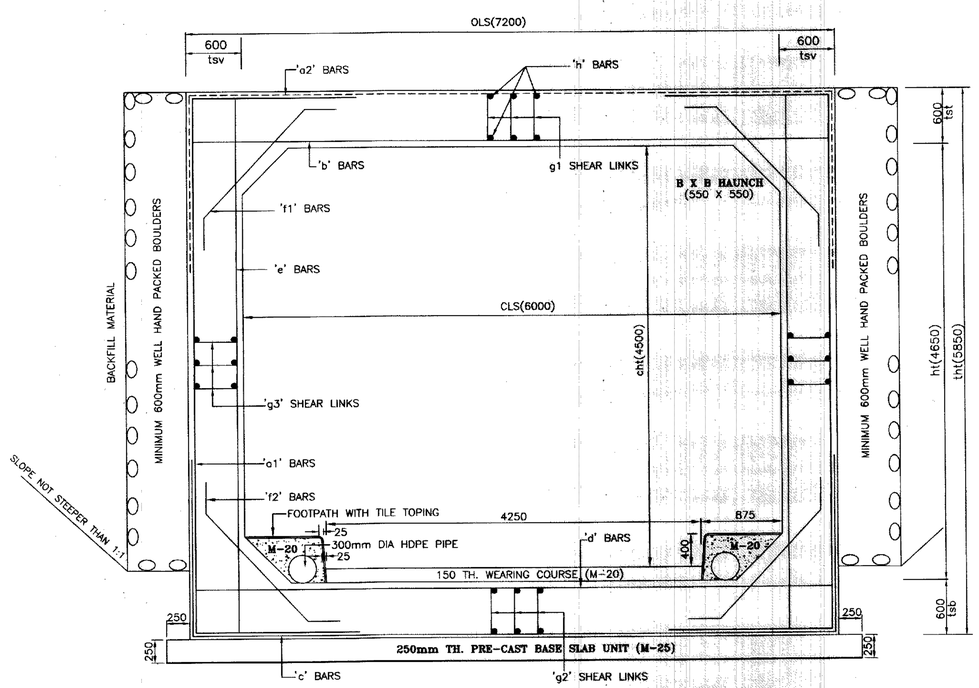
DATE: 25-01-22

PB – 19

Page No: 790-833



CROSS SECTION OF PRE-CAST BOX UNIT

TABLE-'X' RELATED DRAWINGS

S.No.	DESCRIPTION	DRAWING NO.
1.	GENERAL ARRANGEMENT	RDSO/B-10159
2.	BOX SEGMENTS & BASE SLAB	RDSO/B-10159/2

NOTES

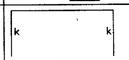
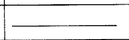
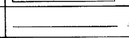
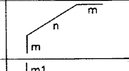
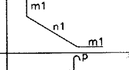
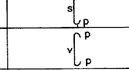
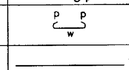
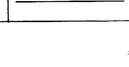
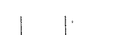
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. THIS DRAWING IS SUITABLE FOR CONSTRUCTION OF LIMITED HEIGHT SUBWAYS (LHS) ON SINGLE AS WELL AS MULTIPLE LINES.
3. PREPARATION OF BED BELOW BASE SLAB SHOULD BE AS PER ACTUAL SITE CONDITIONS IN ORDER TO ACHIEVE ADEQUATE BEARING CAPACITY REQUIRED TO WITHSTAND THE FOUNDATION PRESSURE GIVEN IN TABLE 'Y'. A MINIMUM SAND LAYER OF 200mm THICK TO BE SPREAD BELOW THE RCC SLAB.
4. REINFORCEMENT DETAILS, SLAB THICKNESS DETAILS AND FOUNDATION PRESSURE HAVE BEEN GIVEN IN TABLE 'Y'. THICKNESSES OF TOP SLAB, BOTTOM SLAB AND VERTICAL WALLS HAVE BEEN KEPT UNIFORM.
5. THIS DESIGN IS SUITABLE FOR 25t LOADING-2008.
6. ALL REINFORCEMENT STEEL SHALL BE OF HIGH STRENGTH DEFORMED (HSD)/TMT BARS, Fe415 AND HIGHER GRADE REINFORCEMENT CONFORMING TO IS:1786-2008. FOR SEISMIC ZONES III, IV AND V HYSD STEEL BARS HAVING MINIMUM ELONGATION OF 14.5 PERCENT AND CONFORMING TO OTHER REQUIREMENTS OF IS:1786 SHALL BE USED.
7. DESIGN CRITERIA IS BASED ON FOLLOWING IRS CODES:
   i) IRS BRIDGE RULES-2014
   ii) IRS CONCRETE BRIDGE CODE
   iii) IRS BRIDGE SUBSTRUCTURE & FOUNDATION CODE-2013
8. LAPPING OF BARS SHOULD BE MINIMISED AND STAGGERED WHEREVER NECESSARY. MINIMUM LENGTH OF LAP SHALL BE AS GIVEN IN IRS CONCRETE BRIDGE CODE FOR TOR STEEL.
9. BACK FILL MATERIAL SHOULD BE AS PER CLAUSE 7.5 OF IRS BRIDGE SUBSTRUCTURE & FOUNDATION CODE.
10. ALL RCC SURFACES COMING IN CONTACT WITH SOIL SHOULD BE PAINTED WITH BITUMEN OR COALTAR OF APPROVED QUALITY @ 1.464 KG/SQM.
11. CLEAR COVER FOR REINFORCING BARS SHOULD BE 50mm AS PER CLAUSE NO. 15.9.2 OF IRS CONCRETE BRIDGE CODE.
12. i). BARREL LENGTH OF BOX CULVERT SHALL BE DECIDED BASED ON FILL HEIGHT ON THE BOX AS PER CROSS SECTION SHOWN IN GENERAL ARRANGEMENT DRAWING.
    ii). IF BARREL LENGTH IS TO BE CURTAILED DUE TO SOME REASONS, THEN END OF BOX CAN BE PROJECTED UP AS BALLAST RETAINING WALL, OF SUITABLE DESIGN.
13. M-35 GRADE CONCRETE SHALL BE USED FOR THE CONSTRUCTION OF SEGMENTAL BOX.
14. BASE SLAB UNITS SHOULD BE OF M-25 GRADE CONCRETE.
15. BED SLOPE SHALL BE ADJUSTED AS PER SITE CONDITIONS BY COMPETENT AUTHORITY.
16. WEEP HOLES SHALL BE OF 75/100 DIA PVC/AC PIPES STAGGERED @ 1000 C/C IN EARTH RETAINER OF BOX.
17. BALLAST CUSHION OF 350mm HAS BEEN CONSIDERED IN DESIGN.

TABLE-'Y'

Size of Box (m)	Clear Span	Clear Height	Earth Cushion	
	6.00	4.50	0.5	
	Top Slab	Bottom Slab	Side Wall	
Th (cm)	60	60	60	
Found Pr	12.95	t/m2		
Bar	Dia	Spacing	Along Barrel	Along Span
a1	25	200		
a2	12	200		
b	25	100		
c	20	200		
d	25	100		
e	12	200		
f1	25	200		
f2	25	200		
g1	10		200	200
g2	10		200	200
g3	10		200	200
h	10	100		

WEIGHT OF BOX PER SEGMENT (1.53m) = 57.69t

REINFORCEMENT FOR BOX

TYPE	SHAPE	REMARKS
a1		j = tsv+max.[0.3 X eff.span or DL)] – cover
a2		k = tst+max.[0.3 X eff. height or DL)] – cover – dia
b		OLS – 2 X Cover
c		l = tsb+max.[0.3 X eff. height or DL)] – cover – dia
d		OLS – 2 X Cover
e		tht – 2 X Cover
f1		m = max. [0.1m or DL] – $\sqrt{2}$ x tst + $\sqrt{2}$ x cover n = $\sqrt{2}$ (B+tst+tsv) – 2 ($\sqrt{2}$ + 1) cover
f2		m1= max. [0.1m or DL] – $\sqrt{2}$ x tsb + $\sqrt{2}$ x cover n1 = $\sqrt{2}$ (B+tsb+tsv) – 2 ($\sqrt{2}$ + 1) cover
g1		p =10 ϕ, bent at an angle of 135° s = tst – 2 x cover – dia
g2		p =10 ϕ, bent at an angle of 135° v = tsb – 2 x cover – dia
g3		p =10 ϕ, bent at an angle of 135° w = tsv – 2 x cover – dia
h		TBL – 2 X cover

NOTATIONS

FILL	SURCHARGE AT C.L OF TRACK
TBL	TOTAL BARREL LENGTH OF BOX
OLS	OVERALL SPAN
CLS	CLEAR SPAN
ht	HEIGHT OF BOX INCLUDING WEARING COURSE
cht	CLEAR HEIGHT OF BOX ABOVE WEARING COURSE
tst	THICKNESS OF TOP SLAB
tsv	THICKNESS OF VERTICAL WALL
tsb	THICKNESS OF BOTTOM SLAB
tht	TOTAL HEIGHT OF BOX
B X B	SIZE OF HAUNCH
DL	DEVELOPMENT LENGTH

R.D.S.O.

TYPICAL PLAN OF RCC SEGMENTAL BOX FOR RUB WITH FOOTPATH AND PROVISION FOR CUT & DROP WALL 6.00m(CLS) X 4.65m(ht) 0.5m EARTH FILL & CLEAR Ht. 4.50m 25t LOADING – 2008 BOX STRUCTURAL DESIGN DETAILS

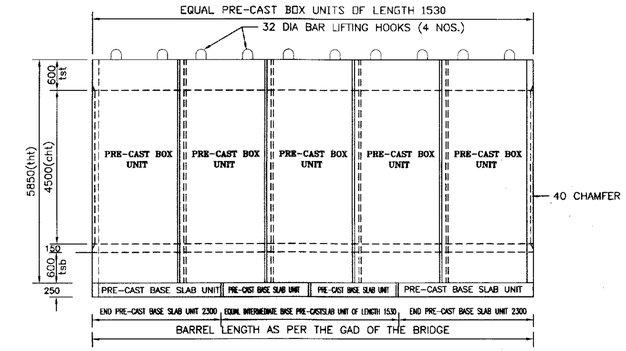
PROVISIONAL DATE:18.11.2015

RDSO/B-10159/1

IRS BRIDGE SUB STRUCTURE & FOUNDATION CODE
IRS CONCRETE BRIDGE CODE
IRS BRIDGE RULE
IS: 456-2000
IS: 1786-2008

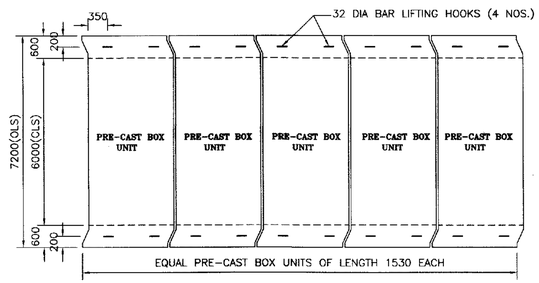
SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

CALCULATION REGISTER No.: CB-II/
PAGES
DONE BY- SHER SINGH(SSE/D/CB-II)
CHECKED BY- BINAY KUMAR(SSE/D/CB-II)
DRAWN BY- ANJANA BHASIN(SSE/D/CB-II)
CHECKED BY- SHER SINGH(SSE/D/CB-II)
SCRUTINISED & CHECKED BY ADE/B&S/CB-II
SCRUTINISED & RECOMMENDED BY DIRECTOR/B&S/CB-II
APPROVED BY ED/STRUCTURES 18/11/2015
FILE No. CBS/L.U.SW
NOTING PAGE No.- 11



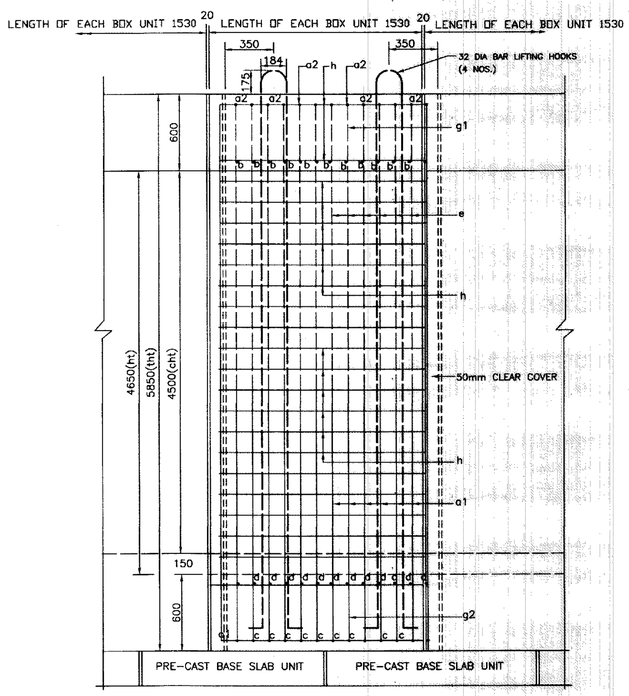
KEY ELEVATION OF ARRANGEMENT OF PRE-CAST BASE SLAB UNITS & PRECAST BOX UNITS

(NOT TO SCALE)

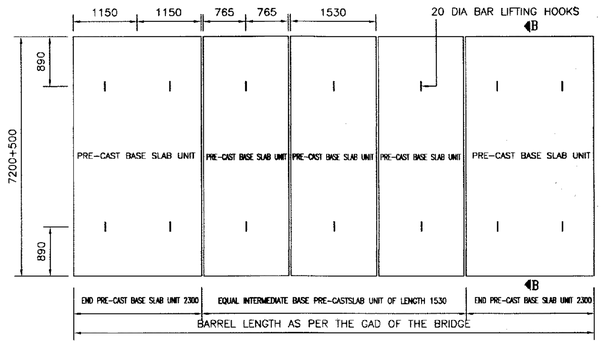


KEY PLAN OF ARRANGEMENT OF PRE-CAST BOX UNITS & POSITION OF LIFTING HOOKS

(NOT TO SCALE)

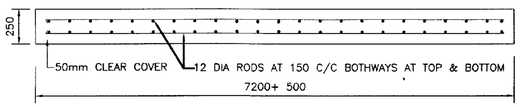


LONGITUDINAL SECTION OF EACH PRE-CAST BOX UNIT AT A-A

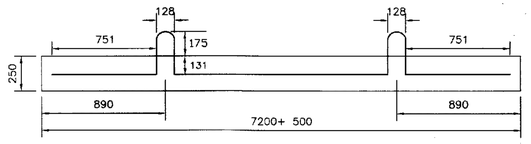


KEY PLAN OF ARRANGEMENT OF PRE-CAST BASE SLAB UNITS & POSITION OF LIFTING HOOKS

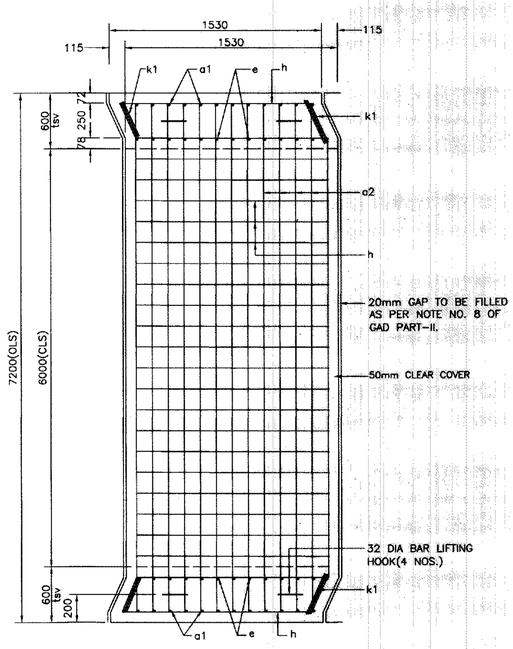
(NOT TO SCALE)



CROSS SECTION OF PRE-CAST BASE SLAB UNIT (AT B-B)



POSITION OF LIFTING HOOKS FOR PRE-CAST BASE SLAB UNITS



TOP PLAN OF EACH PRE-CAST BOX UNIT

TABLE-'X' RELATED DRAWINGS

S.No.	DESCRIPTION	DRAWING NO.
1.	GENERAL ARRANGEMENT	RDSO/B-10159
2.	BOX STRUCTURAL DESIGN DETAILS	RDSO/B-10159/1

R.D.S.O.

TYPICAL PLAN OF RCC SEGMENTAL BOX FOR RUB WITH FOOTPATH AND PROVISION FOR CUT & DROP WALL 6.00m(CLS) X 4.65m(ht) 0.5m EARTH FILL & CLEAR Ht. 4.50m 25t LOADING - 2008 BOX SEGMENTS & BASE SLAB

PROVISIONAL DATE:18.11.2015

RDSO/B-10159/2

IRS: BRIDGE SUB STRUCTURE & FOUNDATION CODE
IRS: BRIDGE RULES
IRS: CONCRETE BRIDGE CODE
IS: 456
IS: 1786

MILLIMETRES 200 0 200 400 600 800 1:20

NOTES | SPECIFICATION | SCALE | ALT | DESCRIPTION | DATE

CALCULATION REGISTER No.: CB/II/
PAGES
DONE BY-SHER SINGH(SSE/D/CB-II)
CHECKED BY-BINAY KUMAR(SSE/D/CB-II)
DRAWN BY- ANJANA BHASIN(SSE/D/CB-II)
CHECKED BY- SHER SINGH(SSE/D/CB-II)
SCRUTINISED & CHECKED BY
ADE/B&S/CB-II
SCRUTINISED/RECOMMENDED BY
DIRECTOR/B&S/CB-II
APPROVED BY
ED/STRUCTURES
FILE No. CBS/L.U.SW
NOTING PAGE No.- 11

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 10.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION
		2mX1.8m	2mX2.0m	2mX2.5m	2mX3.0m	2mX3.5m	2mX4.0m	3mX1.8m	3mX2.0m
1. REINFORCEMENT DETAILS	a1	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	b	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	12mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
	c	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 150mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	d	20mm DIA @ 150mm	20mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	20mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	20mm DIA @ 200mm	20mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	20mm DIA @ 200mm	20mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 350mm ALONG BARELL and @ 350mm ALONG SPAN	10mm Dia @ 350mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN
	g2	10mm Dia @ 350mm ALONG BARELL AND @ 350mm ALONG SPAN	10mm Dia @ 350mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN
	g3	10mm Dia @ 350mm ALONG BARELL & @ 350mm ALONG HEIGHT	10mm Dia @ 350mm ALONG BARELL & @ 300mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 300mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 250mm ALONG HEIGHT
	h	16mm DIA @ 250mm	12mm DIA @ 225mm	12mm DIA @ 200mm	16mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 200mm	16mm DIA @ 250mm
2. THICKNESS OF SLABS	TOP SLAB	35cm	35cm	45cm	45cm	50cm	55cm	50cm	50cm
	BOTTOM SLAB	35cm	35cm	45cm	45cm	50cm	60cm	60cm	60cm
	SIDE WALLS	35cm	35cm	45cm	45cm	50cm	65cm	60cm	60cm
3. MAX. FOUNDATION PRESSURE		150 kN/m²	240 kN/m²	310 kN/m²	320 kN/m²	330 kN/m²	330 kN/m²	350 kN/m²	290 kN/m²

DESCRIPTION OF DETAILS		3mX2.5m	3mX3.0m	3mX3.5m	3mX4.0m	3mX4.5m	3mX5.0m	3mX6.0m	4mX2.0m
1. REINFORCEMENT DETAILS	a1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm
	b	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	20mm DIA @ 150mm
	c	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 150mm	20mm DIA @ 200mm	20mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm
	d	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	e	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
	f1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 150mm	12mm DIA @ 150mm	12mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	60cm	60cm	65cm	65cm	65cm	70cm	65cm	65cm
	BOTTOM SLAB	60cm	60cm	65cm	65cm	65cm	70cm	65cm	65cm
	SIDE WALLS	60cm	60cm	65cm	65cm	65cm	70cm	65cm	65cm
3. MAX. FOUNDATION PRESSURE		300 kN/m²	310 kN/m²	320 kN/m²	330 kN/m²	340 kN/m²	350 kN/m²	350 kN/m²	330 kN/m²

DESCRIPTION OF DETAILS		4mX2.5m	4mX3.0m	4mX3.5m	4mX4.0m	4mX4.5m	4mX5.0m	4mX6.0m	5mX2.5m
1. REINFORCEMENT DETAILS	a1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	12mm DIA @ 200mm
	b	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	c	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 150mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	16mm DIA @ 200mm
	d	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	e	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm
	f1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	12mm DIA @ 150mm	12mm DIA @ 150mm	12mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	65cm	70cm	70cm	70cm	70cm	75cm	70cm	65cm
	BOTTOM SLAB	65cm	70cm	70cm	70cm	70cm	75cm	65cm	65cm
	SIDE WALLS	65cm	70cm	70cm	70cm	70cm	75cm	65cm	65cm
3. MAX. FOUNDATION PRESSURE		320 kN/m²	310 kN/m²	320 kN/m²	330 kN/m²	340 kN/m²	360 kN/m²	360 kN/m²	310 kN/m²

DESCRIPTION OF DETAILS		5mX3.0m	5mX3.5m	5mX4.0m	5mX4.5m	5mX5.0m	5mX6.0m
1. REINFORCEMENT DETAILS	a1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	b	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	c	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	d	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	e	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm
	f1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	12mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	80cm	80cm	80cm	80cm	90cm	90cm
	BOTTOM SLAB	80cm	80cm	80cm	80cm	90cm	90cm
	SIDE WALLS	80cm	80cm	80cm	80cm	90cm	90cm
3. MAX. FOUNDATION PRESSURE		320 kN/m²	330 kN/m²	340 kN/m²	340 kN/m²	360 kN/m²	360 kN/m²

DESCRIPTION OF DETAILS		6mX3.0m	6mX3.5m	6mX4.0m	6mX4.5m	6mX5.0m	6mX6.0m
1. REINFORCEMENT DETAILS	a1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	b	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	c	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	d	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	90cm	90cm	90cm	90cm	90cm	100cm
	BOTTOM SLAB	90cm	90cm	90cm	90cm	90cm	100cm
	SIDE WALLS	90cm	90cm	90cm	90cm	90cm	100cm
3. MAX. FOUNDATION PRESSURE		320 kN/m²	330 kN/m²	340 kN/m²	340 kN/m²	360 kN/m²	360 kN/m²

NOTES:

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155.

R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (STRUCTURAL DESIGN DETAILS FOR 10.0m FILL HEIGHT) 25t LOADING - 2008

PROVISIONAL DATE: 22.05.2013

RDSO/B-10155/9

NOTE

SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 0.0m to 10.0m FILL HEIGHT FOR 1.0mX1.2m & 2.0mX1.2m SPAN HEIGHT CONFIGURATION - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH x BOX HEIGHT CONFIGURATION (CLS X cht)	SPAN LENGTH x BOX HEIGHT CONFIGURATION (CLS X cht)	SPAN LENGTH x BOX HEIGHT CONFIGURATION (CLS X cht)	SPAN LENGTH x BOX HEIGHT CONFIGURATION (CLS X cht)	SPAN LENGTH x BOX HEIGHT CONFIGURATION (CLS X cht)	SPAN LENGTH x BOX HEIGHT CONFIGURATION (CLS X cht)
		FILL DEPTH = 0.0m		FILL DEPTH = 1.0m		FILL DEPTH = 2.0m	
		1m x 1.2m	2m x 1.2m	1m x 1.2m	2m x 1.2m	1m x 1.2m	2m x 1.2m
1. REINFORCEMENT DETAILS	a1	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	12mm DIA @ 100mm	12mm DIA @ 100mm	16mm DIA @ 100mm
	c	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	d	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	16mm DIA @ 100mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	f2	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm
2. THICKNESS	TOP SLAB	35cm	38cm	35cm	38cm	35cm	38cm
	BOTTOM SLAB	35cm	38cm	35cm	38cm	35cm	38cm
	SIDE WALLS	35cm	38cm	35cm	38cm	35cm	38cm
3. MAX. FOUNDATION PRESSURE		170 kN/m²	120 kN/m²	150 kN/m²	110 kN/m²	160 kN/m²	130 kN/m²

DESCRIPTION OF DETAILS		FILL DEPTH = 3.0m		FILL DEPTH = 4.0m		FILL DEPTH = 5.0m	
		1m x 1.2m	2m x 1.2m	1m x 1.2m	2m x 1.2m	1m x 1.2m	2m x 1.2m
1. REINFORCEMENT DETAILS	a1	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	16mm DIA @ 100mm
	c	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	d	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	16mm DIA @ 100mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	f2	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm
2. THICKNESS	TOP SLAB	35cm	38cm	35cm	38cm	35cm	38cm
	BOTTOM SLAB	35cm	38cm	35cm	38cm	35cm	38cm
	SIDE WALLS	35cm	38cm	35cm	38cm	35cm	38cm
3. MAX. FOUNDATION PRESSURE		170 kN/m²	140 kN/m²	180 kN/m²	150 kN/m²	190 kN/m²	170 kN/m²

DESCRIPTION OF DETAILS		FILL DEPTH = 6.0m		FILL DEPTH = 8.0m		FILL DEPTH = 10.0m	
		1m x 1.2m	2m x 1.2m	1m x 1.2m	2m x 1.2m	1m x 1.2m	2m x 1.2m
1. REINFORCEMENT DETAILS	a1	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	20mm DIA @ 200mm	12mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	16mm DIA @ 100mm
	c	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	d	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	16mm DIA @ 100mm	12mm DIA @ 100mm	20mm DIA @ 100mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	20mm DIA @ 200mm	12mm DIA @ 200mm	20mm DIA @ 200mm
	f2	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	20mm DIA @ 200mm	12mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARREL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm
2. THICKNESS	TOP SLAB	35cm	38cm	35cm	38cm	35cm	38cm
	BOTTOM SLAB	35cm	38cm	35cm	35cm	35cm	38cm
	SIDE WALLS	35cm	38cm	35cm	38cm	35cm	38cm
3. MAX. FOUNDATION PRESSURE		210 kN/m²	180 kN/m²	240 kN/m²	200 kN/m²	270 kN/m²	280 kN/m²

NOTES:

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155

R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° FOR 1.0m X 1.2m & 2.0m X 1.2m SPAN HEIGHT CONFIGURATION (STRUCTURAL DESIGN DETAILS FOR 0.0 TO 10.0m FILL HEIGHT) 25t LOADING - 2008

PROVISIONAL DATE:28.02.2014

RDSO/B-10155/10

NOTE

SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

CALCULATION REGISTER - CB-II/36

B&S DIRECTORATE
CAL. REG.No.: CB-II/36

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 8.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION
		2mX1.8m	2mX2.0m	2mX2.5m	2mX3.0m	2mX3.5m	2mX4.0m	3mX1.8m	3mX2.0m
1.REINFORCEMENT DETAILS	a1	16mm DIA @ 250mm	16mm DIA @ 200mm	16mm DIA @ 250mm	20mm DIA @ 250mm	12mm DIA @ 250mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 250mm	12mm DIA @ 200mm	16mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	16mm DIA @ 150mm	16mm DIA @ 100mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	c	16mm DIA @ 250mm	16mm DIA @ 200mm	16mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm
	d	16mm DIA @ 150mm	16mm DIA @ 100mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	e	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 250mm	12mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	16mm DIA @ 250mm	16mm DIA @ 200mm	16mm DIA @ 250mm	20mm DIA @ 250mm	20mm DIA @ 250mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	16mm DIA @ 250mm	16mm DIA @ 200mm	16mm DIA @ 250mm	20mm DIA @ 250mm	20mm DIA @ 250mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 250mm	10mm DIA @ 200mm	10mm DIA @ 250mm	10mm DIA @ 250mm	10mm DIA @ 250mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm
2. THICKNESS OF SLABS	TOP SLAB	35cm	35cm	35cm	45cm	45cm	45cm	45cm	45cm
	BOTTOM SLAB	35cm	35cm	35cm	45cm	45cm	45cm	45cm	45cm
	SIDE WALLS	35cm	35cm	35cm	45cm	45cm	45cm	45cm	45cm
3. MAX. FOUNDATION PRESSURE		200 kN/m²	250 kN/m²	270 kN/m²	300 kN/m²	300 kN/m²	310 kN/m²	250 kN/m²	250 kN/m²

DESCRIPTION OF DETAILS		3mX2.5m	3mX3.0m	3mX3.5m	3mX4.0m	3mX4.5m	3mX5.0m	3mX6.0m	4mX2.0m
1.REINFORCEMENT DETAILS	a1	20mm DIA @ 250mm	20mm DIA @ 200mm	20mm DIA @ 250mm	25mm DIA @ 250mm	12mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	a2	12mm DIA @ 250mm	16mm DIA @ 200mm	16mm DIA @ 250mm	16mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 200mm	25mm DIA @ 200mm	12mm DIA @ 200mm
	b	20mm DIA @ 150mm	20mm DIA @ 100mm	20mm DIA @ 150mm	25mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 200mm	25mm DIA @ 150mm
	c	16mm DIA @ 250mm	20mm DIA @ 200mm	20mm DIA @ 250mm	25mm DIA @ 250mm	16mm DIA @ 250mm	20mm DIA @ 200mm	25mm DIA @ 200mm	16mm DIA @ 200mm
	d	20mm DIA @ 150mm	20mm DIA @ 100mm	20mm DIA @ 150mm	25mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 100mm	12mm DIA @ 200mm
	f1	25mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 150mm	25mm DIA @ 250mm	16mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	25mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 250mm	20mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 250mm	10mm DIA @ 200mm	10mm DIA @ 250mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	45cm	45cm	45cm	55cm	55cm	55cm	65cm	55cm
	BOTTOM SLAB	45cm	45cm	45cm	55cm	55cm	55cm	65cm	55cm
	SIDE WALLS	45cm	45cm	45cm	55cm	55cm	55cm	65cm	55cm
3. MAX. FOUNDATION PRESSURE		330 kN/m²	270 kN/m²	280 kN/m²	290 kN/m²	300 kN/m²	310 kN/m²	340 kN/m²	360 kN/m²

DESCRIPTION OF DETAILS		4mX2.5m	4mX3.0m	4mX3.5m	4mX4.0m	4mX4.5m	4mX5.0m	4mX6.0m	5mX2.5m
1.REINFORCEMENT DETAILS	a1	25mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 250mm	25mm DIA @ 250mm	16mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	a2	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	16mm DIA @ 200mm	25mm DIA @ 200mm	12mm DIA @ 200mm
	b	25mm DIA @ 150mm	25mm DIA @ 100mm	25mm DIA @ 150mm	25mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	c	16mm DIA @ 250mm	16mm DIA @ 200mm	20mm DIA @ 250mm	20mm DIA @ 250mm	20mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 200mm	16mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 125mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 125mm	25mm DIA @ 150mm
	e	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 150mm	20mm DIA @ 150mm	12mm DIA @ 200mm
	f1	25mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	25mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 250mm	10mm DIA @ 200mm	10mm DIA @ 250mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	55cm	60cm	60cm	65cm	65cm	65cm	70cm	75cm
	BOTTOM SLAB	55cm	60cm	60cm	65cm	65cm	65cm	70cm	75cm
	SIDE WALLS	55cm	60cm	60cm	65cm	65cm	65cm	70cm	75cm
3. MAX. FOUNDATION PRESSURE		320 kN/m²	330 kN/m²	340 kN/m²	350 kN/m²	360 kN/m²	370 kN/m²	390 kN/m²	370 kN/m²

DESCRIPTION OF DETAILS		5mX3.0m	5mX3.5m	5mX4.0m	5mX4.5m	5mX5.0m	5mX6.0m
1.REINFORCEMENT DETAILS	a1	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 200mm	16mm DIA @ 200mm	28mm DIA @ 200mm
	a2	12mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	b	28mm DIA @ 150mm	28mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	20mm DIA @ 150mm	28mm DIA @ 150mm
	c	16mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 250mm	25mm DIA @ 200mm	28mm DIA @ 200mm
	d	28mm DIA @ 150mm	28mm DIA @ 150mm	28mm DIA @ 150mm	28mm DIA @ 150mm	28mm DIA @ 150mm	28mm DIA @ 150mm
	e	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 150mm
	f1	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 200mm	28mm DIA @ 200mm	28mm DIA @ 200mm	28mm DIA @ 200mm
	f2	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 200mm	28mm DIA @ 200mm	28mm DIA @ 200mm	28mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	75cm	75cm	75cm	75cm	75cm	75cm
	BOTTOM SLAB	75cm	75cm	75cm	75cm	75cm	75cm
	SIDE WALLS	75cm	75cm	75cm	75cm	75cm	75cm
3. MAX. FOUNDATION PRESSURE		280 kN/m²	300 kN/m²	310 kN/m²	320 kN/m²	330 kN/m²	330 kN/m²

DESCRIPTION OF DETAILS		6mX3.0m	6mX3.5m	6mX4.0m	6mX4.5m	6mX5.0m	6mX6.0m
1.REINFORCEMENT DETAILS	a1	32mm DIA @ 300mm	32mm DIA @ 250mm	32mm DIA @ 250mm	32mm DIA @ 250mm	16mm DIA @ 200mm	28mm DIA @ 200mm
	a2	12mm DIA @ 300mm	12mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	b	28mm DIA @ 150mm	28mm DIA @ 150mm	28mm DIA @ 150mm	28mm DIA @ 150mm	20mm DIA @ 150mm	28mm DIA @ 150mm
	c	16mm DIA @ 300mm	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 250mm	25mm DIA @ 200mm	28mm DIA @ 200mm
	d	28mm DIA @ 150mm	28mm DIA @ 150mm	28mm DIA @ 150mm	28mm DIA @ 150mm	28mm DIA @ 150mm	28mm DIA @ 150mm
	e	12mm DIA @ 300mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 200mm	16mm DIA @ 150mm
	f1	32mm DIA @ 300mm	32mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 200mm	32mm DIA @ 200mm
	f2	32mm DIA @ 300mm	32mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 200mm	32mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	85cm	90cm	90cm	90cm	90cm	90cm
	BOTTOM SLAB	85cm	90cm	90cm	90cm	90cm	90cm
	SIDE WALLS	85cm	90cm	90cm	90cm	90cm	90cm
3. MAX. FOUNDATION PRESSURE		280 kN/m²	280 kN/m²	300 kN/m²	310 kN/m²	320 kN/m²	330 kN/m²

NOTES:

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155.

R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (STRUCTURAL DESIGN DETAILS FOR 8.0m FILL HEIGHT) 25t LOADING - 2008

PROVISIONAL DATE: 22.05.2013

RDSO/B-10155/8

NOTE	SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 10.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX1.8m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX2.0m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX2.5m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX3.0m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX3.5m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX4.0m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 3mX1.8m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 3mX2.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		3mX2.5m	3mX3.0m	3mX3.5m	3mX4.0m	3mX4.5m	3mX5.0m	3mX6.0m	4mX2.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		4mX2.5m	4mX3.0m	4mX3.5m	4mX4.0m	4mX4.5m	4mX5.0m	4mX6.0m	5mX2.5m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		5mX3.0m	5mX3.5m	5mX4.0m	5mX4.5m	5mX5.0m	5mX6.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		6mX3.0m	6mX3.5m	6mX4.0m	6mX4.5m	6mX5.0m	6mX6.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTES

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155

R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (STRUCTURAL DESIGN DETAILS FOR 10.0m FILL HEIGHT) 25t LOADING – 2008

PROVISIONAL DATE: 22.05.2013

NOTE	SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

RDSO/B-10155/9

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 5.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX1.8m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX2.0m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX2.5m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX3.0m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX3.5m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX4.0m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 3mX1.8m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 3mX2.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	35cm	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	35cm	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	35cm	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		3mX2.5m	3mX3.0m	3mX3.5m	3mX4.0m	3mX4.5m	3mX5.0m	3mX6.0m	4mX2.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		4mX2.5m	4mX3.0m	4mX3.5m	4mX4.0m	4mX4.5m	4mX5.0m	4mX6.0m	5mX2.5m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		5mX3.0m	5mX3.5m	5mX4.0m	5mX4.5m	5mX5.0m	5mX6.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		6mX3.0m	6mX3.5m	6mX4.0m	6mX4.5m	6mX5.0m	6mX6.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTES:

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155

R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (STRUCTURAL DESIGN DETAILS FOR 5.0m FILL HEIGHT) 25t LOADING – 2008

PROVISIONAL DATE: 22.05.2013

NOTE	SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

RDSO/B-10155/6

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 6.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION
		2mX1.8m	2mX2.0m	2mX2.5m	2mX3.0m	2mX3.5m	2mX4.0m	3mX1.8m	3mX2.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		3mX2.5m	3mX3.0m	3mX3.5m	3mX4.0m	3mX4.5m	3mX5.0m	3mX6.0m	4mX2.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		4mX2.5m	4mX3.0m	4mX3.5m	4mX4.0m	4mX4.5m	4mX5.0m	4mX6.0m	5mX2.5m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		5mX3.0m	5mX3.5m	5mX4.0m	5mX4.5m	5mX5.0m	5mX6.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		6mX3.0m	6mX3.5m	6mX4.0m	6mX4.5m	6mX5.0m	6mX6.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTES:

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155.

R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (STRUCTURAL DESIGN DETAILS FOR 6.0m FILL HEIGHT) 25t LOADING - 2008

PROVISIONAL — DATE: 22.05.2013

NOTE	SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

RDSO/B-10155/7

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 3.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION
		2mX1.8m	2mX2.0m	2mX2.5m	2mX3.0m	2mX3.5m	2mX4.0m	3mX1.8m	3mX2.0m
1.REINFORCEMENT DETAILS	a1	10mm DIA @ 250mm	10mm DIA @ 250mm	10mm DIA @ 250mm	16mm DIA @ 200mm	10mm DIA @ 250mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	10mm DIA @ 100mm	10mm DIA @ 100mm	10mm DIA @ 100mm	16mm DIA @ 100mm	10mm DIA @ 100mm	12mm DIA @ 100mm	15mm DIA @ 100mm	16mm DIA @ 100mm
	c	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	d	10mm DIA @ 100mm	10mm DIA @ 100mm	10mm DIA @ 100mm	16mm DIA @ 100mm	10mm DIA @ 100mm	16mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 100mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 180mm	16mm DIA @ 180mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL & @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN
	g3	10mm Dia @ 300mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 300mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	16mm Dia @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG HEIGHT	10mm Dia @ 100mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 250mm	10mm DIA @ 250mm	10mm DIA @ 250mm	10mm DIA @ 200mm	10mm DIA @ 200mm	12mm DIA @180mm	10mm DIA @ 200mm	10mm DIA @ 200mm
2. THICKNESS OF SLABS	TOP SLAB	35cm	35 cm	35cm	45cm	35cm	35cm	45cm	45cm
	BOTTOM SLAB	35cm	35cm	35cm	45cm	35cm	35cm	45cm	45cm
	SIDE WALLS	35cm	35cm	35cm	45cm	35cm	35cm	45cm	45cm
3. MAX. FOUNDATION PRESSURE		210 kN/m^2	210 kN/m^2	220 kN/m^2	230 kN/m^2	240 kN/m^2	240 kN/m^2	190 kN/m^2	190 kN/m^2

DESCRIPTION OF DETAILS		3mX2.5m	3mX3.0m	3mX3.5m	3mX4.0m	3mX4.5m	3mX5.0m	3mX6.0m	4mX2.0m
1.REINFORCEMENT DETAILS	a1	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 150mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	16mm DIA @ 150mm	20mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	20mm DIA @ 150mm	16mm DIA @ 150mm	20mm DIA @ 150mm
	c	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm
	d	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	25mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN
	g2	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 300mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 300mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 250mm	10mm DIA @ 250mm	10mm DIA @ 250mm	10mm DIA @ 150mm	10mm DIA @ 150mm	12mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	40cm	40cm	40cm	47cm	45cm	45cm	50cm	45cm
	BOTTOM SLAB	40cm	40cm	40cm	47cm	45cm	45cm	50cm	47cm
	SIDE WALLS	40cm	40cm	40cm	47cm	45cm	45cm	50cm	45cm
3. MAX. FOUNDATION PRESSURE		190 kN/m^2	200 kN/m^2	210 kN/m^2	220 kN/m^2	230 kN/m^2	240 kN/m^2	270 kN/m^2	180 kN/m^2

DESCRIPTION OF DETAILS		4mX2.5m	4mX3.0m	4mX3.5m	4mX4.0m	4mX4.5m	4mX5.0m	4mX6.0m	5mX2.5m
1.REINFORCEMENT DETAILS	a1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm
	b	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	c	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm
	f1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN
	g2	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 250mm ALONG HEIGHT
	h	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	45cm	45cm	50cm	50cm	50cm	55cm	55cm	50cm
	BOTTOM SLAB	45cm	45cm	50cm	50cm	50cm	55cm	55cm	55cm
	SIDE WALLS	45cm	45cm	50cm	50cm	50cm	55cm	55cm	55cm
3. MAX. FOUNDATION PRESSURE		180 kN/m^2	190 kN/m^2	210 kN/m^2	210 kN/m^2	220 kN/m^2	230 kN/m^2	260 kN/m^2	160 kN/m^2

DESCRIPTION OF DETAILS		5mX3.0m	5mX3.5m	5mX4.0m	5mX4.5m	5mX5.0m	5mX6.0m
1.REINFORCEMENT DETAILS	a1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm
	b	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	c	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm
	f1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 300mm ALONG SPAN
	g2	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN
	g3	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 250mm ALONG HEIGHT
	h	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	12mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	55cm	55cm	60cm	60cm	60cm	65cm
	BOTTOM SLAB	55cm	55cm	60cm	60cm	60cm	65cm
	SIDE WALLS	55cm	55cm	60cm	60cm	60cm	65cm
3. MAX. FOUNDATION PRESSURE		200 kN/m^2	210 kN/m^2	210 kN/m^2	220 kN/m^2	230 kN/m^2	260 kN/m^2

NOTES:

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155

R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (STRUCTURAL DESIGN DETAILS FOR 3.0m FILL HEIGHT) 25t LOADING – 2008

PROVISIONAL DATE: 22.05.2013

RDSO/B-10155/4

NOTE	SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 4.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION
		2mX1.8m	2mX2.0m	2mX2.5m	2mX3.0m	2mX3.5m	2mX4.0m	3mX1.8m	3mX2.0m
1.REINFORCEMENT DETAILS	a1	10mm DIA @ 350mm	10mm DIA @ 350mm	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 350mm	12mm DIA @ 350mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	16mm DIA @ 350mm	16mm DIA @ 350mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
	c	12mm DIA @ 350mm	12mm DIA @ 350mm	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm
	d	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	e	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 150mm	12mm DIA @ 150mm	16mm DIA @ 150mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	16mm DIA @ 350mm	16mm DIA @ 350mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	16mm DIA @ 350mm	16mm DIA @ 350mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 250mm	10mm DIA @ 250mm	12mm DIA @ 225mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	10mm DIA @150mm	10mm DIA @ 200mm
2. THICKNESS OF SLABS	TOP SLAB	35cm	35cm	35cm	35cm	35cm	55cm	45cm	45cm
	BOTTOM SLAB	35cm	35cm	35cm	35cm	35cm	55cm	45cm	45cm
	SIDE WALLS	35cm	35cm	35cm	35cm	35cm	55cm	45cm	45cm
3. MAX. FOUNDATION PRESSURE		216 kN/m²	233 kN/m²	233 kN/m²	240 kN/m²	240 kN/m²	255 kN/m²	198 kN/m²	198 kN/m²

DESCRIPTION OF DETAILS		3mX2.5m	3mX3.0m	3mX3.5m	3mX4.0m	3mX4.5m	3mX5.0m	3mX6.0m	4mX2.0m
1.REINFORCEMENT DETAILS	a1	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	25mm DIA @ 150mm
	c	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm
	d	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	12mm DIA @ 200mm
	f1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 200mm	10mm DIA @ 200mm	10mm DIA @ 200mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	45cm	45cm	45cm	55cm	55cm	55cm	55cm	55cm
	BOTTOM SLAB	45cm	45cm	45cm	55cm	55cm	55cm	55cm	55cm
	SIDE WALLS	45cm	45cm	45cm	55cm	55cm	55cm	55cm	55cm
3. MAX. FOUNDATION PRESSURE		209 kN/m²	209 kN/m²	220 kN/m²	220 kN/m²	240 kN/m²	240 kN/m²	279 kN/m²	198 kN/m²

DESCRIPTION OF DETAILS		4mX2.5m	4mX3.0m	4mX3.5m	4mX4.0m	4mX4.5m	4mX5.0m	4mX6.0m	5mX2.5m
1.REINFORCEMENT DETAILS	a1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	25mm DIA @ 150mm
	c	12mm DIA @ 200mm	12mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	12mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 150mm	12mm DIA @ 150mm	12mm DIA @ 150mm	16mm DIA @ 150mm	12mm DIA @ 200mm
	f1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 100mm ALONG BARELL AND @ 100mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 100mm ALONG BARELL & @ 100mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 200mm	10mm DIA @ 200mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	45cm	45cm	55cm	55cm	55cm	55cm	55cm	55cm
	BOTTOM SLAB	45cm	45cm	55cm	55cm	55cm	55cm	55cm	55cm
	SIDE WALLS	45cm	45cm	55cm	55cm	55cm	55cm	55cm	55cm
3. MAX. FOUNDATION PRESSURE		220 kN/m²	220 kN/m²	220 kN/m²	220 kN/m²	240 kN/m²	240 kN/m²	279 kN/m²	209 kN/m²

DESCRIPTION OF DETAILS		5mX3.0m	5mX3.5m	5mX4.0m	5mX4.5m	5mX5.0m	5mX6.0m
1.REINFORCEMENT DETAILS	a1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	b	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	c	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	25mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 150mm
	f1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	60cm	60cm	60cm	60cm	60cm	60cm
	BOTTOM SLAB	60cm	60cm	60cm	60cm	60cm	60cm
	SIDE WALLS	60cm	60cm	60cm	60cm	60cm	60cm
3. MAX. FOUNDATION PRESSURE		210 kN/m²	220 kN/m²	220 kN/m²	238 kN/m²	248 kN/m²	300 kN/m²

DESCRIPTION OF DETAILS		6mX3.0m	6mX3.5m	6mX4.0m	6mX4.5m	6mX5.0m	6mX6.0m
1.REINFORCEMENT DETAILS	a1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	c	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 150mm
	f1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	70cm	70cm	70cm	70cm	70cm	70cm
	BOTTOM SLAB	70cm	70cm	70cm	70cm	70cm	70cm
	SIDE WALLS	70cm	70cm	70cm	70cm	70cm	70cm
3. MAX. FOUNDATION PRESSURE		210 kN/m²	220 kN/m²	220 kN/m²	238 kN/m²	248 kN/m²	300 kN/m²

NOTES

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155.

