

327
450

TABLE SHOWING VARIOUS PARAMETERS FOR SLAB CULVERTS (Single Span)- Widening

Sr. No.	Existing Chainage "km"	Proposed Chainage "km"	Proposal	Proposed Width of Culvert, m.	Existing Ground Level, m	Formation Level		Vent Height, m.	Details of Span Arrangement			slab thickness		Angle of Skew	Super Elevation / Camber		Proposed Widening		Remarks
						Existing m.	Proposed m.		Nos. of Spans	Span Length, L m.	Height of new Parapets m.	Centre	Edge		Left Carriage (%)	Right Carriage (%)	LHS m.	RHS m.	
1	44/105	43+837	Widening	12.00	40.777	42.442	42.442	1.30	1	2.00	6	0.30	0.30	0.00	-2.50	-2.50	0.84	2.62	-
2	44/900	44+633	Widening	12.00	40.786	42.58	42.58	1.40	1	2.00	6	0.30	0.30	0.00	-2.60	-2.50	1.30	1.87	-

TABLE SHOWING VARIOUS PARAMETERS OF ABUTMENT FOR SLAB CULVERTS (Single Span) - Widening

Sr. No.	Existing Chainage "km"	AH	b1	b2	b3	b4 backside	B1	B2	H'	Foundation Level at Abutment Location	Ground Level at Abutment Location	Front Bater	Back Bater	Front Projection	Back Projection	Vertical Offset	
														h1	h2	v	
		IN "MT"		IN "MT"		IN "MT"		IN "MT"		IN "MT"		IN "MT"		IN "MT"		IN "MT"	
1	44/105	2.10	0.23	0.60	0.40	0.40	1.55	3.55	0.80	38.78	40.78	8.00	3.00	0.400	0.400	0.200	
2	44/900	2.23	0.24	0.64	0.40	0.40	1.61	3.61	0.80	38.77	40.77	8.00	3.00	0.400	0.400	0.200	

TABLE SHOWING VARIOUS PARAMETERS OF RETAINING WALL FOR SLAB CULVERTS (Single Span) - Widening

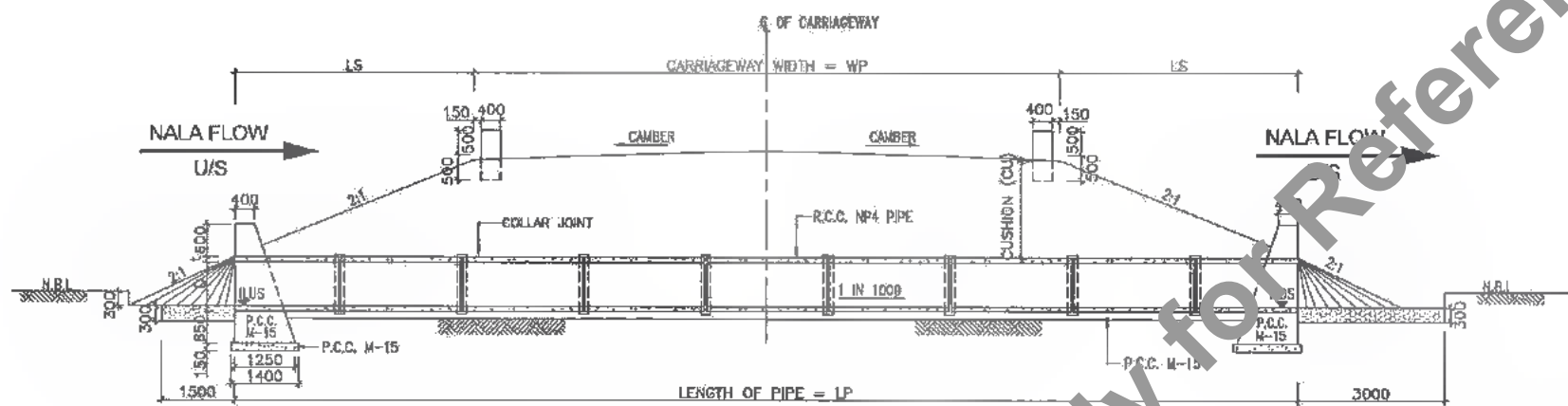
Sr. No.	Existing Chainage "km"	WH	wb1	wb2	B1	WB2	RWL (length from face of dirtwall)	WH'	Foundation Level at Return Location	Ground Level at Return Location	Front Bater	Back Bater	Front Projection	Back Projection	Vertical Offset
													Wh1	Wh2	v
		IN "MT"		IN "MT"		IN "MT"		IN "MT"		IN "MT"		IN "MT"		IN "MT"	
1	44/105	2.25	0.23	0.75	1.57	2.37	3.16	0.80	38.78	40.78	7.00	3.00	0.000	0.000	0.400
2	44/900	2.38	0.34	0.79	1.63	2.43	3.40	0.80	38.77	40.77	7.00	3.00	0.000	0.000	0.400

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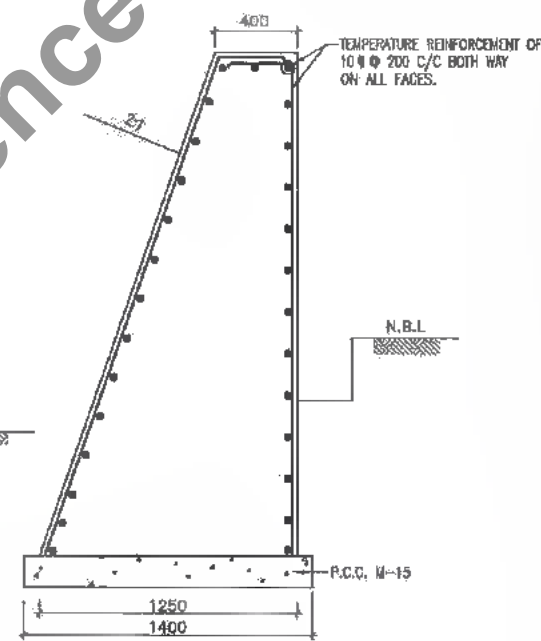
Not to be used as a Bid Document, Only for Reference



<p>CLIENT:</p> <p>Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)</p>	<p>PROJECT:</p> <p>Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar <i>Baysi - Bahadurganj - Dighalbank (SH-99)</i></p>	<p>CONSULTANTS:</p> <p>SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company Studio "SAI House" Salween Corporate Square, 6th Nagbells Durgam Cheruvu, Hyderabad-500097, India Phone : +91-9-6612601700 Fax : +91-9-44142800 Email : saic@saiconsulting.com</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">REV.</td> <td style="width: 10%;">DATE</td> <td style="width: 50%;">DESCRIPTION</td> <td style="width: 10%;">SIGN</td> <td style="width: 10%;">ISSUED BY</td> </tr> <tr> <td>PF</td> <td>31/07/10</td> <td>GOOD FOR CONSTRUCTION (REVISED DPR)</td> <td></td> <td>DRAWN BY : G.M.S.</td> </tr> <tr> <td>PE</td> <td>17/10/10</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td>CHECKED BY : N.K.S.</td> </tr> <tr> <td>PD</td> <td>16/04/14</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td>APPROVED BY : G.M.S.</td> </tr> <tr> <td>PC</td> <td>26/02/14</td> <td>ISSUED WITH FINAL ORDER</td> <td></td> <td></td> </tr> <tr> <td>PB</td> <td>01/01/14</td> <td>ADDENDUM OF DPR</td> <td></td> <td></td> </tr> </table> <p>SCALE : AS SHOWN</p> <p>TITLE: RAUTA-MAHADEV DIGHI CHOWK (PACKAGE-4) TABLE SHOWING VARIOUS PARAMETERS OF WIDENING OF SLAB CULVERT (SINGLE SPAN)</p> <p>DRG. NO. : (SHEET-2 OF 2) SAI-213007/DP/RC/BSRDC/01 REVISION: PF</p>	REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	PF	31/07/10	GOOD FOR CONSTRUCTION (REVISED DPR)		DRAWN BY : G.M.S.	PE	17/10/10	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY : N.K.S.	PD	16/04/14	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY : G.M.S.	PC	26/02/14	ISSUED WITH FINAL ORDER			PB	01/01/14	ADDENDUM OF DPR		
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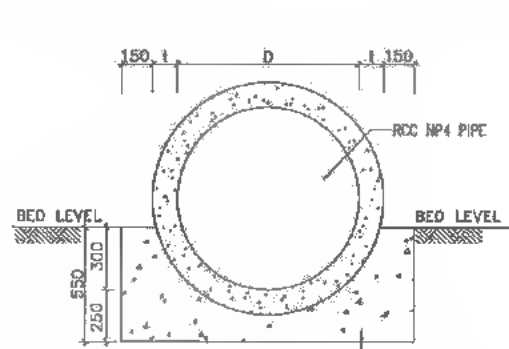
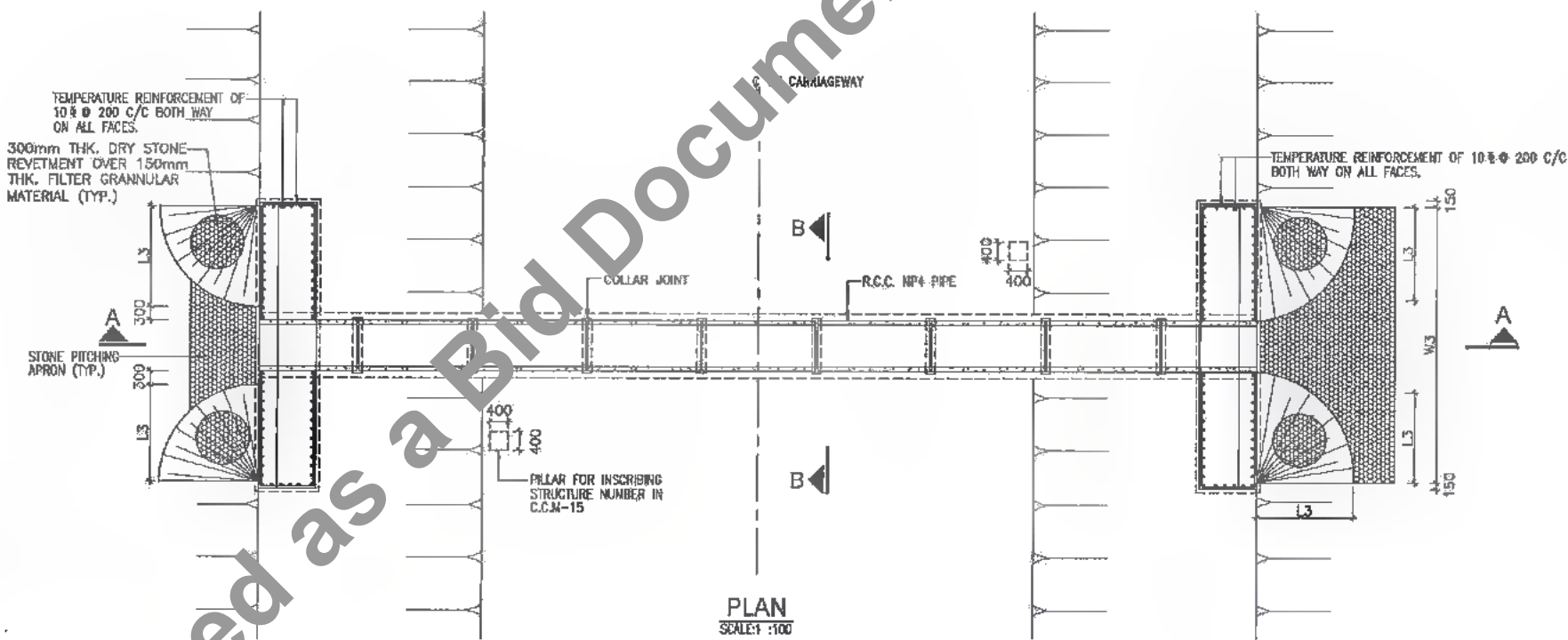


SECTIONAL ELEVATION AT A-A
SCALE: 1:100

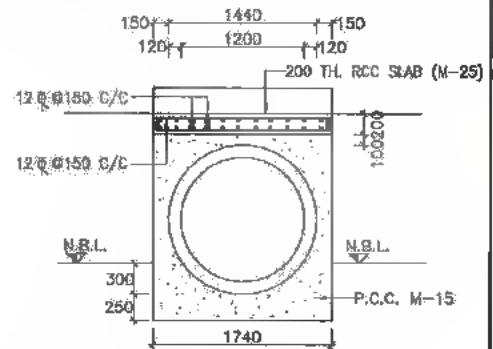


DETAILS OF HEAD WALL
SCALE 1:50

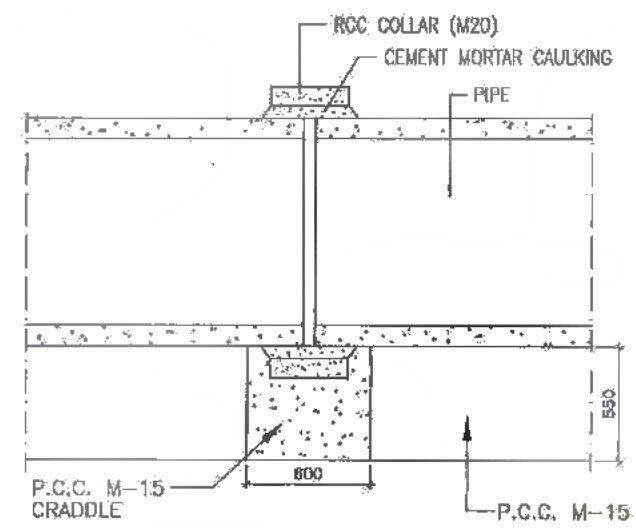
- NOTES:**
- (1) ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED ON DRAWING
 - (2) LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1 IN 1000
 - (3) DRAWING SHALL NOT BE SCALED.
 - (4) FOUNDATION R.L. OF HEAD WALL SHALL BE MINIMUM 0.8M BELOW NATURAL BED LEVELS AS PER SP-13.
 - (5) ALL R.C.C. PIPE OF NP4 TYPE CONFORMING TO I.S. 456.
 - (6) PROVIDE 300mm THICK STONE REVENMENT OVER GRANULAR MATERIAL BACKING 150mm THICK IN ENVELOPE PORTION.
 - (7) ABBREVIATIONS USED
 - (i) LP = LENGTH OF PIPE
 - (ii) D = DIA OF NP4 CLASS PIPE.
 - (iii) t = THICKNESS OF PIPE.
 - (iv) W3 = LENGTH OF HEAD WALL.
 - (v) L3 = ENVELOPE LENGTH.
 - (vi) ILLS = INVERT LVL. OF U/S
 - (vii) ILDS = INVERT LVL. OF D/S
 - (viii) LS = EXTRA LENGTH
 - (8) TEMPERATURE REINFORCEMENT OF 10# 200 C/C BOTH WAY SHALL BE PROVIDED ON ALL FACES OF HEAD WALL.
 - (9) TABLE SHOWING VARIOUS PARAMETERS FOR PIPE CULVERT REFER DWG. NO. SAI-213007/DPR/C/B/PC/GAD-01 (SHEET 02 OF 02)
 - (10) UPSTREAM AND DOWNSTREAM SHOWN IN DRAWING ARE INDICATIVE, THE SAME SHALL BE DECIDED AS PER SITE CONDITION OF EACH BALANCEING CULVERT AND AS DIRECTED BY ENGINEER IN CHARGE.



SECTION B-B
SCALE 1:50




ENCASING DETAILS OF PIPE
SCALE 1:50



TYPICAL DETAILS OF COLLAR JOINT
SCALE 1:50



DATE: 2019/07/29 - 8pm
PATH: C:\Users\... \Temp\AutoCad\Pub\284\101 PIPE CUL_SINGLE ROW (New Constr).dwg

CLIENT:

Bihar State Road Development Corporation Limited (BSRDC)
 (A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:

SAI Consulting Engineers Pvt. Ltd.
 An ISO-9001 Certified Company
 Head-A "SAI House" Satyam Corporate Square, IIR Rajpath, ITO, New Delhi, India
 Phone : +91-11-66158871/66158872, Fax : +91-11-66152999
 Email : mail@saiengg.com

PF	31/07/16	GOOD FOR CONSTRUCTION (REVISED DPR)	DRWN BY : G.M.G.	TITLE: RAUTA-MAHADEVI DIGHALBANK (PACKAGE-B) TYP. GAD FOR PIPE CULVERT (SINGLE ROW) DRG. NO.: (SHEET 01 OF 02) SAI-213007/DPR/C/B/PC/GAD-01 REVISION: PF
PE	11/12/16	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : M.K.S.	
PO	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.R.V.	
PD	26/02/14	ISSUED WITH FINAL DPR/ ADDENDUM OF DPR	ISSUED BY : S.S.	
REV.	DATE	DESCRIPTION	SIGN	
SCALE: AS SHOWN				

SAI CONSULTING ENGINEERS PVT. LTD.

324
48

Details of Pipe Culvert - New/Reconstruction (Single Row)

Sr. No.	Proposed Structure No.	Existing Ch. km	Proposed Ch. km	Existing Ground Level In m.		Proposed Formation Level		Existing Width in m. "WE"	Proposed Capacity in m ³ /hr "WP"	Earthen, m.	Pipes			Super Elevation/Camber (%)		Extra Length in m. "LS"	Length of Head Wall in m. "WG"	Invert Level, "m"		Ht. of Head Wall in m.	Skew Angle	Length of pipe (Rounding to 2.5m)	Proposal	
				D/S	U/S	Left in "m"	Right in "m"				No.	Dia. in m. "D"	Thk. in m. "T"	Length in m. "L"	Left Carriage %			Right Carriage %	ILDS					ILDS
1	24/2	-	23+790	33.220	33.220	35.092	35.092	0.00	12.00	0.625	1	1.20	0.120	2.740	-2.500%	-2.500%	1.250	7.520	32.932	32.920	2.680	0	15.000	New
2	27/2	-	26+585	32.789	32.789	35.627	35.627	0.00	12.00	1.582	1	1.20	0.120	2.740	-2.500%	-2.500%	3.166	7.520	32.502	32.489	2.690	0	20.000	New
3	28/1	-	27+225	33.093	33.093	36.100	36.100	0.00	12.00	1.760	1	1.20	0.120	2.740	-2.500%	-2.500%	3.520	7.520	32.805	32.793	2.690	0	20.000	New
4	28/2	-	27+490	32.489	32.489	35.532	35.532	0.00	12.00	1.796	1	1.20	0.120	2.740	-2.500%	-2.500%	3.592	7.520	32.201	32.189	2.690	0	20.000	New
5	29/1	-	28+025	33.415	33.415	37.183	37.183	0.00	12.00	2.521	1	1.20	0.120	2.740	-2.500%	-2.500%	5.042	7.520	33.127	33.115	2.690	0	22.500	New
6	29/2	-	28+240	32.800	32.800	35.198	35.198	0.00	12.00	1.151	1	1.20	0.120	2.740	-2.500%	-2.500%	2.302	7.520	32.512	32.500	2.690	0	17.500	New
7	30/2	-	29+890	33.257	33.257	36.758	36.758	0.00	12.00	2.254	1	1.20	0.120	2.740	-2.500%	-2.500%	4.508	7.520	32.959	32.957	2.690	0	22.500	New
8	32/2	-	31+267	34.451	34.451	37.273	37.273	0.00	12.00	1.575	1	1.20	0.120	2.740	-2.500%	-2.500%	3.150	7.520	34.163	34.151	2.690	0	20.000	New
9	33/2	-	32+740	35.211	35.211	37.773	37.773	0.00	12.00	1.285	1	1.20	0.120	2.740	-2.500%	-2.500%	2.570	7.520	34.923	34.911	2.690	0	17.500	New
10	33/3	-	32+990	35.474	35.474	37.831	37.831	0.00	12.00	1.110	1	1.20	0.120	2.740	-2.500%	-2.500%	2.220	7.520	35.186	35.174	2.690	0	17.500	New
11	34/2	-	33+991	35.810	35.810	37.674	37.674	0.00	12.00	0.817	1	1.20	0.120	2.740	-2.500%	-2.500%	1.234	7.520	35.522	35.510	2.690	0	15.000	New
12	37/3	-	36+391	36.405	36.405	38.651	38.651	0.00	12.00	0.999	1	1.20	0.120	2.740	-2.500%	-2.500%	1.998	7.520	36.117	36.105	2.690	0	17.500	New
13	38/1	-	37+340	36.828	36.828	39.130	39.130	0.00	12.00	1.055	1	1.20	0.120	2.740	-2.500%	-2.500%	2.110	7.520	36.540	36.528	2.690	0	17.500	New
14	38/3	-	37+915	38.241	38.241	42.197	42.197	0.00	12.00	2.709	1	1.20	0.120	2.740	-2.500%	-2.500%	6.418	7.520	37.953	37.941	2.690	0	25.000	New
15	39/1	-	38+180	36.780	36.780	39.547	39.547	0.00	12.00	1.520	1	1.20	0.120	2.740	-2.500%	-2.500%	3.040	7.520	36.492	36.480	2.690	0	20.000	New
16	39/3	-	38+590	37.540	37.540	39.440	39.440	0.00	12.00	0.653	1	1.20	0.120	2.740	-2.500%	-2.500%	1.306	7.520	37.252	37.240	2.690	0	17.500	New
17	40/1	-	39+125	37.340	37.340	39.909	39.909	0.00	12.00	1.352	1	1.20	0.120	2.740	-2.500%	-2.500%	2.704	7.520	37.022	37.010	2.690	0	17.500	New
18	40/2	-	39+840	38.270	38.270	40.372	40.372	0.00	12.00	0.855	1	1.20	0.120	2.740	-2.500%	-2.500%	1.710	7.520	37.982	37.970	2.690	0	17.500	New
19	41/1	-	40+000	38.189	38.189	40.654	40.654	0.00	12.00	1.118	1	1.20	0.120	2.740	-2.500%	-2.500%	2.236	7.520	37.901	37.889	2.690	0	17.500	New
20	41/2	-	40+090	37.942	37.942	40.735	40.735	0.00	12.00	1.546	1	1.20	0.120	2.740	-2.500%	-2.500%	3.092	7.520	37.654	37.642	2.690	0	20.000	New
21	41/4	-	40+319	39.319	39.319	41.228	41.228	0.00	12.00	0.680	1	1.20	0.120	2.740	-2.500%	-2.500%	1.320	7.520	38.031	38.019	2.690	0	15.000	New
22	43/1	-	42+050	39.500	39.500	41.232	41.232	0.00	12.00	0.485	1	1.20	0.120	2.740	-2.500%	-2.500%	0.971	7.520	39.212	39.200	2.690	0	15.000	New -with Pipe Encasing
23	44/1	-	43+090	39.630	39.630	41.484	41.484	0.00	12.00	0.607	1	1.20	0.120	2.740	-2.500%	-2.500%	1.214	7.520	39.342	39.330	2.690	0	15.000	New
24	44/2	-	43+615	40.263	40.263	42.473	42.473	0.00	12.00	0.959	1	1.20	0.120	2.740	-2.500%	-2.500%	1.926	7.520	39.975	39.963	2.690	0	17.500	New
25	44/3	-	43+740	40.700	40.700	42.593	42.593	0.00	12.00	0.848	1	1.20	0.120	2.740	-2.500%	-2.500%	1.292	7.520	40.472	40.460	2.690	0	15.000	New
26	45/1	-	44+090	40.408	40.408	42.702	42.702	0.00	12.00	1.049	1	1.20	0.120	2.740	-2.500%	-2.500%	2.098	7.520	40.118	40.106	2.690	0	17.500	New
27	45/2	-	44+315	40.361	40.361	42.851	42.851	0.00	12.00	1.243	1	1.20	0.120	2.740	-2.500%	-2.500%	2.486	7.520	40.073	40.061	2.690	0	17.500	New
28	45/4	-	44+750	40.824	40.824	42.605	42.605	0.00	12.00	0.534	1	1.20	0.120	2.740	-2.500%	-2.500%	1.068	7.520	40.536	40.524	2.690	0	15.000	New -with Pipe Encasing

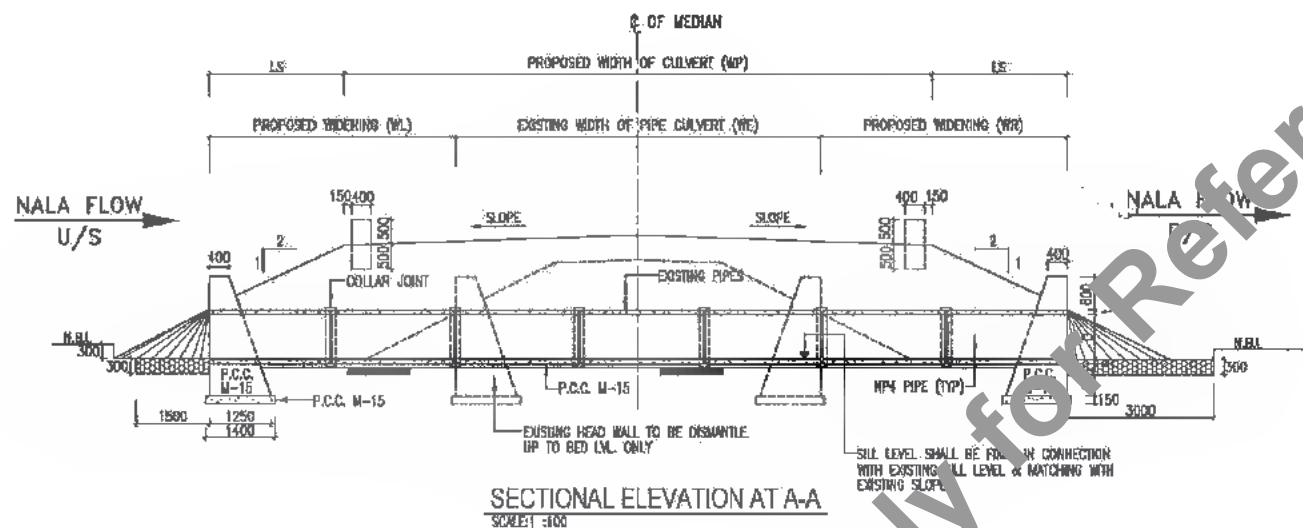
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Not to be used as a Bid Document Only for Reference

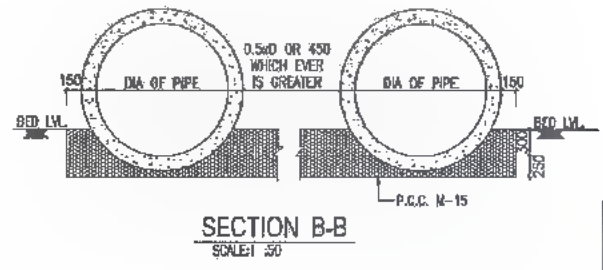
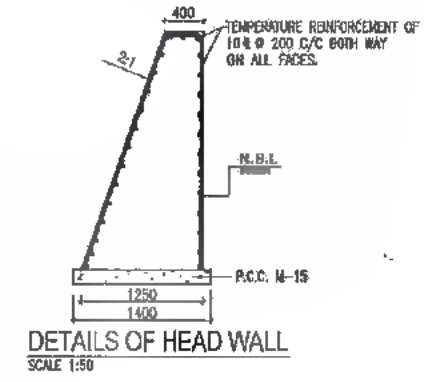
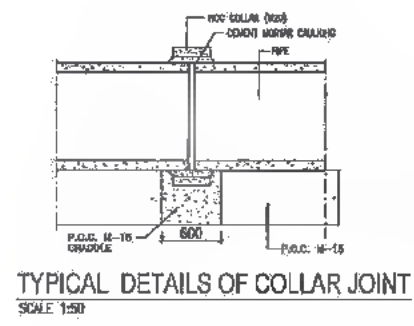
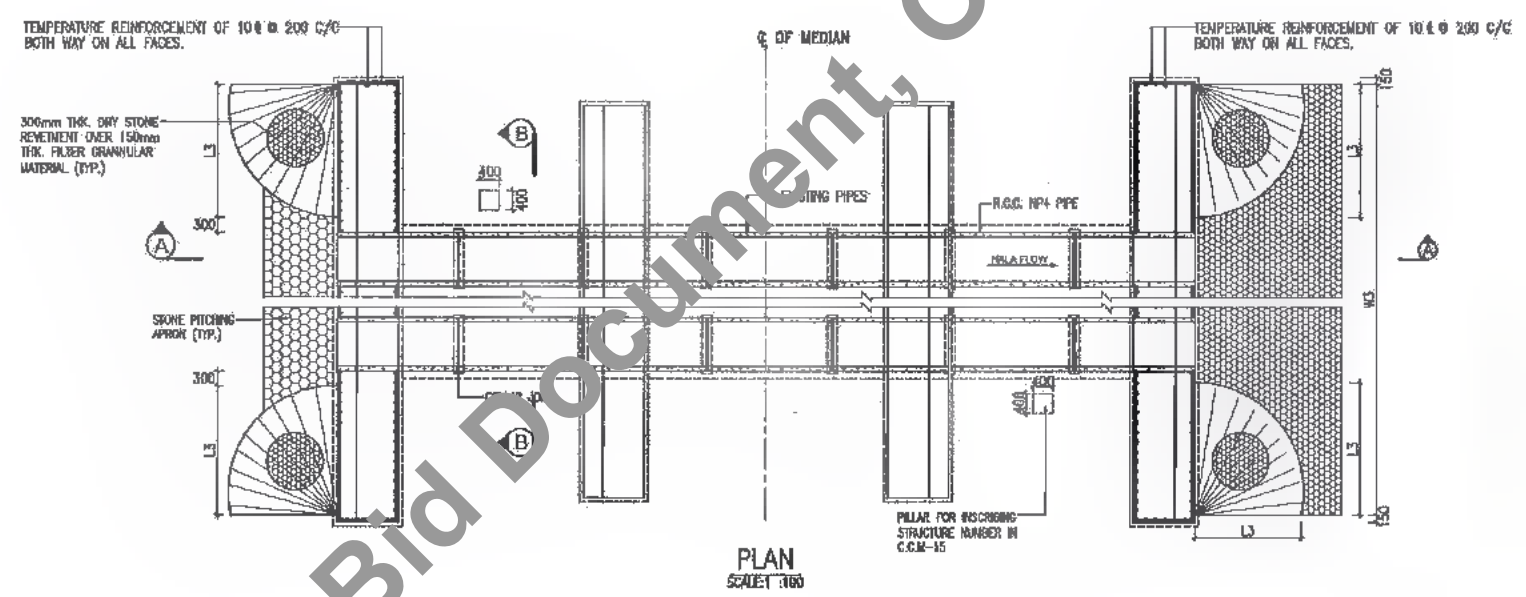


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			<p>TITLE : RAUTA MAHADEV DIGHI CHOWK (PACKAGE-B) TYP. GAD FOR PIPE CULVERT (SINGLE ROW)</p> <p>DRG. NO. : (SHEET 02 OF 02) SAI-213007/DPR/GAD/PC/GAD-01</p> <p>REVISION : PF</p>																																				

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- NOTES:**
- (1) ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED ON DRAWING
 - (2) LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1 IN 1000
 - (3) DRAWING SHALL NOT BE SCALED.
 - (4) FOUNDATION R.L. OF HEAD WALL SHALL BE MINIMUM 0.3M BELOW NATURAL BED LEVEL AS PER SP-13.
 - (5) ALL R.C.C. PIPE OF NP4 TYPE CONFORMING TO I.S. 458.
 - (6) PROVIDE 300mm THICK STONE REVETMENT OVER GRANULAR MATERIAL BACKING 150mm THICK IN ENVELOPE PORTION.
 - (7) ABBREVIATIONS USED
 - (i) LP = LENGTH OF PIPE
 - (ii) D = DIA OF NP4 CLASS PIPE.
 - (iii) t = THICKNESS OF PIPE.
 - (iv) WS = LENGTH OF HEAD WALL.
 - (v) L3 = ENVELOPE LENGTH.
 - (8) TEMPERATURE REINFORCEMENT OF 10 @ 200 C/C BOTH WAY SHALL BE PROVIDED ON ALL FACES OF HEAD WALL
 - (10) UPSTREAM AND DOWNSTREAM DRAWING ARE INDICATIVE, THE SAME SHALL BE DECIDED AS PER SITE CONDITION OF EACH BALANCING CULVERT AND AS DIRECTED BY ENGINEER IN CHARGE.



Details of Pipe Culvert - Widening (Multi Row)																								
Sr. No.	Proposed Structure No.	Existing Ch. km	Proposed Ch. km	Existing Ground Level In m.		Proposed Formation Level		Existing Width in m. "WE"	Proposed Carriageway in m. "WP"	Barrage Cushion, m.	Pipes			Envelope Length in m. "L3"	Super Elevation/Camber (%)		Extra Length in m. "L3"	Length of Head Wall in m. "WS"	Invert Level "m"		Hi. of Head Wall in m.	Skew Angle	Length of pipe (Rounding to 2.6m)	Proposal
				D/S	U/S	Left in "m"	Right in "m"				Nos.	Di. in m. "D"	Thk. in m. "t"		Left Carriage %	Right Carriage %			R.L.S	R.L.D				
29/3	28/694	28+427	28+427	32.950	32.950	35.979	35.979	10.200	12.000	1.687	2.000	1.000	0.116	2.350	-2.500%	-2.500%	3.374	8.220	32.862	32.950	2.480	0.000	7.500	One side Widening

CLIENT:
 Bihar State Road Development Corporation Limited (BSRD) (A Government of Bihar Undertaking)

PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company
 Head-A "SAI House" Sector 29, Gurgaon, Haryana
 Phone : +91-11-4643287/141 Fax : +91-11-4643288 Email : mail@saiengg.com

PF	21/07/19	GOOD FOR CONSTRUCTION (REVISED Dwg)	DRAWN BY : G.M.S.	TITLE: RAUTA-MAHADEV DIGHI CHDHWK (PACKAGE-II)
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : N.K.S.	TYPICAL GAD FOR WIDENING OF PIPE CULVERTS (MULTI ROW)
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY: B.U.Y.	
PC	28/02/14	ISSUED WITH FINAL DOPR		
PR	01/01/14	ADDENDUM OF DOPR		
REV.	DATE	DESCRIPTION	BY	ISSUED BY : B.S.

DRG. NO. :
 SAL213007DPR/CB/PCB28403
 REVISION : PF

DATE: 2019/07/23 10:00am PATH: T:\CAD\TAC 213007 BARRAGED DPC\CB\PACKAGE-2\PIPE CULVERT\1\03 MULTI PIPE-WIDENING.dwg

Not to be used as a Bid Document, Only for Reference

Details of Cross Road Pipe Culvert - New/Reconstruction

Sr. No.	Prop. Str. No.	Culvert Chainage in "km" Proposed	Type of Junction	Left/Right/Both	Existing Ground Level in m.		Proposed Formation Level		Existing Width in m. "WE"	Proposed Carriageway in m. "WP"	Earth Cushion, m.	Pipes			Envelope Length in m. "L3"	Extra Length in m. "L4"	Length of Head Wall in m. "WS"	Invert Level, "m"		Ht. of Head Well in m.	Skew Angle	Length of pipe (Rounding to 2.5m)	Proposal	Junction connecting To
					DS	US	Left in "m"	Right in "m"				No.	Dia. in m. "D"	Thk. in m. "t"				ILUS	ILDS					
1	-	22+735	Minor	Left	33.500	33.500	34.981	34.981	0.00	7.50	0.295	1	1.20	0.120	2.74	0.590	7.52	33.208	33.200	16.250	0.00	10.00	New	R-Malopada
2	-	24+515	Minor	Left	33.500	33.500	34.981	34.981	0.00	7.50	0.295	1	1.20	0.120	2.74	0.590	7.52	33.208	33.200	16.250	0.00	10.00	New	L-Maujwadi (up to Raiber)
3	-	30+390	Minor	Left	34.976	34.976	36.814	36.814	0.00	7.50	0.650	1	1.20	0.120	2.74	1.300	7.52	34.686	34.678	16.250	0.00	12.50	New	L-Dhobaria
4	-	31+395	Minor	Right	36.100	36.100	37.530	37.530	0.00	7.50	0.244	1	1.20	0.120	2.74	0.488	7.52	35.808	35.800	16.250	0.00	10.00	New	R-Phero Purnia
5	-	31+760	Minor	Left	35.257	35.257	37.336	37.336	0.00	7.50	0.893	1	1.20	0.120	2.74	1.786	7.52	34.965	34.957	16.250	0.00	12.50	New	L-Jamia Denga
6	-	32+885	Minor	Left	36.758	36.758	41.307	41.307	0.00	7.50	3.382	1	1.20	0.120	2.74	6.724	7.52	36.467	36.458	16.250	0.00	22.50	New	L-Jambgudia
7	-	33+065	Minor	Right	35.273	35.273	37.652	37.652	0.00	7.50	1.193	1	1.20	0.120	2.74	2.386	7.52	34.961	34.973	16.250	0.00	12.50	New	R-Katha Matha
8	-	33+810	Minor	Right	35.273	35.273	37.652	37.652	0.00	7.50	1.193	1	1.20	0.120	2.74	2.386	7.52	34.981	34.973	16.250	0.00	12.50	New	R-Madho up to Mastan Chowk
9	-	34+500	Minor	Left	36.816	36.816	38.139	38.139	0.00	7.50	0.137	1	1.20	0.120	2.74	0.273	7.52	36.524	36.516	16.250	0.00	10.00	New	L-Dogaia
10	-	35+130	Minor	Left	36.576	36.576	39.182	39.182	0.00	7.50	1.420	1	1.20	0.120	2.74	2.840	7.52	36.284	36.276	16.250	0.00	15.00	New	L-Mothada
11	-	35+310	Minor	Left	36.467	36.467	39.395	39.395	0.00	7.50	1.742	1	1.20	0.120	2.74	3.484	7.52	36.175	36.167	16.250	0.00	15.00	New	L-Fatehpur
12	-	35+310	Minor	Right	36.467	36.467	39.395	39.395	0.00	7.50	1.742	1	1.20	0.120	2.74	3.484	7.52	36.175	36.167	16.250	0.00	15.00	New	R-Kalbari
13	-	38+285	Minor	Right	37.035	37.035	39.204	39.204	0.00	7.50	0.983	1	1.20	0.120	2.74	1.966	7.52	36.743	36.735	16.250	0.00	12.50	New	R-Kochadhaman
14	-	39+100	Minor	Left	37.975	37.975	39.946	39.946	0.00	7.50	0.785	1	1.20	0.120	2.74	1.570	7.52	37.683	37.675	16.250	0.00	12.50	New	L - Sahangaon
15	-	39+285	Minor	Right	37.975	37.975	39.946	39.946	0.00	7.50	0.785	1	1.20	0.120	2.74	1.570	7.52	37.683	37.675	16.250	0.00	12.50	New	R-Anarkali Hat
16	-	41+555	Minor	Right	40.095	40.095	41.651	41.651	0.00	7.50	0.700	1	1.20	0.120	2.74	0.740	7.52	39.803	39.795	16.250	0.00	10.00	New	R-Madho
17	-	42+315	Minor	Right	39.700	39.700	41.040	41.040	0.00	7.50	0.100	1	1.20	0.120	2.74	0.307	7.52	39.408	39.400	16.250	0.00	10.00	New	R-Punas
18	-	42+695	Minor	Left	40.095	40.095	41.651	41.651	0.00	7.50	0.700	1	1.20	0.120	2.74	0.740	7.52	39.803	39.795	16.250	0.00	10.00	New	L-Purnia
19	-	42+695	Minor	Right	40.095	40.095	41.651	41.651	0.00	7.50	0.370	1	1.20	0.120	2.74	0.740	7.52	39.803	39.795	16.250	0.00	10.00	New	R-Kishanganj

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CLIENT :
 Bihar State Road Development Corporation Limited (BSRDC)
 (A Government of Bihar Undertaking)

PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
 Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS :
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 Block-A "SAI House" Sakya Corporate Square, 8th Rajpath
 Club Road, New Delhi-110029, India
 Phone : +91-11-5642507/180 Fax : +91-11-4814269
 Email : saic@saiconsulting.com

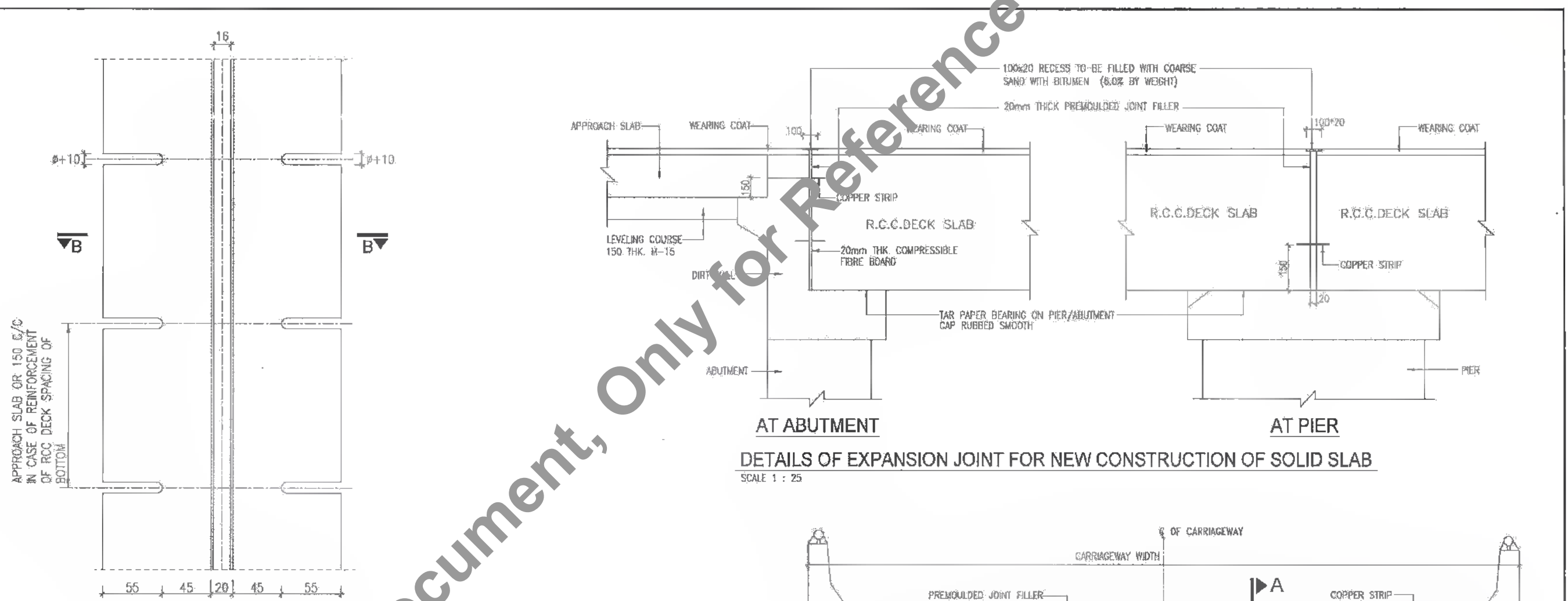
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PF	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		ISSUED BY : G.M.G.
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY : N.K.S.
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY : B.R.V.
PC	26/02/14	ISSUED WITH FINAL DEDR		
PB	01/01/14	ADDENDUM OF DPR		

TITLE : RAUTA-MAHADEV DIGHI CHOWK (PACKAGE-II)
 TYP. GAD FOR CROSS ROAD PIPE CULVERT (SINGLE ROW)
 DRG. NO. : (SHEET 02 OF 02)
 SAI-213007/DPR/C/B/PC/GAD-04
 REVISION : PF



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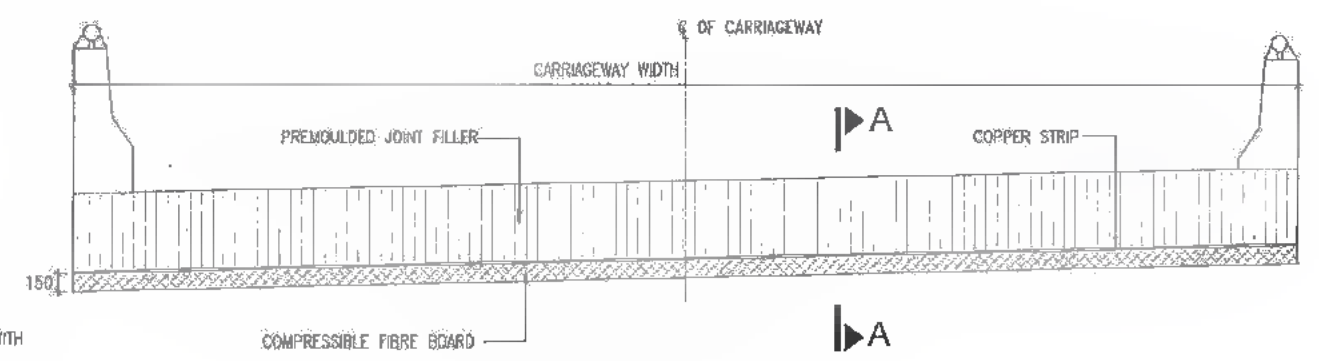
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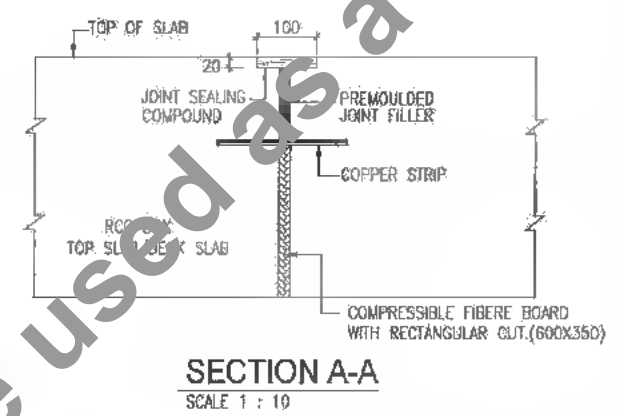
DETAILS OF EXPANSION JOINT FOR NEW CONSTRUCTION OF SOLID SLAB
SCALE 1 : 25

APPROACH SLAB OR 150 G/C IN CASE OF REINFORCEMENT OF RCC DECK SPACING OF BOTTOM

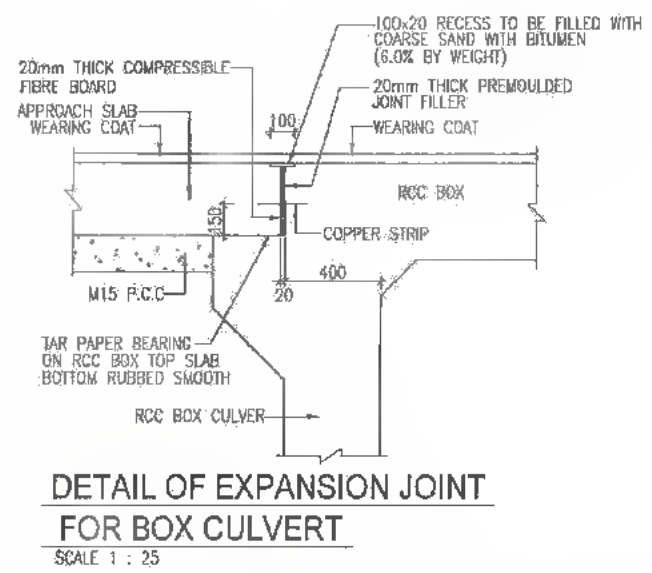
DETAIL OF COPPER STRIP
SCALE N.T.S.



