

TECHNICAL SPECIFICATIONS

SCOPE OF WORK/SUPPLY

1. Manufacture, Inspection, Supply and Delivery of Galvanized Steel H-Beam Sleepers, complete with all fittings, fixtures, fastenings, galvanized MS pad plates, galvanized bolts, nuts and washers, conforming to RDSO Drawing Nos. RDSO/B-1636/4/R, RDSO/B-1636/5R1 and RDSO/B-1636/11 (with latest alterations), together with all drawings and specifications referred therein, and BBJ Drawing Nos. 2163/61.0M/24, 2163/61.0M/25, 2163/30.5M/01 and 2163/30.5M/02, for the Gorakhpur-Valmiki Nagar Doubling Project.
2. **Total Requirement of Galvanized Standard H-Beam Sleepers (61.0 m & 30.5 m Span): 6,245 Sets**

Total Requirement of Galvanized Short-Height H-Beam Sleepers (61.0 m & 30.5 m Span): 102 Sets

The detailed bridge-wise breakup of the above quantities is placed herein below:

Description	Quantity
Galvanized Standard H-Beam Sleepers (61.0 m & 30.5 m Span)	6,245 Sets
Galvanized Short-Height H-Beam Sleepers (61.0 m & 30.5 m Span)	102 Sets

The bridge-wise requirement is as follows:

Bridge No. 16 (18 × 61.0 m + 2 × 30.5 m)

Description	Drawing No.	Quantity
Standard H-Beam Sleepers (61.0 m Span)	BBJ Drg. No. 2163/61.0M/24	2,250 Sets
Short-Height H-Beam Sleepers (61.0 m Span)	BBJ Drg. No. 2163/61.0M/25	38 Sets
Standard H-Beam Sleepers (30.5 m Span)	BBJ Drg. No. 2163/30.5M/01	120 Sets
Short-Height H-Beam Sleepers (30.5 m Span)	BBJ Drg. No. 2163/30.5M/02	2 Sets

Bridge No. 391 (17 × 61.0 m)

Description	Drawing No.	Quantity
Standard H-Beam Sleepers (61.0 m Span)	BBJ Drg. No. 2163/61.0M/24	2,125 Sets
Short-Height H-Beam Sleepers (61.0 m Span)	BBJ Drg. No. 2163/61.0M/25	34 Sets

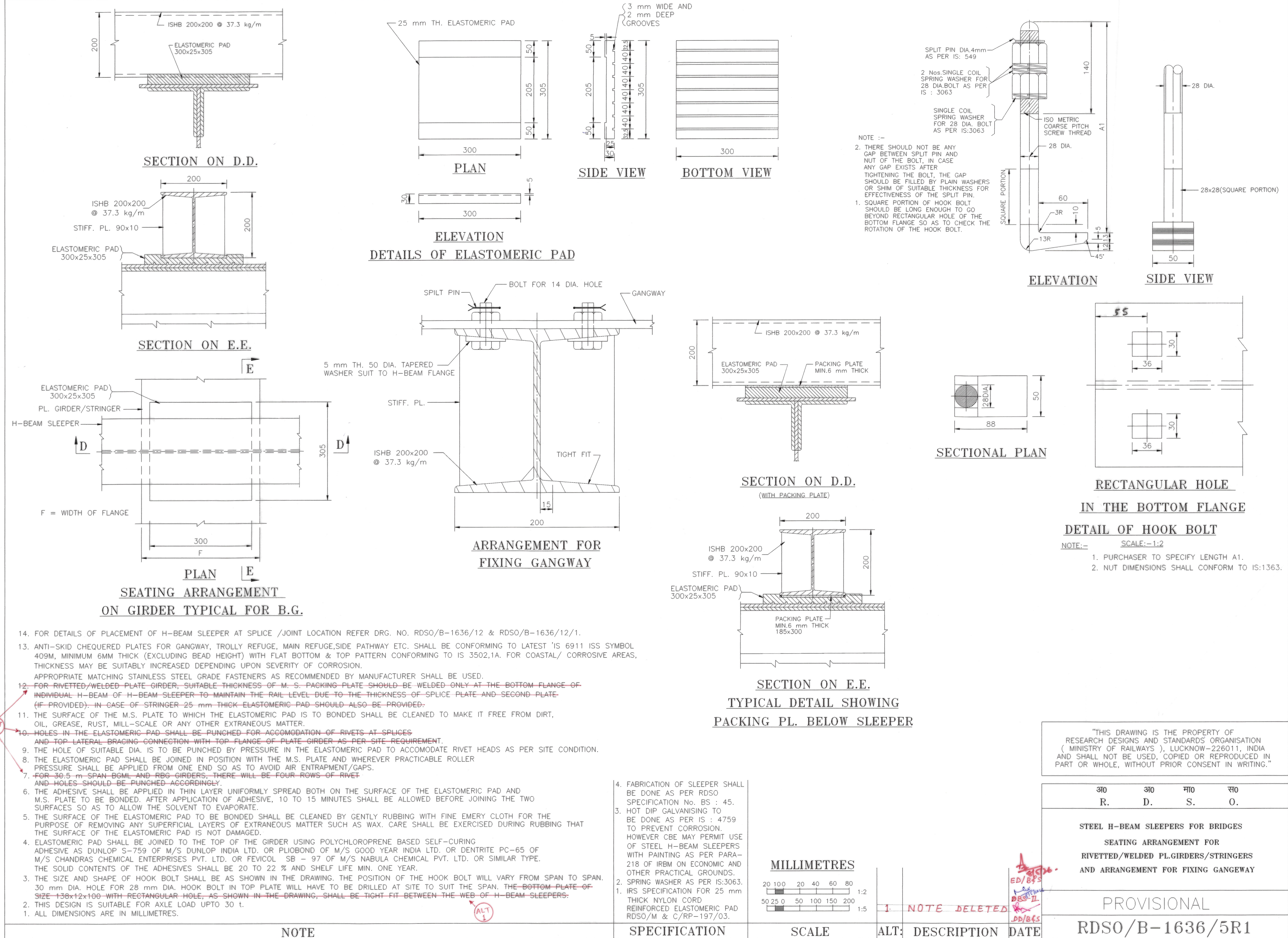
Bridge No. 50 (14 × 61.0 m)

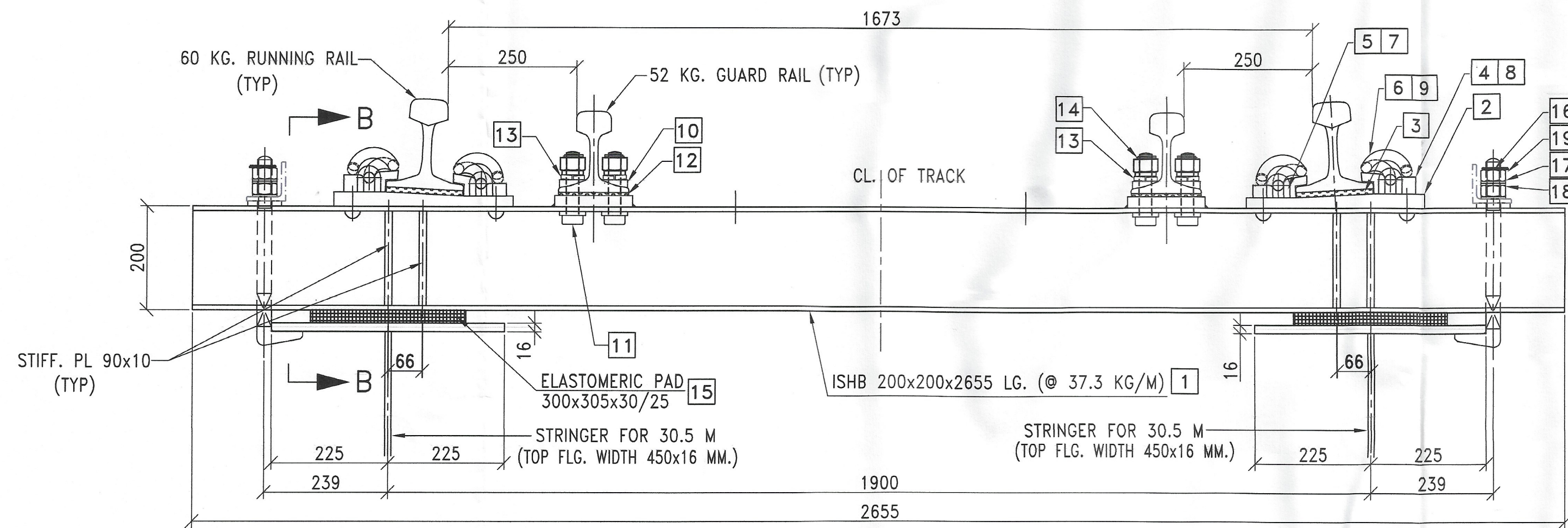
Description	Drawing No.	Quantity
Standard H-Beam Sleepers (61.0 m Span)	BBJ Drg. No. 2163/61.0M/24	1,750 Sets
Short-Height H-Beam Sleepers (61.0 m Span)	BBJ Drg. No. 2163/61.0M/25	28 Sets

3. H-Beam Sleepers should be made of rolled sections IS: HB 200 conforming to IS:2062, Grade E25, Quality BO and after fabrication H-Beam & Fittings shall be galvanized as per IS:4759.
4. The weldable raw structural steel sections to be supplied by the successful bidder for fabrication of H-Beam Sleepers shall conform to IS: 2062-2011 Grade B Fully Killed from SAIL, TISCO and Vizag Steel Plant or any other sources approved by N.E. Railway. The source to be declared citing non-availability of materials from aforesaid supplier.
5. The rate is also inclusive of all inspection and testing charges of all components of H-Beam sleepers including all fixtures and fastening galvanization and consumables etc. from the reputed laboratory/ organization.
6. Arranging necessary inspection & testing and getting the H-Beam Sleepers approved by N.E. Railway or their authorized agency at their own cost and will be responsible for furnishing all test certificates.
7. The rate is also including of transportation of H-Beam Sleepers with all fittings and fixtures with consumables from their workshop to different bridge sites/ Railway depots in Uttar Pradesh by providing their trucks including loading with all lead and lift, handling, re-handling, ascent, descent, crossing obstructions etc.
8. WPSS and QAP to be done by the contractor and getting it approved by N.E. Railway or their nominated agency.
9. The rate is inclusive of all GST.
10. The work to be executed in successful bidder's approved shaded/ covered fabrication workshop by their labour, plants & machinery, equipment, welding consumables cutting gases and their inputs for successful completion of the work.
11. Fitting items to be provided in waterproof and strong box packets to avoid damage during transportation and storing.

SOUVIK
BHATTACHARYA

Digitally signed by SOUVIK
BHATTACHARYA
Date: 2026.09.02 17:06:05
+05'30'

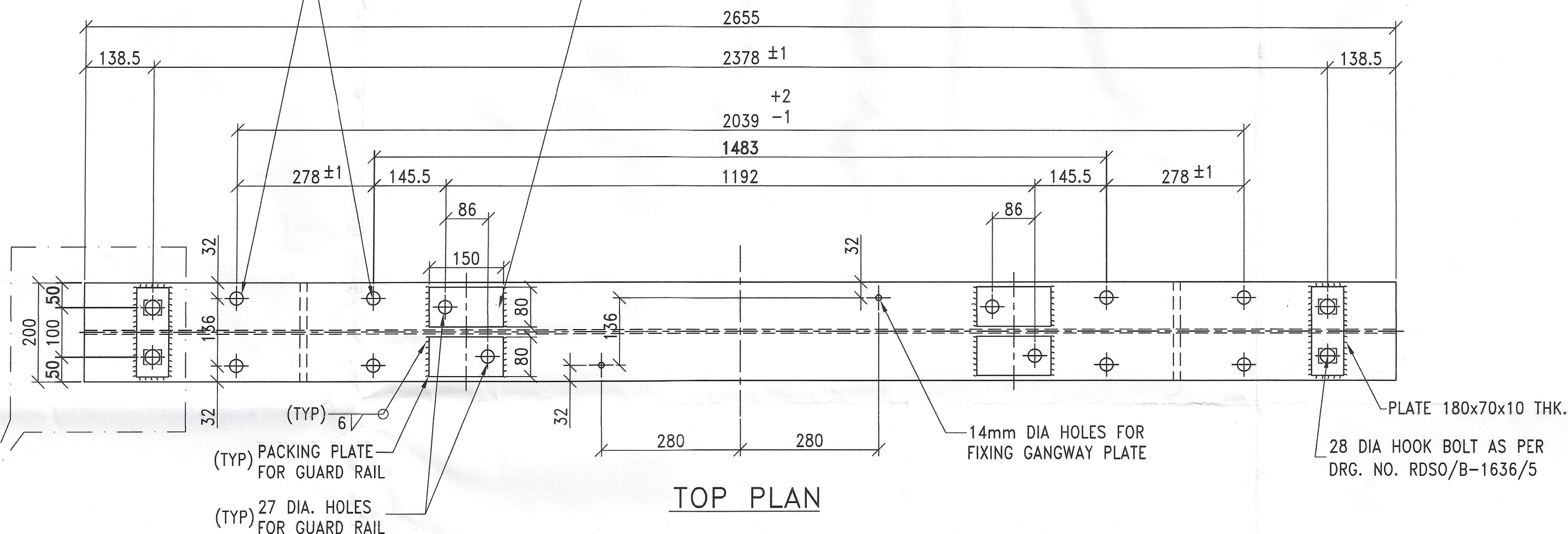




ELEVATION

FOR RAIL FASTENING ASSEMBLY AS PER
DRG. NO.- RDSO/T-8765 FOR 60 KG. RAIL

FOR 52 KG. GUARD RAIL ASSEMBLY AS PER
DRG. NO.- RDSO/T-5155 TO RDSO/T-5164



TOP PLAN

4MM DIA SPLIT PIN AS PER-IS 549

THERE SHOULD BE NO GAP BETWEEN SPLIT PIN
AND NUT OF THE BOLT. IN CASE ANY GAP EXISTS
AFTER TIGHTENING THE BOLT, THE GAP SHOULD BE
FILLED BY PLAIN WASHERS OR SHIM OF SUITABLE
THICKNESS FOR EFFECTIVENESS OF THE SPLIT PIN

2 NOS. SINGLE COIL SPRING WASHER FOR 28Ø
BOLT AS PER IS:3063

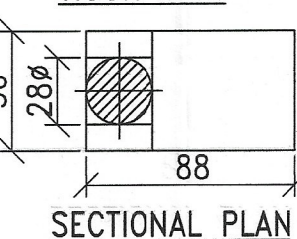
SINGLE COIL SPRING WASHER
FOR 28Ø BOLT AS PER IS:3063

ISO METRIC COARSE
PITCH SCREW THREAD

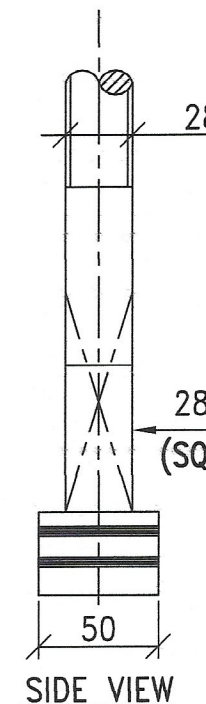
28X28 (SQUARE PORTION)

SQUARE PORTION OF HOOK
BOLT SHOULD BE LONG
ENOUGH TO GO BEYOND
RECTANGULAR HOLE OF THE
BOTTOM FLANGE SO AS TO
CHECK THE ROTATION OF
THE HOOK BOLT