R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (STRUCTURAL DESIGN DETAILS FOR 4.0m FILL HEIGHT) 25t LOADING - 2008

PROVISIONAL DATE: 22.05.2013

RDSO/B-10155/5

NOTE

SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 1.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION
		2mX1.8m	2mX2.0m	2mX2.5m	2mX3.0m	2mX3.5m	2mX4.0m	3mX1.8m	3mX2.0m
1.REINFORCEMENT DETAILS	a1	12mm DIA @ 300mm	12mm DIA @ 300mm	12mm DIA @ 300mm	12mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 250mm	25mm DIA @ 250mm	25mm DIA @ 250mm
	a2	12mm DIA @ 300mm	12mm DIA @ 300mm	12mm DIA @ 300mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm
	b	12mm DIA @ 150mm	12mm DIA @ 150mm	12mm DIA @ 100mm	12mm DIA @ 100mm	12mm DIA @ 100mm	12mm DIA @ 100mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	c	12mm DIA @ 300mm	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 250mm	12mm DIA @ 250mm
	d	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 100mm	12mm DIA @ 150mm	12mm DIA @ 250mm	12mm DIA @ 250mm
	f1	16mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 250mm	25mm DIA @ 250mm	25mm DIA @ 250mm
	f2	16mm DIA @ 250mm	16mm DIA @ 250mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 250mm	25mm DIA @ 250mm	25mm DIA @ 250mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	16mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN
	g2	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	16mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	16mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	16mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 250mm	10mm DIA @ 250mm	10mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	10mm DIA @ 250mm	10mm DIA @ 250mm
2. THICKNESS OF SLABS	TOP SLAB	35cm	35cm	35cm	35cm	35cm	35cm	40cm	40cm
	BOTTOM SLAB	35cm	35cm	35cm	35cm	35cm	35cm	40cm	40cm
	SIDE WALLS	35cm	35cm	35cm	35cm	35cm	35cm	40cm	40cm
3. MAX. FOUNDATION PRESSURE		170 kN/m²	170 kN/m²	180 kN/m²	180 kN/m²	210 kN/m²	210 kN/m²	170 kN/m²	180 kN/m²

DESCRIPTION OF DETAILS		3mX2.5m	3mX3.0m	3mX3.5m	3mX4.0m	3mX4.5m	3mX5.0m	3mX6.0m	4mX2.0m
1.REINFORCEMENT DETAILS	a1	20mm DIA @ 300mm	20mm DIA @ 300mm	25mm DIA @ 300mm	20mm DIA @ 300mm	20mm DIA @ 300mm	20mm DIA @ 250mm	25mm DIA @ 250mm	25mm DIA @ 250mm
	a2	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm
	b	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 100mm	20mm DIA @ 100mm	16mm DIA @ 100mm	20mm DIA @ 150mm	16mm DIA @ 150mm	25mm DIA @ 150mm
	c	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	12mm DIA @ 250mm	12mm DIA @ 250mm
	d	20mm DIA @ 150mm	20mm DIA @ 150mm	25mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 150mm	20mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 150mm	12mm DIA @ 150mm	16mm DIA @ 150mm	12mm DIA @ 150mm	12mm DIA @ 200mm
	f1	20mm DIA @ 250mm	20mm DIA @ 250mm	25mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 250mm	20mm DIA @ 250mm	25mm DIA @ 200mm
	f2	20mm DIA @ 250mm	20mm DIA @ 250mm	25mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 250mm	20mm DIA @ 250mm	25mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	16mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	16mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	16mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	16mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	12mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	16mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 250mm	10mm DIA @ 250mm	10mm DIA @ 250mm	12mm DIA @ 150mm	12mm DIA @ 150mm	12mm DIA @ 150mm	10mm DIA @ 150mm	12mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	40cm	40cm	45cm	45cm	45cm	45cm	50cm	45cm
	BOTTOM SLAB	40cm	40cm	45cm	45cm	45cm	45cm	50cm	45cm
	SIDE WALLS	40cm	40cm	45cm	45cm	45cm	45cm	50cm	45cm
3. MAX. FOUNDATION PRESSURE		200 kN/m²	210 kN/m²	220 kN/m²	220 kN/m²	220 kN/m²	240 kN/m²	270 kN/m²	180 kN/m²

DESCRIPTION OF DETAILS		4mX2.5m	4mX3.0m	4mX3.5m	4mX4.0m	4mX4.5m	4mX5.0m	4mX6.0m	5mX2.5m
1.REINFORCEMENT DETAILS	a1	25mm DIA @ 250mm	25mm DIA @ 250mm	28mm DIA @ 250mm	25mm DIA @ 250mm	25mm DIA @ 250mm	30mm DIA @ 250mm	25mm DIA @ 250mm	28mm DIA @ 250mm
	a2	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	16mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm
	b	20mm DIA @ 150mm	20mm DIA @ 150mm	25mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 150mm	20mm DIA @ 150mm	25mm DIA @ 150mm
	c	12mm DIA @ 250mm	12mm DIA @ 250mm	16mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 100mm	25mm DIA @ 100mm	20mm DIA @ 100mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @200mm	16mm DIA @ 200mm	12mm DIA @ 150mm	12mm DIA @ 200mm
	f1	25mm DIA @ 250mm	25mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 250mm	25mm DIA @ 250mm	28mm DIA @ 200mm
	f2	25mm DIA @ 250mm	25mm DIA @ 250mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 250mm	25mm DIA @ 250mm	28mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	16mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	16mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 250mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	12mm DIA @ 100mm	12mm DIA @ 100mm	12mm DIA @ 100mm	10mm DIA @ 150mm	12mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	45cm	45cm	50cm	50cm	50cm	50cm	55cm	50cm
	BOTTOM SLAB	45cm	45cm	50cm	50cm	50cm	50cm	55cm	50cm
	SIDE WALLS	45cm	45cm	50cm	50cm	50cm	50cm	55cm	50cm
3. MAX. FOUNDATION PRESSURE		190 kN/m²	200 kN/m²	210 kN/m²	220 kN/m²	220 kN/m²	230 kN/m²	250 kN/m²	180 kN/m²

DESCRIPTION OF DETAILS		5mX3.0m	5mX3.5m	5mX4.0m	5mX4.5m	5mX5.0m	5mX6.0m
1.REINFORCEMENT DETAILS	a1	25mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 250mm	25mm DIA @ 200mm	30mm DIA @ 200mm	25mm DIA @ 200mm
	a2	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	25mm DIA @ 150mm	25mm DIA @ 150mm	28mm DIA @ 100mm	25mm DIA @ 100mm	20mm DIA @ 100mm	25mm DIA @ 150mm
	c	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 150mm	28mm DIA @ 100mm	25mm DIA @ 100mm	25mm DIA @ 100mm	25mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	25mm DIA @ 250mm	25mm DIA @ 250mm	25mm DIA @ 250mm	25mm DIA @ 200mm	28mm DIA @ 200mm	28mm DIA @ 200mm
	f2	25mm DIA @ 250mm	25mm DIA @ 250mm	28mm DIA @ 250mm	25mm DIA @ 200mm	28mm DIA @ 200mm	28mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	12mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	16mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	16mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 150mm	10mm DIA @ 150mm	12mm DIA @ 100mm	12mm DIA @ 100mm	12mm DIA @ 100mm	12mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	55cm	55cm	55cm	60cm	60cm	60cm
	BOTTOM SLAB	55cm	55cm	55cm	60cm	60cm	60cm
	SIDE WALLS	55cm	55cm	55cm	60cm	60cm	60cm
3. MAX. FOUNDATION PRESSURE		190 kN/m²	200 kN/m²	210 kN/m²	220 kN/m²	230 kN/m²	240 kN/m²

DESCRIPTION OF DETAILS		6mX3.0m	6mX3.5m	6mX4.0m	6mX4.5m	6mX5.0m	6mX6.0m
1.REINFORCEMENT DETAILS	a1	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 250mm	25mm DIA @ 200mm	30mm DIA @ 200mm	25mm DIA @ 200mm
	a2	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 250mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	b	25mm DIA @ 150mm	25mm DIA @ 150mm	28mm DIA @ 100mm	25mm DIA @ 100mm	20mm DIA @ 100mm	25mm DIA @ 150mm
	c	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 150mm	28mm DIA @ 100mm	28mm DIA @ 100mm	28mm DIA @ 100mm	28mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 200mm	36mm DIA @ 200mm	36mm DIA @ 200mm
	f2	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 250mm	28mm DIA @ 200mm	36mm DIA @ 200mm	36mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 250mm ALONG BARELL AND @ 250mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	16mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 250mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	12mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	16mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	16mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	10mm DIA @ 150mm	10mm DIA @ 150mm	10mm DIA @ 150mm	12mm DIA @ 100mm	12mm DIA @ 100mm	12mm DIA @ 100mm
2. THICKNESS OF SLABS	TOP SLAB	60cm	60cm	60cm	65cm	65cm	65cm
	BOTTOM SLAB	60cm	60cm	60cm	65cm	65cm	65cm
	SIDE WALLS	60cm	60cm	60cm	65cm	65cm	65cm
3. MAX. FOUNDATION PRESSURE		190 kN/m²	190 kN/m²	200 kN/m²	210 kN/m²	210 kN/m²	220 kN/m²

NOTES

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155

R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (STRUCTURAL DESIGN DETAILS FOR 1.0m FILL HEIGHT) 25t LOADING - 2008

PROVISIONAL DATE: 22.05.2013

RDSO/B-10155/2

NOTE	SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 2.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX1.8m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX2.0m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX2.5m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX3.0m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX3.5m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 2mX4.0m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 3mX1.8m	SPAN LENGTH X BOX HEIGHT CONFIGURATION 3mX2.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		3mX2.5m	3mX3.0m	3mX3.5m	3mX4.0m	3mX4.5m	3mX5.0m	3mX6.0m	4mX2.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		4mX2.5m	4mX3.0m	4mX3.5m	4mX4.0m	4mX4.5m	4mX5.0m	4mX6.0m	5mX2.5m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		5mX3.0m	5mX3.5m	5mX4.0m	5mX4.5m	5mX5.0m	5mX6.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DESCRIPTION OF DETAILS		6mX3.0m	6mX3.5m	6mX4.0m	6mX4.5m	6mX5.0m	6mX6.0m
1. REINFORCEMENT DETAILS	a1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	a2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	c	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	e	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	f2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	g3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	h	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2. THICKNESS OF SLABS	TOP SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	BOTTOM SLAB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	SIDE WALLS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. MAX. FOUNDATION PRESSURE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTES:

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155.

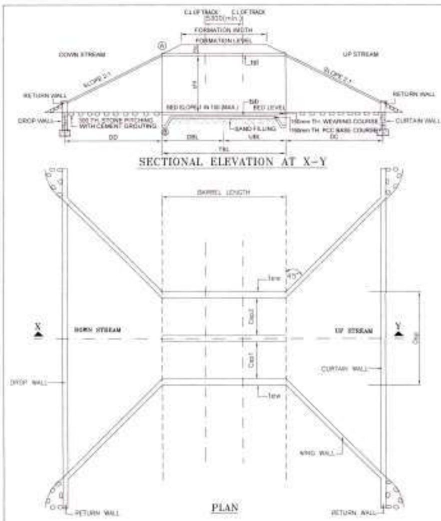
R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (STRUCTURAL DESIGN DETAILS FOR 2.0m FILL HEIGHT) 25t LOADING - 2008

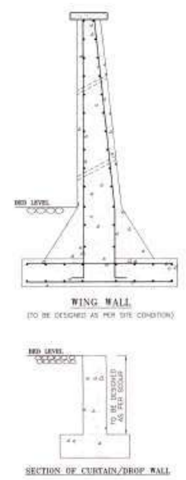
PROVISIONAL DATE: 22.05.2013

RDSO/B-10155/3

NOTE	SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

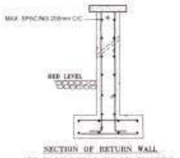


SECTIONAL ELEVATION AT X-Y

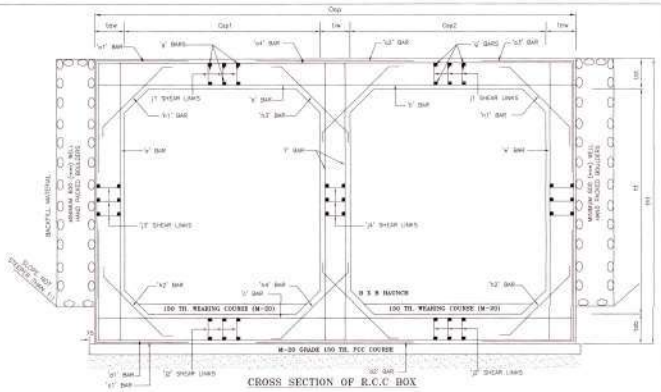


WING WALL
(TO BE DESIGNED AS PER SITE CONDITION)

SECTION OF CURTAIN/DROP WALL



SECTION OF RETURN WALL
(TO BE DESIGNED AS PER SITE CONDITION)



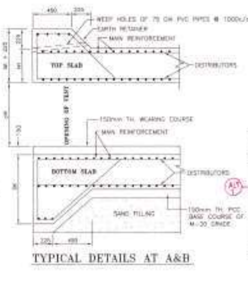
CROSS SECTION OF R.C.C BOX

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. THIS DRAWING IS SUITABLE FOR SINGLE AS WELL AS DOUBLE LINE TRACK CURVE UPTO 10 DEGREE ONLY.
3. MINIMUM SPACING OF TRACKS IS ASSUMED AS 5.3m IN DESIGN WHICH MAY BE SUITABLY INCREASED AS PER REQUIREMENTS OF CURVE.
4. PREPARATION OF BED BELOW 150mm THICK BASE COURSE SHOULD BE BASED ON ACTUAL SITE CONDITION IN ORDER TO ACHIEVE THE ADEQUATE BEARING CAPACITY REQUIRED TO WITHSTAND THE FOUNDATION PRESSURE GIVEN IN TABLE OF REFERENCE DRAWINGS.
5. REINFORCEMENT DETAILS, SLAB THICKNESS DETAILS AND FOUNDATION PRESSURE FOR VARIOUS FILL HEIGHTS HAVE BEEN GIVEN IN REFERENCE DRAWINGS.
6. THIS DESIGN IS SUITABLE FOR 25t LOADING-2008.
7. ~~HYSD/TMT (i.e. Fe 415/Fe500) BARS CONFORMING TO IS:1786-2008 SHALL BE USED AS REINFORCEMENT~~
8. DESIGN CRITERIA IS BASED ON FOLLOWING IRS CODES:
   i) IRS BRIDGE RULES
   ii) IRS CONCRETE BRIDGE CODE
   iii) IRS BRIDGE SUBSTRUCTURE & FOUNDATION CODE
9. LAPPING OF BARS SHOULD BE MINIMISED AND STAGGERED WHEREVER NECESSARY. MINIMUM LENGTH OF LAP SHALL BE AS GIVEN IN IRS CONCRETE BRIDGE CODE FOR TOR STEEL.
10. BACK FILL MATERIAL SHOULD BE AS PER CLAUSE 7.5 OF IRS BRIDGE SUBSTRUCTURES & FOUNDATION CODE.
11. ALL R.C.C SURFACES COMING IN CONTACT WITH SOIL SHOULD BE PAINTED WITH BITUMEN OR COALTAR OF APPROVED QUALITY @ 1.464 KG/SQM.
12. CLEAR COVER FOR REINFORCING BARS SHOULD BE 50mm.
13. SCHEMATIC WING WALL AND RETURN WALL ARE GIVEN. HOWEVER, WING WALL AND RETURN WALL SHOULD BE DESIGNED SUITABLY BY ZONAL RAILWAYS AS PER SITE CONDITIONS.
14. i) BARREL LENGTH OF BOX CULVERT SHALL BE DECIDED BASED ON FILL HEIGHT ON THE BOX AS PER CROSS SECTION SHOWN.
    ii) IF BARREL LENGTH IS TO BE CURTAILED DUE TO SOME REASONS, THEN END OF BOX CAN BE PROJECTED UP AS BALLAST RETAINING WALL, DESIGNED SUITABLY.
15. IN CASE OF ERODIBLE SOILS, FLOORING SHALL BE ENCLOSED BY SUITABLY DESIGNED CURTAIN WALL AND DROP WALL (TIED TO THE WING WALLS). SCHEMATIC CURTAIN/DROP WALL IS GIVEN.
16. TOLERANCE SHALL BE FOLLOWED AS PER IRS CONCRETE BRIDGE CODE.
17. M-30 GRADE CONCRETE SHALL BE USED FOR CONSTRUCTION OF RCC BOX CULVERT.
18. BED SLOPE SHALL BE ADJUSTED AS PER SITE CONDITIONS BY COMPETENT AUTHORITY.
19. FOR INTERMEDIATE SPAN/HEIGHTS, STRUCTURAL DESIGN DETAILS OF IMMEDIATELY HIGHER SPAN/HEIGHTS CONFIGURATION CAN BE ADOPTED.
20. WEEP HOLES SHALL BE OF 75/100 DIA PVC/AC PIPES STAGGERED @ 1000 C/C ABOVE LOW WATER LEVEL IN BOTH WING WALL/RETURN WALL AND EARTH RETAINER OF BOX.
21. BALLAST CUSHION OF 350mm HAS BEEN CONSIDERED IN DESIGN.
22. DEPTH OF KEY AT BOTTOM SLAB, DK SHOULD BE PROVIDED AS GIVEN BELOW.

THICKNESS OF BOTTOM SLAB (tab)	VALUE OF 'DK'
UPTO 900mm	1200mm
GREATER THAN 900mm	tab + 300mm

(ALT 1) 7. ALL REINFORCEMENT STEEL SHALL BE OF HIGH STRENGTH DEFORMED (HSD)/TMT BARS, Fe415 AND HIGHER GRADE REINFORCEMENT CONFORMING TO IS:1786-2008. FOR SEISMIC ZONES III, IV AND V HYSD STEEL BARS HAVING MINIMUM ELONGATION OF 14.5 PERCENT AND CONFORMING TO OTHER REQUIREMENTS OF IS:1786 SHALL BE USED.



TYPICAL DETAILS AT A&B

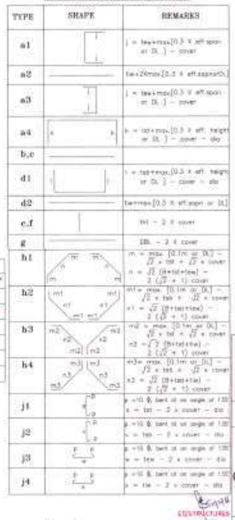
TABLE FOR B X B HAUNCH

Csp or cht	SIZE OF HAUNCH	Csp or cht	SIZE OF HAUNCH
LESS THAN 3 m	200 X 200 mm	≥4.5m & <5.0m	450 X 450 mm
≥3.0 m & <3.5m	300 X 300 mm	≥5.0m & <5.5m	500 X 500 mm
≥3.5 m & <4.0m	350 X 350 mm	≥5.5m & <6.0m	550 X 550 mm
≥4.0 m & <4.5m	400 X 400 mm	≥ 6.0m	600 X 600 mm

TABLE-'X' REFERENCE DRAWINGS

S.No.	DESCRIPTION	DRAWING NO.	
		STRAIGHT TRACK	CURVED UPTO 10°
1	0.0 m FILL HEIGHT	RDSO/B-10158/1	RDSO/B-10158/1A
(ALT 1) 2	1.0 m FILL HEIGHT	RDSO/B-10158/2	RDSO/B-10158/2A
3	2.0 m FILL HEIGHT		
4	3.0 m FILL HEIGHT		
5	4.0 m FILL HEIGHT		
6	5.0 m FILL HEIGHT		

REINFORCEMENT FOR BOX



NOTATIONS

FILL	SURCHARGE AT C.L OF TRACK
TBL	TOTAL BARREL LENGTH OF BOX
UBL	BARREL LENGTH BETWEEN C.L TO U/S OF BOX
DBL	BARREL LENGTH BETWEEN C.L TO D/S OF BOX
DD	DIST. BETWEEN BOX & DROP WALL
DC	DIST. BETWEEN BOX & CURTAIN WALL
Osp	OVERALL SPAN
Csp1/Csp2	CLEAR SPAN
ht	HEIGHT OF BOX INCLUDING WEARING COURSE
cht	CLEAR HEIGHT OF BOX ABOVE WEARING COURSE
tat	THICKNESS OF TOP SLAB
tew	THICKNESS OF END WALL
tab	THICKNESS OF BOTTOM SLAB
tiw	THICKNESS OF INTERMEDIATE VERTICAL WALL
tht	TOTAL HEIGHT OF BOX
HFL	HIGH FLOOD LEVEL
B X B	SIZE OF HAUNCH
DL	DEVELOPMENT LENGTH
DK	DEPTH OF KEY AT BOTTOM SLAB

R.D.S.O.

STANDARD DRAWING OF DOUBLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 10° & STRAIGHT TRACK (GENERAL ARRANGEMENT) 25t LOADING - 2008

PROVISIONAL DATE: 27.2.15

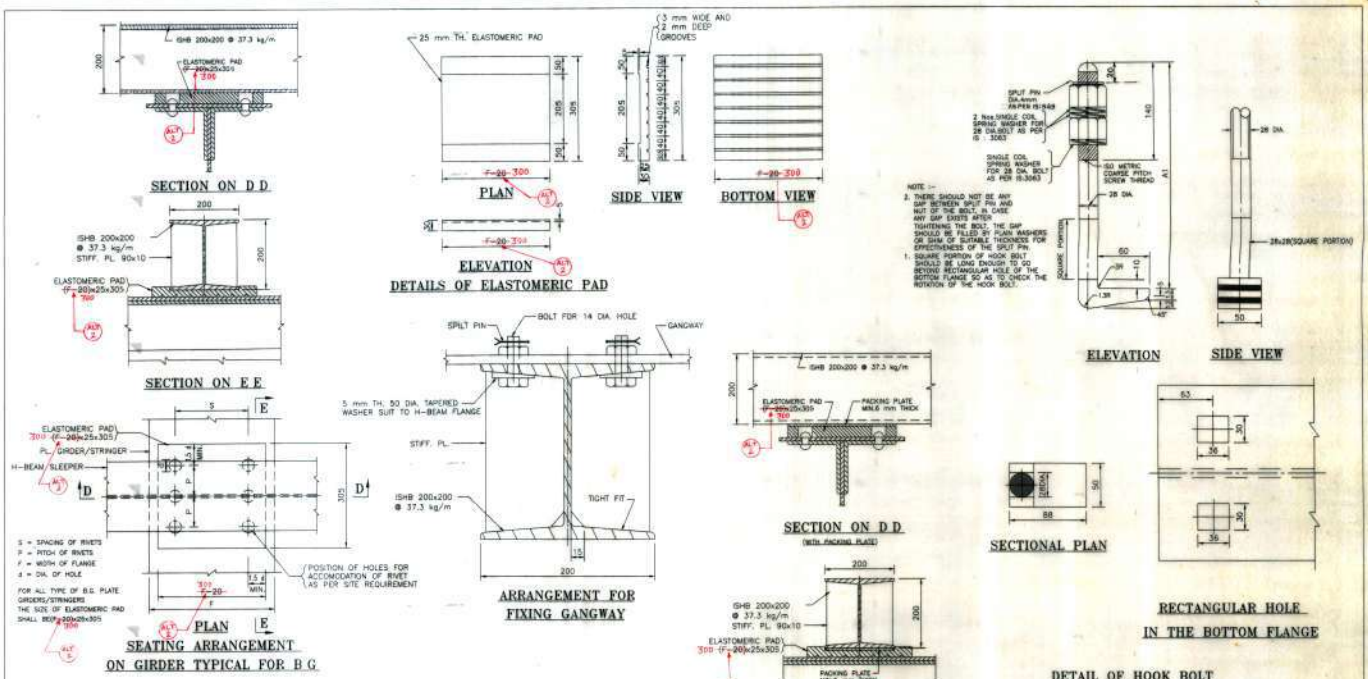
RDSO/B-10158

SPECIFICATION: IRS BRIDGE SUB STRUCTURE & FOUNDATION CODE; IRS CONCRETE BRIDGE CODE; IRS BRIDGE RULE; IS: 456-2000; IS: 1786-1985

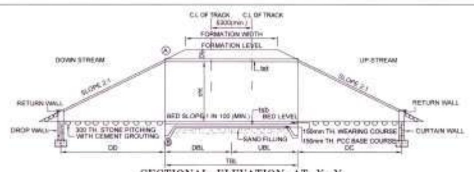
SCALE

ALT	DESCRIPTION	DATE
1	NOTE NO. 7 IS REPLACED. Sl. NO. 2 IS ADDED UNDER TABLE OF REFERENCE DRAWINGS	

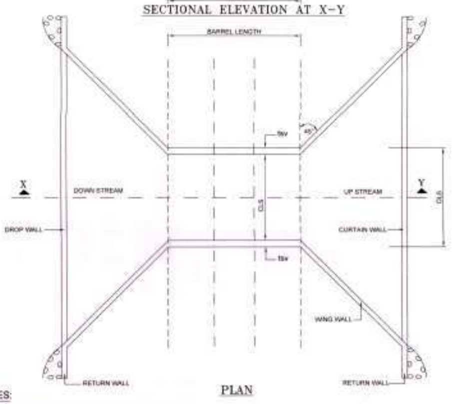
DRAWN BY / CHECKED BY / SCRUTINIZED & CHECKED BY: P.P. SINGH (ADE/CB-II) / SCRUTINISED & RECOMMENDED BY: DIRECTOR/B&S/CB-I / APPROVED BY: ED/STRUCTURES / B&S DIRECTORATE, FILE No. CBS/DBC


SECTION ON D D
PLAN
SIDE VIEW
BOTTOM VIEW
ELEVATION
DETAILS OF ELASTOMERIC PAD
SECTION ON E E
SEATING ARRANGEMENT
ON GIRDER TYPICAL FOR B G
ARRANGEMENT FOR
FIXING GANGWAY
SECTION ON D D
SECTIONAL PLAN
RECTANGULAR HOLE
IN THE BOTTOM FLANGE
DETAIL OF HOOK BOLT
SECTION ON E.E.
TYPICAL DETAIL SHOWING
PACKING PL. BELOW SLEEPER
NOTE
SPECIFICATION
MILLIMETRES
SCALE
DESCRIPTION
DATE
PROVISIONAL
RDSO/B-1636/5

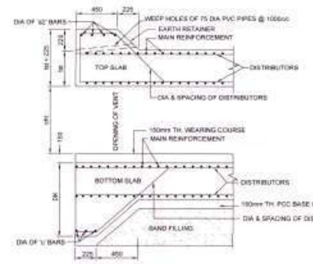
803



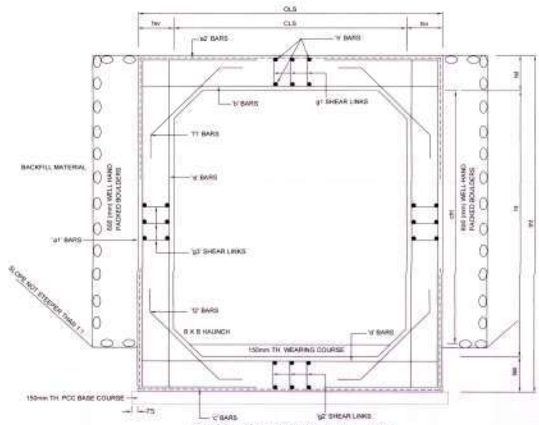
SECTIONAL ELEVATION AT X-Y



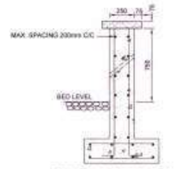
PLAN



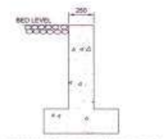
TYPICAL DETAILS AT A&B



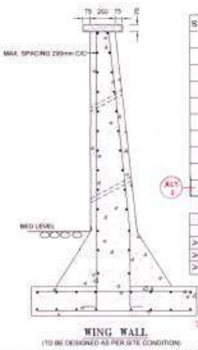
CROSS SECTION OF R.C.C BOX



SECTION OF RETURN WALL
(TO BE DESIGNED AS PER SITE CONDITION)



SECTION OF CURTAIN/DROP WALL
(TO BE DESIGNED AS PER SCOUR REQUIREMENTS)



WING WALL
(TO BE DESIGNED AS PER SITE CONDITION)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. THIS DRAWING IS SUITABLE FOR DOUBLE LINE TRACK UPTO 4 DEGREE CURVATURE ONLY.
3. MINIMUM SPACING OF TRACKS IS ASSUMED AS 5.3m IN DESIGN WHICH MAY BE SUITABLY INCREASED AS PER REQUIREMENTS OF CURVE.
4. PREPARATION OF BED BELOW 150mm THICK BASE COURSE SHOULD BE BASED ON ACTUAL SITE CONDITION IN ORDER TO ACHIEVE THE ADEQUATE BEARING CAPACITY REQUIRED TO WITHSTAND THE FOUNDATION PRESSURE GIVEN IN TABLE OF REFERENCE DRAWINGS.
5. REINFORCEMENT DETAILS, SLAB THICKNESS DETAILS AND FOUNDATION PRESSURE FOR VARIOUS FILL HEIGHTS HAVE BEEN GIVEN IN REFERENCE DRAWINGS. THICKNESSES OF TOP SLAB, BOTTOM SLAB AND VERTICAL WALLS HAVE BEEN KEPT UNIFORM.
6. THIS DESIGN IS SUITABLE FOR 25t LOADING-2008.
7. ~~HSD/TMT BARS CONFORMING TO IS 1786-2008 SHALL BE USED AS REINFORCEMENT.~~ *
8. DESIGN CRITERIA IS BASED ON FOLLOWING IRS CODES:
   i) IRS BRIDGE RULES
   ii) IRS CONCRETE BRIDGE CODE
   iii) IRS BRIDGE SUBSTRUCTURE & FOUNDATION CODE
9. LAPPING OF BARS SHOULD BE MINIMISED AND STAGGERED WHEREVER NECESSARY. MINIMUM LENGTH OF LAP SHALL BE AS GIVEN IN IRS CONCRETE BRIDGE CODE FOR TOR STEEL.
10. BACK FILL MATERIAL SHOULD BE AS PER CLAUSE 7.5 OF IRS BRIDGE SUBSTRUCTURES & FOUNDATION CODE.
11. ALL R.C.C SURFACES COMING IN CONTACT WITH SOIL SHOULD BE PAINTED WITH BITUMEN OR COALTAR OF APPROVED QUALITY @ 1.464 KG/SQM.
12. CLEAR COVER FOR REINFORCING BARS SHOULD BE 50mm.
13. SAMPLE DETAILS OF WING WALL AND RETURN WALL ARE GIVEN. HOWEVER, WING WALL AND RETURN WALL SHOULD BE DESIGNED SUITABLY BY ZONAL RAILWAYS AS PER SITE CONDITIONS.
14. i) BARREL LENGTH OF BOX CULVERT SHALL BE DECIDED BASED ON FILL HEIGHT ON THE BOX AS PER CROSS SECTION SHOWN.
    ii) IF BARREL LENGTH IS TO BE CURTAILED DUE TO SOME REASONS, THEN END OF BOX CAN BE PROJECTED UP AS BALLAST RETAINING WALL, DESIGNED SUITABLY.
15. ~~IN CASE OF ERODIBLE SOILS, FLOORING SHALL BE ENCLOSED BY SUITABLY DESIGNED CURTAIN WALL AND DROP WALL (TIED TO THE WING WALL(S)) WITH A MINIMUM DEPTH BELOW FLOOR LEVEL OF 2.0m FOR CURTAIN WALL AND 2.5m FOR DROP WALL. MINIMUM WIDTH OF FOUNDATION FOR CURTAIN WALL/DROP WALL SHOULD BE 900mm.~~ *
16. TOLERANCE SHALL BE FOLLOWED AS PER IRS CONCRETE BRIDGE CODE.
17. M-35 GRADE CONCRETE SHALL BE USED FOR THE SPAN OR HEIGHT OF THE BOX GREATER THAN OR EQUAL TO 4 METER. M-30 GRADE CONCRETE SHALL BE USED FOR THE SPAN OR HEIGHT OF THE BOX LESS THAN 4 METER.
18. ~~BED SLOPE SHALL BE ADJUSTED AS PER SITE CONDITIONS BY COMPETENT AUTHORITY. IT SHOULD BE KEPT MINIMUM 1 IN 100.~~ *
19. FOR INTERMEDIATE SPAN/HEIGHTS, STRUCTURAL DESIGN DETAILS OF IMMEDIATELY HIGHER SPAN/HEIGHTS CONFIGURATION CAN BE ADOPTED.
20. WEEP HOLES SHALL BE OF 75/100 DIA PVC/AC PIPES STAGGERED @ 1000 C/C ABOVE LOW WATER LEVEL IN BOTH WING WALL/RETURN WALL AND EARTH RETAINER OF BOX.
21. BALLAST CUSHION OF 350mm HAS BEEN CONSIDERED IN DESIGN.
22. DEPTH OF KEY AT BOTTOM SLAB, DK SHOULD BE PROVIDED AS GIVEN BELOW.

THICKNESS OF BOTTOM SLAB (tsb)	VALUE OF 'DK'
UPTO 900mm	1200mm
GREATER THAN 900mm	tsb + 300mm

*(ALT 2) 7. ALL REINFORCEMENT STEEL SHALL BE OF HIGH STRENGTH DEFORMED (HSD/TMT) BARS, Fe415 AND HIGHER GRADE REINFORCEMENT CONFORMING TO IS:1786-2008. FOR SEISMIC ZONES III, IV AND V HYSD STEEL BARS HAVING MINIMUM ELONGATION OF 14.5 PERCENT AND CONFORMING TO OTHER REQUIREMENTS OF IS:1786 SHALL BE USED.

*(ALT 2) 15. IN CASE OF ERODIBLE SOILS, FLOORING SHALL BE ENCLOSED BY SUITABLY DESIGNED CURTAIN WALL AND DROP WALL (TIED TO THE WING WALLS). SCHEMATIC CURTAIN/DROP WALL IS GIVEN.
18. BED SLOPE SHALL BE ADJUSTED AS PER SITE CONDITIONS BY COMPETENT AUTHORITY.

REFERENCE DRAWINGS

S.No.	DESCRIPTION	DRAWING NO.
1	0.0 m FILL HEIGHT	RDSO/B-10155/1
2	1.0 m FILL HEIGHT	RDSO/B-10155/2
3	2.0 m FILL HEIGHT	RDSO/B-10155/3
4	3.0 m FILL HEIGHT	RDSO/B-10155/4
5	4.0 m FILL HEIGHT	RDSO/B-10155/5
6	5.0 m FILL HEIGHT	RDSO/B-10155/6
7	6.0 m FILL HEIGHT	RDSO/B-10155/7
8	8.0 m FILL HEIGHT	RDSO/B-10155/8
9	10.0 m FILL HEIGHT	RDSO/B-10155/9
10 (ALT 1)	1.0m X 1.5m & 2.0m X 2m FOR 0.0m to 10.0m FILL HEIGHT	RDSO/B-10155/10

TABLE FOR B X B HAUNCH

CLS or cht	SIZE OF HAUNCH	CLS or cht	SIZE OF HAUNCH
LESS THAN 3 m	200 X200 mm	≥ 4.5 m and < 5.0m	450 X450 mm
≥ 3.0 m and < 3.5m	300 X300 mm	≥ 5.0 m and < 5.5m	500 X500 mm
≥ 3.5 m and < 4.0m	350 X350 mm	≥ 5.5 m and < 6.0m	550 X550 mm
≥ 4.0 m and < 4.5m	400X400 mm	≥ 6.0m	600 X600 mm

REINFORCEMENT FOR BOX

TYPE	SHAPE	REMARKS
a1		j = tsr+max (0.3 X eff span or DL)-cover
a2		k = tst+max (0.3 X eff. height or DL)-cover-dia
b		
c		l = tsb+max (0.3 X eff. height or DL)-cover-dia
d		
e		
f1		m = max. (0.1m or DL) - $\sqrt{2}$ x tst + $\sqrt{2}$ x cover n = $\sqrt{2}$ (B+tst+tsv) - 2 ($\sqrt{2}$ + 1) cover
f2		m1 = max. (0.1m or DL) - $\sqrt{2}$ x tsb + $\sqrt{2}$ x cover n1 = $\sqrt{2}$ (B+tsb+tsv) - 2 ($\sqrt{2}$ + 1) cover
g1		p = 10 Φ, bent at an angle of 135° s = tst - 2 x cover - dia
g2		p = 10 Φ, bent at an angle of 135° v = tsb - 2 x cover - dia
g3		p = 10 Φ, bent at an angle of 135° w = tsv - 2 x cover - dia
h		

NOTATIONS

FILL	SURCHARGE AT C.L OF TRACK
TBL	TOTAL BARREL LENGTH OF BOX
UBL	BARREL LENGTH BETWEEN C.L TO U/S OF BOX
DBL	BARREL LENGTH BETWEEN C.L TO D/S OF BOX
DD	DIST. BETWEEN BOX & DROP WALL
DC	DIST. BETWEEN BOX & CURTAIN WALL
OLS	OVERALL SPAN
CLS	CLEAR SPAN
ht	HEIGHT OF BOX INCLUDING WEARING COURSE
cht	CLEAR HEIGHT OF BOX ABOVE WEARING COURSE
tst	THICKNESS OF TOP SLAB
tsv	THICKNESS OF VERTICAL WALL
tsb	THICKNESS OF BOTTOM SLAB
tht	TOTAL HEIGHT OF BOX
B X B	SIZE OF HAUNCH
DL	DEVELOPMENT LENGTH
DK	DEPTH OF KEY AT BOTTOM SLAB

R.D.S.O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (GENERAL ARRANGEMENT)
25t LOADING - 2008

PROVISIONAL DATE: 22.05.2013

RDSO/B-10155

IRS BRIDGE SUB STRUCTURE & FOUNDATION CODE IRS CONCRETE BRIDGE CODE IRS BRIDGE RULE IS: 456-2000 IS: 1786-2008		ALT 2	NOTE NO. 7, 15 & 18 ARE REPLACED. ADE/CB-I, DIR/CB-I, SD STRUCTURES, ED/STRUCTURES
		ALT 1	S.NO. 10 IS ADDED UNDER TABLE OF REFERENCE DRAWINGS — DIR./CB-II, ADE/CB-II, 28-03-2014
SPECIFICATION	SCALE	ALT	DESCRIPTION / DATE

CALCULATION REGISTER No. CB-II/39	DRAWN BY- ANJANA BHASIN(SSE/D/CB-II)	SCRUTINISED & CHECKED BY	SCRUTINISED & RECOMMENDED BY	APPROVED BY	FILE No. CB/II/BC
PAGES: DONE BY- SHER SINGH(JE/D/CB-II); CHECKED BY-SATISH CHANDER (SSE/D/CB-II)	CHECKED BY-SATISH CHANDER (SSE/D/CB-II)	ADE/B&S/CB-II	DIRECTOR/B&S/CB-II	ED/STRUCTURES	NOTING PAGE No.- 5

STRUCTURAL DESIGN DETAILS OF RCC SINGLE BOX CULVERT FOR 0.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 4°)

DESCRIPTION OF DETAILS		SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION	SPAN LENGTH X BOX HEIGHT CONFIGURATION
		2mX1.8m	2mX2.0m	2mX2.5m	2mX3.0m	2mX3.5m	2mX4.0m	3mX1.8m	3mX2.0m
1. REINFORCEMENT DETAILS	a1	16mm DIA @ 300mm	16mm DIA @ 300mm	16mm DIA @ 300mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 300mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 300mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm
	c	12mm DIA @ 300mm	12mm DIA @ 300mm	12mm DIA @ 300mm	12mm DIA @ 300mm	12mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 300mm	12mm DIA @ 300mm
	d	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 100mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 350mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	35cm	35cm	35cm	35cm	40cm	40cm	40cm	40cm
	BOTTOM SLAB	35cm	35cm	35cm	35cm	40cm	40cm	50cm	45cm
	SIDE WALLS	35cm	35cm	35cm	35cm	40cm	40cm	50cm	45cm
3. MAX. FOUNDATION PRESSURE		200 kN/m^2	200 kN/m^2	210 kN/m^2	220 kN/m^2	230 kN/m^2	230 kN/m^2	150 kN/m^2	160 kN/m^2

DESCRIPTION OF DETAILS		3mX2.5m	3mX3.0m	3mX3.5m	3mX4.0m	3mX4.5m	3mX5.0m	3mX6.0m	4mX2.0m
1. REINFORCEMENT DETAILS	a1	20mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	16mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 200mm
	c	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	20mm DIA @ 200mm	12mm DIA @ 200mm
	d	20mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 100mm	20mm DIA @ 200mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 100mm	12mm DIA @ 200mm
	f1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 300mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	35cm	35cm	35cm	35cm	40cm	40cm	45cm	40cm
	BOTTOM SLAB	35cm	35cm	35cm	35cm	40cm	40cm	50cm	45cm
	SIDE WALLS	35cm	35cm	35cm	35cm	40cm	40cm	50cm	45cm
3. MAX. FOUNDATION PRESSURE		190 kN/m^2	170 kN/m^2	180 kN/m^2	190 kN/m^2	200 kN/m^2	210 kN/m^2	230 kN/m^2	160 kN/m^2

DESCRIPTION OF DETAILS		4mX2.5m	4mX3.0m	4mX3.5m	4mX4.0m	4mX4.5m	4mX5.0m	4mX6.0m	5mX2.5m
1. REINFORCEMENT DETAILS	a1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 300mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 300mm
	b	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 100mm
	c	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	12mm DIA @ 200mm
	d	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 100mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 150mm	12mm DIA @ 200mm
	f1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	f2	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 150mm ALONG BARELL AND @ 150mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 150mm ALONG BARELL & @ 150mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	40cm	40cm	40cm	45cm	45cm	45cm	50cm	45cm
	BOTTOM SLAB	40cm	40cm	40cm	45cm	45cm	45cm	50cm	50cm
	SIDE WALLS	40cm	40cm	40cm	45cm	45cm	45cm	50cm	50cm
3. MAX. FOUNDATION PRESSURE		150 kN/m^2	160 kN/m^2	170 kN/m^2	180 kN/m^2	190 kN/m^2	190 kN/m^2	210 kN/m^2	200 kN/m^2

DESCRIPTION OF DETAILS		5mX3.0m	5mX3.5m	5mX4.0m	5mX4.5m	5mX5.0m	5mX6.0m
1. REINFORCEMENT DETAILS	a1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	b	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	c	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm
	f1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	50cm	50cm	50cm	50cm	50cm	50cm
	BOTTOM SLAB	55cm	55cm	55cm	60cm	60cm	60cm
	SIDE WALLS	55cm	55cm	55cm	60cm	60cm	60cm
3. MAX. FOUNDATION PRESSURE		210 kN/m^2	220 kN/m^2	230 kN/m^2	240 kN/m^2	250 kN/m^2	

DESCRIPTION OF DETAILS		6mX3.0m	6mX3.5m	6mX4.0m	6mX4.5m	6mX5.0m	6mX6.0m
1. REINFORCEMENT DETAILS	a1	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm	20mm DIA @ 200mm
	a2	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	b	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm	20mm DIA @ 150mm
	c	12mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm	16mm DIA @ 200mm
	d	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm	25mm DIA @ 150mm
	e	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	12mm DIA @ 200mm	16mm DIA @ 200mm
	f1	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	f2	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm	25mm DIA @ 200mm
	g1	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g2	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN	10mm Dia @ 200mm ALONG BARELL AND @ 200mm ALONG SPAN
	g3	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT	10mm Dia @ 200mm ALONG BARELL & @ 200mm ALONG HEIGHT
	h	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm	16mm DIA @ 150mm
2. THICKNESS OF SLABS	TOP SLAB	60cm	60cm	60cm	60cm	60cm	60cm
	BOTTOM SLAB	60cm	60cm	60cm	60cm	60cm	60cm
	SIDE WALLS	60cm	60cm	60cm	60cm	60cm	60cm
3. MAX. FOUNDATION PRESSURE		220 kN/m^2	230 kN/m^2	240 kN/m^2	250 kN/m^2	260 kN/m^2	

NOTES

1. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
2. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10155.