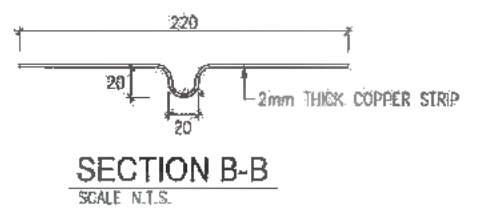
LAYOUT OF COPPER STRIP AT PIER
SCALE 1 : 50



SECTION A-A
SCALE 1 : 10



DETAIL OF EXPANSION JOINT FOR BOX CULVERT
SCALE 1 : 25



SECTION B-B
SCALE N.T.S.

- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 2. JOINT FILLER SHALL CONFORM TO I.S. 1838: PRODUCTS WITH I.S.I. CERTIFICATION MARK SHALL ONLY BE USED.



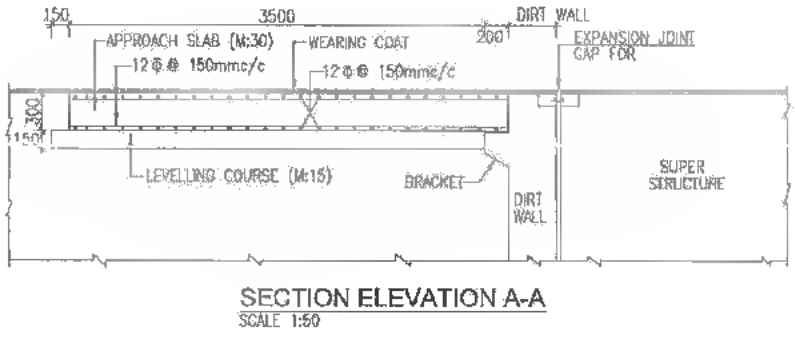
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CLIENT:
 Bihar State Road Development Corporation Limited (BSRIDC) (A Government of Bihar Undertaking)
 D. B. S. D. C. L. P. U. - K. A. B. A.

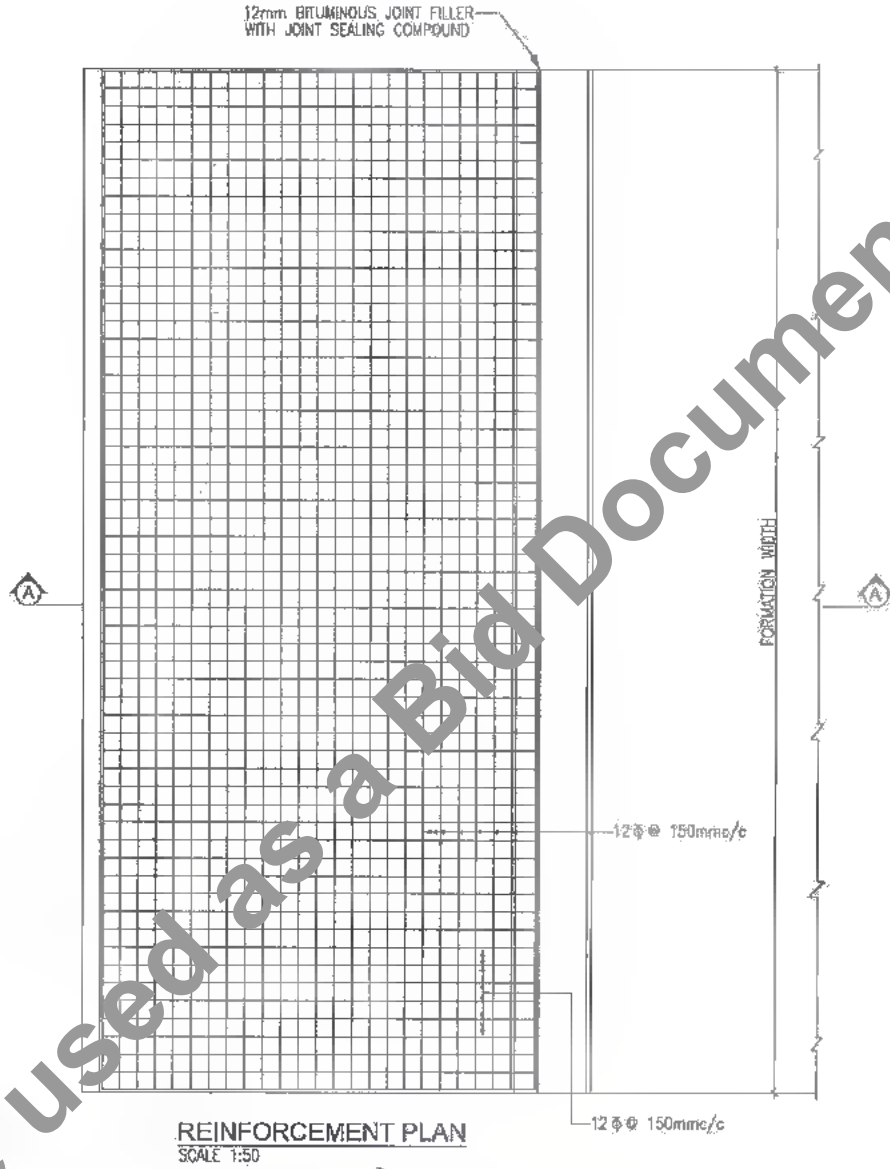
PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar (Baysi - Bahadurganj) - Dighalbank (SH-99)

CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 Dhaka - 5th Floor, Sakyan Corporate Square, 8th Rajshahi Club, Parkside, Akhmednagar-380059, Gujarat, India
 Phone : +91-79-6542887/8/9/10 Fax : +91-79-6542846
 Email : mail@saiconsulting.com

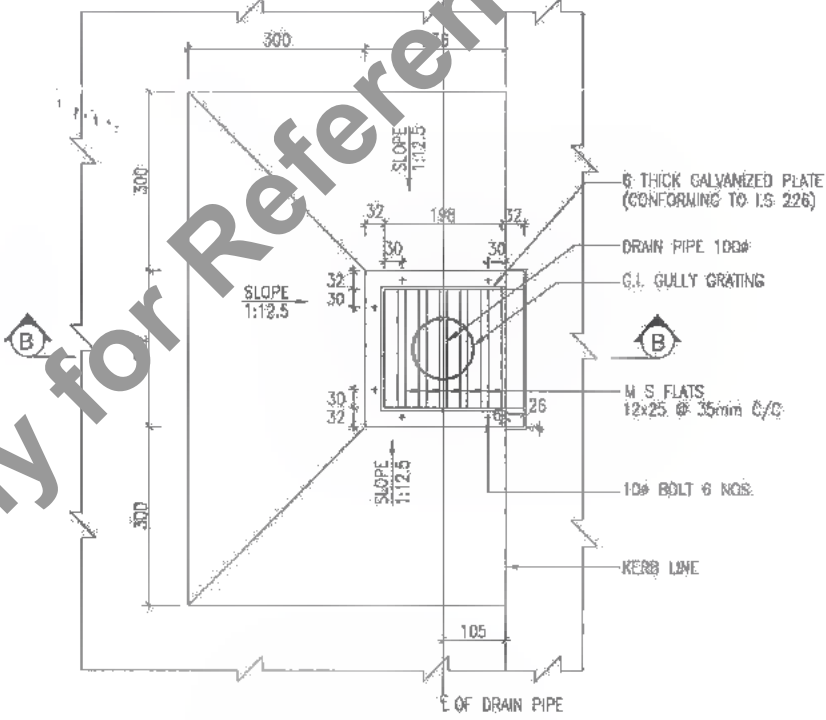
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PO	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : N.K.S.	DETAILS OF FILLER TYPE EXPANSION JOINT
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.S.V.	
PA	22/02/14	ISSUED WITH FINAL DPR	ISSUED BY : B.S.	
PN	13/11/13	ISSUED WITH DPR	SCALE : AS SHOWN	DRG. NO.: SAI-213007DPR/CB/TYP-01
REV.	DATE	DESCRIPTION	IGN	REVISION : PE



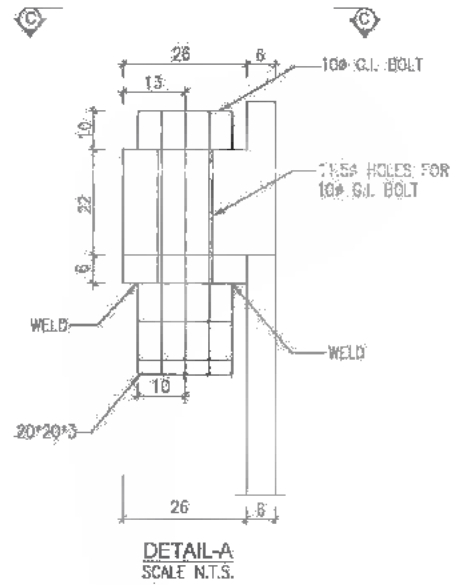
SECTION ELEVATION A-A
SCALE 1:50



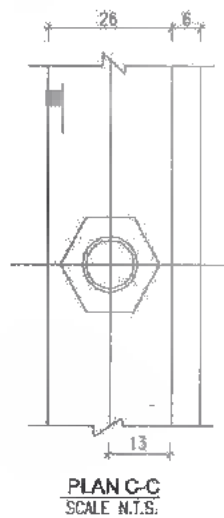
REINFORCEMENT PLAN
SCALE 1:50



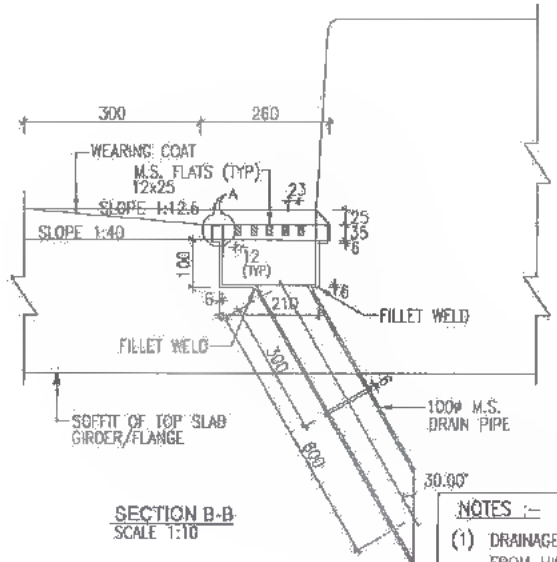
PLAN
DETAILS OF DRAINAGE SPOUT & COLLECTION PIT
SCALE 1:10



DETAIL-A
SCALE N.T.S.




PLAN C-C
SCALE N.T.S.



SECTION B-B
SCALE 1:10

NOTES :-
(1) DRAINAGE SPOUT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANIZED COATING

DATE: 20/07/19 24:20m
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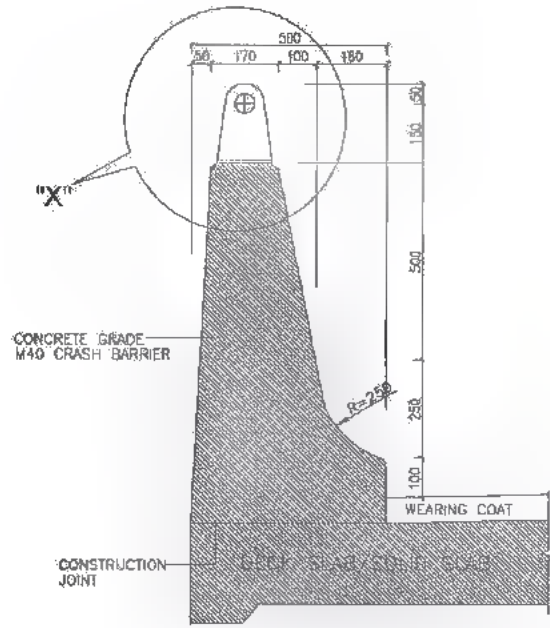
CLIENT:
 Bihar State Road Development Corporation Limited (BSRCL)
 (A Government of Bihar Undertaking)

PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
 Baysi - Bahadurganj - Dighalbank (SH-99)

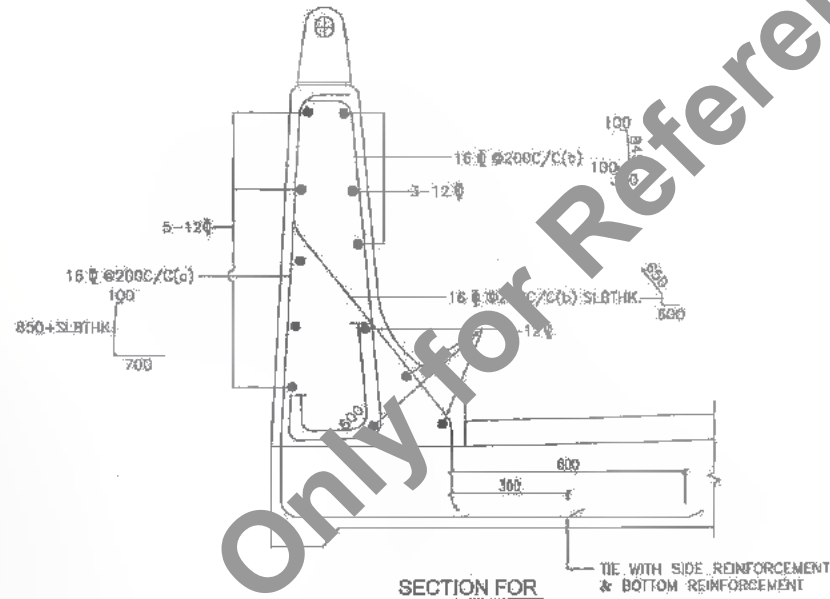
CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9003 Certified Company
 Head-A "SAI House" Solapur Corporation, Solapur, Maharashtra
 CLM Bhubaneswar, Ahmedabad-380059, Surat, India
 Phone: +91-79-8842662/202/22, +91-79-26112886
 Email: info@saiindia.com

PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED) DPR	DRAWN BY: H.M.M. B.	TITLE: RAUTA-MAHADEV OISHI CHOWK (PACKAGE-4)
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY: H.K.S.	DETAILS OF APPROACH SLAB & DRAINAGE SPOUT
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY: B.M.	DRG. NO.: SAI-21007/DPR/CB/TYP-02
PS	26/02/14	ISSUED WITH FINAL DPR	ISSUED BY: B.S.	REVISION: PE
PA	13/11/13	ISSUED WITH DPR		



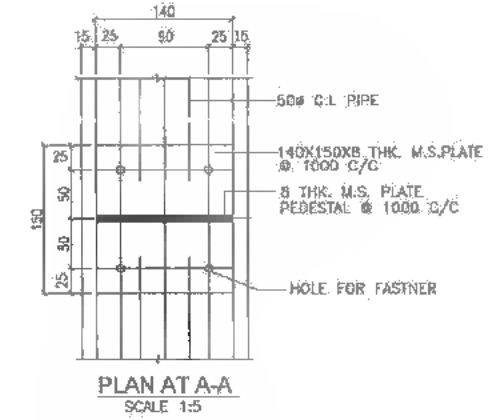


SECTION FOR CRASH BARRIER (DIMENSIONS ONLY)

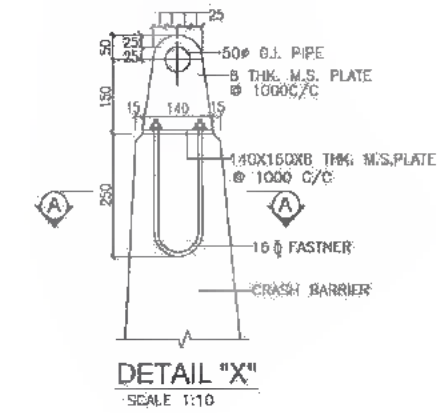


SECTION FOR CRASH BARRIER (REINFORCEMENT ONLY)

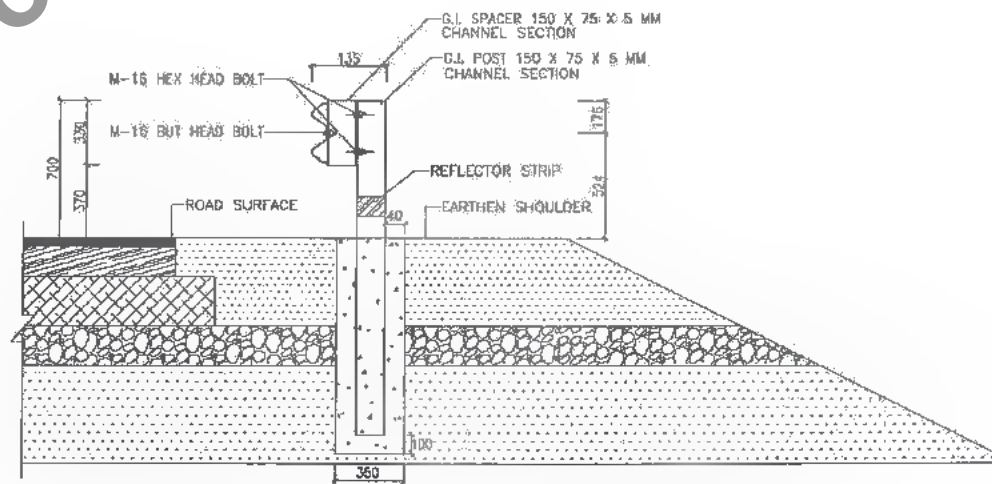
DETAILS OF CRASH BARRIER FOR DECK SLAB / RCC BOX
SCALE 1:12.5



PLAN AT A-A
SCALE 1:5



DETAIL "X"
SCALE 1:10



DETAILS OF CRASH BARRIER FOR DECK WITH EARTH CUSHION
SCALE 1:12.5

NOTES:

1. EXPANSION JOINT IN CRASH BARRIER SHALL BE PROVIDED AT THE LOCATION OF EXPANSION JOINT OF DECK SLAB.



DATE: 20/07/2019 11:20 AM
PATH: T:\CAD\TAD - 23007 BSRDC\REVISED DPR\CB\PACKAGE-2\TYPICAL DRAWINGS\03_CRASH-BARRIER.dwg

CLIENT :
 Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)

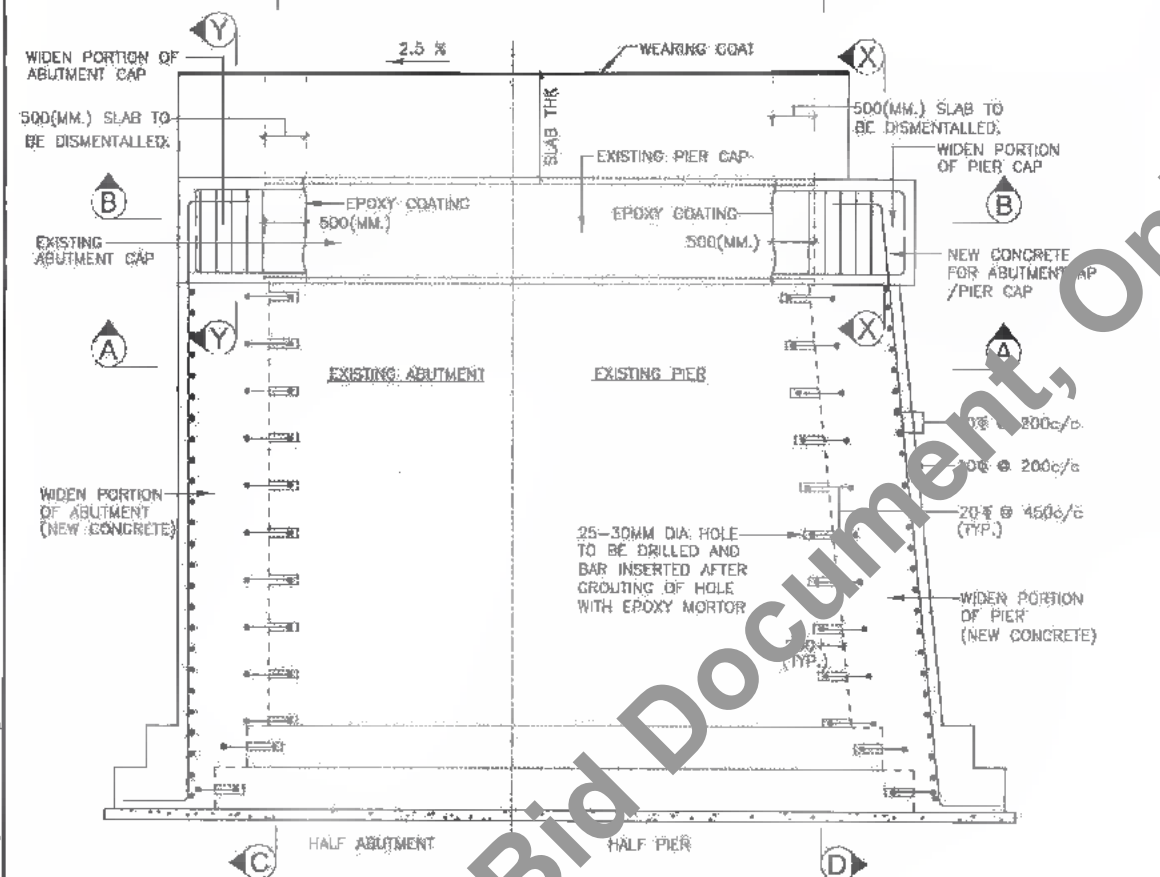
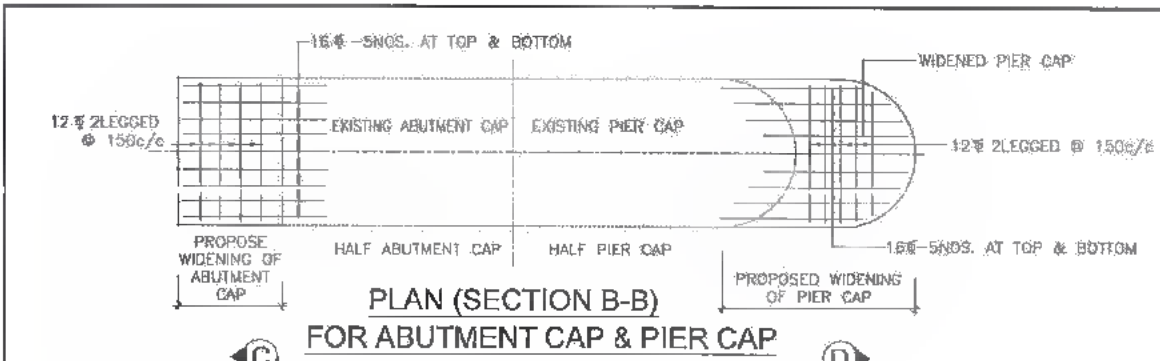
PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS :
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 Block-A, "Sil Icon", 2nd Floor, Corporate Square, Bypass, Patna
 State: Bihar, India. Phone: +91-20-6615289/300 Fax: +91-20-6615388
 Email: info@saiconsulting.com

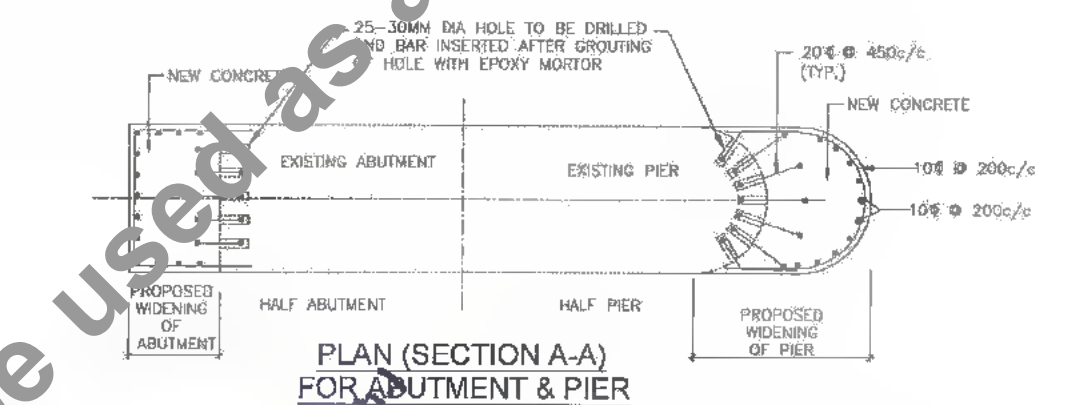
PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	DRWN BY : M.M.M.	TITLE: RAJYA MAHADEV DIGHI CHOWK (PACKAGE-II)
PC	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : H.K.S.	TYPICAL DRAWING FOR RCC CRASH BARRIER
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.N.V.	
PK	28/02/14	ISSUED WITH FINAL DPR		
	13/11/13	ISSUED WITH DPR		
REV.	DATE	DESCRIPTION	SKIN	DESIGNED BY : B.S.

DRG. NO. :
 SAN-213007DPR/CB/TYP-03
 REVISION : PE

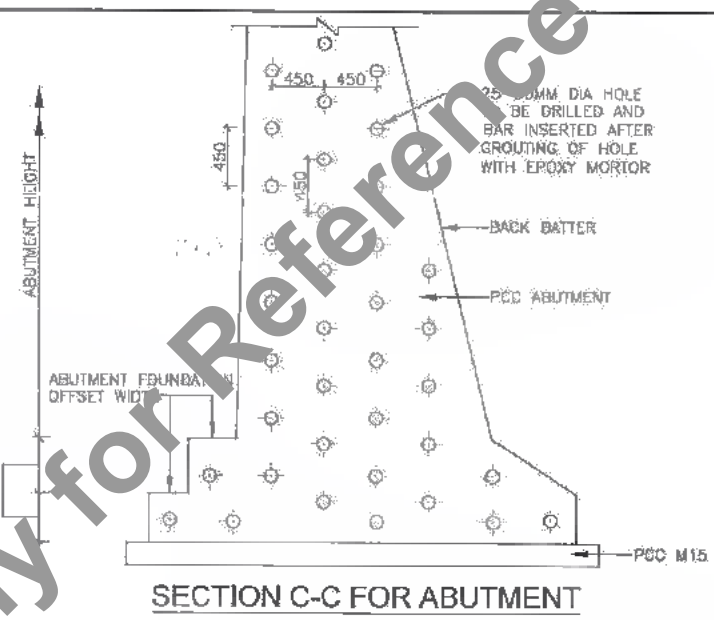
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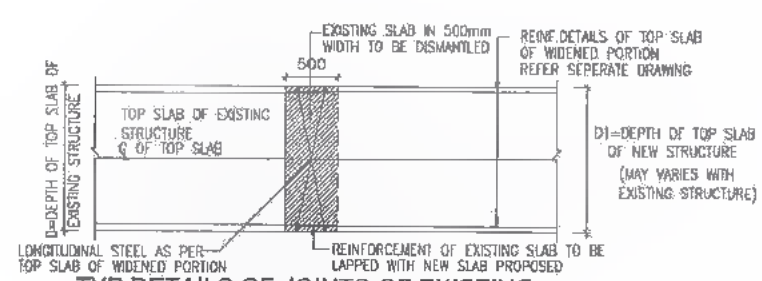
TYPICAL ELEVATION (1) OF PIER/ABUTMENT SHOWING WIDENING DETAIL



PLAN (SECTION A-A) FOR ABUTMENT & PIER

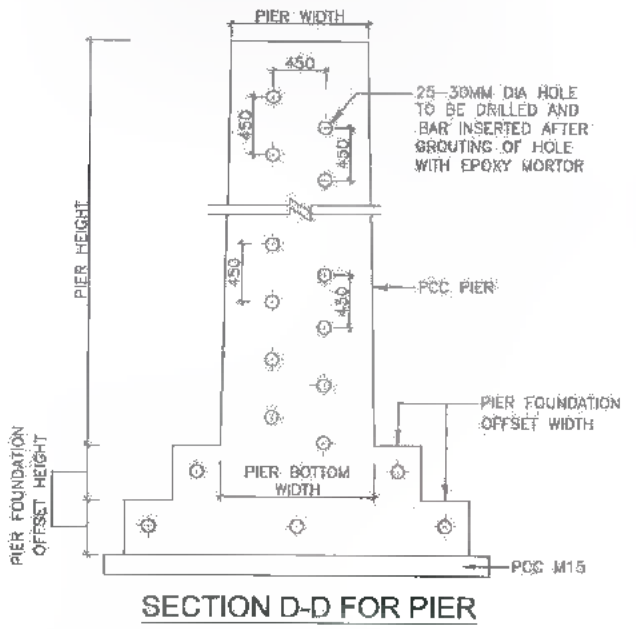


SECTION C-C FOR ABUTMENT

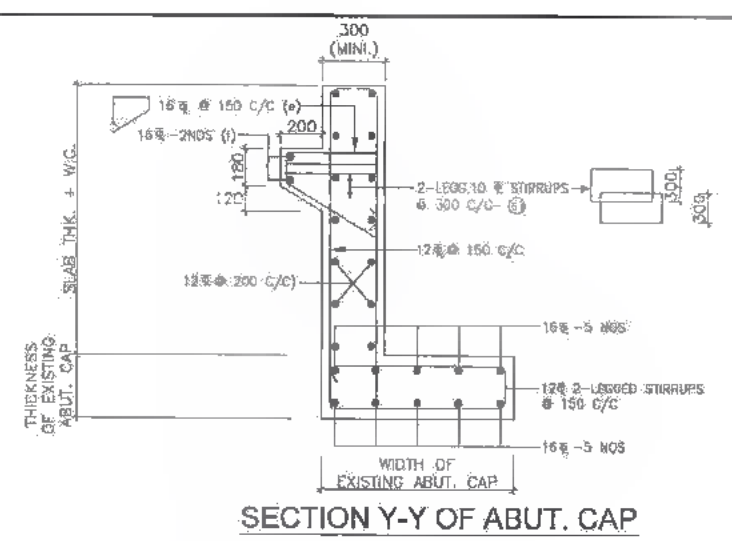


TYP. DETAILS OF JOINTS OF EXISTING STRUCTURE WITH NEWSTRUCTURE

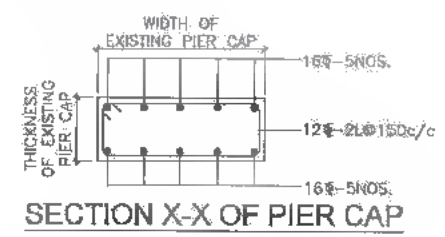
NOTE :- 1. GAP JOINING EXISTING TOP SLAB & NEW TOP SLAB SHALL BE CASTED AFTER RELEASING OF NEW TOP SLAB FORMWORK
2. A COAT OF EPOXY ADHESIVE SHALL BE APPLIED ON THE SURFACE OF EXISTING CONCRETE BEFORE POURING NEW CONCRETE.



SECTION D-D FOR PIER



SECTION Y-Y OF ABUT. CAP



SECTION X-X OF PIER CAP

NOTES:

1. ALL DIMENSIONS ARE IN mm, AND LEVELS IN METERS, UNLESS MENTIONED OTHERWISE.
2. DISMANTLE EXISTING PIER CAP, ABUTMENT CAP AT LOCATION UP TO EXISTING SLAB DISMANTLED FOR WIDENING i.e. 500mm AS SHOWN IN TYPICAL ELEVATION (1) BY APPROPRIATE METHOD WITH SPECIAL CARE, NOT TO DAMAGE THE EXISTING BARS.
3. EXPOSE REINFORCEMENT OF PIER CAP ABUTMENT CAP UP TO EXISTING SLAB DISMANTLED FOR WIDENING i.e. 500mm AS SHOWN IN TYPICAL ELEVATION (1)
4. REMOVE LOOSE MATERIAL/DUST OF ABUTMENT CAP PIER CAP BY SAND BLASTING FOR EXPOSED CONCRETE SURFACE AND REINFORCEMENT PORTION.
5. APPLY EPOXY BOND COAT OF APPROVED QUALITY ON EXISTING REINFORCEMENT AS PER SPECIFICATION.
6. APPLY PRIMER SLURRY ON PREPARED CONCRETE SURFACE.
7. REPLACE IF ABUTMENT/PIER CAP REINFORCEMENT CORRODED BADLY OR MISSING.
8. INSTALL DOWELS EMBEDDED WITH EPOXY MORTAR TO LAP WITH NEW BARS WHERE REQUIRED DOWELS SHALL MATCH WITH EXISTING REINFORCEMENT.
9. FORM AND CONCRETE THE DISMANTLED PORTION OF ABUTMENT CAP/PIER CAP/ RETURN WALL AS PER CONCRETE GRADE SHOWN IN THE GAD OF RESPECTIVE MINOR BRIDGE / SLAB CULVERT TO BE WIDEN.
10. DRILL 20-30 MM DIA. HOLE IN EXISTING ABUTMENT/PIER @ 450 MM C/C AS SHOWN IN SECTION C-C AND D-D. 20 MM DIA. BARS HAVE TO BE INSERTED AFTER GROUTING OF HOLE WITH EPOXY MORTAR AS SHOWN IN TYPICAL ELEVATION 1.
11. POUR NEW CONCRETE FOR WIDEN PORTION OF ABUTMENT CAP/ABUTMENT AND PIER CAP/PIER WITH SURFACE REINFORCEMENT OF 10# DIA @ 200 C/C BOTH-WAYS AS SHOWN IN TYPICAL ELEVATION 1.

DATE: 2019/07/24 24:20m PATH: T:\CAD\DRAWING\04 Widening Sub-structure.dwg

CLIENT:
 Bihar State Road Development Corporation Limited (BSRDCL) (A Government of Bihar Undertaking)

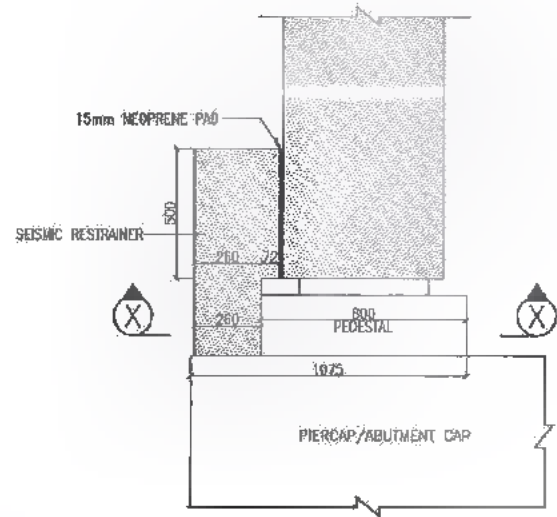
PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar (Baysi - Bahadurganj) - Dighalbank (SH-99)

CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company

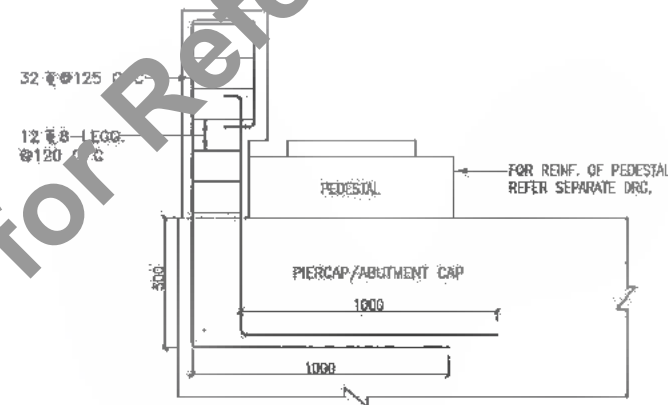
REV.	DATE	DESCRIPTION	ISSUED BY	ISSUED BY
01	30/07/19	GOOD FOR CONSTRUCTION (REVISED BPR)	CHKD BY: H.M. S.	
02	17/12/19	GOOD FOR CONSTRUCTION (DPR)	CHKD BY: H.M. S.	
03	10/05/21	GOOD FOR CONSTRUCTION (DPR)	CHKD BY: H.M. S.	
04	26/02/21	ISSUED WITH FINAL DPR	APPROVED BY: B.A.K.	
05	13/11/23	ISSUED WITH DPR	APPROVED BY: B.S.	

TITLE: RAJITA-BAHARDEY DIGHI CHOWK (PACKAGE-II)
 TYP. DETAILS OF WIDENING OF PCC SUB STRUCTURE
 DRG. NO.: SAI-23007D/PRC/RTY/F-04
 REGION: PE





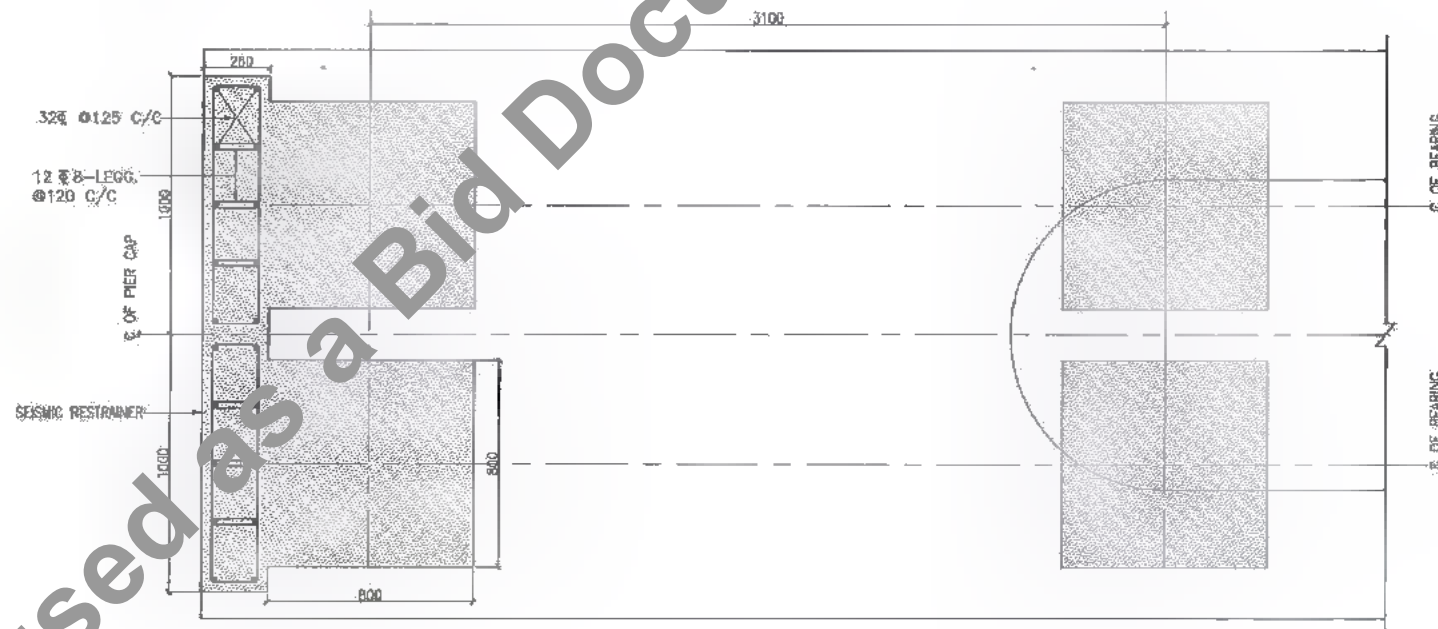
CONNECTION DETAILS OF SEISMIC RESTRAINER WITH PEDESTAL
SCALE 1:20



REINFORCEMENT DETAILS OF SEISMIC RESTRAINER
SCALE 1:20

NOTES:-

1. ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED), CHANGES & LEVELS ARE IN METERS.
2. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED; NO DIMENSIONS SHALL BE SCALED.
3. GRADE OF CONCRETE : M-40
4. GRADE OF HYSD REINFORCEMENT : Fe-500
5. MINIMUM COVER TO ANY REINFORCEMENT SHALL BE 40mm



PLAN (SECTION X-X)
SCALE 1:20

DATE: 2019/07/29 - 2:41pm
PATH: T:\CALCUTTA\2017\BIHAR\REVISED_DPR\SUBPACKAGE-2\TYPICAL DRAWING\05 SEISMICRESTRAINER.dwg

CLIENT:

Bihar State Road Development Corporation Limited (BSRDC)
 (A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

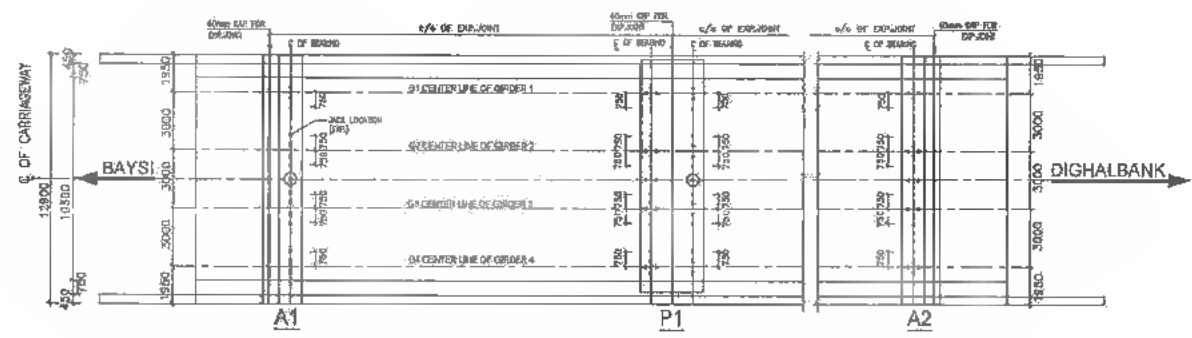
CONSULTANTS:

SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 Block-A "SAI House" Salgona Corporate Square, 8th Floor, 2nd Mile, Bidar, Ahmednagar-430019, Dist. Bidar, Maharashtra
 Phone: +91-19-4612600/799, Fax: +91-19-4612289
 Email: mail@saiengineers.com

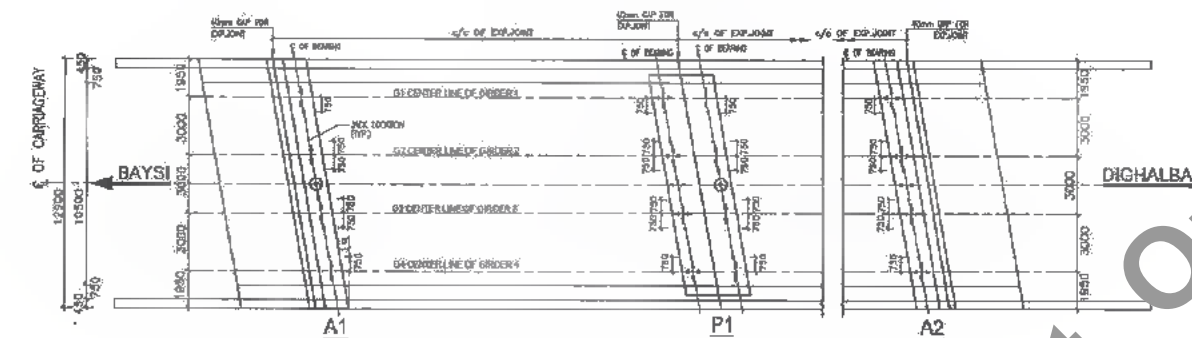
PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	DESIGN BY : B.S. S.	TITLE: RAJTA-MAHADEV DIGHT CHOWK (PACKAGE-10) TYPICAL DETAILS OF SEISMIC RESTRAINER
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : H.K.S.	
PC	10/04/19	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.S. S.	
PB	26/02/14	ISSUED WITH FINAL DPR		
PR	13/11/13	ISSUED WITH DPR		
REV.	DATE	DESCRIPTION	BY	ISSUED BY : B.S. S.
SCALE : AS SHOWN				
				DRG. NO. : SAI-213007/DPR/CB/TYP-08
				REVISION : PE



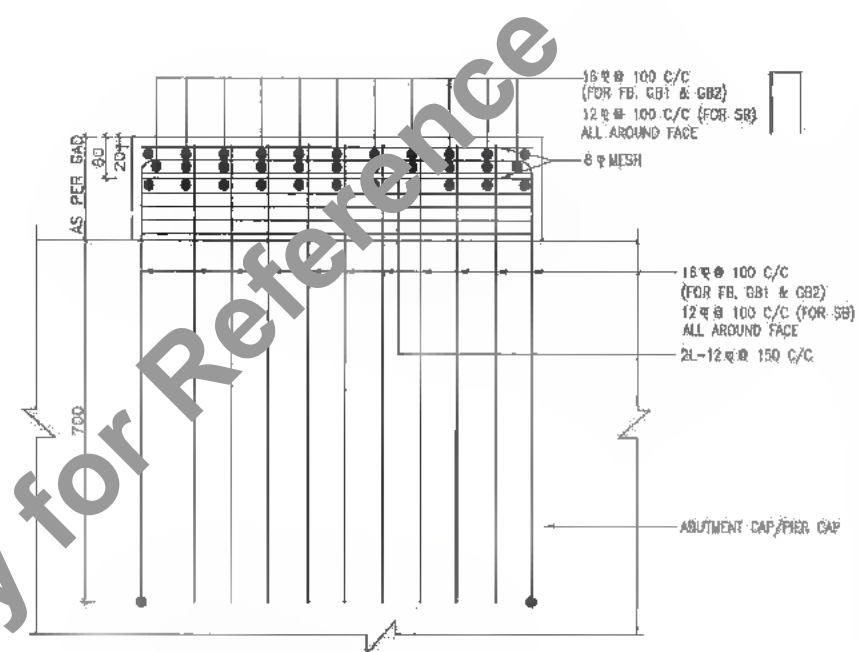
339
438



TYPE-1 SCHEMATIC ARRANGEMENT OF BEARINGS FOR MINOR BR. AT PROP. 25+180 & 35+755



TYPE-2 SCHEMATIC ARRANGEMENT OF BEARINGS FOR MAJOR BRIDGE AT PROP. CH: 24+097



R.C. DETAIL OF PEDESTAL (SCALE 1:10)

DIMENSIONS MARKED THUS (1) ARE TENTATIVE AND TO BE ADJUSTED AT SITE.