ELEVATION OF 'J'
HOOK BOLT



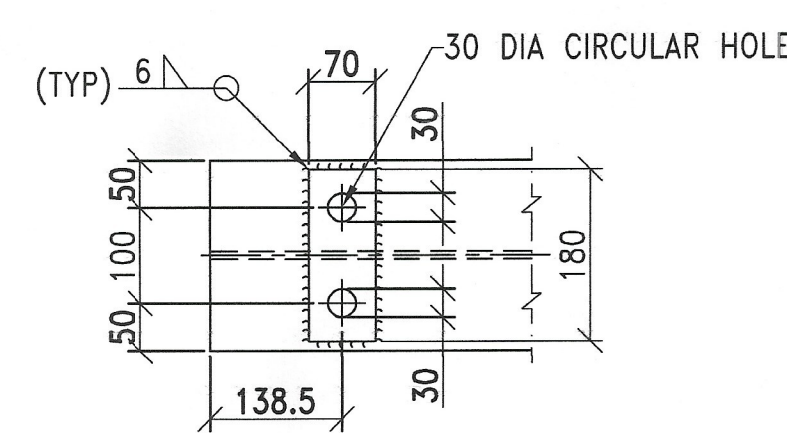
SECTIONAL PLAN



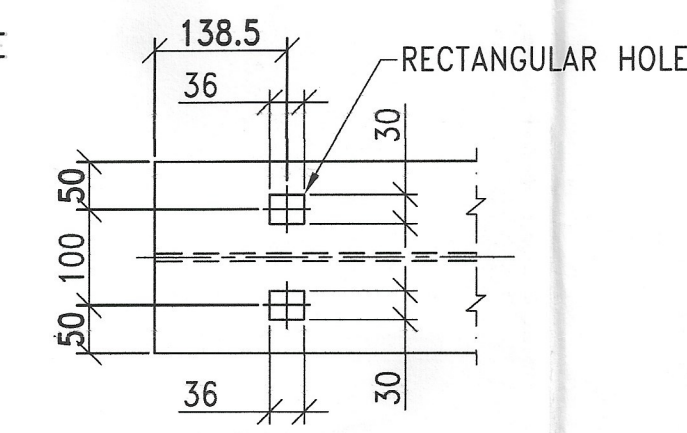
SIDE VIEW

SL NO	BRIDGE NO	NOS. OF SPAN	NOS. OF H-BEAM SLEEPER TOTAL 6 PANEL	NO OF H-BEAM SLEEPER IN END BRACKET PER SPAN	TOTAL NOS OF SLEEPER PER SPAN	TOTAL NOS OF SLEEPER IN BRIDGE
1	16	2	59	1	60	120

FOR 2 x 30.5M. SPAN TOTAL NOS. OF SLEEPER = 120

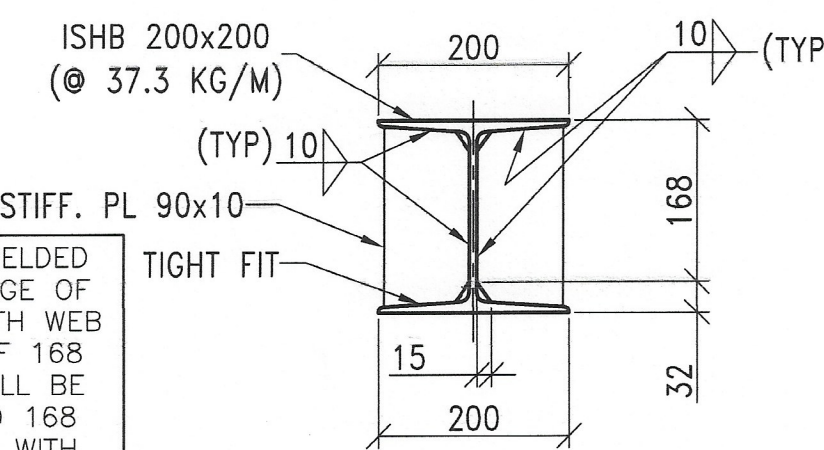


DETAIL AT 'A'
TOP FLANGE



DETAIL AT 'A'
BOTTOM FLANGE

STIFFENER PLATE SHOULD BE WELDED
ON BOTH SIDES WITH TOP FLANGE OF
H-BEAM IN FULL LENGTH & WITH WEB
OF H-BEAM UP TO A DEPTH OF 168
mm. THE STIFFENER PLATE SHALL BE
HAVING A TAPERED CUT BEYOND 168
mm. DEPTH & SHALL TIGHT FIT WITH
THE BOTTOM FLANGE WITHOUT WELDING.

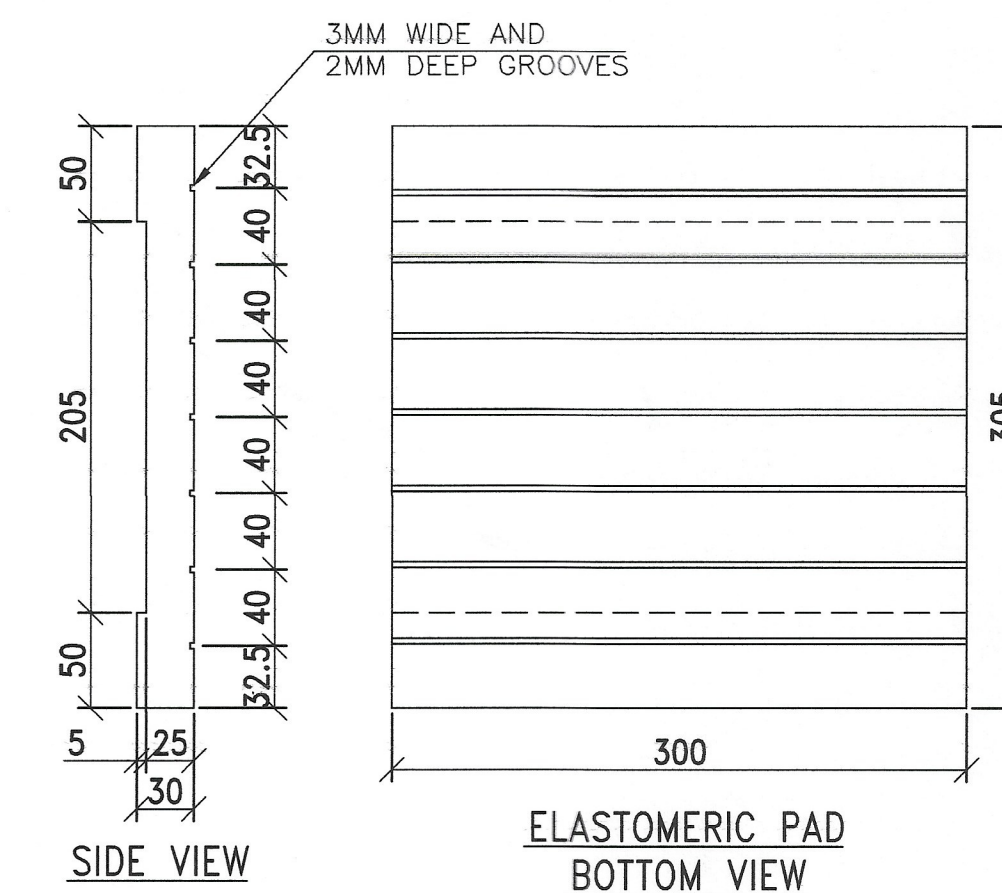


SECTION ON- B-B

SETS H-BEAM SLEEPER REQUIRED PER SPAN

ITEM NO.	DESCRIPTION	DRAWING NUMBER	SPECIFICATION	QTY PER SLEEPER
1	H-BEAM STEEL SLEEPER 2655 M LENGTH	BASED ON RDSO/B-1636/4/R	GR E250, QUALITY-B0 IS:2062-2011 & IS:808/809	1
2	STEEL BASE PLATE	RDSO/T-8760	GR E250, QUALITY-B0 IS:2062-2011	2
3	RAIL PAD WITH EMBEDDED STEEL PLATE	RDSO/T-8761	IRS FOR 12 mm. THICK GROOVED RUBBER PAD (PROVISIONAL)	2
4	SPECIAL CAST LINER (INNER) FOR 60 kg. (UIC) RAIL	RDSO/T-8762	IRS SPECIFICATION FOR SPECIAL CAST LINER (PROVISIONAL-2019)	2
5	SPECIAL CAST LINER (OUTER) FOR 60 kg. (UIC) RAIL	RDSO/T-8763		2
6	ELASTIC RAIL CLIP MKIII	RDSO/T-3701	I.R.S. T-31-2018	4
7	ELASTIC RAIL CLIP FOR FISH PLATED JOINTS (ERC-J)	RDSO/T-4158	I.R.S. T-31-2018	4
8	PACKING PLATE 80x150x22 (FOR GUARD RAIL)	----	IS:2062-2011 GR. B0	4
9	BOLT AND NUT (FOR GUARD RAIL)	RDSO/T-5164	IRS T-23	4
10	TAPER WASHER (FOR 52 kg. GUARD RAIL)	RDSO/T-5161	IS:2062-2011 GR. B0/BR	4
11	TAPER STEEL WASHER (FOR GUARD RAIL)	RDSO/T-5162	IS:2062-2011 GR. B0/BR	4
12	6 mm. THICK GROOVED RUBBER PAD (FOR GUARD RAIL)	RDSO/T-5163	IRS Specification for 6 mm. Thick GR. Pad (Provisional-1997)	2
13	SINGLE COIL SPRING WASHER (FOR GUARD RAIL)	RDSO/T-10773	IRS T-42-2020	4
14	TAPERED SPLIT PIN FOR GUARD RAIL	SUITABLE	SUITABLE	4
15	ELASTOMERIC PAD 300x305x30/25	RDSO/B-1636/5	RDSO/M & C/RP-197/03	2
16	Ø28 HOOK BOLT x 376 lg.	RDSO/B-1636/5		4
17	NUT FOR Ø28 HOOK BOLT	RDSO/B-1636/5		.8
18	SINGLE COIL SPRING WASHER FOR Ø28 HOOK BOLT	RDSO/B-1636/5	IS:3063-1994	12
19	TAPERED SPLIT PIN FOR HOOK BOLT	RDSO/B-1636/5	SUITABLE	4

* ITEM 7 TO BE USED WHERE FISH PLATED JOINTS ARE REQUIRED.



NOTES:-

- ALL DIMENSION ARE IN MILLIMETERS.
- THIS DRAWING IS DONE ON THE BASIS OF RDSO's DRAWING NO.- RDSO/B-1636/4/R & RDSO/B-1636/5R1
- H-BEAM SLEEPER AND ALL FITTING ITEMS TO BE HOT DIP GALVANISED AS PER IS:4759:1996.

CONTRACTOR: **THE BRAITHWAITE BURN AND JESSOP CONSTRUCTION COMPANY LIMITED**
(A GOVT. OF INDIA ENTERPRISE)

CLIENT: **NORTH EASTERN RAILWAY**

PROJECT: 25 TON. AXLE LOADING STANDARD-2008, OPEN WEB WELDED THROUGH TYPE GIRDER FOR BR.NO.-50 (14x61.0M) SPAN FOR BETWEEN PANIAHWA-VALMIKINAGAR DOUBLING, BR.NO 16 (18x61.0M+2x30.5M) BETWEEN MANJHI-BAKULAH STATION OF CPR-BUI DOUBLING, BR.NO 391 (17x61.0M) BETWEEN CHOWKA GHAT-GHAGHRA GHAT OF BUG-GD 4TH LINE PROJECT.

TITLE: **H-BEAM STEEL SLEEPER FOR 60 KG. RUNNING RAIL AND 52 KG. GUARD RAIL FOR 30.5M SPAN, FOR BR NO.-16**

SCALE: 1:10	NAME	DATE	B.B.J. ORDER NO.- 2163
DRAWN BY: S.SAMANTA	12.06.26	DRG. NO. 2163/30.5M/01	REV. 0
CHECKED BY: A.K.SETHI	15.06.26		
APPROVED BY:		SHEET: 1 OF 1	A2