R. D. S. O.

STANDARD DRAWING OF SINGLE BOX CULVERT FOR DOUBLE LINE TRACK CURVED UPTO 4° (STRUCTURAL DESIGN DETAILS FOR 0.0m FILL HEIGHT) 25t LOADING - 2008

PROVISIONAL DATE: 22.05.2013

RDSO/B-10155/1

NOTE	SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

STRUCTURAL DESIGN DETAILS OF RCC DOUBLE BOX CULVERT FOR 0.0m FILL HEIGHT - (DOUBLE LINE STRAIGHT TRACK)

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	2	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	40	35	35
Found Pr	10.23	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	12	100		
c	12	100		
d1	20	200		
d 2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	16	200		
h2	20	200		
h3	16	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	3	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	40	35	35
Found Pr	11.45	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	12	100		
c	12	100		
d1	20	200		
d 2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	16	200		
h2	20	200		
h3	16	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	4	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	40	35	35
Found Pr	12.77	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	12	100		
c	16	100		
d1	20	200		
d 2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	16	200		
h2	20	200		
h3	16	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	5	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	40	40	35
Found Pr	14.16	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	12	100		
c	16	100		
d1	16	200		
d 2	20	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	6	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	45	40
Found Pr	15.89	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	12	100		
c	12	100		
d1	20	200		
d 2	20	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	2	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	40	35
Found Pr	10.2	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	20	200		
e	12	100		
f	16	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	3	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	40	35
Found Pr	11.39	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	20	200		
e	12	100		
f	16	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	4	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	40	35
Found Pr	12.57	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	5	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	40	35
Found Pr	13.86	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	20	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	6	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	45	40
Found Pr	15.26	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	20	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	3	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	45	50	45	35
Found Pr	11.44	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	25	200		
e	12	100		
f	16	200		
g	10	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	4	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	45	55	45	35
Found Pr	12.73	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	25	200		
e	12	100		
f	16	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	5	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	45	55	45	35
Found Pr	13.9	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	6	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	45	55	45	40
Found Pr	15.19	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	20	200		
a3	25	200		
a4	25	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	25	200		
e	16	100		
f	16	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	3	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	60	50	35
Found Pr	11.54	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	12	100		
f	16	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	4	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	60	50	35
Found Pr	12.69	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	12	100		
f	16	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	5	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	60	50	35
Found Pr	13.84	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	12	100		
f	16	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	6	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	60	50	40
Found Pr	15.01	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	16	100		
f	16	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

NOTES:

1. ALL BAR DIA AND SPACING ARE IN MM.
2. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
3. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10158 .

R. D. S. O.

STANDARD DRAWING OF
DOUBLE BOX CULVERT FOR
DOUBLE LINE STRAIGHT TRACK
(STRUCTURAL DESIGN DETAILS FOR
0.0m FILL HEIGHT)
25t LOADING-2008

PROVISIONAL DATE: 27.2.2015

RDSO/B-10158/1

SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

CALCULATION REGISTER :- CB-II/47
DONE BY-SHER SINGH (SSE/D/CB-II)
CHECKED BY-SATISH CHANDER (SSE/D/CB-II)

DRAWN BY-ANJANA BHASIN(SSE/D/CB-II)
CHECKED BY-SATISH CHANDER (SSE/D/CB-II)

SCRUTINISED & CHECKED BY
P.P SINGH (ADE/CB-II)

SCRUTINISED & RECOMMENDED BY
DIRECTOR/B&S/CB-II

APPROVED BY
ED/STRUCTURES
21/4/2015

B&S DIRECTORATE
FILE No. CBS/DBC
NOTING PAGE No.- 20

STRUCTURAL DESIGN DETAILS OF RCC DOUBLE BOX CULVERT FOR 1.0m FILL HEIGHT - (DOUBLE LINE STRAIGHT TRACK)

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	2	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	40	35	35
Found Pr	10.00	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	12	100		
c	12	100		
d1	20	200		
d2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	16	200		
h2	20	200		
h3	16	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	3	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	45	35	35
Found Pr	11.35	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	12	100		
c	12	100		
d1	16	200		
d2	16	200		
e	12	100		
f	12	200		
g	10	200		
h1	16	200		
h2	16	200		
h3	16	200		
h4	16	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	4	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	45	35	35
Found Pr	12.67	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	12	100		
c	12	100		
d1	16	200		
d 2	16	200		
e	12	100		
f	12	200		
g	10	200		
h1	16	200		
h2	16	200		
h3	16	200		
h4	16	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	5	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	50	50	35
Found Pr	14.68	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	10	100		
c	12	100		
d1	16	200		
d2	16	200		
e	16	100		
f	12	200		
g	10	200		
h1	16	200		
h2	16	200		
h3	16	200		
h4	16	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	6	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	50	50	40
Found Pr	16.14	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	10	100		
c	12	100		
d1	20	200		
d2	20	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	2	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	45	45	45	35
Found Pr	10.25	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	3	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	45	50	45	35
Found Pr	11.58	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	4	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	45	50	45	35
Found Pr	12.78	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	5	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	50	50	35
Found Pr	14.26	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	6	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	50	50	40
Found Pr	15.63	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	20	200		
d2	20	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	3	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	55	55	55	35
Found Pr	11.87	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	25	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	20	200		
h2	25	200		
h3	20	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	4	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	55	60	55	35
Found Pr	13.19	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	25	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	20	200		
h2	25	200		
h3	20	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	5	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	55	60	55	35
Found Pr	14.38	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	25	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	20	200		
h2	25	200		
h3	20	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	6	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	55	65	55	40
Found Pr	15.82	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	25	200		
d 2	25	200		
e	16	100		
f	12	200		
g	12	200		
h1	20	200		
h2	25	200		
h3	20	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	3	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	65	60	35
Found Pr	12.10	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	4	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	70	60	35
Found Pr	13.40	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	5	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	70	60	35
Found Pr	14.57	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		N		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	6	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	70	60	40
Found Pr	15.76	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	16	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

NOTES:

1. ALL BAR DIA AND SPACING ARE IN MM.
2. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
3. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10158 .

R. D. S. O.

**STANDARD DRAWING OF
DOUBLE BOX CULVERT FOR
DOUBLE LINE STRAIGHT TRACK
(STRUCTURAL DESIGN DETAILS FOR
1.0m FILL HEIGHT)
25t LOADING-2008**

PROVISIONAL DATE: 24.4.2015

RDSO/B-10158/2

SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

CALCULATION REGISTER :- CB-II/47 DONE BY-SHER SINGH (SSE/D/CB-II) CHECKED BY-SATISH CHANDER (SSE/D/CB-II)	DRAWN BY-ANJANA BHASIN(SSE/D/CB-II) CHECKED BY-SATISH CHANDER (SSE/D/CB-II)	SCRUTINISED & CHECKED BY P.P SINGH (ADE/CB-II)	SCRUTINISED & RECOMMENDED BY DIRECTOR/B&S/CB-II	APPROVED BY ED/STRUCTURES	B&S DIRECTORATE FILE No. CBS/DBC NOTING PAGE No.- 29

STRUCTURAL DESIGN DETAILS OF RCC DOUBLE BOX CULVERT FOR 1.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 10°)

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	2	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	40	35
Found Pr	10.81	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	12	100		
c	12	100		
d1	20	200		
d2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	16	200		
h2	20	200		
h3	16	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	3	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	50	40	35
Found Pr	12.17	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	12	100		
c	12	100		
d1	16	200		
d2	16	200		
e	12	100		
f	12	200		
g	10	200		
h1	16	200		
h2	16	200		
h3	16	200		
h4	16	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	4	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	50	40	35
Found Pr	13.51	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	12	100		
c	12	100		
d1	16	200		
d2	16	200		
e	12	100		
f	12	200		
g	10	200		
h1	16	200		
h2	16	200		
h3	16	200		
h4	16	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	5	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	50	50	35
Found Pr	15.22	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	16	200		
a2	16	200		
a3	16	200		
a4	16	200		
b	12	100		
c	12	100		
d1	16	200		
d2	16	200		
e	16	100		
f	12	200		
g	10	200		
h1	16	200		
h2	16	200		
h3	16	200		
h4	16	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	6	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	50	50	40
Found Pr	16.68	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	10	100		
c	12	100		
d1	20	200		
d2	20	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	2	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	45	50	45	35
Found Pr	10.90	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	20	200		
d2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	3	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	55	50	35
Found Pr	12.38	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d2	20	200		
e	12	100		
f	12	200		
g	12	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	4	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	55	50	35
Found Pr	13.59	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d2	20	200		
e	12	100		
f	12	200		
g	12	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	5	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	55	55	50	35
Found Pr	14.91	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d2	20	200		
e	12	100		
f	12	200		
g	12	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	6	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	55	60	55	35
Found Pr	16.28	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	20	200		
d2	20	200		
e	16	100		
f	12	200		
g	12	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	3	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	55	60	55	35
Found Pr	12.51	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	16	200		
b	16	100		
c	20	100		
d1	20	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	4	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	55	65	55	35
Found Pr	13.82	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	16	200		
b	16	100		
c	16	100		
d1	20	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	5	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	65	60	35
Found Pr	15.17	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	20	100		
d1	25	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	20	200		
h2	25	200		
h3	20	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	6	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	70	60	40
Found Pr	16.63	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	25	200		
d2	25	200		
e	16	100		
f	12	200		
g	12	200		
h1	20	200		
h2	25	200		
h3	20	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	3	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	70	60	35
Found Pr	12.70	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	25	200		
b	20	100		
c	20	100		
d1	25	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	4	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	75	60	35
Found Pr	14.00	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	25	200		
b	20	100		
c	20	100		
d1	25	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	5	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	75	60	35
Found Pr	15.17	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	25	200		
b	20	100		
c	20	100		
d1	25	200		
d2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	6	1	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	75	60	40
Found Pr	16.36	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	25	200		
b	20	100		
c	20	100		
d1	28	200		
d2	28	200		
e	16	100		
f	12	200		
g	12	200		
h1	25	200		
h2	28	200		
h3	25	200		
h4	28	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

NOTES:

1. ALL BAR DIA AND SPACING ARE IN MM.
2. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
3. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10158 .

R. D. S. O.

STANDARD DRAWING OF
DOUBLE BOX CULVERT FOR
DOUBLE LINE TRACK CURVED UPTO 10°
(STRUCTURAL DESIGN DETAILS FOR
1.0m FILL HEIGHT)
25t LOADING-2008

PROVISIONAL DATE: 24.2015

RDSO/B-10158/2A

SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

CALCULATION REGISTER :- CB-II/47
DONE BY-SHER SINGH (SSE/D/CB-II)
CHECKED BY-SATISH CHANDER (SSE/D/CB-II)

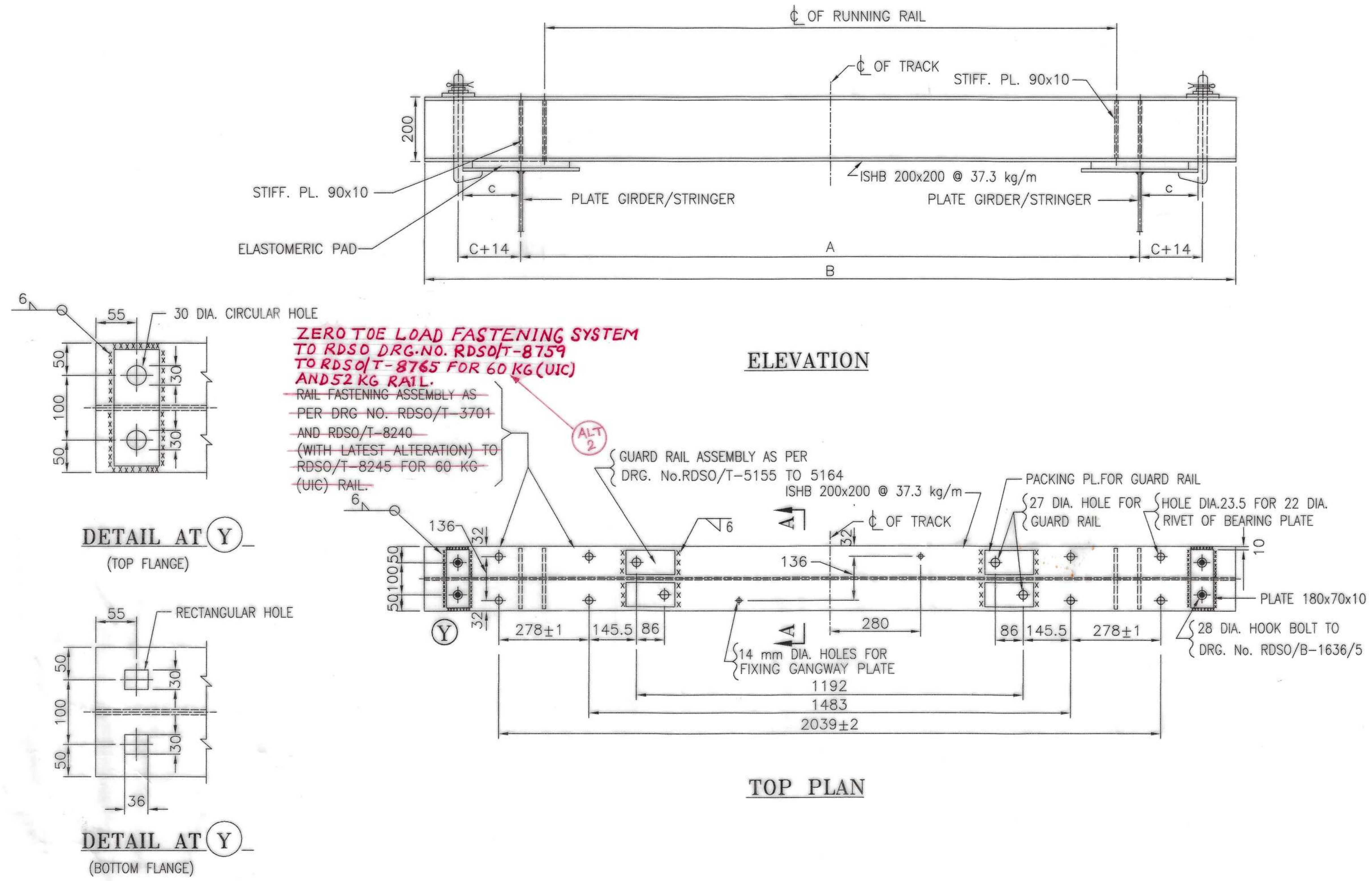
DRAWN BY-ANJANA BHASIN(SSE/D/CB-II)
CHECKED BY-SATISH CHANDER (SSE/D/CB-II)

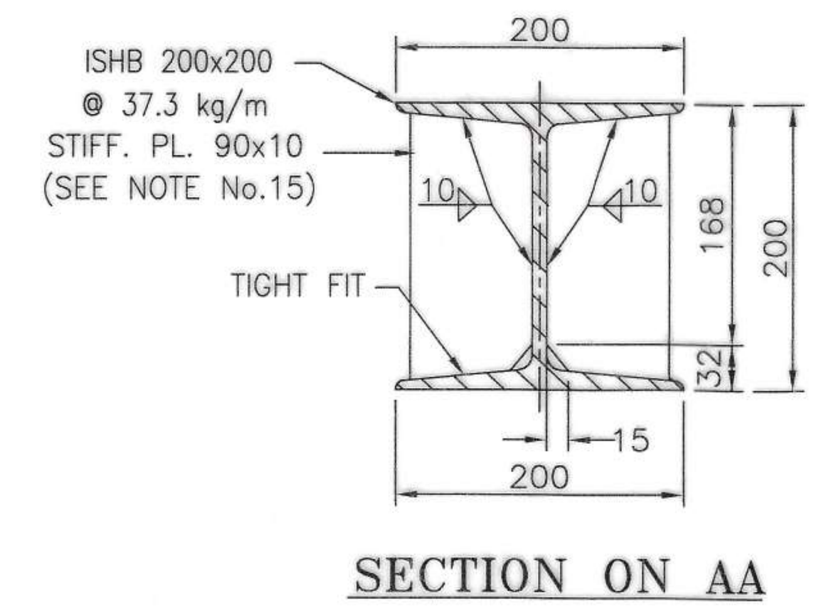
SCRUTINISED & CHECKED BY
P.P SINGH (ADE/CB-II)

SCRUTINISED & RECOMMENDED BY
DIRECTOR/B&S/CB-II

APPROVED BY
ED/STRUCTURES

B&S DIRECTORATE
FILE No. CBS/DBC
NOTING PAGE No.- 29





FOR B.G.

DIMENSIONS	SPAN (IN m)				
	RIVETTED PLATE GIRDERS				
	24.4	18.3	12.2	9.2	6.1
A	1980	1830	1850	1850	1880
B (MIN.)*	2685	2495	2475	2475	2495
C	200	180	160	160	155
F	FLANGE WIDTH				

DIMENSIONS A, B & C, SHOWN ABOVE ARE FOR STANDARD RBG RIVETTED PLATE GIRDERS.

FOR B.G.

DIMENSIONS	SPAN (IN m)						
	WELDED PLATE GIRDERS			OPEN WEB GIRDERS			
	12.2	18.3	24.4	30.5	45.7	61.0	76.2
A	1850	1830	1980	1900	1900	1900	1900
B (MIN.) *	2655	2715	2905	2515	2515	2515	2515
C	250	290	310	155	155	155	155
F	FLANGE WIDTH						

DIMENSIONS A,B,C, SHOWN ABOVE ARE FOR STANDARD MBG WELDED PLATE GIRDER AND RBG/MBG OPEN WEB GIRDERS FOR OTHER DESIGNS VALUES OF C&B BE CALCULATED AS BELOW.

C=HALF TOP FLANGE WIDTH

B (MIN) * = 2C + A + 305 BUT NOT LESS THAN 2440 mm IN CASE OF B.G. ~~AS PER PARA 273 OF IRPWM.~~ (ALT 2)

NOTE

(ALT 1) 4 MAXIMUM CENTRE TO CENTRE SLEEPER SPACING SHOULD BE 600 MM EXCEPT AT CROSS GIRDERS. THE CLEAR DISTANCE BETWEEN TWO SLEEPERS AT CROSS GIRDER LOCATION SHOULD NOT BE MORE THAN 450 MM. THE CLEAR DISTANCE BETWEEN JOINT SLEEPERS SHOULD NOT BE MORE THAN 200 MM.

(ALT 2) 7. STEEL TO BE USED SHOULD BE OF GRADE E-250 BO QUALITY AS MENSIONED UNDER CLAUSE 8.2 (AS PROVIDED IN ACS NO 5 DATED 30-08-2013) OF IRS; B1-2001, AS CORRECTED FROM TIME TO TIME.

19. SIZE OF FILLET WELDS ARE EXPRESSED IN LEG LENGTH.
18. IF CHIEF ENGINEER OF THE ZONAL RLY. CONSIDERS THAT THE GUARD RAIL IS STIFFER ENOUGH TO PREVENT BUNCHING OF SLEEPERS IN THE EVENT OF DERAILMENT, HE MAY SUITABLY DECIDE DISPENSATION OF TIE ANGLES ON THE STEEL H-BEAM SLEEPERS.
17. TO FACILITATE MOVEMENT OF GIRDER ENDS, FISH PLATED JOINTS IN GUARD RAILS SHOULD BE PROVIDED ON EACH PIER. WELDED GUARD RAIL SHOULD NOT BE USED.
16. THE LOCATION WHERE H-BEAM SLEEPER IS TO BE SEATED IS TO BE THOROUGHLY CLEANED AND A THICK COAT OF READY MIXED RED LEAD PAINT CONFORMING TO IS:102 IS TO BE GIVEN WELL IN ADVANCE BEFORE PROVIDING H-BEAM SLEEPER.
15. STIFFENER PLATE SHOULD BE WELDED ON BOTH SIDES WITH TOP FLANGE OF H-BEAM IN FULL LENGTH AND WITH WEB OF H-BEAM UPTO A DEPTH OF 168 mm. THE STIFFENER PLATE SHALL BE HAVING A TAPERED CUT BEYOND 168 mm DEPTH AND SHALL TIGHT FIT WITH THE BOTTOM FLANGE WITHOUT WELDING.
14. FOR RIVETTED/WELDED PLATE GIRDER, SUITABLE THICKNESS OF M. S. PACKING PLATE SHOULD BE WELDED AT THE BOTTOM FLANGE OF H-BEAM SLEEPER TO MAINTAIN THE RAIL LEVEL DUE TO THE THICKNESS OF SPLICE PLATE AND SECOND PLATE (IF PROVIDED). AS A RESULT OF PROVIDING H-BEAM SLEEPER,THE LEVEL OF TRACK SHALL BE RAISED BY 72 mm WITH 60 kg. RAIL. THE EFFECT OF SUCH RAISES OF TRACK LEVELS ON SCHEDULE OF DIMENSIONS AND EXISTING VERTICAL CLEARANCES ON ELECTRIFIED SECTIONS BE TAKEN INTO CONSIDERATION BEFORE ACTUAL GOING FOR SUCH SLEEPERS.
13. ~~FOR SUCH CASES WHERE NO STANDARD DRAWING OF RAIL FASTENING ASSEMBLEY IS AVAILABLE RAILWAYS MAY FOLLOW THEIR OWN DESIGNS.~~ (ALT 2)
12. FOR SEATING ARRANGEMENT FOR RIVETTED PLATE GIRDERS/STRINGERS AND ARRANGEMENT FOR FIXING GANGWAY SEE DRG. No. RDSO/B-1636/5
11. FOR NON STANDARD DESIGN, DIMENSION 'A' AS SHOWN ABOVE SHOULD NOT BE MORE THAN 1980 mm.
10. IN CASES WHERE THE CLEARANCES BETWEEN THE BRIDGE STRUCTURES AND LIVE OHE IN ELECTRIFIED SECTIONS WOULD BE DIFFERENT FROM THOSE SPECIFIED IN THE SCHEDULE OF DIMENSION, THE MATTER SHOULD BE REFERED TO THE CHIEF ELECTRICAL ENGINEER OF RAILWAY CONCERNED AND ACTION TAKEN AS PER HIS ADVICE.
9. FOR NON-STANDARD DESIGN OF OPEN WEB GIRDERS, CLEARANCE AVAILABLE ABOVE RAIL LEVEL SHOULD BE CHECKED AS PER SCHEDULE OF DIMENSIONS BEFORE LAYING STEEL H-BEAM SLEEPER.
8. GUARD RAIL SHALL BE PROVIDED AS PER PARA ~~275~~ 228 AND OTHER RELEVENT PARAS OF INDIAN RAILWAY PERMANENT WAY MANUAL. JUNE 2020. AS CORRECTED FROM TIME TO TIME. (ALT 2)
7. ~~M.S. MATERIAL TO BE WELDED SHOULD BE TO IS: 2062, GRADE B. GRADE A MAY BE ALSO USED IN THE CASE OF NON AVAILABILITIES OF GRADE B WITH THE APPROVAL OF CHIEF ENGINEER.~~
6. SUITABLE JIGS SHOULD BE USED TO AVOID DISTORTION DUE TO WELDING.
5. WHERE 'A' IS < 1980 mm STIFFENERS ABOVE THE GIRDER CENTRES ARE NOT TO BE PROVIDED.
4. ~~MAX. SPACING OF SLEEPERS SHALL BE 650 mm CENTRE TO CENTRE. AT RAIL JOINTS THE CLEAR SPACING BETWEEN TWO CONSECUTIVE H-BEAM SLEEPERS SHALL NOT BE MORE THAN 200MM.~~ (ALT 1)
3. THIS DESIGN IS SUITABLE FOR AXLE LOAD UPTO 30 t.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
1. THIS DRAWING SUPERSEDES DRAWING NO RDSO/B-1636/4.

SPECIFICATION

4. FABRICATION OF SLEEPER SHALL BE DONE AS PER RDSO SPECIFICATION No. BS:45.
3. HOT DIP GALVANISING TO BE DONE AS PER IS:4759 TO PREVENT CORROSSION. HOWEVER CBE MAY PERMIT USE OF STEEL H-BEAM SLEEPERS WITH PAINTING AS PER PARA-218 OF IRBM ON ECONOMIC AND OTHER PRACTICAL GROUNDS.
2. SPRING WASHER AS PER IS:3063.
1. IRS SPECIFICATION FOR 25 mm THICK NYLON CORD REINFORCED ELASTOMERIC PAD RDSO/M & C/RP-197/03.

SCALE

MILLIMETRES

50 25 0 50 100 150 200 250 — 1:5

100 50 0 100 200 300 400 500 — 1:10

ALT:	DESCRIPTION	DATE
2.	RAIL FASTENING ASSEMBLY DRAWING NO ALTERED AND NOTE NO 13 DELETED AND NOTE NO-7 CHANGED.	ED/B&S 10/2/2021; DBS/B&S 10.02.21; ADE/B&S 9/2/21
1	NOTE NO 4 CHANGED AS PER IRPWM CORRECTION SLIP NO- 128 FOR PARA 273(6) OF IRPWM AND CBS/SCS DATED 06-06-2014	ED/B&S 3/9/2020; DBS/B&S 02.09.20; -Sd- ADE/B&S

R. D. S. O.

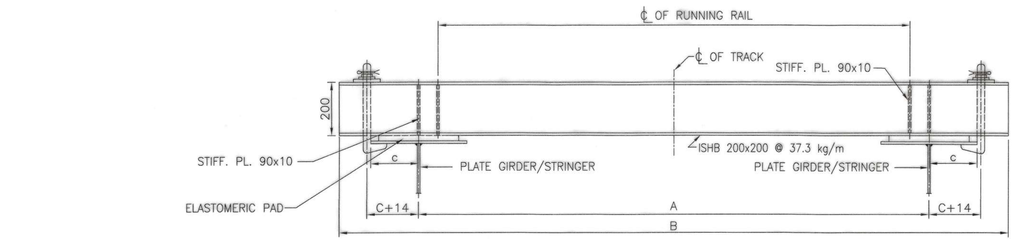
DETAILS OF H-BEAM STEEL SLEEPER FOR BRIDGES (B.G.)

~~(FOR FIELD TRIAL ONLY)~~ (ALT 1)

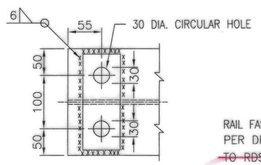
PROVISIONAL

RDSO/B-1636/4/R

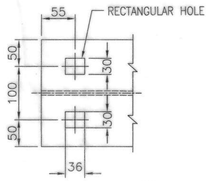
CALCULATION REGISTER No.DD/2005/6 PAGES	DRAWN BY: PRAMOD SAH/SE	COMPUTERISED BY: PRAMOD SAH/SE	ADE/B&S/SS-III 14/3/14	DBS/SB-I 14.3.14	EDBS 14/3/14	AutoCAD COMPUTER FILE NAME: RDSO/B-1636/4R
DONE BY: R.N.SHUKLA/SED; CHECKED BY: T-HUSAIN/SED	CHECKED BY: R.N.SHUKLA/SED	CHECKED BY: R.N.SHUKLA/SED				



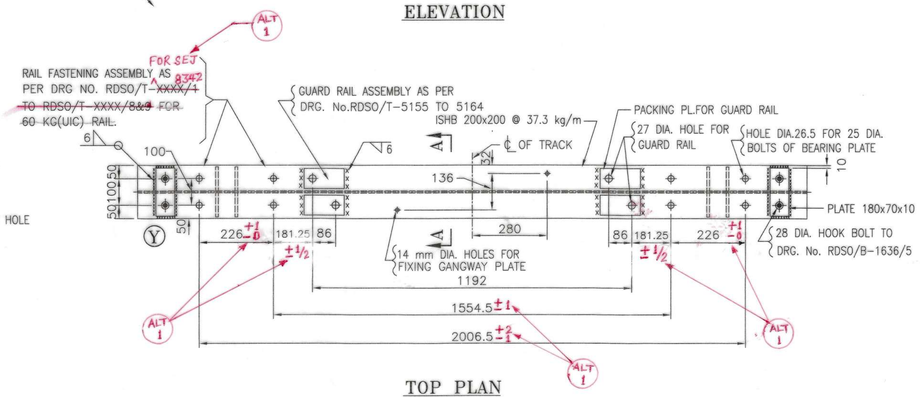
ELEVATION



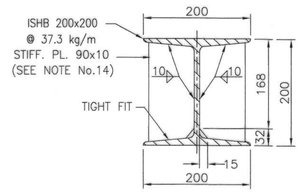
DETAIL AT (Y)
(TOP FLANGE)



DETAIL AT (Y)
(BOTTOM FLANGE)



TOP PLAN



SECTION ON AA

FOR B.G.

DIMENSIONS	SPAN (IN m)				
	RIVETTED PLATE GIRDERS				
	24.4	18.3	12.2	9.2	6.1
A	1980	1830	1850	1850	1880
B (MIN.)*	2685	2495	2475	2475	2495
C	200	180	160	160	155
F	FLANGE WIDTH				

DIMENSIONS A, B & C, SHOWN ABOVE ARE FOR STANDARD RBG RIVETTED PLATE GIRDERS.

FOR B.G.

DIMENSIONS	SPAN (IN m)						
	WELDED PLATE GIRDERS			OPEN WEB GIRDERS			
	12.2	18.3	24.4	30.5	45.7	61.0	76.2
A	1850	1830	1980	1900	1900	1900	1900
B (MIN.) *	2655	2715	2905	2515	2515	2515	2515
C	250	290	310	155	155	155	155
F	FLANGE WIDTH						

DIMENSIONS A,B,C, SHOWN ABOVE ARE FOR STANDARD MBG WELDED PLATE GIRDER AND RBG/MBG OPEN WEB GIRDERS FOR OTHER DESIGNS VALUES OF C&B BE CALCULATED AS BELOW.

C=HALF TOP FLANGE WIDTH

B (MIN) * = 2C + A + 305 BUT NOT LESS THAN 2440 mm IN CASE OF B.G. ~~AS PER PARA 273 OF IRPWM.~~ ALT 2

3. SPACING OF THE SLEEPERS IS TO BE DECIDED AS PER PARA No. 227 OF IRPWM 2020 AS CORRECTED FROM TIME TO TIME.
6. STEEL TO BE USED SHOULD BE OF GRADE E-250 B₀ QUALITY AS MENSIONED UNDER CLAUSE 8.2 (AS PROVIDED IN ACS NO5 DATED 30-08-2013) OF IRS; B1-2001, AS CORRECTED FROM TIME TO TIME. ALT 2

18. SIZE OF FILLET WELDS ARE EXPRESSED IN LEG LENGTH.
17. IF CHIEF ENGINEER OF THE ZONAL RLY. CONSIDERS THAT THE GUARD RAIL IS STIFFER ENOUGH TO PREVENT BUNCHING OF SLEEPERS IN THE EVENT OF DERAILMENT, HE MAY SUITABLY DECIDE DISPENSATION OF TIE ANGLES ON THE STEEL H-BEAM SLEEPERS.
16. TO FACILITATE MOVEMENT OF GIRDER ENDS, FISH PLATED JOINTS IN GUARD RAILS SHOULD BE PROVIDED ON EACH PIER. WELDED GUARD RAIL SHOULD NOT BE USED.
15. THE LOCATION WHERE H-BEAM SLEEPER IS TO BE SEATED IS TO BE THOROUGHLY CLEANED AND A THICK COAT OF READY MIXED RED LEAD PAINT CONFORMING TO IS:102 IS TO BE GIVEN WELL IN ADVANCE BEFORE PROVIDING H-BEAM SLEEPER.
14. STIFFENER PLATE SHOULD BE WELDED ON BOTH SIDES WITH TOP FLANGE OF H-BEAM IN FULL LENGTH AND WITH WEB OF H-BEAM UPTO A DEPTH OF 168 mm. THE STIFFENER PLATE SHALL BE HAVING A TAPERED CUT BEYOND 168 mm DEPTH AND SHALL TIGHT FIT WITH THE BOTTOM FLANGE WITHOUT WELDING.
13. FOR RIVETTED/WELDED PLATE GIRDER, SUITABLE THICKNESS OF M. S. PACKING PLATE SHOULD BE WELDED AT THE BOTTOM FLANGE OF H-BEAM SLEEPER TO MAINTAIN THE RAIL LEVEL DUE TO THE THICKNESS OF SPLICE PLATE AND SECOND PLATE (IF PROVIDED). AS A RESULT OF PROVIDING H-BEAM SLEEPER, THE LEVEL OF TRACK SHALL BE RAISED BY 72 mm WITH 60 kg. RAIL. THE EFFECT OF SUCH RAISES OF TRACK LEVELS ON SCHEDULE OF DIMENSIONS AND EXISTING VERTICAL CLEARANCES ON ELECTRIFIED SECTIONS BE TAKEN INTO CONSIDERATION BEFORE ACTUAL GOING FOR SUCH SLEEPERS. ALT 2
~~12. FOR SUCH CASES WHERE NO STANDARD DRAWING OF RAIL FASTENING ASSEMBLEY IS AVAILABLE RAILWAYS MAY FOLLOW THEIR OWN DESIGNS.~~
11. FOR SEATING ARRANGEMENT FOR RIVETTED PLATE GIRDERS/STRINGERS AND ARRANGEMENT FOR FIXING GANGWAY SEE DRG. No. RDSO/B-1636/5
10. FOR NON STANDARD DESIGN, DIMENSION 'A' AS SHOWN ABOVE SHOULD NOT BE MORE THAN 1980 mm.
9. IN CASES WHERE THE CLEARANCES BETWEEN THE BRIDGE STRUCTURES AND LIVE OHE IN ELECTRIFIED SECTIONS WOULD BE DIFFERENT FROM THOSE SPECIFIED IN THE SCHEDULE OF DIMENSION, THE MATTER SHOULD BE REFERED TO THE CHIEF ELECTRICAL ENGINEER OF RAILWAY CONCERNED AND ACTION TAKEN AS PER HIS ADVICE.
8. FOR NON-STANDARD DESIGN OF OPEN WEB GIRDERS, CLEARANCE AVAILABLE ABOVE RAIL LEVEL SHOULD BE CHECKED AS PER SCHEDULE OF DIMENSIONS BEFORE LAYING STEEL H-BEAM SLEEPER 228 AND OTHER RELEVENT PARAS
7. GUARD RAIL SHALL BE PROVIDED AS PER PARA ~~275~~ OF INDIAN RAILWAY PERMANENT WAY MANUAL JUNE 2020. AS CORRECTED FROM TIME TO TIME. ALT 2
~~6. M.S. MATERIAL TO BE WELDED SHOULD BE TO IS: 2062, GRADE-B. GRADE -A MAY BE ALSO USED IN THE CASE OF NON AVAILABILITIES OF GRADE-B WITH THE APPROVAL OF CHIEF ENGINEER.~~
5. SUITABLE JIGS SHOULD BE USED TO AVOID DISTORTION DUE TO WELDING.
4. WHERE 'A' IS < 1980 mm STIFFENERS ABOVE THE GIRDER CENTRES ARE NOT TO BE PROVIDED.
~~3. MAX. SPACING OF SLEEPERS SHALL BE 650 mm CENTRE TO CENTRE. AT RAIL JOINTS THE CLEAR SPACING BETWEEN TWO COSECUTIVE H-BEAM SLEEPERS SHALL NOT BE MORE THAN 200MM.~~ ALT 2
2. THIS DESIGN IS SUITABLE FOR AXLE LOAD UPTO 30 t.
1. ALL DIMENSIONS ARE IN MILLIMETRES.

NOTE

4. FABRICATION OF SLEEPER SHALL BE DONE AS PER RDSO SPECIFICATION No. BS:45.
3. HOT DIP GALVANISING TO BE DONE AS PER IS:4759 TO PREVENT CORROSSION. HOWEVER CBE MAY PERMIT USE OF STEEL H-BEAM SLEEPERS WITH PAINTING AS PER PARA-218 OF IRBM ON ECONOMIC AND OTHER PRACTICAL GROUNDS.
2. SPRING WASHER AS PER IS:3063.
1. IRS SPECIFICATION FOR 25 mm THICK NYLON CORD REINFORCED ELASTOMERIC PAD RDSO/M & C/RP-197/03.

SPECIFICATION

MILLIMETRES

5025 0 50 100 150 200 250 1:5

100500 100 200 300 400 500 1:10

SCALE

ALT:	DESCRIPTION	DATE
2.	NOTE No 3 & 7 CORRECTED AS PER IRPWM 2020. NOTE No.6 CORRECTED AS PER ACS No.5 OF IRS B1-2001 AND NOTE No.12 DELETED.	ADE/BRG
1.	DIMENSIONS AND DRAWING NO OF RAIL FASTENING ASSEMBLY ALTERED.	ADE/BRG

ALT:

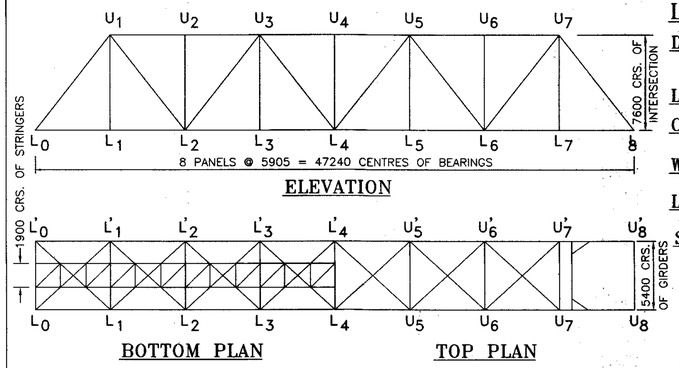
R. D. S. O.

DETAILS OF H-BEAM STEEL SLEEPER WITH SWITCH EXPANSION JOINT FOR BRIDGES (B.G) (FOR FIELD TRIAL ONLY)

PROVISIONAL

RDSO/B-1636/9

CALCULATION REGISTER No.DD/2005/6							
PAGES	DONE BY: R.N.SHUKLA/SED	DRAWN BY: PRAMOD SAH/SE	COMPUTERISED BY: PRAMOD SAH/SE	ADE/B&S/SS-III	DBS/SB-I	EDBS	AutoCAD COMPUTER FILE NAME: RDSO/B-1636/9
	CHECKED BY: T.HOLY CORY/SED	CHECKED BY: R.N.SHUKLA/SED	CHECKED BY: R.N.SHUKLA/SED				



GENERAL DATA

CENTRES OF BEARINGS = 47.240 m
CENTRES OF GIRDERS = 5.400 m

LOADING

DEAD LOAD STEEL WORK (ASSUMED) = 151.65 TONNES
TRACK @ 6.0 Kg/Cm = 28.35TONNES
= 180.00 TONNES

LIVE LOAD 25t LOADING – 2008

CDA $0.15 + \frac{8}{6+L}$ WHERE 'L' IS LOADED LENGTH IN METRES

WIND LOAD @ 150 Kg/m^2 & RACKING FORCE @ 6 Kg/Cm RUN

LONG. LOAD 25t LOADING – 2008

SEISMIC. LOAD AS PER ZONE V OF IRS BRIDGE RULES.

STRINGER

LOADING	BENDING	SHEAR
LIVE LOAD	87.266 TONNES	102.95 TONNES
C.D.A. @ 0.688	60.04 TONNES	70.83 TONNES
TRACK @ 0.6 t/m	3.543 TONNES	3.54 TONNES
DEAD LOAD (ASSUMED)	4.00 TONNES	4.00 TONNES
	154.848 TONNES	181.32 TONNES

BENDING MOMENT FOR DESIGN = 154.848/2 x 590.5/8 = 5715.00 tCm.
SHEAR FORCE FOR DESIGN = 181.32/4 = 45.33 TONNES
SECTION WEB PLATE 750x10 & 2 FL. PL. 450x20
GROSS AREA OF FLANGE SECTION = 75x1+2x45x2 = 255.00 Cm^2
MOMENT OF INERTIA ALONG X–X = 302021.25 Cm^4
fbc = fbt = Mxy/Zxx = $5715.00x10^3$/7646.10 =7.4743 Kg/mm^2
(a) BASIC PERM. BENDING STRESS = 16.30 Kg/mm^2 IN COMP. & TENSION
(b) PERM. STRESS IN FATIGUE FOR CLASS 'D' CONNECTION (APPENDIX–G) FOR 10^7 CYCLES & MIN./MAX.=0.049=19.854 Kg/mm^2 IN COMP. & 11.487 Kg/mm^2 IN TENSION
(C) Cs VALUE=15.8 Kg/mm^2, STRESS IN BENDING COMPRESSION=15.80 Kg/mm^2
GOVERNING VALUE, MIN. OF a,b&c = 207.51 Kg/mm^2 IN COMP. & 11.5 Kg/mm^2 TENSION
ACTUAL STRESS=7.474 Kg/mm^2 IN COMP. AND 7.474 Kg/mm^2 IN TENSION
SHEAR STRESS= 45.33x10/75 = 6.044 Kg/mm^2
PERMISSIBLE SHEAR STRESS = 9.40 Kg/mm^2
$\frac{\text{CLEAR DEPTH}}{\text{WEB THICKNESS}} = \frac{750}{10} = 75 \leq 75$
HENCE NO STIFFENERS ARE REQUIRED
WEB CONNECTION WITH FLANGE
HORIZONTAL SHEAR = 45.33x45x2x38.5/302021.25 = 0.52 t/Cm
PERM. STRESS IN WELD IN FATIGUE AS PER CLASS 'G' APPENDIX 'G' FOR 10^7 CYCLES = 3.544 Kg/mm^2 = 0.354 t/cm^2
SIZE OF FILLET WELD'S = 0.52x10/2x0.7x0.354 =10.48 mm PROVIDE 12 mm
END CONNECTION
PROVIDE 2 Ls. 150x150x10
SHEAR STRENGTH OF 22 DIA. BOLT
SHEAR FORCE PER BOLT
1.SINGLE INTERFACE=0.3X1X18.2/1.2=4.55t
2.DOUBLE INTERFACE=0.3X2X18.2/1.2=9.11t
IN BEARING WITH 10 mm = 2.35x1x2.2=5.17t.
(A) ONE SPAN LOADED SHEAR AT END = 45.33t.
NOs. OF 22 DIA. BOLTS TO CONNECT TO CLEAT
(i) WITH STRINGER = 45.33/5.17 (1+1.25x10/100) = 12
(ii) WITH CROSS GIRDER = 45.33/4.55 (1+1.25/100x20) = 12.45, SAY14 NOS.
(B) BOTH SPAN LOADED
NOs. OF BOLTS REQUIRED TO CONNECT WITH CROSS GIRDER
= 59.17/5.17 (1+1.25/100x10) = 18, PROVIDED 20 Nos. SAFE.