- NOTES :**
- THE CONTRACTOR SHALL SUBMIT DESIGN/DRAWING OF INDIVIDUAL BEARINGS BASED ON FORCES, TRANSLATIONS & ROTATIONS AS GIVEN IN THIS DRAWING FOR APPROVAL OF THE ENGINEER.
 - BEARINGS SHALL BE PROCURED FROM THE LIST OF APPROVED MANUFACTURER'S GIVEN BY MORT & H.
 - DESIGN & INSTALLATION OF BEARINGS SHALL CONFORM TO LATEST MORT & H SPECIFICATIONS & IRC : 83 (PART II) - 2002.
 - THE TESTING OF RAW MATERIALS, METALLIC COMPONENTS, ELASTOMER & PTFE AND ACCEPTANCE TESTS ON BEARINGS SHALL CONFORM TO MORT & H SPECIFICATIONS.
 - MANUFACTURER SHALL SUBMIT THE CERTIFICATES FOR LOAD TESTING AND DIMENSIONS OF BEARINGS.
 - SUITABLE ERECTION CLAMPS FOR SAFE TRANSPORTATION AND HANDLING ALONG WITH TEMPLATE FOR ALIGNMENT SHALL BE PROVIDED BY THE MANUFACTURER.
 - PEDESTAL PLAN SIZE GIVEN HERE IN ARE TENTATIVE ONLY. THE PLAN SIZE AND HEIGHT OF PEDESTALS SHALL BE ADJUSTED TO SUIT THE FINALISED SIZE OF BEARINGS AT THE TIME OF EXECUTION. THE MINIMUM PLAN DIMENSIONS OF PEDESTAL SHALL BE BEARING SIZE + 300mm.
 - THE GROUT/BEDDING MORTAR SHALL BE OF HIGH STRENGTH FREE FLOWING AND NON SHRINK TYPE.
 - ANCHORING ARRANGEMENT SHALL BE AS PER CLAUSE 923.13 OF IRC : 83 (PART II) - 2002 TO BE THE BEARING TO THE STRUCTURE.
 - ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED) & CHAINAGES ARE IN METRES. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
 - THE FOLLOWING LIVE LOADS HAVE BEEN CONSIDERED
 - ONE LANE OF IRC CLASS 70R OR TWO LANES OF IRC CLASS A PLUS FOOTPATH.
 - ONE LANE OF 70R PLUS ONE LANE OF CLASS A OR THREE LANES OF CLASS A.
 - SEISMIC ZONE V HAS BEEN CONSIDERED FOR ALL BRIDGES.

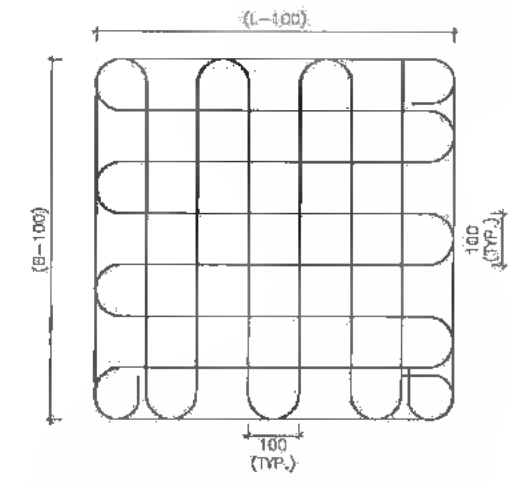
REFERENCE DRAWING
SCHEMATIC ARRANGEMENT AND DESIGN FORCES OF POT/PTFE BEARINGS. SAI-213007/DPR/C/B/TYP-06 (SHEET 1 OF 2)

Summary of Loads and Forces on POT/PTFE Bearings :-

Sr. No.	Bridge At km	Nos. of Span	Span C/C Exp. m	Skew Degree	Type of Bearing	Nos. of Bearing	Normal Condition				Normal + Seismic Condition				Movement in mm		Rotation in all directions (Rad)	Prest "x"
							Vertical Load In Ton	Horizontal Load In Ton	Longi.	Trans.	Vertical Load In Ton	Horizontal Load In Ton	Longi.	Trans.	Longi.	Trans.		
Minor Bridges																		
1	35+755	1	21.800	0	Pin Bearing	1	-	-	7.00	12.50	-	-	28.00	74.50	-	-	0.01	0
					Guided (T)	4	140.00	50.00	7.00	0.00	105.00	40.00	28.00	0.00	-	5	0.01	0
					Free	4	140.00	50.00	20.00	20.00	105.00	40.00	20.00	20.00	20	5	0.01	0
					Metallic long guide bearing	1	-	-	0.00	12.50	-	-	0.00	74.50	20	-	0.01	0
Summary of Loads and Forces on POT/PTFE Bearings :-																		
3	26+180	1	18.500	0	Fixed	1	-	-	6.00	8.00	-	-	22.00	55.50	-	-	0.01	0
					Guided (T)	4	120.00	30.00	6.00	0.00	85.00	25.00	22.00	0.00	-	5	0.01	0
					Free	4	120.00	30.00	16.00	16.00	85.00	25.00	16.00	16.00	20	5	0.01	0
					Guided (L)	1	-	-	0.00	8.00	-	-	0.00	55.50	20	-	0.01	0

Summary of Loads and Forces on POT/PTFE Bearings :-

Sr. No.	Bridge At km	Nos. of Span	Span C/C Exp. m	Skew Degree	Type of Bearing	Nos. of Bearing	Normal Condition				Normal + Seismic Condition				Movement in mm		Rotation in all directions (Rad)	Prest "x"
							Vertical Load In Ton	Horizontal Load In Ton	Longi.	Trans.	Vertical Load In Ton	Horizontal Load In Ton	Longi.	Trans.	Longi.	Trans.		
Major Bridges																		
2	24+097	3	21.000	0	Pin Bearing	3	-	-	7.00	12.50	-	-	28.00	74.50	-	-	0.01	0
					Guided (T)	12	140.00	50.00	7.00	0.00	105.00	40.00	28.00	0.00	-	5.00	0.01	0
					Free	12	140.00	50.00	20.00	20.00	105.00	40.00	20.00	20.00	20.00	5.00	0.01	0
					Metallic long guide bearing	3	-	-	0.00	12.50	-	-	0.00	74.50	20.00	-	0.01	0



DETAIL OF 8 # MESH REINFORCEMENT FOR PEDESTAL (SCALE 1:10)

- LEGEND**
- PIN BEARING
 - ↑ GUIDED BEARING IN TRANSVERSE DIRECTION
 - ↕ FREE BEARING
 - GUIDED BEARING IN LONGITUDINAL DIRECTION
 - JACK LOCATION



DATE: 20/07/2019 - 2:47pm PATH: T:\ADITYAN\2007 BIHAR\REVISED DPR\CLIP\PACKAGE-2\TYPICAL DRAWING\08 POT BEARING.dwg

CLIENT: Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)

PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)

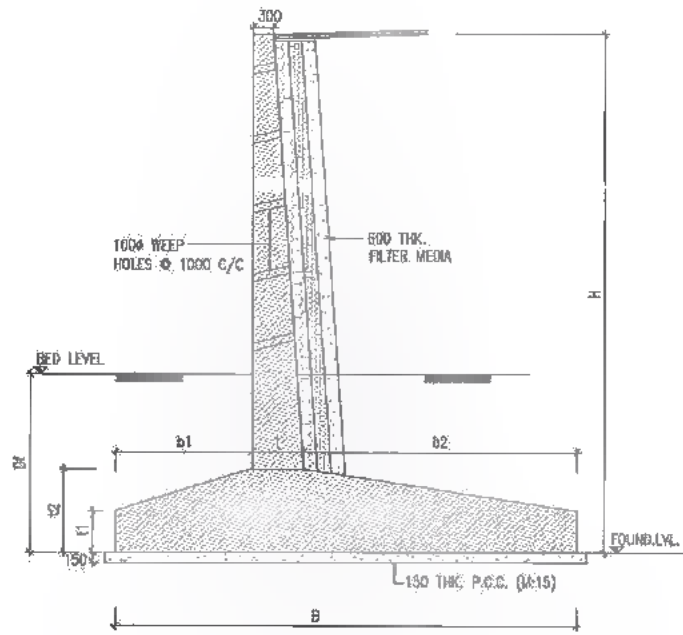
CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company

REV.	DATE	DESCRIPTION	SKN	ISSUED BY	REVISION
PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED BWP)			
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)			
PC	10/04/19	GOOD FOR CONSTRUCTION (DPR)			
PB	26/02/19	ISSUED WITH FINAL DOPR			
PA	13/11/13	ISSUED WITH DOPR			

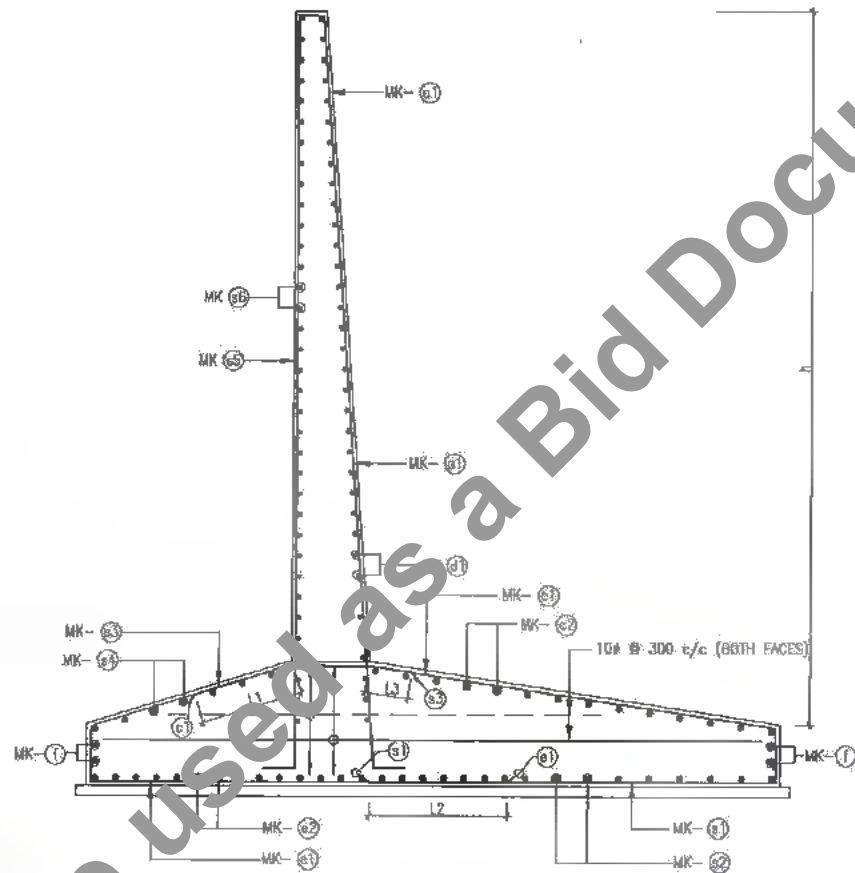
TITLE: PRAJITA MAHADEV DIGHI GHONK (PACKAGE-II) SCHEMATIC ARRANGEMENT AND DESIGN FORCES OF POT/PTFE BEARINGS & PEDESTAL

DRG. NO.: SAI-213007/DPR/C/B/TYP-06

REVISION: PE



SECTION OF RETURN WALL
AT APPROACH PORTION
SCALE-1:75



SECTION OF RETURN WALL
SCALE 1:50 (REINF. DETAILS)

PARAMETERS OF RETURN WALL
(ALL DIMENSIONS ARE IN m)

SR NO.	PARAMETERS	III
	Proposed Chainage	24+097 25+180 35+755
	HEIGHT H	6.0 TO 7.0 m
1	B	5.300
2	b1	2.000
3	b2	2.500
4	t	0.800
5	t1	0.400
6	t2	0.750
7	L1	1.200
8	L2	0.900
9	L3	0.600
10	Df	2.000
11	Maximum base pressure T/m ²	14.932

REINF. SCHEDULE FOR RETURN WALL

SR. NO.	TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE)	GROUP III	
			HEIGHT (H) 6.0m TO 7.0m	
			DIA OF BARS (mm)	SPACING / NO. OF BARS (mm)
1	a1		25	150
2	c1		16	150
3	e2		10	225
4	d1		12	120
5	e1		20	150
6	e2		10	225
7	f		10	4 NOS
8	a1		10	300
9	a2		10	300
10	a3		10	300
11	a4		10	300
12	a5		10	300
13	a8		10	300

NOTES:-

- ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED) & CHAINAGES ARE IN METRES. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- BACKFILL MATERIAL BEHIND ABUTMENT SHALL BE SELECTED, SOIL HAVING PROPERTIES AS C = 0 KG/SQ.CM., $\phi > 30^\circ$, $\gamma = 1800$ TO 2000 KG/CUM.
- GRADE OF CONCRETE - M30
GRADE OF STEEL - FE-500
- MINIMUM COVER TO ANY REINFORCEMENT SHALL BE 75mm.
- LAP LENGTH FOR M-30 GRADE OF CONCRETE SHALL BE:
a. $87 \times \text{BAR DIA}$
b. AT PARTICULAR LOCATION LAPPING OF BAR SHALL NOT BE GREATER THAN 50%



DATE: 2019/07/28 - 2:45pm
PATH: T:\CANTAD\007 BIHARREVISED_DPR\CB\PACKAGE-2\TYPICAL DRAWING\107_RCC_RETURN_TYP.dwg



Bihar State Road Development Corporation Limited (BSRDCL)
(A Government of Bihar Undertaking)

PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS: SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "SAI House" 3rd Floor Corporate Square, BIA Region
Tah. Pochaydi, Ahmednagar-430019, Dist. Jalgaon
Phone : +91-79-6610100/101 Fax : +91-79-6610200
Email : mail@saiindia.com

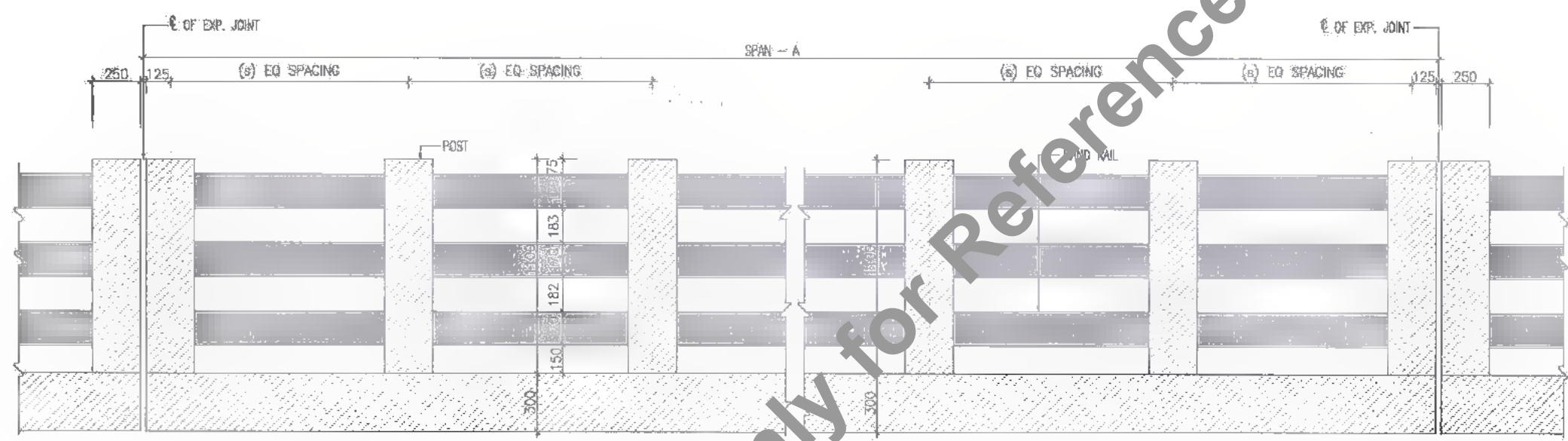
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PD	12/12/18	GOOD FOR CONSTRUCTION (DPR)
PC	10/04/18	GOOD FOR CONSTRUCTION (DPR)
PB	26/02/19	ISSUED WITH FINAL DPR
PR	13/11/13	ISSUED WITH DPR

TITLE: RAJTA-MAHADEV DSHI CHOYKA (PACKAGE-II)
TYPICAL REINFORCEMENT DETAILS OF RETURN WALL

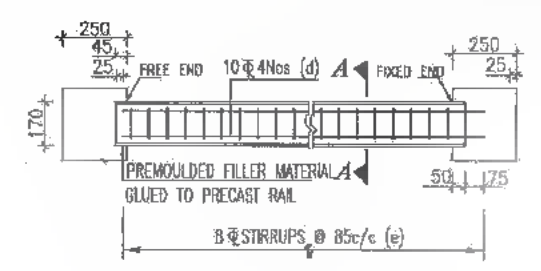
REV.	DATE	DESCRIPTION	ISSN	ISSUED BY

SCALE: AS SHOWN
DRG. NO.: SAI-213007/DPR/CB/TYP-07
REVISION: PE

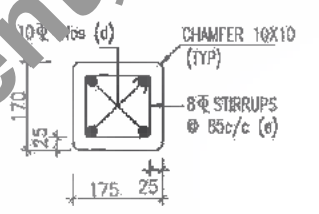
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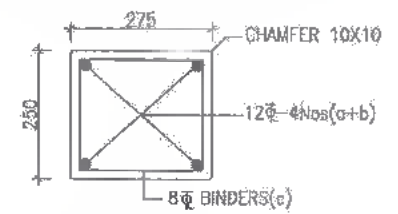
SECTIONAL ELEVATION
SCALE - 1:10



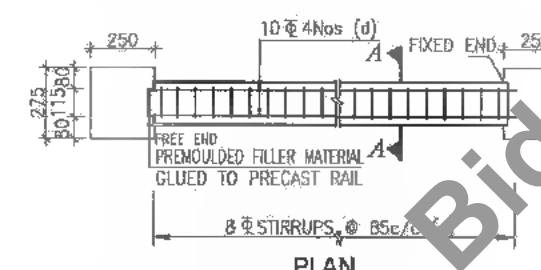
ELEVATION
SCALE - 1:20



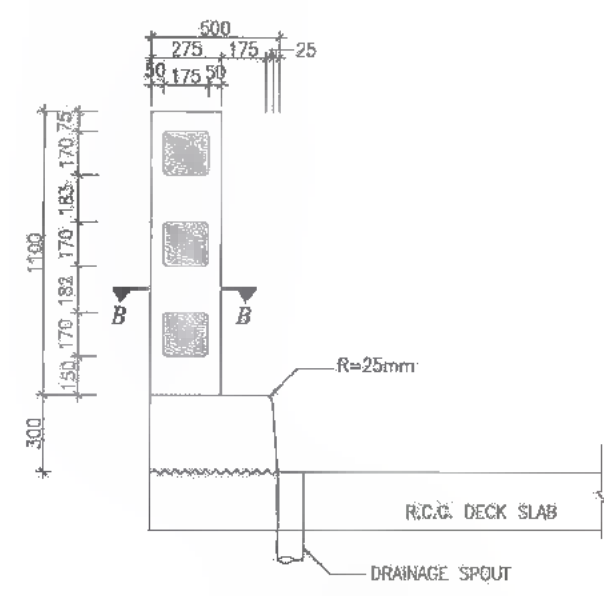
SECTION A-A
SCALE - 1:10



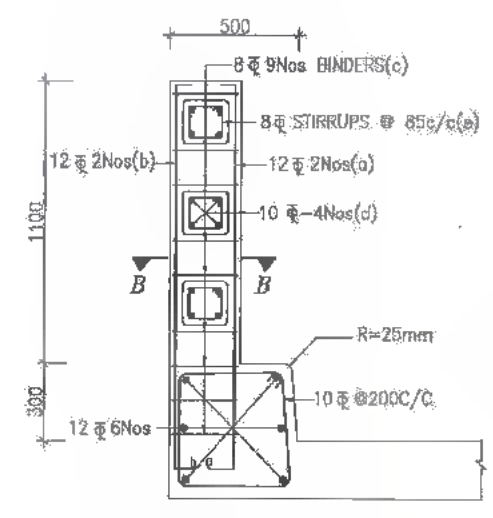
SECTION B-B
SCALE - 1:10



PLAN
DETAIL OF PRECAST HANDRAIL
SCALE - 1:20



SECTION THROUGH POST
(DIMENSIONS ONLY)
SCALE - 1:50



SECTION THROUGH POST
(REINFORCEMENT ONLY)
SCALE - 1:20

- NOTES :
1. REINFORCEMENT OF RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB;
 2. CASTING OF POST SHALL BE DONE IN SINGLE POUR AFTER ACCURATELY POSITIONING THE PRECAST HANDRAIL.
 3. EXPANSION GAPS IN RAILING SHALL BE PROVIDED AT THE SAME LOCATIONS AS SHOWN IN DRAWING.
 4. GRADE OF CONCRETE : M30
 5. GRADE OF HYSD REINFORCEMENT : Fe-500



DATE: 20/07/2019 2:40pm
PATH: I:\ADVT\13007_BIHAR\REVISED DPR\PACKAGE-2\TYPICAL DRAWING\08_PARAPET.dwg

CLIENT:
Bihar State Road Development Corporation Limited (BSRDCL)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
SYSTRA GROUP

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)		
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PB	20/02/14	ISSUED WITH FINAL DPR		
PA	13/11/13	ISSUED WITH DPR		

SCALE : AS SHOWN

TITLE: RAUTA-MAHADEV DIGBI CHOWK (PACKAGE-B) DIMENSIONS & REINFORCEMENT DETAILS OF RCC PARAPET WALL & RCC RAILING FOR BOX CULVERTS
DRG. NO. : SAI-213007IDPR/CB/TYP-08
REVISION : PE

LIST OF DRAWINGS (PACKAGE-III)

DRAWINGS TITLE	DRAWING NO.	DRAWINGS TITLE	DRAWING NO.
01. IMPROVEMENT PROPOSAL FOR BRIDGES & CULVERTS	SAI-213007/DPR/C/B/P - 01	29. TYP. GAD FOR PIPE CULVERT (SINGLE ROW)	SAI-213007/DPR/C/B/PC/GAD-01 (SHEET 1 OF 2 TO 2 OF 2)
02. GENERAL NOTES	SAI-213007/DPR/C/B/GEN	30. TYP. GAD FOR WIDENING OF PIPE CULVERT (SINGLE ROW)	SAI-213007/DPR/C/B/PC/GAD-02
03. GAD FOR WIDENING OF MINOR BRIDGE AT PROP. CH. 52+853	SAI-213007/DPR/C/B/MIN/GAD-01 (SHEET 1 OF 2 TO 2 OF 2)	31. TYPICAL GAD FOR PIPE CULVERT HAVING MULTI ROW	SAI-213007/DPR/C/B/PC/GAD-03
04. REINF. DETAILS OF R.C.C. SOLID SLAB SUPER STRU. FOR WIDENING OF MINOR BRIDGE AT PROP. CH. 52+853	SAI-213007/DPR/C/B/MIN/SUP-01	32. TYPICAL GAD FOR WIDENING OF PIPE CULVERTS (MULTI ROW)	SAI-213007/DPR/C/B/PC/GAD-04
05. GAD FOR RECONSTRUCTION OF MINOR BRIDGE AT EXL.CH.58/102 PROP. CH. 56+678	SAI-213007/DPR/C/B/MIN/GAD-02	33. TYP. GAD FOR CROSS ROAD PIPE CULVERT (SINGLE ROW)	SAI-213007/DPR/C/B/PC/GAD-05 (SHEET 1 OF 2 TO 2 OF 2)
06. GAD FOR SUPER STRUCTURE	SAI-213007/DPR/C/B/MIN/56.678/SUP-01	34. DETAILS OF FILLER TYPE EXPANSION JOINT	SAI-213007/DPR/C/B/TYP-01
07. REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER	SAI-213007/DPR/C/B/MIN/56.678/SUP-02	35. DETAILS OF APPROACH SLAB & DRAINAGE SPOUT	SAI-213007/DPR/C/B/TYP-02
08. REINFORCEMENT DETAILS FOR CROSS GIRDER	SAI-213007/DPR/C/B/MIN/56.678/SUP-03	36. TYPICAL DRAWING FOR RCC CRASH BARRIER	SAI-213007/DPR/C/B/TYP-03
09. REINFORCEMENT DETAILS OF DECK SLAB	SAI-213007/DPR/C/B/MIN/56.678/SUP-04	37. TYP. DETAILS OF WIDENING OF PCC SUB STRUCTURE	SAI-213007/DPR/C/B/TYP-04
10. SCHEDULE OF REINFORCEMENT	SAI-213007/DPR/C/B/MIN/56.678/SUP-05	38. TYPICAL DETAILS OF SEISMIC RESTRAINER	SAI-213007/DPR/C/B/TYP-05
11. DIMENSIONS & REINF. DETAILS FOR ABUTMENT & ABUTMENT CAP FOR MINOR BRIDGE AT PROP. CH. 56+678	SAI-213007/DPR/C/B/MIN/56.678/SUB-01	39. SCHEMATIC ARRANGEMENT AND DESIGN FORCES OF POT PTFE BEARINGS & PEDESTAL	SAI-213007/DPR/C/B/TYP-08
12. DIMENSIONS & REINF. DETAILS FOR PILE & PILE CAP OF ABUTMENT FOR MINOR BRIDGE AT PROP. CH. 56+678	SAI-213007/DPR/C/B/MIN/56.678/SUB-02	40. TYPICAL REINFORCEMENT DETAILS OF RETURN WALL	SAI-213007/DPR/C/B/TYP-07
13. GAD FOR WIDENING OF MINOR BRIDGE AT EXL. CH.55/460 & PROP. CH. 54+034	SAI-213007/DPR/C/B/MIN/GAD-03 (SHEET 1 OF 2 TO 2 OF 2)	41. DIMENSIONS & REINFORCEMENT DETAILS OF RCC PARAPET WALL & RCC RAILING FOR BOX CULVERTS	SAI-213007/DPR/C/B/TYP-08
14. REINF. DETAILS OF R.C.C. SOLID SLAB SUPER STRU. FOR WIDENING OF MINOR BRIDGE AT EXL. CH.55/460 & PROP. CH. 54+034	SAI-213007/DPR/C/B/MIN/SUP-03		
15. GAD FOR WIDENING OF MINOR BRIDGE AT EXL. CH.61/200 PROP. CH. 59+792	SAI-213007/DPR/C/B/MIN/GAD-04		
16. REINF. DETAILS OF R.C.C. SOLID SLAB SUPER STRU. FOR WIDENING OF MINOR BRIDGE AT EXL. CH.61/200 PROP. CH. 59+792	SAI-213007/DPR/C/B/MIN/SUP-04		
17. GAD FOR RECONSTRUCTION OF MINOR BRIDGE AT EXL. CH.62/559 PROP. CH. 61+158	SAI-213007/DPR/C/B/MIN/GAD-05		
18. GAD FOR SUPER STRUCTURE	SAI-213007/DPR/C/B/MIN/61.158/SUP-01		
19. REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER	SAI-213007/DPR/C/B/MIN/61.158/SUP-02		
20. REINFORCEMENT DETAILS FOR CROSS GIRDER	SAI-213007/DPR/C/B/MIN/61.158/SUP-03		
21. REINFORCEMENT DETAILS OF DECK SLAB	SAI-213007/DPR/C/B/MIN/61.158/SUP-04		
22. SCHEDULE OF REINFORCEMENT	SAI-213007/DPR/C/B/MIN/61.158/SUP-05		
23. DIMENSIONS & REINF. DETAILS FOR ABUTMENT & ABUTMENT CAP FOR MINOR BRIDGE AT PROP. CH. 61+158	SAI-213007/DPR/C/B/MIN/61.158/SUB-01		
24. DIMENSIONS & REINF. DETAILS FOR PILE & PILE CAP OF ABUTMENT FOR MINOR BRIDGE AT PROP. CH. 61+158	SAI-213007/DPR/C/B/MIN/61.158/SUB-02		
25. TYP. GAD FOR WIDENING OF SLAB CULVERT (SINGLE SPAN)	SAI-213007/DPR/C/B/SC/GAD-01 (SHEET 1 OF 2)		
26. TABLE SHOWING VARIOUS PARAMETERS OF WIDENING OF SLAB CULVERT (SINGLE SPAN)	SAI-213007/DPR/C/B/SC/GAD-01 (SHEET 2 OF 2)		
27. TYP. GAD FOR WIDENING OF SLAB CULVERT (MORE THEN SINGLE SPAN)	SAI-213007/DPR/C/B/SC/GAD-02 (SHEET 1 OF 2)		
28. TABLE SHOWING VARIOUS PARAMETERS OF WIDENING OF SLAB CULVERT (MORE THEN SINGLE SPAN)	SAI-213007/DPR/C/B/SC/GAD-02 (SHEET 2 OF 2)		

A
D. G. M. (Tech.)
BSRDCL
PIU-Katihar

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Improvement Proposal for Bridges

Sr. No.	Existing Chainage km	Proposed Chainage km	Type of Bridge	Improvement Proposal in Existing	Improvement Proposal for Existing bridge	Proposal of Widening of existing bridge / New Bridge		
				Retained / Widening / Reconstruction	Total Proposed Width	No	Span Length	Total Length
Bahadurganj - Bahadurganj Road								
17	-	52+853	Minor	Widening	12.90	3	7.00	21.00
STATE HIGHWAY-99								
18	55+900	54+034	Minor	Widening	12.9	5	7.00	35.00
19	58+102	56+878	Minor	Reconstruction	12.00	-	-	12.00
20	61+200	59+792	Minor	Widening	12.9	3	4.00	12.00
21	62+588	61+158	Minor	Reconstruction	12.90	1	12.00	12.00

Improvement Proposal for Culverts

Sr. No.	Existing Chainage km	Proposed Chainage km	Improvement proposal (Widening / Retained / Reconstruction / New)	Details of Proposed Culverts		
				Type of structure (Pipe / Slab/Box)	Span arrangement (No. / Vert width)	Total Width of Culvert (m)
Bahadurganj - Bahadurganj Road						
1	ERP	52+938	New	Pipe	1 / 1.20	12.00
2	Chowk	52+997	New	Pipe	1 / 1.20	12.00
3	to	52+995	New	Pipe	1 / 1.20	12.00
4	Bahadurganj	53+184	New	Pipe	1 / 1.20	12.00
5		53+339	New	Pipe	1 / 1.20	12.00
STATE HIGHWAY-99						
6	-	55+434	New	Pipe	1 / 1.20	12.00
7	57/353	55+987	Widening	Pipe	2 / 0.90	12.00
8	-	56+422	New	Pipe	1 / 1.20	12.00
9	-	57+182	New	Pipe	1 / 1.20	12.00
10	59/210	57+808	Widening	Pipe	2 / 0.90	12.00
11	-	58+107	New	Pipe	2 / 1.20	12.00
12	-	58+214	New	Pipe	1 / 1.20	12.00
13	-	58+883	New	Pipe	1 / 1.20	12.00
14	-	60+207	New	Pipe	2 / 1.20	12.00
15	62/510	61+089	Widening	Pipe	1 / 0.90	12.00
16	63/317	61+807	Widening	Pipe	1 / 0.90	12.00
17	-	62+322	New	Pipe	1 / 1.20	12.00
18	-	62+757	New	Pipe	1 / 1.20	12.00
19	64/712	63+304	Widening	Pipe	2 / 0.90	12.00
20	-	63+858	New	Pipe	1 / 1.20	12.00
21	66/570	65+160	Widening	Slab	2 / 2.90	12.00
22	-	65+308	New	Pipe	2 / 1.20	12.00
23	-	65+621	New	Pipe	1 / 1.20	12.00
24	67/851	66+435	Widening	Pipe	1 / 0.90	12.00
25	68/262	66+848	Widening	Slab	1 / 3.00	12.00
26	68/521	67+105	Widening	Pipe	1 / 0.90	12.00
27	68/723	67+307	Widening	Pipe	2 / 0.90	12.00
28	68/867	68+461	Widening	Slab	1 / 3.00	12.00
29	70/039	68+633	Widening	Slab	1 / 3.00	12.00
30	70/297	68+892	Widening	Pipe	1 / 0.90	12.00
31	70/895	69+490	Widening	Slab	1 / 3.00	12.00
32	-	69+755	New	Pipe	1 / 1.20	12.00
33	71/737	70+330	Widening	Pipe	4 / 0.90	12.00
34	-	70+674	New	Pipe	1 / 1.20	12.00
35	-	71+334	New	Pipe	1 / 1.20	12.00
36	72/962	71+581	Widening	Pipe	2 / 0.90	12.00
37	73/785	72+986	Widening	Pipe	8 / 0.90	12.00
38	74/050	72+842	Widening	Slab	1 / 3.00	12.26

DATE: 2019/07/25 2:55pm
PATH: F:\CADTAD 21007\CHARREVISED DPR\1\BYPACKAGE-3\1\IMPROVEMENT PROPOSAL.dwg

CLIENT :
 Bihar State Road Development Corporation Limited (BSRDCL)
 (A Government of Bihar Undertaking)

PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
 Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS :
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 Block-A 'SAI House', Sanyal Compound, Sector, W.D. Rajbata
 Club, Bhubaneswar, Odisha-751009, India
 Phone : +91-77-3662200/780 Fax : +91-77-3392820
 Email : mail@saiconsulting.com

REV.	DATE	DESCRIPTION	BY	ISSUED BY
PE	25/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)		
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PR	26/02/14	ISSUED WITH FINAL COPY		
PA	13/11/13	ISSUED WITH DPR		

SCALE : AS SHOWN

TITLE : LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) IMPROVEMENT PROPOSAL FOR BRIDGES & CULVERTS

DRG. NO. :
SAI-218007/DPR/C/BIP - 01

REVISION : PE



Not to be used as a Bid Document, Only for Reference

(A) GENERAL

- All dimensions are in millimeters unless otherwise mentioned. Only written dimensions shall be followed. No drawing shall be scaled. Dimensions in bracket indicates skew dimensions.
- Design criteria :
 - The design is according to the following codes :
 - IRC : 5 - 2000
 - IRC : 6 - 2000
 - IRC : 112 - 2011
 - IRC : 22 - 1986
 - IRC : 78 - 2000
 - IRC : 83 - 1995 Part-I, 1997 Part-II & 2002 Part-III.
 - The following loads have been considered in the design:-
 - For two lane carriageway one lane of IRC class 70r or Two lanes of IRC class a plus footpath, whichever governs.
 - For three lane carriageway one lane of 70r plus one lane of class a or three lanes of class a which ever governs.
 - Wearing coat load of 2.00 KN/sq.m.
 - Temperature variation = ± 25° C
- The designs are applicable for NORMAL conditions of exposure.
- Wearing coat shall consist of the following. For Major and Minor Bridges.
 - A coat of mastic asphalt 12mm thick with a prime coat over the top of deck is to be provided before the wearing coat is laid.
 - 50mm thick asphaltic concrete wearing coat as per Clause 512 of MORTH's Specifications for Roads and Bridge Works (Fourth Revision-2001). For Culvert and Underpass.
 - 40mm thick asphaltic concrete wearing coat as per Clause 512 of MORTH's Specifications for Roads and Bridge Works (Fourth Revision-2001).

(B) MATERIALS SPECIFICATIONS

(a) For Major bridge With Pile

(i) Superstructure

R.C.C. T-BEAM & DECK SLAB	=	M25
R.C.C. CRASH BARRIER	=	M40

(ii) Substructure and Foundations

RCC PILE CAP	=	M35
RCC PILE	=	M35
R.C.C. PIER & PIER CAP	=	M30
R.C.C. ABUTMENT & ABUTMENT CAP	=	M30
R.C.C. RETURN WALL	=	M15
P.C.C. LEAN CONCRETE	=	M15

(b) For Minor bridge With Pile

(i) Superstructure

R.C.C. T-BEAM & DECK SLAB	=	M25
R.C.C. CRASH BARRIER	=	M40

(ii) Substructure and Foundations

R.C.C. PILE CAP	=	M35
R.C.C. PILE	=	M35
R.C.C. PIER & PIER CAP	=	M30
R.C.C. ABUTMENT & ABUTMENT CAP	=	M30
R.C.C. RETURN WALL	=	M30
P.C.C. LEAN CONCRETE	=	M15
P.C.C. PIER ABUTMENT & RETURN WALL	=	M20

(c) Culverts

R.C.C. SOLID SLAB & R.C.C. BOX	=	M25
R.C.C. PIER CAP & ABUTMENT CAP	=	M20
P.C.C. PIER ABUTMENT & RETURN WALL	=	M20
P.C.C. LEAN CONCRETE	=	M15

- High strength ordinary portland cement conforming to IS : 8112 or ordinary portland cement conforming to IS : 269 capable of achieving the required design concrete strength shall only be used.
- To improve workability of concrete, admixtures conforming to IS : 6925 and IS : 9103 may be permitted subject to satisfactory proven use. Admixtures generating hydrogen, nitrogen etc. should not be used.
- Cement content in concrete

Structural member	Cement content (Kg/cu.mt.)	
	minimum	maximum
P.C.C.	360	540
R.C.C.	380	540
P.S.C.	400	540

- Maximum water cement ratio shall be 46 for R.C.C. member.

Reinforcement :
All reinforcing steel shall be of High Yield Strength Deformed TMT Bars (Grade designation S 500) conforming to IS:1786(except for mesh reinforcement which shall be MS bars Grade designation S 240 conforming to IS :432 part-I mild steel).

GENERAL NOTE FOR STRUCTURAL STEEL:

- All structural steel shall before fabrication comply with the requirements the Indian standards codes As prescribed in IS-24 unless specifically mentioned in the drawings.
- All types of other steel castings forgings, welding consumables and fasteners shall comply with the Indian standard codes as specified in IS-24.
- All structural steel plates shall be of e 250 (Fe 410 w) grade b conforming to IS:2062(weldable quality).
- Structural materials should have test certificate (tc) of the main properties if required all the structural Steel shall be tested for mechanical and chemical properties as per various IS code as may be Applicable shall confirm to the requirements specified in IS-2062.
- Rolling and cutting tolerances shall be as per IS:1852 the thickness tolerance check measurements for the plates and rolled sections shall be taken at not less than 15mm from the edge.
- Lamination check in plates shall be carried out by ultrasonic testing or any other approved methods or Should have the mill test certificate for the testing.

Water :

Water to be used in concreting and curing shall conform to Clause 302.4 of IRC : 21 - 2000.

Bearings & Expansion joints

- Tar Paper Bearing / POT-PTFE Bearing shall be used.
- Expansion joint
 - Elastomeric Strip Seal type - for movement + 40mm. and above
 - Filler type joint for R.C.C. solid slab & R.C.C. Box.
- Fabricated steel parts of expansion joints shall be positioned accurately before the concreting of that portion of the deck slab.
- Presence of manufacture's representative at the time of positioning of embedded parts & installation of expansion joint is mandatory.
- Marginal modifications in the structure details e.g. Pedestal etc. for compatibility with the Bearing & Expansion joint detail shall be permitted subject to approval of the Engineer.

Backfill Material behind Abutment/ Return wall

- Backfill Granular soil material behind abutment shall have the properties as $c = 0.2 \text{ kg/cm}^2$ & $r = 1800 \text{ Kg/M}^3$
- 900mm Thick Filter Material behind Abutment / Return wall shall be laid as per appendix 6 of IRC : 78-2000
- 100mm dia PVC pipe shall be provided in weep holes.

(C) EXCAVATION FOR OPEN FOUNDATION

- Excavation for open foundations shall be done after taking necessary safety precautions for which guidance may be taken from IS : 3764.
- Minimum embedment of the open foundation in rock shall be ensured as follows.
 - Soft Rock - 1500mm (B) Hard Rock - 600mm
- For footing in rock, the annular space around the footing shall be filled with m-15 grade concrete up to top of rock.

(D) WORKMANSHIP / DETAILING

- Minimum clear cover to all reinforcement including stirrups as follows

	Normal Exposure
Slab	40mm.
Web/Column	40mm.
Footing/Roof slab	75mm.

- For Ensuring Proper Cover Of Concrete To Reinforcement Specially Made Concrete Cover Blocks Having Strength Not Less Than Corresponding Members Shall Only Be Used.
- Construction Joints :
 - Construction joints shall be provided only at locations shown on the drawings. Concreting operation shall be carried out continuously up to the construction joints.
 - The concrete surface at the joint shall be brushed with a stiff brush after casting while the concrete is still fresh and it has only slightly hardened.
 - Before new concrete is poured, the surface of old concrete shall be prepared as under :
 - For hardened concrete, the surface shall be thoroughly cleaned to remove debris and laitance and made rough so that 1/4 of the size of aggregate is exposed but without dislodging the aggregate or structurally damaging the concrete.
 - For partially hardened concrete, the surface shall be treated by wire brush followed by an air jet. The old surface shall be soaked with water, without leaving puddles, immediately before starting concreting to prevent absorption of water from new concrete.
 - New concrete shall be thoroughly compacted in the region of the joint.
- Welding of reinforcement bars shall not be permitted.

Laps in reinforcement :

Concrete Grade	Lap length
M-40	63d
M-35	63d
M-30	72d
M-25	83d

- Not more than 50% of reinforcement shall be lapped at any one location.
 - For closely spaced bars lapping may be avoided by providing suitable type of mechanical splices.
- Bending of reinforcement bars shall be as per IS : 2502.
 - Supporting chairs of 12mm diameter shall be provided at suitable intervals at per IS : 2502.
 - Proper compaction of concrete shall be ensured by use of form and/or needle vibrators. Use of full width screed vibrators for compaction of concrete in deck slab shall be ensured.
 - Shuttering plates shall suitably be stiffened to enable the compaction by form vibrators.
 - Sharp edges of concrete shall be chamfered.
 - The location of jacks for lifting up the superstructure to replace bearings etc. is shown & thus. This shall be distinctly etched on end cross girders and pier/abutment caps.

(E) SPECIFICATIONS

The work shall be executed in accordance with M O R T H specifications for Road & Bridge Works (4th revision,2001) except where-aver otherwise mentioned.

(F) SHOP DRAWINGS

- The contractor shall submit shop drawings for all segments, showing complete details of reinforcement, concrete dimensions, block outs, recesses, openings, inserts, scaffolding, etc. for approval of the Engineer.
- These notes shall be read along with Specifications and Bid document. In case an argument takes place in the matter that is not specified in the above document, MORTH specifications for road and Bridge works, Indian standard, IS codes should be referred and shall subject to approval of the Engineer.