SPECIFICATION

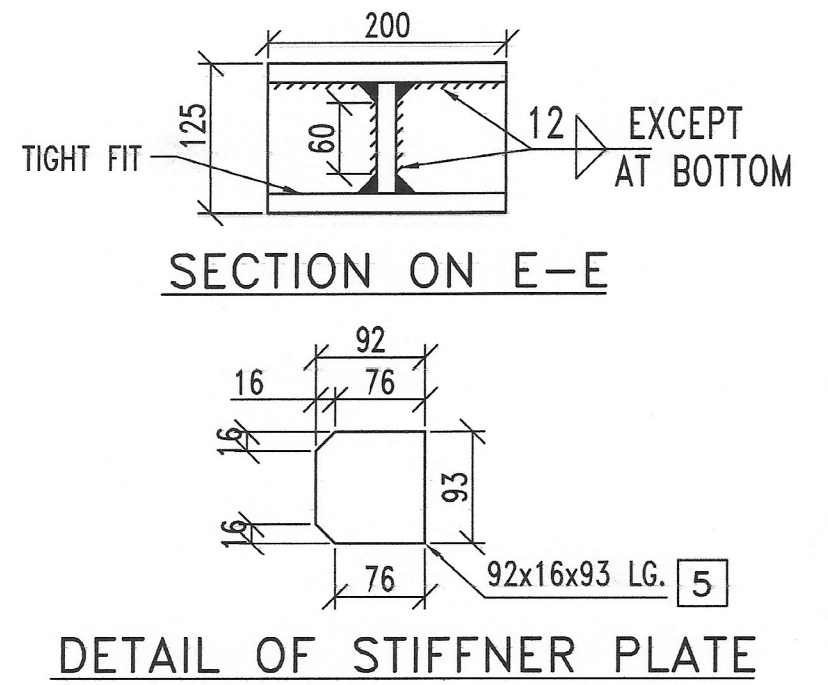
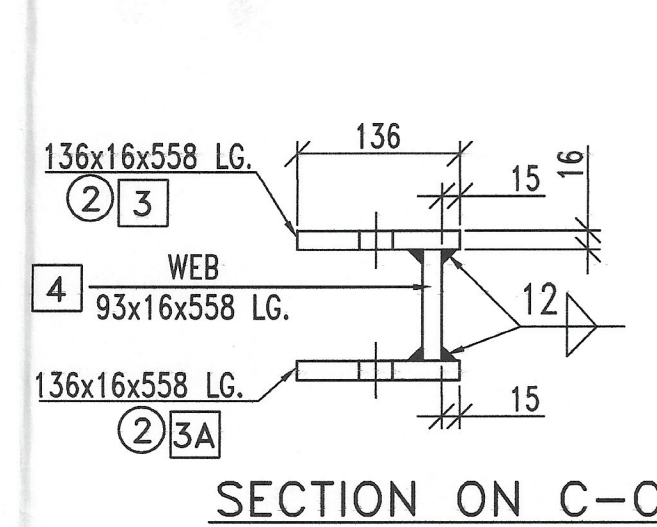
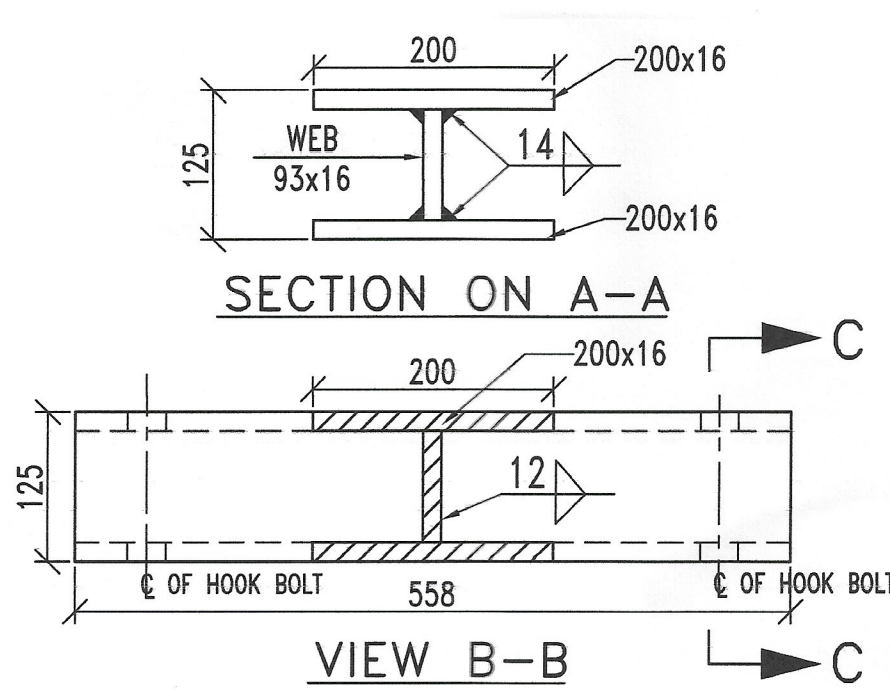
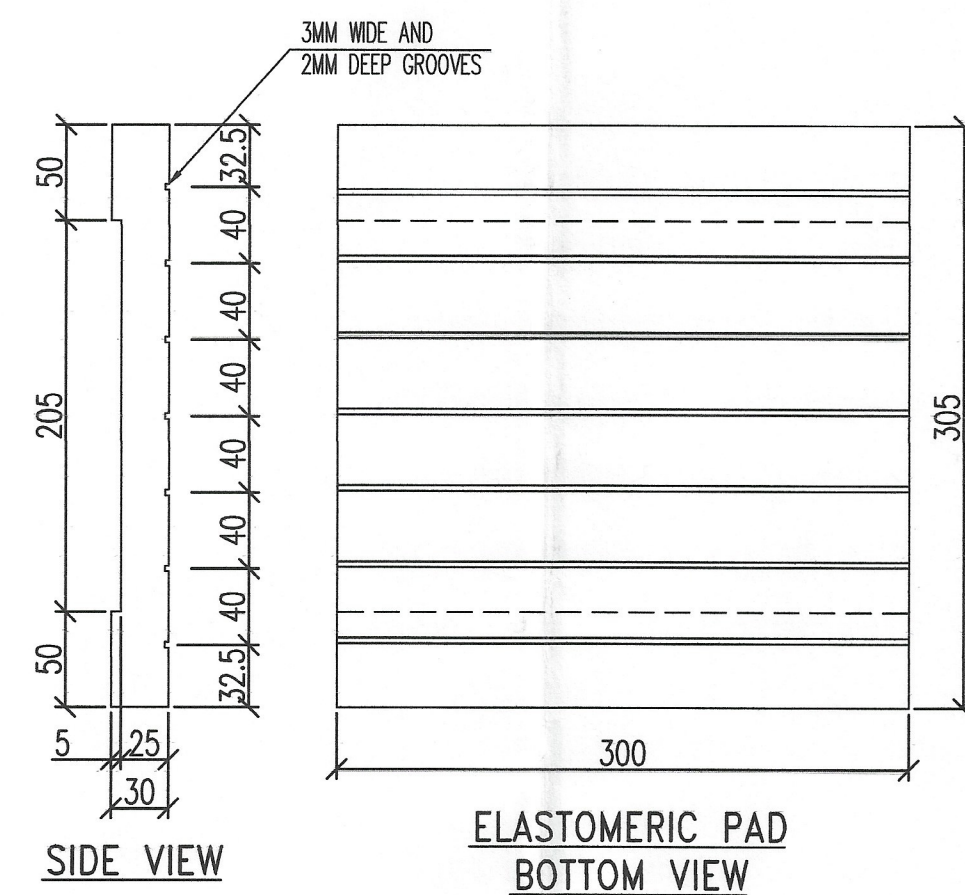
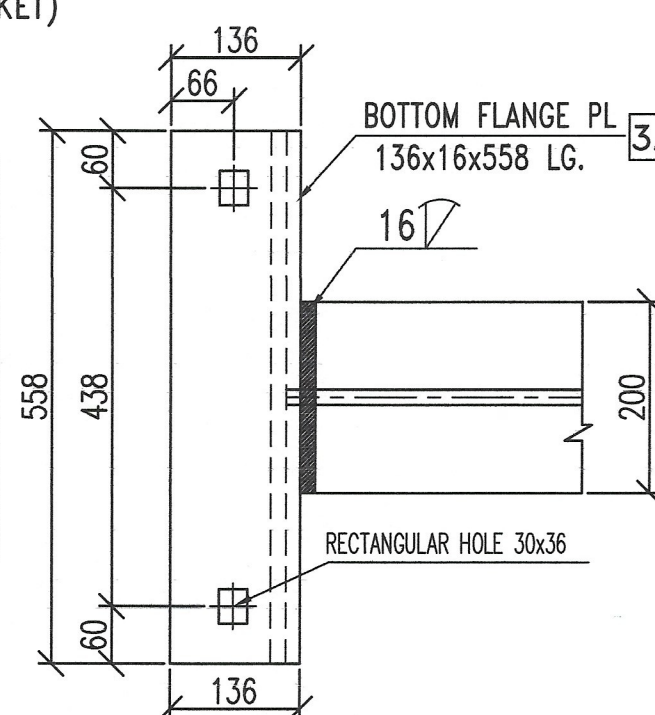
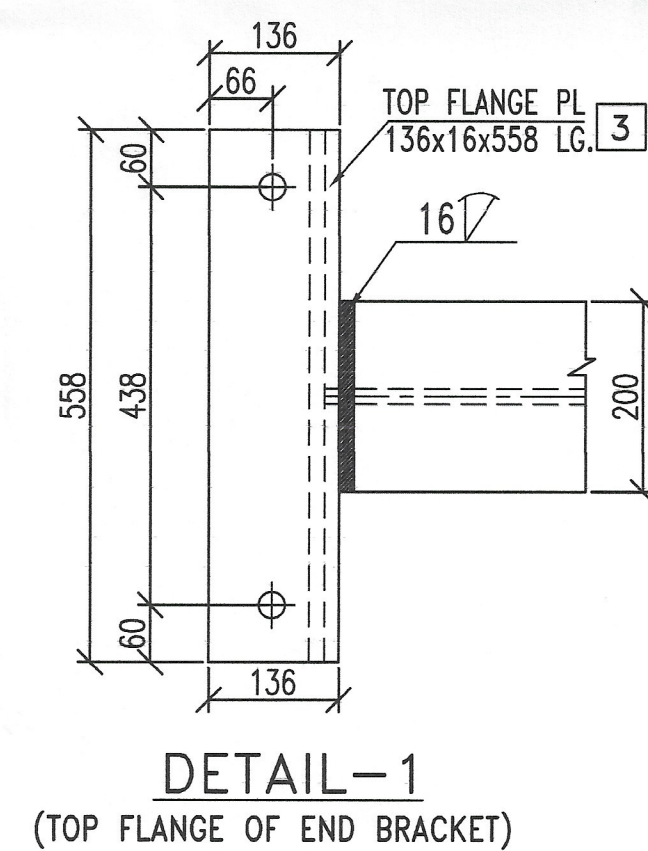
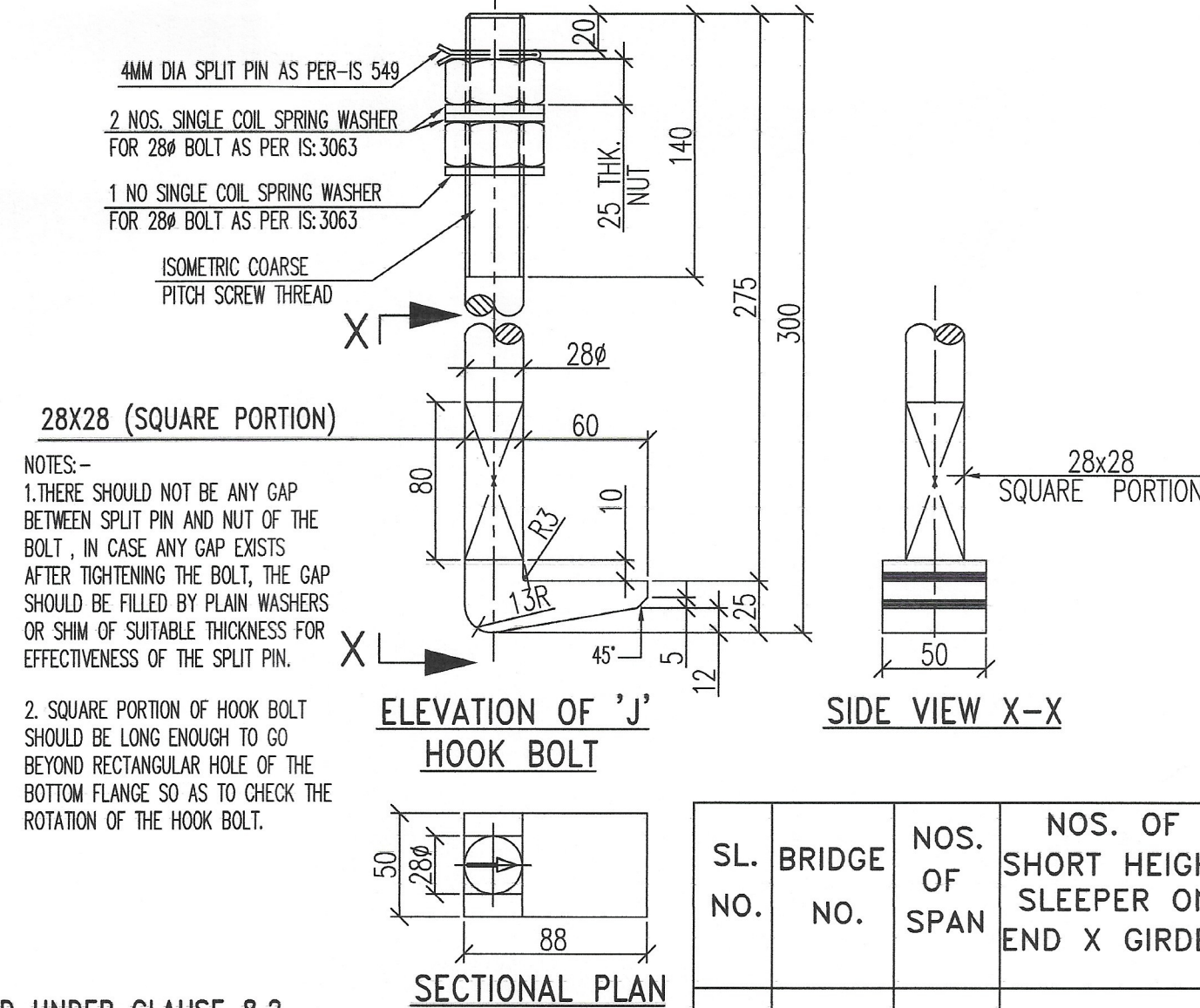
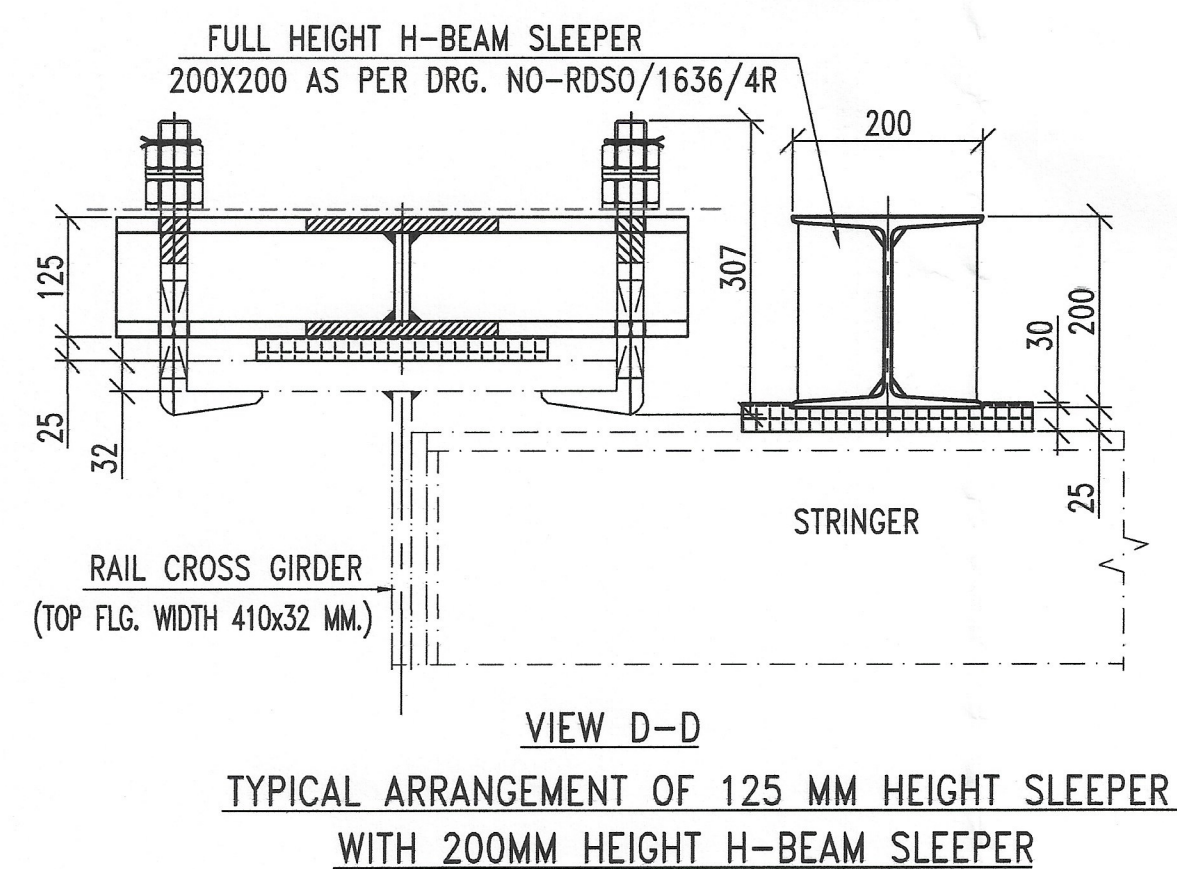
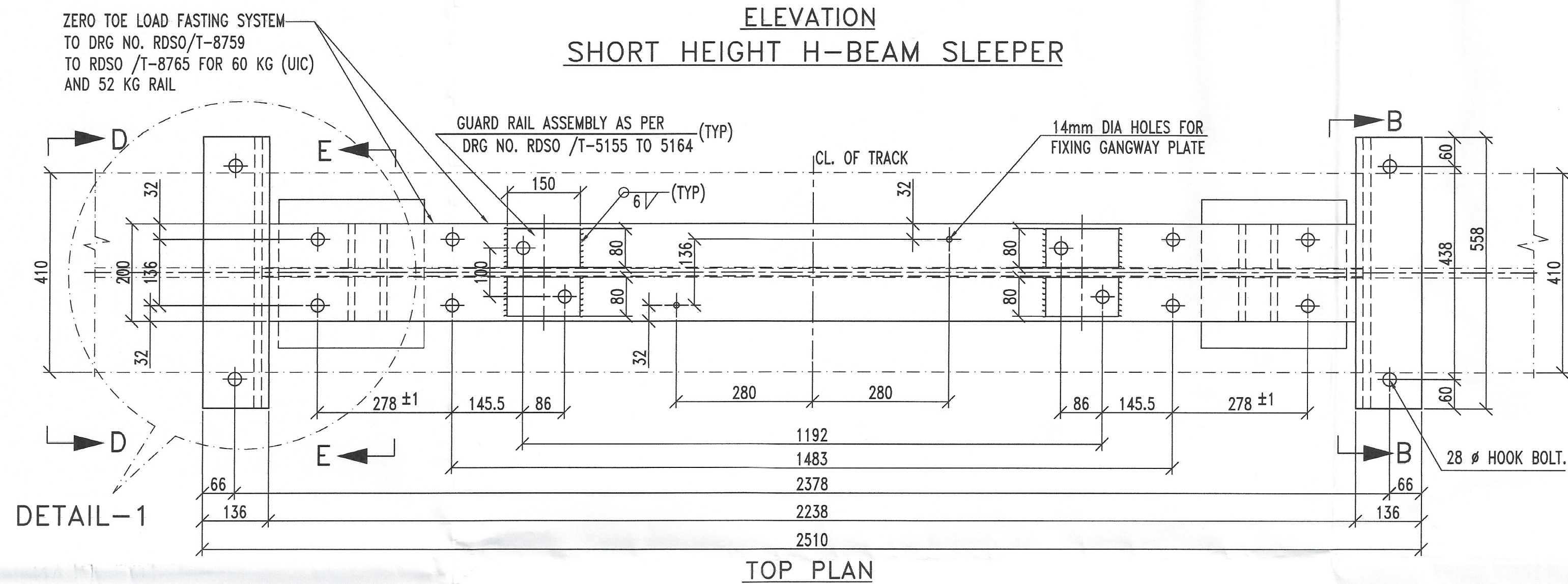
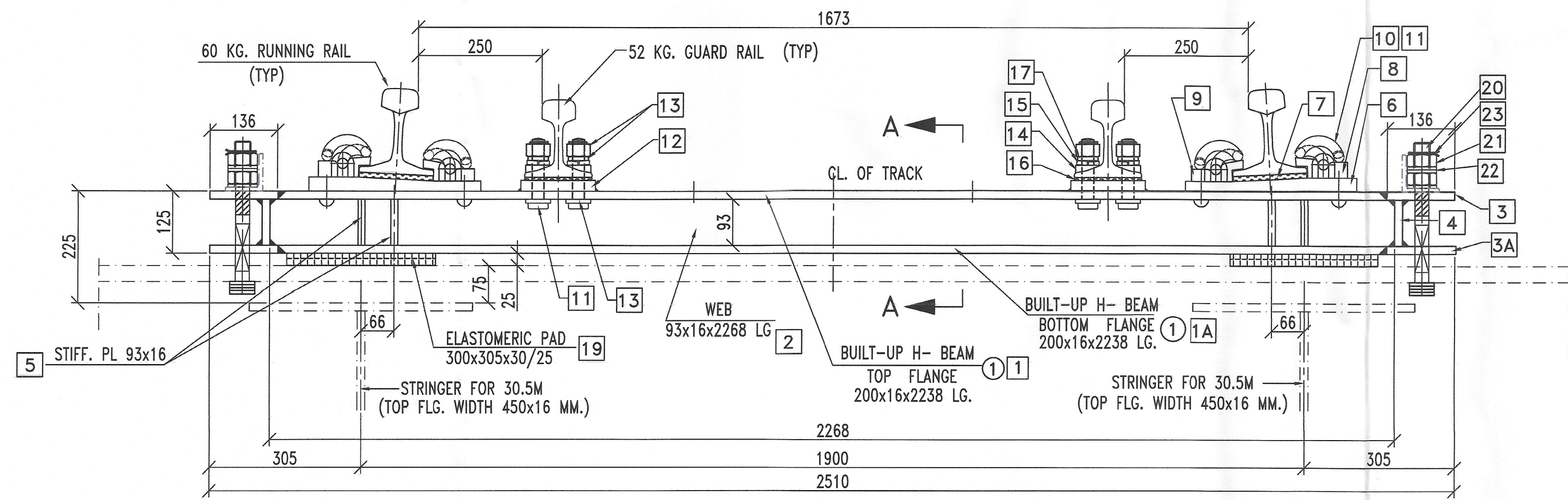
IRS. M28, M39 FOR WELDING CONSUMABLES
IRS. WELDED BRIDGE CODE - 1972
STEEL BRIDGE CODE - 1962
FABRICATION & ERECTION IRS. B1 - 2001
METAL ARC WELDING IS: 9595-1980

