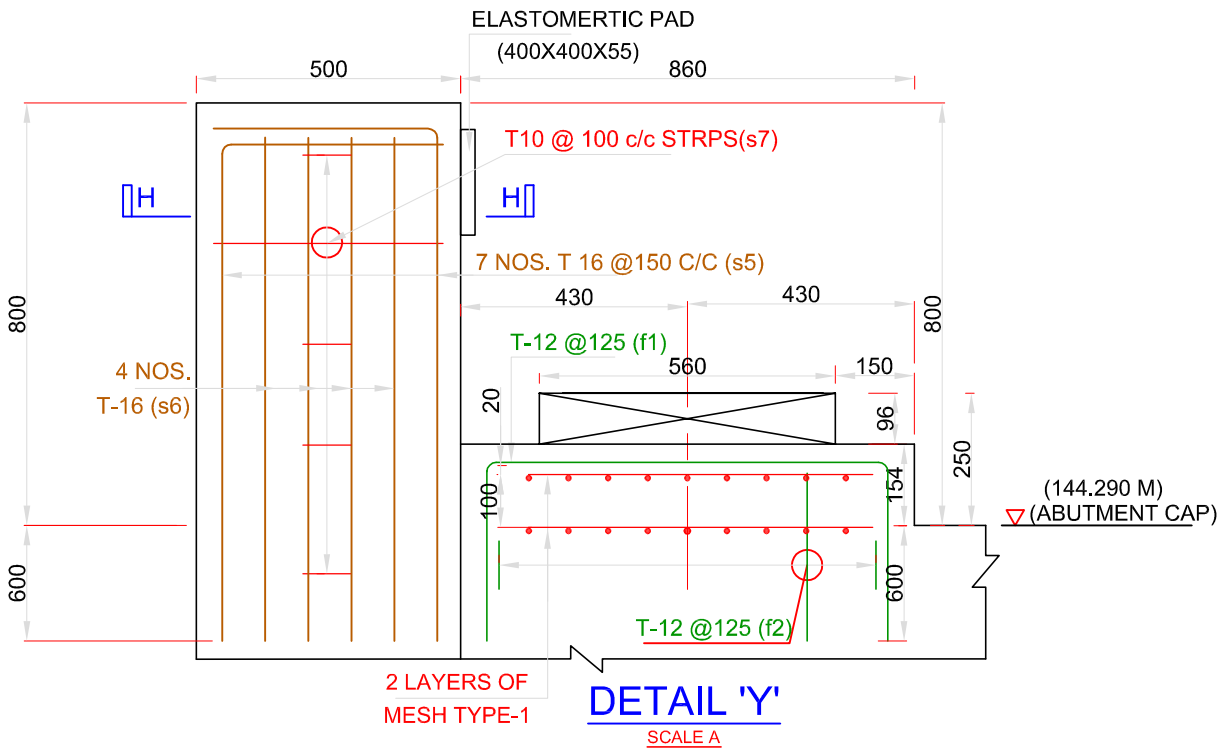
SECTION H-H
SCALE A



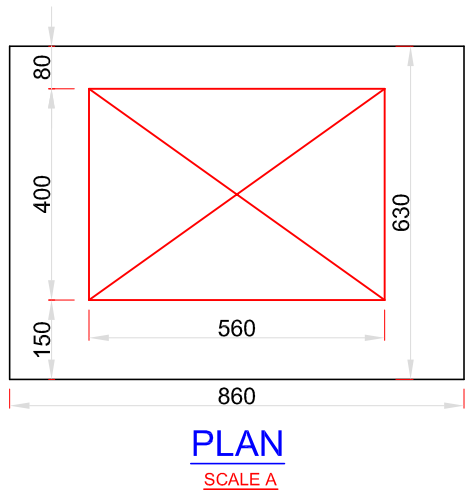
DETAILS OF
ELASTOMERIC BEARINGS
SCALE A



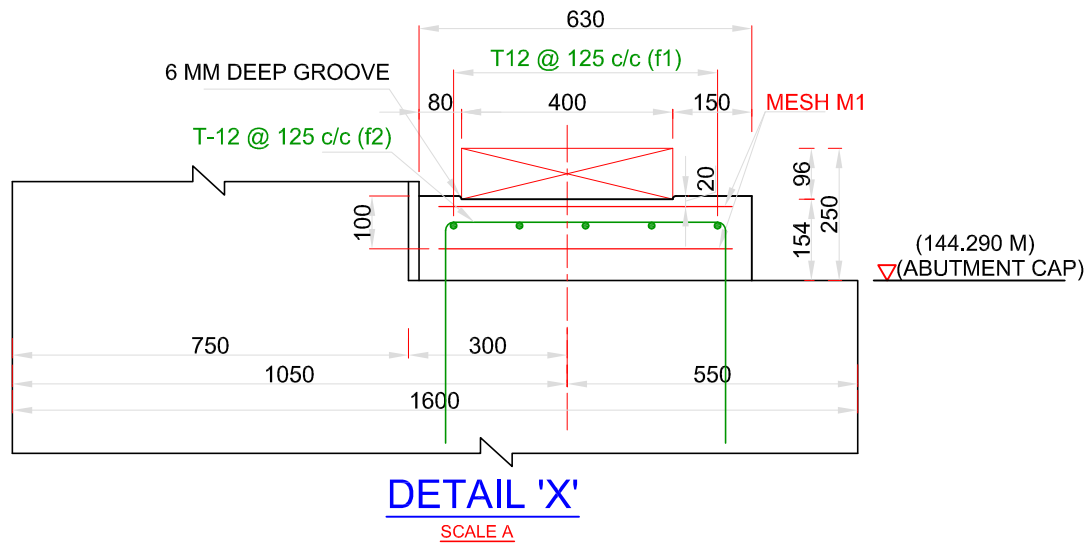
DETAIL OF MESH M1
(MESH BELOW BEARING LOCATION)
SCALE A



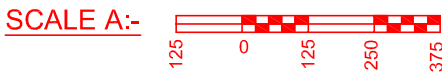
DETAIL 'Y'
SCALE A



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 31.029 WITH THREE BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-21