CROSS GIRDER

SPAN = 5.40 m

LOADING

LIVE LOAD REACTION FROM STRINGER =138.56/4 = 34.64 TONNES
IMPACT @ 0.535 = 18.53 ,,
DEAD LOAD OF STRINGER AND TRACK = 4 ,,
TOTAL REACTION AT STRINGER = 57.17 ,,
MAX. BENDING MOMENT = 57.17x175 = 100045.75 t.Cms
SELF BENDING MOMENT = 4x5.40/8 = 270 t.Cms.
TOTAL DESIGN BENDING MOMENT = 10004.75+2.70 = 10007.45 tCm.
SHEAR FORCE = 56.17+2 = 59.17 TONNES
SECTION WEB PLATE 925x20 : 2 FL. PL. 450X25
GROSS AREA OF FLANGE SECTION = 2X45X2.5 + 92.5X2 = 410 Cm^2
MOMENT OF INERTIA ALONG X–X = 639682.2917 Cm^4
fbc = fbt = MY/Ixx = 10007.45x48.75x10/639682.3 = 7.802Kg/mm^2 = 0.7802 t/cm^2
(a) BASIC PERM: BENDING STRESS =15.40 Kg/mm^2 ;IN COMP.& TENSION
(b) PERM. STRESS IN FATIGUE FOR CLASS 'D' CONNECTION (APPENDIX.G) FOR 10^7 CYCLES & f min/fmax = 0.097= 21.61 Kg/mm^2 IN COMP. AND 12.88 Kg/mm^{2}IN TENSION.
(c) Cs VALUE = 659.7 Kg/mm^2 ; STRESS IN BENDING COMP. 15.80 Kg/mm^2 GOVERNING VALUE MINIMUM OF a,b&c = 15.80 Kg/mm^2 IN COMP. AND 12.88 Kg/mm^{2}IN TENSION.
SHEAR STRESS = 59/92.5x2 = 3.2 Kg/mm^2 < 9.40 Kg/mm^2
$\frac{\text{CLEAR DEPTH}}{\text{WEB THICKNESS}} = \frac{925}{20} = 46.25 > 75$
HENCE STIFF: ARE NOT REQUIRED.
SECTION 2 Ls. 75x75x10
Ixx = 390.875 Cm^4 > 210 Cm^4 SAFE
WEB CONNECTION WITH FLANGE
HORIZONTAL SHEAR = $\frac{59.17x45x2.5x47.5}{639682.3}$ 0.4943 t/Cm
PERM. STRESS IN WELD IN FATIGUE AS PER CLASS 'G' APPENDIX 'G' FOR 10^7 CYCLES = 3.785 Kg/mm^2 = 0.38 t/cm^2
SIZE OF FILLET WELD 'S'=0.4943X10/2X0.7X0.3785=0.93 mm,1cm PROVIDED 12mm.

CHECKING OF MEMBERS FOR COMBINED AXIAL AND BENDING STRESSES WITH SEISMIC

MEMBER	AXIAL STRESS	BENDING STRESS	$\frac{fa}{Fa} + \frac{fb}{Fb}$
$L_0–U_1$	7.3	2.69	$\frac{7.3}{14.03x1.167} + \frac{2.69}{1.167x16.3} = 0.58 < 1$
$U_1–U_2$ $U_2–U_3$	10.36	0.88	$\frac{10.36}{13.522} + \frac{0.88}{16.3} = 0.820 < 1$

MEMBER	C.D.A.	AREA OF INFLUENCE LINE IN Cm^2	DEAD LOAD IN TONNES PER Cm RUN	LIVE LOAD IN TONNES PER Cm RUN	FORCE IN TONNES DUE TO DEAD LOAD	FORCE IN TONNES DUE TO LIVE LOAD	FORCE IN TONNES DUE TO C.D.A.	MAX. FORCE IN TONNES	LONG. FORCE IN TONNES	SEISMIC EFFECT IN TONNES: SEISMIC ON MOVING LOAD AND BOTTOM CHORD HORZ. BENDING	SEISMIC ON MOVING LOAD AND BOTTOM CHORD VERT. BENDING	SEISMIC ON TOP CHORD SWAY BRACING EFFECT HORZ. BENDING	SEISMIC ON TOP CHORD SWAY BRACING EFFECT VERT. BENDING	SEISMIC ON TOP CHORD PORTAL EFFECT HORZ. BENDING	SEISMIC ON TOP CHORD PORTAL EFFECT VERT. BENDING	MAX. SEISMIC EFFECT (t)	MAX. FORCE IN TONNES WITH SEISMIC L.F.+D.L. +L.L.	EFFECTIVE LENGTH IN Cm (L)	LEAST RADIUS OF GYRATION IN Cm (r)	(L/r)	PERMISSIBLE STRESS IN Kg / mm^2 WITHOUT OCCASIONAL LOAD COMP.	PERMISSIBLE STRESS IN Kg / mm^2 WITHOUT OCCASIONAL LOAD TENSION	PERMISSIBLE STRESS IN Kg / mm^2 WITH OCCASIONAL LOAD COMP.	PERMISSIBLE STRESS IN Kg / mm^2 WITH OCCASIONAL LOAD TENSION	NET SECTION REQUIRED IN Cm^2 WITHOUT OCC. LOAD	NET SECTION REQUIRED IN Cm^2 WITH OCC. LOAD	GROSS SECTION REQUIRED IN Cm^2 WITHOUT OCC. LOAD	GROSS SECTION REQUIRED IN Cm^2 WITH OCC. LOAD	SECTION PROVIDED	AREA IN Cm^2 PROVIDED NET SECTION	AREA IN Cm^2 PROVIDED EFFECTIVE GROSS AREA	NO OF HSFG BOLT REQUIRED	MEMBER
$L_0–L_1$	0.300	1605.81	0.0191	0.047	30.595	74.911	22.493	127.999	63	±15.07	±15.996	±1.244	±2.25	–	±3.05	±36.1	227.1	–	–	–	–		–		191	126.4	–	–	2 PLs. 542x12 4 PLs. 150x16	188.48	–	50	$L_0–L_1$
$L_1–L_2$	,,	,,	,,	,,	,,	,,	,,	,,	,,	63	±40.90	±15.996	±3.52	±2.25	–	±3.05	±64.2	255.2	–	–	–	–		–		191	142.04	–	–		188.48	–	28	$L_1–L_2$
$L_2–L_3$	,,	3441.02	,,	,,	65.561	160.52	48.199	274.284	51.782	58.12	±34.33	±5.18	±4.83	–	±3.05	±103.98	430.08	–	–	–	–		–		326.06	239.4	–	–	2 PLs. 542x20 4 PLs. 150x25	305.70	–	48	$L_2–L_3$
$L_3–L_4$	,,	,,	,,	,,	,,	,,	,,	,,	49.980	±66.73	±34.33	±6.013	±4.83	–	±3.05	±113.43	437.73	–	–	–	–		–		324.26	243.63	–	–		305.70	–	49	$L_3–L_4$
$U_1–U_2$	,,	–2752.8	,,	,,	–52.44	–128.419	–38.559	–219.427	–	–	∓ 27.51	–	∓3.86	±2.07	–	∓ 30.33	–249.83	502	20.80	24.11	13.52	–	15.78	–	–	–	162.3	164.22	2 PLs. 542x12 2 FL. PLs. 150x10 1 TOP PL. 642x12	–	211.85	55	$U_1–U_2$
$U_2–U_3$	,,	,,	,,	,,	,,	,,	,,	,,	–	–	∓ 27.51	–	∓ 3.86	±5.39	–	∓ 28.67	–248.17	502	20.80	24.11	13.52	–	15.78	–	–	–	162.3	163.13		–	211.85	28	$U_2–U_3$
$U_3–U_4$	,,	–3670.42	,,	,,	–69.932	–171.225	–51.413	–292.569	–	–	∓ 36.54	–	∓ 5.15	±7.045	–	∓ 38.17	–330.77	502	21.07	23.82	14.10	–	16.45	–	–	–	207.5	201.07	2 PLs. 542x16 2 FL. PLs. 150x20 1 TOP PL. 642x16	–	320.16	37	$U_3–U_4$
$L_0–U_1$	0.3003	–2617.26	,,	0.0514	–49.866	–134.635	–40.426	–224.927 –6.01*	–	–	∓ 28.10	–	∓ 3.67	–	∓ 4.97	∓ 29.3 ⊕	–260.3 ⊕	818.0	21.593	37.89	14.03	–	16.37	–	–	–	160.37	159.00	2 PLs. 542x16 , 2 FL. PLs. 150x20 1 TOP PL. 642x20	–	361.84 △	58	$L_0–U_1$
$U_1–L_2$	0.778 0.322	–54 1923	214 –1336	,,	0.081 0.052	35.619	–4.315 100.445	–3.355 32.351	+27.948 +168.415	–	–	±20.07	–	±2.62	–	–	±22.69	191.2	–	–	–	–	–	–	138	106.40	–	–	4 FL.PLS 100X12 2 SIDE PLs. 400x16	164.72	–	43	$U_1–L_2$
$L_2–U_3$	0.560 0.351	214 –1336	–1122=1869	,,	0.064 0.053	–21.371	13.76 –59.84	7.710 –21.02	0.099 –102.231	–	–	∓ 12.04	–	∓ 1.57	–	–	∓ 13.61	–132.61	818.0	13.383	50.34	13.24	–	15.45	–	–	–	89.81	85.78	4 FL.PLS 100X10 2 SIDE PLs. 400x12	–	136.00	30	$L_2–U_3$
$U_3–L_4$	0.455– 0.392	480.7 854.6	=374	,,	0.058 0.055	7.124	–27.774 47.013	–12.632 18.451	–33.282 72.588	–	–	±4.015	–	±0.52	–	–	∓ 4.53	77.13 –37.83	818.0	13.383	–	–	–	–	–	–	75.55	–	25.13	24.5	4 FL.PLS 100X10 2 SIDE PLs. 400x12	126.6	,,	17	$U_3–L_4$
$U_1–L_1$ $U_3–L_3$	0.600	590.5	,,	0.059	11.252	34.642	20.757	66.649	–	–	±6.344	–	±0.83	–	–	±7.17	73.83	–	–	–	–	–	–	–	–	–	79.63	41.09	–	–	2 FL. PLs. 200x12 1 WEB PL. 586x10	93.52	–	17	$U_1–L_1$ $U_3–L_3$
$U_2–L_2$ $U_4–L_4$	,,	,,	–	–	–5	,,	,,	–5	–	–		–	–0.6	–	–	∓ 0.6	∓ 5.6	532	3.88	137.11	5.21	–	6.09	–	–	–	9.6	9.2		–	106.60	2	$U_2–L_2$ $U_4–L_4$

∗ THIS IS DUE TO PORTAL EFFECT. ⊕ THE MAX: SEISMIC EFFECT IS DUE TO FULL SEISMIC FORCE THROUGH PORTAL. FOR OTHER MEMBERS SEISMIC EFFECT IS DUE TO 50% SEISMIC FORCE THROUGH PORTAL PLUS 50% THROUGH SWAY BRACINGS.
@ PERMISSIBLE STRESSES ARE GOVERNED BY FATIGUE (CLASS 'D') △ THE AREA PROVIDED IS FOR DIRECT AXIAL FORCE AND BENDING MOMENT = 2944.09 t cm.

PANEL	SHEAR DUE TO SEISMIC & RACK FORCE IN TONNES	TRACTIVE EFFORT IN TONNES	FORCE IN TONNES 0.741x SHEAR	FORCE IN TONNES 0.339x T.E.	TOTAL FORCE IN TONNES	EFFECTIVE LENGTH IN Cm	L/r	PERM. STRESS IN Kg/mm^2	SECTION PROVIDED	ACTUAL STRESS IN Kg/mm^2	20 DIA. FIELD HSFG BOLTS REQD. IN S.S. (21.5 DIA. HOLES)
$L_0–L_1$	45.86	31.50	33.98	10.67	44.65	259.32	61.66	12.53	⊣ STAR Ls. STAR Ls.100x100x10	12.52	13
$L_1–L_2$	34.39	31.50	25.48	10.67	36.15	259.32	61.66	12.53		9.98	10
$L_2–L_3$	21.47	31.50	15.91	10.67	26.58	259.32	61.66	12.53		7.12	8
$L_3–L_4$	9.04	31.50	6.7	10.67	17.39	259.32	61.66	12.53		4.36	5

BOTTOM LATERAL BRACING

PANEL	SHEAR IN TONNES DUE TO SEISMIC LOAD	SHEAR IN TONNES DUE TO 2.5% OF TOP CHORD FORCE	TOTAL SHEAR IN TONNES	FORCE IN TONNES 0.741x SHEAR	EFFECTIVE LENGTH IN Cm	L/r	PERM. STRESS IN Kg/mm^2	SECTION PROVIDED	ACTUAL STRESS IN Kg/mm^2	20 DIA. HSFG BOLTS REQD. IN S.S. (21.5 DIA. HOLES)
$U_1–U_2$	3.79	10.98	14.77	10.94	400	129.43	6.51	⊤ TOP PL 200x10 WEB PL 100x10	3.65	4
$U_2–U_3$	2.27	10.98	13.25	9.82	400	129.43	6.51		3.27	4
$U_3–U_4$	0.76	14.64	15.39	11.40	400	129.43	6.51		3.80	4

TOP LATERAL BRACING

अ0 अ0 मा0 स0
R. D. S. O.

25टी भारण – 2008
LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
प्रतिबल खाका
STRESS SHEET

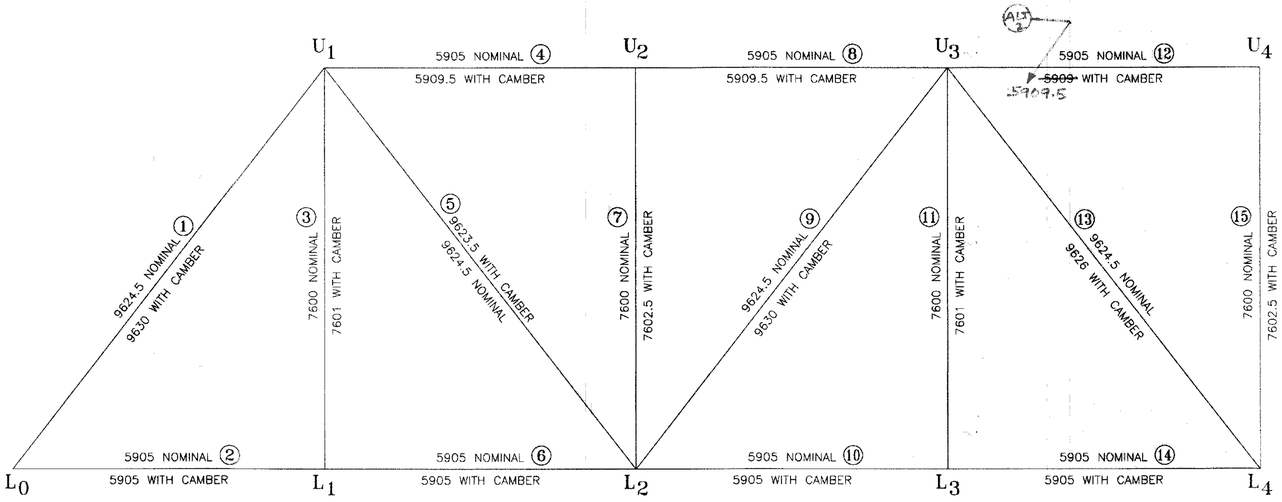
PROVISIONAL

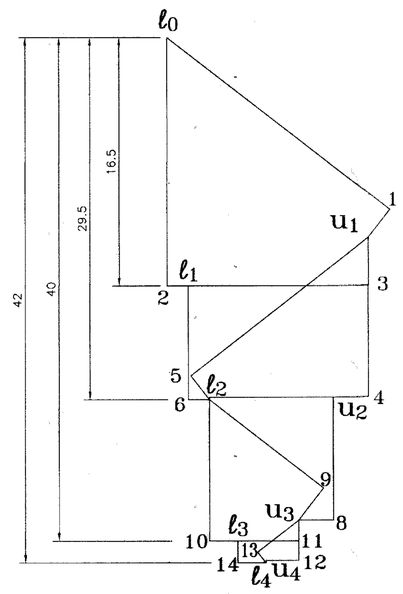
IRS: B1 – 2001

NOTE	SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

RDSO/B–17181/1

CALCULATION REGISTER No. DD/2014/26 PAGES
DONE BY: (T.HOLY KOM/SSE) CHECKED BY: (S.S.SINGH/SSE)
COMPUTERISED BY: (PRAMOD SAH/SSE) CHECKED BY: (R.N.SHUKLA/SSE)
(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS–III
(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB–I
APPROVED BY DDBS (A.K.DADARYA)
NOTIFICATION No.
AutoCADFILE No. RDSO/B–17181/1
FLOPPY No.





1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THE ACTUAL MANUFACTURED LENGTHS OF MEMBERS NECESSARY TO PRODUCE THE REQUIRED CAMBER ARE MADE UP IMMEDIATELY OUTSIDE THE AREA OF GUSSET PLATES BOTH IN CHORD MEMBERS AND WEB MEMBERS.
3. THE SMALL VARIATIONS IN LENGTH OF MEMBERS NECESSARY TO PRODUCE THE REQUIRED CAMBER.
4. THE POSITIONS AND ANGULAR SETTING OUT LINES OF CONNECTION HOLES IN GUSSET PLATES, ALSO THE POSITION OF CONNECTION HOLES IN THE CHORD JOINTS ARE TO BE EXACTLY AS SHOWN ON THE DRAWINGS WITHOUT ANY ALLOWANCE FOR CAMBER. THIS WILL PERMIT THE BUTTS IN THE CHORD SEGMENTS TO BE EXACTLY AS SHOWN ON THE DRAWINGS.
5. THE GROUPS OF CONNECTION HOLES AT THE ENDS OF ALL MEMBERS ARE TO BE AS SHOWN ON THE DRAWINGS i.e. WITHOUT ANY ALLOWANCE FOR CAMBER. THE NECESSARY ALLOWANCE FOR CAMBER IS ADJUSTED IN THE DISTANCE BETWEEN THE GROUPS.
6. RAILWAY FLOOR SYSTEM: THE LENGTHS OF ALL MEMBERS ARE TO BE AS SHOWN ON DRAWINGS WITH NO ALLOWANCE FOR CAMBER.
7. LATERAL SYSTEM: ALL THE TOP LATERAL BRACINGS ARE TO HAVE A CAMBER LENGTH OF 8005 BETWEEN CRS. OF INTERSECTIONS. THE LOWER SYSTEM OF LATERALS HAVE NO ALLOWANCE FOR CAMBER AND ARE TO BE 8002 BETWEEN CRS. OF INTERSECTIONS.

RESIDUAL CAMBER.

	LOADING CONDITION	PANELS L0	L1	L2	L3	L4	L5
A	D.L+L.L+I.L	0.00	16.50	29.50	40.00	42.00	—
B	L.L+I.L	0.00	13.33	23.84	32.32	33.94	—

A- CAMBER ON JACK
B- CAMBER ON SUPPORT WITH DL

MILLIMETRES
500 0 500 1000 1500 2000 2500 1:50
2 0 2 4 6 8 10 5:1
10 0 10 20 30 40 50 1:1

IRS M28, M39 FOR WELDING CONSUMABLES
IRS WELDED BRIDGE CODE – 1972
STEEL BRIDGE CODE – 1962
FABRICATION & ERECTION IRS B1-2001
METAL ARC WELDING IS:9595-1980

ALT:	DESCRIPTION	DATE
2.	DIMENSION ALTERED.	
1	TABLE ADDED.	

"THIS DRAWING IS THE PROPERTY OF RESEARCH DESIGNS AND STANDARDS ORGANISATION (MINISTRY OF RAILWAYS), LUCKNOW-226011, INDIA AND SHALL NOT BE USED, COPIED OR REPRODUCED IN PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING."

ED/B&S 20/7/18
DBS/B&S
ADE/B&S
ED/B&S
DBS/B&S
ADE/B&S

अ0 अ0 मा0 स0
R. D. S. O.

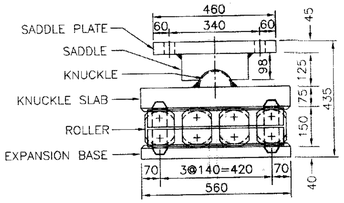
25टी भारण – 2008
25t LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
उभार आरेख
CAMBER DIAGRAM

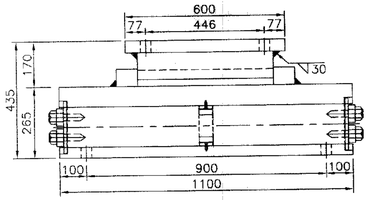
PROVISIONAL

RDSO/B-17181/2

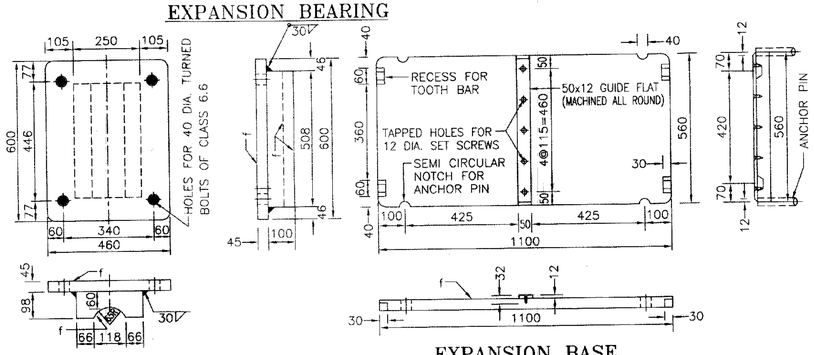
NOTE | SPECIFICATION | SCALE

CALCULATION REGISTER No.DD/2014/26
PAGES DONE BY: (T. HOLY KOM/SSE)
CHECKED BY: (S.S.SINGH/SSE)
COMPUTERISED BY: (V. K. PANDEY/SSE)
CHECKED BY: (R.N.SHUKLA/SSE)
(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS-III
(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I
APPROVED BY EDB&S (A. K. DADARAYA)
AutoCAD FILE No. B17181/2
NOTIFICATION No.
FLOPPY No.



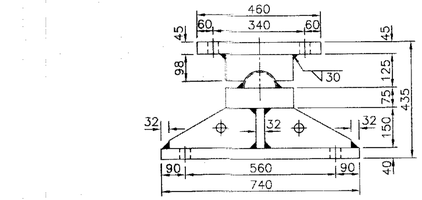


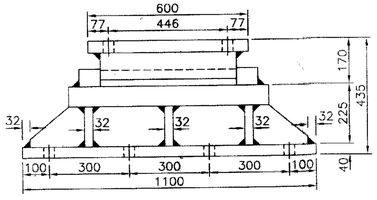
EXPANSION BEARING



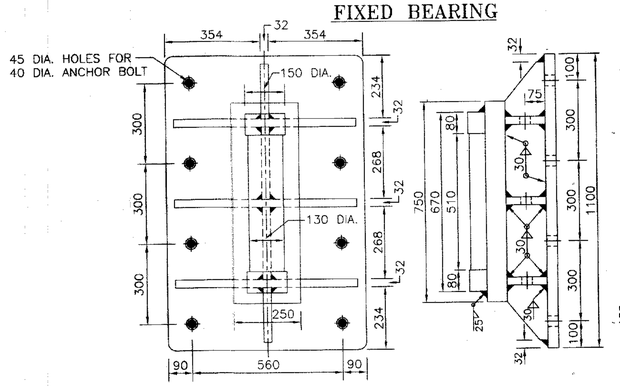
SADDLE & SADDLE PLATE

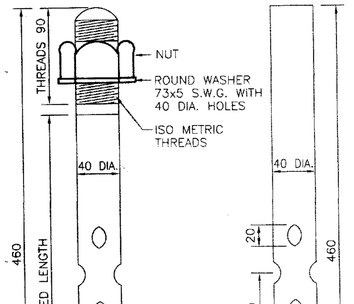
EXPANSION BASE





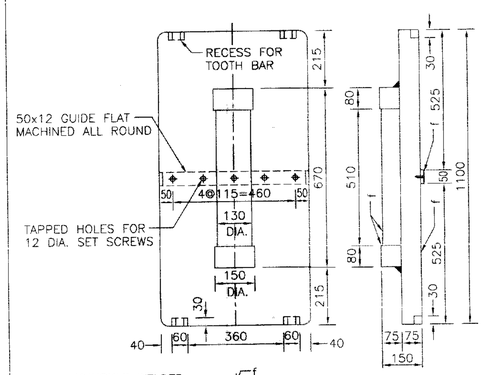
FIXED BEARING



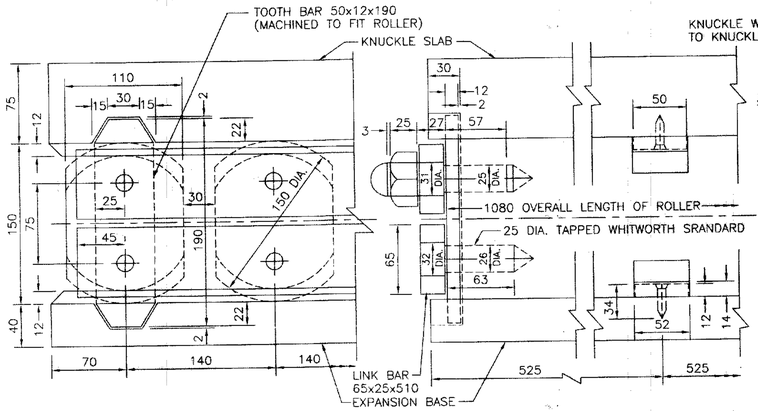


ANCHOR BOLT

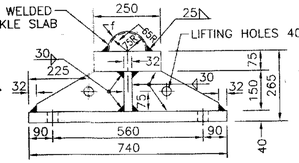
ANCHOR PIN



KNUCKLE & KNUCKLE SLAB

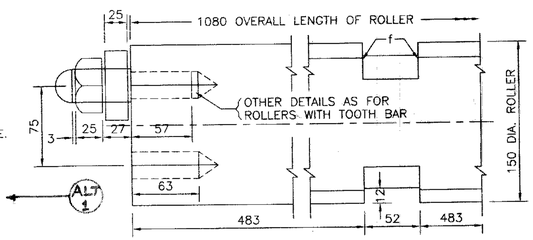


ROLLER END WITH TOOTH BAR



FIXED KNUCKLE

DETAILS OF BEARING



ORDINARY ROLLER END

STATEMENT SHOWING MOVEMENT OF THE POINT OF INTERSECTION OF BOTTOM CHORD & END RAKER WITH REFERENCE TO ℄ OF BASE SLAB.

DESCRIPTION	DISPLACEMENT IN mm		
	MIN. TEMP.	MEAN TEMP.	MAX.TEMP.
WITHOUT DEAD LOAD	+ 31.28	+ 10.68	- 8.92
WITH DEAD LOAD	+ 27.61	+ 8.01	- 11.59
WITH DEAD LOAD + FULL L.L.+IMPACT	+ 19.60	0.00	- 19.60

\+ DENOTES MOVEMENT OF INTERSECTION POINT TOWARDS INSIDE OF THE SPAN.
\- DENOTES MOVEMENT OF INTERSECTION POINT TOWARDS OUTSIDE OF THE SPAN.

DESCRIPTION	Nos.	WEIGHT IN TONNES
EXPANSION BEARING COMPLETE	1	1.33
FIXED BEARING COMPLETE	1	0.678

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. DESIGNED FOR R.C.BED BLOCK OF ORDINARY CONCRETE (M-150) ADOPTING 42.2 Kg/sq cm PERMISSIBLE PRESSURE.
3. THE DESIGN IS IN ACCORDANCE WITH IRS STEEL BRIDGE CODE WITH 25t LOADING-2008 & WELDED BRIDGE CODE.
4. WELDABLE MATERIAL TO BE USED, EXCEPT ROLLERS, SHALL BE OF MILD STEEL TO IS:2062, QUALITY 'Bo' FULLY KILLED & FULLY NORMALIZED. OTHER ~~MATERIAL WHERE WELDING IS NOT INVOLVED CAN BE AS PER IS: 2062, QUALITY 'A' SEMI KILLED MINIMUM.~~
5. ROLLERS, WHEN FORGED, SHALL BE TO CLASS 3 OF IS:2004-1978. ALTERNATIVELY THEY MAY BE TURNED FROM CARRIAGE AND WAGON AXLE MANUFACTURED AFTER 1931.
6. ALL THE EDGES OF THE PLATES SHOULD BE MACHINED FLAME CUT, SAWN OR PLANED.
7. HOLES FOR TURNED BOLTS SHOULD BE 1mm UNDER DRILLED IN SHOP AND SHOULD BE REAMED AT SITE TO MATCH THE DIA OF THE TURNED BOLTS.
8. ALL MACHINED SURFACES ARE SHOWN THUS --- f.
9. THE BASE SLAB SHOULD BE SO POSITIONED THAT THE TOOTH BARS OF ROLLERS ARE VERTICAL AT MEAN TEMPERATURE WHEN LIVE LOAD, WITH FULL IMPACT, OCCUPIES FULL SPAN.
10. PRE-HEATING FOR WELDING THE JOINTS, SHALL BE CARRIED OUT WHEN CONDITIONS WARRANT THE SAME.
11. ROLLERS ARE TO BE MACHINED ALL OVER.
12. METHOD OF ASSEMBLY AND WELDING SHOULD BE SO AS TO ENSURE PERFECT CONTACT BETWEEN MACHINED SURFACES OF THE FINISHED BEARINGS.

NOTE

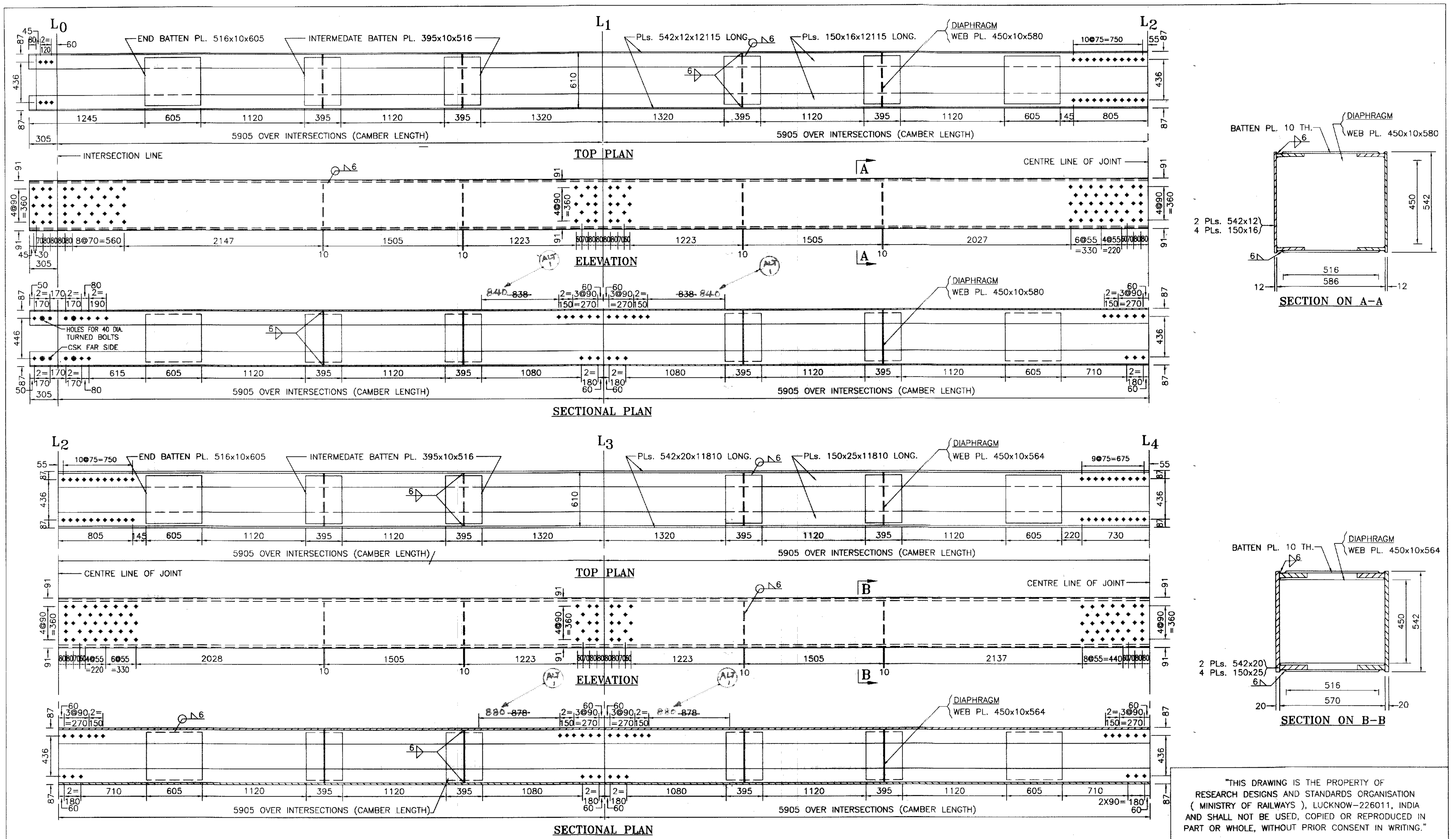
SPECIFICATION	SCALE	ALT:	DESCRIPTION	DATE
IRS WELDED BRIDGE CODE - 1972 STEEL BRIDGE CODE - 1962 FABRICATION & ERECTION IRS B1-2001	MILLIMETRES 25 0 25 50 75 100 125 1:2.5 100 0 100 200 300 400 500 1:10	1	NOTE NO 4 ALTERED.	ADE/SS

CALCULATION REGISTER No.DD/2014/26	COMPUTERISED BY: (PRAMOD SAH/SSE)	(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS-III	(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I	APPROVED BY EDBS (A.K.DADARYA)	AutoCAD FILE No. B17181/3 NOTIFICATION No. CBS/DOW	FLOPPY No.
PAGES	DONE BY: (T.HOLY KOM/SSE)					
	CHECKED BY: (S.S.SINGH/SSE)	CHECKED BY: (R.N.SHUKLA/SSE)				

अ0 अ0 मा0 स0
R. D. S. O.

25टी भारण -2008
25T LOADING - 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
धारकों का विवरण
DETAILS OF BEARINGS

RDSO/B-17181/3



DESCRIPTION	SHOP	FIELD
HSFG BOLT	⊕	●
ANCHOR BOLTS	◉	
TURNED BOLTS	◉	

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
3. HOLES FOR TURNED BOLTS SHOULD BE 1mm UNDER DRILLED IN SHOP AND SHOULD BE REAMED AT SITE TO MATCH THE DIAMETER OF THE TURNED BOLTS.
4. ALL SHOP HSFG BOLTS 20 DIA IN 21.5 DIA HOLES AND FIELD HSFG BOLTS 22 DIA. IN 23.5 DIA HOLES EXCEPT WHERE OTHERWISE SHOWN.
5. WELDABLE MATERIAL IS AS PER IS: 2062, QUALITY 'Bo' FULLY KILLED AND FULLY NORMALIZED ~~OTHER MATERIAL CAN BE AS PER IS: 2062, QUALITY 'A' SEMI KILLED MINIMUM.~~ (ALT 1)

NOTE

IRS M28, M39 FOR WELDING CONSUMABLES
IRS WELDING BRIDGE CODE - 1972
STEEL BRIDGE CODE - - - - 1962
FABRICATION & ERECTION IRS B1-2001
METAL ARC WELDING IS:9595-1980

SPECIFICATION

MILLIMETRES
200 0 200 400 600 800 1000 — 1:20
100 0 100 200 300 400 500 — 1:10

SCALE

ALT	DESCRIPTION	DATE
1.	NOTE NO 5 ALTERED & DIMENSION ALT.	

अ0 अ0 मा0 स0
R. D. S. O.

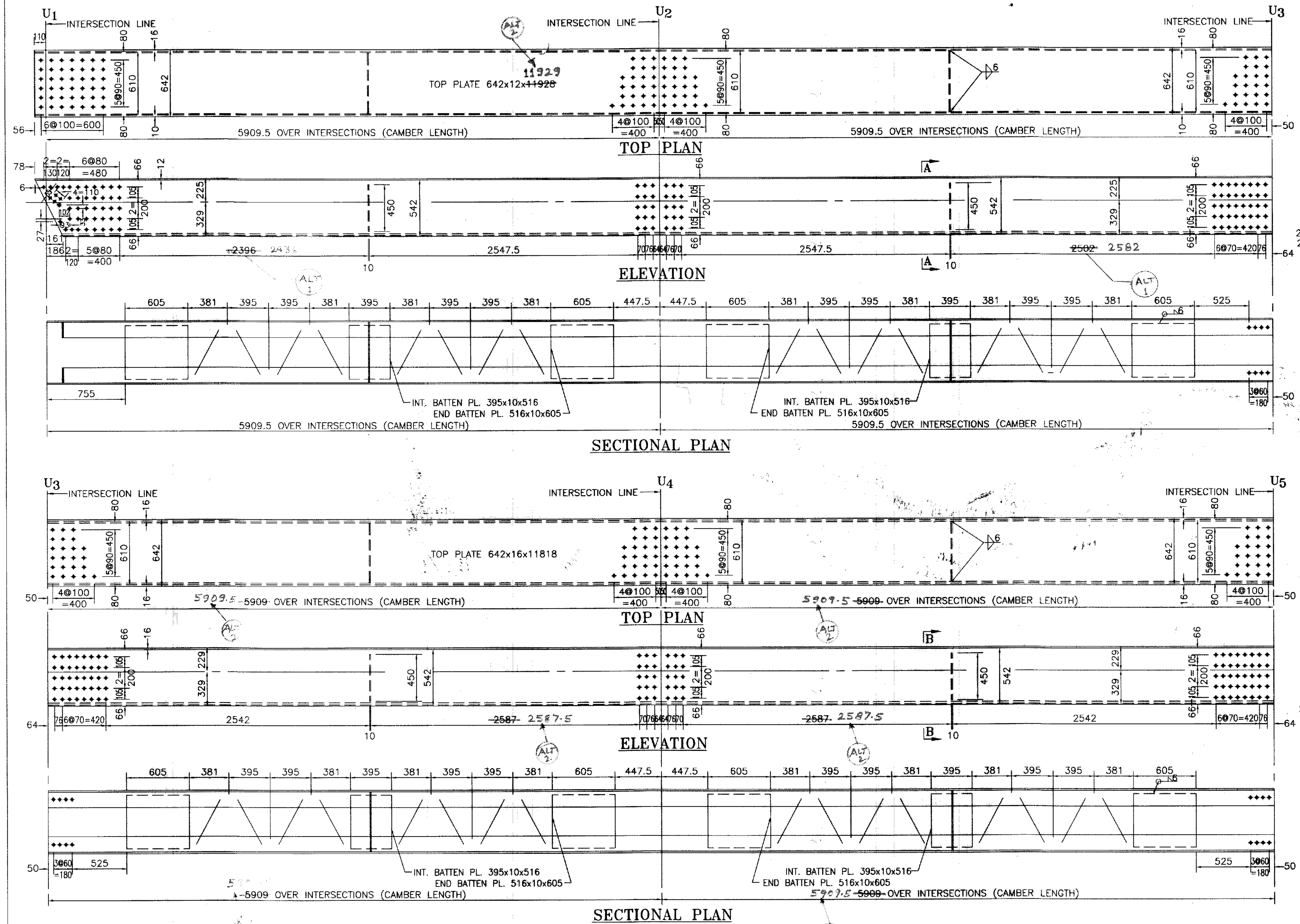
25टी भारण – 2008
25T LOADING – 1995
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
तलीय जीवा विवरण
DETAILS OF BOTTOM CHORDS

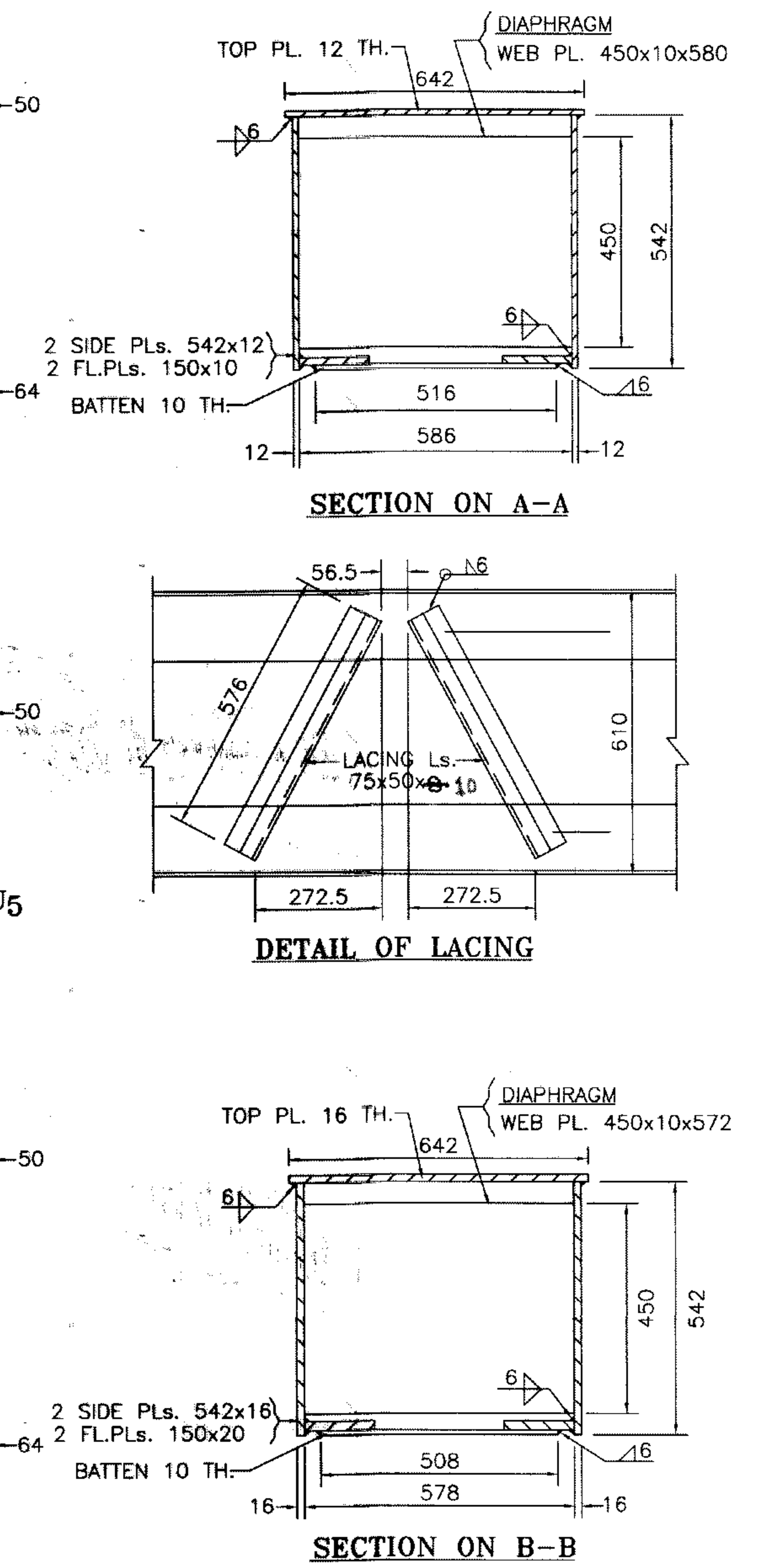
ED/BS
DBS/BS
ADE/BS

PROVISIONAL

RDSO/B-17181/4/R

CALCULATION REGISTER No. DD/2014/26
PAGES DONE BY: (T.HOLY KOM/SSE)
CHECKED BY: (S.S.SINGH/SSE)
COMPUTERISED BY: (PRAMOD SAH/SSE)
CHECKED BY: (R.N.SHUKLA/SSE)
(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS-III
(SRIJAAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I
APPROVED BY EDBS (A.K.DADARYA)
AutoCAD FILE No. B17181/4/R
NOTIFICATION No.
FLOPPY No.





"THIS DRAWING IS THE PROPERTY OF RESEARCH DESIGNS AND STANDARDS ORGANISATION (MINISTRY OF RAILWAYS), LUCKNOW-226011, INDIA AND SHALL NOT BE USED, COPIED OR REPRODUCED IN PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING."