DESCRIPTION	WELDING SYMBOL	DESCRIPTION	SHOP FIELD
FILLET WELD (ONE SIDE)	—	HSFG BOLTS	⊕ ⊕
FILLET WELD (BOTH SIDE)	—	C.S.K. ON FAR SIDE	⊕ ⊕
SQUARE BUTT WELD	—	C.S.K. ON NEAR SIDE	⊕ ⊕
DOUBLE V-BUTT WELD	—	C.S.K. ON BOTH SIDE	⊕ ⊕
		ANCHOR BOLTS	⊕ ⊕
		TURNED BOLTS	⊕ ⊕

REVISIONS	DATE	DESCRIPTION	BY

SIGNATURE & DATE	SIGNATURE & DATE	SIGNATURE & DATE	SIGNATURE & DATE	SIGNATURE & DATE

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ITEM REQUIREMENT FOR 1 SET SHORT HEIGHT H-BEAM SLEEPER				
ITEM NO.	DESCRIPTION	DRAWING NUMBER	SPECIFICATION	QTY PER SLEEPER
1	BUILT UP H-BEAM STEEL SLEEPER TOP FLANGE 200x16x2238 LG	RDSO/B-1636/11	GRADE E-250, QUALITY-B0 IS:2062-2011	1
1A	BUILT UP H-BEAM STEEL SLEEPER TOP FLANGE 200x16x2238 LG	RDSO/B-1636/11		1
2	BUILT UP H-BEAM STEEL SLEEPER WEB PL 93x16x2268 LG	RDSO/B-1636/11		1
3	BUILT UP BRACKET BOTH END STEEL TOP FLANGE PL 136x16x558 LG	RDSO/B-1636/11		2
3A	BUILT UP BRACKET BOTH END STEEL BOTTOM FLANGE PL 136x16x558 LG	RDSO/B-1636/11		2
4	BUILT UP BRACKET STEEL WEB PL 93x16x558 LG	RDSO/B-1636/11	IS:2062-2011 Gr. B0	2
5	WEB STIFFENER PL - 92x16x93 LG.	RDSO/B-1636/11		8
6	STEEL BASE PLATE	RDSO/T-8760	IS:2062-2011 Gr. B0	2
7	RAIL PAD WITH EMBEDDED STEEL PLATE	RDSO/T-8761	IRS FOR 12 mm. THICK GROOVED RUBBER PAD (PROVISIONAL)	2
8	SPECIAL CAST LINER (INNER) FOR 60 kg. (UIC) RAIL	RDSO/T-8762	IRS SPECIFICATION FOR SPECIAL CAST LINER (PROVISIONAL-2019)	2
9	SPECIAL CAST LINER (OUTER) FOR 60 kg. (UIC) RAIL	RDSO/T-8763		2
10	ELASTIC RAIL CLIP MKIII	RDSO/T-3701	IRS T-31 -2018	4
11	ELASTIC RAIL CLIP FOR FISH PLATED JOINTS (ERC-J)	RDSO/T-4158	IRS T-31 -2018	4
12	PACKING PLATE 80x150x22 (FOR GUARD RAIL)	-----	IS:2062-2011 GR B0	4
13	BOLT AND NUT (FOR GUARD RAIL)	RDSO/T-5164	IRS T-23 2021	4
14	TAPER WASHER (FOR 52 kg. GUARD RAIL)	RDSO/T-5161	IS:2062-2011 GR B0/BR	4
15	TAPER STEEL WASHER (FOR GUARD RAIL)	RDSO/T-5162	IS:2062-2011 GR B0/BR	4
16	6 mm. THICK GROOVED RUBBER PAD (FOR GUARD RAIL)	RDSO/T-5163	IRS Specification for 6 mm. Thick GR. Pad (Provisional-1997)	2
17	SINGLE COIL SPRING WASHER (FOR GUARD RAIL)	RDSO/T-10773	IRS T-42-2020	4
18	TAPERED SPLIT PIN FOR GUARD RAIL	SUITABLE	SUITABLE, IS:549	4
19	ELASTOMERIC PAD 300x305x30/25	RDSO/B-1636/5	RDSO/M & C/RP-197/03	2
20	Ø28 HOOK BOLT x 300 Lg.	RDSO/B-1636/11		4
21	NUT FOR Ø28 HOOK BOLT	RDSO/B-1636/11		8
22	SINGLE COIL SPRING WASHER FOR Ø28 HOOK BOLT	RDSO/B-1636/11	IS:3063-1994	12
23	TAPERED SPLIT PIN FOR HOOK BOLT	RDSO/B-1636/11	SUITABLE	4

* ITEM 11 TO BE USED WHERE FISH PLATED JOINTS ARE REQUIRED.

NOTES:-

- ALL DIMENSION ARE IN MM.
- STEEL GRADE E-250, QUALITY-B0 CONFORMING TO IS:2062-2011, AS MENTIONED UNDER CLAUSE 8.2 (AS PROVIDED IN ACS NO.5 DATED 30.08.2013) OF IRS :B1-2001, AS CORRECTED FROM TIME TO TIME .
- GUARD RAIL SHALL BE PROVIDED AS PER PARA 275 OF INDIAN RAILWAY PERMANENT WAY MANUAL JUNE, 2020 AS CORRECTED FROM TIME TO TIME.
- FOR SEATING ARRANGEMENT AND ARRANGEMENT FOR FIXING GANGWAY SEE DRG. NO. RDSO/B-1636/5R1
- THE LOCATION WHERE H-BEAM SLEEPER IS TO BE SEATED IS TO BE THOROUGHLY CLEANED A THICK COAT OF ZINC CHROME PRIMER CONFORMING TO IS:104 IS TO BE GIVEN WELL IN ADVANCE BEFORE PROVIDING H-BEAM SLEEPER.
- H-BEAM (LOW HEIGHT) SLEEPER SHOULD BE PLACED CENTRALLY ON X-GIRDER.
- THIS DRAWING IS BASED ON RDSO DRAWING NO RDSO/B-1636/11.

SL. BRIDGE NO.	NOS. OF SPAN	NOS. OF SHORT HEIGHT SLEEPER ON END X GIRDER	TOTAL NOS OF SLEEPER PER SPAN	TOTAL NOS OF SLEEPER IN BRIDGE
1	16	2	1	2
FOR 2x30.5M. SPAN TOTAL NOS. OF SLEEPER = 2+1=3				

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

DESCRIPTION	WELDING SYMBOL	DESCRIPTION	SHOP FIELD
FILLET WELD (ONE SIDE)	—	HSFG BOLTS	⊕
FILLET WELD (BOTH SIDE)	—	C.S.K. ON FAR SIDE	⊗
SQUARE BUTT WELD	—	C.S.K. ON NEAR SIDE	⊕
DOUBLE V-BUTT WELD	—	C.S.K. ON BOTH SIDE	⊗
		ANCHOR BOLTS	⊕
		TURNED BOLTS	⊕

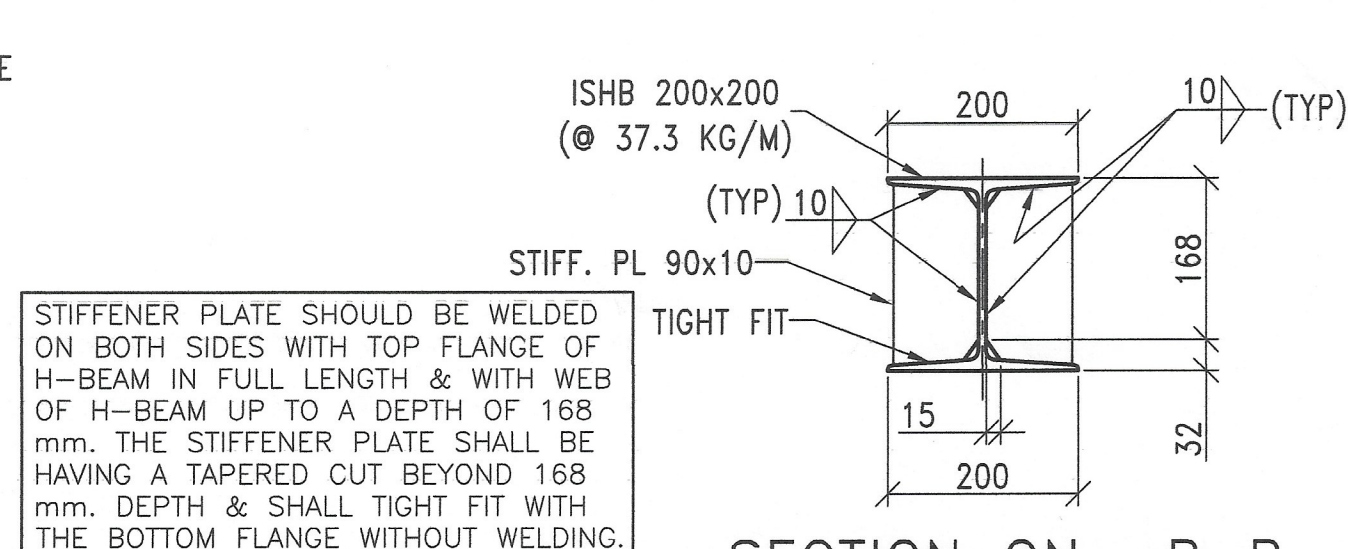
CONTRACTOR: **THE BRAITHWAITE BURN AND JESSOP CONSTRUCTION COMPANY LIMITED**
(A GOVT. OF INDIA ENTERPRISE)

CLIENT: **NORTH EASTERN RAILWAY**

PROJECT: 25 TON. AXLE LOADING STANDARD-2008, OPEN WEB WELDED THROUGH TYPE GIRDER FOR BR.NO.-50 (14x61.0M) SPAN FOR BETWEEN PANIAHWA-VALMIKINAGAR DOUBLING, BR.NO. 16 (18x61.0M+2x30.5M) BETWEEN MANJHI-BAKULAH STATION OF CPR-BUI DOUBLING, BR.NO. 391 (17x61.0M) BETWEEN CHOWKA GHAT-GHAGHRA GHAT OF BUG-GD 4TH LINE PROJECT.

TITLE: **SHORT HEIGHT H-BEAM STEEL SLEEPER FOR 60 KG. RUNNING RAIL AND 52 KG. GUARD RAIL FOR 30.5M SPAN, FOR BR NO.-16**

SCALE:- 1:10	NAME	DATE	B.B.J. ORDER NO.- 2163
DRAWN BY: S.SAMANTA	12.06.26	DRG. NO. 2163/30.5M/02	REV. 0
CHECKED BY: A.K.SETHI	15.06.26		
APPROVED BY:		SHEET: 1 OF 1	A2



DETAIL AT 'A'
BOTTOM FLANGE

SECTION ON- B-B

FOR 52 KG. GUARD RAIL ASSEMBLY AS PER
DRG. NO.- RDSO/T-5155 TO RDSO/T-5164



* ITEM 7 TO BE USED WHERE FISH PLATED JOINTS ARE REQUIRED.

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

DESCRIPTION	WELDING SYMBOL	DESCRIPTION	SHOP	FIELD
FILLET WELD (ONE SIDE)		HSFG BOLTS		
FILLET WELD (BOTH SIDE)		C.S.K. ON FAR SIDE		
SQUARE BUTT WELD		C.S.K. ON NEAR SIDE		
DOUBLE V-BUTT WELD		C.S.K. ON BOTH SIDE		
		ANCHOR BOLTS		
		TURNED BOLTS		

REV.	DATE	DESCRIPTION	BY
REVISIONS			

CONTRACTOR:-



THE BRAITHWAITE BURN AND JESSOP CONSTRUCTION COMPANY LIMITED

(A GOVT. OF INDIA ENTERPRISE)

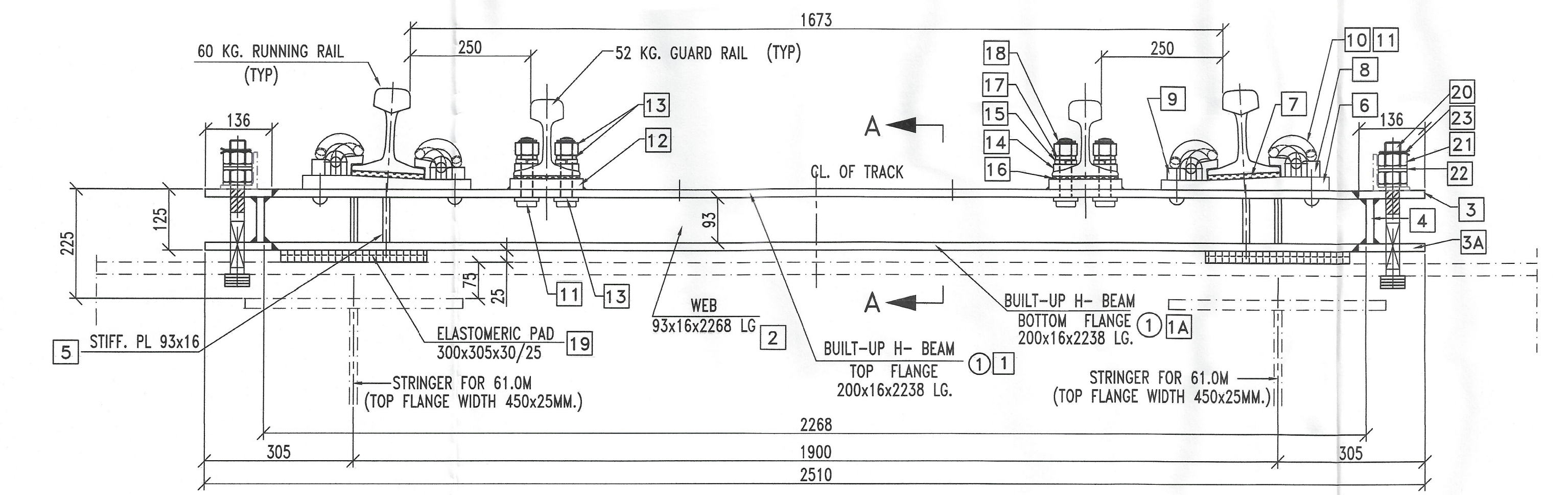
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NORTH EASTERN RAILWAY