06 of 12

Drawn by:-

Checked by:-

Approved by:-

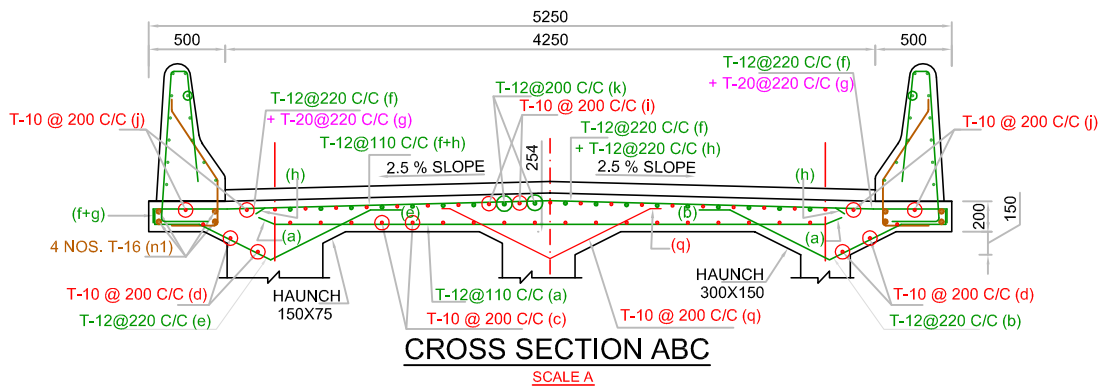


1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS
SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS
CRITICAL 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 PIER AND PIER 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 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.