DESCRIPTION	SHOP	FIELD
HSFG BOLTS	⊕	●
ANCHOR BOLTS	◉	
TURNED BOLTS	◉	

NOTE

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THE LENGTH OF MEMBERS SHOWN ON THIS DRAWING INCLUDE AN ALLOWANCE FOR CAMBER.
3. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
4. ALL SHOP HSFG BOLTS 20 DIA IN 21.5 DIA HOLES AND FIELD HSFG BOLTS 22 DIA IN 23.5 DIA HOLES EXCEPT WHERE OTHERWISE SHONE.

SPECIFICATION

IRS M28, M39 FOR WELDING CONSUMABLES
IRS WELDING BRIDGE CODE - 1972
STEEL BRIDGE CODE - - - - 1962
FABRICATION & ERECTION IRS B1-2001
METAL ARC WELDING IS: B9595-1980

SCALE

MILLIMETRES
200 0 200 400 600 800 1000 — 1:20
100 0 100 200 300 400 500 — 1:10

ALT:	DESCRIPTION	DATE
1	DIMENSIONS ALTERED	

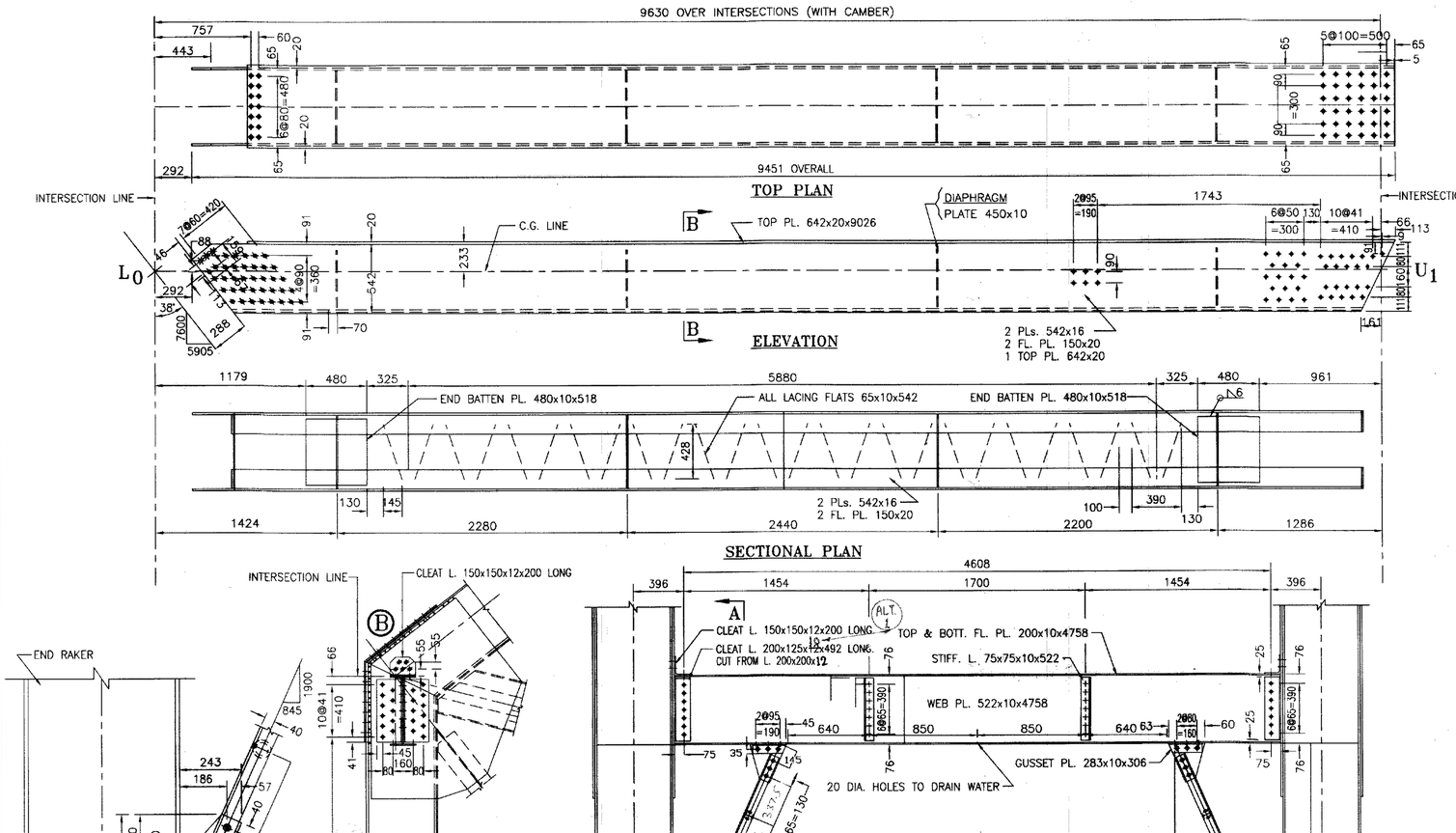
अ0 अ0 मा0 स0
R. D. S. O.

25 टी भारण – 2008
25T LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
शीर्ष जीवा का विवरण
DETAILS OF TOP CHORDS

PROVISIONAL

RDSO/B-17181/5/R

CALCULATION REGISTER No. DD/2014/26 PAGES	COMPUTERISED BY: (PRAMOD SAH/SSE)	(HARIOM NARAYAN)	(SRIJAN TRIPATHI)	APPROVED BY EDBS (A.K.DADARYA)	AutoCAD FILE No. B17181/5/R
DONE BY: (T.HOLY KOM/SSE) CHECKED BY: (S.S. SINGH/SSE)	CHECKED BY: (R.N.SHUKLA/SSE)	SCRUTINISED & CHECKED BY ADE/SS-III	SCRUTINISED & CHECKED BY DBS/SB-I		NOTIFICATION No. FLOPPY No.



DESCRIPTION	SHOP	FIELD
HSFG BOLTS	⊕	●
C.S.K. ON FAR SIDE	⊠	✱
C.S.K. ON NEAR SIDE	⊕	⊕
ANCHOR BOLTS	◉	
TURNED BOLTS	◉	

NOTE

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EDGES TO BE MACHINED OF CONTROL TORCH FLAME CUT.
3. ALL SHOP HSFG BOLTS 20 DIA IN 21.5 DIA HOLES AND FIELD HSFG BOLTS 22 DIA: IN 23.5 DIA: HOLES EXCEPT WHERE OTHERWISE SHOWN.
4. WELDABLE MATERIAL SHOULD BE AS PER IS:2062, QUALITY 'Bo' FULLY KILLED AND NORMALISED AND ~~OTHER MATERIAL CAN BE AS PER IS:2062, QUALITY 'A' SEMI KILLED MINIMUM.~~ (ALT 2)

SPECIFICATION

IRS M28,M39 FOR WELDING CONSUMABLES
IRS WELDING BRIDGE CODE – 1972
STEEL BRIDGE CODE – 1962
FABRICATION & ERECTION IRS B$_1$ –2001
METAL ARC WELDING IS:9595–1980

SCALE

MILLIMETRES
1:20
1:10
1:5

ALT	DESCRIPTION	DATE
2.	NOTE NO 4 ALTERED AND DIMENSION ALTERED.	30/7/16
1.	DIMENSIONS ALTERED & DELETED	5/11/16

अ0 अ0 मा0 स0
R. D. S. O.

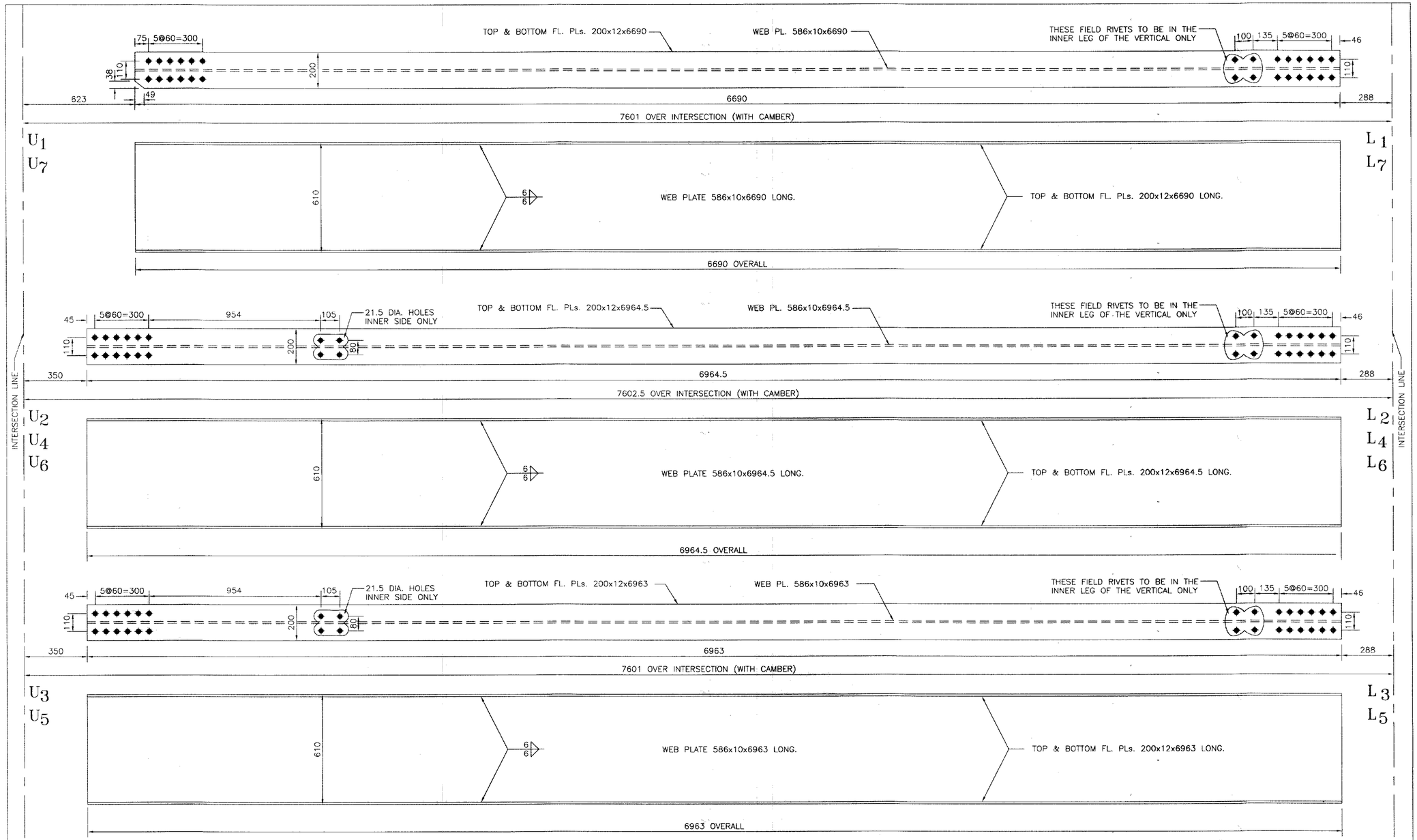
25टी भारण – 2008
25t LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
अंत तिरछी टेक और पोर्टल आबंधको का विवरण
DETAILS OF END RAKER AND PORTAL BRACINGS

PROVISIONAL

RDSO/B–17181/6/R

CALCULATION REGISTER No.DD/2014/26						
PAGES	DONE BY: (T. HOLY KOM/SSE)	COMPURISED BY: (V. K. PANDEY/SSE)	(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS–III	(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB–I	APPROVED BY EDBS (A. K. DADARYA)	AutoCAD FILE No. B17181/6/R
	CHECKED BY: (S. N. GUPTA/SSE)	CHECKED BY: (R. N. SHUKLA/SSE)				NOTIFICATION No.

FLOPPY No.



DESCRIPTION	SHOP	FIELD
HSFG BOLT	⊕	●
ANCHOR BOLTS	◉	
TURNED BOLTS	◉	

NOTE

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EDGES TO BE MACHINED OF CONTROL TORCH FLAME CUT.
3. ALL SHOP HSFG BOLTS 20 DIA IN 21.5 DIA HOLES AND FIELD HSFG BOLTS 22 DIA IN 23.5 DIA HOLES EXCEPT WHERE OTHERWISE SHOWN.
4. WELDABLE MATERIAL IS AS PER IS:2062, QUALITY 'Bo' FULLY KILLED AND FULLY NORMALISED ~~OTHER MATERIAL CAN BE AS PER IS: 2062, QUALITY 'A' - SEMI KILLED MINIMUM.~~ (ALT 1)
5. THE LENGTHS OF MEMBERS SHOWN ON THIS DRAWING INCLUDE AN ALLOWANCE FOR CAMBER.

SPECIFICATION

IRS. M28, M39 FOR WELDING CONSUMABLES
IRS. WELDED BRIDGE CODE – 1972
STEEL BRIDGE CODE – 1962
FABRICATION & ERECTION IRS. B$_1$–2001
METAL ARC WELDING IS: 9595–1980

SCALE

MILLIMETRES
100 50 0 100 200 300 400 500
1:10

ALT:	DESCRIPTION	DATE
1.	NOTE NO 4 ALT-ERED.	DBS/BLS ADE/BLS

"THIS DRAWING IS THE PROPERTY OF RESEARCH DESIGNS AND STANDARDS ORGANISATION (MINISTRY OF RAILWAYS), LUCKNOW–226011, INDIA AND SHALL NOT BE USED, COPIED OR REPRODUCED IN PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING."

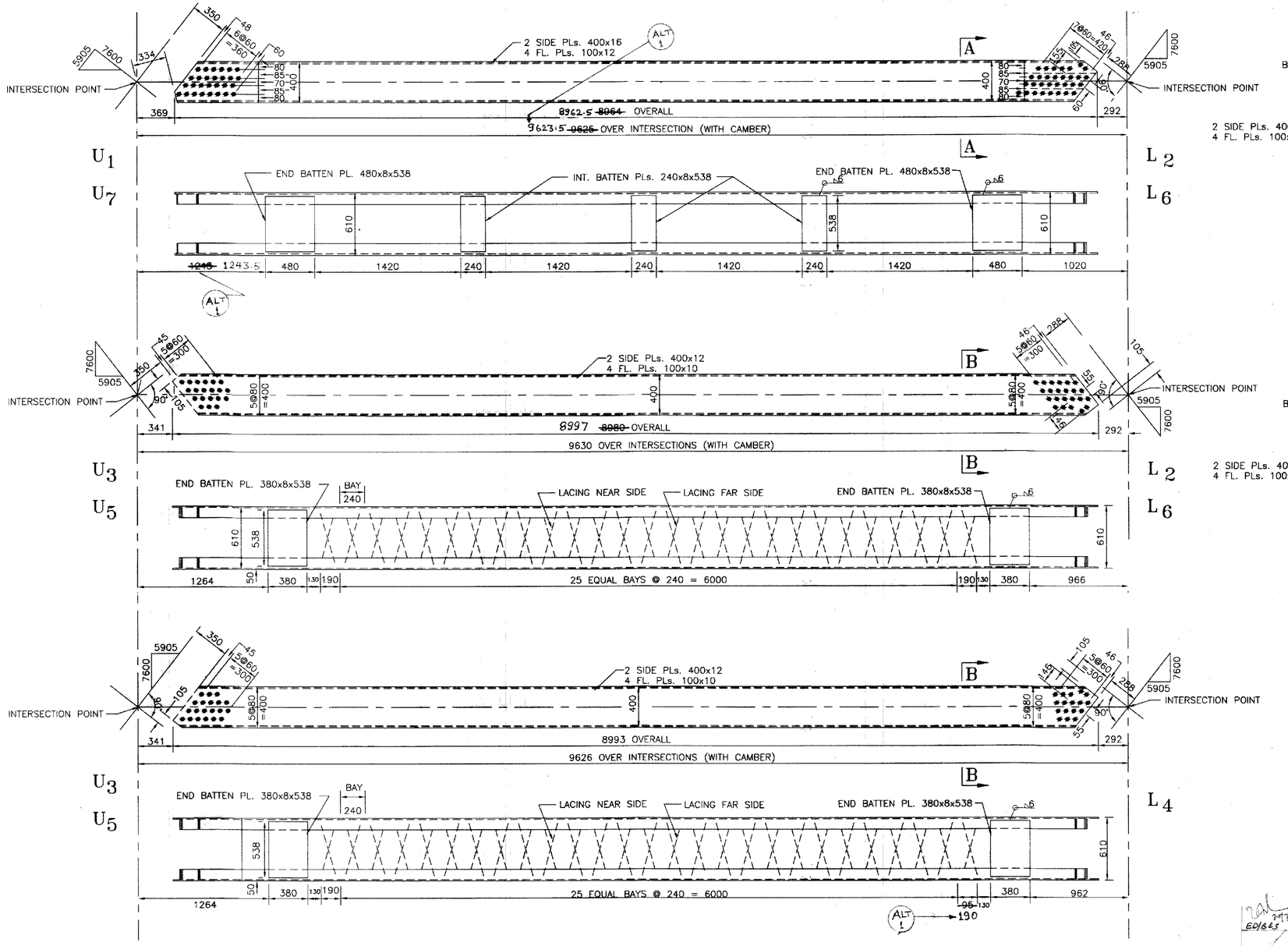
अ0 अ0 मा0 स0
R. D. S. O.

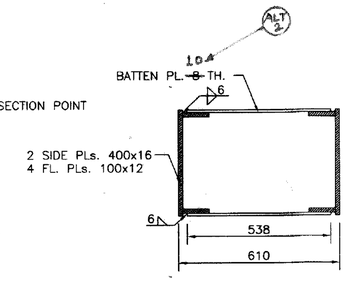
25टी भारण – 2008
25T LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
उध्वाधरों का विवरण
DETAILS OF VERTICALS

PROVISIONAL

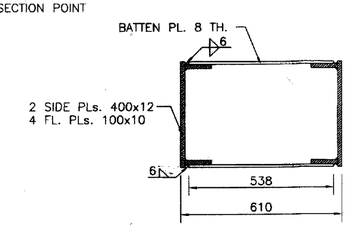
RDSO/B– – 17181/7

CALCULATION REGISTER No.DD/2014/28	COMPUTERISED BY: (PRAMOD SAH/SSE)	(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS–III	(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB–I	APPROVED BY EDBS (A.K.DADARYA)	AutoCAD FILE No. B17181/7	FLOPPY No.
PAGES DONE BY: (T.HOLY KOM/SSE) CHECKED BY: (S.S.SINGH/SSE)	CHECKED BY: (R.N.SHUKLA/SSE)				NOTIFICATION No.	

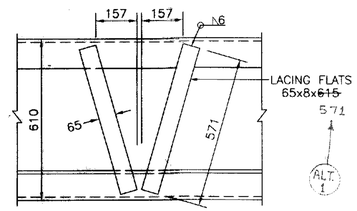




SECTION AT A–A



SECTION AT B–B



DETAIL OF LACINGS

DESCRIPTION	SHOP	FIELD
HSFG BOLT	⊕	●
ANCHOR BOLTS	◉	
TURNED BOLTS	◉	

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THE LENGTH OF MEMBERS SHOWN ON THIS DRAWING INCLUDE AN ALLOWANCE FOR CAMBER.
3. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
4. ALL SHOP HSFG BOLTS 16 DIA: IN 17.5 DIA: HOLES AND FIELD HSFG BOLTS 22 DIA: IN 23.5 DIA: HOLES.

NOTE

IRS. M28, M39 FOR WELDING CONSUMABLES
IRS. WELDED BRIDGE CODE – 1972
STEEL BRIDGE CODE – 1962
FABRICATION & ERECTION IRS. B_1–2001
METAL ARC WELDING IS: 9595–1980

SPECIFICATION

MILLIMETRES
100 0 100 200 300 400 500 1:10
200 0 200 400 600 800 1000 1:20

SCALE

ALT:	DESCRIPTION	DATE
2.	DIMENSION ALTERED.	ED/B&S 27/11/15
1.	DIMENSIONS ALTERED	DBS/B&S 27/11/15 ADE/B&S 27/11/15

"THIS DRAWING IS THE PROPERTY OF RESEARCH DESIGNS AND STANDARDS ORGANISATION (MINISTRY OF RAILWAYS), LUCKNOW – 226011, INDIA AND SHALL NOT BE USED, COPIED OR REPRODUCED IN PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING."

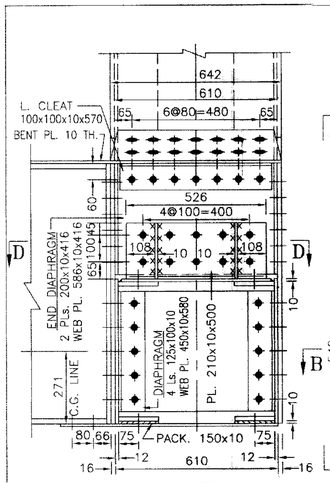
R. D. S. O.

25टी भारण – 2008
25t LOADING – 1995
45.7 मीo पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
विकर्णों का विवरण
DETAILS OF DIAGONALS

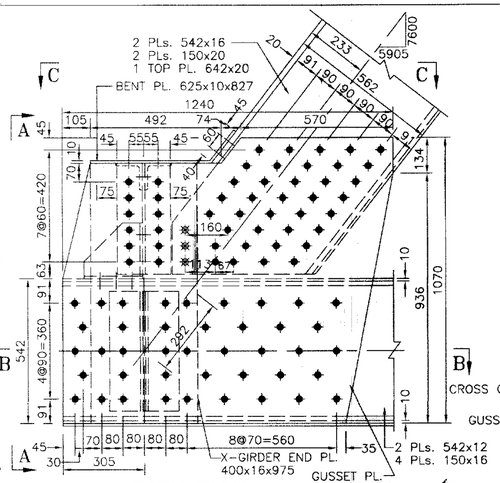
PROVISIONAL

RDSO/B–17181/8/R

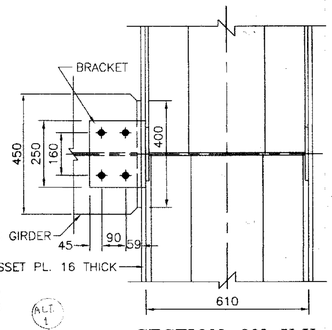
CALCULATION REGISTER No. DD/2014/26	COMPUTERISED BY: (V.K.PANDEY/SSE)	(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS–III	(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB–I	APPROVED BY EDBS (A. K. DADARYA)	AutoCAD FILE No. B17181/8/R	FLOPPY No.
PAGES DONE BY: (T. HOLY KOM/SSE)	CHECKED BY: (R.N.SHUKLA/SSE)				NOTIFICATION No.	



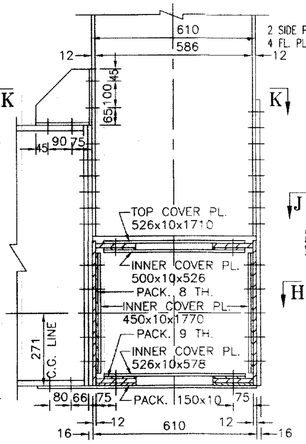
VIEW AT A.A.



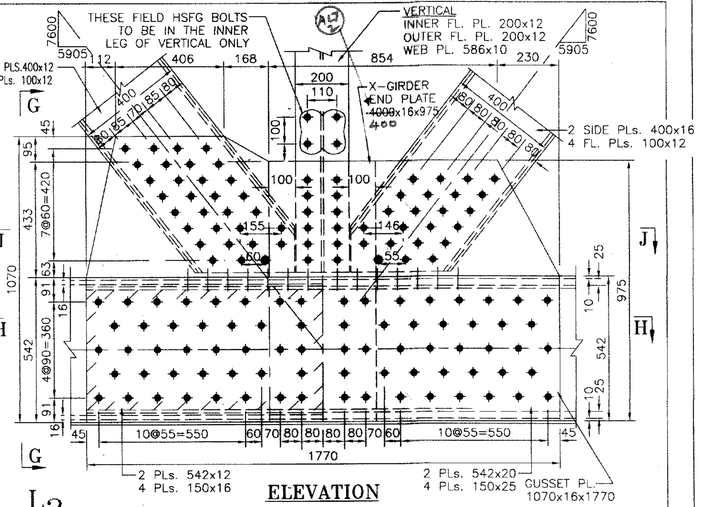
ELEVATION



SECTION ON K.K.

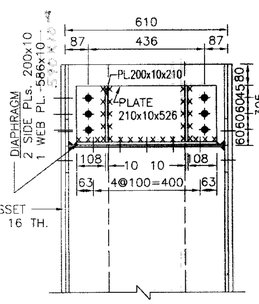


SECTION ON G.G.

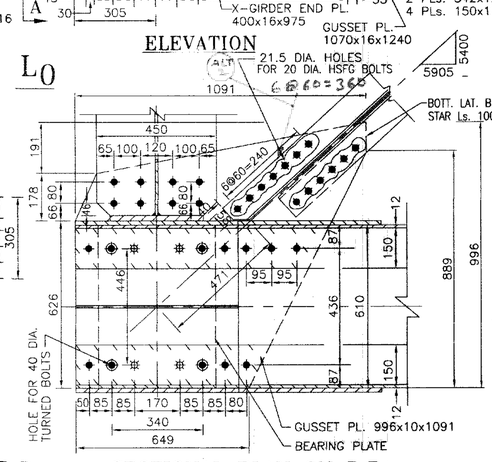


ELEVATION

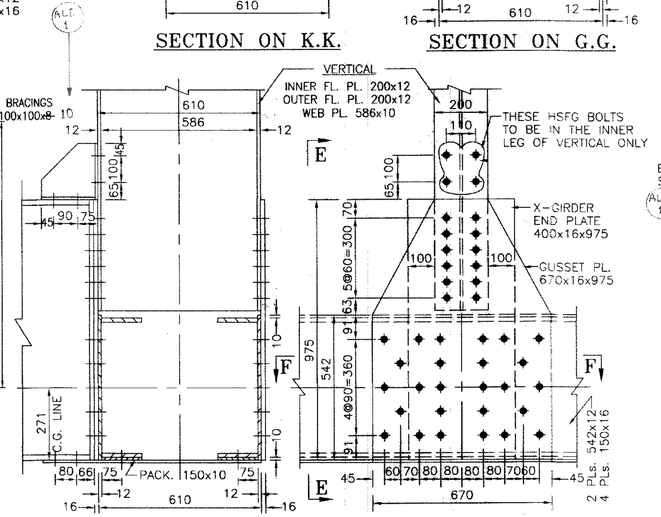
L_0



SECTIONAL PLAN ON D.D.

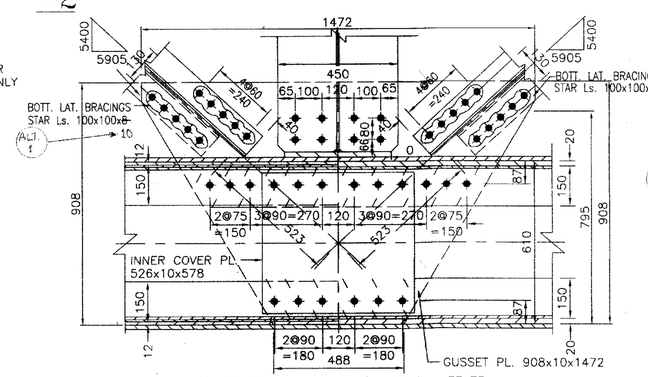


SECTIONAL PLAN ON B.B.

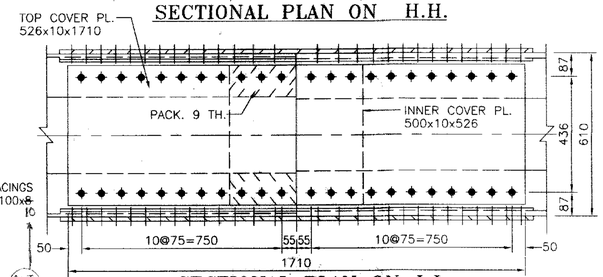


SECTIONAL PLAN ON E.E.

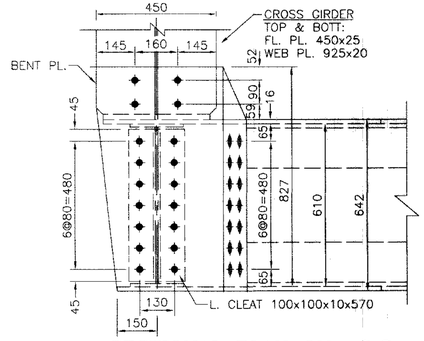
L_2



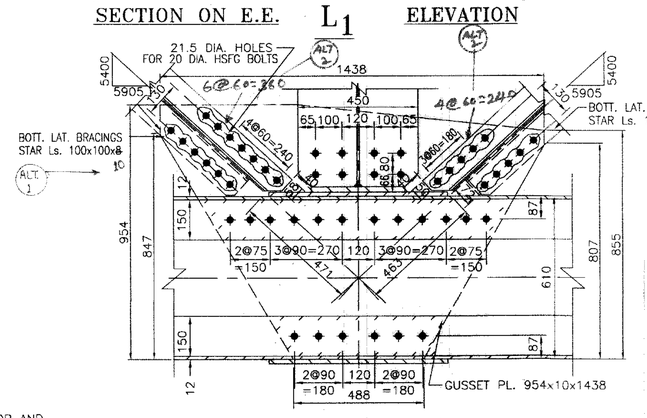
SECTIONAL PLAN ON H.H.



SECTIONAL PLAN ON J.J.



SECTIONAL PLAN ON C.C.



SECTIONAL PLAN ON F.F.

DESCRIPTION	SHOP	FIELD
HSFG BOLT	⊕	●
C.S.K. ON FAR SIDE	⊞	⊞
C.S.K. ON NEAR SIDE	⊗	⊗
C.S.K. ON BOTH SIDES	⊠	⊠
ANCHOR BOLTS	◉	
TURNED BOLTS	◉	

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
3. HOLES FOR TURNED BOLTS SHOULD BE 1 mm UNDER-DRILLED IN SHOP AND SHOULD BE REAMED AT SITE TO MATCH THE DIAMETER OF THE TURNED BOLTS.
4. ENDS OF TURNED BOLTS SHOULD BE LAID OVER TO PREVENT THEIR GETTING LOOSE.
5. ALL SHOP HSFG BOLTS 20 DIA: IN 21.5 DIA: HOLES, AND FIELD HSFG BOLTS 22 DIA: IN 23.5 DIA: HOLES EXCEPT WHERE OTHERWISE SHOWN.

NOTE

IRS. M28,M39 FOR WELDING CONSUMABLES
IRS. WELDED BRIDGE CODE – 1972
STEEL BRIDGE CODE – 1962
FABRICATION & ERECTION IRS. B_1-2001
METAL ARC WELDING IS: 9595-1980

SPECIFICATION

MILLIMETRES
100 50 0 100 200 300 400 500
1:10

SCALE

ALT	DESCRIPTION	DATE
2.	DIMENSION ALTERED	
1.	DIMENSIONS ALTERED	

अ0 अ0 मा0 स0
R. D. S. O.

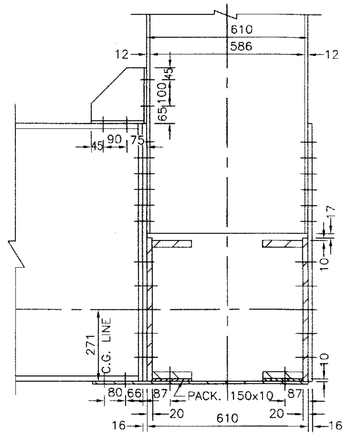
25टी भारण – 2008
25T LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
तलीय जीवा जोडों का विवरण
DETAILS OF BOTTOM CHORD JOINTS

PROVISIONAL

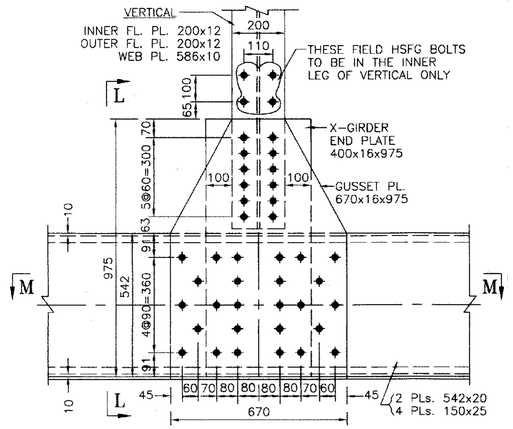
RDSO/B-17181/9

SHEET 1 OF 2

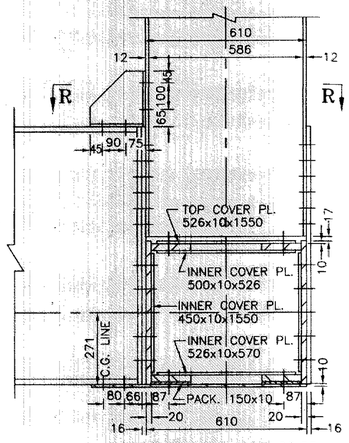
CALCULATION REGISTER No. DD/2014/26 PAGES	COMPUTERISED BY: (V.K.PANDEY/SSE) DONE BY: (T. HOLY KOM/SSE) CHECKED BY: (S.S. SINGH/SSE) CHECKED BY: (R.N.SHUKLA/SSE).	(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS-III	(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I	APPROVED BY EDBS (A. K. DADARYA)	AutoCAD FILE No. B17181/9 NOTIFICATION No.	FLOPPY No.	



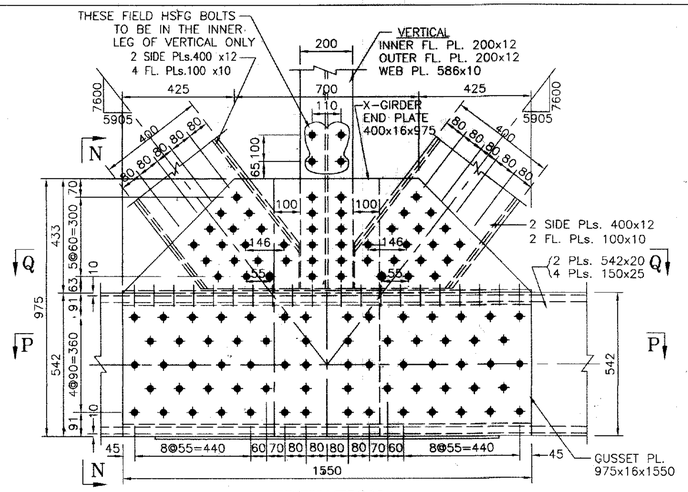
SECTION ON L.L.



ELEVATION

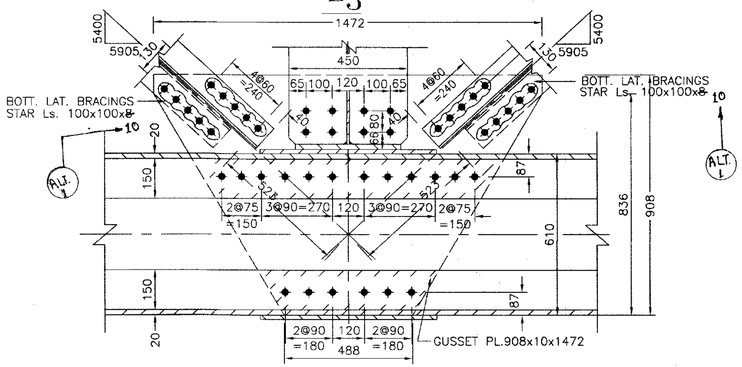


SECTION ON N.N.

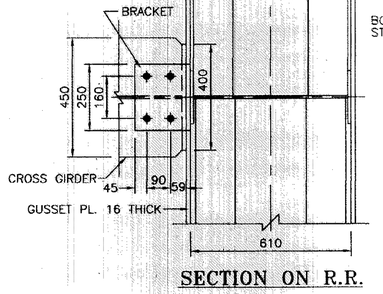


ELEVATION

L3

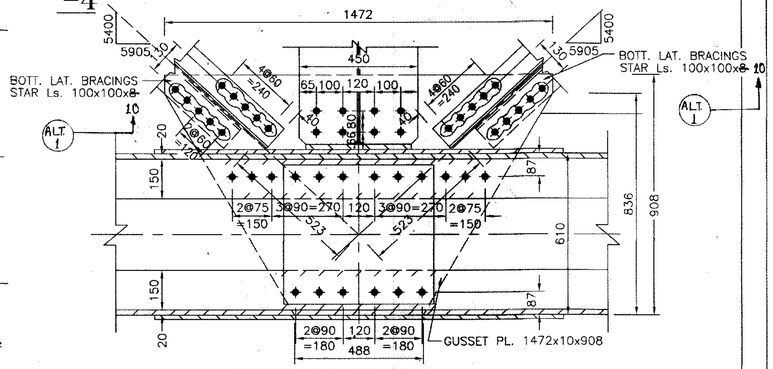


SECTIONAL PLAN ON M.M.

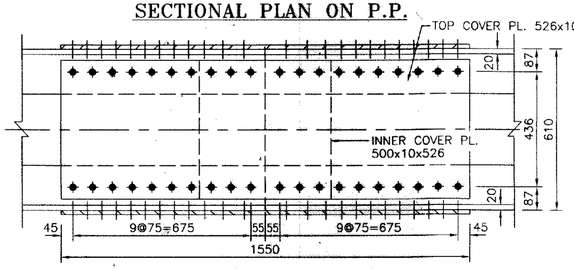


SECTION ON R.R.

L4



SECTIONAL PLAN ON P.P.



SECTIONAL PLAN ON Q.Q.

DESCRIPTION	SHOP	FIELD
HSFG BOLTS	⊕	●
ANCHOR BOLTS	◉	
TURNED BOLTS	◉	

NOTE

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
3. ALL SHOP HSFG BOLTS 20 DIA: IN 21.5 DIA: HOLES, ALL FIELD HSFG BOLTS 22 DIA: IN 23.5 DIA: HOLES EXCEPT WHERE OTHERWISE SHOWN.
4. ENDS OF TURNED BOLTS SHOULD BE LAID OVER TO PREVENT THEIR GETTING LOOSE.

SPECIFICATION

IRS. M28,M39 FOR WELDING CONSUMABLES
IRS. WELDED BRIDGE CODE – 1972
STEEL BRIDGE CODE – 1962
FABRICATION & ERECTION IRS. B1–2001
METAL ARC WELDING IS: 9595–1980

SCALE

MILLIMETRES
100 50 0 100 200 300 400 500
1:10

ALT	DESCRIPTION	DATE
1	DIMENSIONS ALTERED	

"THIS DRAWING IS THE PROPERTY OF RESEARCH DESIGNS AND STANDARDS ORGANISATION (MINISTRY OF RAILWAYS), LUCKNOW–226011, INDIA AND SHALL NOT BE USED, COPIED OR REPRODUCED IN PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING."

अ0 अ0 मा0 स0
R. D. S. O.

25टी भारण – 2008
25T LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
तलीय जीवा जोडों का विवरण
DETAILS OF BOTTOM CHORD JOINTS

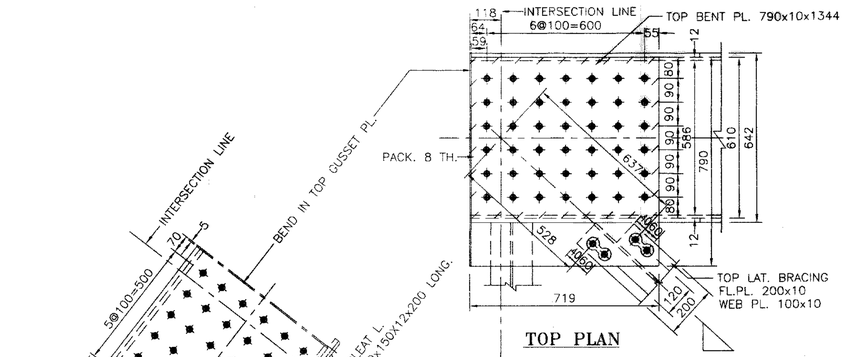
PROVISIONAL

RDSO/B – 17181/10

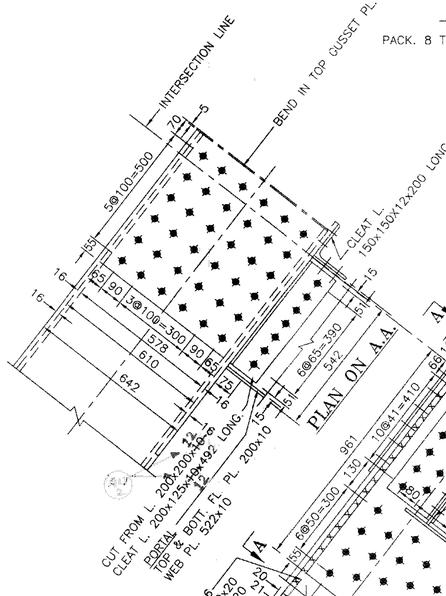
(SHEET 2 OF 2)

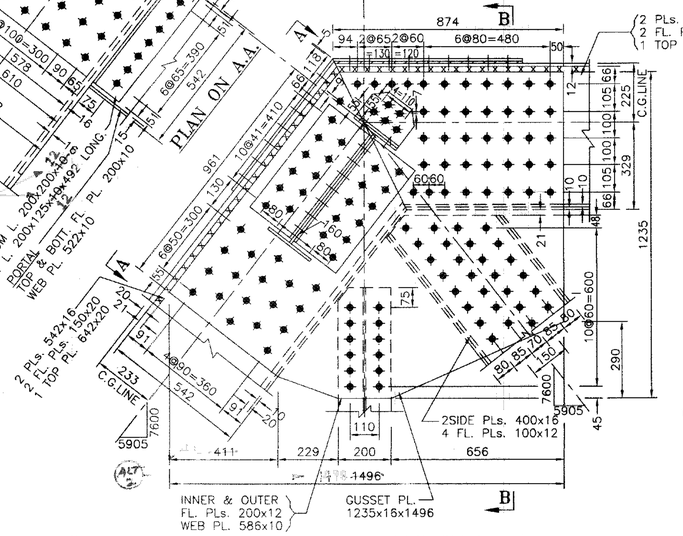
EDI/BGS 26/11/16
DBS/BGS 26/11/16
ADE/BGS

CALCULATION REGISTER No. DD/2014/26
PAGES
DONE BY: (T. HOLY KOM/SSE)
CHECKED BY: (S.S.SINGH/SSE)
COMPUTERISED BY: (V.K.PANDEY/SSE)
CHECKED BY: (R.N.SHUKLA/SSE)
(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS–III
(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB–I
APPROVED BY EDBS (A. K. DADARYA)
AutoCAD FILE No. B17181–10
NOTIFICATION No.
FLOPPY No.



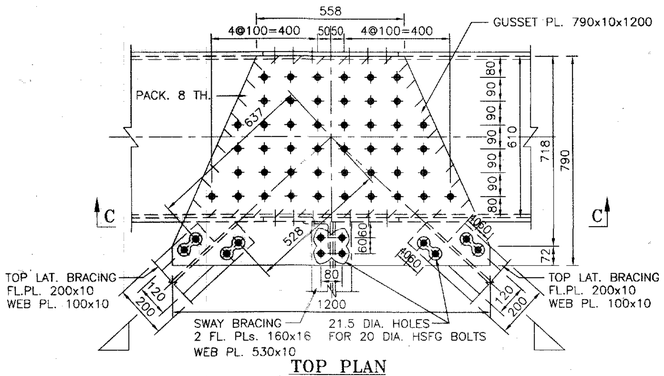
TOP PLAN



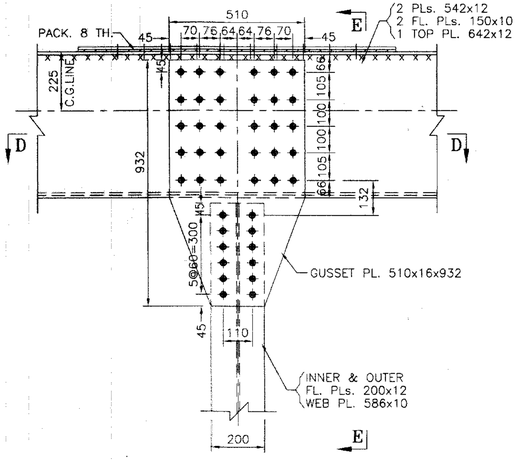


SECTIONAL ELEVATION

U1

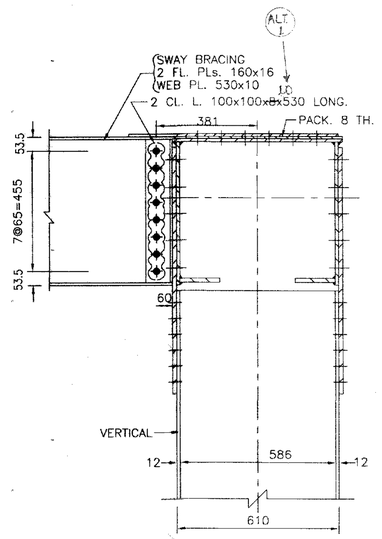


TOP PLAN

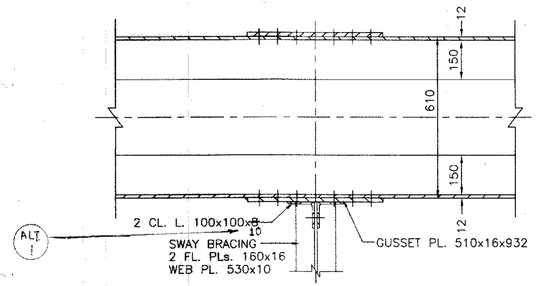


SECT. ELEVATION ON C.C.