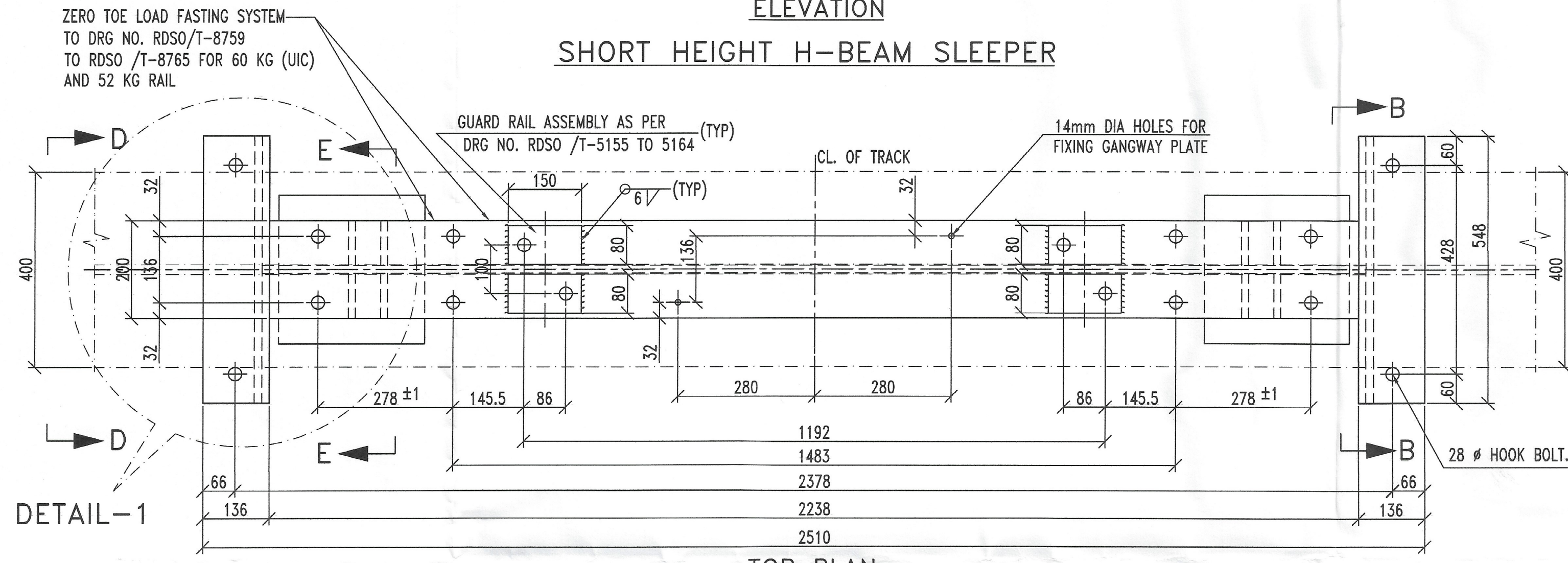
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TITLE: H-BEAM STEEL JOIST FOR 60 KG. RUNNING RAIL AND 52 KG. GUARD RAIL FOR 61.0M SPAN FOR
BR NO.-16, 391 & 50

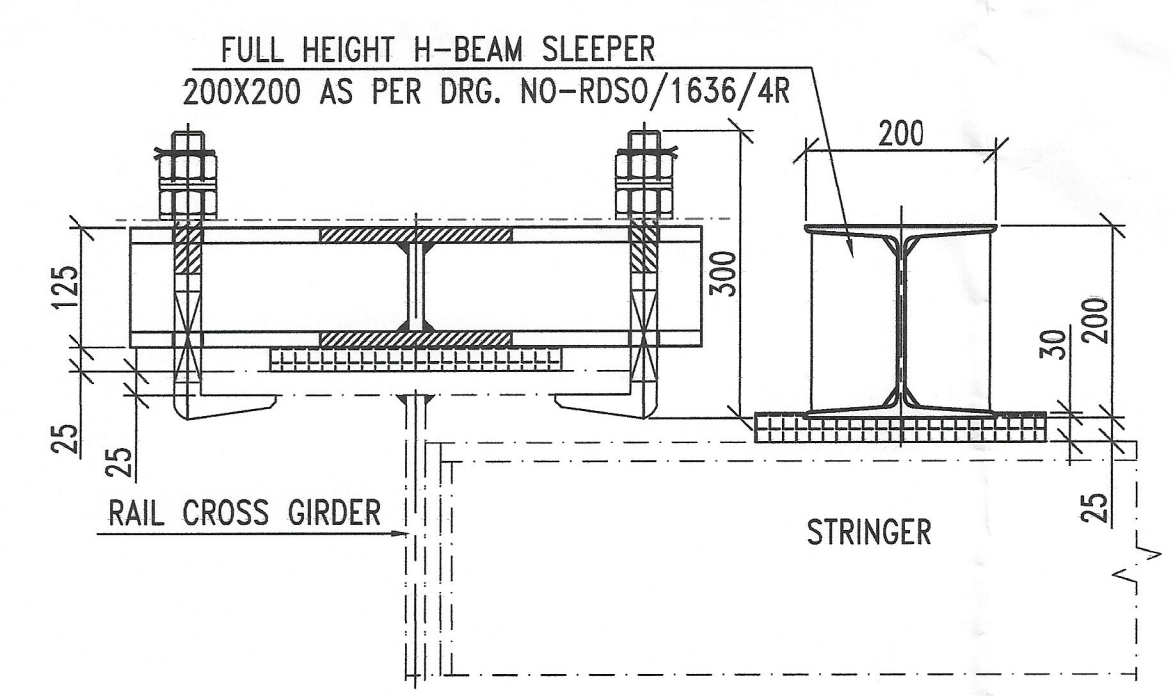
SCALE: 1:-10	NAME	DATE	B.B.J. ORDER NO.- 2163
DRAWN BY: S.SAMANTA		04.06.26	DRG. NO. 2163/61.0M/24 0
CHECKED BY: A.K.SETH		12.06.26	
APPROVED BY:			SHEET: 1 OF 1 A2



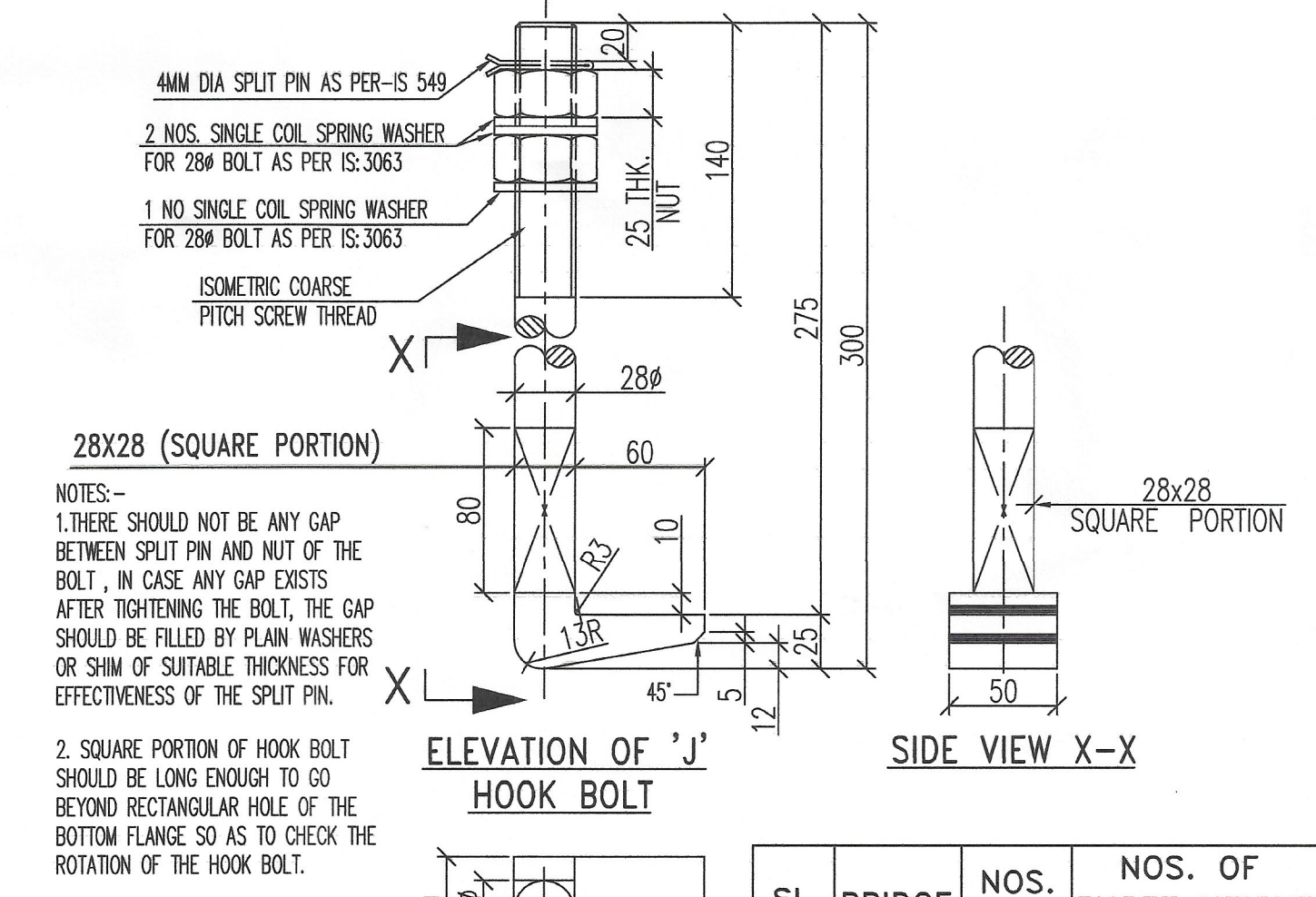
ELEVATION
SHORT HEIGHT H-BEAM SLEEPER



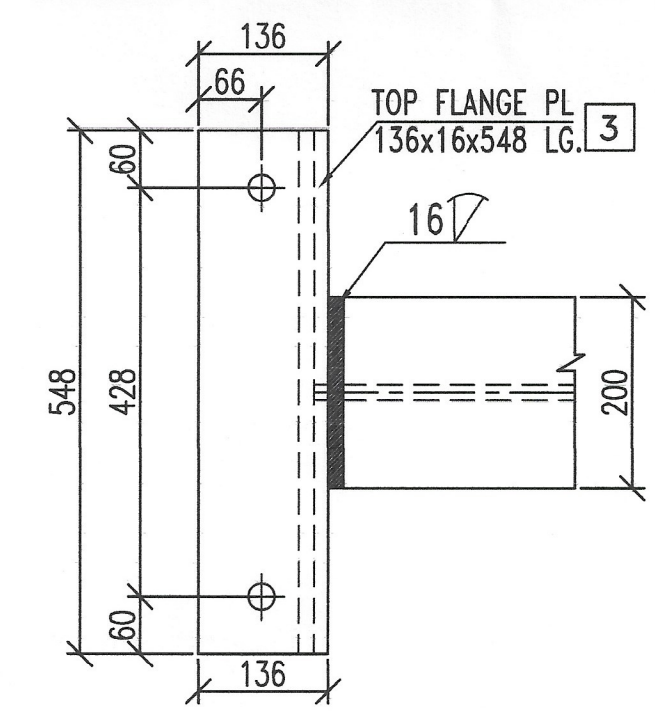
TOP PLAN



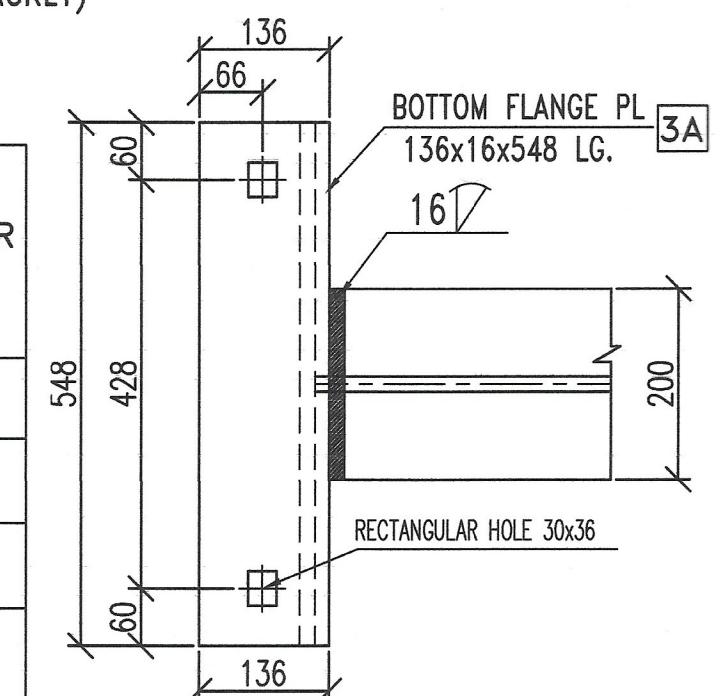
VIEW D-D
TYPICAL ARRANGEMENT OF 125 MM HEIGHT SLEEPER
WITH 200MM HEIGHT H-BEAM SLEEPER



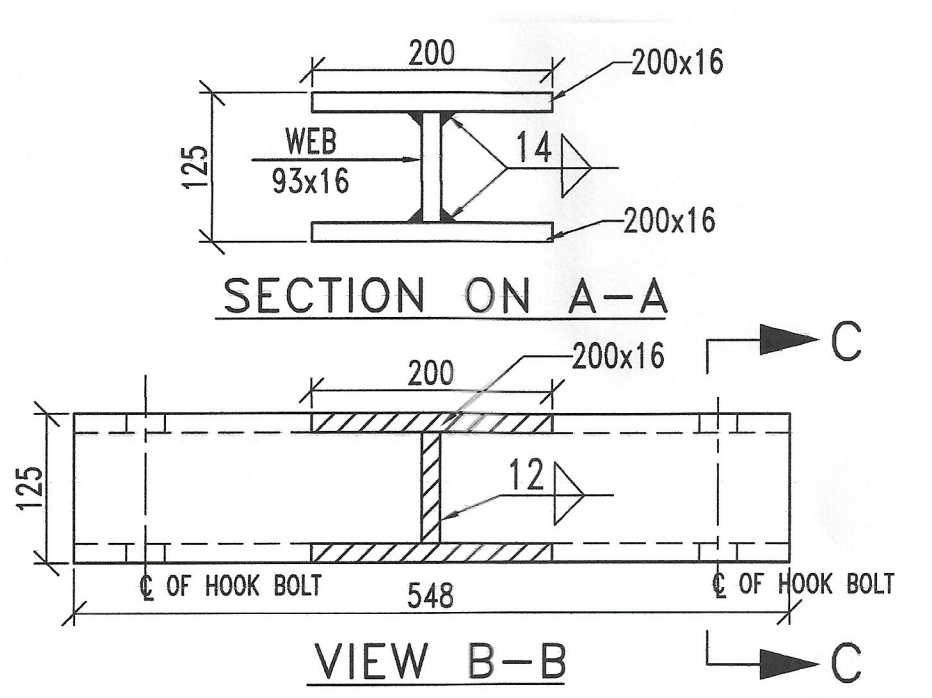
ELEVATION OF 'J' HOOK BOLT
SECTIONAL PLAN



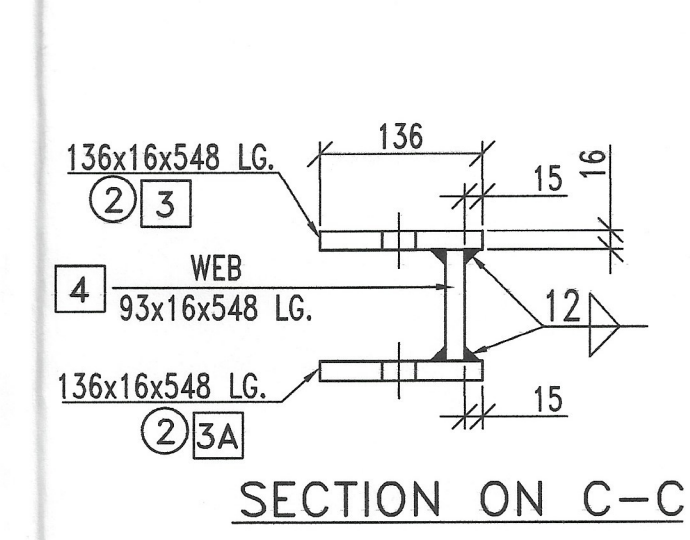
DETAIL-1
(TOP FLANGE OF END BRACKET)



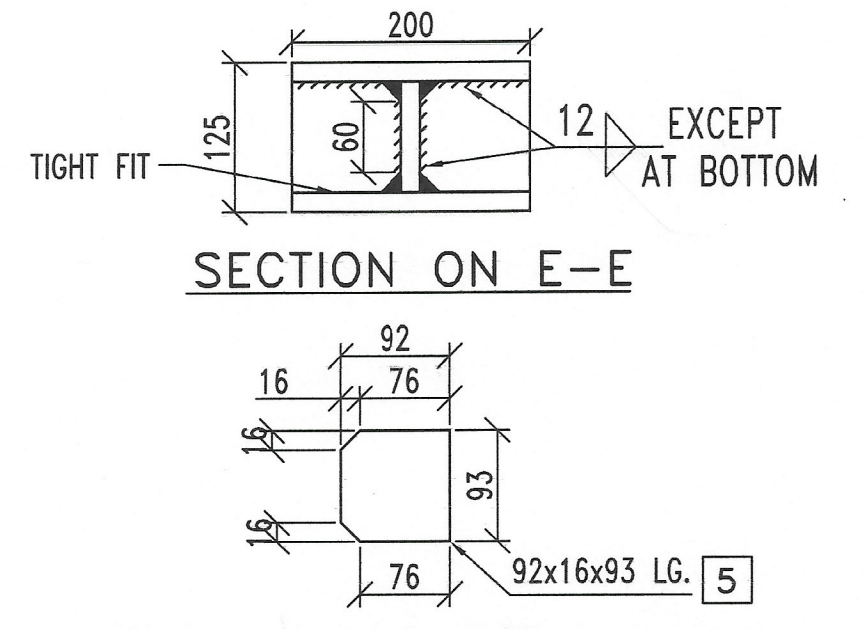
DETAIL-1
(BOTTOM FLANGE OF END BRACKET)