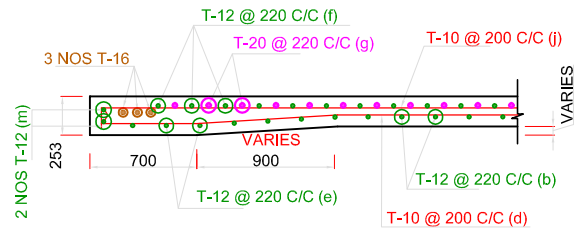


SCALE B:-

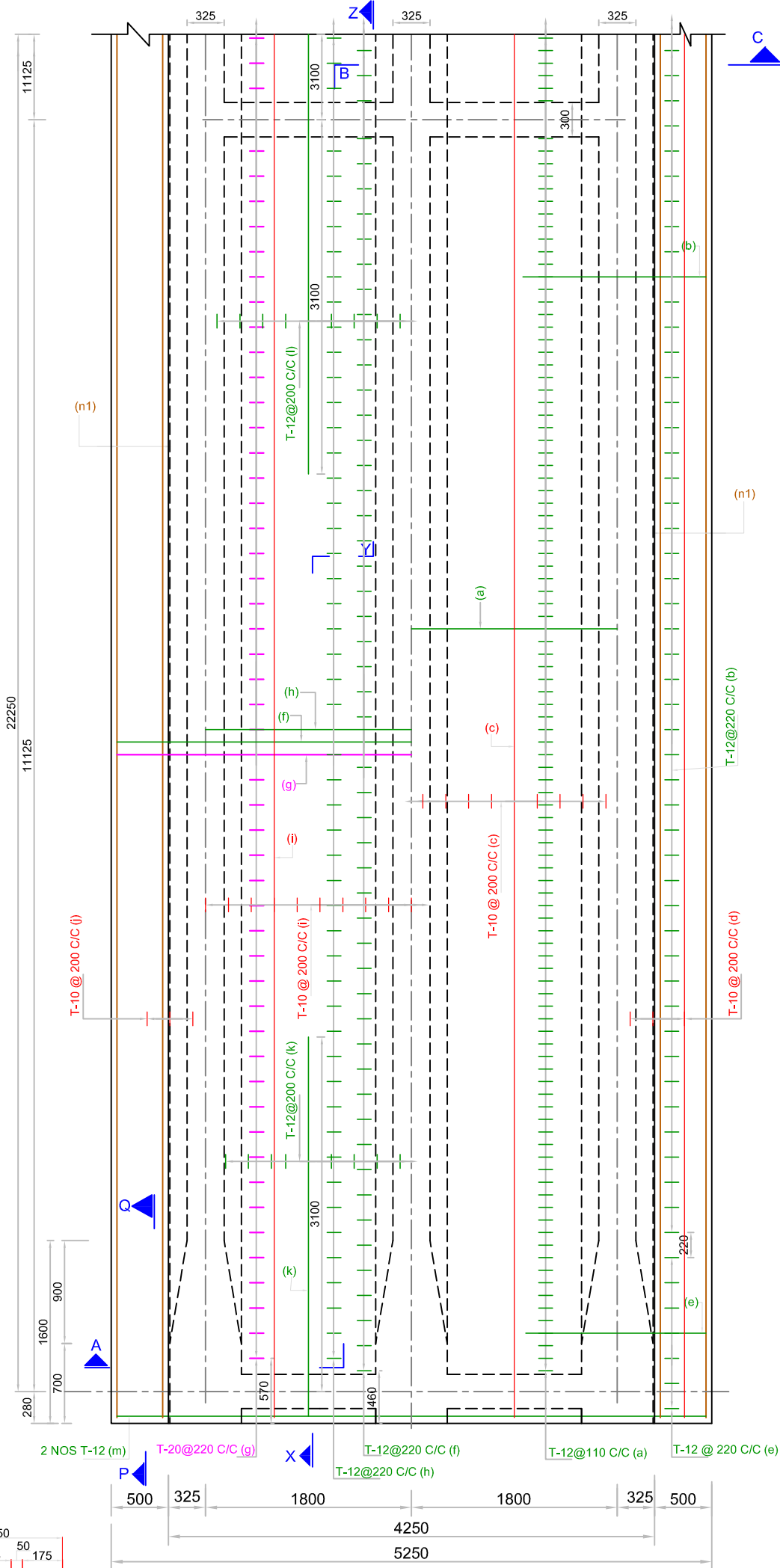
Approved by:-



CROSS SECTION ABC
SCALE A



SECTION P.Q.
SCALE A



HALF TOP REINFORCEMENT

HALF BOTTOM REINFORCEMENT

PLAN
SCALE A

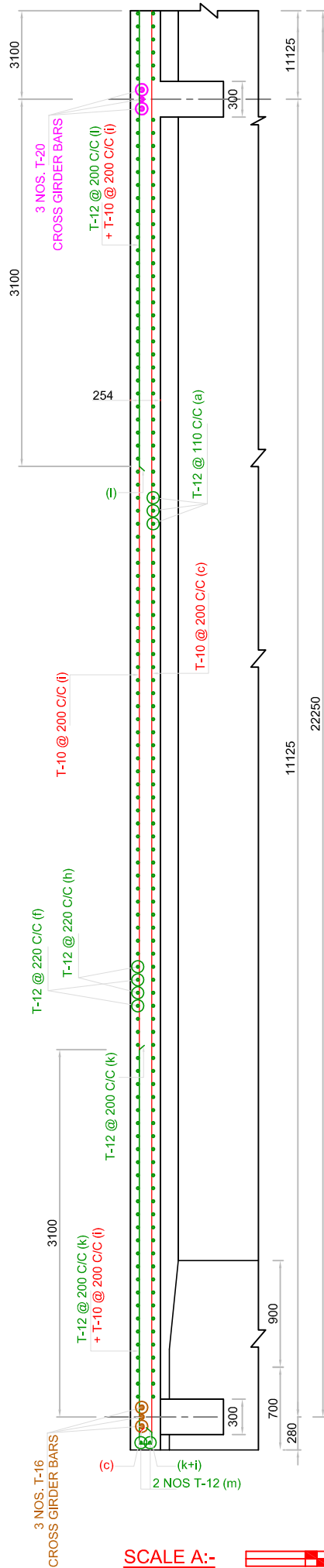
REFERENCES:-

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

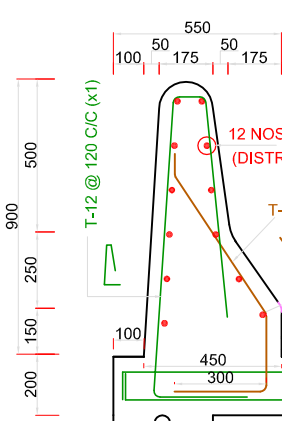
SCALE A:-



SCALE B:-



SECTION X Y Z
SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER
SCALE B

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 31.029 WITH THREE BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-21