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CLIENT : Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)

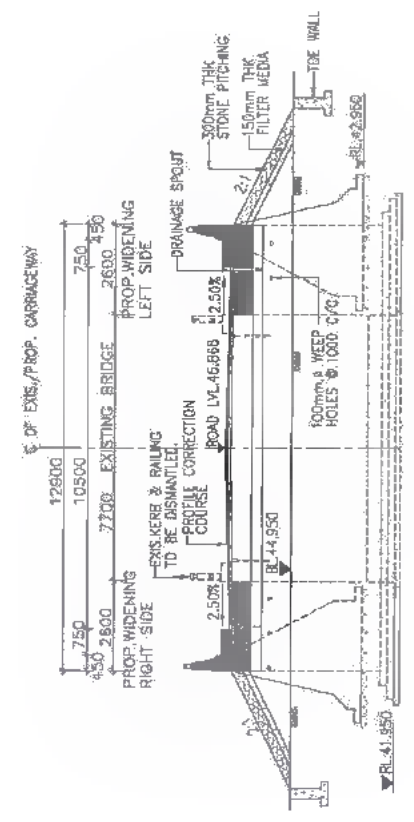
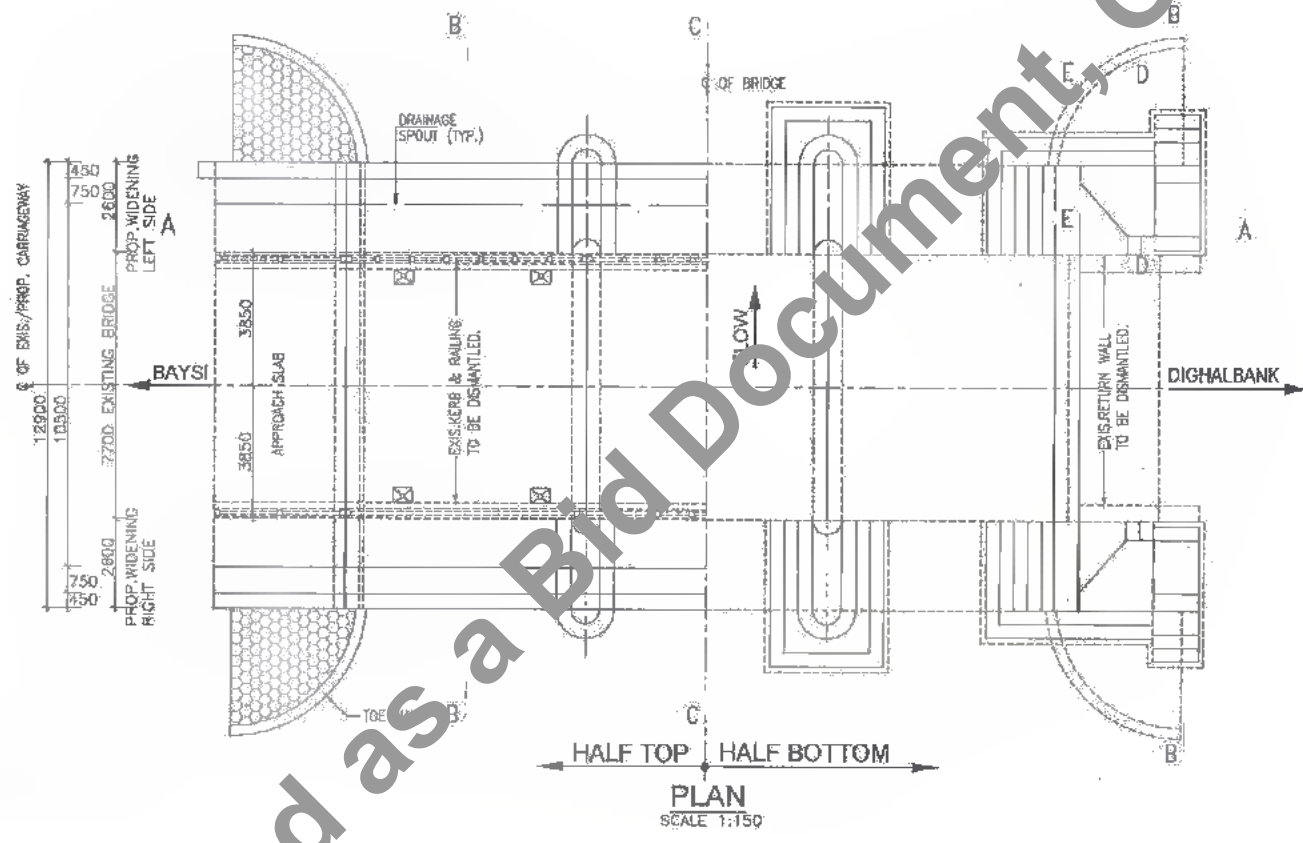
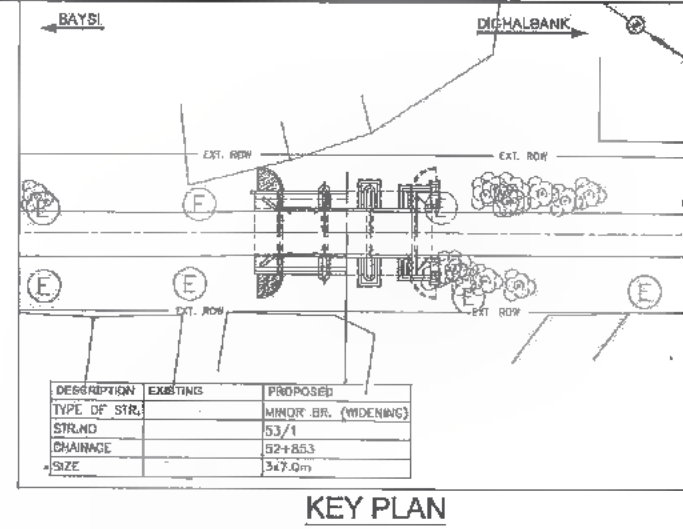
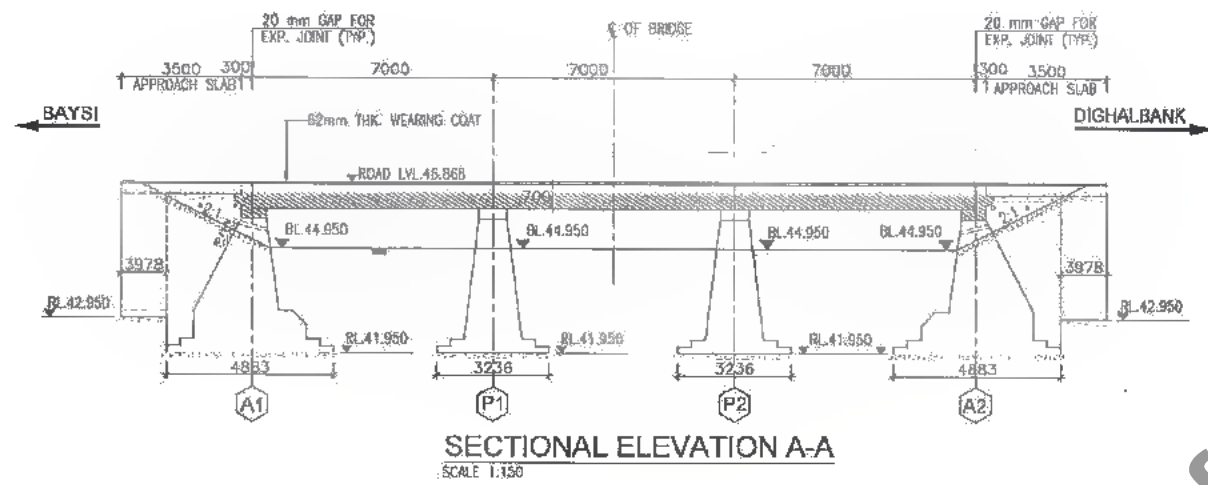
PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company
Head-Office: "SAI House", Salboni, District: Sonbhadra, Bihar
Branch Office: "SAI House", Salboni, District: Sonbhadra, Bihar
Phone : +91-91-8852498710 Fax : +91-91-8852498710
E-mail : sai@saiconsulting.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)		
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)		
PC	10/04/19	GOOD FOR CONSTRUCTION (DPR)		
PA	26/02/19	ISSUED WITH FINAL DPR		
PA	02/11/13	ISSUED WITH DPR		

TITLE: LSP CHOWK (BAHADURGANJ - DIGHALBANK) PACKAGE-III
GENERAL NOTES
DRG. NO.: SAI-213007DPR/CIB/GEN
REVISION: PE

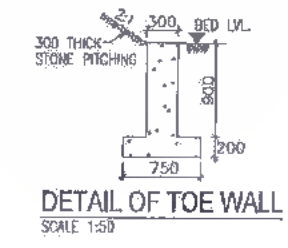
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432



REFERENCE DRAWINGS

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS
 - GENERAL NOTES REFER DRG NO. SAI-213007/DPR/C/B/GEN
 - DETAILS OF FILLER TYPE EXPANSION JOINT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-01
 - APPROACH SLAB & DRAINAGE SPOUT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-02
 - TYPICAL DRAWING FOR RCC CRASH BARRIER REFER DRG. NO. SA-213007/DPR/C/B/TYP-03
 - TYP. DETAILS OF WIDENING OF PCC SUB STRUCTURE REFER DRG. NO. SA-213007/DPR/C/B/TYP-04
 - REINF. DETAILS OF R.C.C. SOLID SLAB SUPERSTRU. FOR WIDENING OF MINOR BRIDGE AT PROP. CH. 52+853 (7.0M SPAN) REFER DRG. NO. SAI-213007/DPR/C/B/MN/SUP-02
- GRADE OF HYSD. REINFORCEMENT - FE-500.
- TYPE OF BEARING-TAR PAPER
- GRADE OF CONCRETE

ABUTMENT CAP/PIER CAP	RCC-M20
SOLID SLAB	RCC-M25
APPROACH SLAB	RCC-M30
CRASH BARRIER	RCC-M40
SAFETY KERB	RCC-M20
ABUTMENT/PIER	PCC-M20
RETURN WALL	PCC-M20
TOE WALL	PCC-M15
LEVELING COURSE	PCC-M15
- THE FOUNDING LEVEL (RL) OF WIDENING PORTION SHOULD NOT BE HIGHER THAN FOUNDING LEVEL (RL) OF EXISTING BRIDGE.



DATE: 20/07/19
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Bihar State Road Development Corporation Limited (BSRDCL)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "SAI House" Sarojee Corporate Square, 8th Rajpath
Club, Bahadurganj, Ahmedabad-380059, Gujarat, India
Phone: +91-79-2412608/709, Fax: +91-79-2412808
Email: mail@saiconsulting.com

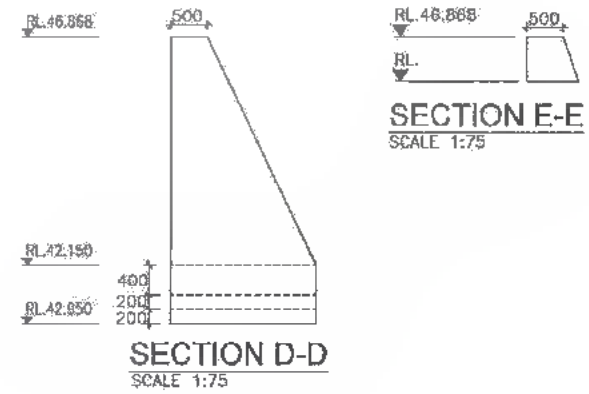
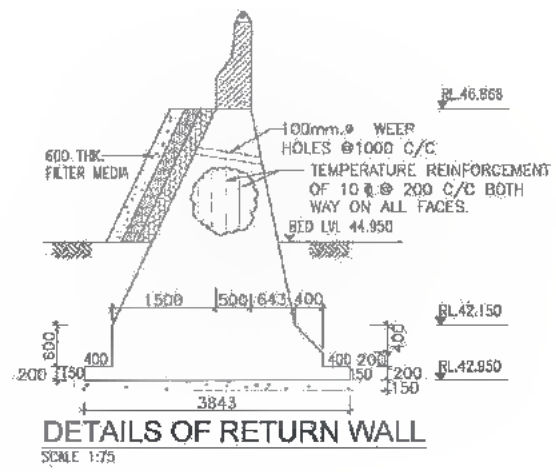
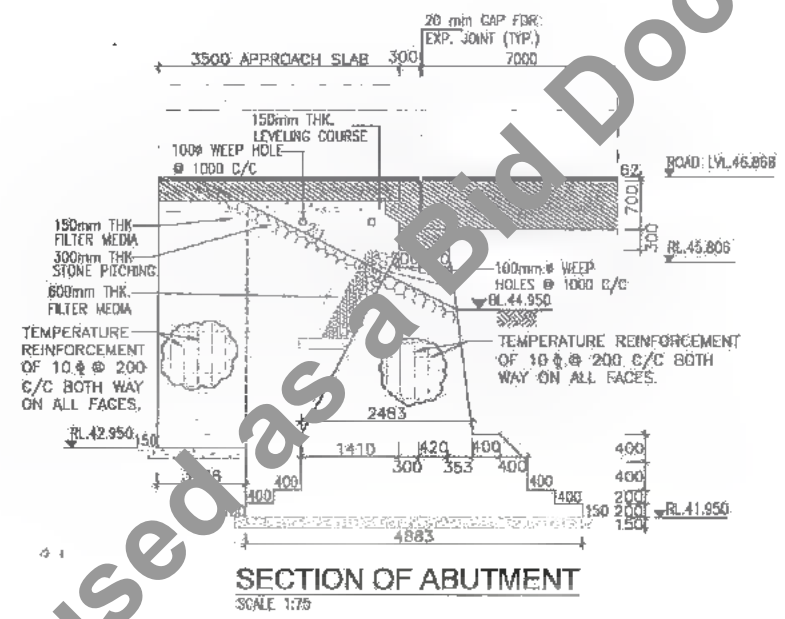
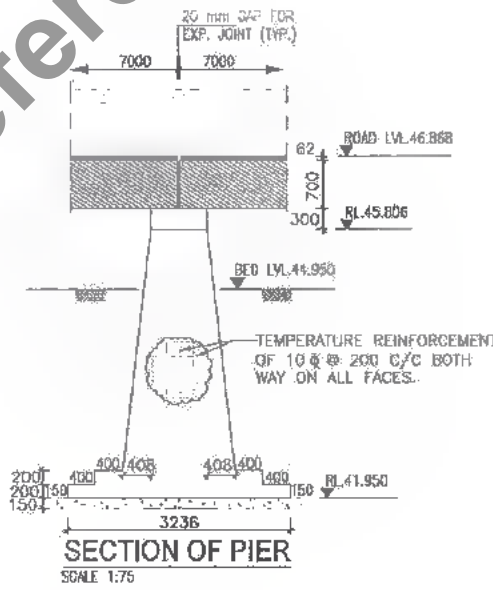
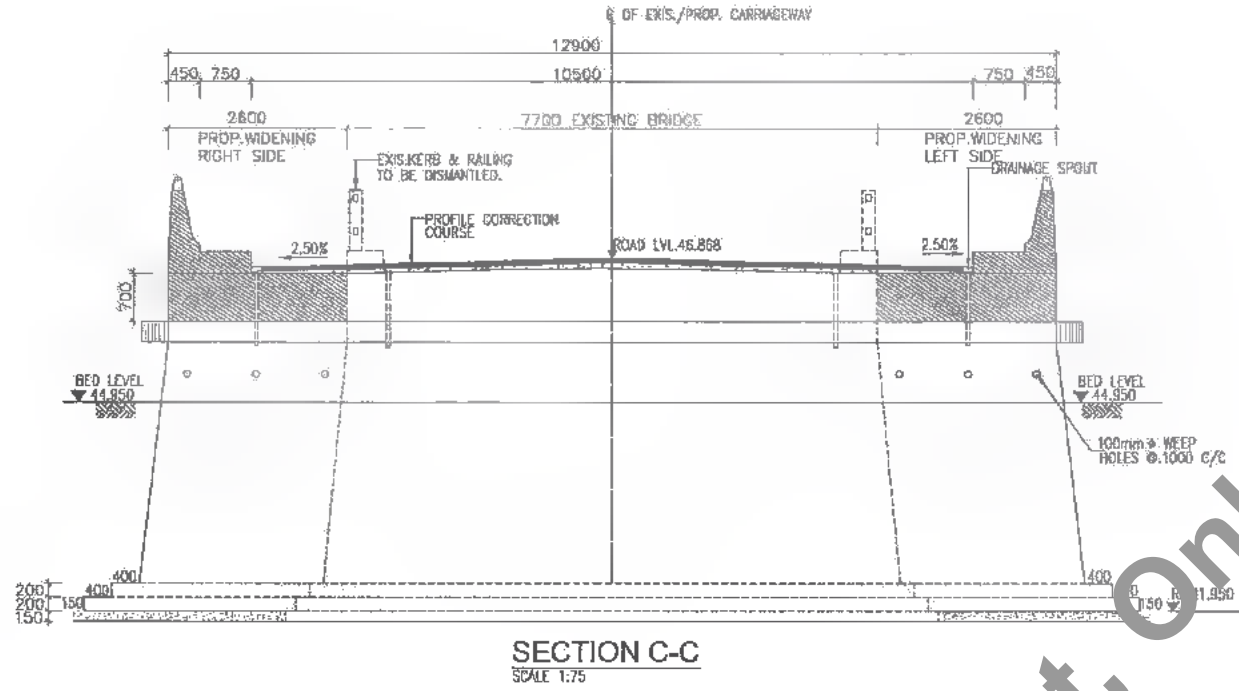
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PB	17/12/18	GOOD FOR CONSTRUCTION (DPR)	
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	
PB	26/02/14	ISSUED WITH FINAL DPR	
PA	13/11/13	ISSUED WITH DPR	

DRAM BY: G.M.G.
CHECKED BY: A.K.S.
APPROVED BY: B.R.V.

TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) GAD FOR WIDENING OF MINOR BRIDGE AT PROP. CH. 52+853

DRG. NO.: [SHEET 1 OF 2]
SAI-213007/DPR/C/B/MN/GAD-01
REVISION: PE





DATE: 20/07/14 3:01pm
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Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAL Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
PE	31/07/14	GOOD FOR CONSTRUCTION (REBASED DPR)		
PD	17/12/13	GOOD FOR CONSTRUCTION (DPR)		
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PD	26/02/14	ISSUED WITH FINAL DPR		
PA	13/11/13	ISSUED WITH DPR		

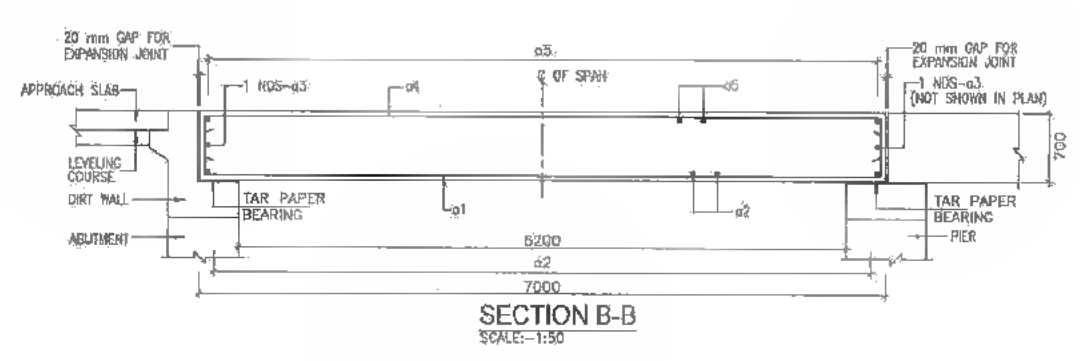
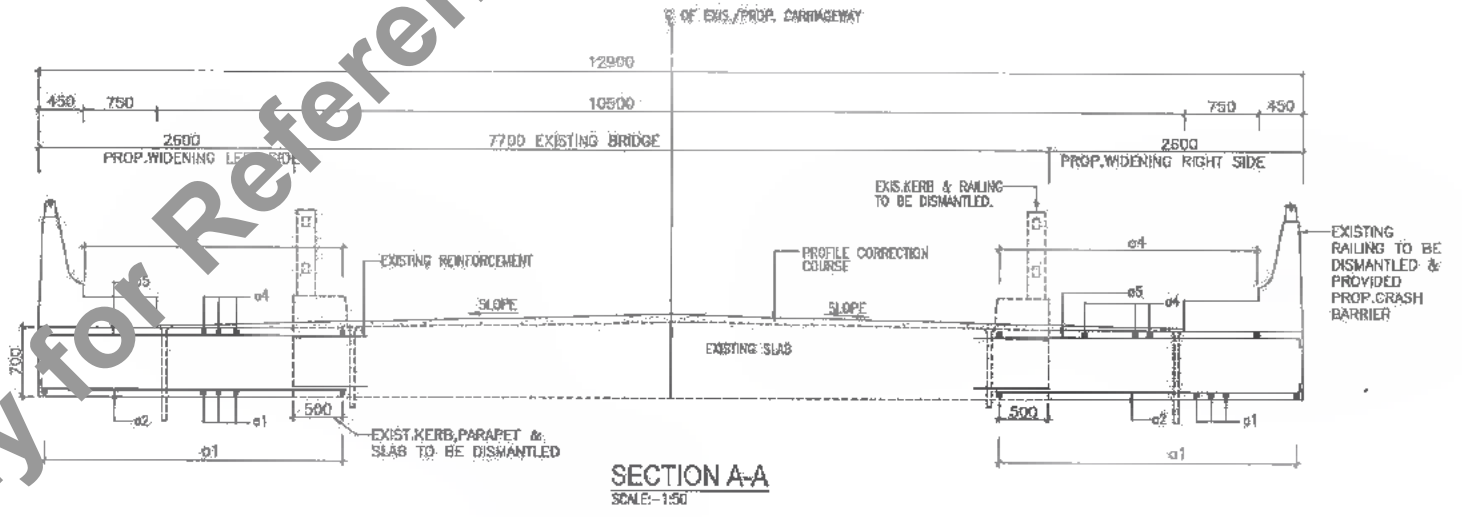
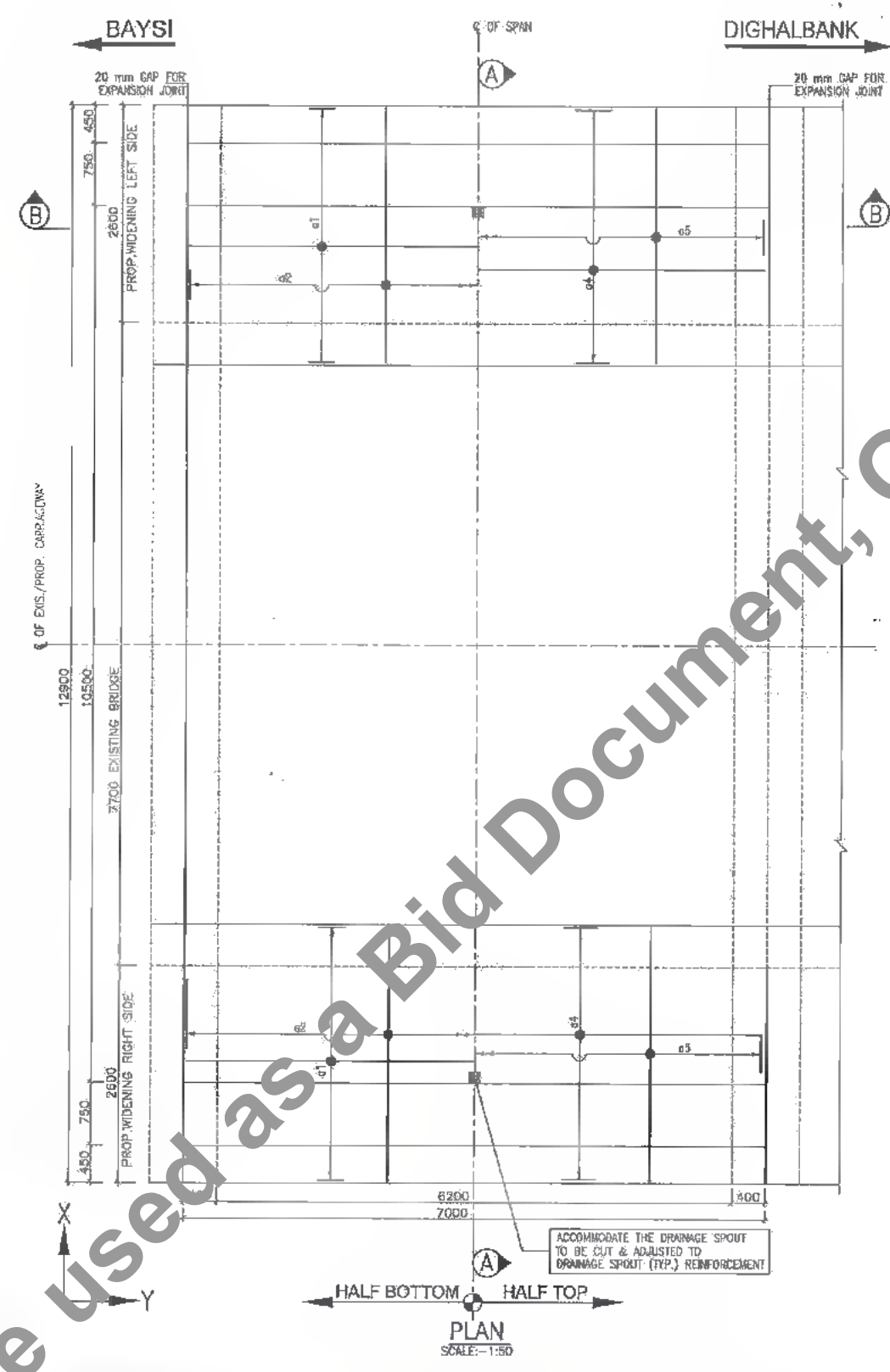
TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) GAD FOR WIDENING OF MINOR BRIDGE AT PROP. CH. 52+853

ORG. NO.: (SHEET 2 OF 2)
SAI-21300203PRG/R/MINGAD-01

REVISION: PE



347
420



SCHEDULE OF REINFORCEMENT (PER SPAN)

SER. NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)
1	SLAB-BOTTOM ALONG-X	a1		25	130
2	SLAB-BOTTOM ALONG-Y	a2		10	150
3	SLAB-SIDE ALONG-Y	a3		10	2 Nos.
4	SLAB-TOP ALONG-X	a4		10	300
5	SLAB-TOP ALONG-Y	a5		10	300

REFERENCE DRAWINGS

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS
 - (a) GENERAL NOTES REFER DRG. NO. SAI-213007/DPR/C/B/GEN
 - (b) DETAILS OF FILLER TYPE EXPANSION JOINT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-01
 - (c) APPROACH SLAB & DRAINAGE SPOUT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-02
 - (d) TYPICAL DRAWING FOR RCC CRASH BARRIER REFER DRG. NO. SAI-213007/DPR/C/B/TYP-03
 - (e) GAD FOR WIDENING OF MINOR BRIDGES PROP. CH-52+853 REFER DRG. NO. SAI-213007/DPR/C/B/MIN/GAD-02 (SHEET 1 OF 2 & 2 OF 2)



DATE: 2019/07/13 3:00pm
PATH: T:\CAD\TAK 213007\HARYREVISED DPR\CV\PACKAGE-3\MINOR BRIDGES\01 CH-52+853 W\WIDENING RCC SOLID T.dwg

CLIENT:
 Bihar State Road Development Corporation Limited (BSRDCL) (A Government of Bihar Undertaking)
 D. G. B. S. & Co. Pvt. Ltd. (P.U.-Kathin)

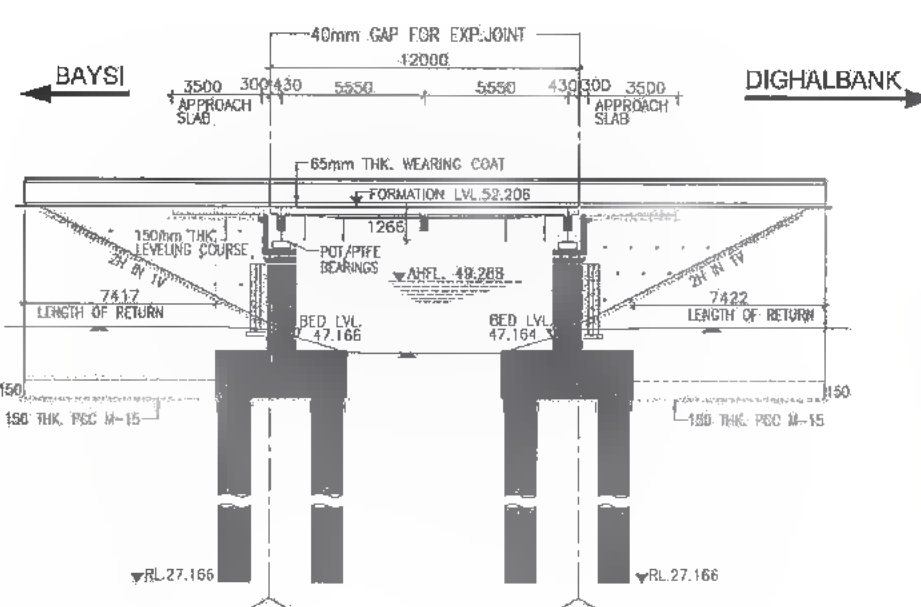
PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
 Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 SYSTRA GROUP
 Plot-4 'SAI Hoods' 4th Floor Corporate Square, 6th Stage
 100, Boudhagar, Bhubaneswar-751009, Odisha, India
 Phone: +91-77-6613260/704 Fax: +91-77-6642000
 Email: ask@saiconsult.com

REV.	DATE	DESCRIPTION	ISSN	ISSUED BY
PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		OWN BY : D.M.C.
PD	12/12/18	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY : M.S.S.
PC	10/04/18	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY : B.V.V.
PB	26/02/14	ISSUED WITH FINAL DPR		ISSUED BY : S.S.
PA	13/11/13	ISSUED WITH IDPR		

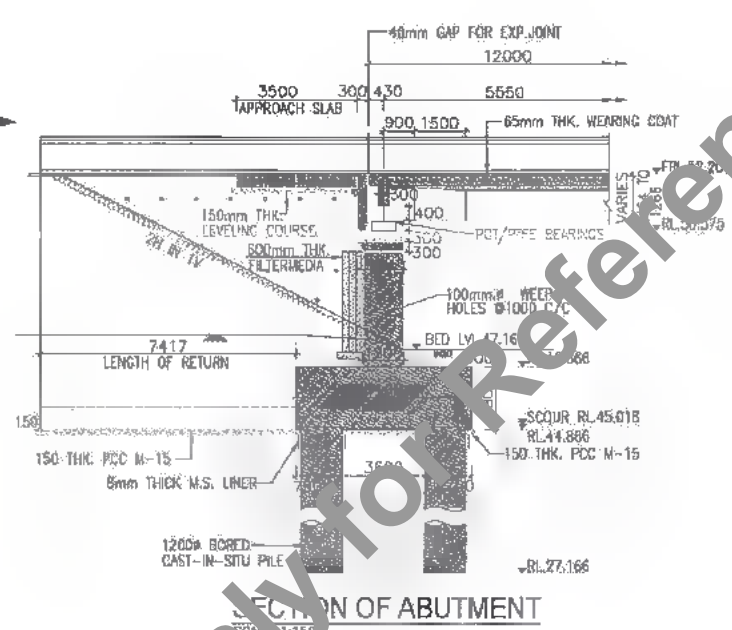
TITLE: LRP CHOWK (BAHADURGANJ) DIGHALBANK PACKAGE-III REINF. DETAILS OF R.C.C. SOLID SLAB SUPER STRU. FOR WIDENING OF MINOR BRIDGE AT PROP. CH. 52+853
 DRG. NO.: SAI-213007/DPR/C/B/MIN/SUP-01
 REVISION: PE

348
429

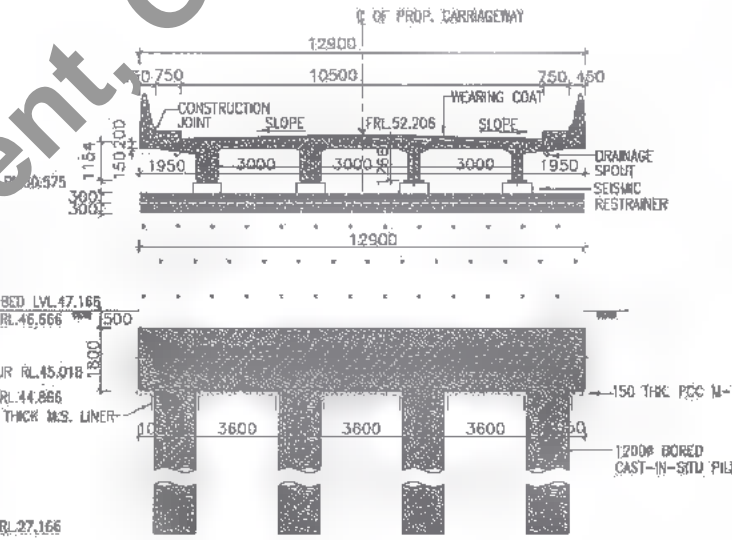


LEVEL DATUM = 36						
GROUND LEVEL AT (m)	-57183	-57165	-57188	-57171	-57174	-57180
CHANGAGE (m)	-57183	-57165	-57188	-57171	-57174	-57180

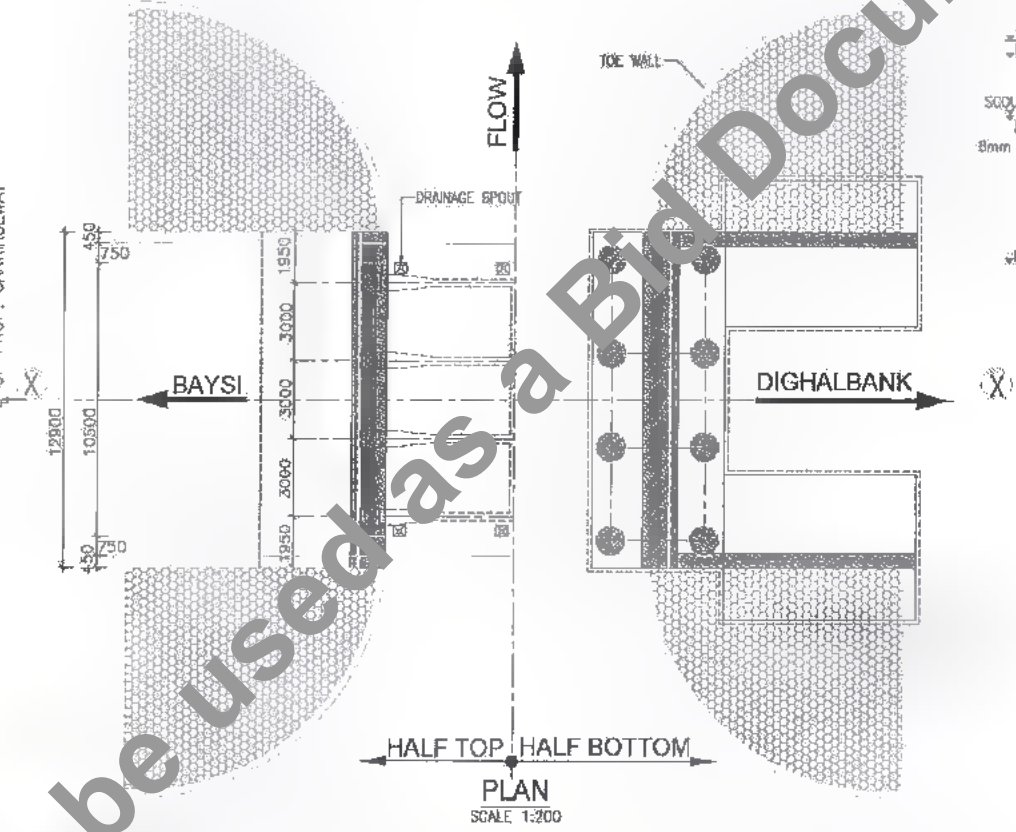
SECTIONAL ELEVATION X-X
SCALE 1:200



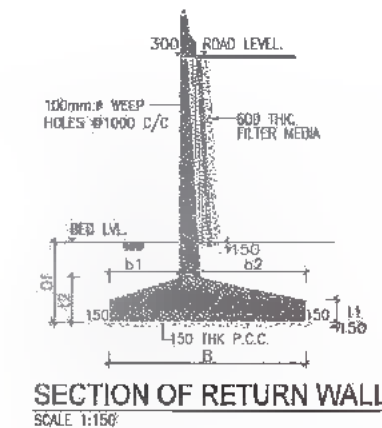
SECTION OF ABUTMENT



CROSS SECTION OF NEAR ABUTMENT
SCALE 1:150



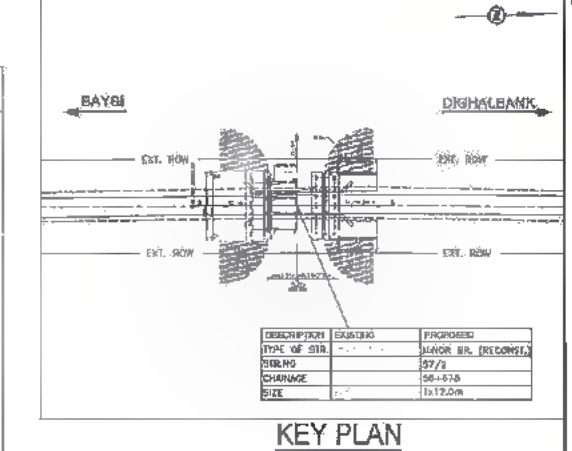
PLAN
SCALE 1:200



SECTION OF RETURN WALL
SCALE 1:150

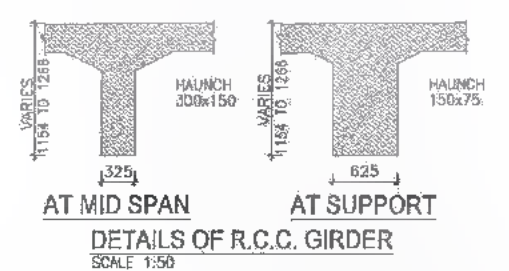
RL. 47.164
BAY HOLE NO. A-2

DEPTH	ROTATION	SOIL DESCRIPTION	SPT N VALUE	CORE RECOVERY %	ROD #
1.64					
46.164			N=5		
46.164			N=7		
44.164			N=8		
43.164			N=14		
41.164			N=18		
40.164			N=25		
39.164		BROWNISH SANDY SOIL	N=30		
37.164			N=42		
36.164			N=48		
35.164			N=54		
34.164			N=58		
33.164			N=62		
32.164			N=66		
31.164			N=68		
30.164			N=72		
29.164			N=76		
28.164					
27.164					
26.164					
25.164					
24.164					
23.164					
22.164					
21.164					
20.164					
19.164					
18.164					
17.164					

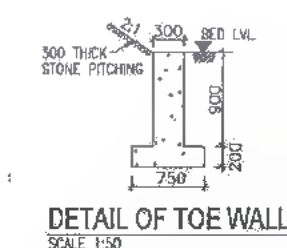


KEY PLAN

- NOTES:-
- ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED) & CHANGAGES ARE IN METRES. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
 - THE FOLLOWING LOADS HAVE BEEN CONSIDERED IN THE DESIGN-
 - FOR TWO LANE CARRIAGEWAY ONE LANE OF IRC CLASS 70R OR TWO LANES OF IRC CLASS A PLUS FOOTPATH, WHICHEVER GOVERNS.
 - FOR THREE LANE CARRIAGEWAY ONE LANE OF 70R PLUS ONE LANE OF CLASS-A OR THREE LANES OF CLASS A WHICH EVER GOVERNS.
 - ELASTOMERIC STRIP SEAL TYPE JOINT SHALL BE PROVIDED. DETAILS SHALL BE AS PER MANUFACTURES DRAWING.
 - BACKFILL MATERIAL BEHIND ABUTMENT SHALL BE SELECTED, SOIL HAVING PROPERTIES AS C = 0.05 KG/SQ.CM., $\phi \geq 30^\circ$, $r = 1750$ KG/CUM.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - GENERAL NOTES DRG. NO. SA-213007/DPR/C/B/TYP/GEN.
 - GAD FOR SUPER STRUCTURE SA-213007/DPR/C/B/MIN/56.678/SUP-01
 - REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER DRG. NO. SA-213007/DPR/C/B/MIN/56.678/SUP-02
 - REINFORCEMENT DETAILS FOR CROSS GIRDER DRG. NO. SA-213007/DPR/C/B/MIN/56.678/SUP-03
 - REINFORCEMENT DETAILS OF DECK SLAB DRG. NO. SA-213007/DPR/C/B/MIN/56.678/SUP-04
 - SCHEDULE OF REINFORCEMENT DRG. NO. SA-213007/DPR/C/B/MIN/56.678/SUP-05
 - DIMENSIONS & REINF. DETAILS FOR ABUTMENT & ABUTMENT CAP FOR MINOR BRIDGE AT PROP. CH. 56+678 DRG. NO. SA-213007/DPR/C/B/MIN/56.678/SUB-01
 - DIMENSIONS & REINF. DETAILS FOR PILE & PILE CAP OF ABUTMENT FOR MINOR BRIDGE AT PROP. CH. 56+678 DRG. NO. SA-213007/DPR/C/B/MIN/56.678/SUB-02
 - DETAILS OF APPROACH SLAB & DRAINAGE SPOUT DRG. NO. SA-213007/DPR/C/B/TYP-02
 - TYP. DETAILS OF R.C.C. CRASH BARRIER DRG. NO. SA-213007/DPR/C/B/TYP-03
 - TYPICAL DETAILS OF SEISMIC RESTRAINER DRG. NO. SA-213007/DPR/C/B/TYP-05
 - DETAILS OF SCHEMATIC ARRANGEMENT AND DESIGN FORCES OF POT PIPE BEARINGS OF RCC T-BEAM SUP. STRU. DRG. NO. SA-213007/DPR/C/B/TYP-06
 - DIMENSIONS & REINF. DETAILS OF RCD RETURN WALL DRG. NO. SA-213007/DPR/C/B/TYP-07



DETAILS OF R.C.C. GIRDER
SCALE 1:50



DETAIL OF TOE WALL
SCALE 1:50



DATE: 20/07/2019, 3:05PM
PATH: I:\CAD\23227 BHARREVISED DPR\CB\PACKAGE-3\MINOR BRIDGE\02 CH.56-678\02 GAD CH.56-678.dwg

Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT: **Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar**
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS: **SAL Consulting Engineers Pvt. Ltd.**
An ISO 9001 Certified Company

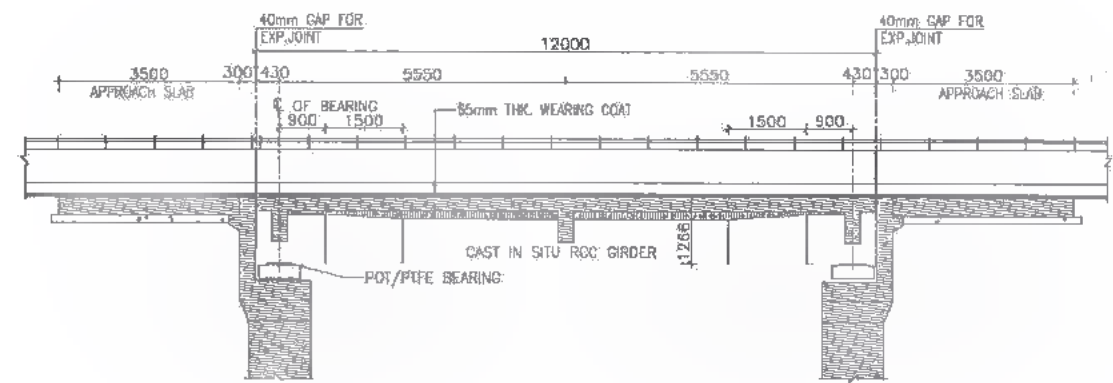
PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)
PA	26/02/14	ISSUED WITH FINAL DPR
PA	13/11/13	ISSUED WITH DPR

TITLE: **LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) GAD FOR RECONSTRUCTION OF MINOR BRIDGE AT & PROP. CH. EXL. CH. 58+102 56+678**

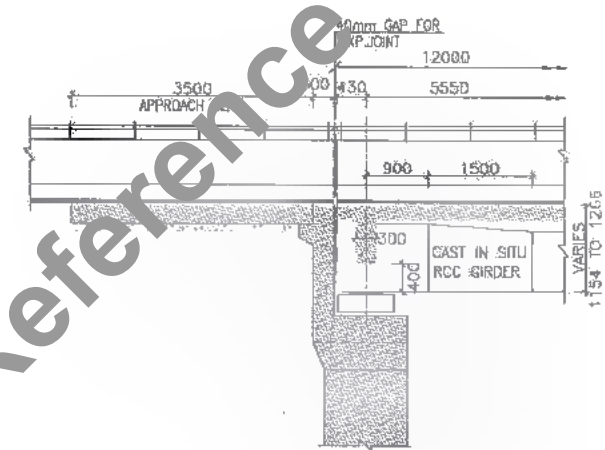
DRG. NO.: **SAI-213007/DPR/C/B/MIN/GAD-02**

REVISION: PE

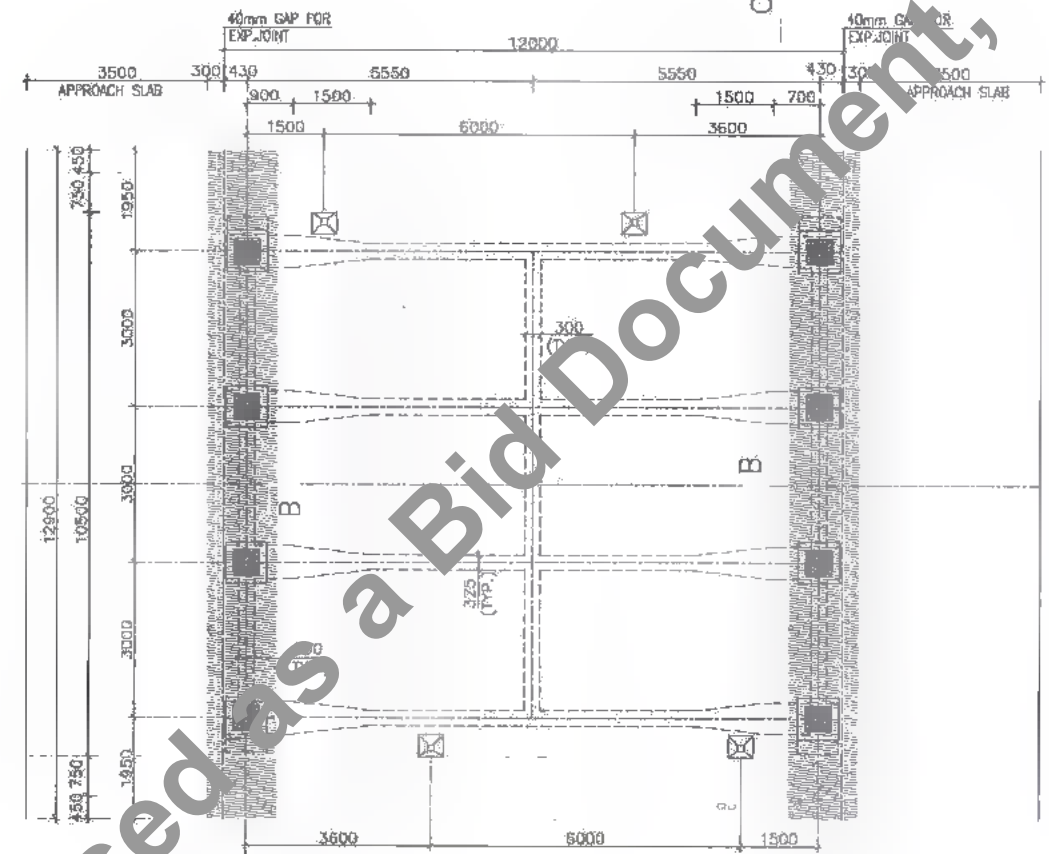
349
428



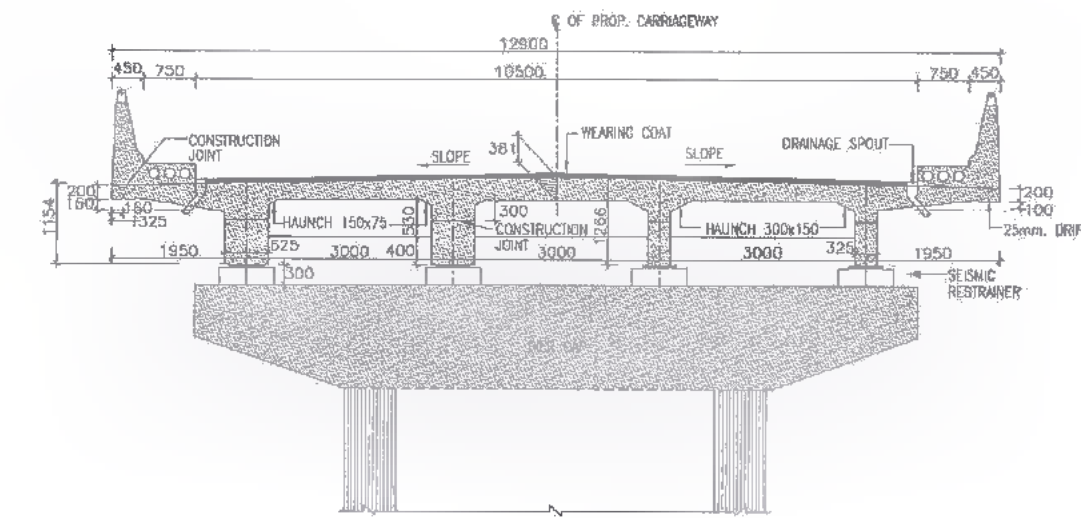
SECTIONAL ELEVATION X-X
SCALE 1:100



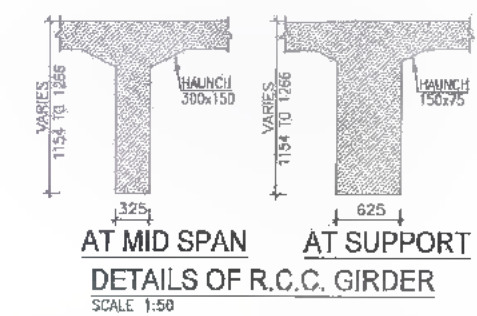
DETAIL OF SUPERSTRUCTURE
AT ABUTMENT LOCATION
SCALE 1:75



PLAN
SCALE 1:100



SECTION A-B-C
SCALE 1:75



AT MID SPAN AT SUPPORT
DETAILS OF R.C.C. GIRDER
SCALE 1:50

- NOTES:
1. ALL DIMENSIONS ARE IN MM. & LEVELS ARE IN METER.
 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - a. GENERAL NOTES DRG. NO.SAI-213007/DPR/C/B/TYP/02
 - b. REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER DRG. NO.SAI-213007/DPR/C/B/MN/56.676/SUP-02
 - c. REINFORCEMENT DETAILS FOR CROSS GIRDER DRG. NO.SAI-213007/DPR/C/B/MN/56.678/SUP-03
 - d. REINFORCEMENT DETAILS OF DECK SLAB DRG. NO.SAI-213007/DPR/C/B/MN/56.678/SUP-04
 - e. SCHEDULE OF REINFORCEMENT DRG. NO.SAI-213007/DPR/C/B/MN/56.678/SUP-05