SECTION ON A-A
VIEW B-B



SECTION ON C-C



DETAIL OF STIFFENER PLATE

ITEM REQUIREMENT FOR 1 SET SHORT HEIGHT H-BEAM SLEEPER				
ITEM NO.	DESCRIPTION	DRAWING NUMBER	SPECIFICATION	QTY PER SLEEPER
1	BUILT UP H-BEAM STEEL SLEEPER TOP FLANGE 200x16x2238 LG	RDSO/B-1636/11	GRADE E-250, QUALITY-B0 IS:2062-2011	1
1A	BUILT UP H-BEAM STEEL SLEEPER TOP FLANGE 200x16x2238 LG	RDSO/B-1636/11		1
2	BUILT UP H-BEAM STEEL SLEEPER WEB PL 93x16x2268 LG	RDSO/B-1636/11		1
3	BUILT UP BRACKET BOTH END STEEL TOP FLANGE PL 136x16x548 LG	RDSO/B-1636/11		2
3A	BUILT UP BRACKET BOTH END STEEL BOTTOM FLANGE PL 136x16x548 LG	RDSO/B-1636/11		2
4	BUILT UP BRACKET STEEL WEB PL 93x16x548 LG	RDSO/B-1636/11		2
5	WEB STIFFENER PL - 92x16x93 LG.	RDSO/B-1636/11	IS:2062-2011 Gr. B0	8
6	STEEL BASE PLATE	RDSO/T-8760		2
7	RAIL PAD WITH EMBEDDED STEEL PLATE	RDSO/T-8761	IRS FOR 12 mm. THICK GROOVED RUBBER PAD (PROVISIONAL)	2
8	SPECIAL CAST LINER (INNER) FOR 60 kg. (UIC) RAIL	RDSO/T-8762	IRS SPECIFICATION FOR SPECIAL CAST LINER (PROVISIONAL-2019)	2
9	SPECIAL CAST LINER (OUTER) FOR 60 kg. (UIC) RAIL	RDSO/T-8763	IRS SPECIFICATION FOR SPECIAL CAST LINER (PROVISIONAL-2019)	2
10	ELASTIC RAIL CLIP MKIII	RDSO/T-3701	IRS T-31 -2018	4
11	ELASTIC RAIL CLIP FOR FISH PLATED JOINTS (ERC-J)	RDSO/T-4158	IRS T-31 -2018	4
12	PACKING PLATE 80x150x22 (FOR GUARD RAIL)	-----	IS:2062-2011 GR B0	4
13	BOLT AND NUT (FOR GUARD RAIL)	RDSO/T-5164	IRS T-23 2021	4
14	TAPER WASHER (FOR 52 kg. GUARD RAIL)	RDSO/T-5161	IS:2062-2011 GR B0/BR	4
15	TAPER STEEL WASHER (FOR GUARD RAIL)	RDSO/T-5162	IS:2062-2011 GR B0/BR	4
16	6 mm. THICK GROOVED RUBBER PAD (FOR GUARD RAIL)	RDSO/T-5163	IRS Specification for 6 mm. Thick GR. Pad (Provisional-1997)	2
17	SINGLE COIL SPRING WASHER (FOR GUARD RAIL)	RDSO/T-10773	IRS T-42-2020	4
18	TAPERED SPLIT PIN FOR GUARD RAIL	SUITABLE	SUITABLE, IS:549	4
19	ELASTOMERIC PAD 300x305x30/25	RDSO/B-1636/5	RDSO/M & C/RP-197/03	2
20	Ø28 HOOK BOLT x 300 Lg.	RDSO/B-1636/11		4
21	NUT FOR Ø28 HOOK BOLT	RDSO/B-1636/11		8
22	SINGLE COIL SPRING WASHER FOR Ø28 HOOK BOLT	RDSO/B-1636/11	IS:3063-1994	12
23	TAPERED SPLIT PIN FOR HOOK BOLT	RDSO/B-1636/11	SUITABLE	4

* ITEM 11 TO BE USED WHERE FISH PLATED JOINTS ARE REQUIRED.

NOTES:-

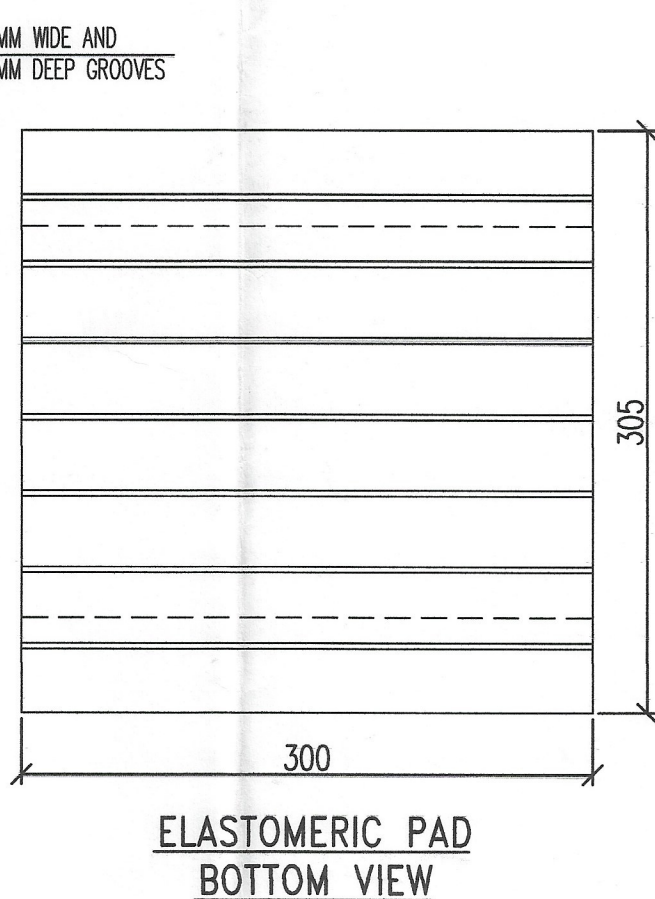
- ALL DIMENSION ARE IN MM.
- STEEL GRADE E-250, QUALITY-B0 CONFORMING TO IS:2062-2011, AS MENTIONED UNDER CLAUSE 8.2 (AS PROVIDED IN ACS NO.5 DATED 30.08.2013) OF IRS :B1-2001, AS CORRECTED FROM TIME TO TIME .
- GUARD RAIL SHALL BE PROVIDED AS PER PARA 275 OF INDIAN RAILWAY PERMANENT WAY MANUAL JUNE, 2020 AS CORRECTED FROM TIME TO TIME.
- FOR SEATING ARRANGEMENT AND ARRANGEMENT FOR FIXING GANGWAY SEE DRG. NO. RDSO/B-1636/5R1
- THE LOCATION WHERE H-BEAM SLEEPER IS TO BE SEATED IS TO BE THOROUGHLY CLEANED A THICK COAT OF ZINC CHROME PRIMER CONFORMING TO IS:104 IS TO BE GIVEN WELL IN ADVANCE BEFORE PROVIDING H-BEAM SLEEPER.
- H-BEAM (LOW HEIGHT) SLEEPER SHOULD BE PLACED CENTRALLY ON X-GIRDER.
- THIS DRAWING IS BASED ON RDSO DRAWING NO RDSO/B-1636/11.

SL. NO.	BRIDGE NO.	NOS. OF SPAN	NOS. OF SHORT HEIGHT SLEEPER ON END X GIRDER	TOTAL NOS OF SLEEPER PER SPAN	TOTAL NOS OF SLEEPER IN BRIDGE
1	16	18	2	2	38
2	391	17	2	2	34
3	50	14	2	2	28

FOR 49x61.0M. SPAN TOTAL NOS. OF SLEEPER = 100

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	

DESCRIPTION	WELDING SYMBOL	DESCRIPTION	SHOP FIELD
FILLET WELD (ONE SIDE)	—	HSFG BOLTS	⊕
FILLET WELD (BOTH SIDE)	—	C.S.K. ON FAR SIDE	⊗
SQUARE BUTT WELD	—	C.S.K. ON NEAR SIDE	⊗
DOUBLE V-BUTT WELD	—	C.S.K. ON BOTH SIDE	⊗
		ANCHOR BOLTS	⊕
		TURNED BOLTS	⊕



SIDE VIEW
ELASTOMERIC PAD
BOTTOM VIEW

CONTRACTOR: **THE BRAITHWAITE BURN AND JESSOP CONSTRUCTION COMPANY LIMITED**
(A GOVT. OF INDIA ENTERPRISE)

CLIENT: **NORTH EASTERN RAILWAY**

PROJECT: 25 TON. AXLE LOADING STANDARD-2008, OPEN WEB WELDED THROUGH TYPE GIRDER FOR BR.NO.-50 (14x61.0M) SPAN FOR BETWEEN PANIAHWA-VALMIKINAGAR DOUBLING, BR.NO 16 (18x61.0M+2x30.5M) BETWEEN MANJHI-BAKULAH STATION OF CPR-BUI DOUBLING, BR.NO 391 (17x61.0M) BETWEEN CHOWKA GHAT-GHAGHRA GHAT OF BUG-GD 4TH LINE PROJECT.

TITLE: SHORT HEIGHT H-BEAM STEEL SLEEPER FOR 60 KG. RUNNING RAIL AND 52 KG. GUARD RAIL FOR 61.0M. SPAN FOR BR. NO.-16, 391 & 50

SCALE:- 1:10 NAME DATE B.B.J. ORDER NO.- 2163

DRAWN BY: S.SAMANTA 04.06.26 DRG. NO. 2163/61.0M/25 REV. 0

CHECKED BY: A.K.SETHI 15.06.26

APPROVED BY:

SHEET: 1 OF 1 A2



Ph. Rly. 42122 (O)
Telefax: 0522-2459920 (O)
Email: dbssb1rdso@gmail.com

भारतसरकार – रेलमंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
मानक नगर, लखनऊ-226011

Government of India – Ministry of Railways
Research Designs & Standards Organisations
Manak Nagar, Lucknow-226011



सं.: CBS/ H Beam sleeper

दिनांक: 23.02.2024

GM/ Con/ NFR.

Principal Chief Engineer (All Zonal Railways).

Chief Administrative Officer (Con) (All Zonal Railways).

विषय: Issuance of drawings of Low Height H-Beam Steel Sleeper (125mm).

Drawing of Low Height H-Beam Steel Sleeper (RDSO/B-1636/11) (Total 01nos.) has been issued. The same has been uploaded on RDSO Railnet website
<http://10.100.2.4/drawing/fmSubHead.aspx?c=15>

This is for your information and necessary action please.

*Copy sent to
all concerned
23/2/24*

23.02.24

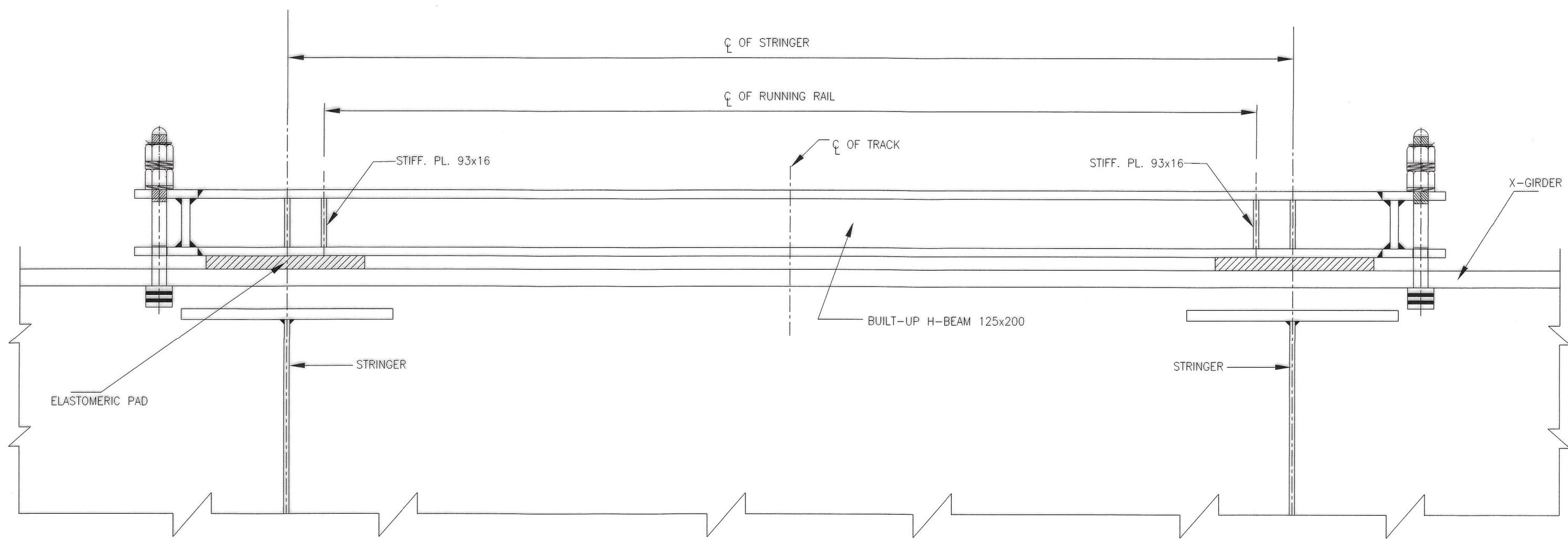
(मोहित वर्मा)

(Mohit Verma)

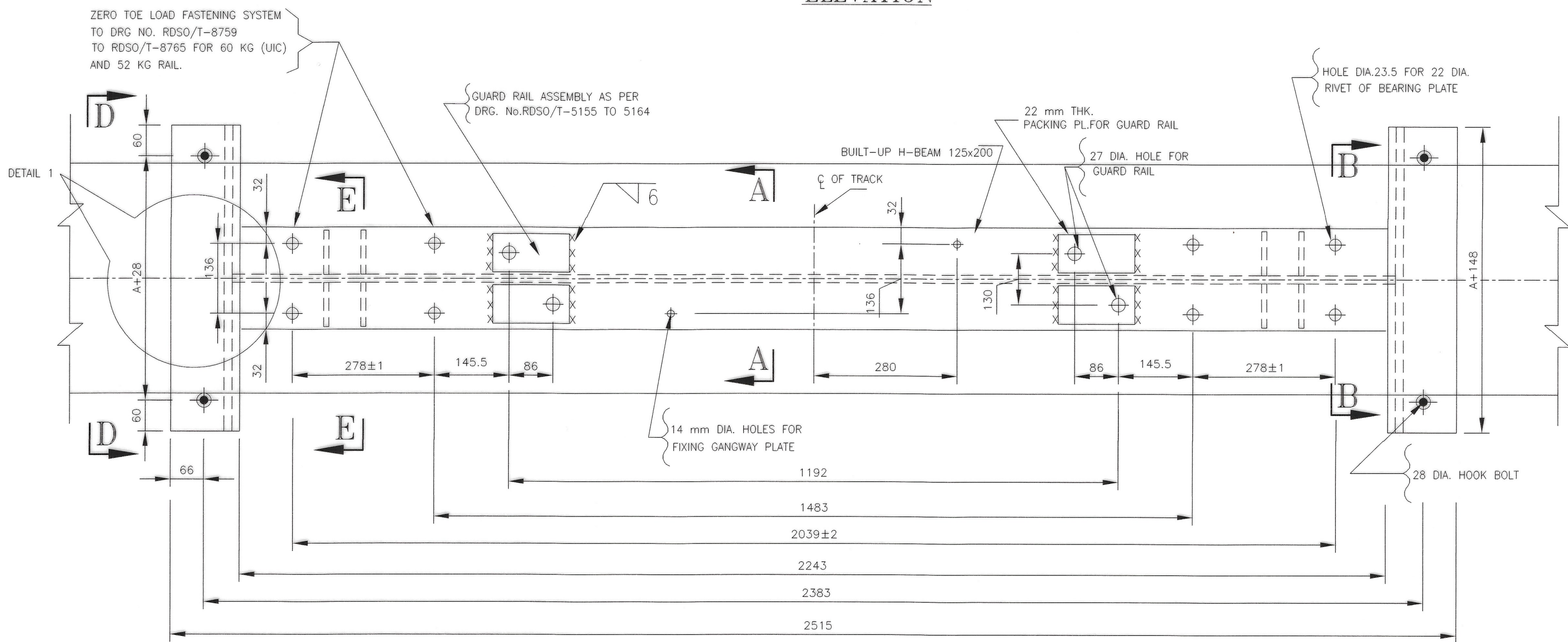
निदेशक / पुल एवं संरचना-I
Director/B&S-I