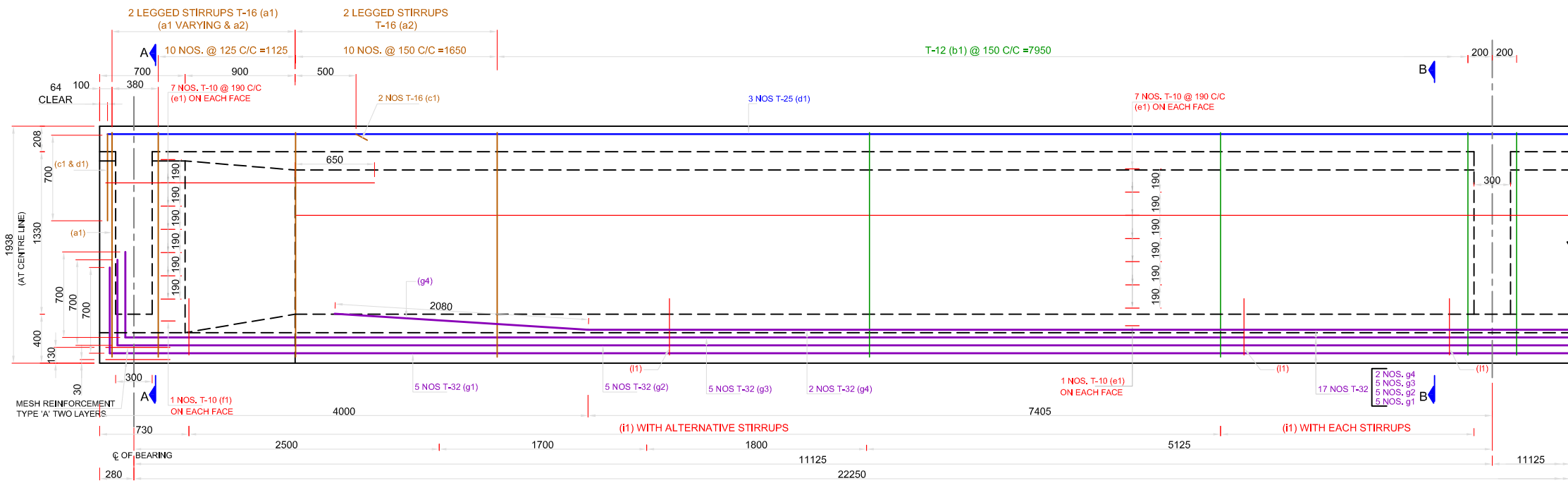
09 of 12

Drawn by:-

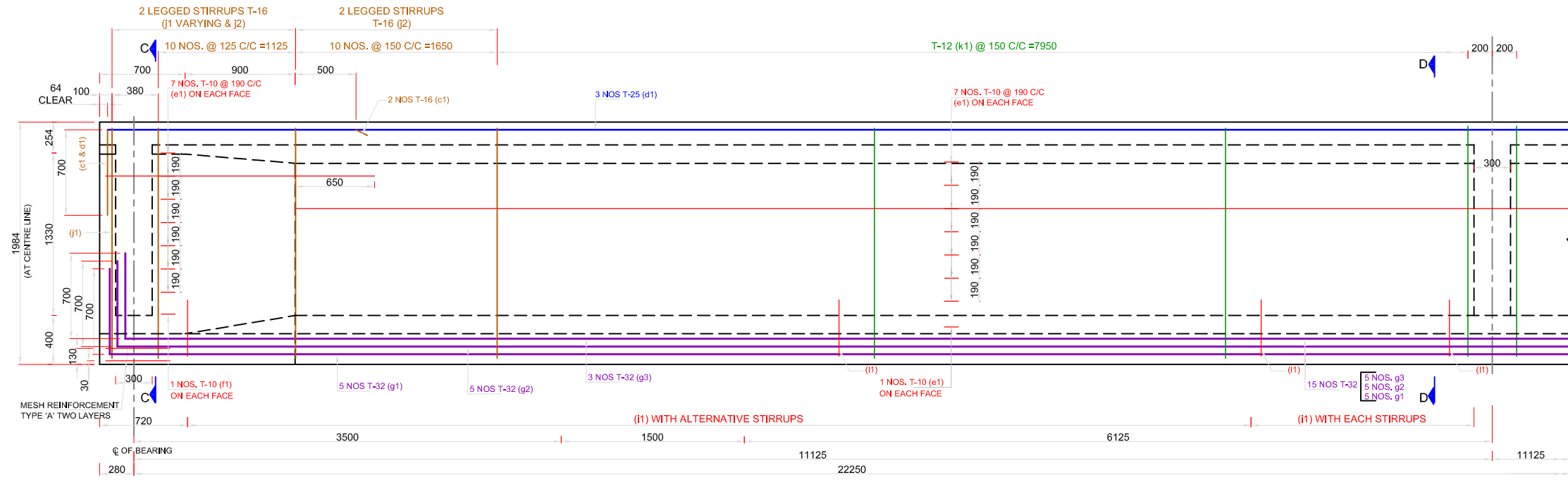
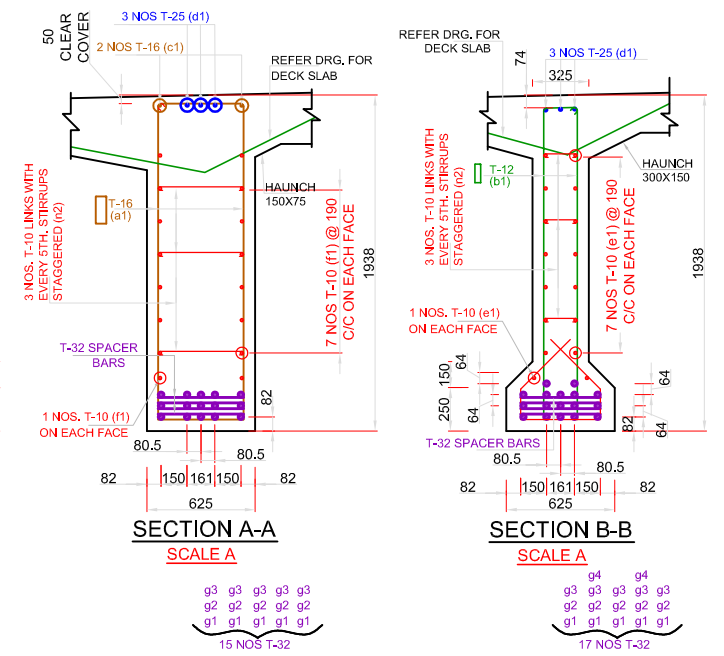
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Approved by:-