DATE: 20/07/18 - 3:07pm
PATH: T:\CADD\2007 BIHAR\REVISED DPR\16\PACKAGE-3\MINOR BRIDGE\02 CH.56-678\SUPER STR. 12.0m\101_GAD_SUP_12.0m.dwg



Bihar State Road Development Corporation Limited (BSRIDC)
(A Government of Bihar Undertaking)

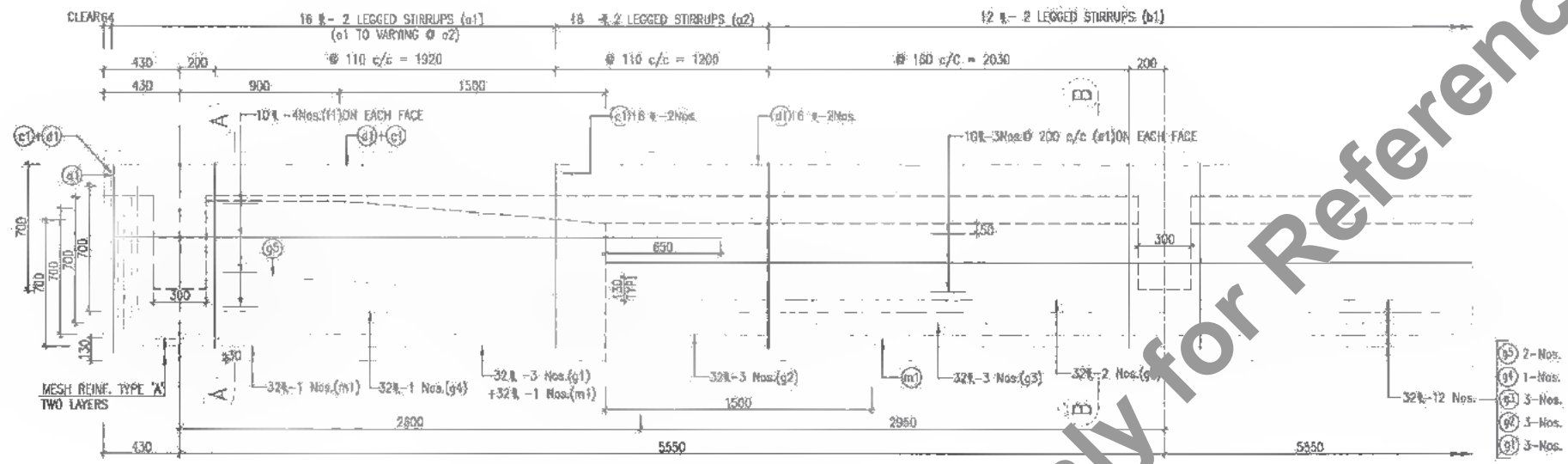
PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAL SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A, "5th Floor", Sofyam Corporate Square, 8th Rajpath
(Civil Building), Anandapuri, New Delhi
Phone : +91-11-26462400/2602401-451-74-5511/2810
Email : mail@saiconsulting.com

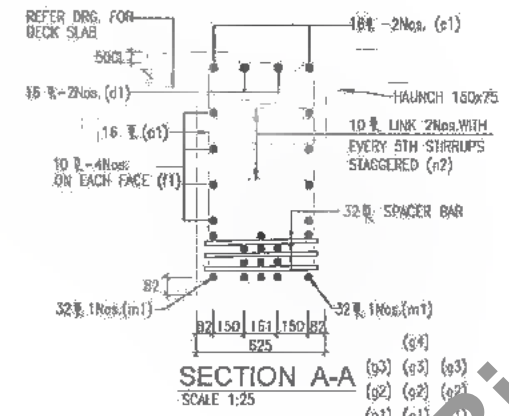
PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	DESIGNED BY : D.A.G.	TITLE : LRP CHOWK (BAHADURGANJ)
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : M.K.S.	-DIGHALBANK (PACKAGE-III)
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.V.	GAD FOR RCC T-BEAM SUPER
PA	26/02/14	ISSUED WITH TIME DPR	ISSUED BY : B.S.	STRU. AT EXL. CH. 68/102 &
PP	13/11/13	ISSUED WITH DPR		PROP. CH. 56/678
REV.	DATE	DESCRIPTION	SIGN	DRG. NO. :
				SAI-213007/DPR/C/B/MN/56.676/SUP-01
				REVISION : PE



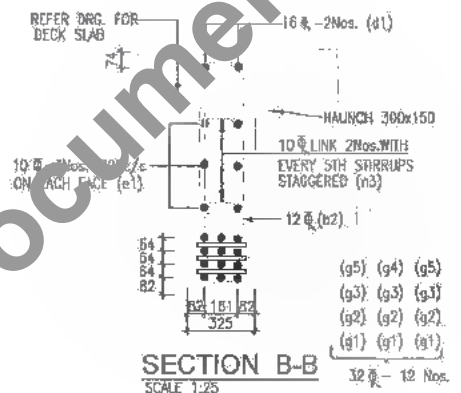
- NOTES :**
1. ALL DIMENSIONS ARE IN MM. & LEVELS ARE IN METER.
 2. 32 # SPACER BARS SHALL BE PROVIDED @ 1.00m. c/c BETWEEN TWO TIERS OF LONGITUDINAL BARS OF GIRDERS.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - a. GENERAL NOTES DRG. NO. SAI-213007/DPR/C/B/TYP/GEN
 - b. GENERAL ARRANGEMENT DRAWING FOR SUPERSTRUCTURE DRG. NO. SAI-213007/DPR/C/B/MIN/56.678/SUP-01
 - c. REINFORCEMENT DETAILS FOR CROSS GIRDER DRG. NO. SAI-213007/DPR/C/B/MIN/56.678/SUP-03
 - d. REINFORCEMENT DETAILS OF DECK SLAB DRG. NO. SAI-213007/DPR/C/B/MIN/56.678/SUP-04
 - e. SCHEDULE OF REINFORCEMENT DRG. NO. SAI-213007/DPR/C/B/MIN/56.678/SUP-05



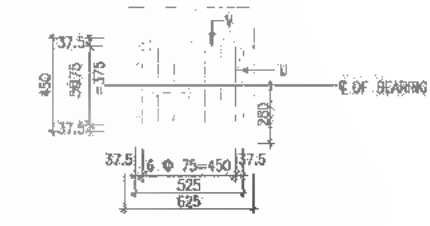
LONGITUDINAL SECTION OF GIRDER
SCALE 1:25



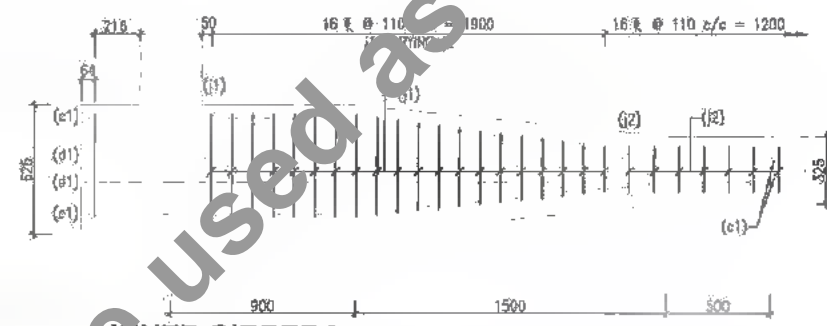
SECTION A-A
SCALE 1:25



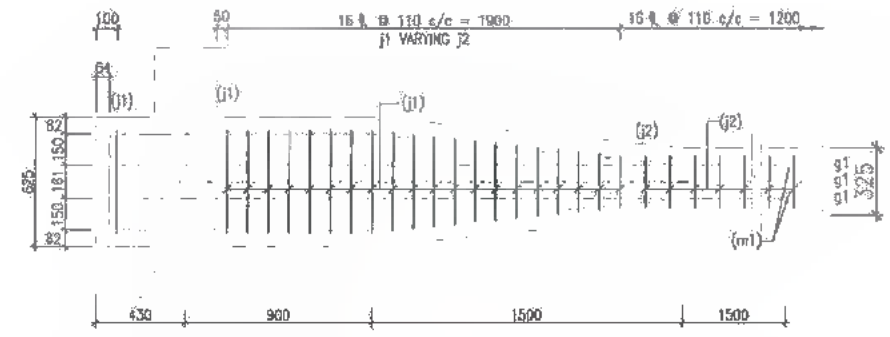
SECTION B-B
SCALE 1:25



8 # MESH REINFORCEMENTS
TYPE - 'X'



[INNER GIRDER]
PLAN SHOWING WEB REINF. (TOP) AT THE END
SCALE 1:25



[INNER GIRDERS]
PLAN SHOWING WEB REINF. (BOTTOM) AT THE END
SCALE 1:40

DATE: 20/07/18 3:07pm
PATH: C:\CAL\TAD 2017\BIHARREVISED DPR\CB\PACKAGE-3\MINOR BRIDGE\02 CH.56-678\SUP-02 LOGGING GIRDER 12.0m.dwg



Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS :
SAI Consulting Engineers Pvt. Ltd.
An ISO-9001 Certified Company
SAI Group
Plot-A "SM House", Sanyam Corporate Square, Bih Rajmeh
(Lok Dost) Koter, Bahadurabad-800058, Eajpur Jhoda
Phone : +91-91-6602280/700, Fax : +91-91-3092809
Email : mca@saiindia.com

REV.	DATE	DESCRIPTION	SIGN.	ISSUED BY :
PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)		DRIVEN BY : K.S.O.
PD	17/12/16	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY : N.K.S.
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY : B.R.V.
PB	26/02/14	ISSUED WITH FINAL DPR		
PA	13/11/13	ISSUED WITH DPR		

SCALE : AS SHOWN

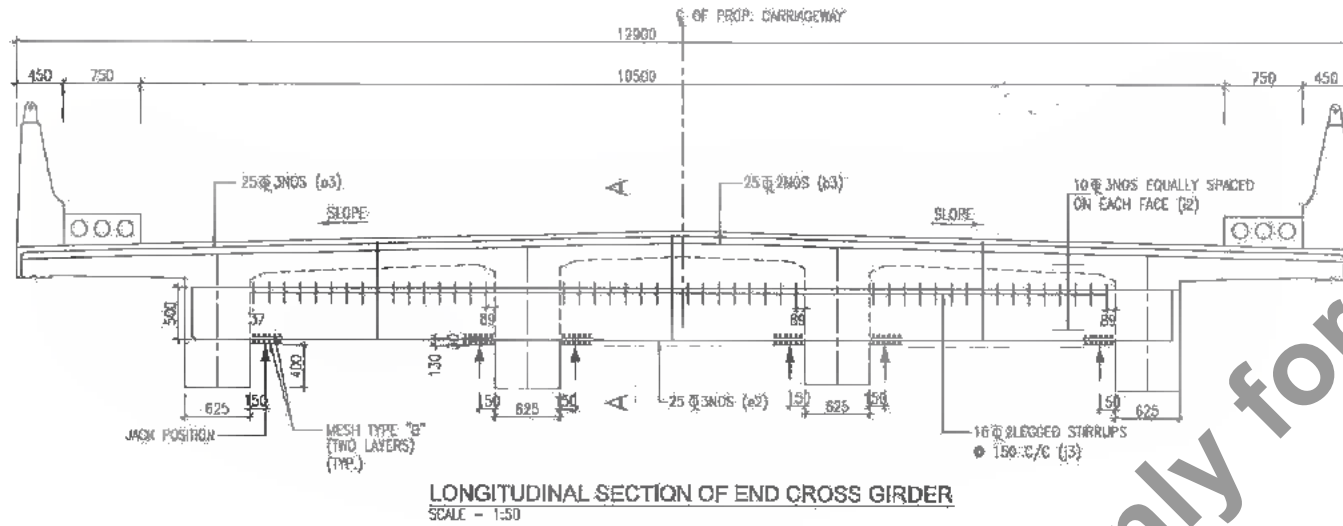
TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-II) REINFORCEMENT DETAILS OF LONGITUDINAL GIRDER FOR RT-BEAM SUPER STRU. FOR RCC AT EXL. PROP. CH. 56+678

DRG. NO. :
SAI-213007/DPR/C/B/ MIN/56.678/SUP-02

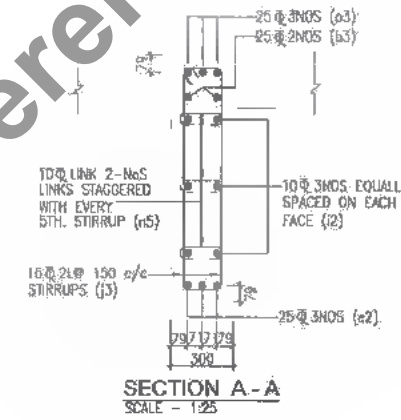
REVISION : PE



351
426



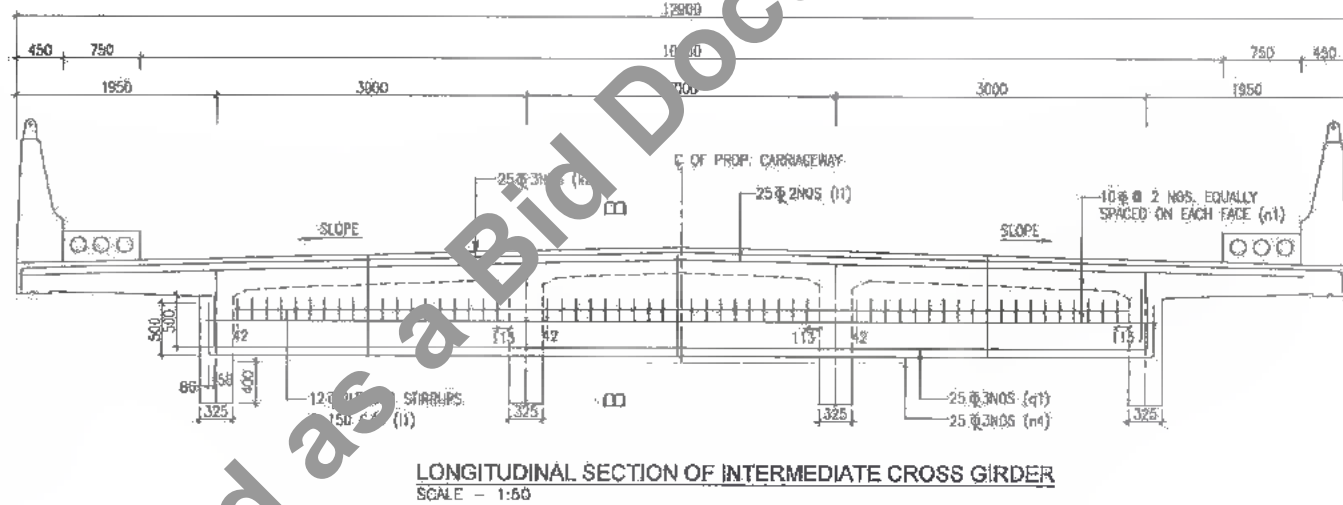
LONGITUDINAL SECTION OF END CROSS GIRDER
SCALE - 1:50



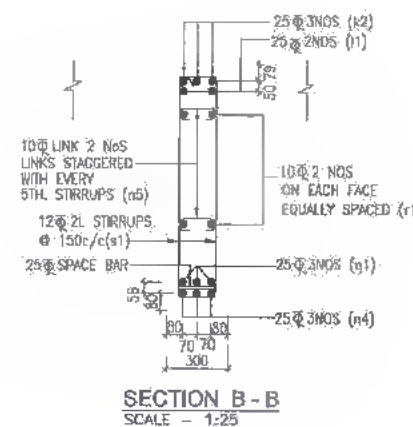
SECTION A-A
SCALE - 1:25

NOTES:

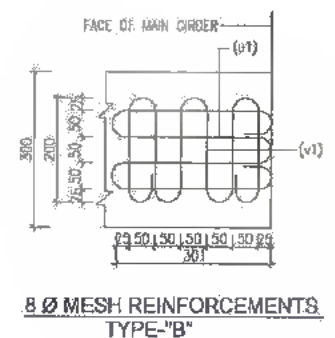
1. THE LOCATIONS OF THE JACK FOR LIFTING OF SUPERSTRUCTURE IS SHOWN & THIS SHALL BE DISTINCTLY ETCHED FOR EASY IDENTIFICATION ON THE END CROSS GIRDER AND PIERCAP / ABUTMENT CAPS
2. DURING THE LIFTING OPERATION ALL THE SIX JACKS PLACED UNDER THE END CROSS GIRDER IN THE LINE WITH THE BEARINGS SHALL BE OPERATED SIMULTANEOUSLY USING SINGLE OPERATION CONSOLE GROUPING THE PUMP AND CONTROL SYSTEM SO AS TO ENSURE THAT THE REACTIONS ON ALL SIX JACKS ARE EQUAL AT ALL TIMES.
3. CAPACITY OF EACH JACK SHALL NOT BE LESS THAN 50 TON.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - a. GENERAL NOTES DRG. NO.SAI-213007/DPR/C/B/YFP/GEN
 - b. GENERAL ARRANGEMENT DRAWING FOR SUPERSTRUCTURE DRG. NO.SAI-213007/DPR/C/B/MIN/56.678/SUP-01
 - c. REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER DRG. NO.SAI-213007/DPR/C/B/MIN/56.678/SUP-02
 - d. REINFORCEMENT DETAILS OF DECK SLAB DRG. NO.SAI-213007/DPR/C/B/MIN/56.678/SUP-04
 - e. SCHEDULE OF REINFORCEMENT DRG. NO.SAI-213007/DPR/C/B/MIN/56.678/SUP-05



LONGITUDINAL SECTION OF INTERMEDIATE CROSS GIRDER
SCALE - 1:50



SECTION B-B
SCALE - 1:25



8 ϕ MESH REINFORCEMENTS
TYPE-B

DATE: 20/07/19 3:07pm
PATH: T:\INDIA\AD\213007 BIHARREVISED DPR\CIVIL\PACKAGE-3\MINOR BRIDGE\02 CH.56.678\SUPER STR 12.0m\103 CROSS GIRDER 12.0m.dwg.



Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A, "SAI House", Sanyam Corporate Square, 8th Bypass, Dighalbank, Ahmedabad-380009, Gujarat, India
Phone: +91-79-46167000, Fax: +91-79-66102000, Email: info@saiengineers.com

PE	31/07/19	COORD FOR CONSTRUCTION (REVISED DPR)	DRN BY : G.M.C.
PD	17/12/18	COORD FOR CONSTRUCTION (DPR)	CHEK BY : N.K.S.
PC	10/04/14	COORD FOR CONSTRUCTION (DPR)	APPROVED BY : B.R.V.
PP	28/02/14	ISSUED WITH FINAL DPR	
PA	12/11/13	ISSUED WITH DPR	
REV.	DATE	DESCRIPTION	SIGN
SCALE : AS SHOWN			

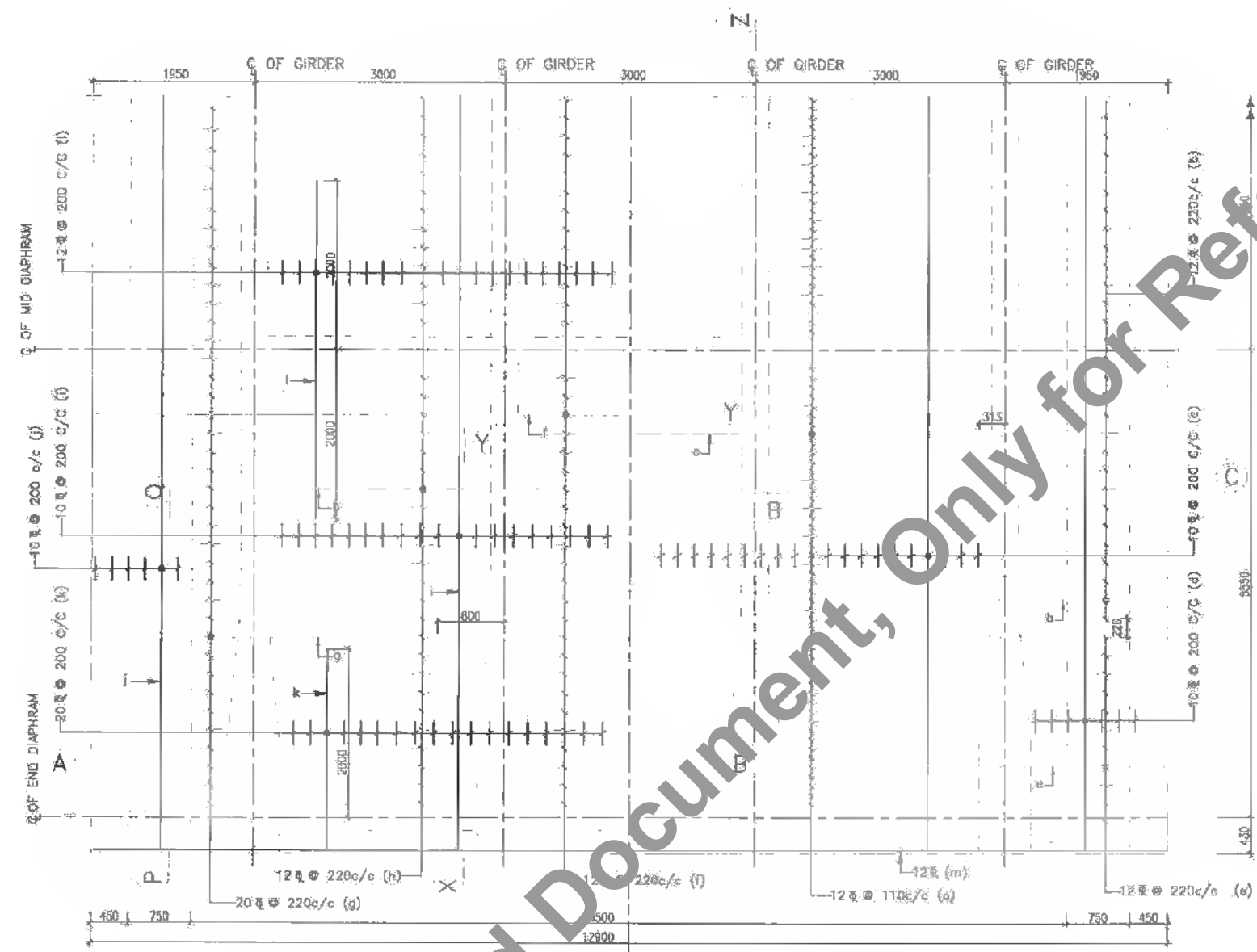
TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) REINFORCEMENT DETAIL OF CROSS GIRDER FOR RCC-T-BEAM SUPERSTRUCTURE EX. CH.65/102&PROP.CH.56.678

DRG. NO.: SAI-213007/DPR/C/B/MIN/56.678/SUP-03

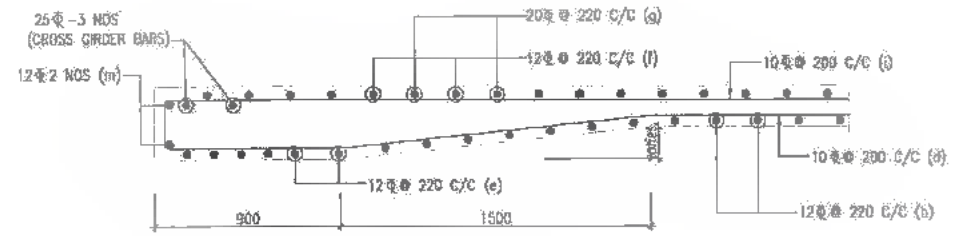
REVISION: PE



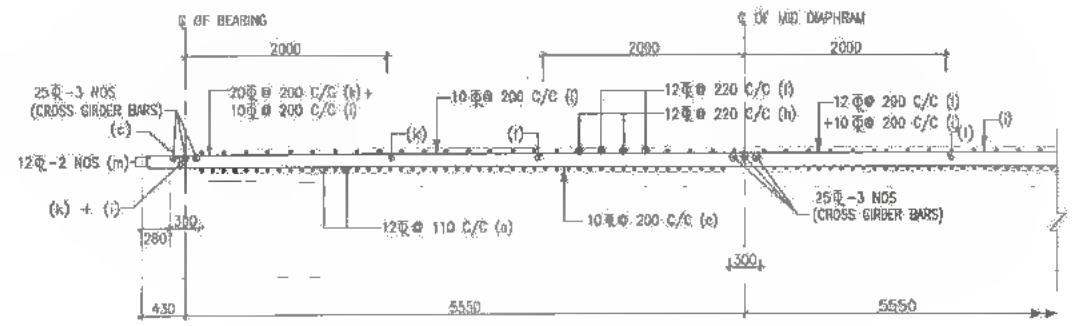
- NOTES :**
1. ALL DIMENSIONS ARE IN MM. & LEVELS ARE IN METER.
 2. THE REINFORCEMENT FOR GRASH BARRIER SHOULD BE PROPERLY ANCHORED IN THE DECK SLAB BEFORE CASTING THE SLAB.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - a. GENERAL NOTES DRG. NO. SAI-213007/DPR/C/B/TYP/GEN
 - b. GENERAL ARRANGEMENT DRAWING FOR SUPERSTRUCTURE DRG. NO. SAI-213007/DPR/C/B/MIN/56.678/SUP-01
 - c. REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER DRG. NO. SAI-213007/DPR/C/B/MIN/56.678/SUP-02
 - d. REINFORCEMENT DETAILS FOR CROSS GIRDER DRG. NO. SAI-213007/DPR/C/B/MIN/56.678/SUP-03
 - e. SCHEDULE OF REINFORCEMENT DRG. NO. SN-213007/DPR/C/B/MIN/56.678/SUP-05



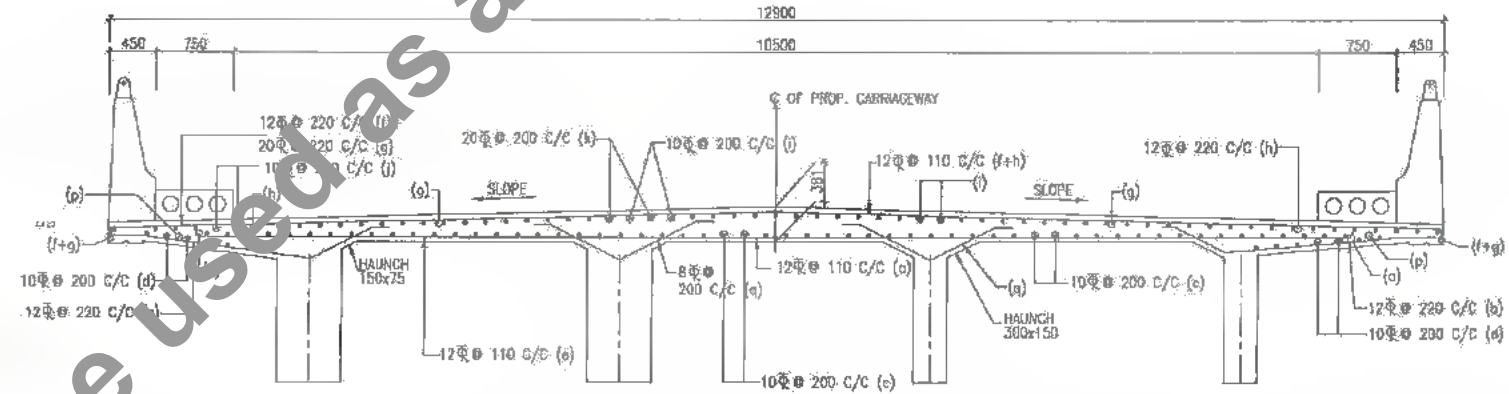
HALF TOP REINFORCEMENT PLAN SCALE-1:50 HALF BOTTOM REINFORCEMENT



SECTION P-Q SCALE-1:25 (EXTRA REINF. NOT SHOWN)



SECTION X-Y-Z SCALE-1:50



CROSS SECTION A-B-C SCALE-1:50

DATE: 20/07/18 3:08pm PATH: T:\CAL\MAD 27003 BIHARREVISED DPR\C\B\PACKAGE-3\MINOR BRIDGE\02 CH.56-078\SUPER STR. 12.0m\04 DECK SLAB-12.0m.dwg

CLIENT:

Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:

Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:

SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company

Block-A "SAI House" Solgan Corporate Square, B-11, Sector-10, Gurgaon, Haryana-122001
Phone : +91-77-66112600/7300, Fax : +91-77-66192800
Email : sai@saiconsulting.com

PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	DRN BY : G.M.C.	TITLE: LRP CHOWK (BAHADURGANJ) DIGHALBANK(PACKAGE-III) REINFORCEMENT DETAILS OF DECK SLAB FOR R/C T-BEAM SUPER STRU. AT EXL. CH. 58/102 & PROP. CH. 59+078 DRG. NO.: SAI-213007/DPR/C/B/MIN/56.678/SUP-04 REVISION: PE
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : N.K.S.	
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.N.V.	
PA	28/02/14	ISSUED WITH FINAL DPR	ISSUED BY : B.S.	
REV.	DATE	DESCRIPTION	SIGN	SCALE : AS SHOWN



353
424

SCHEDULE OF REINFORCEMENT (DECK SLAB) PER SPAN

Sr. No.	Type of Bars	Shape of Bars (Dimensions are in mm) (Not to Scale)	Dia of Bars (mm.)	Nos. of Bars	Spacing of Bars
1	a		12	-	110
2	b		12	-	220
3	c		10	-	200
4	d		10	-	200
5	e		12	-	220
6	f		12	-	220
7	g		20	-	220
8	h		12	-	220
9	i		10	-	200
10	j		10	-	200
11	k		20	-	200
12	l		12	-	200
13	m		12	2 NOS	-
14	n		16	2 NOS	-
15	n1		16	2 NOS	-
16	p		10	2 NOS	-
17	q		8	-	200

M.S. BARS (MESH REINFORCEMENT IN LONGITUDINAL GIRDER)

Sr. No.	Type of Bars	Shape of Bars (Dimensions are in mm) (Not to Scale)	Dia of Bars (mm.)	Nos. of Bars
1	u		8	-
2	v		8	16 NOS

SCHEDULE OF REINFORCEMENT FOR LONGITUDINAL GIRDERS (PER SPAN)

Sr. No.	Type of Bars	Shape of Bars (Dimensions are in mm) (Not to Scale)	Dia of Bars (mm.)	Spacing of Bars	Nos. of Bars
1	o1		16	110	-
2	o2		16	110	-
3	b1		12	160	-
4	c1		18	-	8
5	d1		16	-	-
6	e1		10	-	24
7	f1		10	-	32
8	g1		32	-	12
9	g2		32	-	12
10	g3		32	-	12
11	g4		32	-	4
12	g5		32	-	8
13	h1		18	110	-
14	i2		16	110	-
15	k1		12	160	-
16	m1		32	-	8
17	n2		10	-	8
18	n3		16	-	8

SCHEDULE OF REINFORCEMENT (CROSS GIRDERS) PER SPAN

Sr. No.	Type of Bars	Shape of Bars (Dimensions are in mm) (Not to Scale)	Dia of Bars (mm.)	Spacing of Bars	Nos. of Bars/Girder	Nos. of Bars/Spa
1	o1		25	-	2	4
2	o2		25	-	3	6
3	o2		25	-	3	6
4	i2		10	-	6	12
5	j3		16	150	-	-
6	k2		25	-	3	3
7	l1		25	-	2	2
8	n4		25	-	3	3
9	q1		25	-	2	2
10	r1		10	-	3	6
11	s1		12	150	-	-
12	n5		10	110	-	-

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

Sr. No.	Type of Bars	Shape of Bars (Dimensions are in mm) (Not to Scale)	Dia of Bars (mm.)	Spacing of Bars	Nos. of Bars/Girder	Nos. of Bars/Spa
1	u1		8	-	24	24
2	v1		8	-	24	24

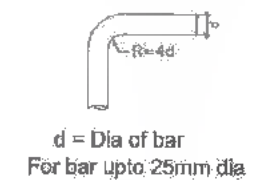
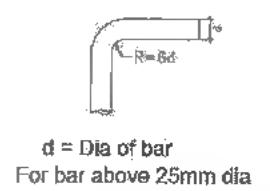
- NOTES:**
- THE EXACT LENGTH OF THE BARS WILL BE DETERMINED BY THE ACTUAL LAPS WITH SPLICES ADOPTED AT SITE.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - a. GENERAL NOTES DRG. NO.SAI-213007/DPR/C/B/TYP/GEN
 - b. GENERAL ARRANGEMENT DRAWING FOR SUPERSTRUCTURE DRG. NO.SAI-213007/DPR/C/B/MIN/56.678/SUP-01
 - c. REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER DRG. NO.SAI-213007/DPR/C/B/MIN/56.678/SUP-02
 - d. REINFORCEMENT DETAILS FOR CROSS GIRDER DRG. NO.SAI-213007/DPR/C/B/MIN/56.678/SUP-03
 - e. REINFORCEMENT DETAILS OF DECK SLAB DRG. NO.SAI-213007/DPR/C/B/MIN/56.678/SUP-04

MAXIMUM DEAD LOAD REACTIONS (in KN)

At Abutment	At Pier
1000	2000

TOTAL QUANTITY (PER SPAN)

- 1. STEEL ... H.Y.S.D. BARS ... 13.65T
- ... M.S. BARS
- (including 5% extra for laps and wastage).
- 1. CONCRETE ... 66.70m³
- * Excluding quantities for railings.



DATE: 31/07/18 3:07pm PATH: F:\DVTAD 243007 - BIHAR\REVISED DPR\CB\PACKAGE-3\MINOR BRIDGE\STR 12.0m\105 RCC SPAN SCHEDULE 12.0m.dwg

BIHAR STATE ROAD DEVELOPMENT CORPORATION LIMITED (BSRDOL)
(A Government of Bihar Undertaking)

PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

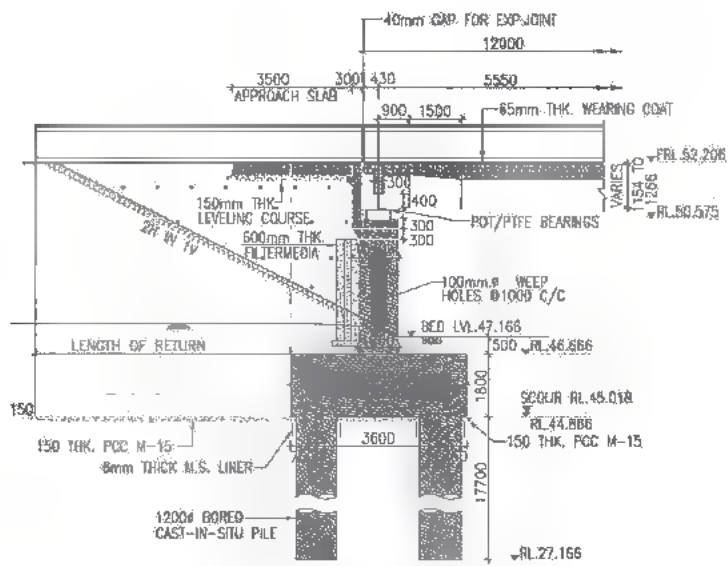
CONSULTANTS: SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "Sai Hous" Sofra Corporate Square, 8th Rajpath
Club Road, Anand Nagar, Patna - 800 001
Phone: +91-79-6612608/700 Fax: +91-79-6612606
Email: saiconsulting@gmail.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)		DRWN BY: G.M.G.
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY: H.K.S.
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY: B.R.H.
PA	26/02/14	ISSUED WITH FINAL DDPB		
PA	13/11/13	ISSUED WITH DPR		

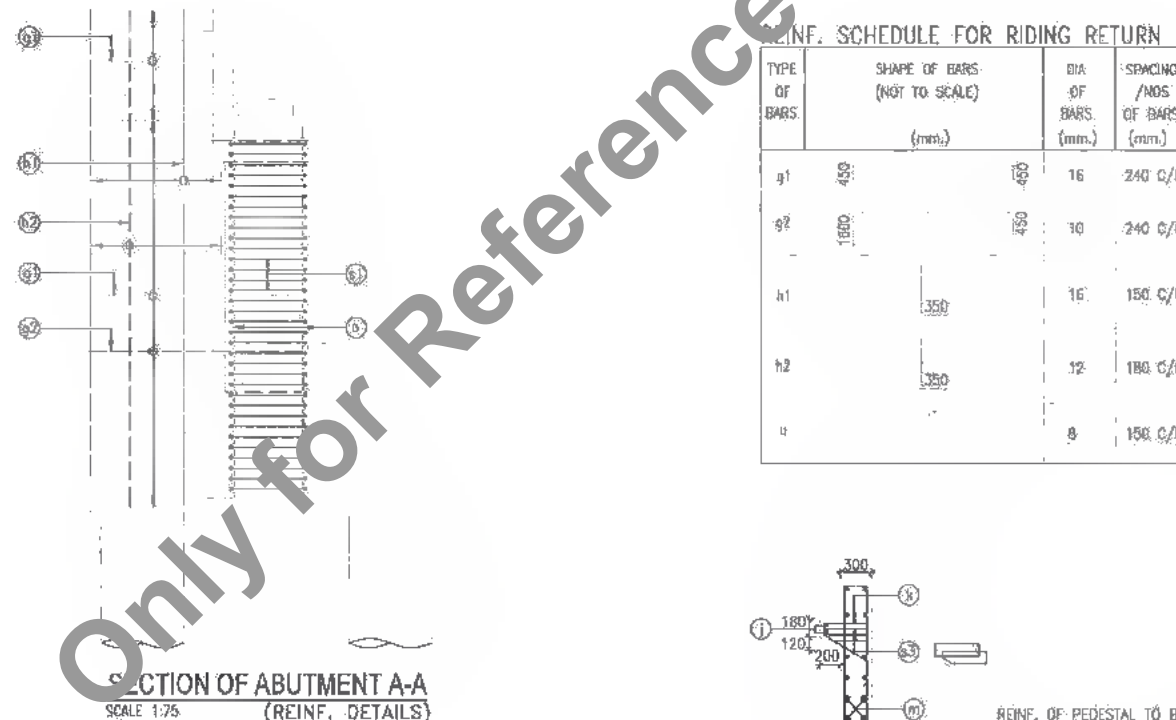
TITLE: LRP CHDVK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) REINFORCEMENT SCHEDULE FOR RCC T-BEAM SUPER STRUT LEXI CH. 50/102 & PROP.CH. 56/678

DRG. NO.: SAI-213007/DPR/C/B/MIN/56.678/SUP-05

REVISION: PE



SECTION OF ABUTMENT A-A
(DIMENSION DETAILS) SCALE 1:150



SECTION OF ABUTMENT A-A
SCALE 1:75 (REINF. DETAILS)

REINF. SCHEDULE FOR RIDING RETURN

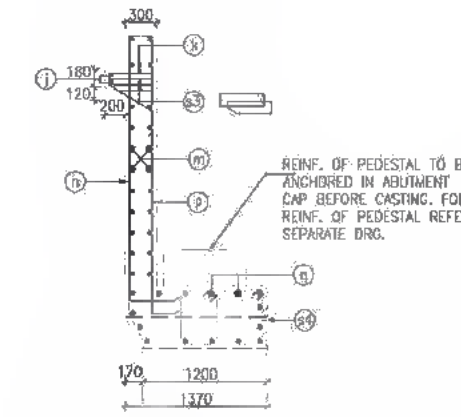
TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE) (mm.)	DIA OF BARS (mm.)	SPACING / NOS OF BARS (mm.)
g1	450	16	240 C/C
g2	1000	10	240 C/C
h1	350	16	150 C/C
h2	350	12	180 C/C
u		8	150 C/C

REINF. SCHEDULE FOR ABUTMENT

TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE) (mm.)	DIA OF BARS (mm.)	SPACING / NOS OF BARS (mm.)
a	500	20	220 C/C
b	500	8	440 C/C
c1	VARIES	16	130 C/C

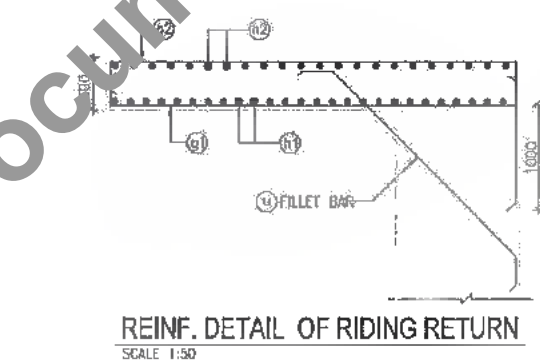
REINF. SCHEDULE FOR ABUTMENT CAP

TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE) (mm.)	DIA OF BARS (mm.)	SPACING / NOS OF BARS (mm.)
i		12	2 NOS
k		12	250 C/C
m		10	170 C/C
n		16	250 C/C
p		16	250 C/C
q		16	14 NOS
s3		10	250 C/C
s4		12	150 C/C

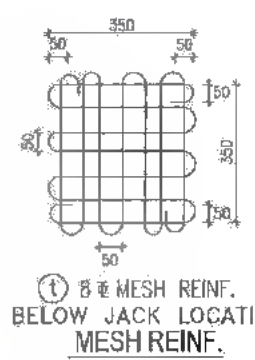


REINF. DETAIL OF ABUTMENT CAP & DIRT WALL
SCALE 1:50

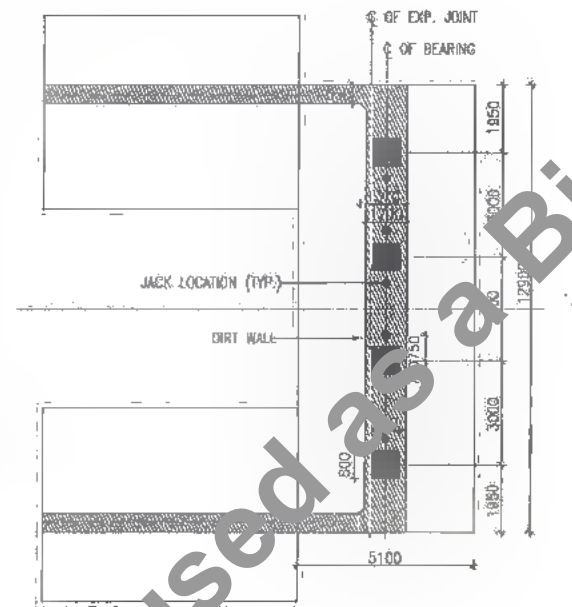
- NOTES:-
- ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED), CHAINAGES & LEVELS ARE IN METERS.
 - ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
 - GRADE OF CONCRETE : M-30
 - GRADE OF HYSD REINFORCEMENT : Fe-500
 - MINIMUM COVER TO ANY REINFORCEMENT SHALL BE (i) 50mm IN ABUTMENT (ii) 75mm IN FOOTING.
 - MINIMUM COVER TO MESH REINF. SHALL BE 20mm UNLESS OTHERWISE SHOWN IN THE DRAWING.
 - IF FULL LENGTH BARS ARE NOT AVAILABLE LAPS MAY BE PROVIDED IN ACCORDANCE WITH CLAUSE 304.6.5.3 I.R.C. 21-2000. WHERE LAPS ARE PROVIDED, THEY SHOULD BE LOCATED AT POINT OF LOW STRESS AND SUITABLY STAGGERED SO THAT NOT MORE THAN 50% OF BARS ARE LAPPED AT ANY CROSS SECTION. THE LAP LENGTH SHALL NOT BE LESS THAN 87 TIMES BAR DIAMETER. LAPING OF BARS SHALL BE DONE IN HORIZONTAL PLANE ONLY.
 - THE LOCATION OF JACKS FOR LIFTING UP THE SUPERSTRUCTURE TO REPLACE BEARING etc. IS SHOWN THIS . THESE SHOULD BE DISTINCTLY ETCHED ON THE CROSS BIRGERS AND PIER/ABUTMENT CAPS.



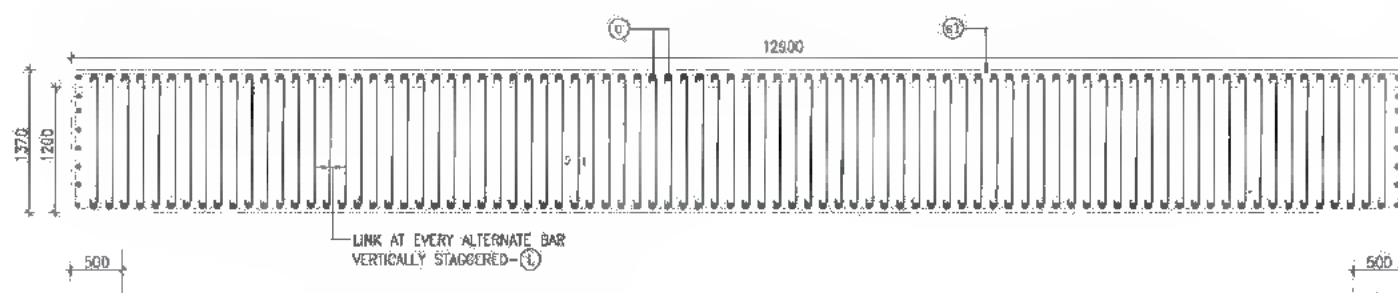
REINF. DETAIL OF RIDING RETURN
SCALE 1:50



8x8 MESH REINF. BELOW JACK LOCATION MESH REINF.