प्रतिलिपि:

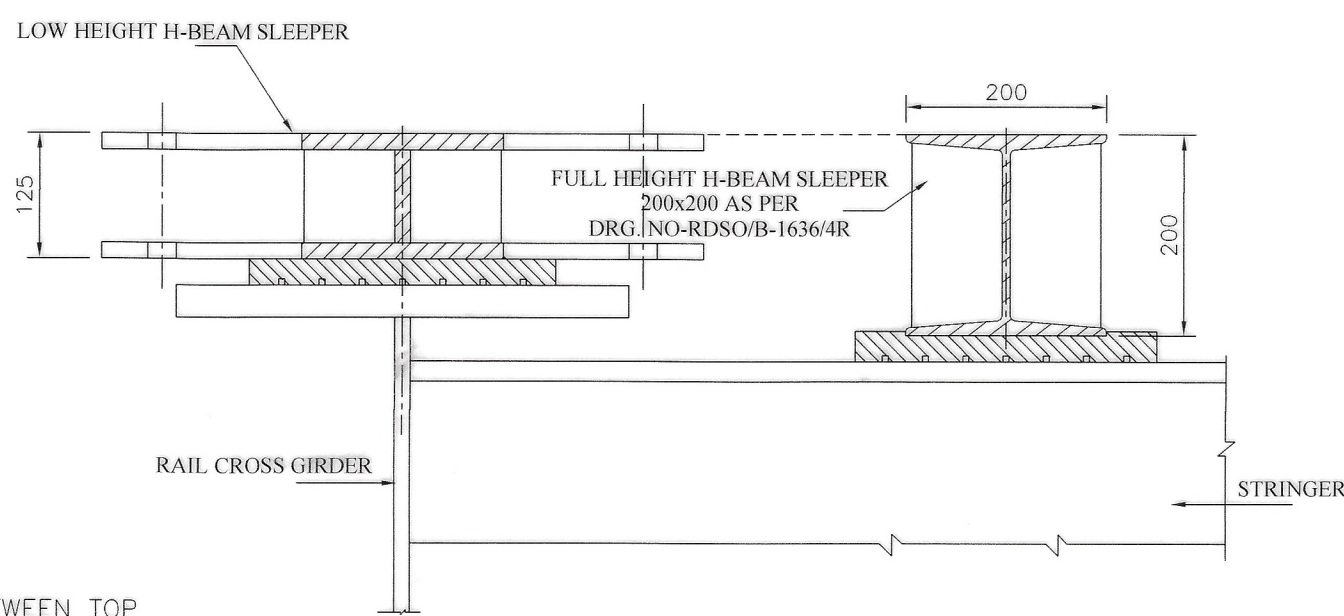
1. EDCE/B&S, Railway board for kind information.
2. The Managing Director, RITES LTD, RITES Bhawan, Plot No.1, Sect.29, Gurgaon (Haryana) - 122001
3. The Managing Director, IRCON, PalikaBhawan, Sector-XIII, R.K. Puram, New Delhi - 110066
4. The Chairman & Managing Director, Konkan Railway Corporation Ltd., BelapurBhavan, Plot No. 6, Sector-II CBD Belapur, Navi Mumbai - 400 614
5. The Managing Director, Rail Vikas Nigam Ltd., 1st floor, August Kranti Bhawan, Bhikaji Cama Place, Africa Road, R.K. Puram, New Delhi - 110 016
6. The Managing Director, DFCCIL, 5th Floor, PragatiMaidan, Metro Station Building Complex New Delhi - 110001
7. The General Manager, Delhi Metro Rail Corporation Ltd., NBCC Place, BhishmaPitamah Marg, PragatiVihar, New Delhi - 110003
8. Chairman & Managing Director, Mumbai Railway Vikas Corporation Ltd., 2nd Floor, Churchgate Station Building, Churchgate, Mumbai - 400 020.



ELEVATION



TOP PLAN

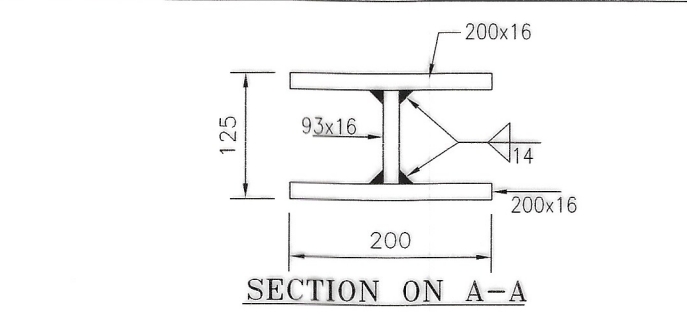


TYPICAL ARRANGEMENT OF 125MM HEIGHT SLEEPER WITH 200MM HEIGHT H-BEAM SLEEPER

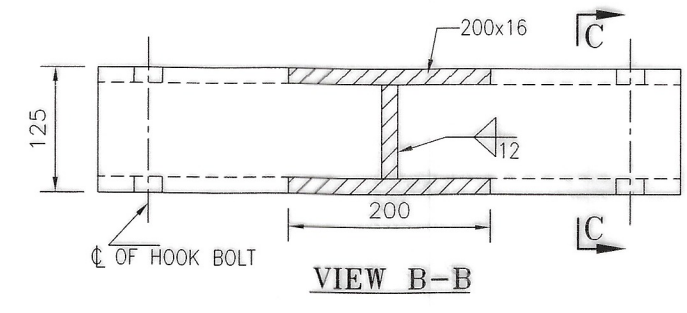
14. THIS LOW HEIGHT H-BEAM STEEL SLEEPER (125MM) SHALL BE USED AT X-GIRDER LOCATION WHERE LEVEL DIFFERENCE BETWEEN TOP LEVEL OF STRINGER AND X-GIRDER IS 75MM AND FLANGE OF X-GIRDER IS MORE THAN 450MM.
13. H-BEAM (LOW HEIGHT) SLEEPER SHOULD BE PLACED CENTRALLY ON X-GIRDER.
12. THE LOCATION WHERE H-BEAM SLEEPER IS TO BE SEATED IS TO BE THOROUGHLY CLEANED AND A THICK COAT OF ZINC CHROME PRIMER CONFORMING TO IS:104 IS TO BE GIVEN WELL IN ADVANCE BEFORE PROVIDING H-BEAM SLEEPER.
11. FOR SEATING ARRANGEMENT AND ARRANGEMENT FOR FIXING GANGWAY SEE DRG. No. RDSO/B-1636/5.
10. IN CASES WHERE THE CLEARANCES BETWEEN THE BRIDGE STRUCTURES AND LIVE ONE 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 TO BE TAKEN AS PER HIS ADVICE.
9. FOR NON-STANDARD OPEN WEB GIRDERS, CLEARANCE AVAILABLE ABOVE RAIL LEVEL SHOULD BE CHECKED AS PER IRSOD/IRPWM BEFORE LAYING STEEL H-BEAM SLEEPER AT DESIGN STAGE.
8. STIFFENER PLATE SHOULD BE WELDED ON BOTH SIDES WITH TOP FLANGE AND WEB OF H-BEAM ONLY.THE STIFFENER PLATE SHALL BE HAVING A TAPERED CUT AS SHOWN IN SECTION E-E AND SHALL TIGHT FIT WITH THE BOTTOM FLANGE WITHOUT WELDING.
7. GUARD RAIL SHALL BE PROVIDED AS PER PARA 275 OF INDIAN RAILWAY PERMANENT WAY MANUAL. JUNE,2020 AS CORRECTED FROM TIME TO TIME.
6. SIZE OF FILLET WELDS ARE EXPRESSED IN LEG LENGTH.
5. SUITABLE CLAMPS AND FIXTURES SHOULD BE USED DURING FABRICATION TO AVOID DISTORTION DUE TO WELDING.
4. STEEL TO BE USED SHOULD BE OF GRADE E-250 BO QUALITY AS MENTIONED UNDER CLAUSE 8.2(AS PROVIDED IN ACS NO.5 DATED 30.08.2013) OF IRS: B1-2001, AS CORRECTED FROM TIME TO TIME.
3. THIS DESIGN IS SUITABLE FOR AXLE LOAD UPTO 32.5 t.
2. NO DIMENSION SHALL BE SCALED FROM THIS DRAWING. ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
1. ALL DIMENSIONS ARE IN MILLIMETRES.

NOTES

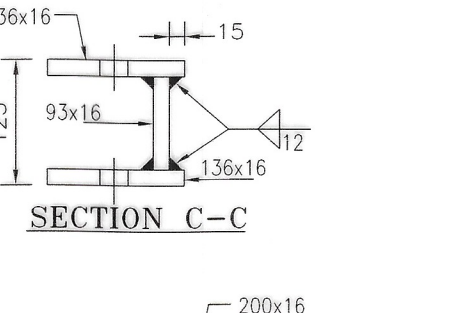
AUTO CAD FILE NO: RDSO/B-1636/11	DESIGN BY: S. N. GUPTA (SSE) <i>SN</i> DESIGN CHECKED BY: S. S. SINGH (SSE) <i>SS</i>	DRAWING DONE BY: PRAMOD SAH (SSE) <i>PS</i> DRAWING CHECKED BY: A. K. SAH (SSE) <i>AS</i>	SCRUTINIZED & CHECKED BY: A. K. PANDEY (ADE /SB-I) <i>AP</i>	SCRUTINIZED & CHECKED BY: MOHIT VERMA (DBS /SB-I) <i>23.02.24</i>	SCALE MILLIMETRES 50 250 50 100 150 200 250 1:5	ALT: APPROVED BY: <i>23/02/24</i> R.K.SRIVASTAVA (EDBS)	DESCRIPTION LOW HEIGHT H-BEAM STEEL SLEEPER (125MM) AT X-GIRDER LOCATION (WHERE FLANGE OF X-GIRDER IS MORE THAN 450MM) FOR BRIDGES (B.G.)	DATE
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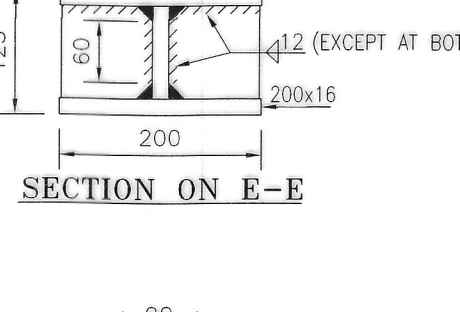
SECTION ON A-A