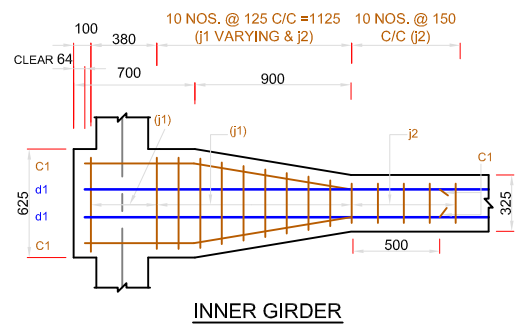
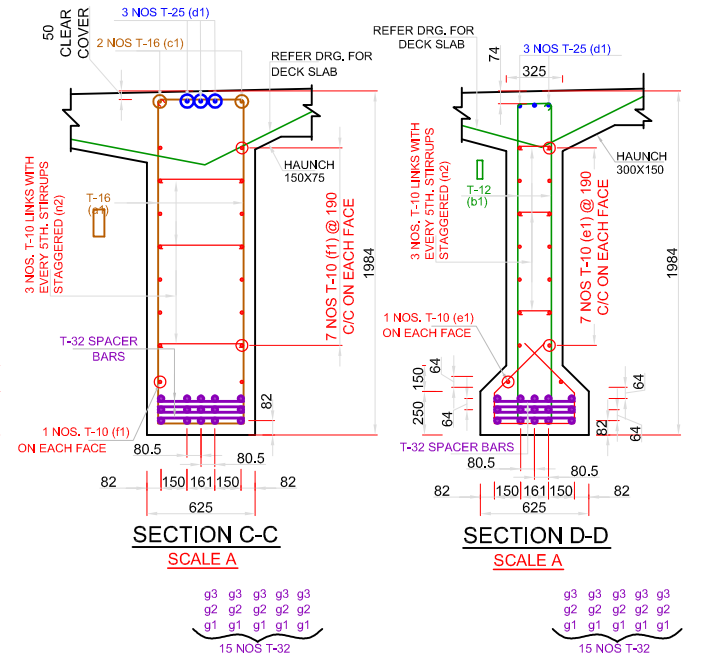
TENDER DRAWING



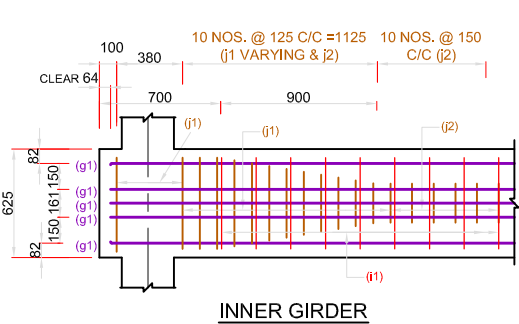
LONGITUDINAL SECTION OF OUTER GIRDER
SCALE A



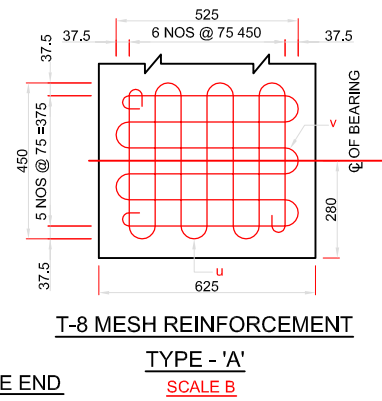
LONGITUDINAL SECTION OF INNER GIRDER
SCALE A



INNER GIRDER
PLAN SHOWING TOP REINFORCEMENT AT THE END
(SIMILAR DETAILING WILL BE FOLLOWED FOR OUTER GIRDERS)