PLAN FOR ABUTMENT
(DIMENSION DETAILS) SCALE 1:150



REINFORCEMENT DETAIL IN PLAN OF ABUTMENT @ BASE OF STEM
SCALE 1:50

DATE: 2019/07/19 3:09pm
PATH: T:\CAL\TAD 2017 BHARREVISED DPR\SUBPACKAGE 3\MINOR BRIDGE\B2 CH.56-67\SUB STRUCT\01 ABUTMENT & ABUTMENT CAP.dwg

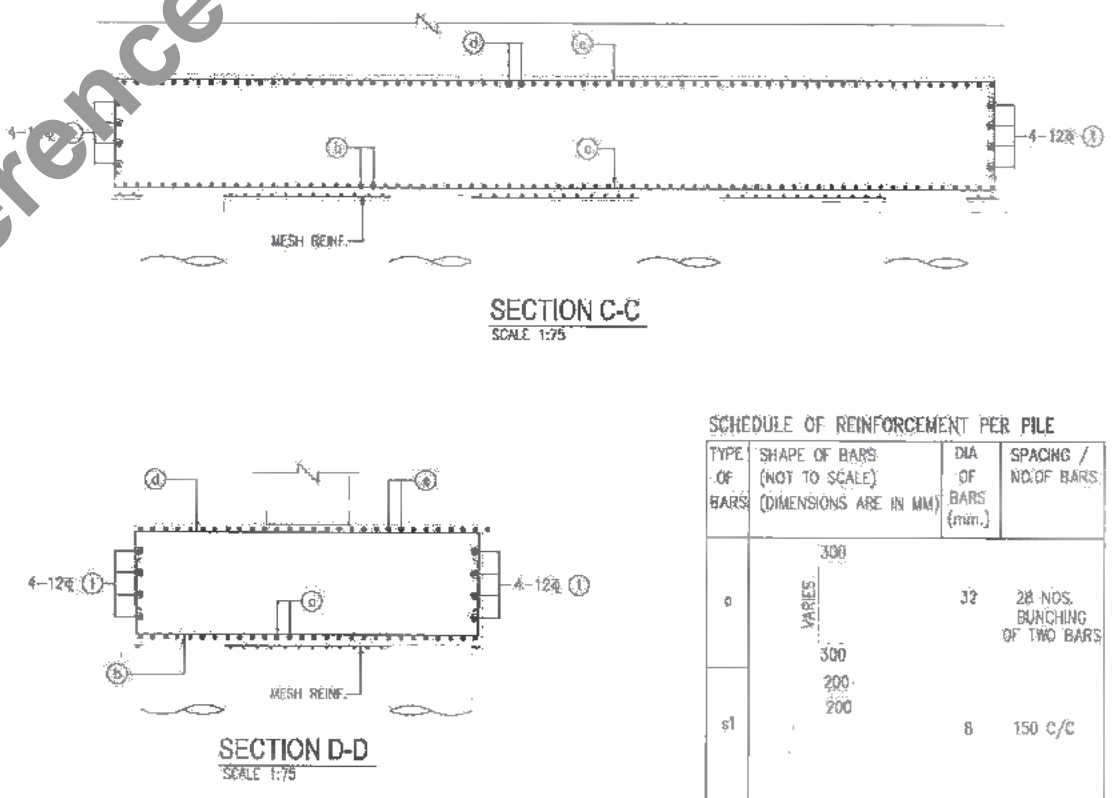
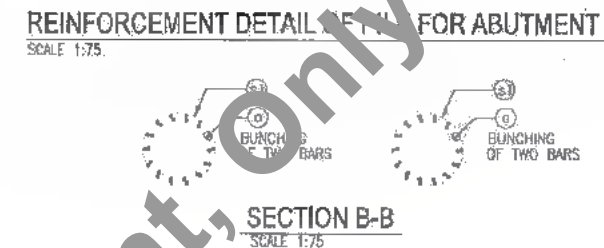
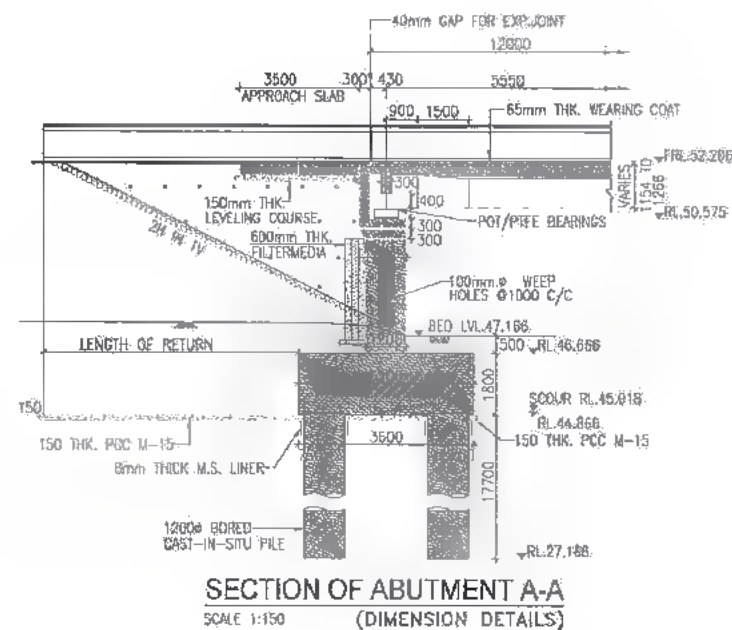
CLIENT:
 Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "SAI House", Sanyam Corporate Square, 6th Rajpath, Duh Desh, New Delhi-110001, India
Phone : +91-11-6642400/700 Fax : +91-11-6642400
Email : sae@saiconsulting.com

PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DRG)	DRAWN BY : G.U.C.	TITLE: LRP CHOWK (BAHADURGANJ)
PD	17/02/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : N.K.S.	DIGHALBANK (PACKAGE-III)
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.R.V.	REINFORCEMENT DETAILS OF ABUTMENT ABUTMENT CAP & DIRTWALL MINOR BRIDGE AT EXG CH.56/102 & PROP. CH.56-67B
PA	26/02/14	ISSUED WITH FINAL DPR	ISSUED BY : S.S. 6-1	DRG. NO. : SAI-213007DPR\G\B\MINOR\56.67\SUB-01
REV.	DATE	DESCRIPTION	SIGN	REVISION : PE





SCHEDULE OF REINFORCEMENT PER PILE

TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE) (DIMENSIONS ARE IN MM.)	DIA OF BARS (mm.)	SPACING / NO. OF BARS
c	VARIES	32	28 NOS. BUNCHING OF TWO BARS
c1	VARIES	8	150 C/C

SCHEDULE OF REINF. FOR PILE CAP

TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE) (DIMENSIONS ARE IN MM.)	DIA OF BARS (mm.)	SPACING / NO. OF BARS
b	900	900	25 180 G/C
c	900	900	16 180 C/C
d	900	900	16 180 C/C
e	900	900	16 180 C/C
f			12 16 NOS.

- NOTES:-**
- ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED); CHAINAGES & LEVELS ARE IN METERS.
 - ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED, NO DIMENSIONS SHALL BE SCALED.
 - IF FULL LENGTH BARS ARE NOT AVAILABLE LAPS MAY BE PROVIDED IN ACCORDANCE WITH CLAUSE 304.6.3 I.R.C. 21-2000. WHERE LAPS ARE PROVIDED, THEY SHOULD BE LOCATED AT POINT OF LOW STRESS AND SUITABLY STAGGERED SO THAT NOT MORE THAN 50% OF BARS ARE LAPPED AT ANY CROSS SECTION. THE LAP LENGTH SHALL NOT BE LESS THAN 87 TIMES BAR DIAMETER FOR PIER & SHALL NOT BE LESS THAN 77 TIMES BAR DIAMETER FOR PILE & PILE CAP. LAPING OF BARS SHALL BE DONE IN HORIZONTAL PLANE ONLY.
 - MINIMUM COVER TO ANY REINFORCEMENT SHALL BE:
 - (i) IN ABUTMENT 50mm
 - (ii) IN FOUNDATION 75mm
 - GRADE OF CONCRETE:
 - (a) PILE : M-35
 - (b) PILE CAP : M-35
 - GRADE OF HYSD REINFORCEMENT : Fe-500

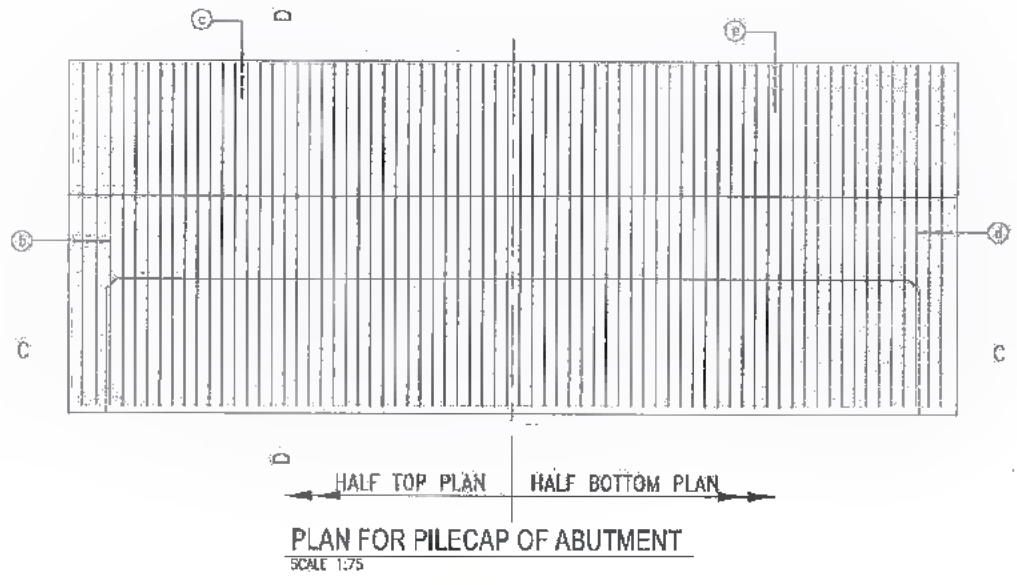
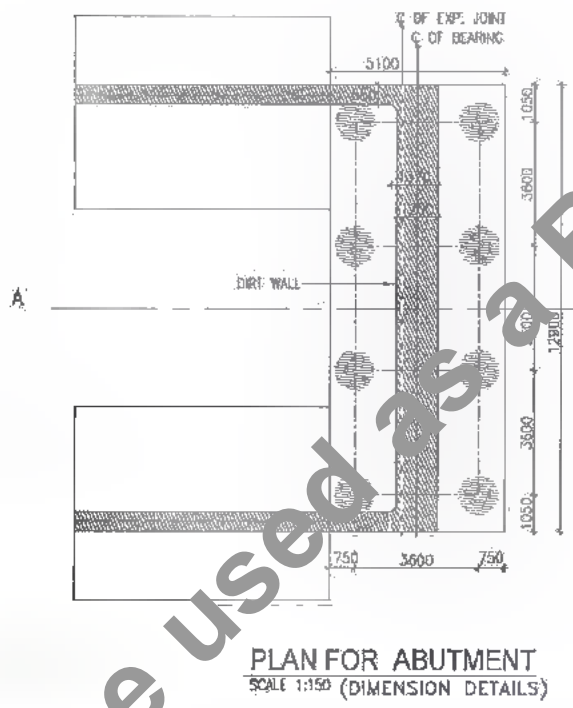


Table Showing Various Parameters of Piles

Existing Chainage	Proposed Chainage	Abutment	Ground Level (m)	Founding Level, FRL (m)	Length of Pile (m)	Top of Pile Cap (m)	Bottom of Pile Cap (m)	Formation Level (m)	Top of Abutment Cap (m)	Top of Abutment (m)	Height of Abutment (m)	Max. Vertical Load		Horizontal Load on Pile			
												Normal (Mton)	Seismic (Mton)	Longitudinal	Transverse		
58/102	56+678	A1	47.166	27.166	17.700	48.888	44.888	52.206	50.575	49.975	3.308	188.48	229.94	31.75	31.75	28.04	10.03
		A2	47.164	27.166	17.700												

DATE: 20/07/19 - 3:09pm
PATH: I:\DATAD\2007 BIHAR REVISD DPR\CV\PACKAGE-3\MINOR BRIDGE\02 CH.56-678\SUB STRUC\02 ABUTMENT PILE & PILE CAP.dwg

MEM:
Bihar State Road Development Corporation Limited (BSRDCL)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Baysi - A 'SAI House', Sayam Taraswati Square, Bih Bahga
Dist. Bahadurganj, Ahmednagar - 431459, Gujarat, India
Phone : +91-79-401287700, Fax : +91-79-40128800
Email : mail@saiconsulting.com

PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : I.S.M.S.
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : M.K.S.
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.A.V.
PB	20/02/14	ISSUED WITH FINAL DPR	
PA	13/11/13	ISSUED WITH DPR	

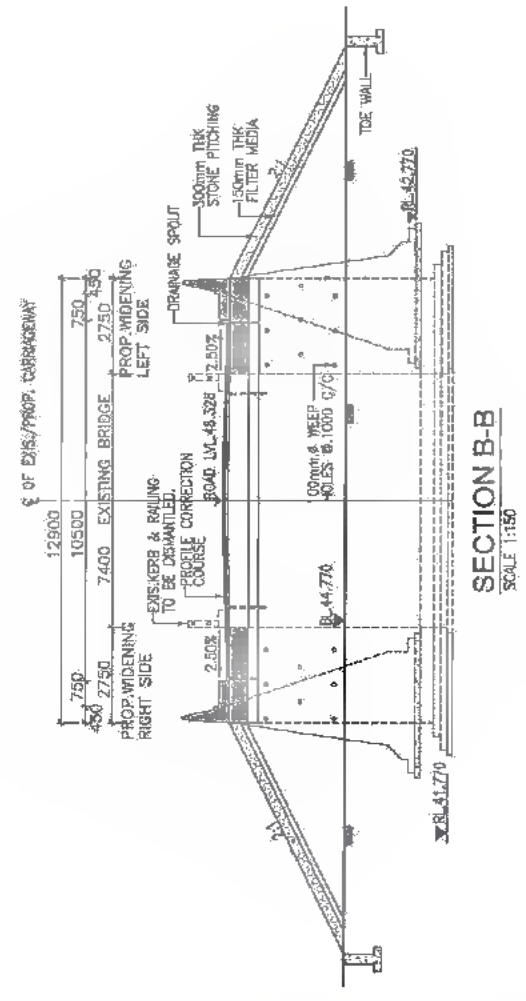
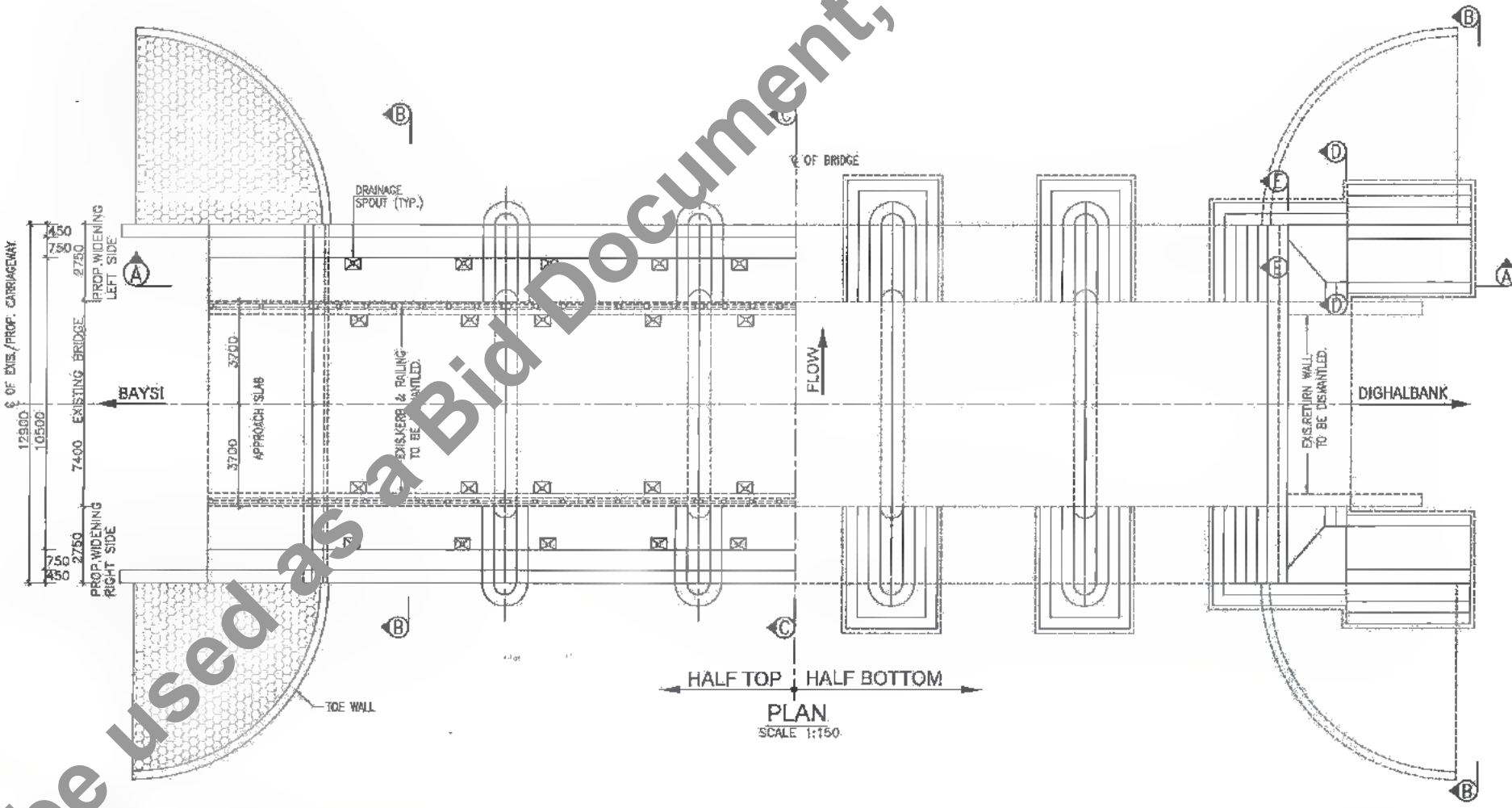
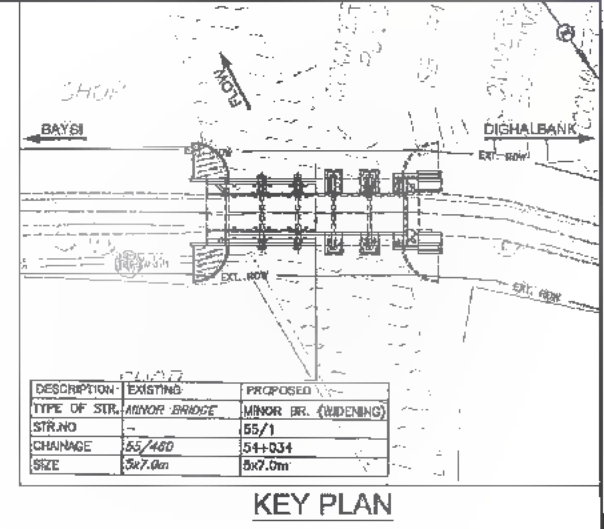
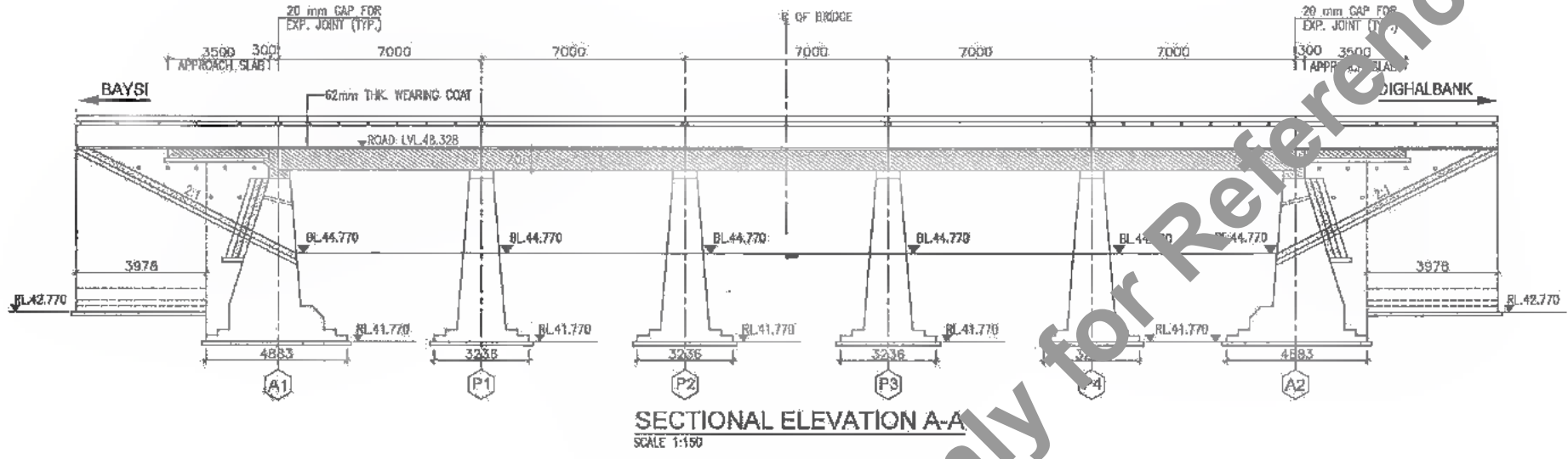
SCALE : AS SHOWN

TITLE: LRP CHOWK (BAHAOURGANJ) - DIGHALBANK (PACKAGE-III) REINFORCEMENT DETAILS OF ABUTMENT PILE & PILE CAP FOR MINOR BRIDGE AT EXIS. CH.58/102 & PROP. CH.58+678

DRG. NO.: SAI-213007/DPR/CB/MINOR BRIDGE/SUB-02

REVISION: PE





DATE: 2019/07/28 - 3:50pm
PATH: C:\Users\user\AppData\Local\Temp\AcPublish_284\103_GAD.CH 54+034. (WIDENING).dwg

CLIENT:
Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANT'S:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "SAI House" Satyan Corporate Square, 8th North
Club Road, Bahadurganj-800029, Bihar, India
Phone: +91-79-66112600/1186 Fax: +91-79-66952100
Email: info@saiindia.com

PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)
PD	17/12/16	GOOD FOR CONSTRUCTION (DPR)
PS	10/04/14	GOOD FOR CONSTRUCTION (DPR)
PR	26/02/14	ISSUED WITH FINAL DPR
RA	13/11/13	ISSUED WITH DPR

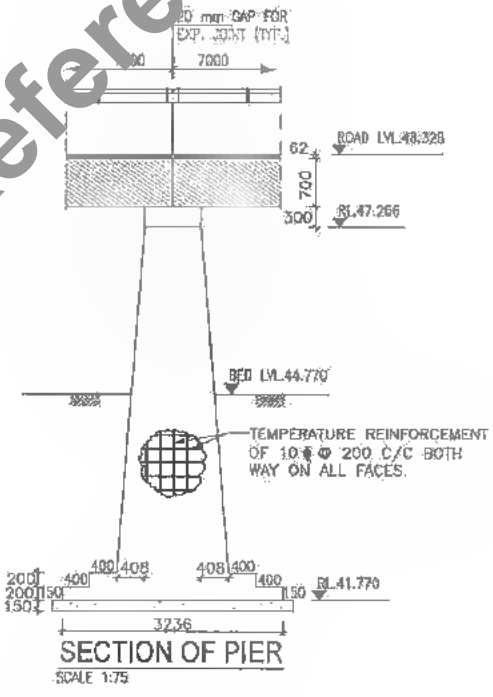
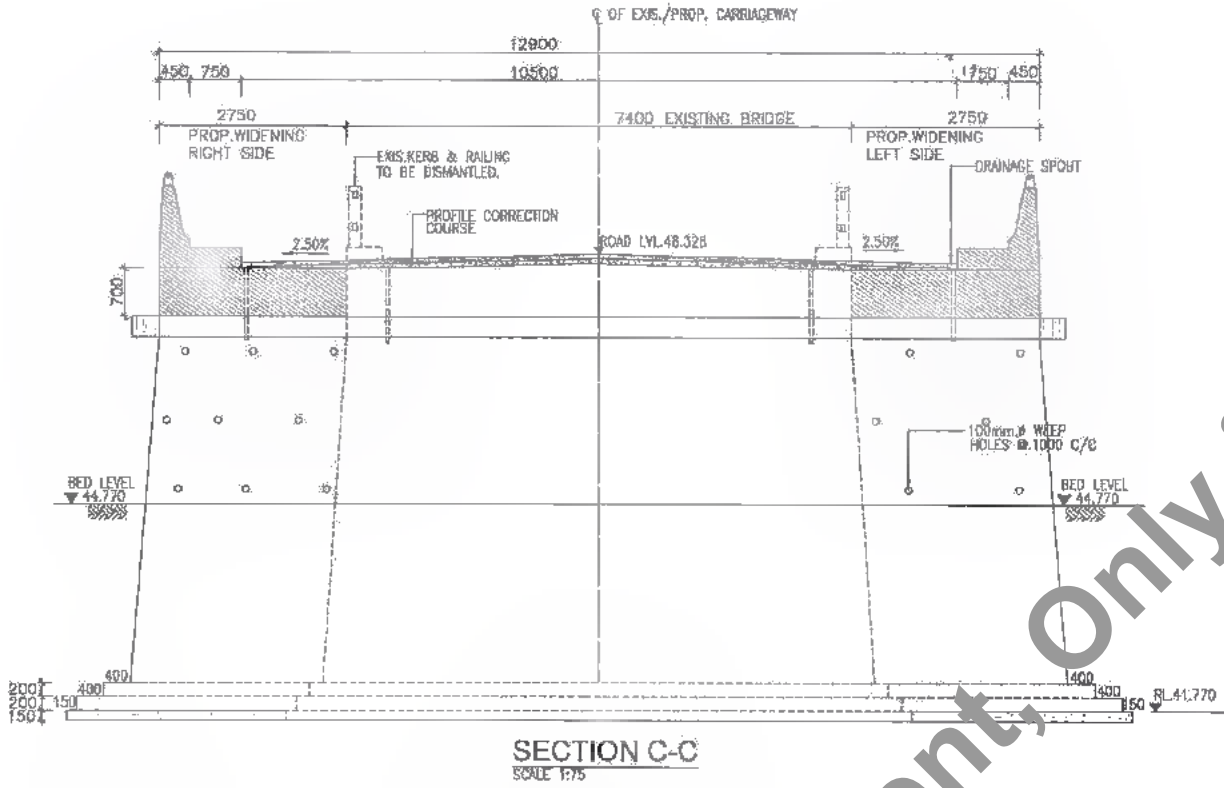
TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) GAD FOR WIDENING OF MINOR BRIDGE AT EXI. CH. 54+034

DRG. NO.: (SHEET 1 OF 2)
SAI-213097/DP/PC/WMINGAD-03

REVISION: RE



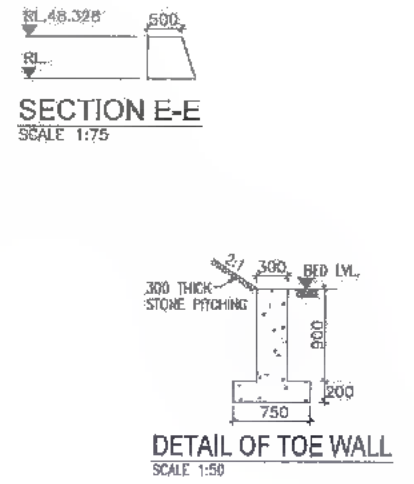
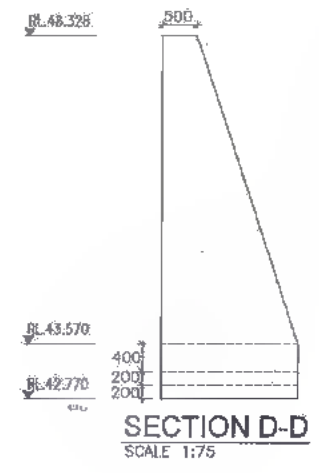
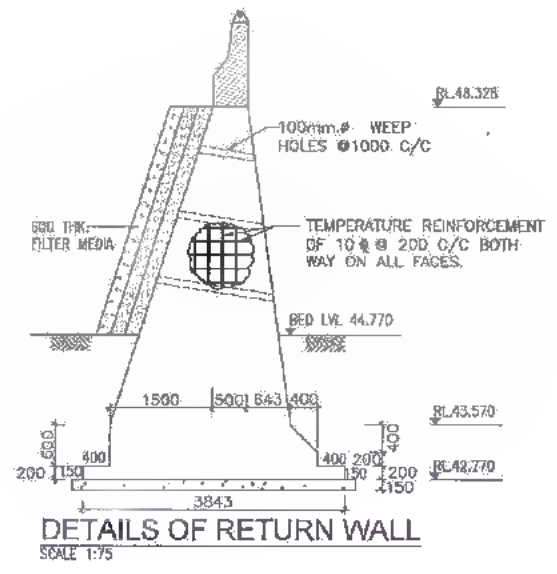
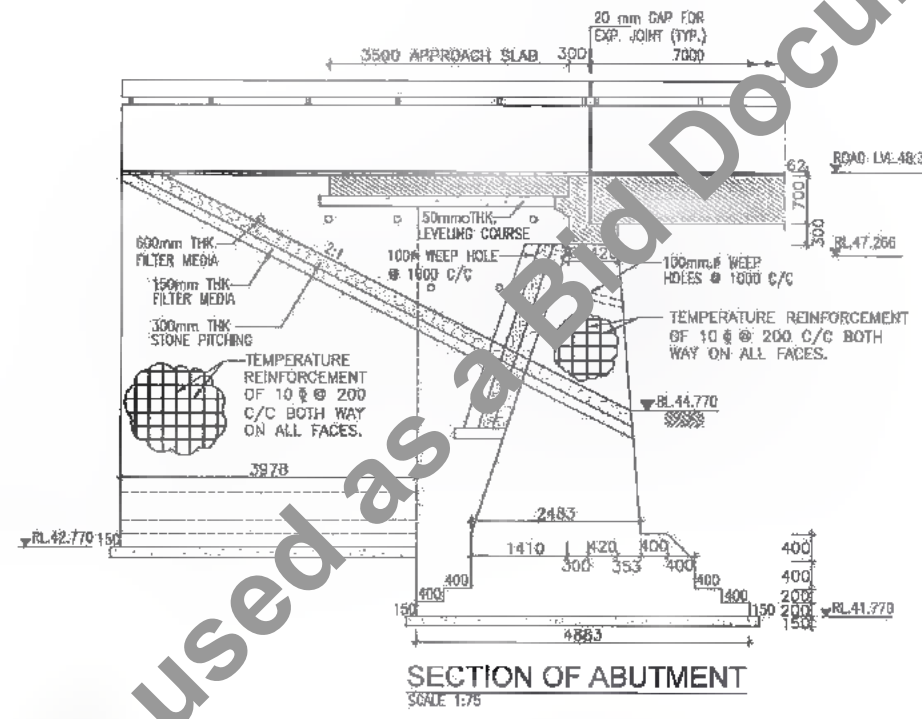
359
420



REFERENCE DRAWINGS

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS:
 - GENERAL NOTES REFER DRG. NO. SAI-213007/DPR/C/B/GEN
 - DETAILS OF FILLER TYPE EXPANSION JOINT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-01
 - APPROACH SLAB & DRAINAGE SPOUT REFER DRG. NO. SM-213007/DPR/C/B/TYP-02
 - TYPICAL DRAWING FOR RCC CRASH BARRIER REFER DRG. NO. SAI-213007/DPR/C/B/TYP-03
 - TYP. DETAILS OF WIDENING OF PCC SUB STRUCTURE REFER DRG. NO. SAI-213007/DPR/C/B/TYP-04
 - REINF. DETAILS OF R.C.C. SOLID SLAB SUPERSTRU. FOR WIDENING OF MINOR BRIDGE AT PROP. CH. 54+034 (7.0M SPAN) REFER DRG. NO. SAI-213007/DPR/C/B/MIN/SUP-03
- GRADE OF HYSD REINFORCEMENT - FE-500.
- TYPE OF BEARING-TAR PAPER.
- GRADE OF CONCRETE:

ABUTMENT CAP/PIER CAP	RCC-M:20
SOLID SLAB	RCC-M:25
APPROACH SLAB	RCC-M:30
CRASH BARRIER	RCC-M:40
SAFETY KERB	RCC-M:20
ABUTMENT/PIER	PCC-M:20
RETURN WALL	PCC-M:20
TOE WALL	PCC-M:15
LEVELING COURSE	PCC-M:15
- THE FOUNDING LEVEL (RL) OF WIDENING PORTION SHOULD NOT BE HIGHER THAN FOUNDING LEVEL (RL) OF EXISTING BRIDGE.



DATE: 20/07/29 9:12am
PATH: C:\Users\an\OneDrive\Documents\BSP\AcPublish\2024\103_BSP_CH 54-034 (WIDENING).dwg

CLIENT:



Bihar State Road Development Corporation Limited (BSRDCL)
(A Government of Bihar Undertaking)

PROJECT:

Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:



SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company

REV.	DATE	DESCRIPTION	BY
PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	
PB	28/02/14	ISSUED WITH FINAL DPR	
PA	13/11/13	ISSUED WITH DPR	

SCALE: AS SHOWN

DRAWN BY: G.M.G.

CHECKED BY: M.K.S.

APPROVED BY: B.K.Y.

ISSUED BY: B.S.

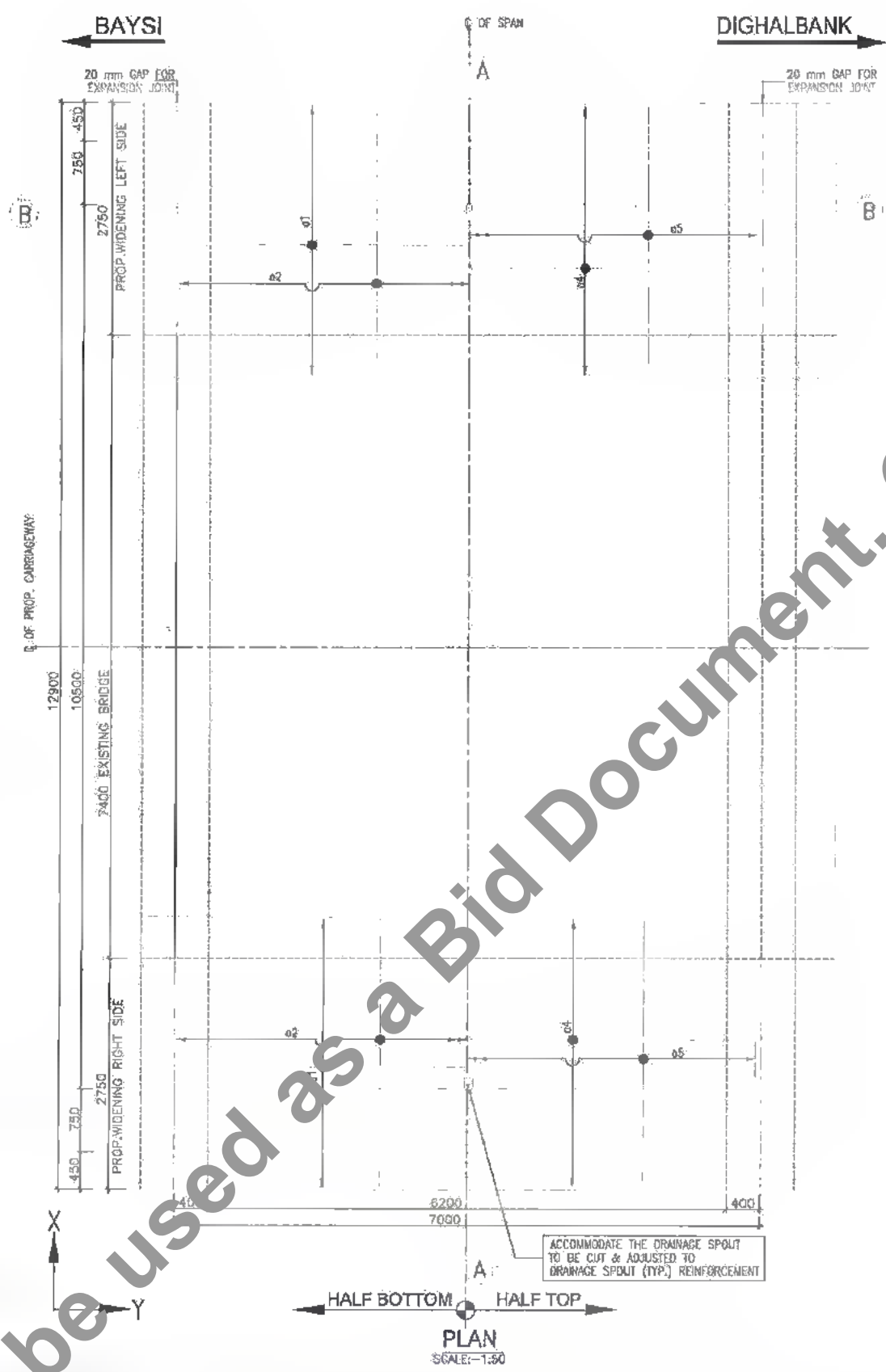
TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) - GAD FOR WIDENING OF MINOR BRIDGE AT EXL. CH. 55+80 & PROP. CH. 54+034

DRG. NO.: (SHEET 2 OF 2)
SAI-213007/DPR/CB/MINGAD-03

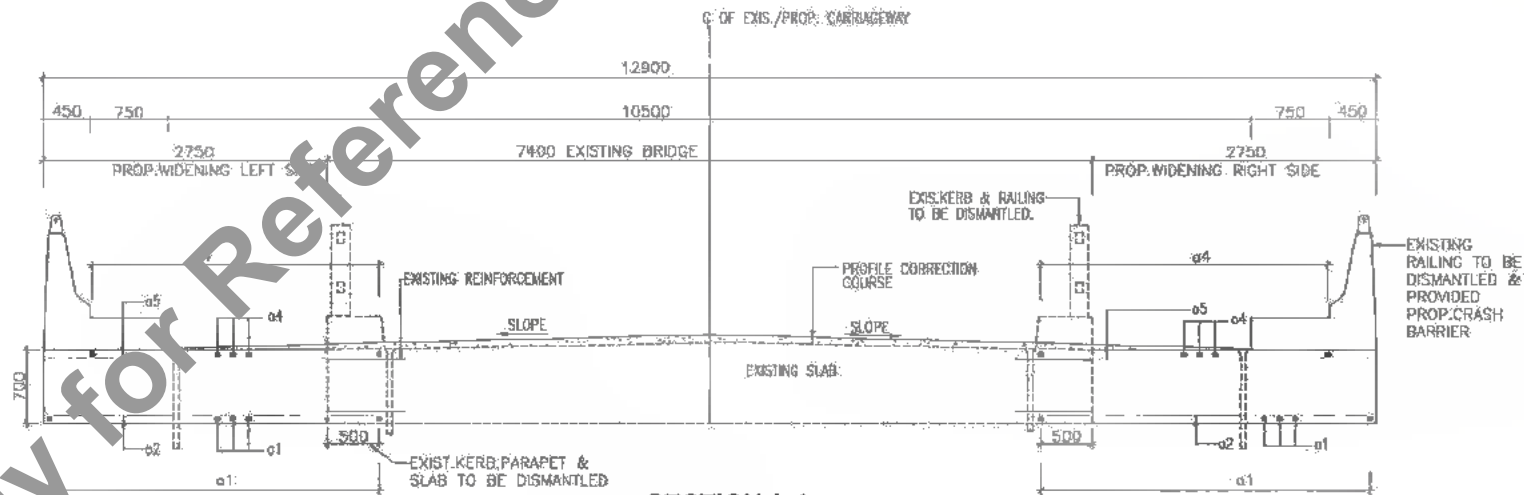
REVISION: PE



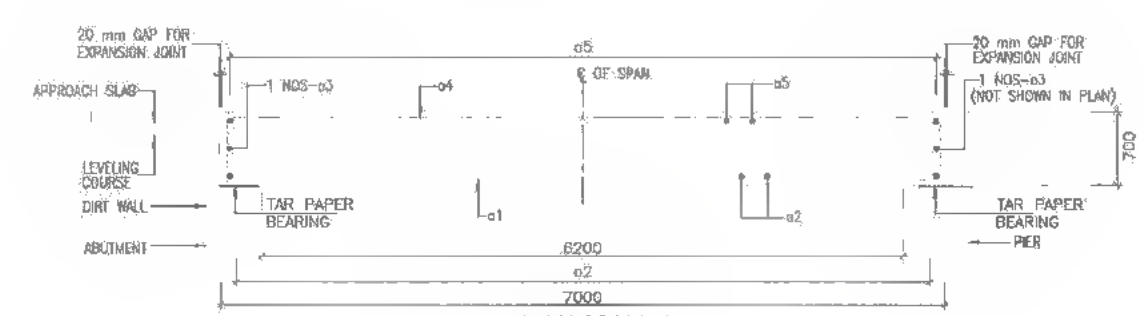
DATE: 20/07/19, 3:10pm
PATH: F:\CAL\TAD 2017\BIHAR\REVISED DPR\18\PACKAGE-3\MINOR BRIDGE\103 CH.54+034 W\WIDENING REC SOLID 7.0m.dwg



PLAN
SCALE:-1:50



SECTION A-A
SCALE:-1:50



SECTION B-B
SCALE:-1:50

SCHEDULE OF REINFORCEMENT (PER SPAN)

SR. NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)
1	SLAB-BOTTOM ALONG-X	a1	$R=60$	25	130
2	SLAB-BOTTOM ALONG-Y	a2	$R=30$	10	150
3	SLAB-SIDE ALONG-Y	a3		10	2 Nos
4	SLAB-TOP ALONG-X	a4	$R=40$	10	300
5	SLAB-TOP ALONG-Y	a5		10	300

REFERENCE DRAWINGS

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS
- (a) GENERAL NOTES REFER DRG NO. SAI-213007/DPR/C/B/GEN
- (b) DETAILS OF FILLER TYPE EXPANSION JOINT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-01
- (c) APPROACH SLAB & DRAINAGE SPOUT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-02
- (d) TYPICAL DRAWING FOR RCC CRASH BARRIER REFER DRG. NO. SAI-213007/DPR/C/B/TYP-03
- (e) GAP FOR WIDENING OF MINOR BRIDGES PROP. CH.54+034 REFER DRG. NO. SAI-213007/DPR/C/B/MIN/GAP-03 (SHEET 1 OF 2 & 2 OF 2)



CLIENT:
Bihar State Road Development Corporation Limited (BSRDCL)
 (A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

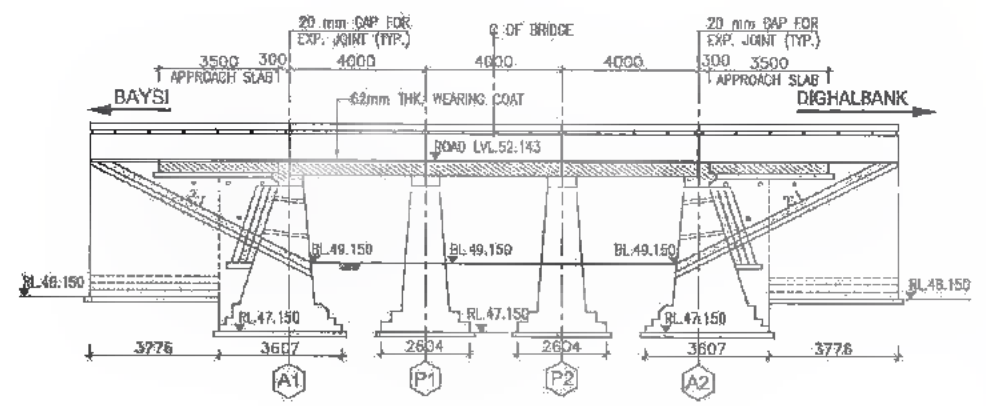
CONSULTANTS:

SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 Block-A "SAI House", Solam Corporate Square, 8th Ring Road, Gandhinagar, Ahmedabad-380015, Gujarat, India
 Phone : +91-79-8642000/700704 Fax : +91-79-8642009
 Email : saic@saiconsulting.com

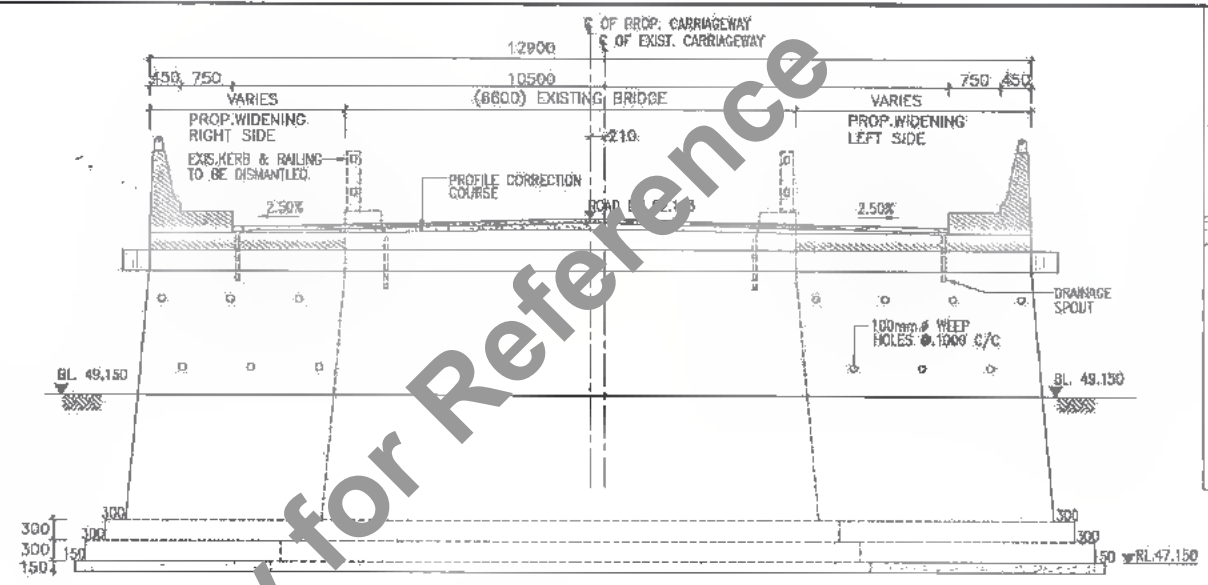
REV.	DATE	DESCRIPTION	ISSN	ISSUED BY
PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)		
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PA	26/02/14	ISSUED WITH FINAL DPR		
PA	13/11/13	ISSUED WITH DPR		

SCALE : AS SHOWN

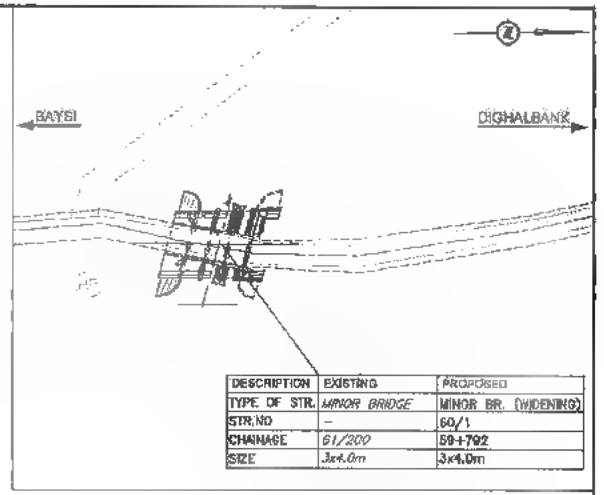
DRAWN BY : S.M.G.
 CHECKED BY : M.K.S.
 APPROVED BY : B.M.V.
 TITLE: CRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) DETAILS OF R.C.C. SOLID SLAB SUPER STRU FOR WIDENING OF MINOR BRIDGE AT EXL CH.54+034 & PROP. CH.54+034
 DRG. NO. : SAI-213007/DPR/C/B/MIN/SUP-03
 REVISION : PE