U2



SECTION ON E.E.



SECT. PLAN ON D.D.

DESCRIPTION	SHOP	FIELD
HSFG BOLT	⊕	●
ANCHOR BOLTS	◈	
TURNED BOLTS	◈	

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
3. ALL SHOP HSFG BOLTS 20 DIA: IN 21.5 DIA: HOLES, ALL FIELD HSFG BOLTS 22 DIA: IN 23.5 DIA: HOLES EXCEPT WHERE OTHERWISE SHOWN.

NOTE

IRS. M28,M39 FOR WELDING CONSUMABLES
IRS. WELDED BRIDGE CODE – 1972
STEEL BRIDGE CODE – 1962
FABRICATION & ERECTION IRS. B1–2001
METAL ARC WELDING IS: 9595–1980

SPECIFICATION

MILLIMETRES
100 50 0 100 200 300 400 500 1:10

SCALE

ALT	DESCRIPTION	DATE
1	DIMENSIONS ALTERED	

"THIS DRAWING IS THE PROPERTY OF RESEARCH DESIGNS AND STANDARDS ORGANISATION (MINISTRY OF RAILWAYS), LUCKNOW–226011, INDIA AND SHALL NOT BE USED, COPIED OR REPRODUCED IN PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING."

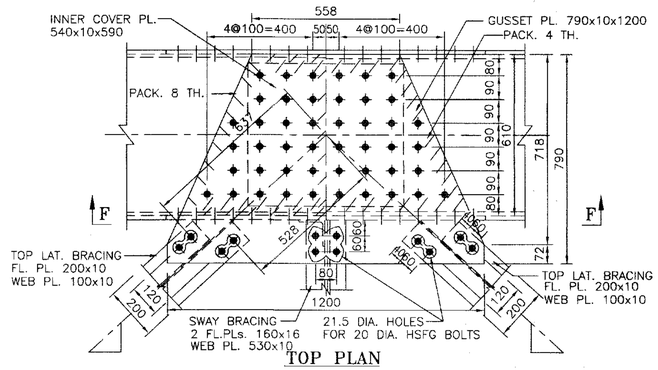
अ0 अ0 मा0 स0
R. D. S. O.

25टी भारण – 2008
25t LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
उपरी जीवा जोडों का विवरण
DETAILS OF TOP CHORD JOINTS

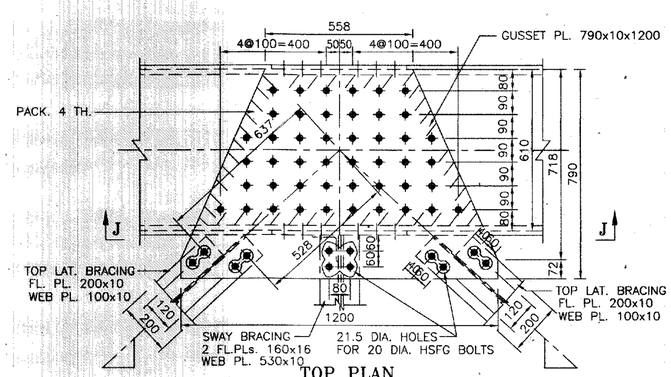
PROVISIONAL

RDSO/B–17181/11

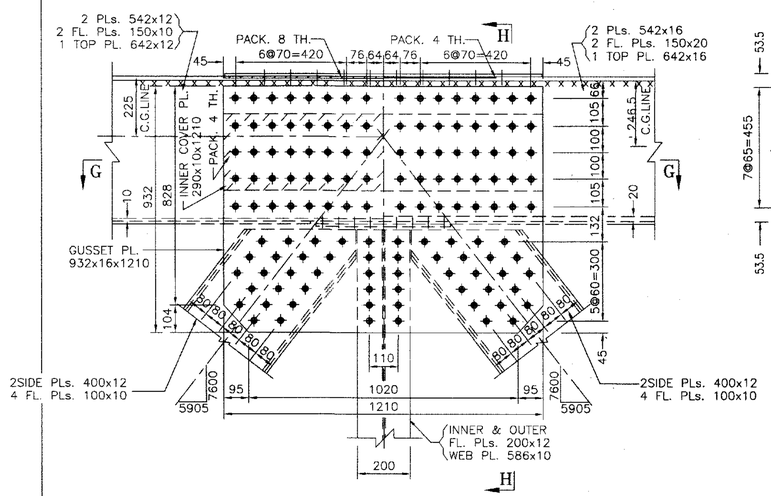
CALCULATION REGISTER No. DD/2014/	COMPUTERISED BY: (V.K.PANDEY/SSE)	(HARIOM NARAYAN)	(SRIJAN TRIPATHI)		AutoCAD FILE No. B17181/11	
PAGES DONE BY: (T.HOLY.KOM/SSE)	CHECKED BY: (R.N.SHUKLA/SSE)	SCRUTINISED & CHECKED BY ADE/SS–III	SCRUTINISED & CHECKED BY DDS/SB–I	APPROVED BY EDBS (A.K.DADARYA)	NOTIFICATION No.	FLOPPY No.



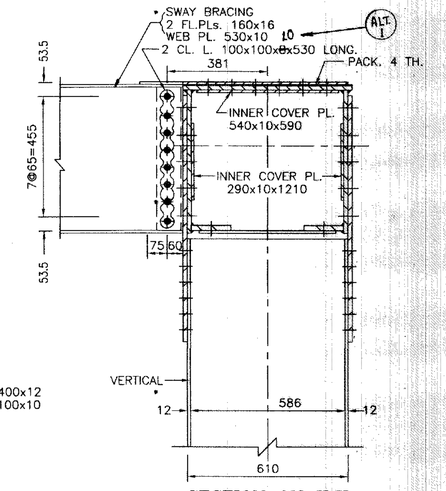
TOP PLAN



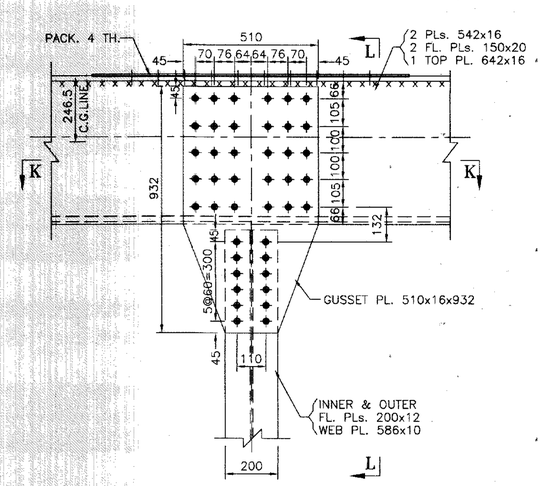
TOP PLAN



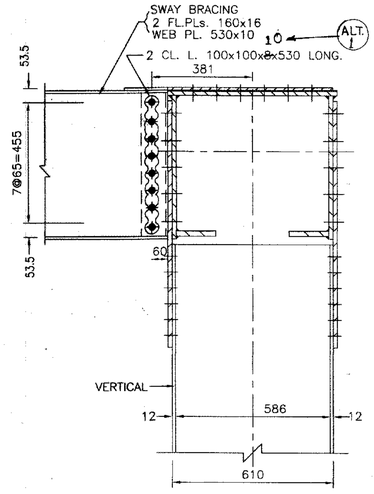
SECT. ELEVATION ON F.F.



SECTION ON H.H.

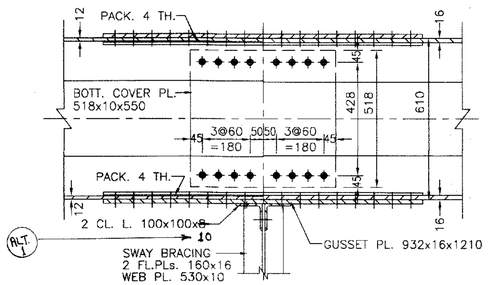


SECT. ELEVATION ON J.J.



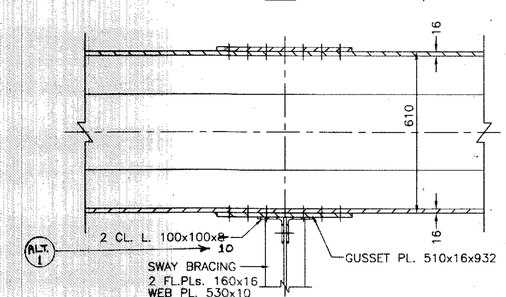
SECTION ON L.L.

U3



SECT. PLAN ON G.G.

U4



SECT. PLAN ON K.K.

DESCRIPTION	SHOP	FIELD
HSFG BOLT	⊕	●
ANCHOR BOLTS	◉	
TURNED BOLTS	◉	

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
3. ALL SHOP HSFG BOLTS 20 DIA: IN 21.5 DIA: HOLES, ALL FIELD HSFG BOLTS 22 DIA: IN 23.5 DIA: HOLES EXCEPT WHERE OTHERWISE SHOWN.

NOTE

IRS. M28,M39 FOR WELDING CONSUMABLES
IRS. WELDED BRIDGE CODE - 1972
STEEL BRIDGE CODE - 1962
FABRICATION & ERECTION IRS. B$_1$-2001
METAL ARC WELDING IS: 9595-1980

SPECIFICATION

MILLIMETRES
100 50 0 100 200 300 400 500
1:10

SCALE

ALT.	DESCRIPTION	DATE
1.	DIMENSIONS ALTERED	

अ0 अ0 मा0 सं0
R. D. S. O.

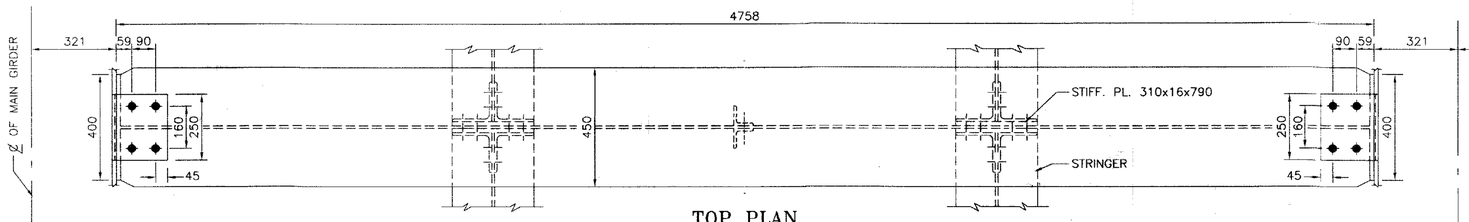
25टी भारण – 2008
25T LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
- OPEN WEB GIRDER (WELDED THROUGH TYPE)
तलीय जीवा जोडों का विवरण
DETAILS OF TOP CHORD JOINTS

PROVISIONAL

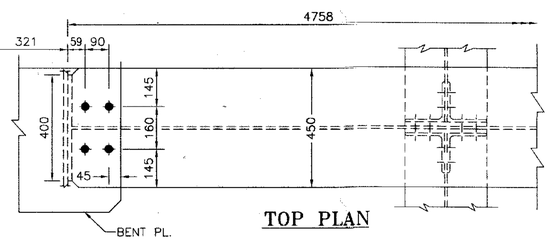
RDSO/B-17181/12

SHEET 2 OF 2

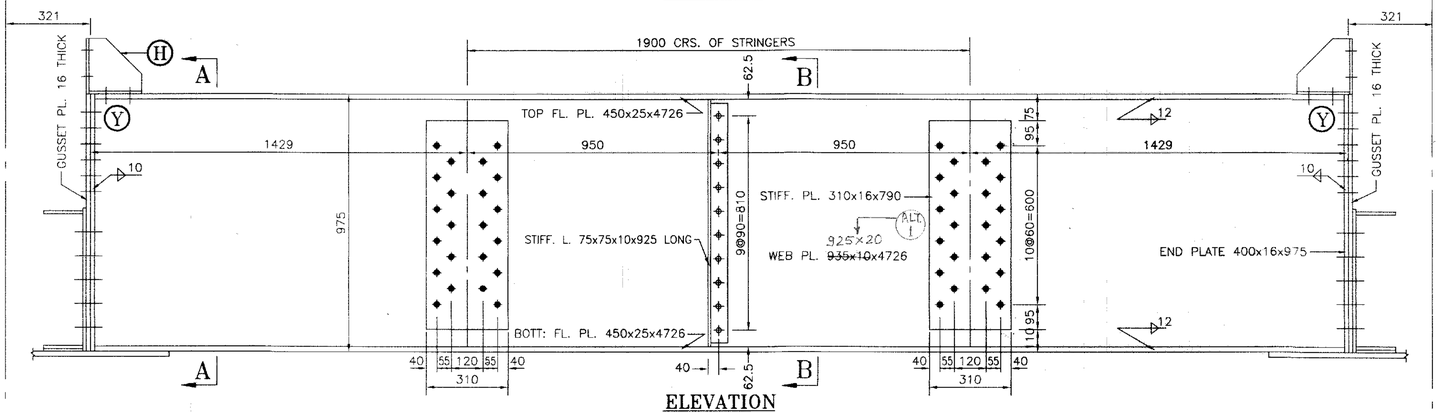
CALCULATION REGISTER No. DD/2014/28	COMPUTERISED BY: (V.K.PANDEY/SSE)	(HARIOM NARAYAN)	(SRIJAN TRIPATHI)	APPROVED BY EDBS (A. K. DADARYA)	AutoCAD FILE No. 17181-12	FLOPPY No.
PAGES DONE BY: (T.HOLY.KOM/SSE)	CHECKED BY: (R.N.SHUKLA/SSE)	SCRUTINISED & CHECKED BY ADE/SS-III	SCRUTINISED & CHECKED BY DBS/SB-I		NOTIFICATION No.	
CHECKED BY: (S.S.SINGH/SSE)						



TOP PLAN

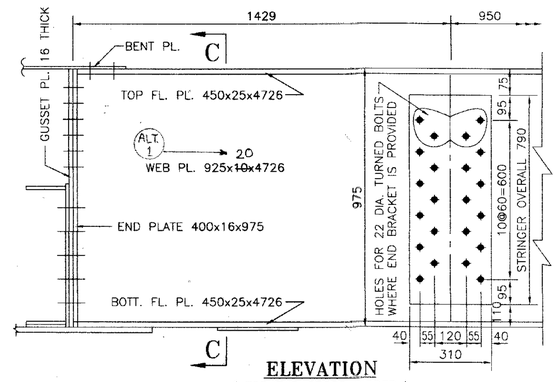


TOP PLAN



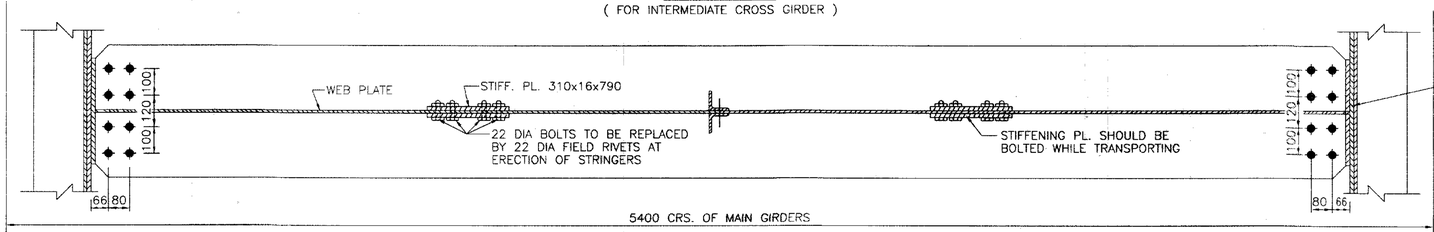
ELEVATION

(FOR INTERMEDIATE CROSS GIRDER)

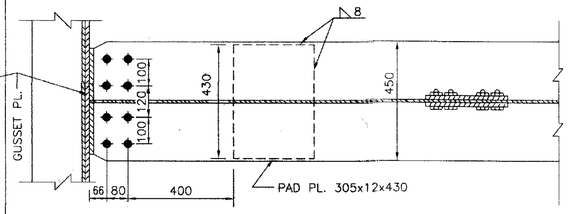


ELEVATION

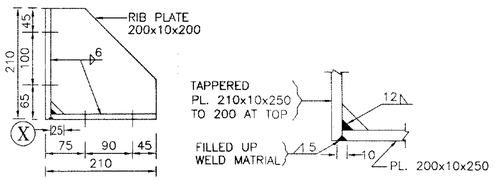
(FOR END CROSS GIRDER)



SECTIONAL PLAN

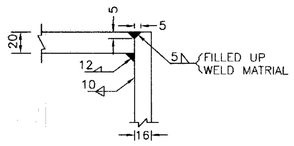


SECTIONAL PLAN

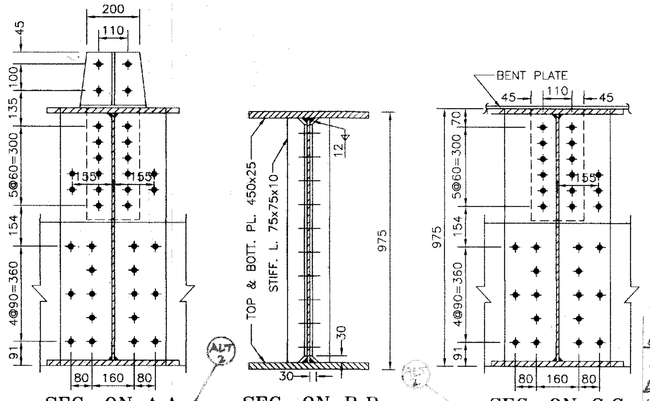


DETAIL AT H

DETAIL AT X



FILLED UP WELD MATERIAL AT 'Y'



DESCRIPTION	SHOP	FIELD
HSFG BOLT	⊕	●
ANCHOR BOLTS	◈	
TURNED BOLTS	◈	

6. FOR WELDING SEQUENCE, REFER DRAWING No. RDSO/B- 11087.
5. THE MEMBERS CONNECTED BY HSFG BOLTS MAY BE MADE OF MILD STEEL CONFIRMING TO IS: 2062, QUALITY 'A' SEMI KILLED MINIMUM.
4. MATERIAL FOR WEB, FLANGE PLATE & END PLATE SHOULD BE AS PER IS: 2062, QUALITY 'B0' FULLY KILLED FULLY NORMALISED.
3. THE GAP BETWEEN END PLATES & FLANGES AT TOP & BOTTOM FILLED UP BY WELD MATERIAL IN ADDITION TO 10 mm FILLET WELD CONTINEOUS OVER WEB PLATE.
2. ALL SHOP HSFG BOLTS 20 DIA. IN 21.5 DIA. HOLES & FIELD HSFG BOLTS 22 DIA. IN 23.5 DIA. HOLES EXCEPT WHERE OTHERWISE SHOWN.
1. ALL DIMENSIONS ARE IN MILLIMETRES.

NOTE

SPECIFICATION
IRS. M-28, M-39 FOR WELDING CONSUMABLES.
METAL ARC WELDING IS:9595-1980
STEEL BRIDGE CODE - 1962
WELDED BRIDGE CODE - 1972
IRS. B_1 _ _ _ _ _ _2001

SCALE: MILLIMETRES
25 0 25 50 75 100 125 1:2.5
50 0 50 100 150 200 250 1:5
100 0 100 200 300 400 500 1:10

ALT	DESCRIPTION	DATE
1.	DIMENSIONS ALTERED	
2.	FOOT-NOTE ADDED.	

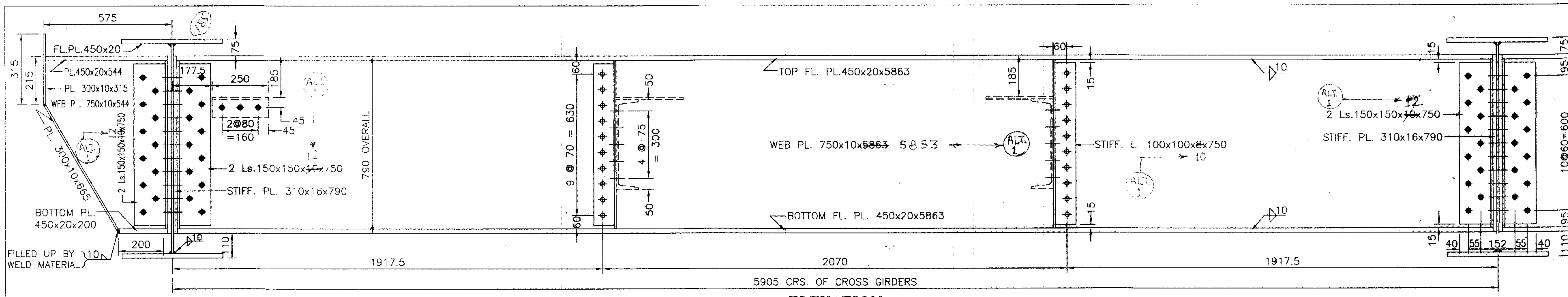
अ0 अ0 मा0 सं0
R. D. S. O.

25टी भारण – 2008
25t LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
अनुप्रस्थ गर्डर का विवरण
DETAILS OF CROSS GIRDERS

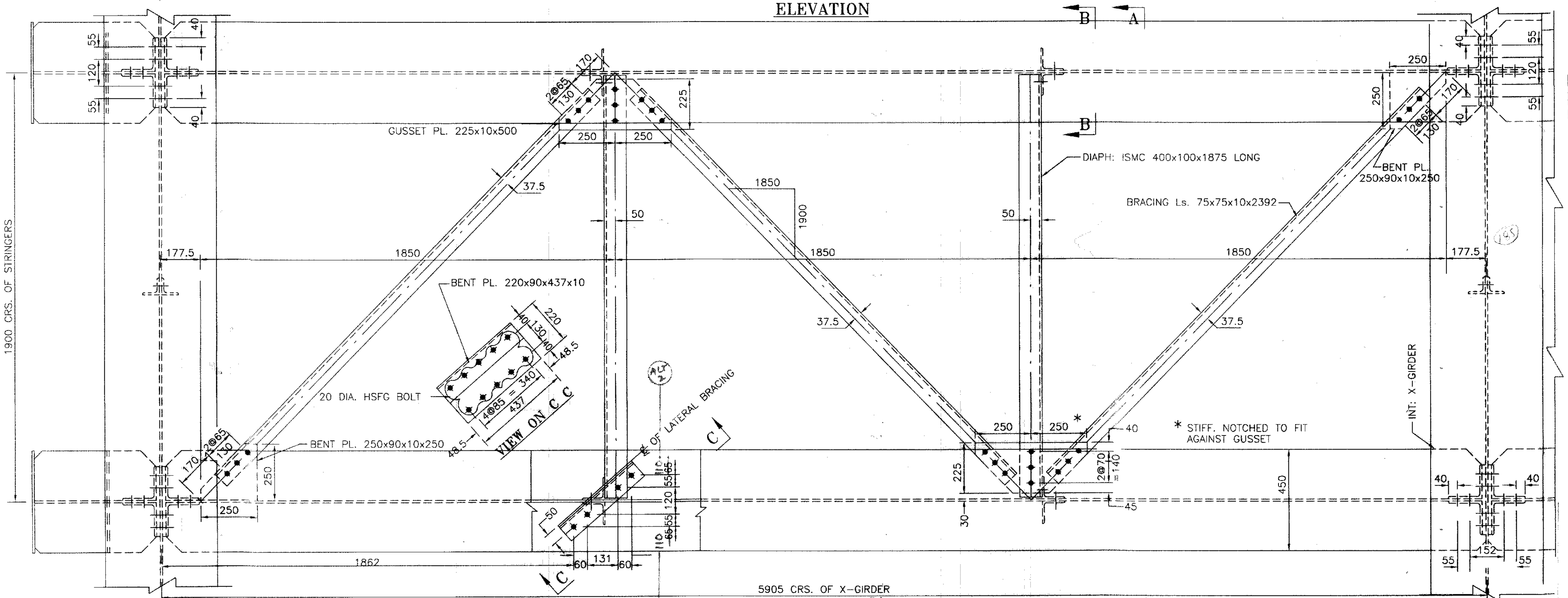
PROVISIONAL

RDSO/B-17181/13

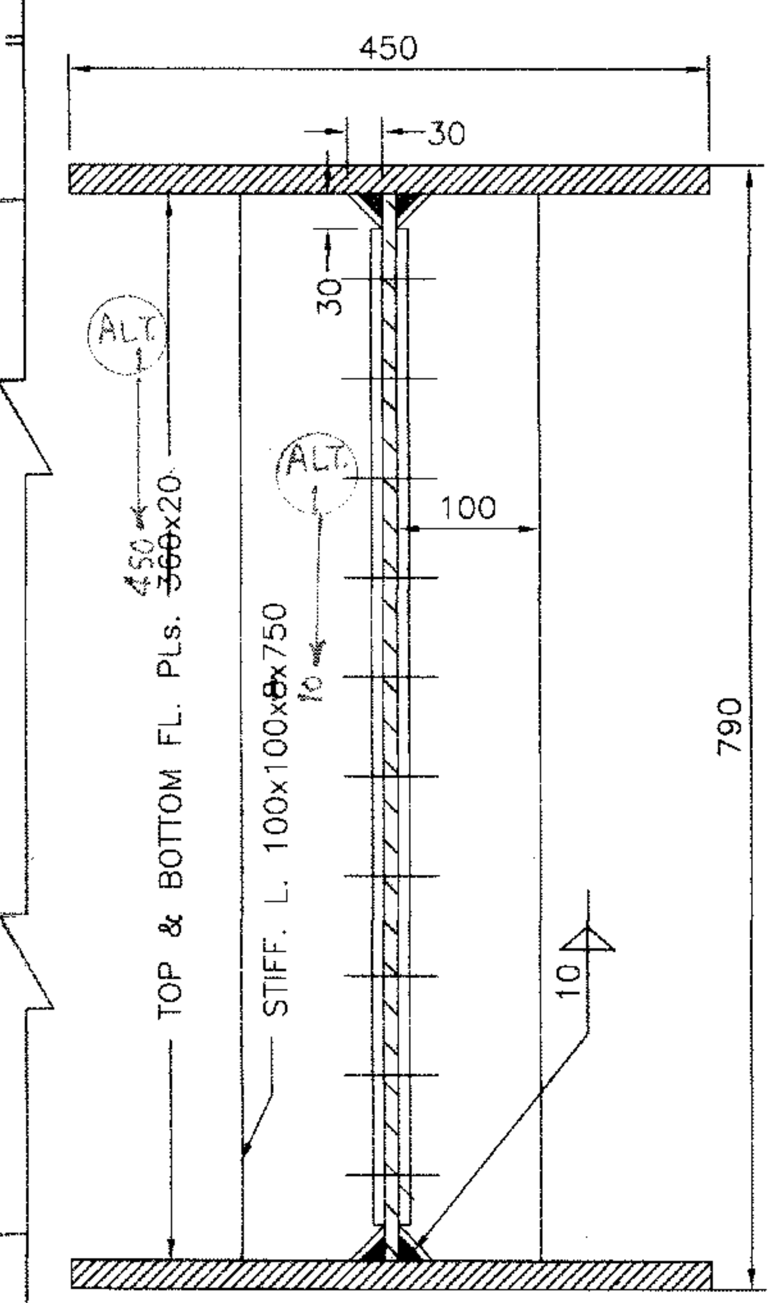
CALCULATION REGISTER No.DD/2014/26 PAGES	COMPUTERISED BY: (PRAMOD SAH/SSE) DONE BY: (T.HOLY KOM/SSE) CHECKED BY: (S.S.SINGH/SSE)	CHECKED BY: (R.N.SHUKLA/SSE).	(HARIOM NARAYAN) SCRUTINISED & CHECKED BY 'ADE/SS-III	(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I	APPROVED BY EDBS (A.K.DADARYA)	AutoCAD FILE No.RDSO/B-17181/13 NOTIFICATION No.	FLOPPY No.



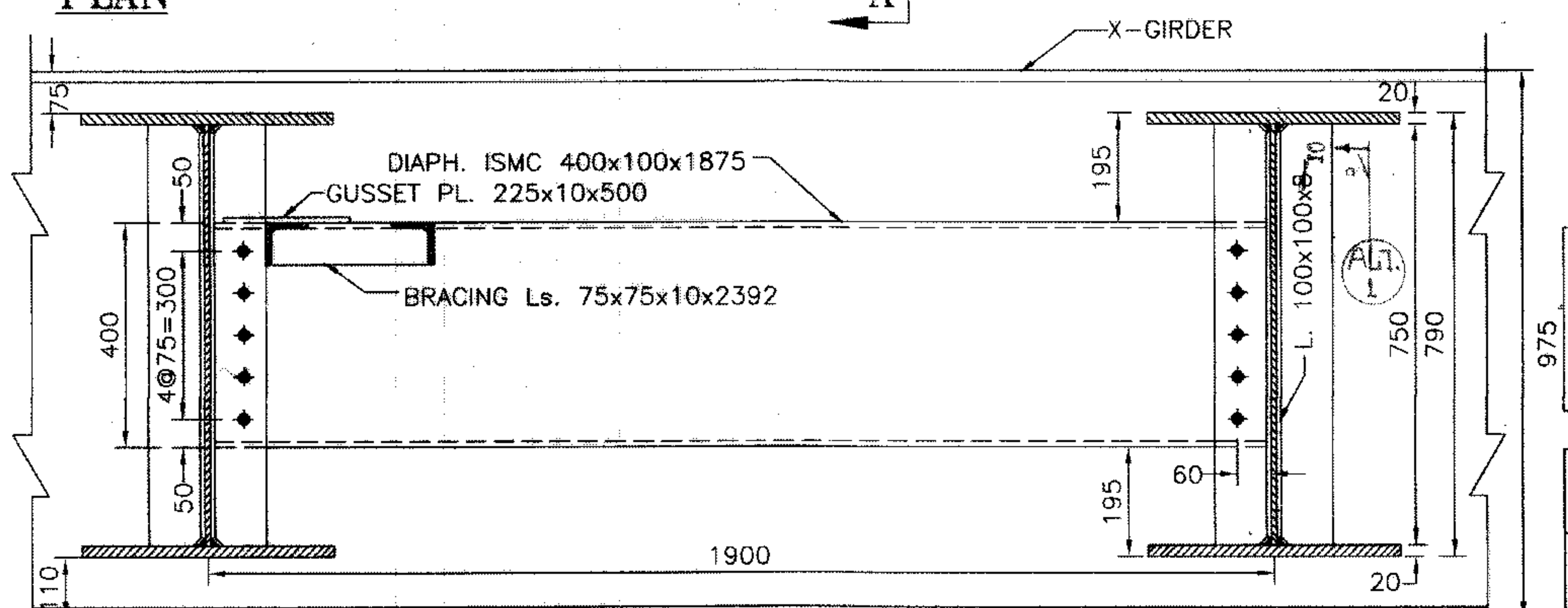
ELEVATION



PLAN



SECTION ON B B



SECTION ON A A

DESCRIPTION	SHOP	FIELD
HSFG BOLT	⊕	●
ANCHOR BOLTS		◉
TURNED BOLTS		◉

9. FOR WELDING SEQUENCE, REFER RDSO'S DRAWING No. BA-11087.
8. ALL BUTT WELDS ARE TO BE EXAMINED RADIOGRAPHICALLY OR ANY EQUALLY EFFECTIVE NON DESTRUCTIVE TEST METHODS.
7. AUTOMATIC SUB-MERGED ARC WELDING SHOULD BE EMPLOYED FOR BUTT & FILLET WELDS WHEREVER SHOWN.
6. ALL WELDS TO BE MADE BY USING APPROVED WELDING PROCEDURES BY QUALIFIED WELDERS.
5. THE MEMBERS CONNECTED BY RIVETS MAY BE MADE OF MILD STEEL CONFORMING TO IS: 2062, QUALITY 'A' SEMI KILLED MINIMUM.
4. MATERIAL FOR WEB, FLANGE PLATE & END PLATE SHOULD BE AS PER IS:2062, QUALITY 'Bo' FULLY KILLED & FULLY NORMALISED.
3. THE GAP BETWEEN END PLATES AND FLANGES AT TOP & BOTTOM FILLED UP BY WELD MATERIAL IN ADDITION TO 10 mm FILLET WELD CONTINEOUS OVER THE WEB PLATE.
2. ALL SHOP HSFG BOLTS 20 DIA. IN 21.5 DIA. HOLES AND FIELD HSFG BOLTS 22 DIA IN 23.5 DIA HOLES.
1. ALL DIMENSIONS ARE IN MILLIMETRES.

NOTE

IRS. M-28, M-39 FOR WELDING CONSUMABLES.
STEEL BRIDGE CODE - 1962
WELDED BRIDGE CODE - 1972
FABRICATION & ERECTION B_1 -2001
METAL-ARC WELDING IS:9595-1980

SPECIFICATION

MILLIMETRES
1:2
1:5
1:10

SCALE

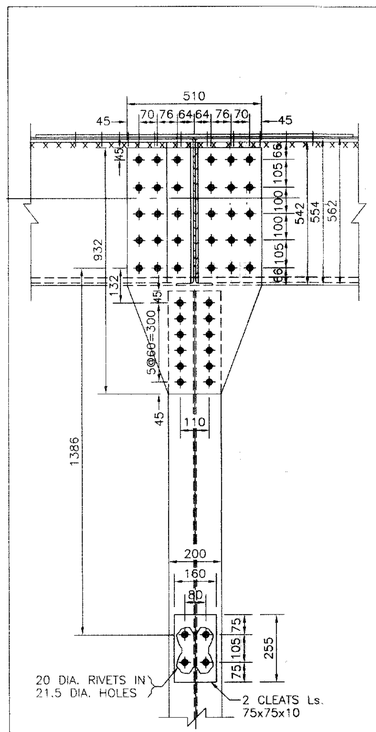
ALT:	DESCRIPTION	DATE
1.	DIMENSIONS ALTERED	ED/BRS DBS/BRS ADE/BRS
2	DIMENSION ALTERED	ADE/BRS

"THIS DRAWING IS THE PROPERTY OF RESEARCH DESIGNS AND STANDARDS ORGANISATION (MINISTRY OF RAILWAYS), LUCKNOW-226011, INDIA AND SHALL NOT BE USED, COPIED OR REPRODUCED IN PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING."

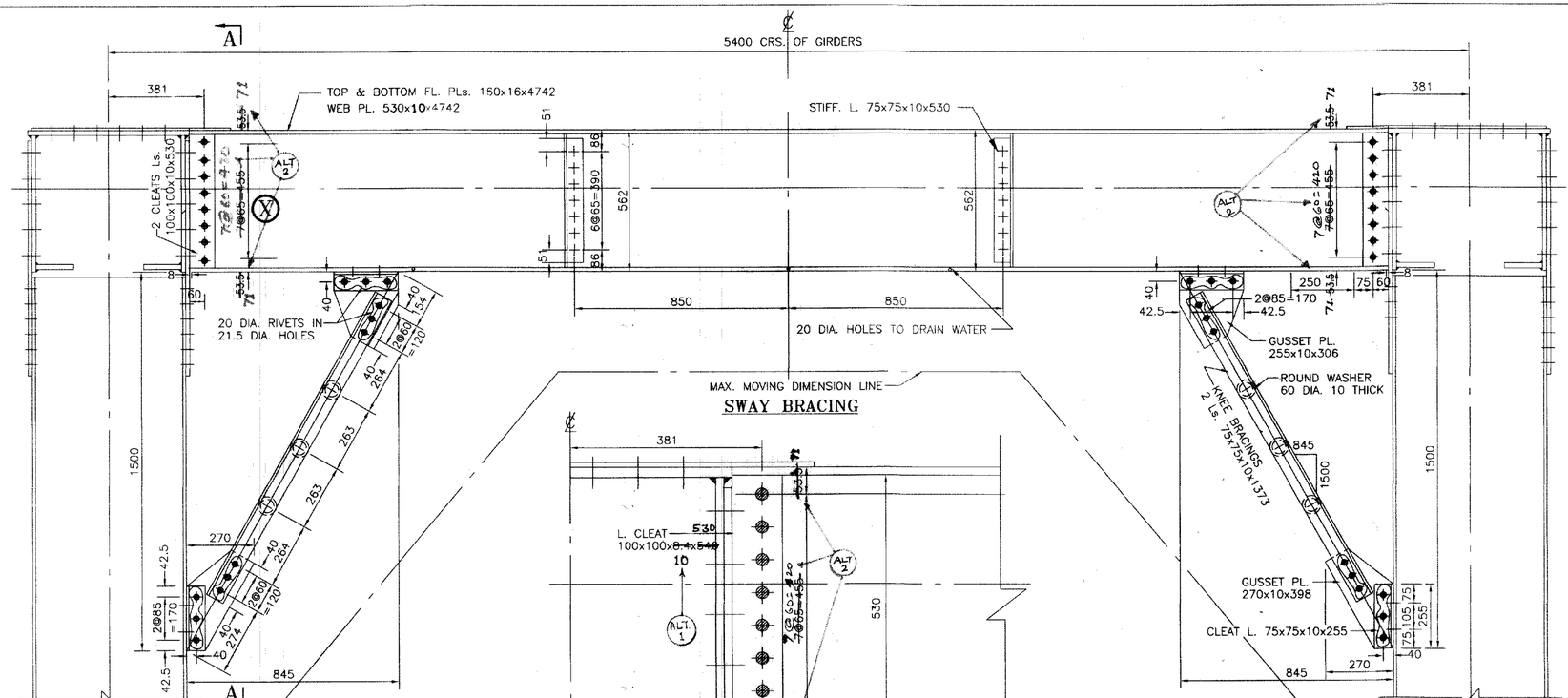
अ० अ० मा० सं०
R. D. S. O.
25टी भारण – 2008
25T LOADING - 2008
45.7मी० पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
सामान्य आयोजक धरन का विवरण
GENERAL DETAILS OF STRINGER

RDSO/B - 17181/14

CALCULATION REGISTER No. DD/2014/26
PAGES | DONE BY: (T.HOLY KOM/SSE) | CHECKED BY: (S.S.SINGH/SSE)
COMPUTERISED BY: (PRAMOD SAH/SSE) CHECKED BY: (R.N.SHUKLA/SSE)
(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS-III
(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I
APPROVED BY EDBS (A.K.DADARYA)
AutoCAD FILE No. B17181/14
NOTIFICATION No.
FLOPPY No.



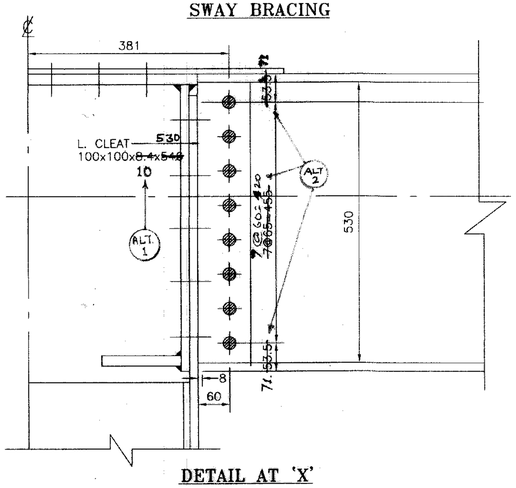
SECTIONAL ELEVATION AT A-A FOR U_2&U_4



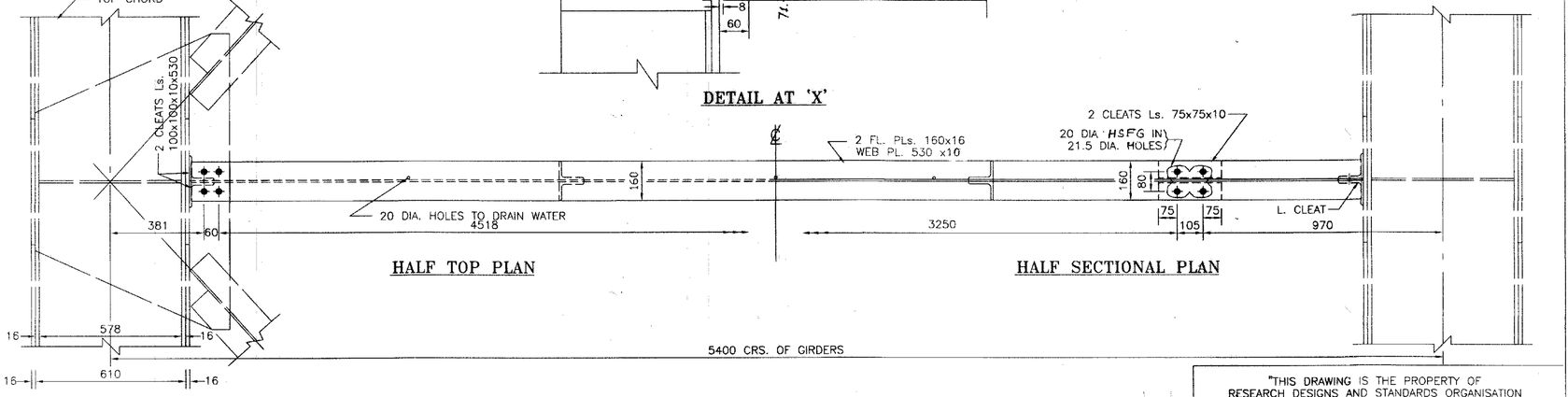
HALF ELEVATION U_2&U_4

HALF ELEVATION U_3

SWAY BRACING



DETAIL AT 'X'



HALF TOP PLAN

HALF SECTIONAL PLAN

DESCRIPTION	SHOP	FIELD
HSFG BOLT	⊕	●
ANCHOR BOLTS	⊛	
TURNED BOLTS	⊛	

NOTE

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
3. ALL SHOP HSFG BOLTS 16 DIA. IN 17.5 DIA. HOLES.
4. ALL FIELD HSFG BOLTS 20 DIA. IN 21.5 DIA. HOLES.