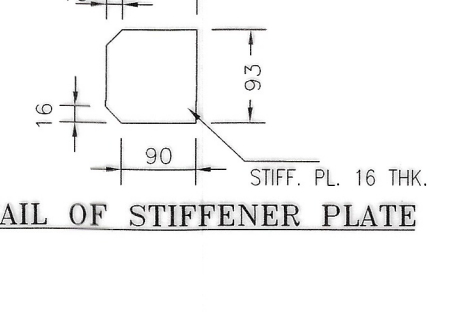
VIEW B-B



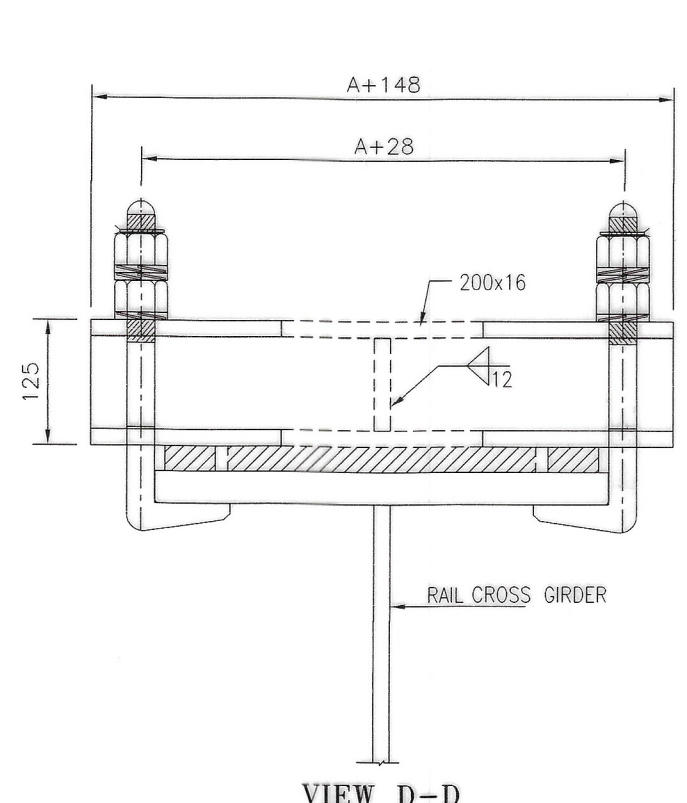
SECTION C-C



SECTION ON E-E

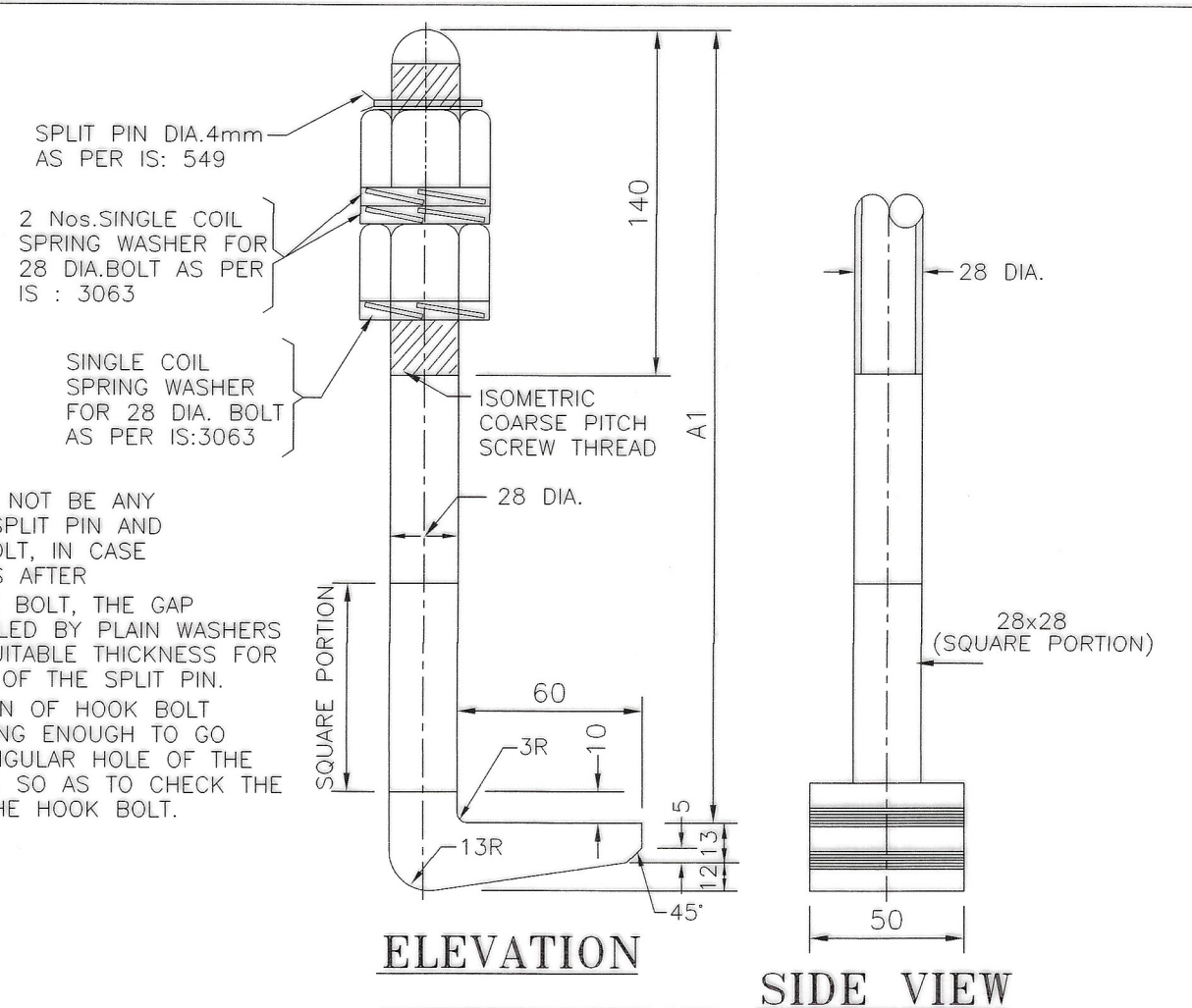


DETAIL OF STIFFENER PLATE



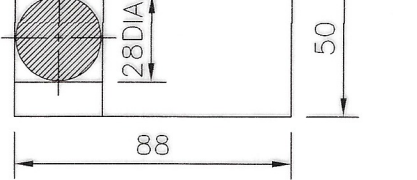
VIEW D-D

DIMENSIONS	DESCRIPTION
A	FLANGE WIDTH OF CROSS GIRDER



ELEVATION

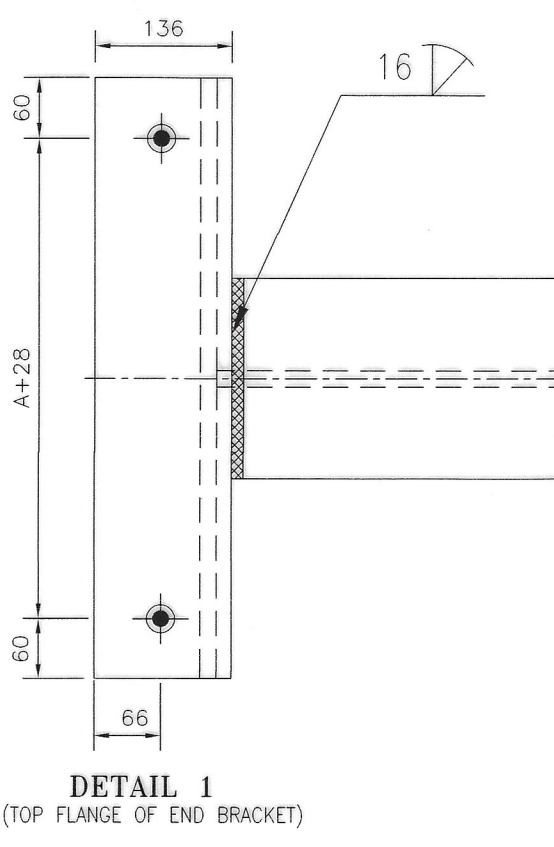
SIDE VIEW



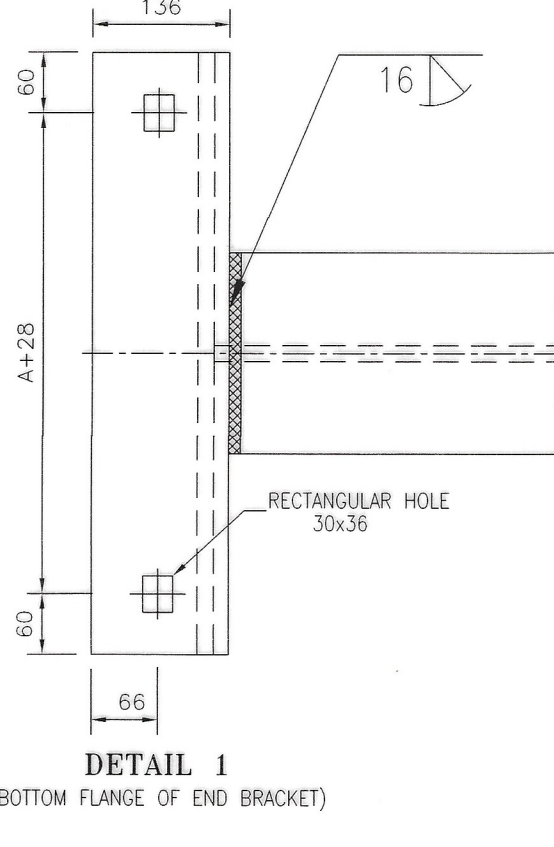
SECTIONAL PLAN

DETAIL OF HOOK BOLT

- NOTES:-
1. PURCHASER TO SPECIFY LENGTH A1.
2. NUT DIMENSIONS SHALL CONFORM TO IS:1363.



DETAIL 1 (TOP FLANGE OF END BRACKET)



DETAIL 1 (BOTTOM FLANGE OF END BRACKET)

R. D. S. O.

LOW HEIGHT H-BEAM STEEL SLEEPER

(125MM) AT X-GIRDER LOCATION

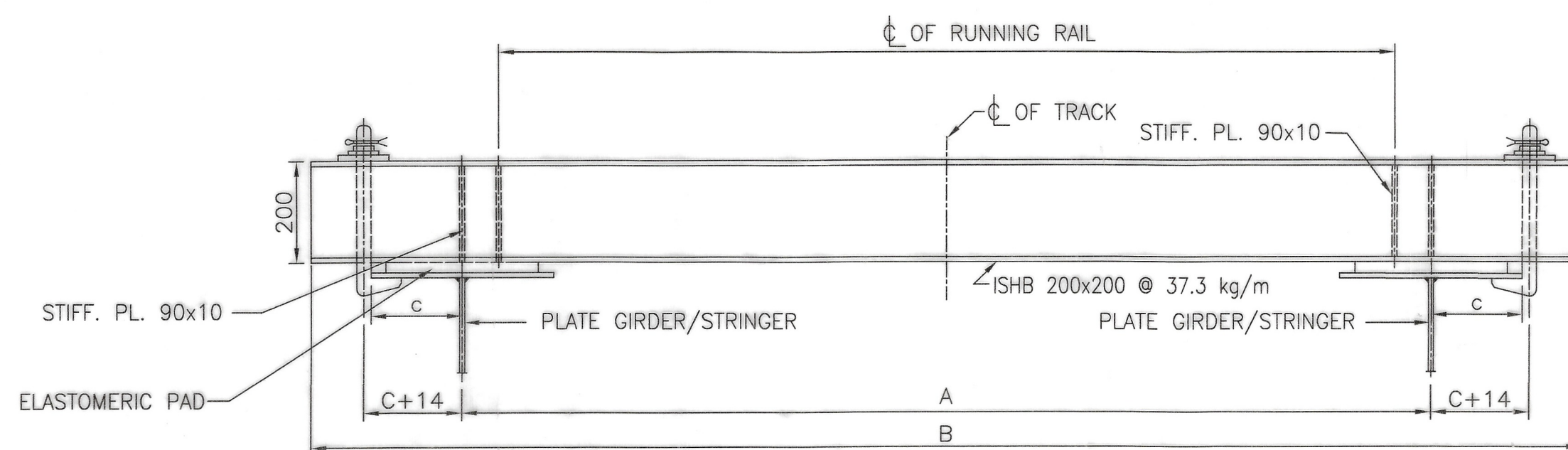
(WHERE FLANGE OF X-GIRDER IS MORE THAN 450MM)

FOR BRIDGES (B.G.)

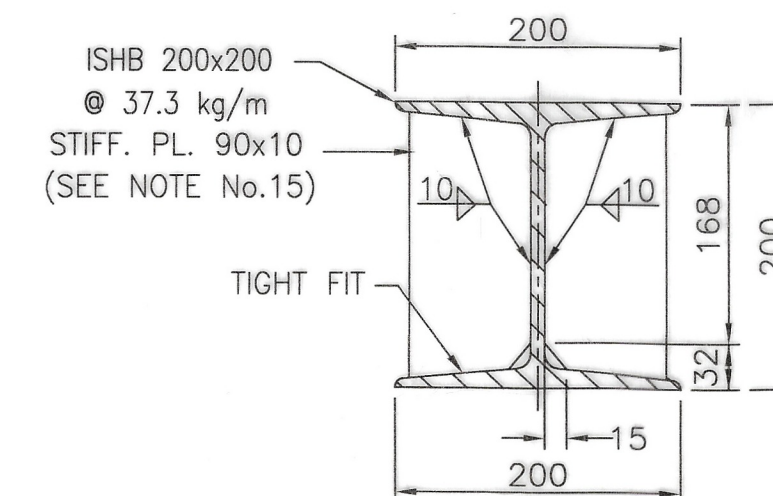
PROVISIONAL

RDSO/B - 1636/11

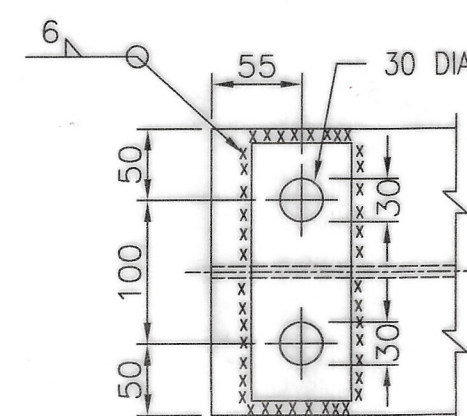
"THIS DRAWING IS THE PROPERTY OF RESEARCH DESIGN AND STANDARD ORGANIZATION (MINISTRY OF RAILWAY), LUCKNOW-226011, INDIA, AND SHALL NOT BE USED, COPIED OR REPRODUCED IN PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING."



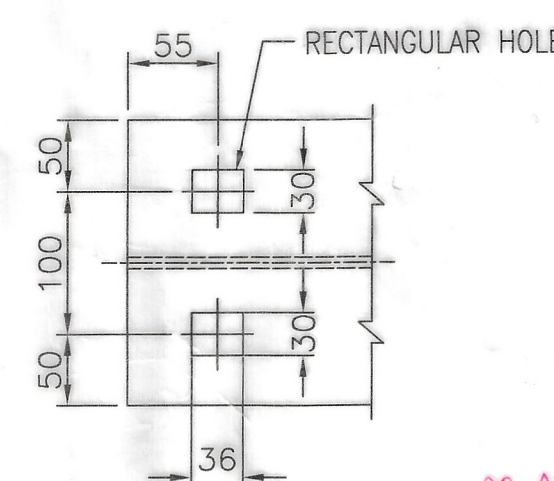
ELEVATION



SECTION ON AA

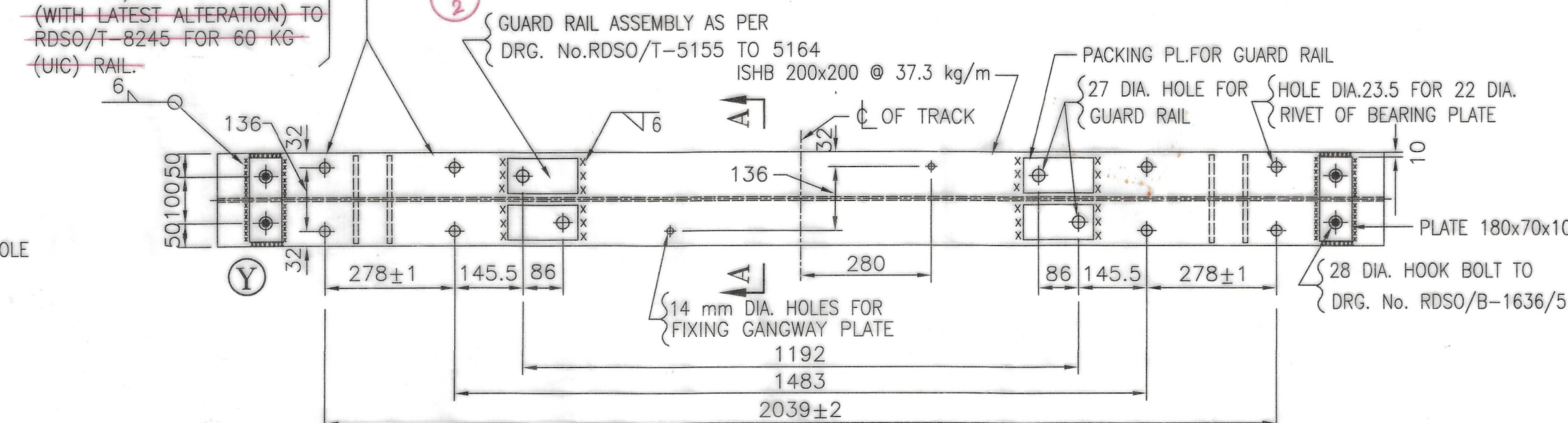


DETAIL AT Y
(TOP FLANGE)



DETAIL AT Y
(BOTTOM FLANGE)

ZERO TOE LOAD FASTENING SYSTEM
TO RDSO DRG. NO. RDSO/T-8759
TO RDSO/T-8765 FOR 60 KG (VIC)
AND 52 KG RAIL.
RAIL FASTENING ASSEMBLY AS
PER DRG. NO. RDSO/T-3701
AND RDSO/T-8240
(WITH LATEST ALTERATION) TO
RDSO/T-8245 FOR 60 KG
(VIC) RAIL.



TOP PLAN

20. ANTI-SKID CHEQUERED PLATES FOR GANGWAY, TROLLEY REFUGE, MAIN REFUGE, SIDE PATHWAY ETC. SHALL BE CONFORMING TO LATEST IS 6911, IS SYMBOL 409M, MINIMUM 6 MM THICK (EXCLUDING BEAD HEIGHT) WITH FLAT BOTTOM AND TOP PATTERN CONFORMING TO IS 3501, 1A. FOR COASTAL/CORROSIVE AREAS, THICKNESS MAY BE SUITABLY INCREASED DEPENDING UPON SEVERITY OF CORROSION. APPROPRIATE MATCHING STAINLESS STEEL GRADE FASTENERS AS RECOMMENDED BY MANUFACTURER SHALL BE USED.

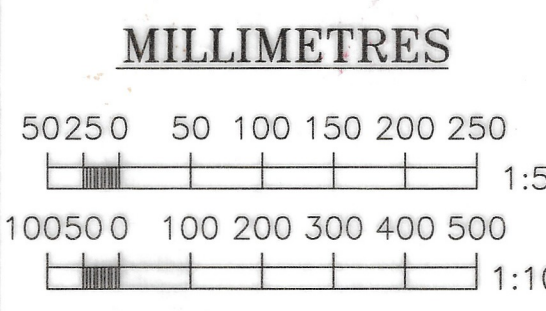
4. MAXIMUM CENTRE TO CENTRE SLEEPER SPACING SHOULD BE 600 MM EXCEPT AT CROSS GIRDERS. THE CLEAR DISTANCE BETWEEN TWO SLEEPERS AT CROSS GIRDER LOCATION SHOULD NOT BE MORE THAN 450 MM. THE CLEAR DISTANCE BETWEEN JOINT SLEEPERS SHOULD NOT BE MORE THAN 200 MM.
7. STEEL TO BE USED SHOULD BE OF GRADE E-250 B0 QUALITY AS MENTIONED UNDER CLAUSE 8.2 (AS PROVIDED IN ACS NO 5 DATED 30-09-2013) OF IRS; B1-2001, AS CORRECTED FROM TIME TO TIME.

- SIZE OF FILLET WELDS ARE EXPRESSED IN LEG LENGTH.
- 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.
- 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.
- 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.
- 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.
- 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 SPICE 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.
- FOR SUCH CASES WHERE NO STANDARD DRAWING OF RAIL FASTENING ASSEMBLY IS AVAILABLE RAILWAYS MAY FOLLOW THEIR OWN DESIGNS.
- FOR SEATING ARRANGEMENT FOR RIVETTED PLATE GIRDERS/STRINGERS AND ARRANGEMENT FOR FIXING GANGWAY SEE DRG. No. RDSO/B-1636/5.
- FOR NON STANDARD DESIGN, DIMENSION 'A' AS SHOWN ABOVE SHOULD NOT BE MORE THAN 1980 mm.
- 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 REFERRED TO THE CHIEF ELECTRICAL ENGINEER OF RAILWAY CONCERNED AND ACTION TAKEN AS PER HIS ADVICE.
- 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.
- GUARD RAIL SHALL BE PROVIDED AS PER PARA 275 OF INDIAN RAILWAY PERMANENT WAY MANUAL. **JUNE 2020, AS CORRECTED FROM TIME TO TIME.**
- 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.
- SUITABLE JIGS SHOULD BE USED TO AVOID DISTORTION DUE TO WELDING.
- WHERE 'A' IS < 1980 mm STIFFENERS ABOVE THE GIRDER CENTRES ARE NOT TO BE PROVIDED.
- 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.
- THIS DESIGN IS SUITABLE FOR AXLE LOAD UPTO 30 t.
- ALL DIMENSIONS ARE IN MILLIMETRES.
- THIS DRAWING SUPERSEDES DRAWING NO RDSO/B-1636/4.

NOTE

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

SPECIFICATION



SCALE

1	NOTE NO 4 CHANGED AS PER IRPWN CORRECTION SLIP NO-128 FOR PARA 273(6) OF IRPWN AND CBS/SCS DATED 06-06-2014	DATE
2	RAIL FASTENING ASSEMBLY DRAWING NO ALTERED AND NOTE NO 13 DELETED AND NOTE NO 7 CHANGED.	DATE
3	NOTE NO 20 ADDED.	DATE

DESCRIPTION

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 IRPWN.

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R. D. S. O.

DETAILS OF H-BEAM STEEL SLEEPER

FOR BRIDGES (B.G.)

(FOR FIELD TRIAL ONLY)

PROVISIONAL

RDSO/B-1636/4/R