SECTIONAL ELEVATION A-A
SCALE 1:150

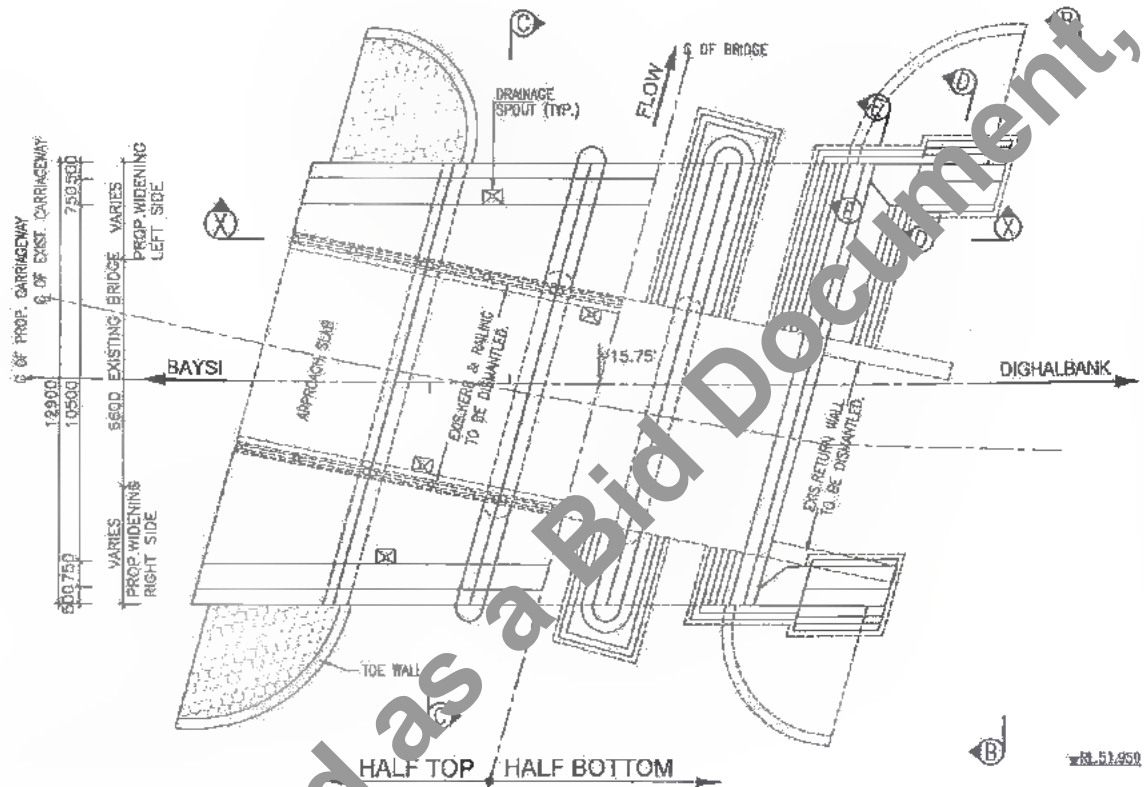


SECTION C-C
SCALE 1:75

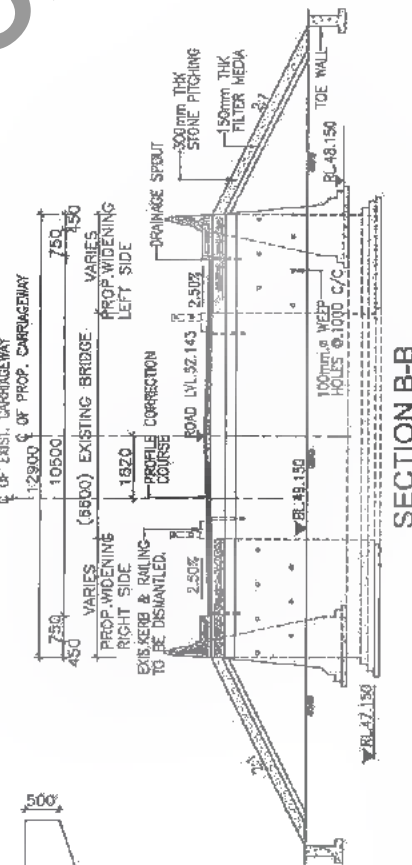


KEY PLAN

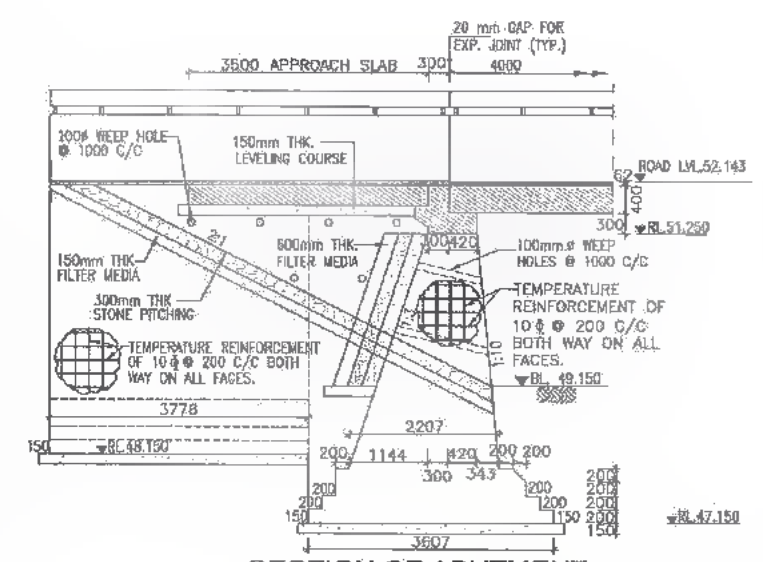
DESCRIPTION	EXISTING	PROPOSED
TYPE OF STR.	MINOR BRIDGE	MINOR BR. (WIDENING)
STR. NO.	-	60/1
CHAINAGE	61+200	59+792
SIZE	3x4.0m	3x4.0m



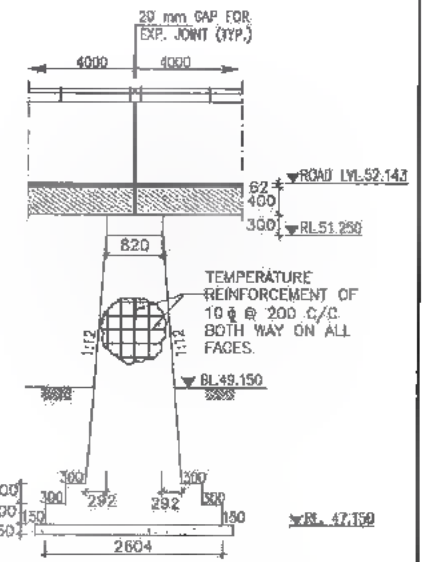
PLAN
SCALE 1:150



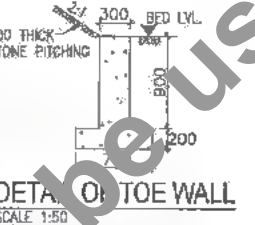
SECTION B-B
SCALE 1:75



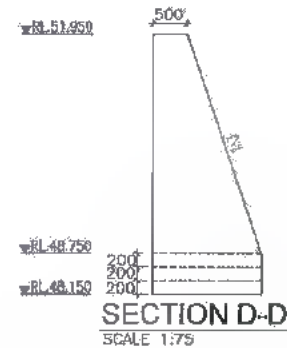
SECTION OF ABUTMENT
SCALE 1:75



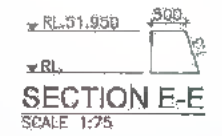
SECTION OF PIER
SCALE 1:75



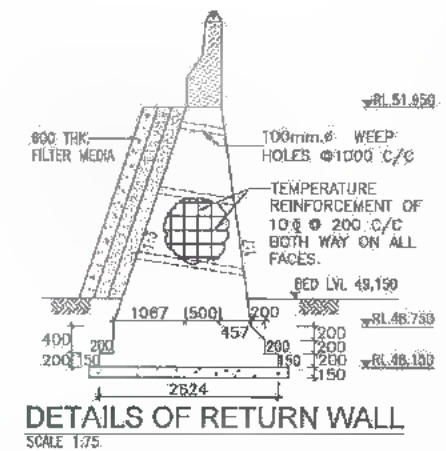
DETAIL OF TOE WALL
SCALE 1:50



SECTION D-D
SCALE 1:75



SECTION E-E
SCALE 1:75



DETAILS OF RETURN WALL
SCALE 1:75

REFERENCE DRAWINGS

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWING
 - GENERAL NOTES REFER DRG. NO. SAI-213007/DPR/C/B/GEN
 - DETAILS OF FILLER TYPE EXPANSION JOINT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-01
 - APPROACH SLAB & DRAINAGE SPOUT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-02
 - TYPICAL DRAWING FOR RCC CRASH BARRIER REFER DRG. NO. SAI-213007/DPR/C/B/TYP-03
 - TYP. DETAILS OF WIDENING OF PCC SUB STRUCTURE REFER DRG. NO. SAI-213007/DPR/C/B/TYP-04
 - REINF. DETAILS OF R.C.C. SOLID SLAB SUPERSTRU. FOR WIDENING MINOR BRIDGE AT PROP. CH. 59+792 (4.0M SPAN) REFER DRG. NO. SAI-213007/DPR/C/B/MIN/SUP-04
- GRADE OF HYSD. REINFORCEMENT - FE-500.
- TYPE OF BEARING-TAR PAPER
- GRADE OF CONCRETE

ABUTMENT CAP/PIER CAP	RCC-M:20	ABUTMENT/PIER	PCC-M:20
SOLID SLAB	RCC-B:25	RETURN WALL	PCC-M:20
APPROACH SLAB	RCC-M:30	TOE WALL	PCC-M:15
CRASH BARRIER	RCC-B:40	LEVELING COURSE	PCC-M:15
SAFETY KERB	RCC-M:20		



DATE: 20/07/23 3:15pm
PATH: T:\ADITAN\13007 BIHARREVISED DPR\CLB\PACKAGE-5\MINOR BRIDGE\104 CH.59+792 WID4. GAD CH.59+792 (WIDENING).dwg

CLIENT: Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)

PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company

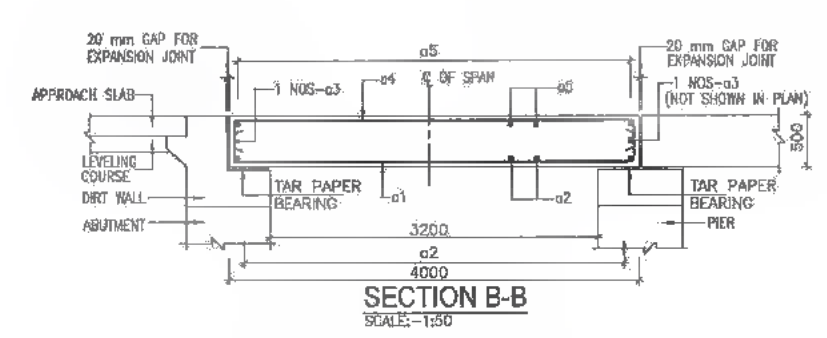
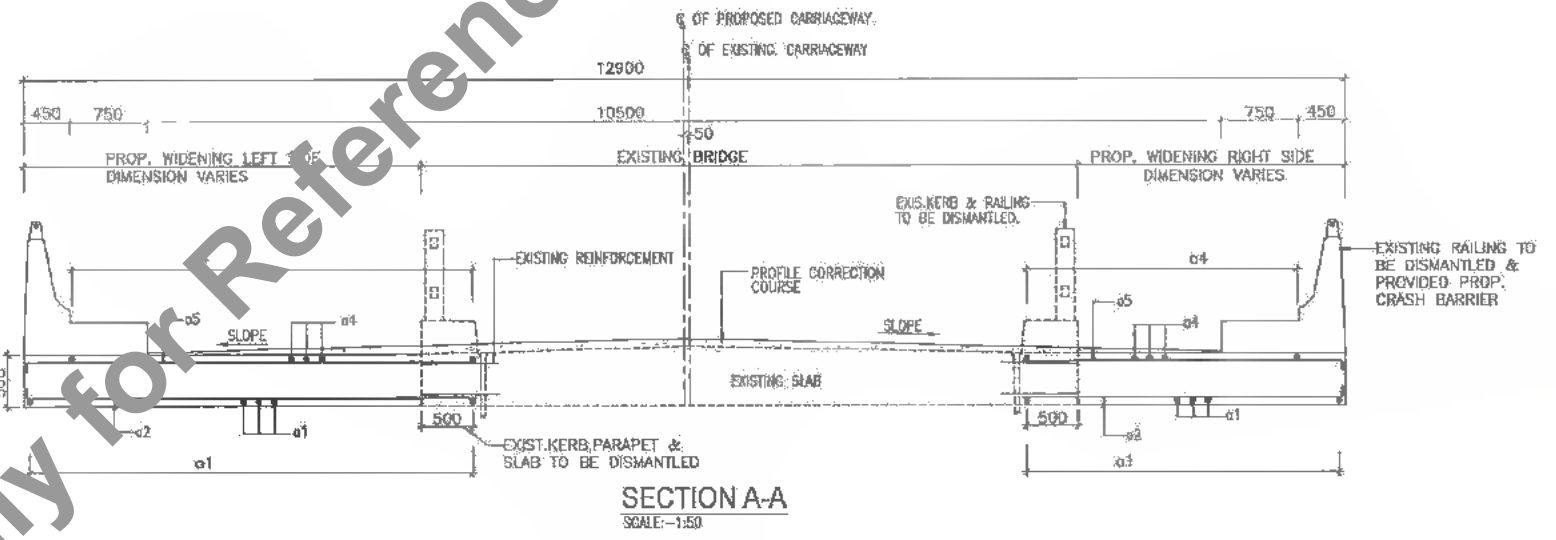
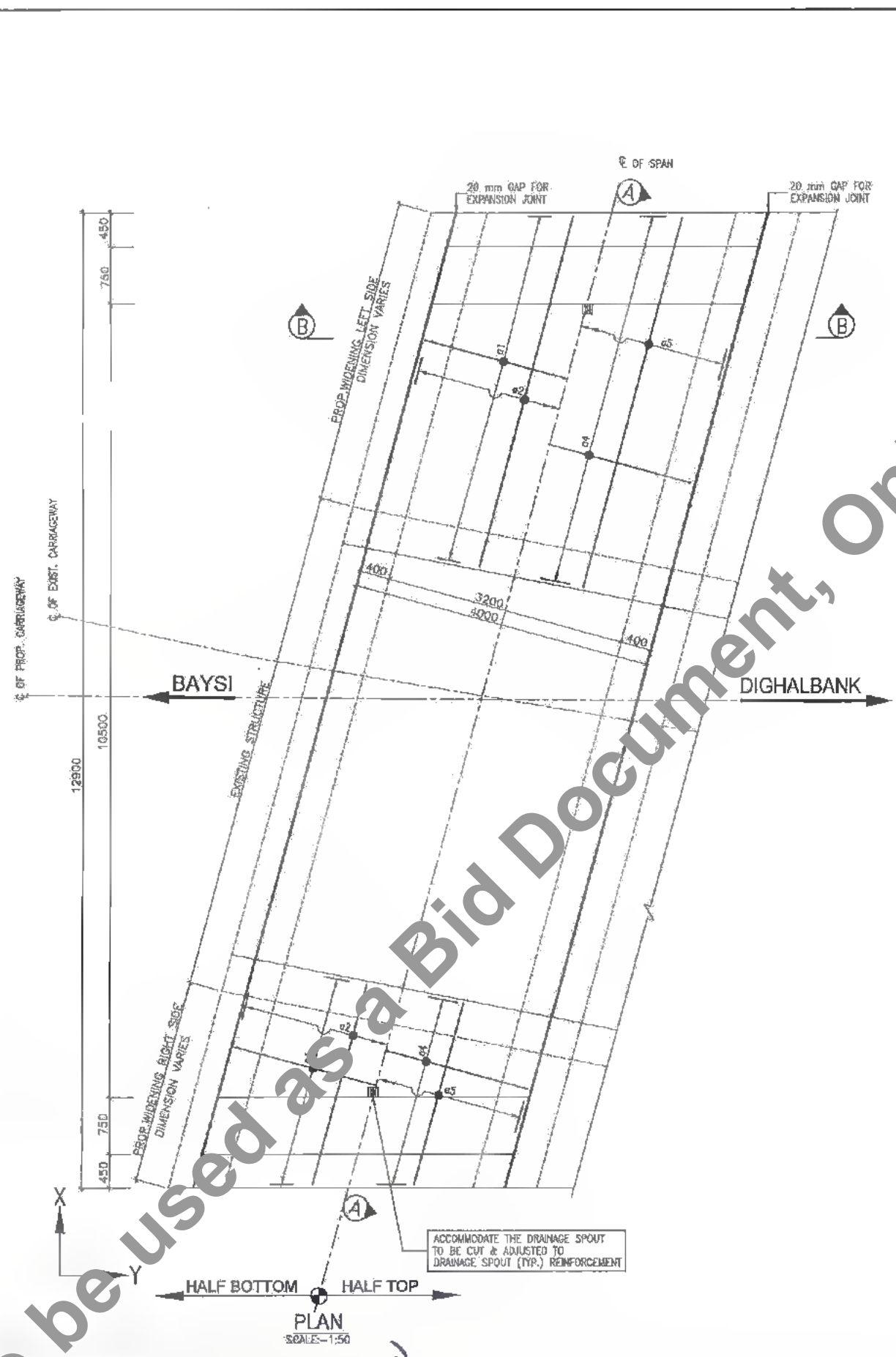
Block-A, "SAI House" Saryan, Corporate Square, Bih. Sahib, Old Bahadurganj, Bahadurganj - 800026 Bihar
Phone + 91-79-4813807/798, Fax + 91-79-6492908
Email: sai@saiconsulting.com

REV.	DATE	DESCRIPTION	SIGN
RF	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)	
PD	19/04/14	GOOD FOR CONSTRUCTION (DPR)	
PC	26/02/14	ISSUED WITH FINAL DPR	
PB	01/01/14	ADDENDUM OF DPR	

SCALE: AS SHOWN

DRWN BY: G.K.S.	CHECKED BY: H.K.S.	APPROVED BY: B.R.V.	ISSUED BY: B.S.
TITLE: LRP CHOWK (BAHADURGANJ) DIGHALBANK (PACKAGE-11) GAD FOR WIDENING OF MINOR BRIDGE AT EX. CH.61+200 PROP. CH. 59+792			
DRG. NO.: SAI-213007/DPR/C/B/MIN/GAD-04			
REVISION: PF			

REVISED	DATE	DESCRIPTION



SCHEDULE OF REINFORCEMENT (PER SPAN)

SR. NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)
1	SLAB-BOTTOM ALONG-X	a1		20	190
2	SLAB-BOTTOM ALONG-Y	a2		10	150
3	SLAB-SIDE ALONG-Y	a3		10	2 Nos
4	SLAB-TOP ALONG-X	a4		10	300
5	SLAB-TOP ALONG-Y	a5		10	300

REFERENCE DRAWINGS

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS
 - (a) GENERAL NOTES REFER DRG NO. SAI-213007/DPR/C/B/GEN
 - (b) DETAILS OF FILLER TYPE EXPANSION JOINT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-01
 - (c) APPROACH SLAB & DRAINAGE SPOUT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-02
 - (d) TYPICAL DRAWING FOR RCC CRASH BARRIER REFER DRG. NO. SAI-213007/DPR/C/B/TYP-03
 - (e) GAD FOR WIDENING OF MINOR BRIDGES PROP. CH.59+792 REFER DRG. NO. SAI-213007/DPR/C/B/MIN/GAD-C4

DATE: 2019/07/29 - 2:06 pm
PATH: T:\CAD\TAD\2007 BIHAR\REVISED DPR\CLB\PACKAGE-3\MINOR BRIDGE\04.CH.59+792.W1104.WIDENING.RCC.SOLID.4.dwg

CLIENT:
 Bihar State Road Development Corporation Limited (BSRDC)
 (A Government of Bihar Undertaking)

PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
 Baysi - Bahadurganj - Dighalbank (SH-99)

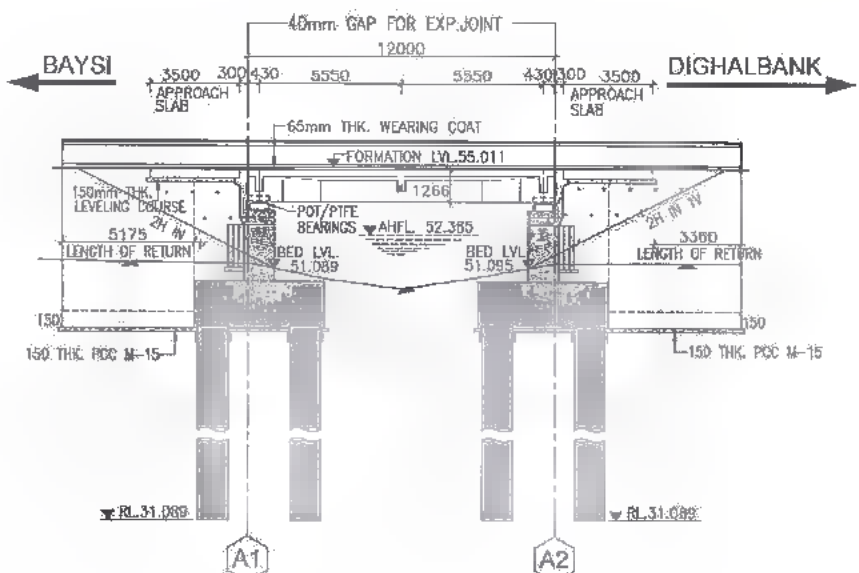
CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 Head-A: 231, Housa, Sector-20, Gurgaon, Haryana, India
 Dist: Gurgaon, Haryana-122009, India
 Phone: +91-79-45128001/02, Fax: +91-79-46118000
 Email: saic@saiconsulting.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
PE	31/07/19	1000 FOR CONSTRUCTION (REVISED DPR)		
PD	17/12/18	9000 FOR CONSTRUCTION (DPR)		
PC	10/04/18	10000 FOR CONSTRUCTION (DPR)		
PA	26/02/14	ISSUED WITH FINAL DOPR		
PR	13/11/13	ISSUED WITH DPR		

DRWN BY : G.M.C.
 CHECKED BY : N.K.S.
 APPROVED BY : B.V.
 ISSUED BY : B.S.
 TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) REINF.DETAILS OF R.C.C. SOLID SLAB SUPER STRUC. FOR WIDENING OF MINOR BRIDGE AT EXL.CH.61200PROP.CH.59+792
 DRG. NO.: SAI-213007/DPR/C/B/MIN/SUP-04
 REVISION : PE

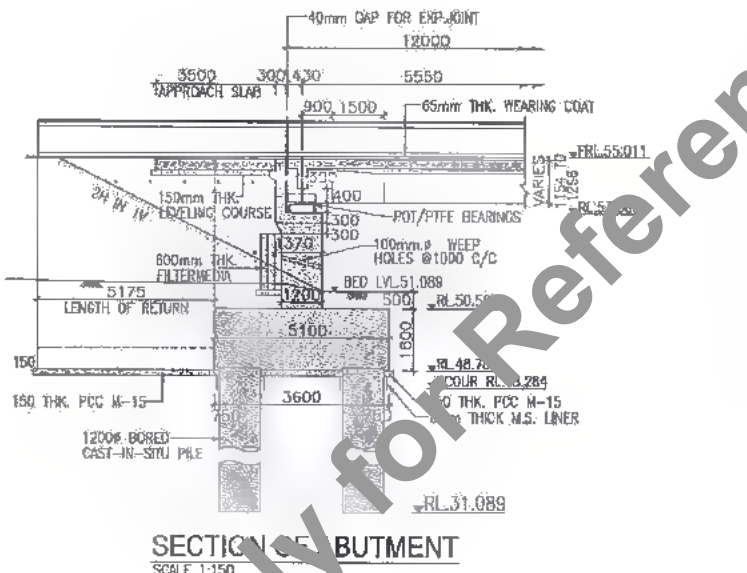


361
416

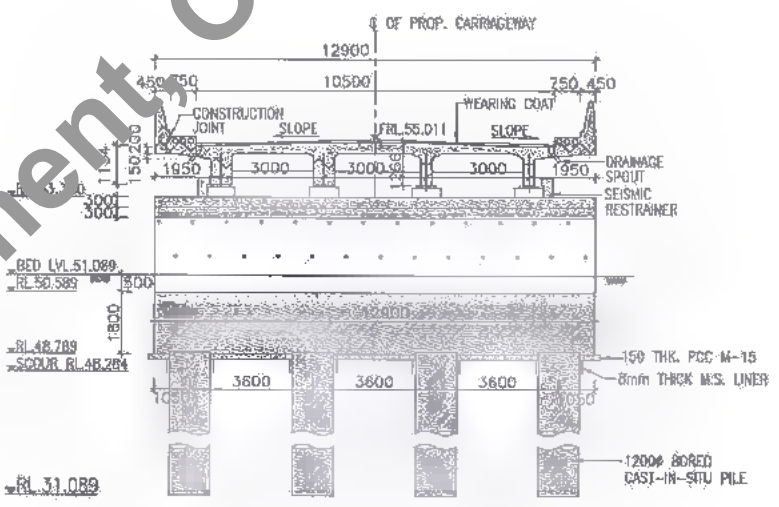


LEVEL DATUM = 38	
GROUND LEVEL AT (m)	81842, 81240, 81646, 81238, 80700, 81682, 80287, 81665, 80750, 81898, 81281, 81682, 81300
CHAINAGE (m)	81842, 81240, 81646, 81238, 80700, 81682, 80287, 81665, 80750, 81898, 81281, 81682, 81300

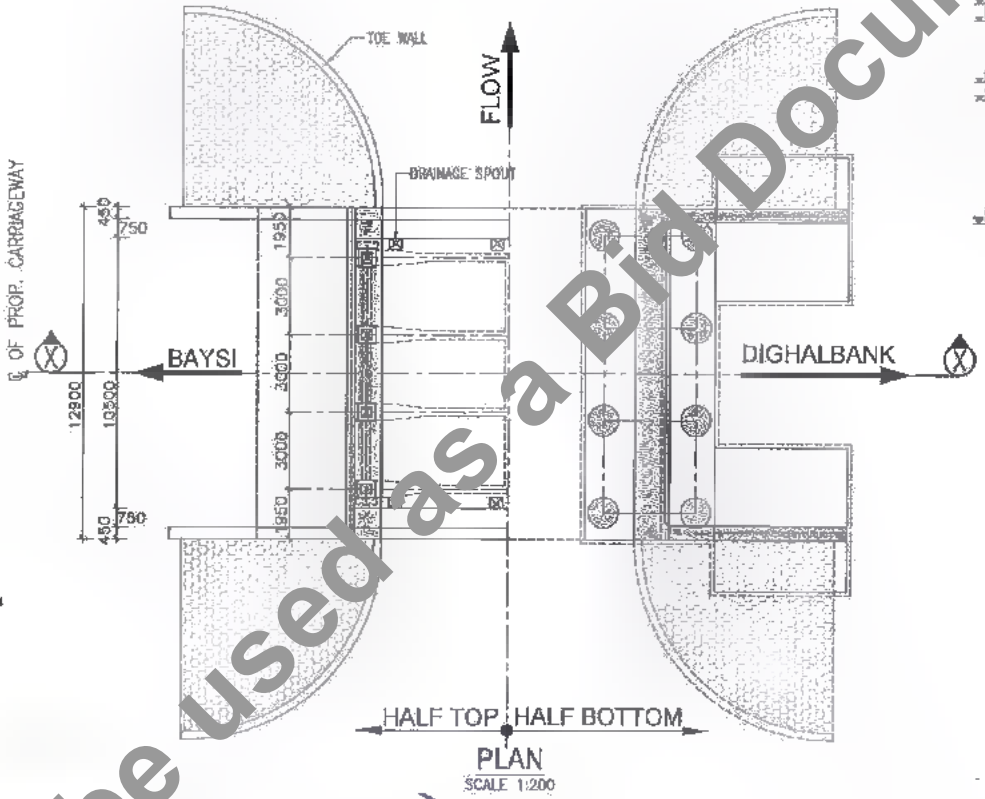
SECTIONAL ELEVATION X-X
SCALE 1:200



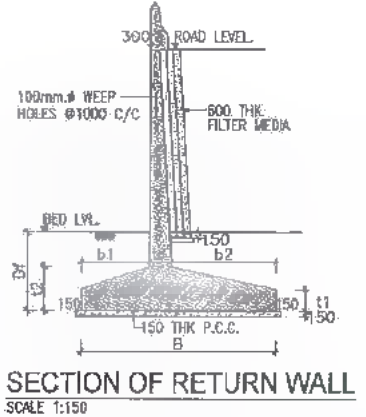
SECTION OF BUTMENT
SCALE 1:150



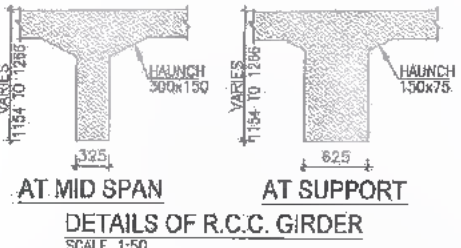
CROSS SECTION OF NEAR ABUTMENT
SCALE 1:150



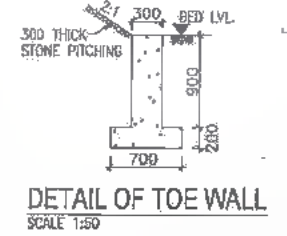
PLAN
SCALE 1:200



SECTION OF RETURN WALL
SCALE 1:150



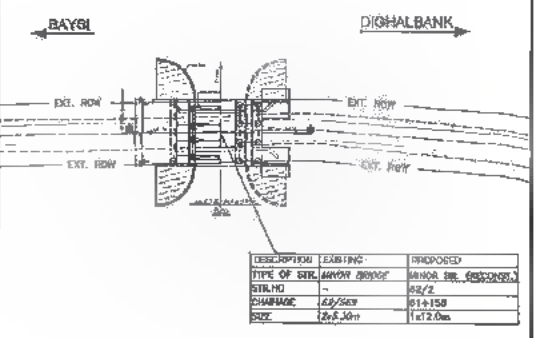
DETAILS OF R.C.C. GIRDER
SCALE 1:50



DETAIL OF TOE WALL
SCALE 1:50

RL.51.089
BORE HOLE NO. A-1

DEPTH (m)	SOIL DESCRIPTION	SPT # VALUE	CORE RECOVERY %	RDD %
0.00	GRAVELLY CLAYEY SAND			
50.00		N=28		
48.00		N=18		
47.00		N=20		
46.00		N=23		
45.00		N=23		
44.00		N=23		
43.00		N=23		
42.00		N=28		
41.00		N=41		
40.00		N=43		
39.00		N=50		
38.00				
37.00				
36.00				
35.00				
34.00				
33.00				
32.00				
31.00				
30.00				
29.00				
28.00				
27.00				
26.00				
25.00				
24.00				
23.00				
22.00				
21.00				



KEY PLAN

- NOTES:-
- ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED) & CHAINAGES ARE IN METRES. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
 - THE FOLLOWING LOADS HAVE BEEN CONSIDERED IN THE DESIGN:-
 - FOR TWO LANE CARRIAGEWAY ONE LANE OF IRC CLASS 70R OR TWO LANES OF IRC CLASS A PLUS FOOTPATH, WHICHEVER GOVERNS.
 - FOR THREE LANE CARRIAGEWAY ONE LANE OF 70R PLUS ONE LANE OF CLASS A OR THREE LANES OF CLASS A WHICH EVER GOVERNS.
 - ELASTOMERIC STRIP SEAL TYPE JOINT SHALL BE PROVIDED. DETAILS SHALL BE AS PER MANUFACTURES DRAWING.
 - BACKFILL MATERIAL BEHIND ABUTMENT SHALL BE SELECTED, SOIL HAVING PROPERTIES AS C = 0.05 KG/30.CM., $\phi \geq 30\%$, $r = 1750$ KG/CUM.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - GENERAL NOTES DRG. NO. SAI-213007/DPR/C/B/TYP/05H
 - GAD FOR SUPER STRUCTURE SAI-213007/DPR/C/B/MIN/61.158/SUP-01
 - REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER DRG. NO. SAI-213007/DPR/C/B/MIN/61.158/SUP-02
 - REINFORCEMENT DETAILS FOR CROSS GIRDER DRG. NO. SAI-213007/DPR/C/B/MIN/61.158/SUP-03
 - REINFORCEMENT DETAILS OF DECK SLAB DRG. NO. SAI-213007/DPR/C/B/MIN/61.158/SUP-04
 - SCHEDULE OF REINFORCEMENT DRG. NO. SAI-213007/DPR/C/B/MIN/61.158/SUP-05
 - DIMENSIONS & REINF. DETAILS FOR ABUTMENT & ABUTMENT CAP FOR MINOR BRIDGE AT PROP. CH. 61+158 DRG. NO. SAI-213007/DPR/C/B/MIN/61.158/SUB-01
 - DIMENSIONS & REINF. DETAILS FOR PILE & PILE CAP OF ABUTMENT FOR MINOR BRIDGE AT PROP. CH. 61+158 DRG. NO. SAI-213007/DPR/C/B/MIN/61.158/SUB-02
 - DETAILS OF APPROACH SLAB & DRAINAGE SPOUT DRG. NO. SAI-213007/DPR/C/B/TYP-02
 - TYP. DETAILS OF R.C.C. CRASH BARRIER DRG. NO. SAI-213007/DPR/C/B/TYP-03
 - TYPICAL DETAILS OF SEISMIC RESTRAINER DRG. NO. SAI-213007/DPR/C/B/TYP-05
 - DETAILS OF SCHEMATIC ARRANGEMENT AND DESIGN FORCES OF POT PILE BEARINGS OF RCC T-BEAM SUP.SITU. DRG. NO. SAI-213007/DPR/C/B/TYP-06
 - DIMENSIONS & REINF. DETAILS OF R.C. RETURN WALL DRG. NO. SAI-213007/DPR/C/B/TYP-07

DATE: 20/07/2019 - 3:16PM
PATH: T:\ADVTAN\3007 BIHARREVISED DPR\CV\PACKAGE-3\MINOR BRIDGE\05 CH.61+158\105 GAD CH.61+158.DWG

BSRDC
Bihar State Road Development Corporation
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

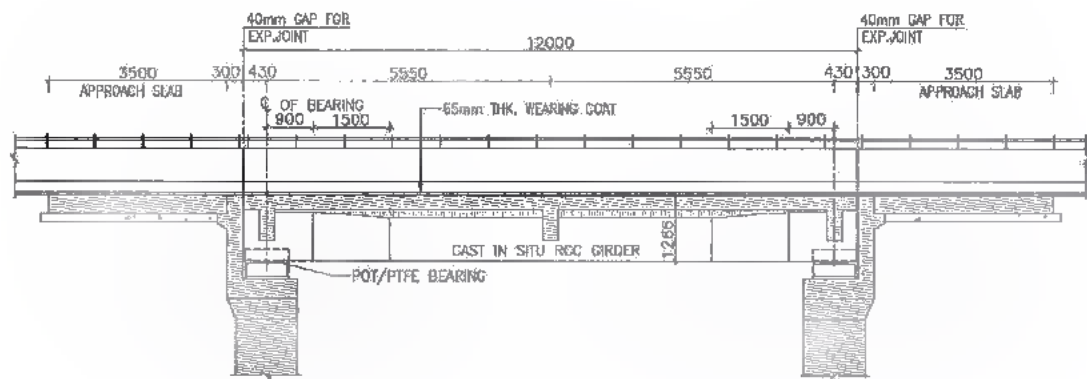
CONSULTANTS:
SAL
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company

REV.	DATE	DESCRIPTION	SIGN
PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	
PD	17/12/19	GOOD FOR CONSTRUCTION (DPR)	
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	
PB	26/02/14	ISSUED WITH FINAL DPR	
PA	13/11/13	ISSUED WITH DPR	

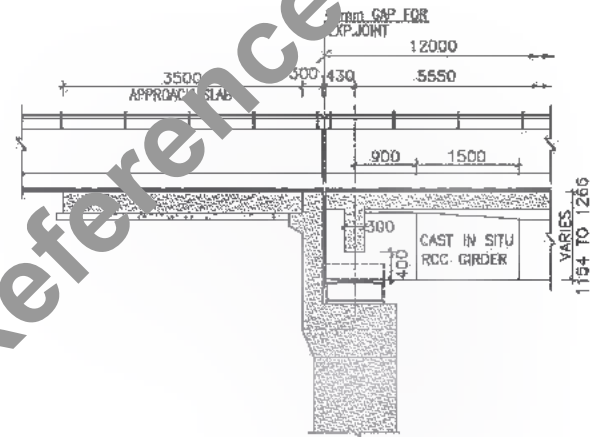
TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) GAD FOR RECONSTRUCTION OF MINOR BRIDGE AT EXL CH.62+569 & PROP. CH. 61+158
DRG. NO.: SAI-213007/DPR/C/B/MIN/GAD-06
REVISION: PE



367
415

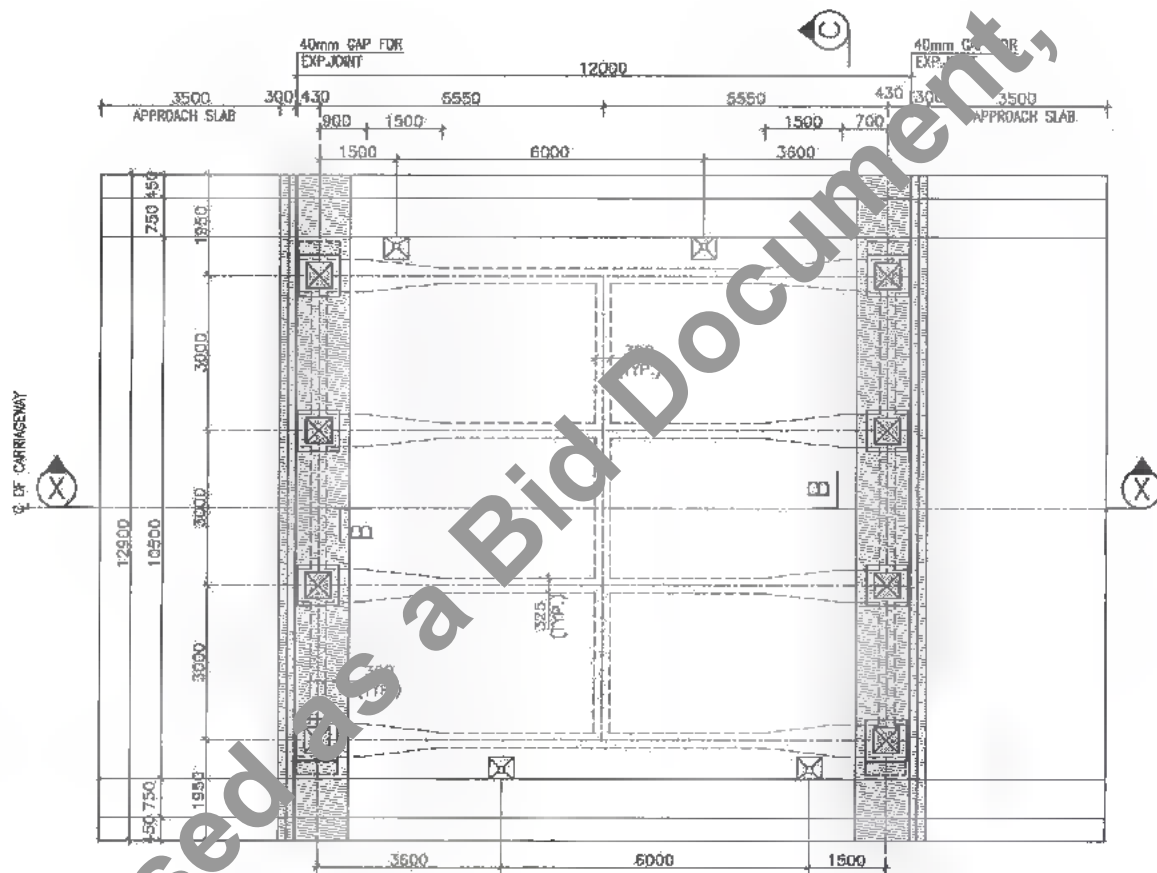


SECTIONAL ELEVATION X-X
SCALE 1:100

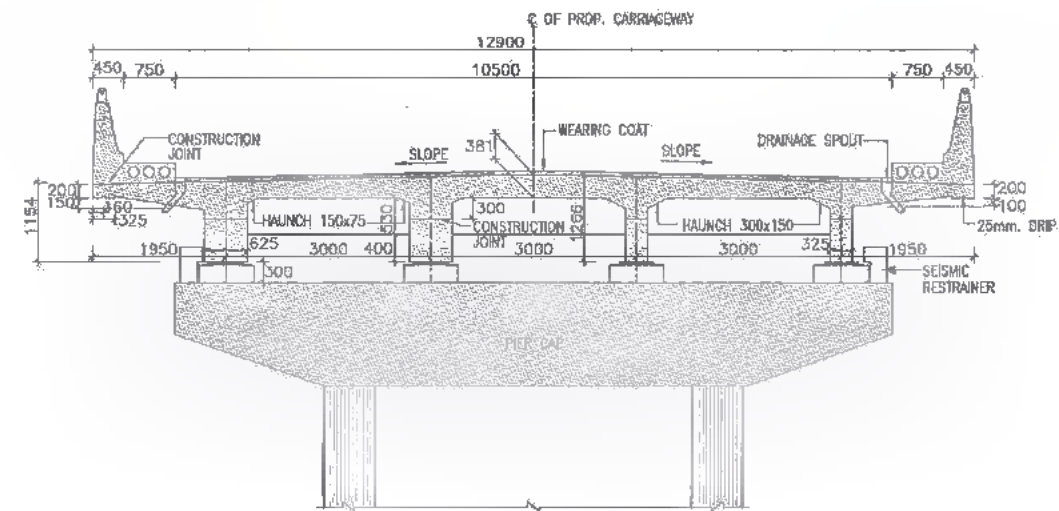


DETAIL OF SUPERSTRUCTURE
AT ABUMENT LOCATION
SCALE 1:75

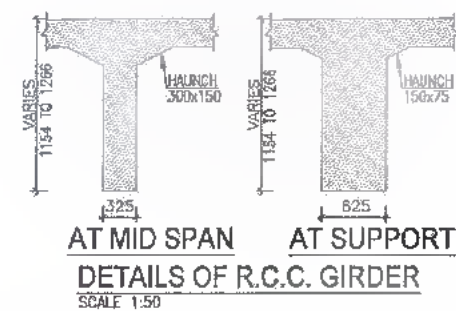
- NOTES :**
- ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METER.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - GENERAL NOTES DRG. NO.SAI-213007/DPR/C/B/TYP/GEN
 - REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER DRG. NO.SAI-213007/DPR/C/B/MIN/61.158/SUP-02
 - REINFORCEMENT DETAILS FOR CROSS GIRDER DRG. NO.SAI-213007/DPR/C/B/MIN/61.158/SUP-03
 - REINFORCEMENT DETAILS OF DECK SLAB DRG. NO.SAI-213007/DPR/C/B/MIN/61.158/SUP-04
 - SCHEDULE OF REINFORCEMENT DRG. NO.SAI-213007/DPR/C/B/MIN/61.158/SUP-05



PLAN
SCALE 1:100



SECTION A-B-C
SCALE 1:75



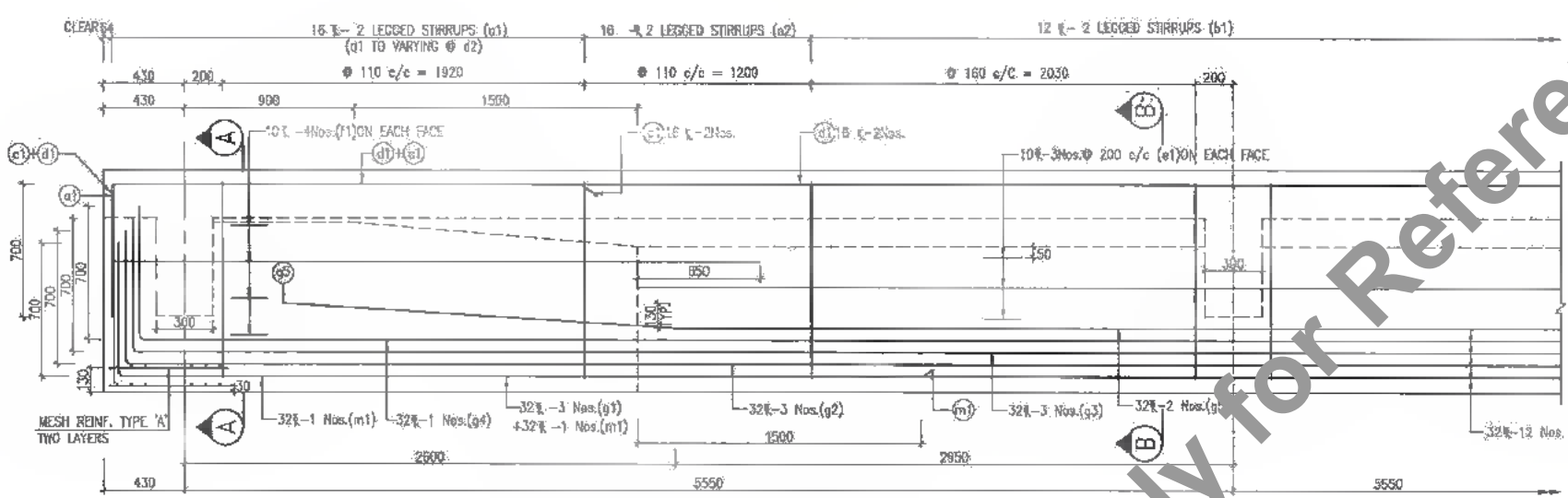
AT MID SPAN AT SUPPORT
DETAILS OF R.C.C. GIRDER
SCALE 1:50



DATE: 2019/07/29 - 3:59pm
PATH: T:\CAD\TAO\2017 BIHAR REVISIED DPR\C\B\PACKAGE-3\MINOR BRIDGE\OS CH.61+581\SUPER STR 12.0m\101 GAD SUP 12.0m.dwg