SPECIFICATION: IRS. M28, M39 FOR WELDING CONSUMABLES
IRS. WELDED BRIDGE CODE – 1972
STEEL BRIDGE CODE – 1962
FABRICATION & ERECTION IRS. B_1-2001
METAL ARC WELDING IS: 9595-1980

SCALE: MILLIMETRES
50 0 50 100 150 200 250 1:5
100 0 100 200 300 400 500 1:10

ALT:	DESCRIPTION	DATE
2	DIMENSION ALTERED.	
1	DIMENSIONS ALTERED	

ED/B&S
DBS/B&S
ADE/B&S
ED/B&S
DBS/B&S
ADE/B&S

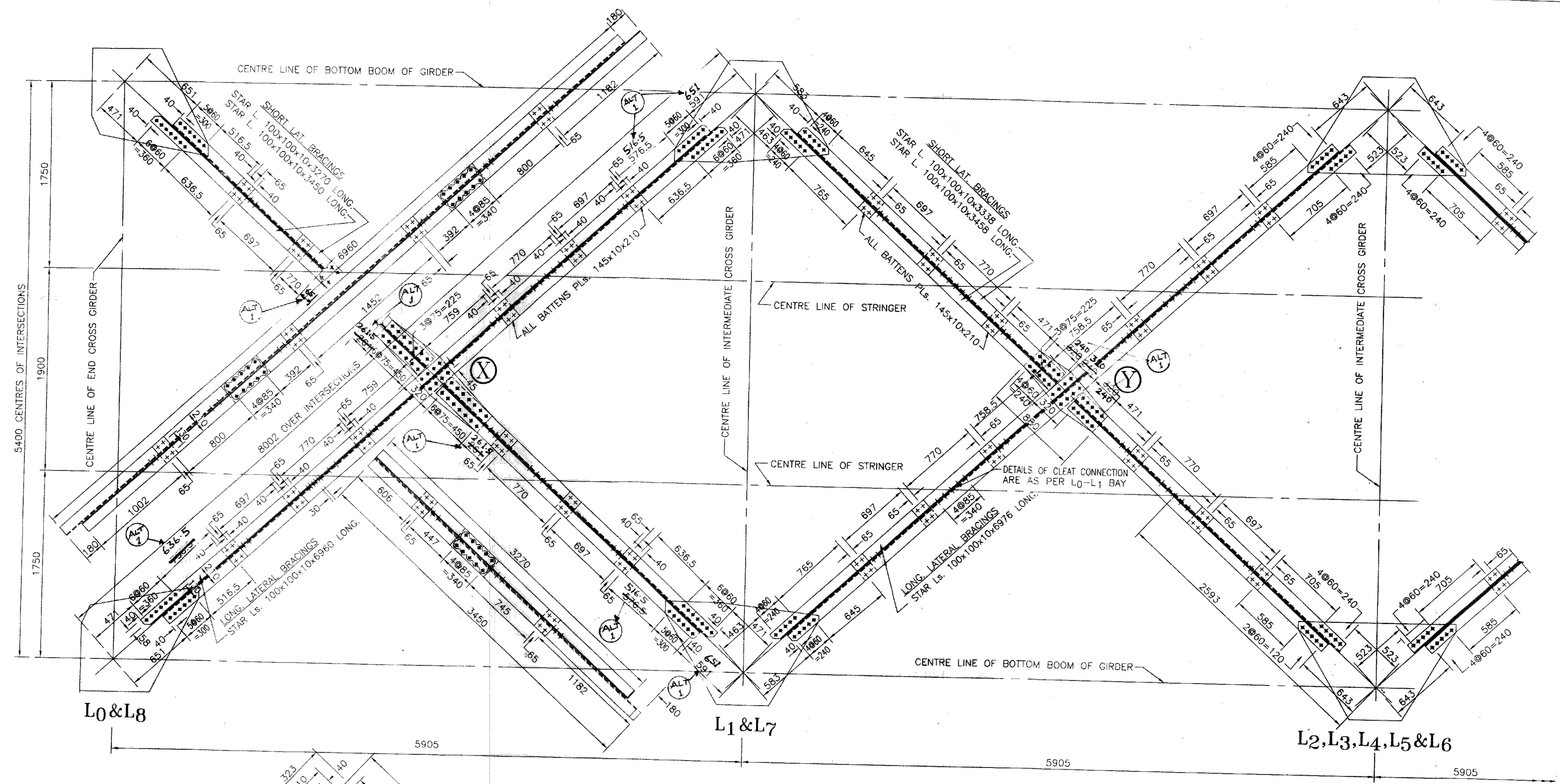
अ0 अ0 मा0 सं0
R. D. S. O.

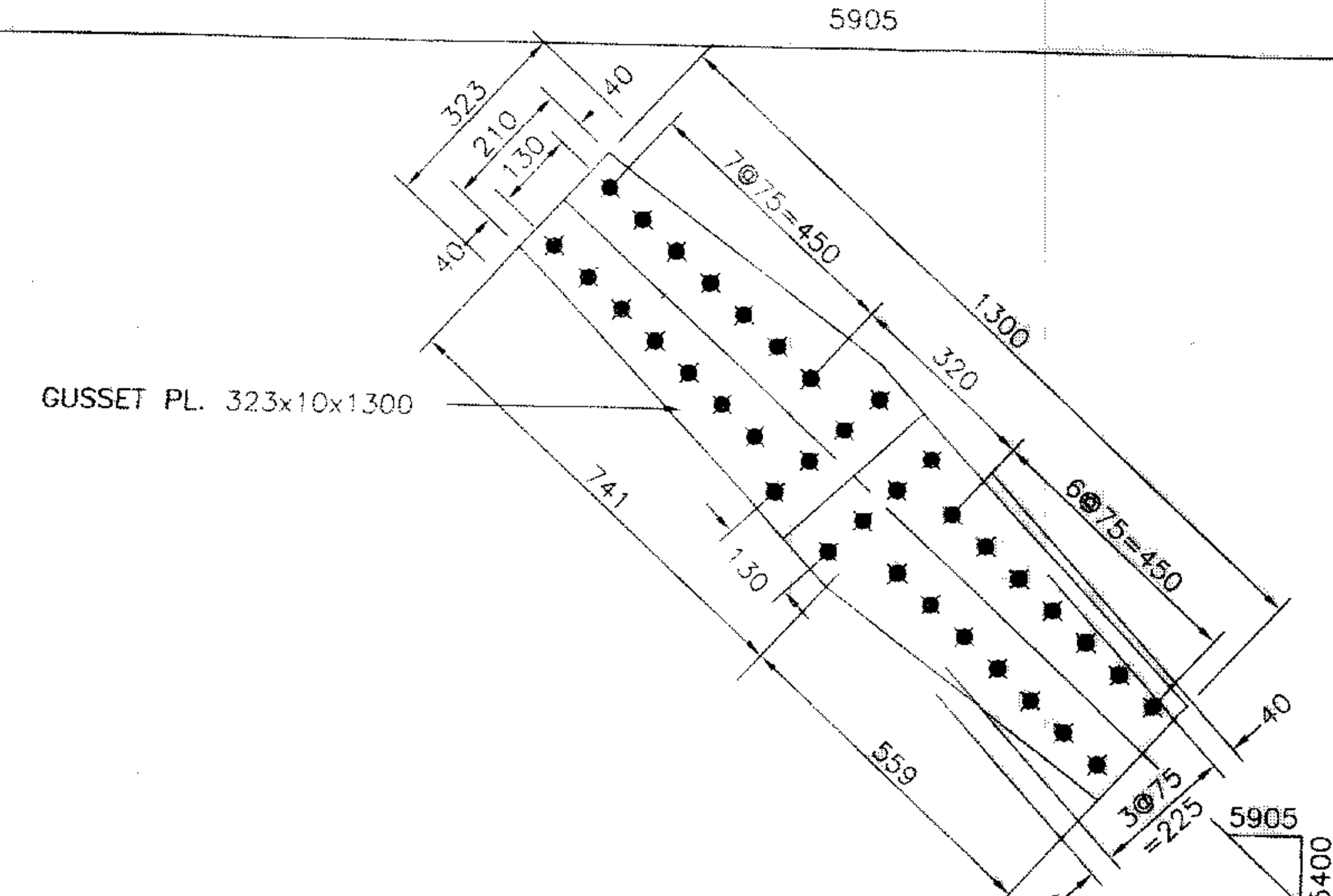
25टी भारण – 2008
25t LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
संदोलन आबंधक का विवरण
DETAILS OF SWAY BRACINGS

PROVISIONAL

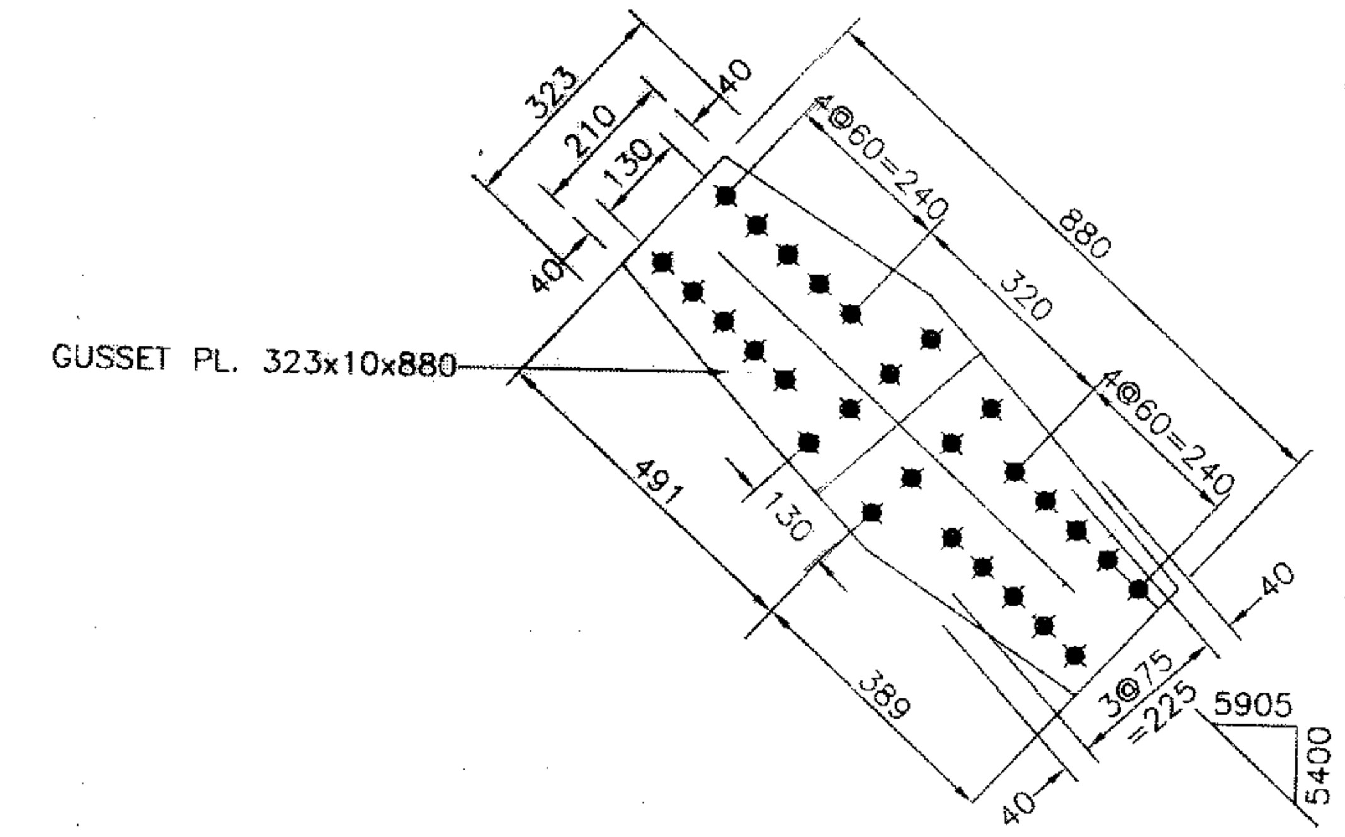
RDSO/B-17181/15

CALCULATION REGISTER No DD/2014/26	COMPUTERISED BY: (V. K. PANDEY/SSE)	(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS-III	(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I	APPROVED BY EDBS (A.K.DADARYA)	AutoCAD FILE No. B17181/15	FLOPPY No.
PAGES DONE BY: (T. HOLY KOM/SSE)	CHECKED BY: (R. N. SHUKLA/SSE)				NOTIFICATION No.	
CHECKED BY: (S. S. SINGH/SSE)						





DETAIL OF GUSSET 'X'



DETAIL OF GUSSET 'Y'

DESCRIPTION	SHOP	FIELD
HSFG BOLTS	⊕	●
ANCHOR BOLTS	◈	
TURNED BOLTS	◈	

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
3. ALL HSFG BOLTS 20 DIA. IN 21.5 DIA. HOLES.

NOTE

IRS M28, M39 FOR WELDING CONSUMABLES	
IRS WELDED BRIDGE CODE	1972
STEEL BRIDGE CODE	1962
FABRICATION & ERECTION IRS B1	2001
METAL ARC WELDING IS:9595	1980

SPECIFICATION

MILLIMETRES

100 0 100 200 300 400 500 — 1:10

200 0 200 400 600 800 1000 — 1:20

SCALE

ALT.	DESCRIPTION	DATE
1.	DIMENSION ALTERED.	

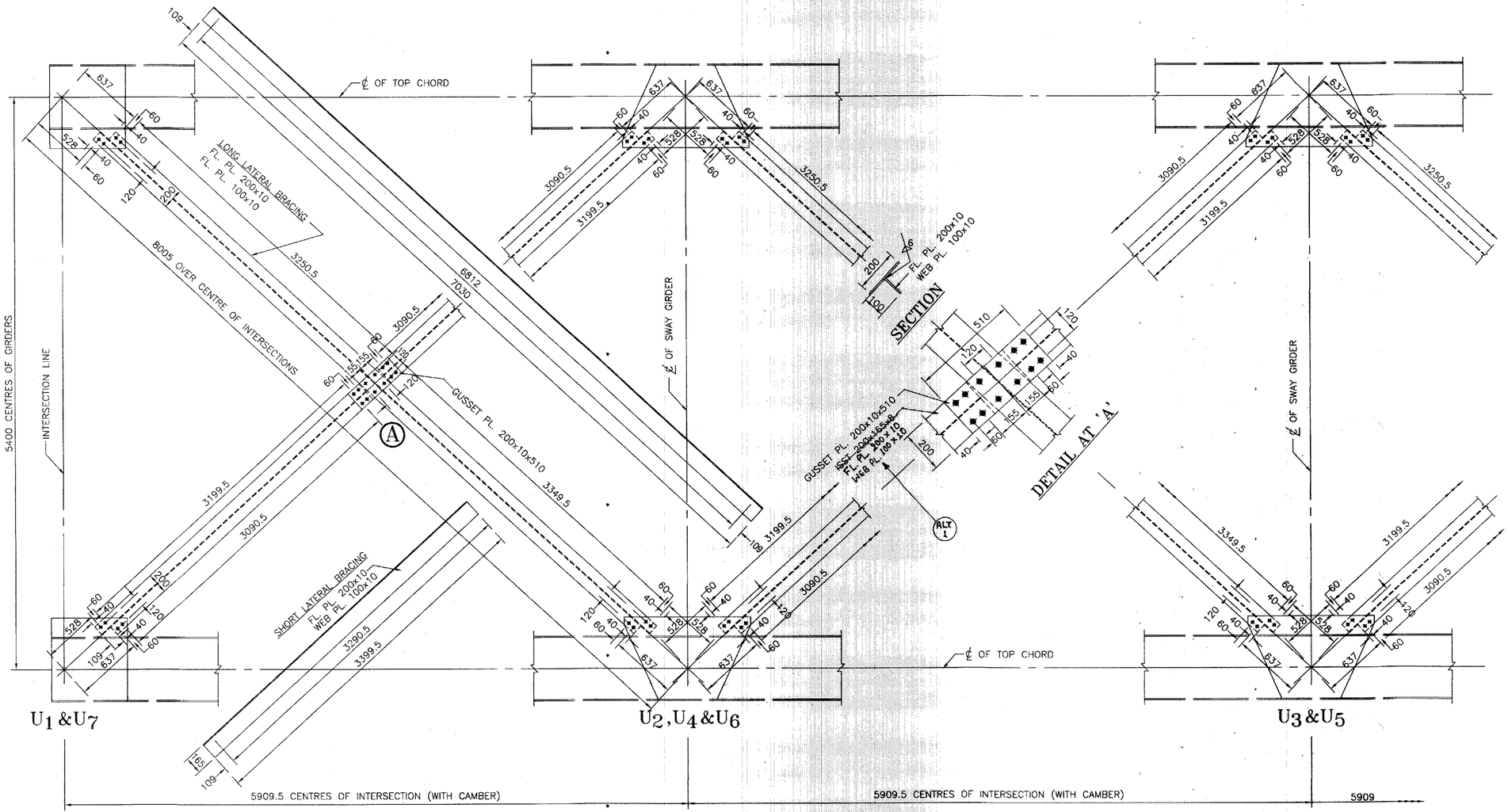
अ0 अ0 मा0 सं0
R. D. S. O.

25टी भारण – 2008
25t LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
तलीय पार्श्विक तालबन्दी का विवरण
DETAILS OF BOTTOM LATERAL BRACINGS

PROVISIONAL

RDSO/B-17181/16

CALCULATION REGISTER No.DD/2014/26
PAGES DONE BY: (T.HOLY.KOM/SSE) CHECKED BY: (S.S.SINGH/SSE)
COMPUTERISED BY: (PRAMOD SAH/SSE) CHECKED BY: (R.N.SHUKLA/SSE)
(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS-III
(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I
APPROVED BY EDBS (A.K.DADARYA)
AutoCAD FILE No. B17181/16
NOTIFICATION No.
FLOPPY No.



DESCRIPTION	SHOP	FIELD
HSFG BOLTS	⊕	●
ANCHOR BOLTS	◉	
TURNED BOLTS	◉	

NOTE

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
3. ALL HSFG BOLTS 20 DIA IN 21.5 DIA HOLES.
4. THE LENGTHS OF MEMBERS SHOWN ON THIS DRAWING INCLUDE AN ALLOWANCE FOR CAMBER.

SPECIFICATION

IRS M28, M39 FOR WELDING CONSUMABLES
IRS WELDED BRIDGE CODE – 1972
STEEL BRIDGE CODE – 1962
FABRICATION & ERECTION IRS B1–2001
METAL ARC WELDING IS:9595–1980

SCALE

MILLIMETRES
100 0 100 200 300 400 500 1:10
200 0 200 400 600 800 1000 1:20

ALT:	DESCRIPTION	DATE
1.	DIMENSIONS ALTERED	8/11/16

"THIS DRAWING IS THE PROPERTY OF RESEARCH DESIGNS AND STANDARDS ORGANISATION (MINISTRY OF RAILWAYS), LUCKNOW–226011, INDIA AND SHALL NOT BE USED, COPIED OR REPRODUCED IN PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING."

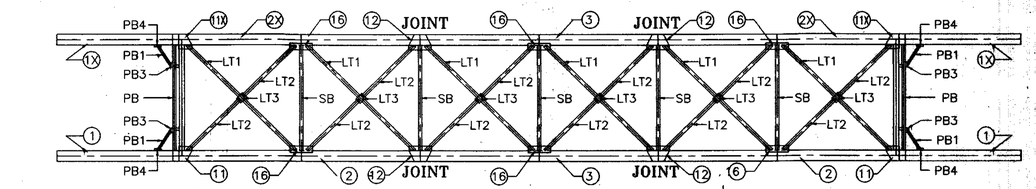
अ0 अ0 मा0 सं0
R. D. S. O.

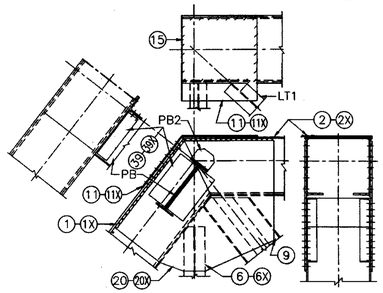
25टी भारण – 2008
25t LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
शीर्ष पार्शविक तालबन्दी का विवरण
DETAILS OF TOP LATERAL BRACINGS

PROVISIONAL

RDSO/B–17181/17

CALCULATION REGISTER No.DD/2014/26	COMPUTERISED BY: (V.K.PANDEY/SSE)	(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS–III	(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB–I	APPROVED BY EDBS (A. K. DADARYA)	AutoCAD FILE No. B17181/17	FLOPPY No.
PAGES DONE BY: (T. HOLY KOM/SSE)	CHECKED BY: (R. N. SHUKLA/SSE)				NOTIFICATION No.	
CHECKED BY: (S.S.SINGH/SE)						



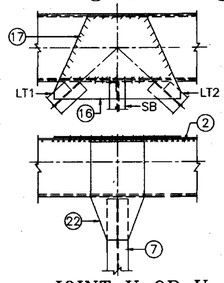


MARK	No.OFF	MARK	No.OFF
11	2	39	2
11X	2	39X	2
15	2		
15X	2		

JOINT U_1 NEAR SIDE OR U_7 FAR SIDE

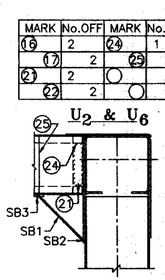
MARK	No.OFF	MARK	No.OFF
11	2	39	2
11X	2	39X	2
15	2		
15X	2		

JOINT U_1 FAR SIDE OR U_7 NEAR SIDE



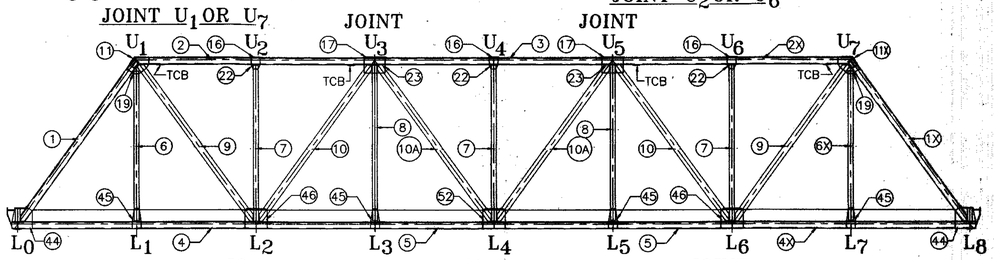
JOINT U_2 OR U_6

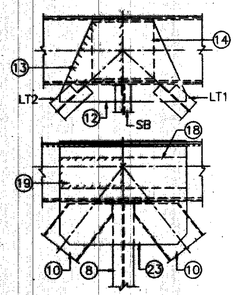
MARK	No.OFF	MARK	No.OFF
16	2	24	1
17	2	25	1
23	2		
22	2		



U_2 & U_6

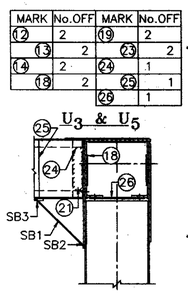
JOINT U_1 OR U_7





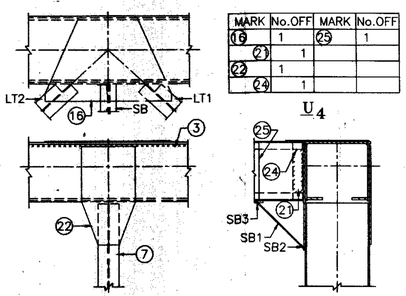
JOINT U_3 OR U_5

MARK	No.OFF	MARK	No.OFF
12	2	19	2
13	2	23	2
14	2	24	1
18	2	25	1
		26	1



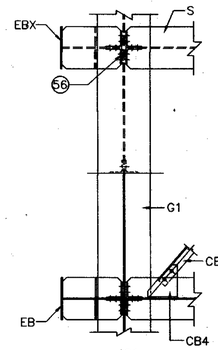
U_3 & U_5

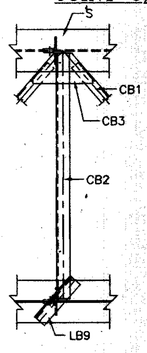
MARK	No.OFF	MARK	No.OFF
16	1	25	1
21	1		
22	1		
24	1		

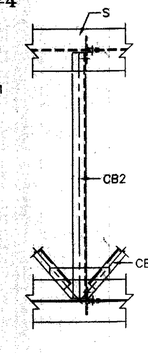


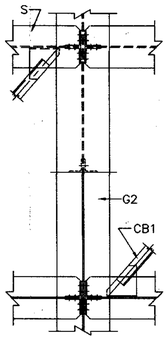
U_4

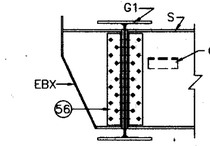
JOINT U_4

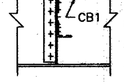


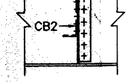


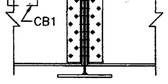


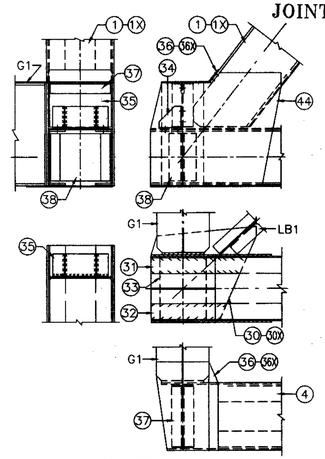












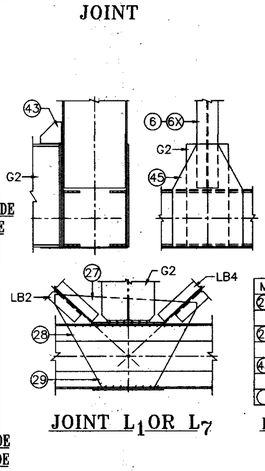
MARK	No.OFF
30	2
30X	2
31	1
32	1
33	1
34	1
35	1
36	2
36X	2
37	2
44	2

JOINT L_0 NEAR SIDE OR L_8 FAR SIDE

MARK	No.OFF
30	2
30X	2
31	1
32	1
33	1
34	1
35	1
36	2
36X	2
37	2
44	2

JOINT L_0 FAR SIDE OR L_8 NEAR SIDE

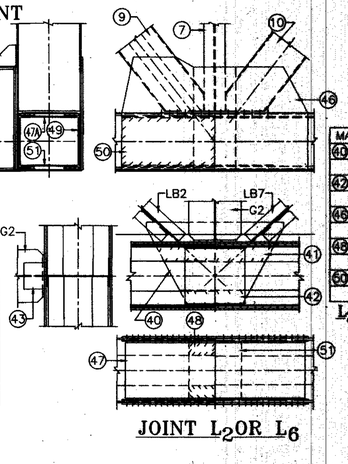
JOINT L_0 OR L_8



JOINT L_1 OR L_7

MARK	No.OFF
27	1
28	1
29	1
43	1
45	2

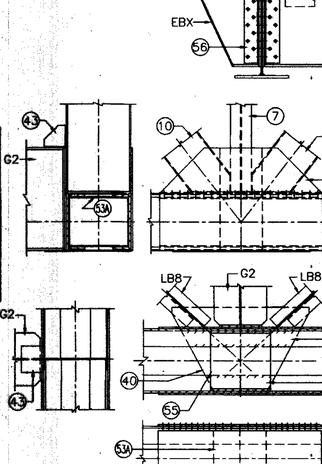
L_1 & L_7



JOINT L_2 OR L_6

MARK	No.OFF
40	1
41	1
42	1
43	1
46	2
47	1
48	2
49	2
50	2
51	1

L_2 & L_6



MARK	No.OFF
40	2
41	2
42	2
43	1
52	2
53	1
54	1
55	1
56	4

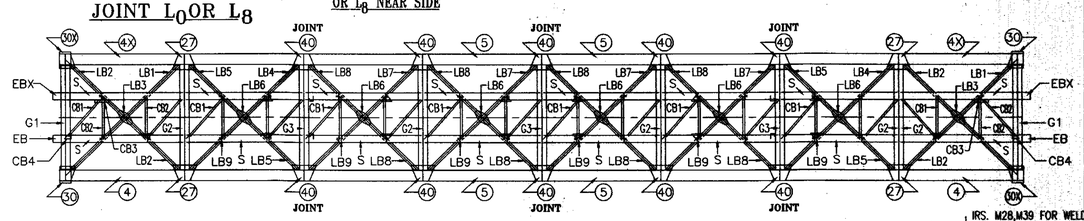
L_4

JOINT L_4

MARK	No.OFF
40	2
41	1
42	1
43	1
45	2

L_3 & L_5

JOINT L_3 OR L_5



"THIS DRAWING IS THE PROPERTY OF RESEARCH DESIGNS AND STANDARDS ORGANISATION (MINISTRY OF RAILWAYS), LUCKNOW-226011, INDIA AND SHALL NOT BE USED, COPIED OR REPRODUCED IN PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING."

NOTE	SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE
	IRS. M28,M39 FOR WELDING CONSUMABLES IRS. WELDED BRIDGE CODE - 1972 STEEL BRIDGE CODE - 1962 FABRICATION & ERECTION IRS. B1-2001 METAL ARC WELDING IS: 9595-1980	NOT TO SCALE			

अ0 अ0 मा0 स0
R. D. S. O.

25टी भारण – 2008
25T LOADING –2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
उन्निर्माण आरेख
ERECTION DRAWING

PROVISIONAL

BA – 17181/18

CALCULATION REGISTER No.DD/2014/26							
PAGES	DONE BY: (T.HOLY KOM/SSE) CHECKED BY: (S..S SINGH/SSE)	COMPUTERISED BY: (PRAMOD SAH/SSE) CHECKED BY: (R.N.SHUKLA/SSE)	(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS-III	(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I	APPROVED BY EDBS (A.K.DADARYA)	Auto CAD FILENO.B17181/18 NOTIFICATION No.	FLOPPY No.

SHIPPING LIST

SHIPPING MARK	DESCRIPTION	No. REQD.
1	END RAKERS	2
1X	END RAKERS (O.H.)	2
2	TOP CHORDS (END)	2
2X	TOP CHORDS (END) (O.H.)	2
3	TOP CHORDS (MIDDLE)	2
4	BOTTOM CHORDS (END)	2
4X	BOTTOM CHORDS (END) (O.H.)	2
5	BOTTOM CHORDS (INTERMEDIATE)	4
6	VERTICALS	2
6X	VERTICALS (O.H.)	2
7	VERTICALS (INTERMEDIATE)	6
8	VERTICALS (INTERMEDIATE)	4
9	DIAGONALS (END)	4
10	DIAGONALS (INTERMEDIATE) L_2-U_3 & U_5-L_6	4
10A	DIAGONALS (INTERMEDIATE) U_3-L_4 & L_4-U_5	4
11	TOP BENT PLATES U_1 & U_7	2
11X	TOP BENT PLATES U_1 & U_7 (O.H.)	2
12	TOP LAT. GUSSETS U_3 & U_5	4
13	PACKING UNDER GUSSETS U_3 & U_5	4
14	INNER COVER PLATES U_3 & U_5	4
15	PACK. BET. BENT PL. & FL. PL. AT U_1 & U_7	2
15X	PACK. BET. BENT PL. & FL. PL. AT U_1 & U_7 (O.H.)	2
16	TOP LATERAL GUSSETS U_2, U_4 & U_6	6
17	PACKING AT U_2 & U_6 UNDER LAT. GUSSET	4
18	WEB COVER AT U_3 & U_5	8
19	PACK. BET. SIDE PL. & COVER PL. AT U_3 & U_5	8
20	SIDE GUSSETS U_1 & U_7	4
20X	SIDE GUSSETS U_1 & U_7 (O.H.)	4
21	~~PACKING FOR SWAY CLEAT~~ AT U_2, U_3, U_4, U_5 & U_6	~~10~~
22	SIDE GUSSETS U_2, U_4 & U_6	12
23	SIDE GUSSETS U_3 & U_5	8
24	CLEAT AT SWAY END U_2, U_3, U_4, U_5 & U_6	~~10~~ 20
25	~~BATTEN PL. AT SWAY END U_2, U_3, U_4, U_5 & U_6~~	~~10~~
26	COVER PL. AT U_3 & U_5	4
	[illegible]	4
	PACKING UNDER BRACKET [illegible]	4
	[illegible] PLATE BRACKET	2

SHIPPING MARK	DESCRIPTION	No. REQD.
27	BOTTOM LAT. GUSSETS L_1 & L_7	4
28	PACK. BET. BOTT. FL. PL. & BOTT. LAT. GUSSET L_1-L_7	4
29	PACK. BET. BOTT. FL. PL. & BOTT. LAT. GUSSET L_1-L_7	4
30	BOTT. LAT. GUSSET AT L_0-L_8	2
30X	BOTT. LAT. GUSSET AT L_0-L_8 (O.H.)	2
31	PACK. BET. BOTT. FL. PL. & BOTT. LAT. GUSSET L_0-L_8	4
32	PACK. BET. BOTT. FL. PL. & BOTT. LAT. GUSSET L_0-L_8	4
33	BEARING PL. AT L_0-L_8	4
34	BRACKET AT L_0-L_8	4
35	END DIAPH. AT L_0-L_8	4
36	BENT PL. AT TOP L_0-L_8	2
36X	BENT. PL. AT TOP L_0-L_8	2
37	ANGLE CLEATS TOP TO SUPPORT BENT PL.	8
38	DIAPH. AT L_0-L_8	4
39	ANGLE CLEAT AT PORTAL ENDS	4
39X	ANGLE CLEAT AT PORTAL ENDS (O.H.)	4
40	BOTTOM LAT. GUSSET L_2, L_3, L_4, L_5 & L_6	10
41	PACK. BET. BOTT. FL. & BOTT. LAT. GUSSET L_2, L_3, L_4, L_5 & L_6	10
42	PACK. BET. BOTT. FL. & BOTT. LAT. GUSSET L_2, L_3, L_4, L_5 & L_6	10
43	CORNER BRACKET FOR X-GIRDER	~~18~~ 14
44	SIDE GUSSET AT L_0-L_8	8
45	SIDE GUSSET AT L_1-L_7 & L_3, L_5	16
46	SIDE GUSSET AT L_2 & L_6	8
47	TOP COVER PL. AT L_2-L_6	4
47A	INNER COVER PL. AT L_2-L_6	4
48	PACK. BET. TOP COVER PL. & TOP FL. PL. AT L_2-L_6	8
49	SIDE COVER AT L_2-L_6	8
50	PACK. BET. SIDE COVER & SIDE PL. AT L_2-L_6	8
51	BOTTOM COVER PL. AT L_2-L_6	4
52	SIDE GUSSET PL. AT L_4	4
53	TOP COVER PL. AT L_4	2
53A	INNER COVER PL. AT L_4	2
54	SIDE COVER PL. AT L_4	2
55	BOTTOM COVER PL AT L_4	2
56	STIFFENING ANGLES CONNECTING STRINGERS	72
LB2X	BOTT. LAT. BRACINGS SHORT END PANELS	2
LB5X	BOTT. LAT. BRACINGS SHORT INT. (L_1-L_2)	1
LB8X	BOTT. LAT. BRACINGS SHORT INT. (L_2-L_3 & L_3-L_4)	5

SHIPPING MARK	DESCRIPTION	No. REQD.
~~TCB~~ (Not needed)	~~END BATTEN PLs. FOR TOP CHORDS~~	~~8~~
G1	END CROSS GIRDERS AT L_0	2
G2	ITERMEDIATE CROSS GIRDERS AT L_1, L_3, L_5 & L_7	4
G3	INTERMEDIATE CROSS GIRDERS AT L_2, L_4 & L_6	3
EB	END BRACKETS L_1 & L_7	2
EBX	END BRACKETS (O.H.)	2
S	STRINGERS	16
CB1	STRINGER BRACING ANGLES	24
CB2	STRINGER BRACING CHANNELS	16
CB3	STRINGER BRACING GUSSETS	~~32~~ 16
CB4	STRINGER BRACING BENT PLs.	16
LB1	BOTT. LAT. BRACINGS LONG. END PANELS	2
LB2	BOTT. LAT. BRACINGS SHORT END PANELS	~~4~~ 2
LB3	BOTT. LAT. BRACINGS CENTRAL GUSSET END PANELS	2
LB4	BOTT. LAT. BRACINGS LONG INT. PANELS (L_1-L_2)	2
LB5	BOTT. LAT. BRACINGS SHORT INT. PANELS (L_1-L_2)	~~4~~ 1
LB6	BOTT. LAT. BRACINGS CENTRAL GUSSETS INT. PANELS	6
LB7	BOTT. LAT. BRACINGS LONG. INT. (L_2-L_3 & L_3-L_4)	4
LB8	BOTT. LAT. BRACINGS SHORT INT. (L_2-L_3 & L_3-L_4)	~~8~~ 5
LB9	BENT PL. CONNECTING LAT. STRINGERS	32
LT1	TOP LAT. BRACINGS (LONG)	6
LT2	TOP LAT. BRACINGS (SHORT)	12
LT3	TOP LAT. BRACINGS (CENTRAL GUSSETS)	6
PB	PORTAL BRACING GIRDER	2
PB1	KNEE BRACES FOR PORTAL BRACING	4
PB2	CLEAT ANGLE AT PORTAL TOP	2
PB2X	ANGLE CLEAT AT PORTAL (O.H.)	2
PB3	RIVETTED TEES FOR KNEE BRACING FOR PORTAL	~~2~~ 4
PB4	RIVETTED TEES FOR KNEE BRACING FOR END RAKER	~~2~~ 4
SB	SWAY BRACING GIRDER	5
SB1	KNEE BRACING FOR SWAY	10
SB2	RIVETED TEES FOR KNEE BRACING VERTICAL SIDE	10
SB3	RIVETED TEES FOR KNEE BRACING SWAY BRACING	10
	FIXED BEARINGS	2
	EXPANSION BEARINGS	2

अ0 अ0 मा0 स0
R. D. S. O.

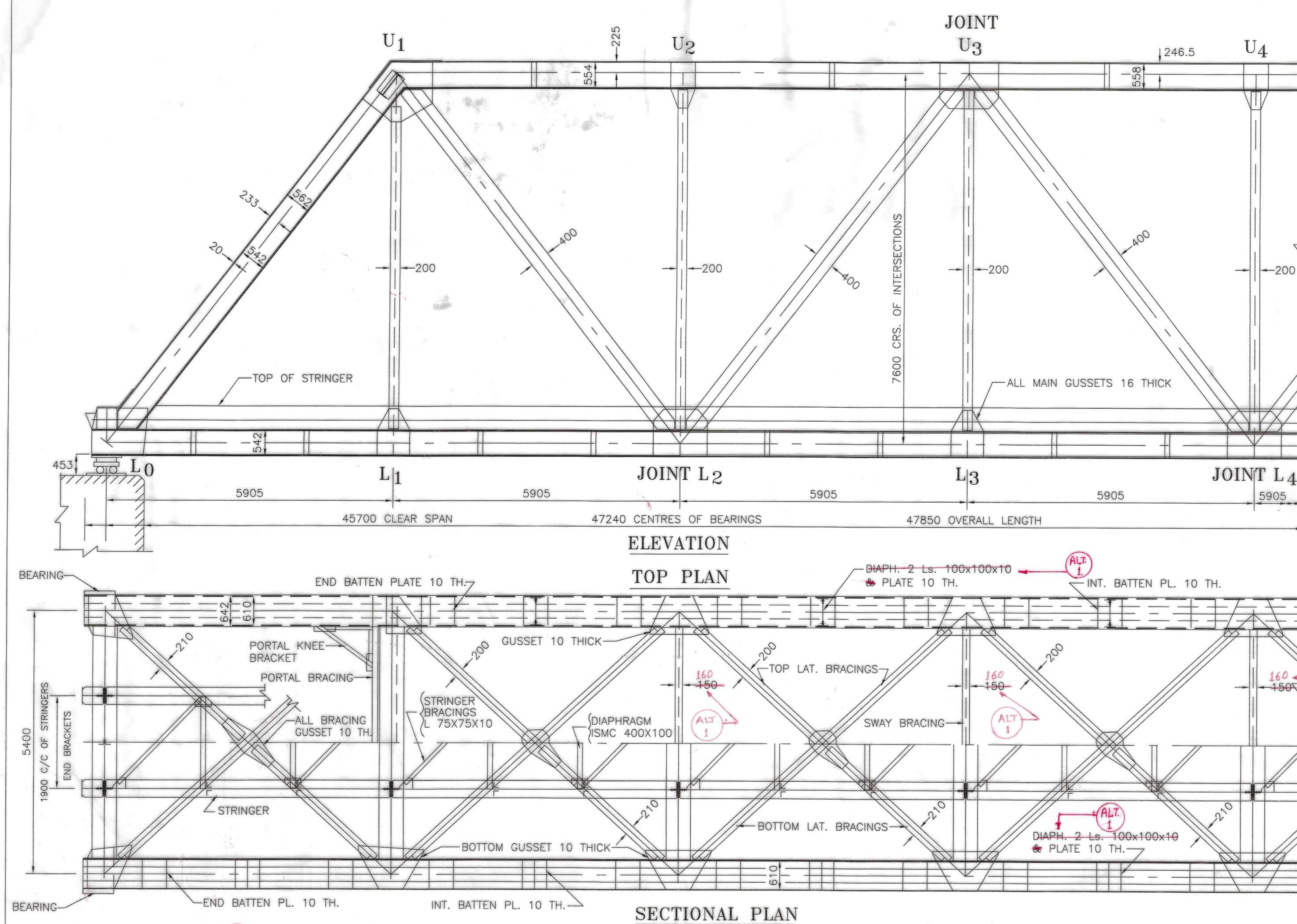
25टी भारण – 2008
25 LOADING – 2008
45.7 मी0 पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
प्रेषण सूची
SHIPPING LIST

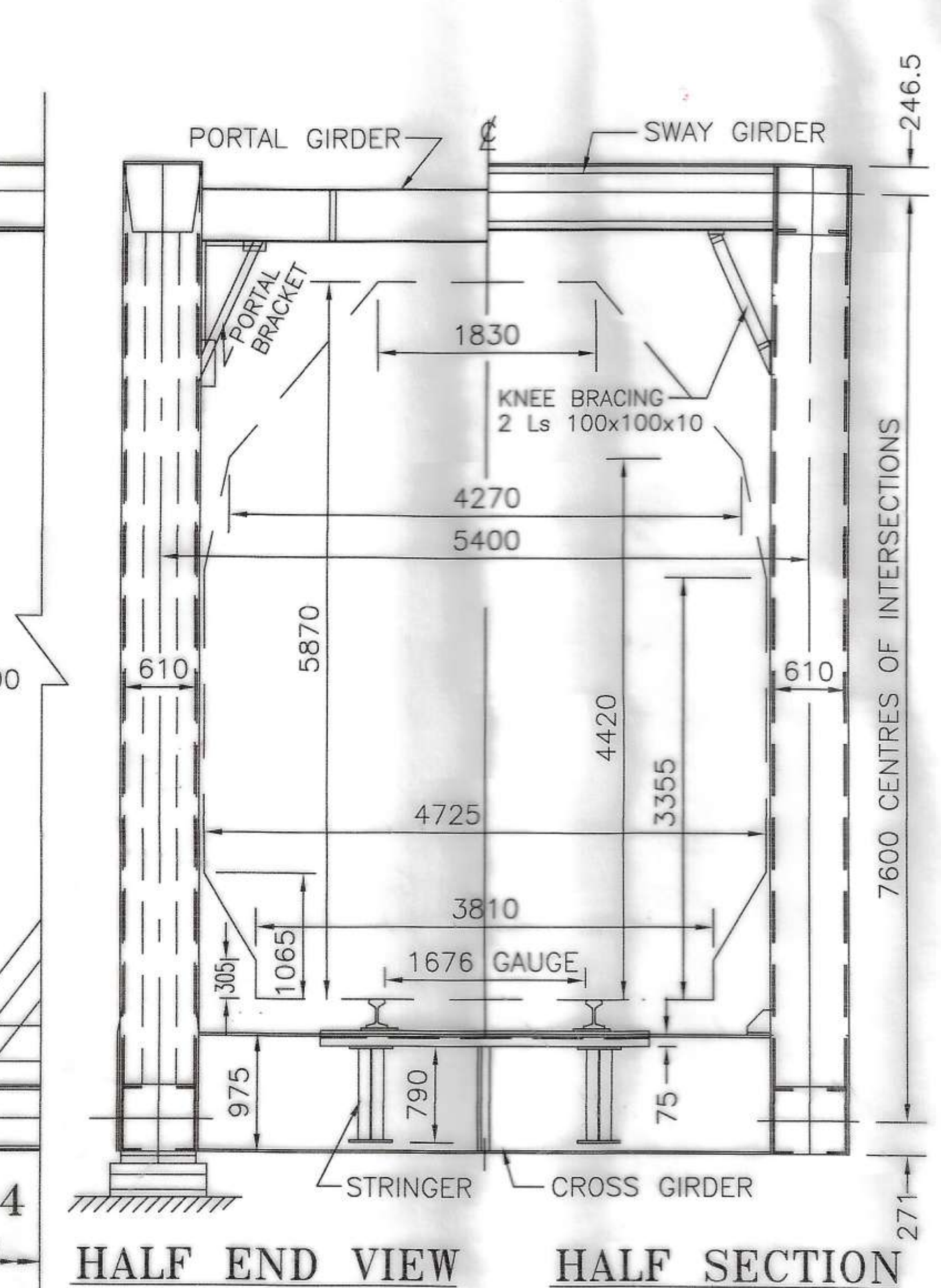
PROVISIONAL

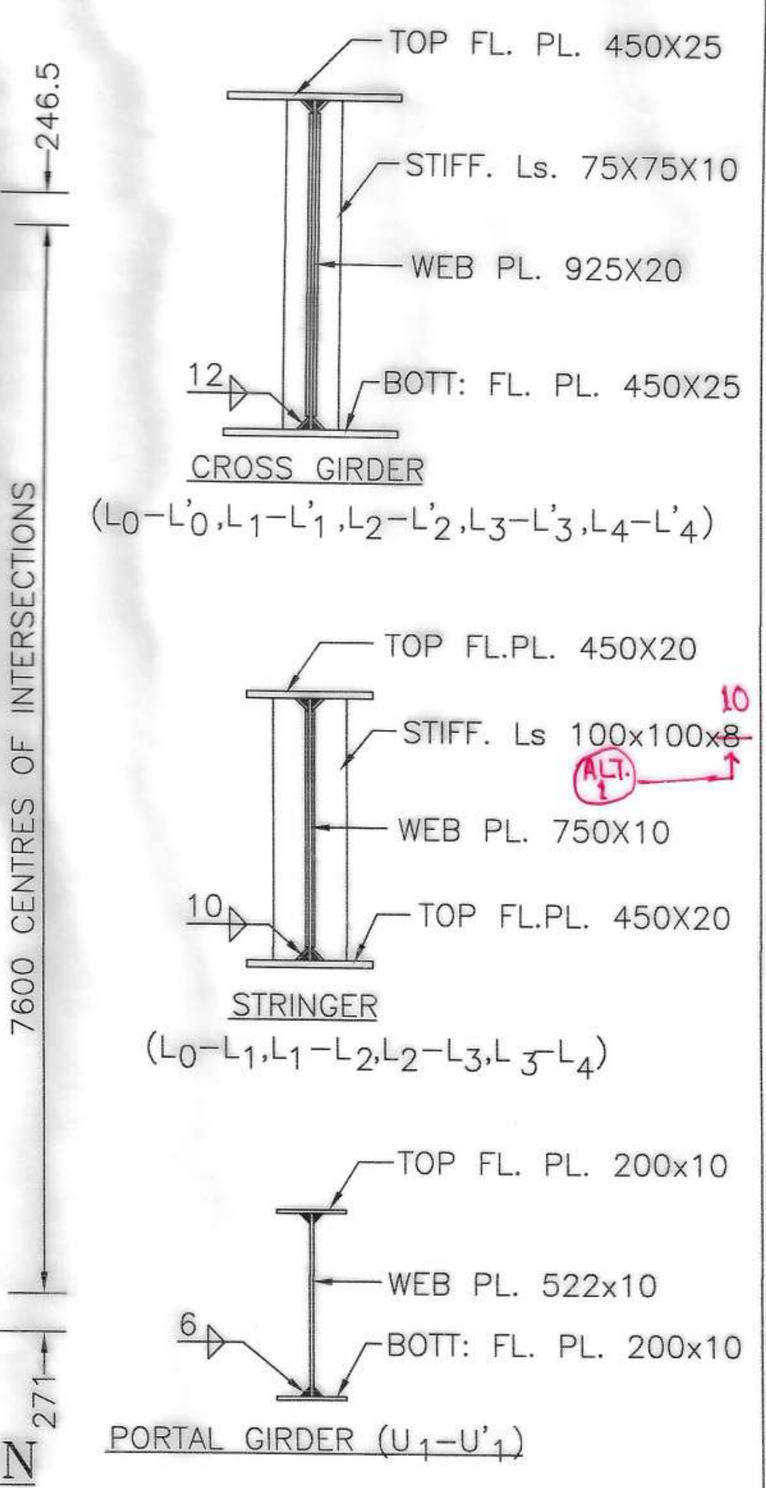
BA – 17181/19

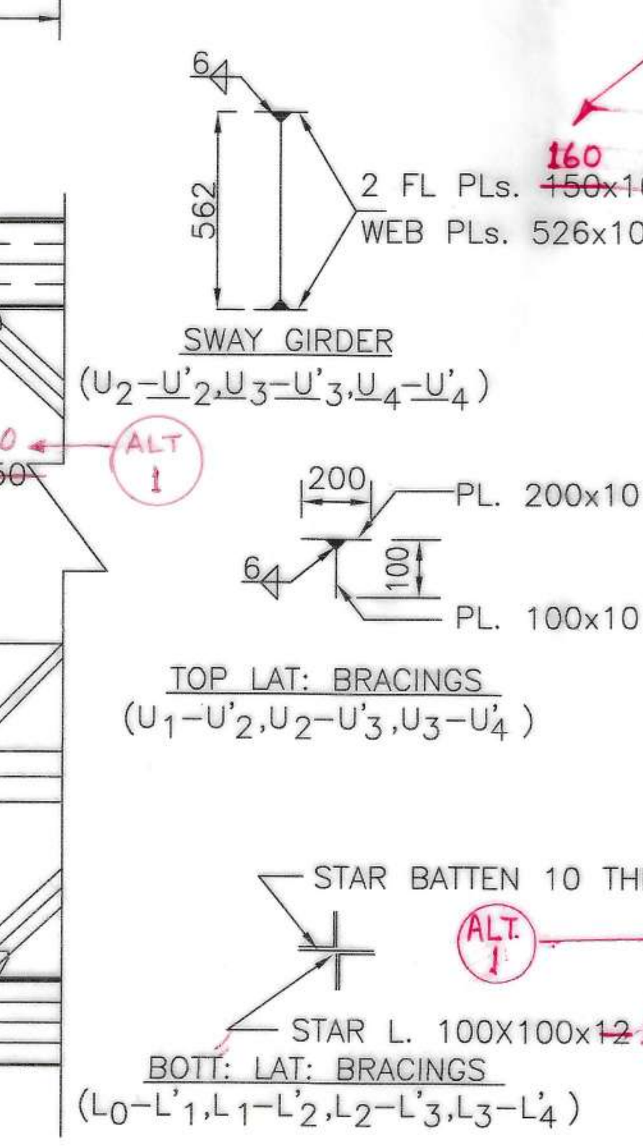
NOTE	SPECIFICATION	SCALE	ALT:	DESCRIPTION	DATE
			1	SHIPPING MARK ADDED.	