INNER GIRDER
PLAN SHOWING BOTTOM REINFORCEMENT AT THE END



T-8 MESH REINFORCEMENT
TYPE - 'A'
SCALE B

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 31.029 WITH THREE BEAMS

Drawing No. :-

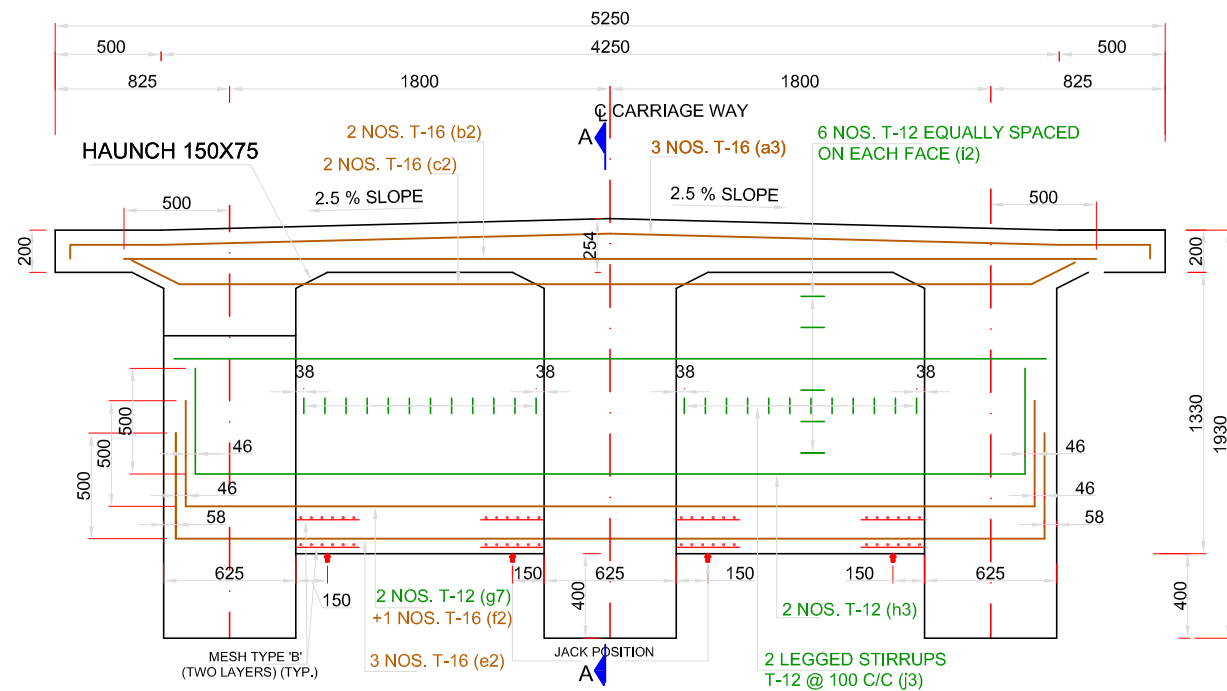
WAP/PKS/NORTH KOEL/RMC/BRG-21

10 of 12

Drawn by:-

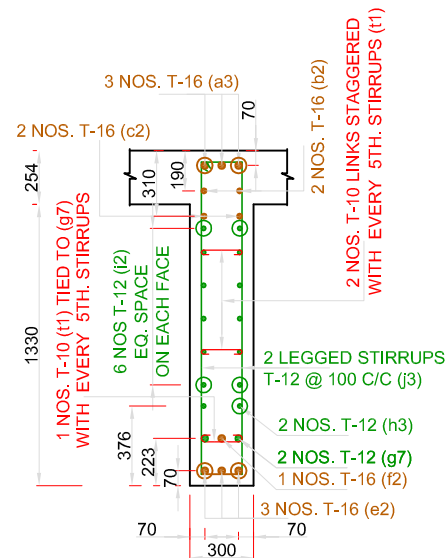
Checked by:-

Approved by:-



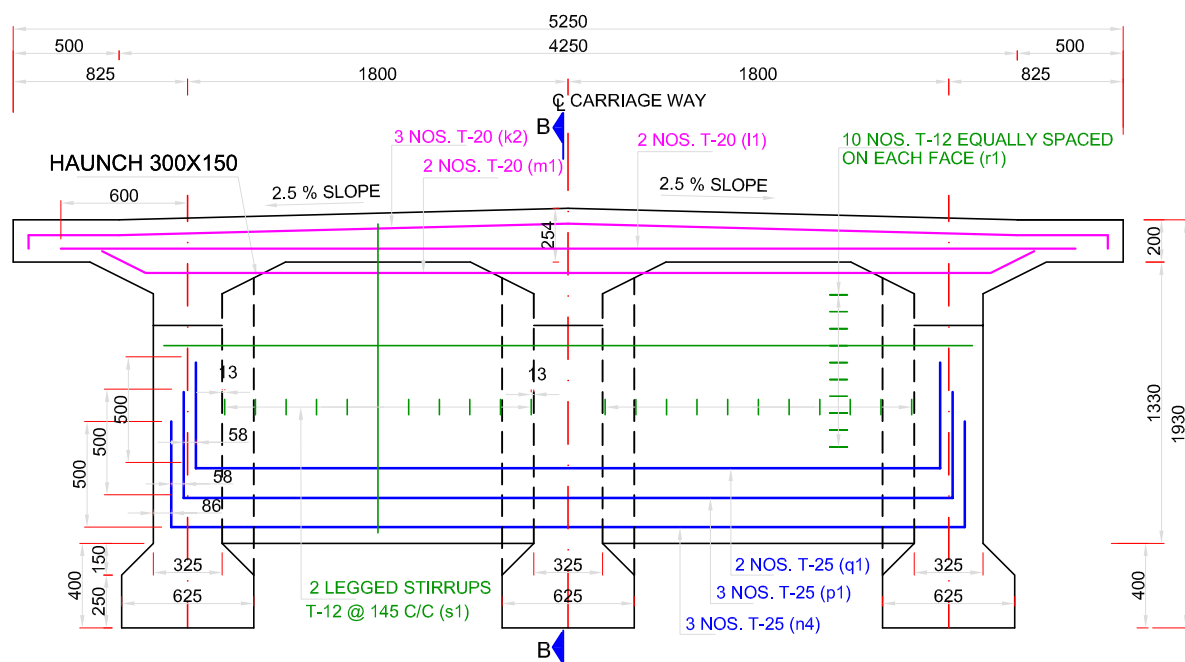
LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A