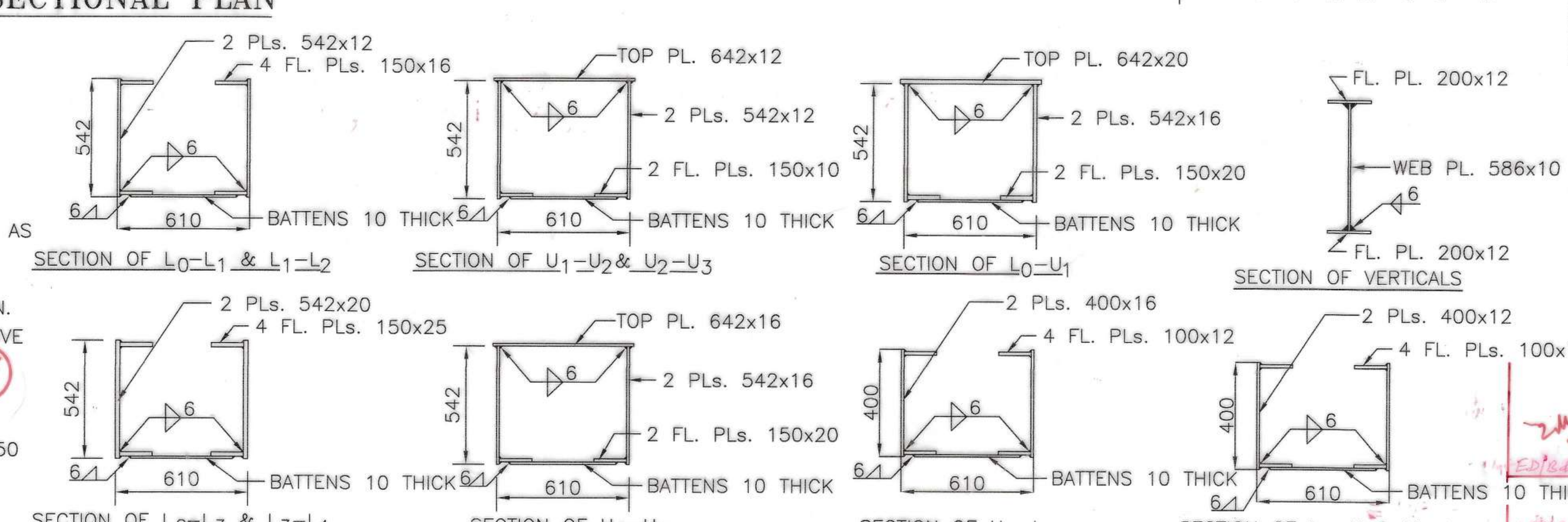
CALCULATION REGISTER No.DD/2014/26 PAGES DONE BY: (T.HOLY KOM/SSE) CHECKED BY: (S.S.SINGH/SSE) | COMPUTERISED BY: (PRAMOD SAH/SSE) CHECKED BY: (R.N.SHUKLA/SSE) | (HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS-III | (SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I | APPROVED BY EDBS (A.K.DADARYA) | AutoCAD FILE No. B17181/19 NOTIFICATION No. | FLOPPY No.











LIST OF DRAWINGS

DRG. No.	DESCRIPTION
RDSO/B-17181/1	STRESS SHEET
RDSO/B-17181/2	CAMBER DIAGRAM
RDSO/B-17181/3	DETAILS OF BEARINGS
RDSO/B-17181/4/R	DETAILS OF BOTTOM CHORDS
RDSO/B-17181/5/R	DETAILS OF TOP CHORDS
RDSO/B-17181/6/R	DETAILS OF END RAKER AND PORTAL BRACINGS
RDSO/B-17181/7	DETAILS OF VERTICALS
RDSO/B-17181/8/R	DETAILS OF DIAGONALS
RDSO/B-17191/9	DETAILS OF BOTTOM CHORD JOINTS
RDSO/B-17191/10	DETAILS OF BOTTOM CHORD JOINTS
RDSO/B-17181/11	DETAILS OF TOP CHORD JOINTS
RDSO/B-17181/12	DETAILS OF TOP CHORD JOINTS
RDSO/B-17181/13	DETAILS OF CROSS GIRDERS
RDSO/B-17181/14	DETAILS OF STRINGERS
RDSO/B-17181/15	DETAILS OF SWAY BRACINGS
RDSO/B-17181/16	DETAILS OF BOTTOM LATERAL BRACINGS
RDSO/B-17181/17	DETAILS OF TOP LATERAL BRACINGS
RDSO/B-17181/18	ERECTION DRAWING
RDSO/B-17181/19	SHIPPING LIST

WEIGHT OF SPAN IN TONNES

SPAN	BEARINGS	TOTAL
~~135.896~~ 134.33	4.016	~~138.912~~ 138.346

16. *THIS DESIGN IS SUITABLE FOR MAXIMUM PERMISSIBLE SPEED AS GIVEN IN PARA 3.3.1 OF THE BRIDGE RULE.* (ALT 2)
15. THIS DESIGN IS SUITABLE FOR SEISMIC ZONE – V.
14. FOR THIS SPAN REFER DRAWING NOs. RDSO/B-17181 TO 17181/19.
13. THE SURFACE PREPARARTION TIGHTENING PROCEDURE AND OTHER DETAILS FOR HSFG BOLTS SHALL BE AS PER DRG. NO RDSO/B-11760/R.
12. ALL WELDS TO BE MADE BY APPROVED WELDERS USING APPROVED WELDING PROCEDURES.
11. AUTOMATIC SUB-MERGED ARC WELDING SHOULD BE EMPLOYED FOR BUTT & FILLET WELDS WHEREVER SHOWN.
10. ALL BUTT WELDS ARE TO BE EXAMINED RADIOGRAPHICALLY OR ANY EQUALLY EFFECTIVE NON DESTRUCTIVE TEST METHOD.
9. WELDABLE MATERIAL IS AS PER IS: 2062, QUALITY 'B' FULLY KILLED AND FULLY NORMALIZED ~~OTHER MATERIAL CAN BE AS PER IS: 2062, QUALITY 'A' SEMI KILLED MINIMUM.~~ (ALT 2)
8. THE DESIGN FOR MAIN TRUSS AND FLOOR SYSTEM IS SUITABLE FOR ANNUAL TRAFFIC OF 100 YEARS, 50 GMT OF 25 T LOADING AS PER REVISED FATIGUE PROVISIONS.
7. BENT PLATES SHOULD BE BENT HOT, FREE FROM CRACKS.
6. ALL EDGES TO BE MACHINED OR CONTROL TORCH FLAME CUT.
5. FOR MULTIPLE SPAN BRIDGE, ONE END SPAN WILL HAVE BRACKETS AT BOTH ENDS AND THE REMAINING WILL HAVE BRACKETS AT ONE END ONLY.
4. FOR SINGLE 45.7 m SPAN END BRACKETS ARE TO BE PROVIDED AT BOTH ENDS.
3. ALL FIELD HSFG BOLTS SHALL BE 22 DIA. IN 23.5 HOLES EXCEPT BRACINGS FOR WHICH FIELD RIVETS ARE 20 DIA. IN 21.5 DIA. HOLES.
2. ALL SHOP HSFG BOLTS SHALL BE 20 DIA. IN 21.5 DIA. HOLES.
1. ALL DIMENSIONS ARE IN MILLIMETRES.
17. *FOR PROVISION OF PATHWAY REFER DRAWING NO CBS-0045.* (ALT 3)

ALT	DESCRIPTION	DATE
2	NOTE NO 16 ADDED AND NOTE NO 9 ALTERED.	

SPECIFICATION

IRS. M-28, M-39 FOR WELDING CONSUMABLES.
IRS WELDED BRIDGE CODE – 1972
FABRICATION & ERECTION B_1 –2001
STEEL BRIDGE CODE . . . . . . –1962
METAL ARC WELDING IS: 9595 – 1980

SCALE

MILLIMETRES — 1:20, 1:50

ALT	DESCRIPTION	DATE
3.	NOTE ADDED.	
1.	DIMENSIONS ALTERED	

अ अ मा स
R. D. S. O.

25टी भारण – 2008
25t LOADING – 2008
45.7 मीo पाट
45.7 m SPAN
खुलापेटा गर्डर (वेल्डेड पारगामी प्रकार)
OPEN WEB GIRDER (WELDED THROUGH TYPE)
सामान्य विन्यास
GENERAL ARRANGEMENT

PROVISIONAL

RDSO/B-17181/R

CALCULATION REGISTER No. DD/2014/26
PAGES — DONE BY: (T. HOLY KOM/SSE) — CHACKED BY: (S.S.SINGH/SSE)
COMPUTERISED BY: (V. K. PANDEY/SSE) — CHECKED BY: (R.N.SHUKLA/SSE)
(HARIOM NARAYAN) SCRUTINISED & CHECKED BY ADE/SS-III
(SRIJAN TRIPATHI) SCRUTINISED & CHECKED BY DBS/SB-I
APPROVED BY EDBS (A.K. DADARAYA)
AutoCAD FILE No. B17181/R
NOTIFICATION No.
FLOPPY No.

STRUCTURAL DESIGN DETAILS OF RCC DOUBLE BOX CULVERT FOR 0.0m FILL HEIGHT - (DOUBLE LINE TRACK CURVED UPTO 10°)

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	2	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	40	35	35
Found Pr	11.17	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	16	200		
d 2	20	200		
e	12	100		
f	16	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	3	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	40	35	35
Found Pr	12.39	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	16	200		
d 2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	4	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	40	35	35
Found Pr	13.71	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	16	200		
d 2	20	200		
e	12	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL track		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	5	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	35	40	40	35
Found Pr	15.09	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	16	200		
b	16	100		
c	16	100		
d1	16	200		
d 2	20	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	3	6	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	45	40
Found Pr	16.8	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	12	100		
c	16	100		
d1	20	200		
d 2	20	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	2	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	40	35
Found Pr	11.08	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	20	200		
d 2	20	200		
e	12	100		
f	16	200		
g	10	200		
h1	20	200		
h2	20	200		
h3	20	200		
h4	20	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	3	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th(cm)	40	45	40	35
Found Pr	12.27	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	25	200		
d 2	25	200		
e	12	100		
f	16	200		
g	10	200		
h1	20	200		
h2	25	200		
h3	20	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	4	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	40	35
Found Pr	13.46	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	25	200		
d 2	25	200		
e	12	100		
f	16	200		
g	10	200		
h1	20	200		
h2	25	200		
h3	20	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	5	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	40	45	40	35
Found Pr	14.74	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	25	200		
d 2	25	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	25	200		
h3	20	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	4	6	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	45	45	45	40
Found Pr	16.27	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	20	200		
a2	20	200		
a3	20	200		
a4	20	200		
b	16	100		
c	16	100		
d1	25	200		
d 2	25	200		
e	16	100		
f	12	200		
g	10	200		
h1	20	200		
h2	25	200		
h3	20	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	3	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	55	50	35
Found Pr	12.54	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	16	200		
b	16	100		
c	20	100		
d1	20	200		
d 2	25	200		
e	12	100		
f	16	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	4	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	55	50	35
Found Pr	13.72	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	16	200		
b	16	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	12	100		
f	16	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	5	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	55	50	35
Found Pr	14.9	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	16	200		
b	16	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	5	6	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	50	55	50	40
Found Pr	16.2	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	16	200		
b	16	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	16	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	3	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	55	65	55	35
Found Pr	12.57	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	12	100		
f	16	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	4	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	55	65	55	35
Found Pr	13.73	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	25	200		
b	20	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	12	100		
f	16	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	5	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	70	60	35
Found Pr	15.17	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	12	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

In Curve		Y		
DL tracks		Y		
Size of Box	Both Span	Height	Fill	
(m)	6	6	0	
	Top Slab	Bottom Slab	Side Wall	Int wall
Th (cm)	60	70	60	40
Found Pr	16.36	t/m2		
Bar	Dia	Spacing	along barrel	along span
a1	25	200		
a2	25	200		
a3	25	200		
a4	20	200		
b	20	100		
c	20	100		
d1	25	200		
d 2	25	200		
e	16	100		
f	12	200		
g	12	200		
h1	25	200		
h2	25	200		
h3	25	200		
h4	25	200		
j1	10		200	200
j2	10		200	200
j3	10		200	200
j4	10		200	200

NOTES:

1. ALL BAR DIA AND SPACING ARE IN MM.
2. BEARING CAPACITY SHOULD NOT BE LESS THAN MAXIMUM FOUNDATION PRESSURE.
3. THIS DRAWING SHALL BE READ ALONG WITH GENERAL ARRANGEMENT DRAWING NO. RDSO/B-10158 .

R. D. S. O.

STANDARD DRAWING OF
DOUBLE BOX CULVERT FOR
DOUBLE LINE TRACK CURVED UPTO 10°
(STRUCTURAL DESIGN DETAILS FOR
0.0m FILL HEIGHT)
25t LOADING-2008

PROVISIONAL DATE: 27.2.2015

RDSO/B-10158/1A

SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

CALCULATION REGISTER :- CB-II/47
DONE BY-SHER SINGH (SSE/D/CB-II)
CHECKED BY-SATISH CHANDER (SSE/D/CB-II)

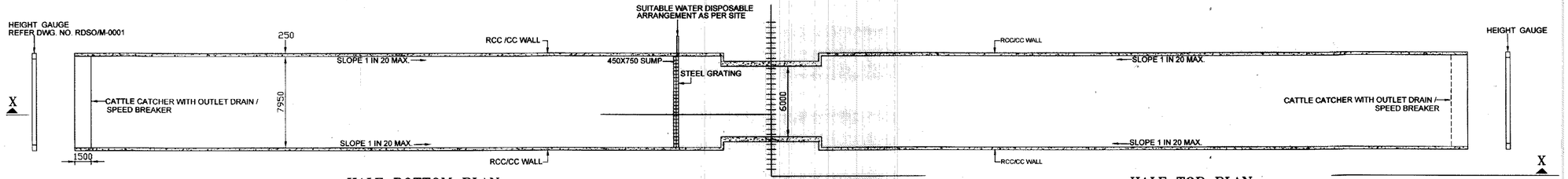
DRAWN BY-ANJANA BHASIN(SSE/D/CB-II)
CHECKED BY-SATISH CHANDER (SSE/D/CB-II)

SCRUTINISED & CHECKED BY
P.P SINGH (ADE/CB-II)

SCRUTINISED & RECOMMENDED BY
DIRECTOR/B&S/CB-II

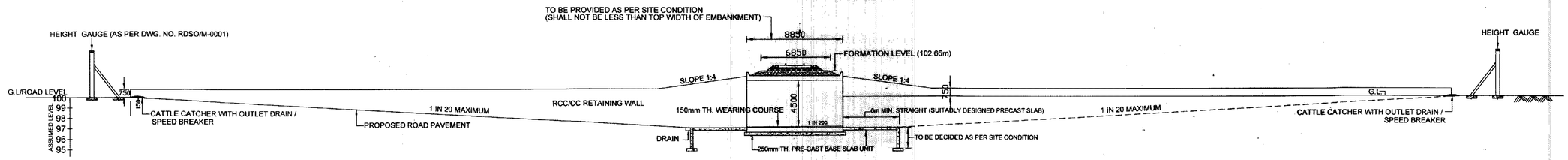
APPROVED BY
ED/STRUCTURES

B&S DIRECTORATE
FILE No. CBS/DBC
NOTING PAGE No.- 20

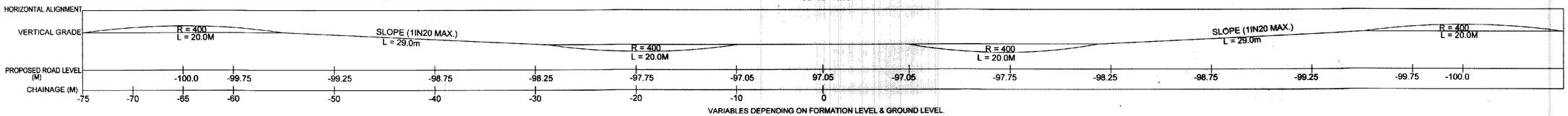


HALF BOTTOM PLAN
SCALE - 1:200

HALF TOP PLAN
SCALE - 1:200



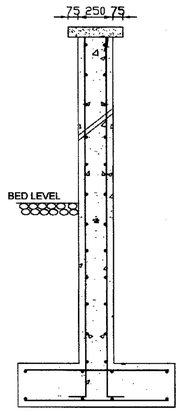
LONGITUDINAL SECTION AND SIDE ELEVATION AT X–X
SCALE - 1:200



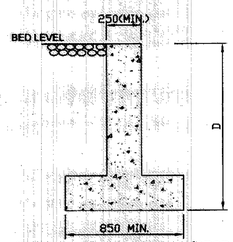
VARIABLES DEPENDING ON FORMATION LEVEL & GROUND LEVEL

NOTES:

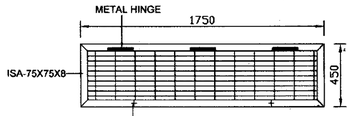
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS SHALL NOT BE SCALED FROM DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. DURING CONSTRUCTION OF RUB, ALL THE EXISTING STRUCTURE/TRACK SHOULD BE PROTECTED BY PROVIDING PROPER SHORING ARRANGEMENT, IF REQUIRED, WITH THE APPROVAL OF ENGINEER-IN-CHARGE.
4. SUITABLE PUMPING ARRANGEMENT SHOULD BE PROVIDED TO PUMP OUT THE WATER FROM SUBWAY TO SUITABLE PLACE.
5. HEIGHT GAUGES SHOULD BE PROVIDED AT ENTRY AND EXIT POINTS OF RUB.
6. FOR HEIGHT GAUGE DRG. NO. RDSO/M-0001 SHOULD BE FOLLOWED .
7. SUITABLY DESIGNED DROP WALL & CURTAIN WALL ARE TO BE PROVIDED. DIMENSIONS ARE TENTATIVE AND TO BE DECIDED AS PER SPECIFIC REQUIREMENT.
8. SUITABLY DESIGNED PRECAST RCC SLABS ARE TO BE USED ON APPROACHES OF RUB (FOR MIN. 6m).
9. CEMENT CONCRETE PAVEMENT OF SUITABLE THICKNESS FOR FLEXIBLE PAVEMENT SHALL BE IN BOTH SIDE APPROACHES OF BOX CULVERT, (BEYOND 6m) UPTO THE SPEED BREAKER/CATTLE CATCHER WITH OUTLET DRAIN.
10. `D' SHALL NOT BE GREATER THAN FOUNDATION DEPTH BELOW BED LEVEL OF RETAINING WALL.
11. CRS SANCTION SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF WORKS, IF REQUIRED AS PER PARA 1302 OF INDIAN RAILWAY PERMANENT WAY MANUAL.
12. RDSO GUIDELINES FOR CONSTRUCTION OF LIMITED HEIGHT SUBWAY (LHS) BY CUT AND COVER METHOD, APRIL 2015 ISSUED VIDE LETTER NO. CBS/CUT & COVER METHOD DATED 07/04/2015 SHALL BE FOLLOWED.



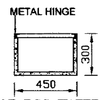
TYPICAL RCC/CC RETAINING WALL
(TO BE DESIGNED AS PER SITE CONDITION)



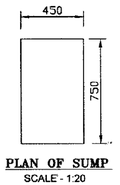
SECTION OF CC CURTAIN/DROP WALL



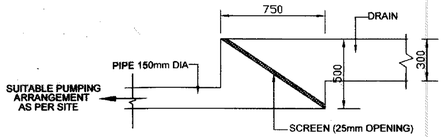
GRATING FOR DRAIN COVER
SCALE : 1:20



SECTION OF RCC WATER DRAIN
SCALE - 1:20



PLAN OF SUMP
SCALE - 1:20



SECTION OF SUMP
SCALE - 1:20

TABLE–'X' RELATED DRAWINGS

S.No.	DESCRIPTION	DRAWING NO.
1.	BOX STRUCTURAL DESIGN DETAILS	RDSO/B–10159/1
2.	BOX SEGMENTS & BASE SLAB	RDSO/B–10159/2

R.D.S.O.

TYPICAL PLAN OF RCC SEGMENTAL BOX FOR RUB WITH FOOTPATH AND PROVISION FOR CUT & DROP WALL 6.00m(CLS) X 4.65m(ht) 0.5m EARTH FILL & CLEAR Ht. 4.50m 25t LOADING – 2008 GENERAL ARRANGEMENT

PROVISIONAL DATE:18.11.15

RDSO/B–10159

IRS BRIDGE SUB STRUCTURE & FOUNDATION CODE
IRS CONCRETE BRIDGE CODE
IRS BRIDGE RULE
IS: 456–2000
IS: 1786–1985

SPECIFICATION | SCALE | ALT | DESCRIPTION | DATE

CALCULATION REGISTER :– CB–II/50
DONE BY–SHER SINGH (SSE/D/CB–II)
CHECKED BY–BINAY KUMAR (SSE/D/CB–II)

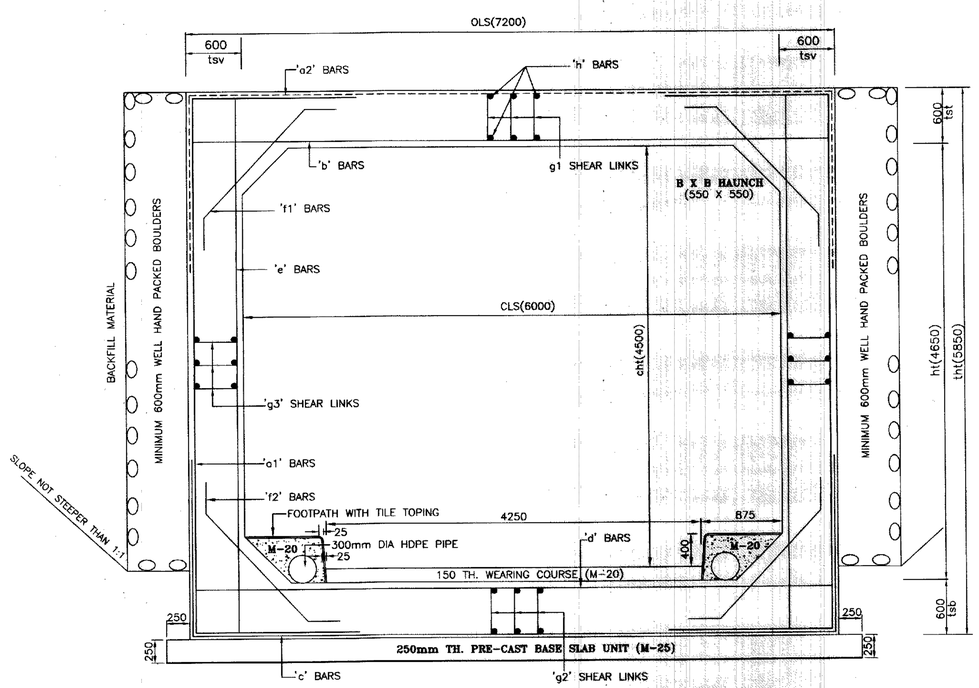
DRAWN BY–ANJANA BHASIN(SSE/D/CB–II)
CHECKED BY–SHER SINGH (SSE/D/CB–II)

SCRUTINISED & CHECKED BY
P.P SINGH (ADE/CB–II)

SCRUTINISED & RECOMMENDED BY
DIRECTOR/B&S/CB–II

APPROVED BY
ED/STRUCTURES
18/11/2015

B&S DIRECTORATE
FILE No. CBS/LU.SW
NOTING PAGE No.–11



CROSS SECTION OF PRE-CAST BOX UNIT

TABLE-'X' RELATED DRAWINGS

S.No.	DESCRIPTION	DRAWING NO.
1.	GENERAL ARRANGEMENT	RDSO/B-10159
2.	BOX SEGMENTS & BASE SLAB	RDSO/B-10159/2

NOTES

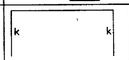
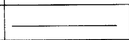
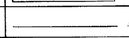
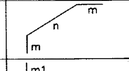
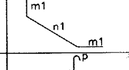
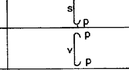
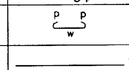
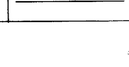
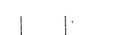
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. THIS DRAWING IS SUITABLE FOR CONSTRUCTION OF LIMITED HEIGHT SUBWAYS (LHS) ON SINGLE AS WELL AS MULTIPLE LINES.
3. PREPARATION OF BED BELOW BASE SLAB SHOULD BE AS PER ACTUAL SITE CONDITIONS IN ORDER TO ACHIEVE ADEQUATE BEARING CAPACITY REQUIRED TO WITHSTAND THE FOUNDATION PRESSURE GIVEN IN TABLE 'Y'. A MINIMUM SAND LAYER OF 200mm THICK TO BE SPREAD BELOW THE RCC SLAB.
4. REINFORCEMENT DETAILS, SLAB THICKNESS DETAILS AND FOUNDATION PRESSURE HAVE BEEN GIVEN IN TABLE 'Y'. THICKNESSES OF TOP SLAB, BOTTOM SLAB AND VERTICAL WALLS HAVE BEEN KEPT UNIFORM.
5. THIS DESIGN IS SUITABLE FOR 25t LOADING-2008.
6. ALL REINFORCEMENT STEEL SHALL BE OF HIGH STRENGTH DEFORMED (HSD)/TMT BARS, Fe415 AND HIGHER GRADE REINFORCEMENT CONFORMING TO IS:1786-2008. FOR SEISMIC ZONES III, IV AND V HYSD STEEL BARS HAVING MINIMUM ELONGATION OF 14.5 PERCENT AND CONFORMING TO OTHER REQUIREMENTS OF IS:1786 SHALL BE USED.
7. DESIGN CRITERIA IS BASED ON FOLLOWING IRS CODES:
   i) IRS BRIDGE RULES-2014
   ii) IRS CONCRETE BRIDGE CODE
   iii) IRS BRIDGE SUBSTRUCTURE & FOUNDATION CODE-2013
8. LAPPING OF BARS SHOULD BE MINIMISED AND STAGGERED WHEREVER NECESSARY. MINIMUM LENGTH OF LAP SHALL BE AS GIVEN IN IRS CONCRETE BRIDGE CODE FOR TOR STEEL.
9. BACK FILL MATERIAL SHOULD BE AS PER CLAUSE 7.5 OF IRS BRIDGE SUBSTRUCTURE & FOUNDATION CODE.
10. ALL RCC SURFACES COMING IN CONTACT WITH SOIL SHOULD BE PAINTED WITH BITUMEN OR COALTAR OF APPROVED QUALITY @ 1.464 KG/SQM.
11. CLEAR COVER FOR REINFORCING BARS SHOULD BE 50mm AS PER CLAUSE NO. 15.9.2 OF IRS CONCRETE BRIDGE CODE.
12. i). BARREL LENGTH OF BOX CULVERT SHALL BE DECIDED BASED ON FILL HEIGHT ON THE BOX AS PER CROSS SECTION SHOWN IN GENERAL ARRANGEMENT DRAWING.
    ii). IF BARREL LENGTH IS TO BE CURTAILED DUE TO SOME REASONS, THEN END OF BOX CAN BE PROJECTED UP AS BALLAST RETAINING WALL, OF SUITABLE DESIGN.
13. M-35 GRADE CONCRETE SHALL BE USED FOR THE CONSTRUCTION OF SEGMENTAL BOX.
14. BASE SLAB UNITS SHOULD BE OF M-25 GRADE CONCRETE.
15. BED SLOPE SHALL BE ADJUSTED AS PER SITE CONDITIONS BY COMPETENT AUTHORITY.
16. WEEP HOLES SHALL BE OF 75/100 DIA PVC/AC PIPES STAGGERED @ 1000 C/C IN EARTH RETAINER OF BOX.
17. BALLAST CUSHION OF 350mm HAS BEEN CONSIDERED IN DESIGN.

TABLE-'Y'

Size of Box (m)	Clear Span	Clear Height	Earth Cushion	
	6.00	4.50	0.5	
	Top Slab	Bottom Slab	Side Wall	
Th (cm)	60	60	60	
Found Pr	12.95	t/m2		
Bar	Dia	Spacing	Along Barrel	Along Span
a1	25	200		
a2	12	200		
b	25	100		
c	20	200		
d	25	100		
e	12	200		
f1	25	200		
f2	25	200		
g1	10		200	200
g2	10		200	200
g3	10		200	200
h	10	100		

WEIGHT OF BOX PER SEGMENT (1.53m) = 57.69t

REINFORCEMENT FOR BOX

TYPE	SHAPE	REMARKS
a1		j = tsv+max.[0.3 X eff.span or DL)] – cover
a2		k = tst+max.[0.3 X eff. height or DL)] – cover – dia
b		OLS – 2 X Cover
c		l = tsb+max.[0.3 X eff. height or DL)] – cover – dia
d		OLS – 2 X Cover
e		tht – 2 X Cover
f1		m = max. [0.1m or DL] – $\sqrt{2}$ x tst + $\sqrt{2}$ x cover n = $\sqrt{2}$ (B+tst+tsv) – 2 ($\sqrt{2}$ + 1) cover
f2		m1= max. [0.1m or DL] – $\sqrt{2}$ x tsb + $\sqrt{2}$ x cover n1 = $\sqrt{2}$ (B+tsb+tsv) – 2 ($\sqrt{2}$ + 1) cover
g1		p =10 ϕ, bent at an angle of 135° s = tst – 2 x cover – dia
g2		p =10 ϕ, bent at an angle of 135° v = tsb – 2 x cover – dia
g3		p =10 ϕ, bent at an angle of 135° w = tsv – 2 x cover – dia
h		TBL – 2 X cover

NOTATIONS

FILL	SURCHARGE AT C.L OF TRACK
TBL	TOTAL BARREL LENGTH OF BOX
OLS	OVERALL SPAN
CLS	CLEAR SPAN
ht	HEIGHT OF BOX INCLUDING WEARING COURSE
cht	CLEAR HEIGHT OF BOX ABOVE WEARING COURSE
tst	THICKNESS OF TOP SLAB
tsv	THICKNESS OF VERTICAL WALL
tsb	THICKNESS OF BOTTOM SLAB
tht	TOTAL HEIGHT OF BOX
B X B	SIZE OF HAUNCH
DL	DEVELOPMENT LENGTH

R.D.S.O.

TYPICAL PLAN OF RCC SEGMENTAL BOX FOR RUB WITH FOOTPATH AND PROVISION FOR CUT & DROP WALL 6.00m(CLS) X 4.65m(ht) 0.5m EARTH FILL & CLEAR Ht. 4.50m 25t LOADING – 2008 BOX STRUCTURAL DESIGN DETAILS

PROVISIONAL DATE:18.11.2015

RDSO/B-10159/1

IRS BRIDGE SUB STRUCTURE & FOUNDATION CODE
IRS CONCRETE BRIDGE CODE
IRS BRIDGE RULE
IS: 456-2000
IS: 1786-2008

SPECIFICATION	SCALE	ALT	DESCRIPTION	DATE

CALCULATION REGISTER No.: CB-II/
PAGES
DONE BY- SHER SINGH(SSE/D/CB-II)
CHECKED BY- BINAY KUMAR(SSE/D/CB-II)
DRAWN BY- ANJANA BHASIN(SSE/D/CB-II)
CHECKED BY- SHER SINGH(SSE/D/CB-II)
SCRUTINISED & CHECKED BY ADE/B&S/CB-II
SCRUTINISED & RECOMMENDED BY DIRECTOR/B&S/CB-II
APPROVED BY ED/STRUCTURES 18/11/2015
FILE No. CBS/L.U.SW
NOTING PAGE No.- 11

DATE: 25-01-22

PB – 20

Page No: 834-838

ANNEXURE PB-20

Annexure- I (As per Tender)

Site

4. Details of existing structures and Proposed structures (For BSRP line projects)

4.2 Minor Bridges

The Site includes the following Minor Bridges:

Sl. No.	Existing		Proposed (Tentative)		Barrel Length (m)
	Chainage (km)	Bridge No.	Type of Structure	Size (m)	
1	0.220	534	RCC Box	3X1.8	27.415
2	0.947	535	RCC Box	4X2.65	29.245
3	1.667	536	RCC Box	4X2.65	13.678
4	1.822	537	RCC Box	2X2.65	14.178
5	3.640	538 (1)	RCC Box	2X5.45	6.425
6	3.816	538 (2)	RCC Box	2X2.65	14.025
7	4.275	540	RCC Box	2X2.65	6.646
8	4.722	541A	RCC Box	2nosx3x2.65	29.85 (Barrel length is inclusive of both cells)
9	4.722	541C	RCC Box	2nosx3x1.8	30.238 (Barrel length is inclusive of both cells)
10	4.802	542	RCC Box	2X2.65	15.334
11	4.974	543	RCC Box	2X2.65	22.258
12	5.102	544	RCC Box	2X1.8	8.745
13	5.398	545	RCC Box	2X2.65	22.170
14	5.566	546	RCC Box	2X2.65	27.510
15	5.806	547	RCC Box	2X2.5	29.896
16	6.490	548	RCC Box	2X2.5	34.710
17	6.913	549	RCC Box	2X2.5	31.367

18	7.028	550	RCC Box	2X2.5	52.604
19	7.131	550A	RCC Box	5X3.53	52.602
20	7.192	551	RCC Box	2X2.91	50.138
21	7.408	552	RCC Box	2X2.64	43.720
22	8.236	553	RCC Box	2X2.5	43.446
23	8.378	554	RCC Box	2X1.8	52.490
24	8.607	555	RCC Box	2X2.5	46.642
25	8.750	556	RCC Box	2X2.5	49.474
26	9.200	557	RCC Box	2X2.5	30.593
27	9.466	558	RCC Box	2X2.5	35.684
28	9.900	559	RCC Box	2X1.80	38.518
29	10.059	561	RCC Box	2X1.8	38.893
30	10.150	562	RCC Box	2X2.5	35.356
31	10.244	563	RCC Box	2X2.5	31.914
32	10.564	564	RCC Box	2X2.5	27.018
33	10.750	565	RCC Box	2X2.65	13.195
34	10.965	566	RCC Box	2X2.65	11.545
35	11.078	567	RCC Box	2X2.65	11.555
36	11.145	568	RCC Box	2X2.65	13.925
37	11.202	569	RCC Box	2X1.8	25.779
38	11.370	570	RCC Box	2X2.5	30.531
39	11.470	571	RCC Box	2X2.5	38.029
40	18.644	412	RCC Box	2X2.65	23.757
41	18.736	411	RCC Box	2X2.65	25.099
42	19.108	410D	RCC Box	2X2.65	31.103
43	19.164	410C	RCC Box	2X1.8	32.281
44	19.175	410B	RCC Box	2X1.8	41.354
45	19.575	410	RCC Box	3X2.65	26.988
46	19.640	409	RCC Box	2X2.65	22.203
47	20.970	407	RCC Box	4X2.65	13.182
48	21.782	406	RCC Box	3x2.65	18.401

49	21.782	406DN	RCC Box	3X2.65	18.681
50	22.613	405	RCC Box	8.1X7.20	12.574
51	23.640	404	RCC Box	8.4X5.35	20.241
52	24.018	403	RCC Box	2X2.65	29.635
53	24.523	402	RCC Box	4X4	30.00
	Total Barrel length (m)				**1482.908**

4.3 Road Under Bridges (RUB) / Road Over Bridges (ROB)

The Site includes the following RUB (Road Under Railway line)/ ROB (Road Over Railway line):

Sl. No	**Existing**		**Proposed**			
	Chainage (km)	**Bridge No.**	**Type of Structure**	**Span (Nos. × length)**	**RUB/ ROB**	**Barrel Length (m)**
1	4.137	539	RCC Box	1 No X 6.1 mX3	RUB	27.180
2	4.709	541B	RCC Box	1 No X 7.5 mX5	RUB	12.225
3	18.425	412B	RCC Box	1 No X 6X5.5	RUB	8.525
4	22.975	LC-6	RCC Box	2 Nos X 8.5mX5.0	RUB	22.200
5	23.725	-	RCC Box	1 No X 4mX4	RUB	18.655
6	2.610	LC No-137	RCC Box	1no (5.5x4.5) RCC Box/ New construction	RUB	27.850
7	6.313	LC No-140	RCC box	1no (9.5x3.6) RCC Box/ New construction	RUB	41.31
8	6.680	LC No-141	RCC box	1no (9.5x3.6 RCC Box/ New construction	RUB	41.31
9	6.944	LC No-142	RCC box	2no (9.5x5.5) RCC Box/ New construction	RUB	88.74m (Barrel length is inclusive of both cells)
10	7.547	LC No-143	RCC box	1no (9.5x4.5) RCC Box/ New construction	RUB	48.96
11	8.185	LC No-144	RCC box	1no (9.5x3.6) RCC Box/ New construction	RUB	41.31
12	8.780	LC No-144A	RCC box	1no (9.5x4.5) RCC Box/ New const.	RUB	62.730
13	7.075	Nagavar	RCC box	1no (9.5x3.6)	RUB	40.00

		a station		RCC Box/ New construction		
14	8.675	Kanaka nagar	RCC box	1no (9.5x3.6) RCC Box/ New construction	RUB	40.00
15	20.590	407 A	RCC Pre-cast box	Pre-cast RCC box for accommodating one BSRP track below ROB of size (5.5m X 6.75m height), barrel length 35m	RUB	35.00
16	19.187	410A	PSC Box girder/Composite steel girder	Re-construction (2 sapns)(35+27)	ROB	
17	19.857	408B	PSC Box girder/Composite steel girder	Re-construction (1no x 30m)	ROB	

4.5 BSRP/Railway stations on Corridor-2.

The Site includes the following BSRP/Railway stations of corridor-2

Sl. No.	Station	Chainage (km)	Station Formation Area (Approx.)	Nos. of P.F. & Length	Remarks (Whether Jn. Station)
1	Benniganahalli	-0.560	40 X 205	2 X 205	Jn. For Corridor-2 & 4
2	Kasturi Nagar	1.090	25 X 205	2 X 205	
3	Seva Nagar	2.880	25 X 205	1 X 205	
4	Banasawadi	4.140	25 X 205	2 X 205	Jn. For BSRP & Railway

5	Kaveri Nagar	5.396	25 X 205		**Future station.** The earthwork and structures to be constructed up to formation level.
6	Nagavara	7.123	25 X 205	1 X 205	
7	Kanaka Nagar	8.584	25 X 205	1 X 205	
8	Hebbal (Elevated)	11.479	25 X 205	2 X 205	Jn. For BSRP & Railway
9	Lottegollahalli (Elevated)	15.650	25 X 205	2 X 205	Jn. For BSRP & Railway
10	Yeshwantpur (Elevated)	16.840	20 X 205	2 X 205	Jn. For BSRP corridor-(2 & 1) & Railway
11	Jalahalli	18.972	25 X 205	1 X 205	**Future station.** The earthwork and structures to be constructed up to formation level.
12	Shettyhalli	20.335	25 X 205	2 X 205	
13	Mydarahalli	23.256	25 X 205	1 X 205	
14	Chikkaban avara	24.306	25 X 205	2 X 205	Jn. For BSRP & Railway