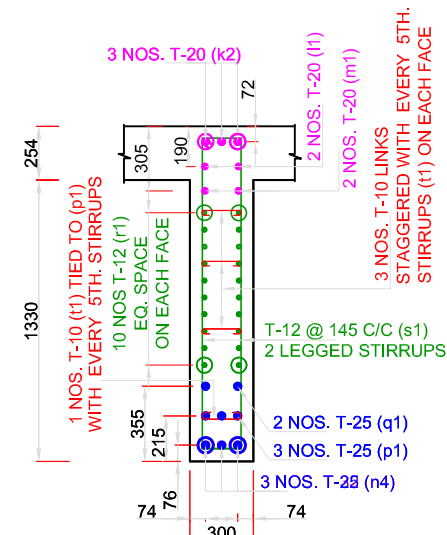
SECTION A-A

SCALE A



LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A

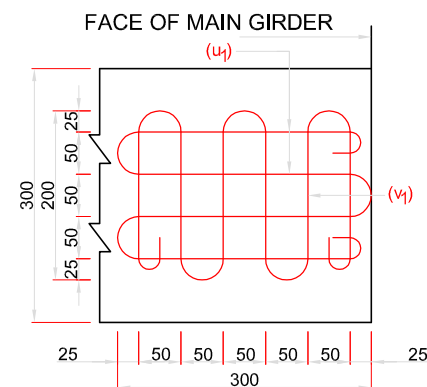


SECTION B-B

SCALE A

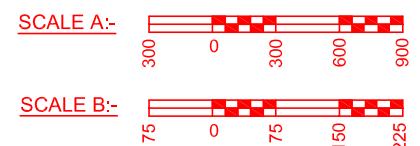
NOTES

- 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.

Prepared by :-

WAPCOS LTD.



Project Title :-

NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND

Drawing Title :-

REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE
AT KM 31.029 WITH THREE BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-21

11 of 12

Drawn by:-

Checked by:-

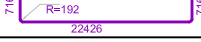
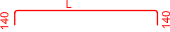
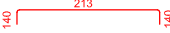
Approved by:-

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	198
2	b		12	220	1927	180
3	c		10	200	23210	19
4	d		10	200	23210	6
5	e		12	220	1927	32
6	f		12	220	5304	98
7	g		20	220	5182	98
8	h		12	220	3732	98
9	i		10	200	23210	19
10	j		10	200	23138	6
11	k		12	200	3588	36
12	l		12	200	6200	18
13	m		12	-	5150	4
14	n1		16	-	22710	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  L2 = VARYING FROM 1800 TO 1804 VARYING FROM 193 TO 493	16	125	5158	11X2X2
2	a ₂		16	150	4758	11X2X2
3	b ₁		12	150	4678	104X2
4	c ₁		16	-	2693	2X2X2
5	d ₁		25	-	23898	3X2
6	e ₁		10	-	19860	8X2X2
7	f ₁		10	-	2199	16X2X2
8	g ₁		32	-	23858	5X2
9	g ₂		32	-	23730	5X2
10	g ₃		32	-	23602	5X2
11	g ₄		32	-	18970	2X2
12	l ₁		10	-	1733	101X2
13	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			16	150	4890	11X2X1
3	k_1			12	150	4810	104X1
4	c_1			16	-	2693	2X2X1
5	d_1			25	-	23898	3X1
6	e_1			10	-	19860	8X2X1
7	f_1			10	-	2199	16X2X1
8	g_1			32	-	23858	5X1
9	g_2			32	-	23730	5X1
10	g_3			32	-	23602	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	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 31.029 WITH THREE BEAMS

Drawing No. :-

WAP/PKS/NORTH KOEL/RMC/BRG-21

12 of 12

Drawn by:-

Checked by:-

Approved by:-