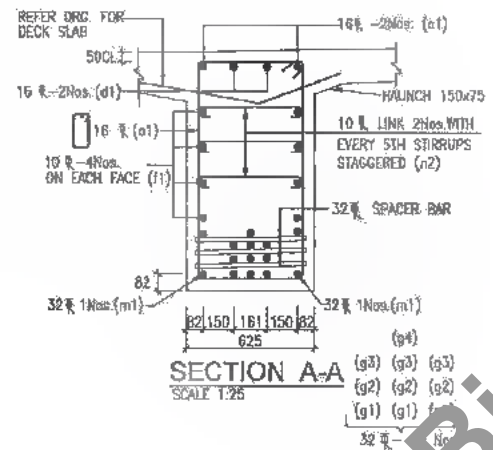
 <p>Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)</p>	<p>PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar <i>Baysi - Bahadurganj - Dighalbank (SH-99)</i></p>	<p>CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company Block-A "SAI House" Sarjan Corporate Space, 8th Sector, (Ist) Badli, New Delhi - 110029, India Phone: +91-11-66122800/180, Fax: +91-11-66122806 Email: mail@saiconsulting.com</p>	<p>PE 31/07/18 GOOD FOR CONSTRUCTION (REVISED DPR)</p> <p>PD 17/12/18 GOOD FOR CONSTRUCTION (DPR)</p> <p>PD 10/04/14 GOOD FOR CONSTRUCTION (DPR)</p> <p>PA 28/02/14 ISSUED WITH FINAL DPR</p> <p>PA 15/11/13 ISSUED WITH DPR</p>	<p>DRAWN BY : G.M.S.</p> <p>CHECKED BY : R.K.S.</p> <p>APPROVED BY : B.A.K.</p>	<p>TITLE: LRP CHOWK(BAHADURGANJ) -DIGHALBANK (PACKAGE-10) GAD FOR RCC T-BEAM SUPER STRU. AT EXI. CH. 62569 & PROP. CH.61+158</p>						
			<table border="1"> <thead> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>SGN</th> <th>ISSUED BY :</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>SCALE : AS SHOWN</p>	REV.	DATE	DESCRIPTION	SGN	ISSUED BY :			
REV.	DATE	DESCRIPTION	SGN	ISSUED BY :							

363
414

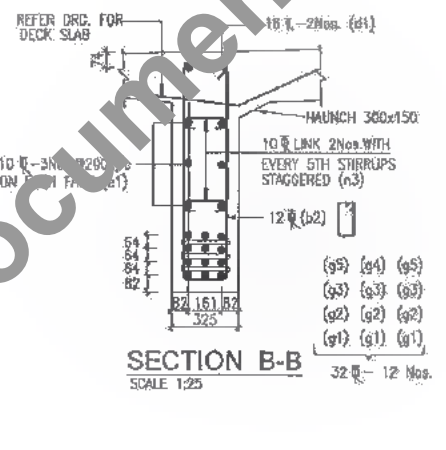


LONGITUDINAL SECTION OF GIRDER
SCALE: 1:25

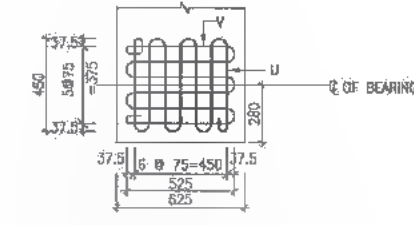
- NOTES:**
1. ALL DIMENSIONS ARE IN MM. & LEVELS ARE IN METER.
 2. 32 # SPACER BARS SHALL BE PROVIDED @ 1.00m. c/c BETWEEN TWO TIERS OF LONGITUDINAL BARS OF GIRDERS.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - a. GENERAL NOTES DRG. NO. SAI-213007/DPR/C/B/TYP/GEN
 - b. GENERAL ARRANGEMENT DRAWING FOR SUPERSTRUCTURE. DRG. NO. SAI-213007/DPR/C/B/MIN/B1.15B/SUP-01
 - c. REINFORCEMENT DETAILS FOR CROSS GIRDER. DRG. NO. SAI-213007/DPR/C/B/MIN/B1.15B/SUP-05
 - d. REINFORCEMENT DETAILS OF DECK SLAB. DRG. NO. SAI-213007/DPR/C/B/MIN/B1.15B/SUP-04
 - e. SCHEDULE OF REINFORCEMENT. DRG. NO. SAI-213007/DPR/C/B/MIN/B1.15B/SUP-05



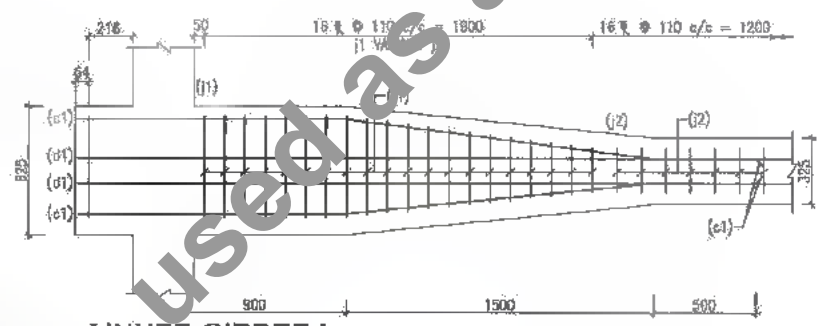
SECTION A-A
SCALE: 1:25



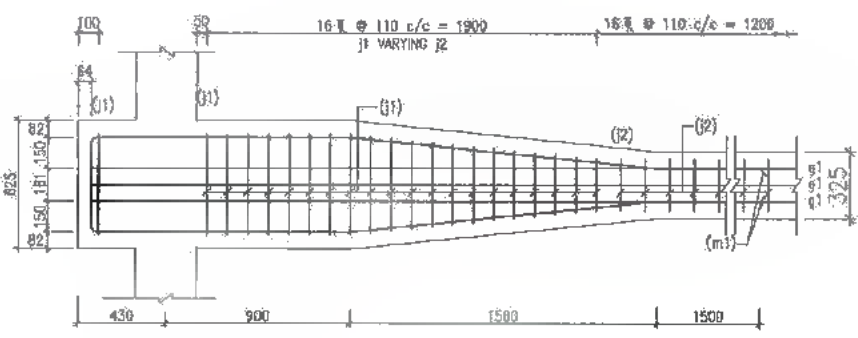
SECTION B-B
SCALE: 1:25



8 #8 MESH REINFORCEMENTS
TYPE - 'K'




[INNER GIRDER]
PLAN SHOWING WEB REINF. (TOP) AT THE END
SCALE: 1:25



[INNER GIRDERS]
PLAN SHOWING WEB REINF. (BOTTOM) AT THE END
SCALE: 1:40

DATE: 20/07/29 12:18pm
PATH: T:\ADVT\SAI\3007_BIHARREVISED DPR\CLIP\PACKAGE-3\MINOR BRIDGE\05 CH.S&M\SR\SUPER STR 12.0m\102 LOGN01 GIRDER 12.0m.dwg

CLIENT:



Bihar State Road Development Corporation Limited (BSRDCL)
(A Government of Bihar Undertaking)

PROJECT:

Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:



SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "SAI House" Seefar Corporate Square, Bih Rajgall
Dist. Baidyathal, Ahmednagar-430019, Maharashtra
Phone : +91-20-2616256/2617805, Fax : 021-26-6532808
Email : mail@saiengineers.com

REV.	DATE	DESCRIPTION	SKIN	ISSUED BY	C.K.
PC	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)			
PD	12/12/18	GOOD FOR CONSTRUCTION (DPR)			
PE	10/04/14	GOOD FOR CONSTRUCTION (DPR)			
PF	28/02/14	ISSUED WITH FINAL DPR			
PA	13/11/13	ISSUED WITH DPR			

DRAWN BY : G.M.D. S.

CHECKED BY : M.K.S.

APPROVED BY : B.R.V. R.

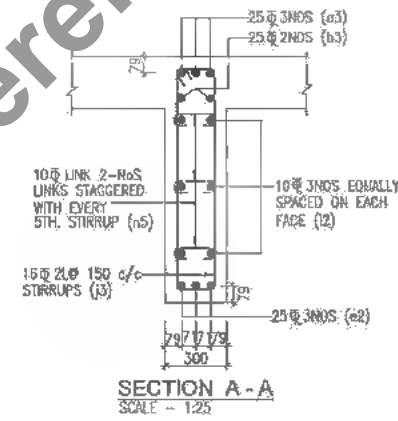
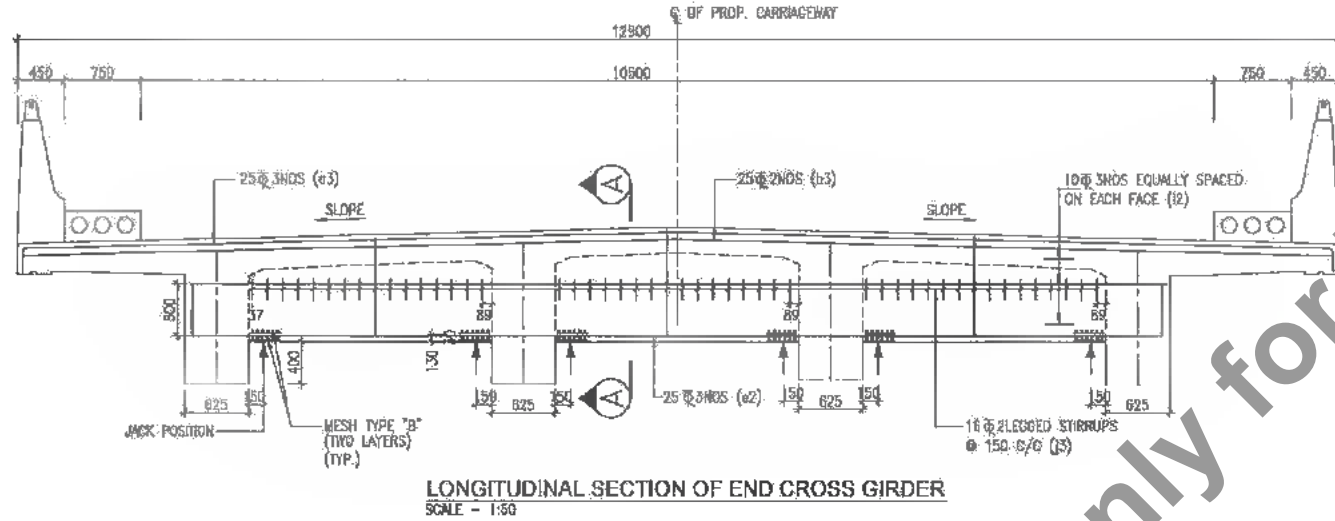
ISSUED BY : S.K. S.

TITLE: LRP CHOWK (BAHADURGANJ) -DIGHALBANK (PACKAGE-3B) REINFORCEMENT DETAILS OF LONGITUDINAL GIRDER FOR RCC T-BEAM SUPER STRUT EX CH. 02/569 & PROP. CH.03+15B

SCALE: AS SHOWN

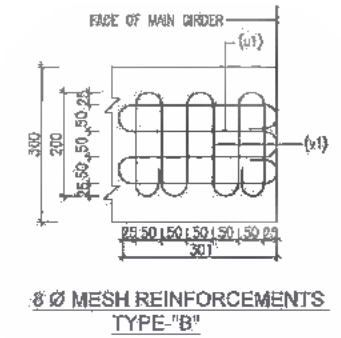
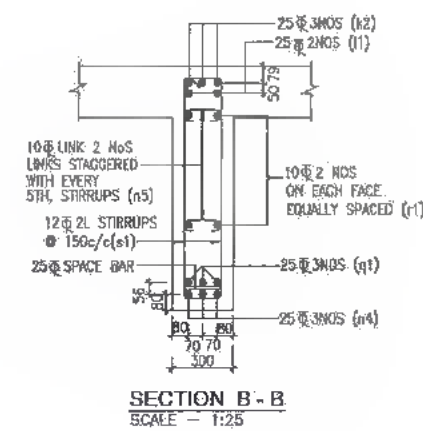
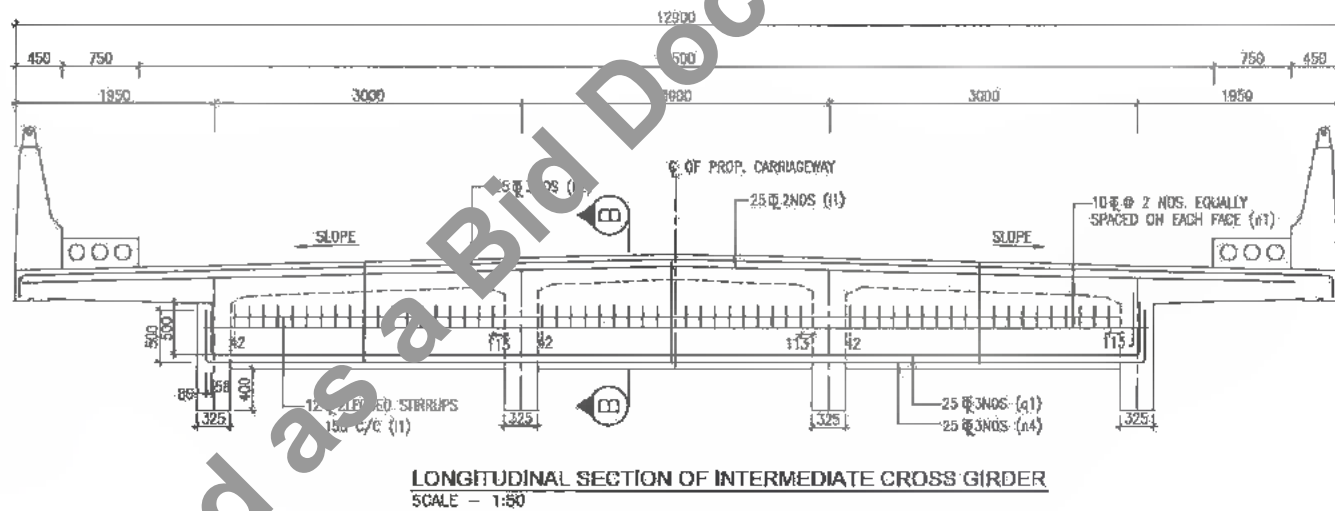
DRG. NO.: SAI-213007/DPR/C/B/MIN/B1.15B/SUP-02
REVISION: PE





NOTES:

1. THE LOCATIONS OF THE JACK FOR LIFTING OF SUPERSTRUCTURE IS SHOWN + THIS SHALL BE DISTINCTLY ETCHED FOR EASY IDENTIFICATION ON THE END CROSS GIRDER AND PIERCAP / ABUTMENT CAPS
2. DURING THE LIFTING OPERATION ALL THE SIX JACKS PLACED UNDER THE END CROSS GIRDER IN THE LINE WITH THE BEARINGS SHALL BE OPERATED SIMULTANEOUSLY USING SINGLE OPERATION CONSOLE GROUPING THE PUMP AND CONTROL SYSTEM SO AS TO ENSURE THAT THE REACTIONS ON ALL SIX JACKS ARE EQUAL AT ALL TIMES.
3. CAPACITY OF EACH JACK SHALL NOT BE LESS THAN 50 TON.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - a. GENERAL NOTES DRG. NO.SAI-213007/DPR/C/B/TYP/GEN
 - b. GENERAL ARRANGEMENT DRAWING FOR SUPERSTRUCTURE DRG. NO.SAI-213007/DPR/C/B/MIN/61.158/SUP-01
 - c. REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER DRG. NO.SAI-213007/DPR/C/B/MIN/61.158/SUP-02
 - d. REINFORCEMENT DETAILS OF DECK SLAB DRG. NO.SAI-213007/DPR/C/B/MIN/61.158/SUP-04
 - e. SCHEDULE OF REINFORCEMENT DRG. NO.SAI-213007/DPR/C/B/MIN/61.158/SUP-05



DATE: 2019/07/29 - 3:49pm
PATH: T:\ACAD\TAD\3007 BIHAR\REVISED DPR\C\B\PAKAGE-3\MINOR BRIDGE\05 CH.61+158\SUPER STR 12.0m\103 CROSS GIRDER 12.0m.dwg



Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "5M House" Sahyog Corporate Square, B-8 Rajpath
Chh.Bahadur Awas06-30537 Gurgaon, Haryana
Phone : +91-79-66112600/700 Fax : +91-79-66112880
Email : mail@saiengg.com

PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : G.M.O.
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : H.K.S.
PC	19/04/15	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.S.Y.
PE	28/02/15	ISSUED WITH FINAL DDPR	
PK	13/11/13	ISSUED WITH DDPR	

TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) REINFORCEMENT DETAIL OF CROSS GIRDER FOR RCC T-BEAM SUPERSTRUCTURE EXI.CH. 62/568.8 PROP. CH. 61+158

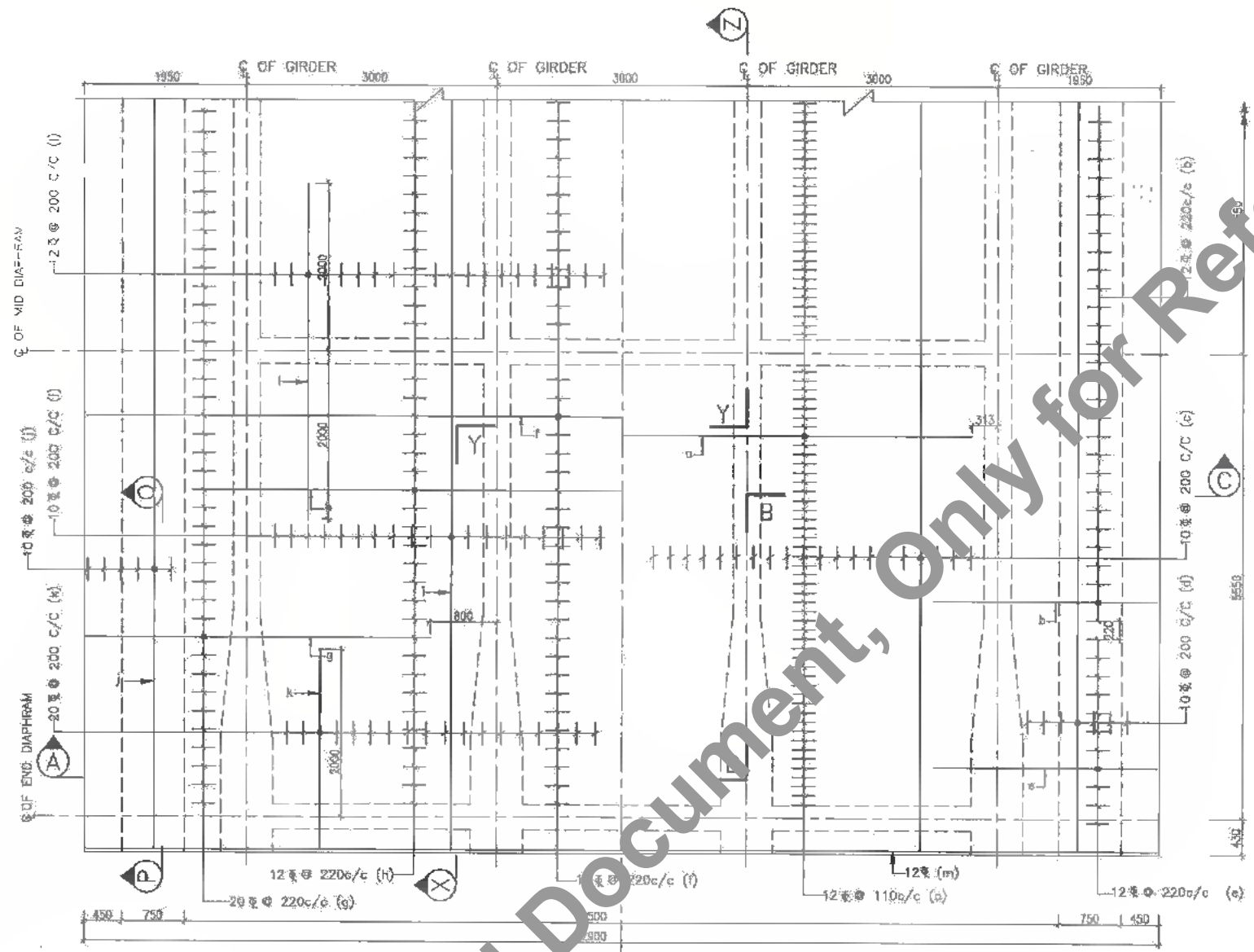
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ORG. NO.: SAI-213007/DPR/C/B/MIN/61.158/SUP-03
REVISION: PE

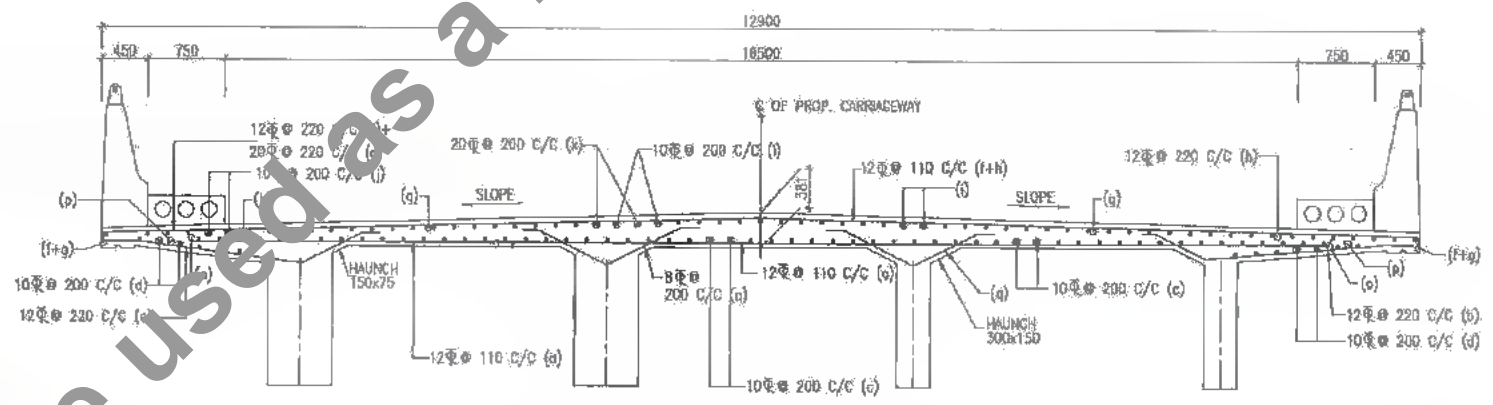


365
412

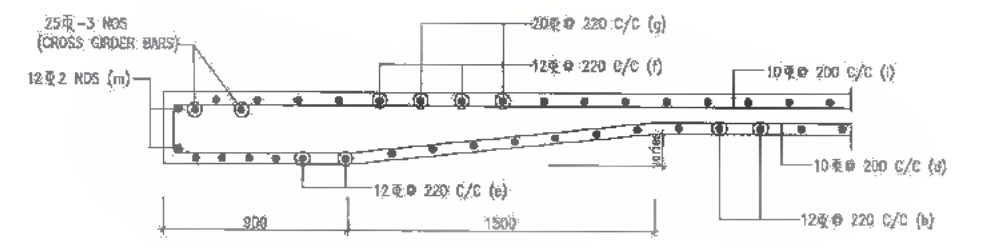
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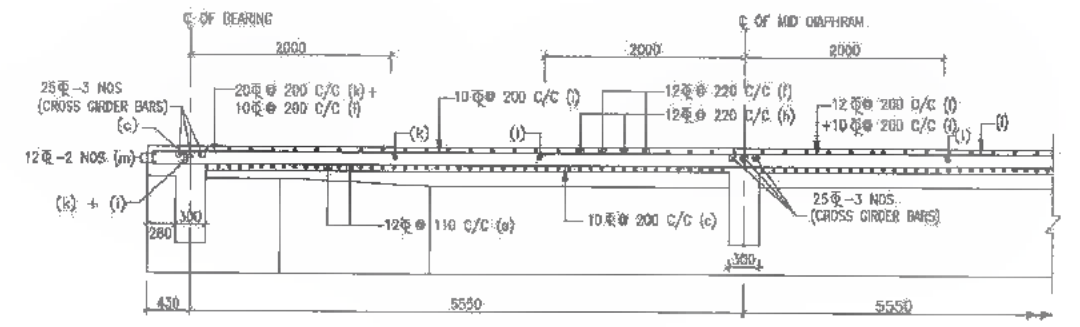
HALF TOP REINFORCEMENT PLAN SCALE-1:50 HALF BOTTOM REINFORCEMENT



CROSS SECTION A-B-C SCALE - 1:50



SECTION P-Q SCALE-1:25 (EXTRA REINF. NOT SHOWN)



SECTION X-Y-Z SCALE-1:50

NOTES :

1. ALL DIMENSIONS ARE IN MM. & LEVELS ARE IN METERS.
2. THE REINFORCEMENT FOR CRASH BARRIER SHOULD BE PROPERLY ANCHORED IN THE DECK SLAB BEFORE CASTING THE SLAB.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - a. GENERAL NOTES. DRG. NO. SAI-213007/DPR/C/B/TYP/GEN
 - b. GENERAL ARRANGEMENT DRAWING FOR SUPERSTRUCTURE DRG. NO. SAI-213007/DPR/C/B/MIN/61.158/SUP-01
 - c. REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER DRG. NO. SAI-213007/DPR/C/B/MIN/61.158/SUP-02
 - d. REINFORCEMENT DETAILS FOR CROSS GIRDER DRG. NO. SAI-213007/DPR/C/B/MIN/61.158/SUP-03
 - e. SCHEDULE OF REINFORCEMENT DRG. NO. SAI-213007/DPR/C/B/MIN/61.158/SUP-05

CLIENT :
 Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)

PROJECT :
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS :
 SAI Consulting Engineers Pvt. Ltd. An ISO-9001 Certified Company
 Block-A "SAI House" Sahyog Enclave, Sector-8, Gurgaon (Dist. Gurgaon, Haryana-122002) India
 Phone : +91-79-8692607/82, Fax : 91-79-8618280 Email : saic@saiconsulting.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY :
PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		DRWN BY : G.M.C.
PD	17/10/18	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY : M.K.S.
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY : BRV.
PB	26/02/14	ISSUED WITH FINAL DPR		ISSUED BY : B.S.
PA	12/11/13	ISSUED WITH DPR		

TITLE : LRP CHOWK (BAHADURGANJ) -DIGHALBANK(PACKAGE-III) REINFORCEMENT DETAILS OF DECK SLAB FOR RCFT BEAM SUPERSTRUCTURE, CH.82/588A/PROP.CH.61+158

DRG. NO. : SAI-213007/DPR/C/B/MIN/61.158/SUP-04

REVISION : PE



SCHEDULE OF REINFORCEMENT (DECK SLAB) PER SPAN

Sr. No.	Type of Bars	SHAPE OF BARS (DIMENSIONS ARE IN MM) (NOT TO SCALE)	DIA OF BARS (mm.)	NOS. OF BARS	SPACING OF BARS
1	a		12	—	110
2	b		12	—	220
3	c		10	—	200
4	d		10	—	200
5	e		12	—	220
6	f		12	—	220
7	g		20	—	220
8	h		12	—	220
9	i		10	—	200
10	j		10	—	200
11	k		20	—	220
12	l		12	—	200
13	m		12	2 NOS.	—
14	n		10	2 NOS.	—
15	ni		16	2 NOS.	—
16	p		10	2 NOS.	—
17	q		8	—	200

M.S. BARS (MESH REINFORCEMENT IN LONGITUDINAL GIRDER)

Sr. No.	Type of Bars	SHAPE OF BARS (DIMENSIONS ARE IN MM) (NOT TO SCALE)	DIA OF BARS (mm.)	NOS. OF BARS
1	u		8	8 NOS.
2	v		8	16 NOS.

SCHEDULE OF REINFORCEMENT FOR LONGITUDINAL GIRDERS (PER SPAN)

Sr. No.	Type of Bars	SHAPE OF BARS (DIMENSIONS ARE IN MM) (NOT TO SCALE)	DIA OF BARS (mm.)	SPACING OF BARS	NOS. OF BARS
1	o1		16	110	—
2	o2		16	110	—
3	b1		12	180	—
4	c1		16	—	8
5	d1		16	—	8
6	e1		10	—	28
7	f1		10	—	32
8	g1		32	—	12
9	g2		32	—	12
10	g3		32	—	12
11	g4		32	—	4
12	g5		32	—	8
13	h1		16	110	—
14	j2		16	110	—
15	ki		12	150	—
16	mi		32	—	8
17	h2		10	—	8
18	ni3		10	—	8

SCHEDULE OF REINFORCEMENT (CROSS GIRDERS) PER SPAN

Sr. No.	Type of Bars	SHAPE OF BARS (DIMENSIONS ARE IN MM) (NOT TO SCALE)	DIA OF BARS (mm.)	SPACING OF BARS	NOS. OF BARS/ GIRDER	NOS. OF BARS/ SPAN
1	a1		25	—	2	4
2	a3		25	—	3	6
3	a2		25	—	3	6
4	i2		10	—	6	12
5	j3		16	150	—	—
6	k2		25	—	3	3
7	h1		25	—	2	2
8	n4		25	—	3	3
9	q1		25	—	2	2
10	r1		10	—	3	6
11	s1		12	150	—	—
12	n5		10	110	—	—

NOTES :

1. THE EXACT LENGTH OF THE BARS WILL BE DETERMINED BY THE ACTUAL LAPS WITH SPLICES ADOPTED AT SITE.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.
 - a. GENERAL NOTES: DRG. NO. SAJ-213007/DPR/C/B/TYP/GEN
 - b. GENERAL ARRANGEMENT DRAWING FOR SUPERSTRUCTURE: DRG. NO. SAJ-213007/DPR/C/B/MIN/61.158/SUP-01
 - c. REINFORCEMENT DETAILS FOR LONGITUDINAL GIRDER: DRG. NO. SAJ-213007/DPR/C/B/MIN/61.158/SUP-02
 - d. REINFORCEMENT DETAILS FOR CROSS GIRDER: DRG. NO. SAJ-213007/DPR/C/B/MIN/61.158/SUP-03
 - e. REINFORCEMENT DETAILS OF DECK SLAB: DRG. NO. SAJ-213007/DPR/C/B/MIN/61.158/SUP-04

MAXIMUM DEAD LOAD REACTIONS (In KN)

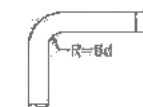
At Abutment	At Pier
1000	2000

TOTAL QUANTITY (PER SPAN)

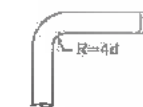
1. STEEL ... H.Y.S.D. BARS ... 13.65T
... M.S. BARS
(Including 5% extra for laps and wastage)
 1. CONCRETE ... 98.70m³
- * Excluding quantities for railings.

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

Sr. No.	Type of Bars	SHAPE OF BARS (DIMENSIONS ARE IN MM) (NOT TO SCALE)	DIA OF BARS (mm.)	SPACING OF BARS	NOS. OF BARS/ GIRDER	NOS. OF BARS/ SPAN
1	vi		8	—	24	24
2	vi		8	—	24	24



d = Dia of bar
For bar above 25mm dia



d = Dia of bar
For bar upto 25mm dia



DATE: 20/07/2019 3:49pm PATH: TA\CA\TAO\2007_BIHAR\REVISED_OPRA\CV\PACKAGE-3\MINOR BRIDGE\05.CH.61.158\SUPER STR 12.0m\105 RCC SPAN SCHEDULE 12.0m.dwg

CLIENT :
 Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)
(Tech.)
PIU, Khatima

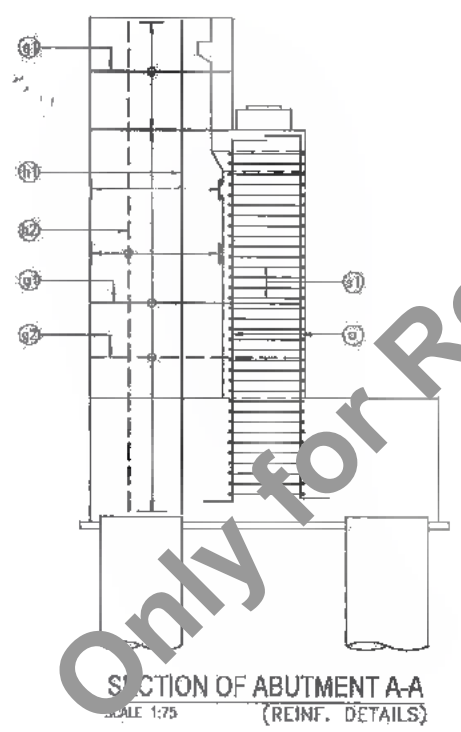
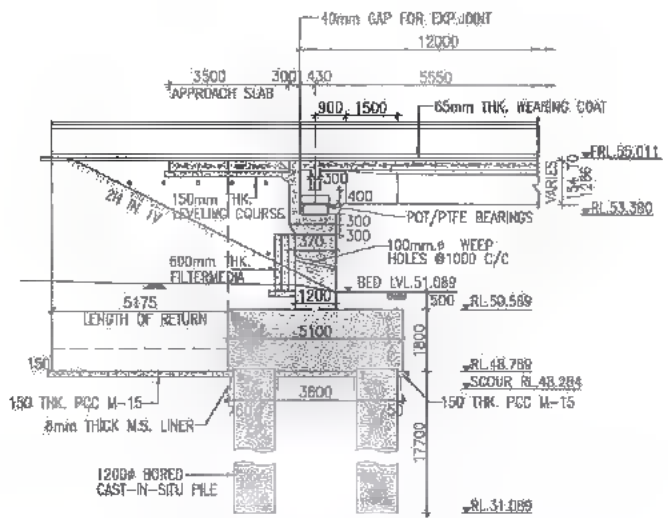
PROJECT :
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS :
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 Block-A "SAI House", Sanyal Corporate Square, 8/A, Begun
 Chak, Patna-851007, Bihar
 Phone : +91-75-6512440/250 Fax : +91-75-4612900
 Email : saiconsult@rediffmail.com

PE	21/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY :	G.M.B.	TITLE :	LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-II) REINFORCEMENT SCHEDULE FOR RCC T-BEAM SUPER STRU.ATEX1.CH.62/608 & PROP. CH.01+158
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY :	N.K.S.	ORG. NO. :	SAJ-213007/DPR/C/B/MIN/61.158/SUP-05
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY :	B.A.K.	REVISION :	PE
PI	26/02/14	ISSUED WITH FINAL DPR				
PA	13/11/13	ISSUED WITH DPR				
REV.	DATE	DESCRIPTION	SNM	ISSUED BY :	G.S.	

SCALE : AS SHOWN

267
410



REINF. SCHEDULE FOR RIDING RETURN

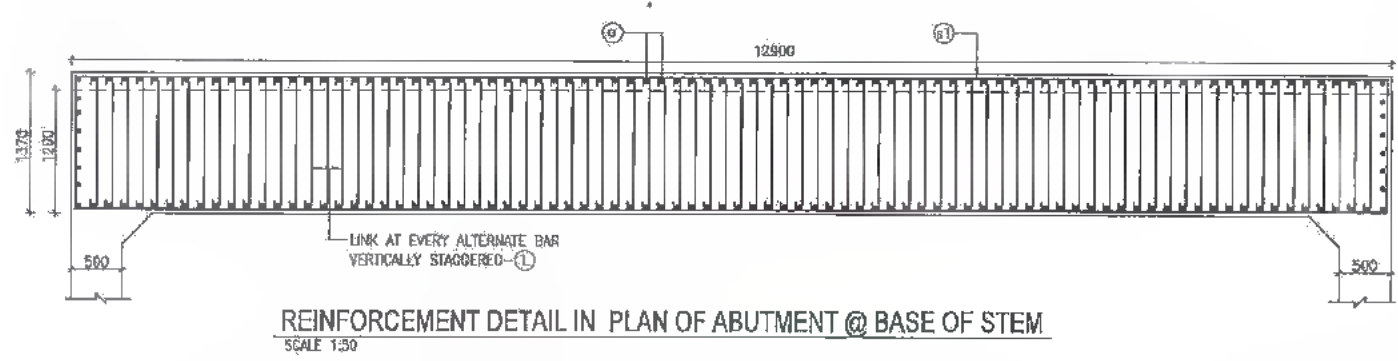
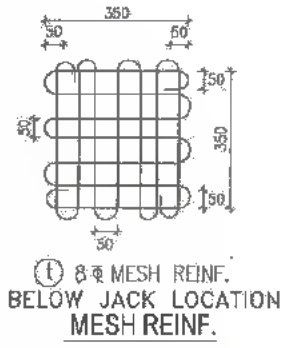
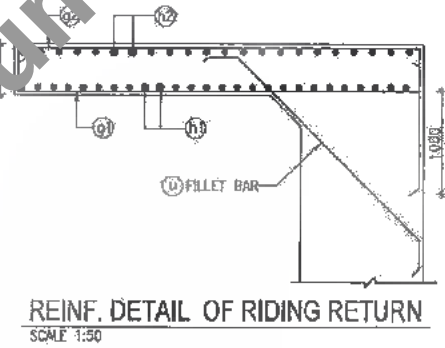
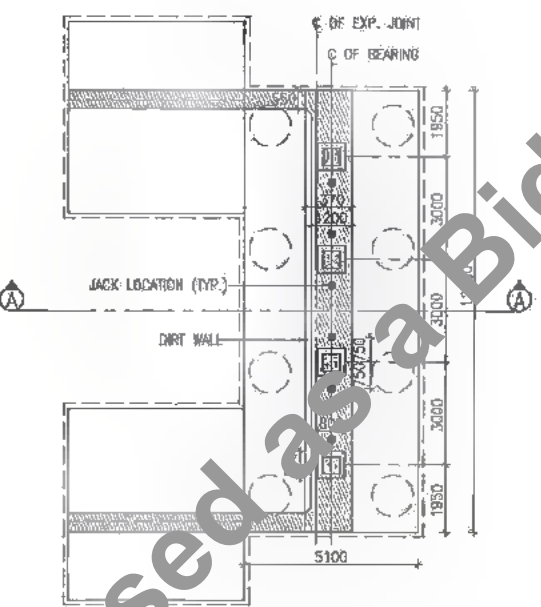
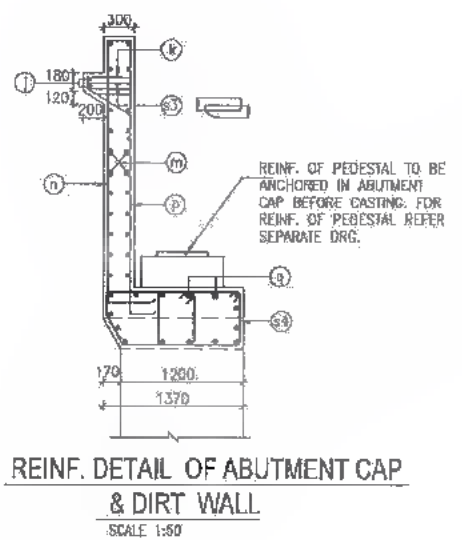
TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE) (mm.)	DIA OF BARS (mm.)	SPACING / NOS OF BARS (mm.)
g1	450	16	240 C/C
g2	700	16	240 C/C
h1	350	16	150 C/C
h2	350	12	180 C/C
u		8	150 C/C

REINF. SCHEDULE FOR ABUTMENT

TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE) (mm.)	DIA OF BARS (mm.)	SPACING / NOS OF BARS (mm.)
c	500	20	220 C/C
L		8	440 C/C
s1	VARIES	16	130 C/C

REINF. SCHEDULE FOR ABUTMENT CAP

TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE) (mm.)	DIA OF BARS (mm.)	SPACING / NOS OF BARS (mm.)
j		12	2 NOS
k		12	250 C/C
m		10	170 C/C
n		16	250 C/C
p		16	250 C/C
q		16	14 NOS
s3		10	250 C/C
s4		12	150 C/C

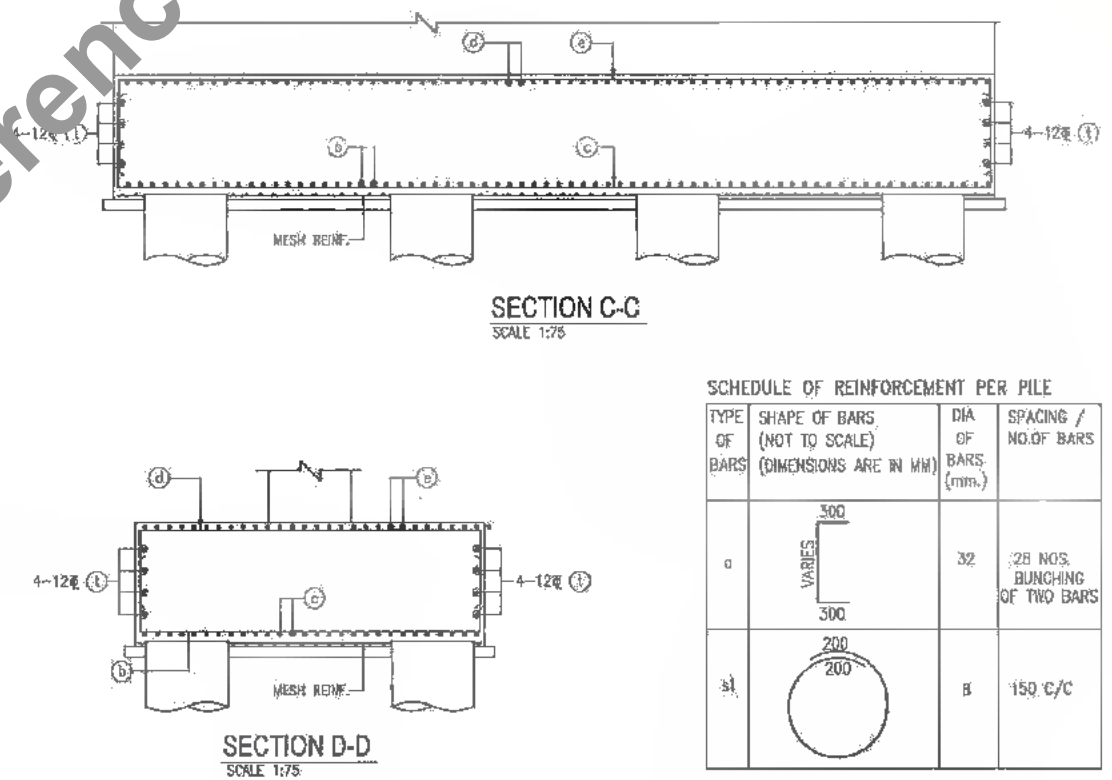
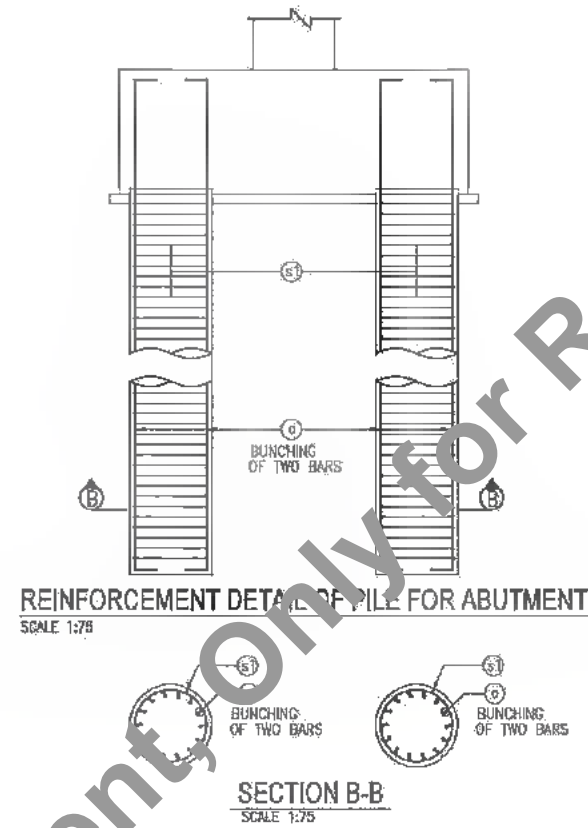
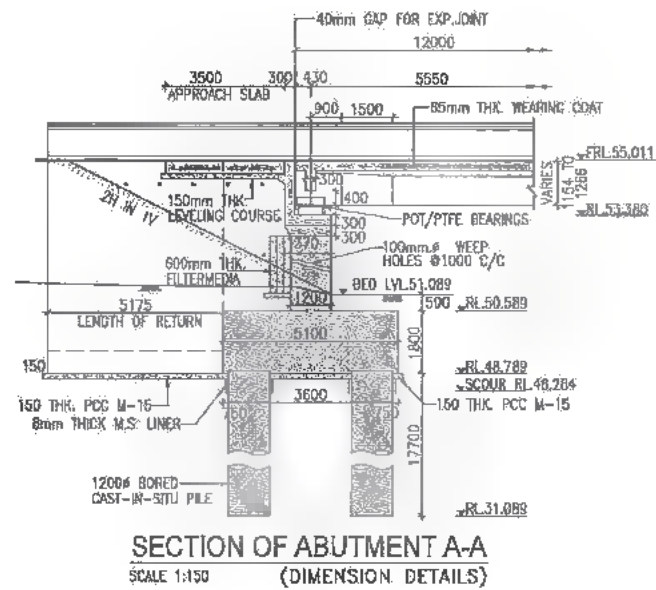


- NOTES:-
- ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED). CHAINAGES & LEVELS ARE IN METERS.
 - ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
 - GRADE OF CONCRETE : M-30
 - GRADE OF HYSD REINFORCEMENT : Fe-500
 - MINIMUM COVER TO ANY REINFORCEMENT SHALL BE (i) 30mm IN ABUTMENT (ii) 75mm IN FOOTING
 - MINIMUM COVER TO MESH REINF. SHALL BE 20mm UNLESS OTHERWISE SHOWN IN THE DRAWING.
 - IF FULL LENGTH BARS ARE NOT AVAILABLE LAPS MAY BE PROVIDED IN ACCORDANCE WITH CLAUSE 304.5.6.3 (I.R.C. 21-2000). WHERE LAPS ARE PROVIDED, THEY SHOULD BE LOCATED AT POINT OF LOW STRESS AND SUITABLY STAGGERED SO THAT NOT MORE THAN 50% OF BARS ARE LAPPED AT ANY CROSS SECTION. THE LAP LENGTH SHALL NOT BE LESS THAN 87 TIMES BAR DIAMETER. LAPPING OF BARS SHALL BE DONE IN HORIZONTAL PLANE ONLY.
 - THE LOCATION OF JACKS FOR LIFTING UP THE SUPERSTRUCTURE TO REPLACE BEARINGS etc. IS SHOWN THUS ●. THESE SHOULD BE DISTINCTLY ETCHED ON THE CROSS GIRDERS AND PIER/ABUTMENT CAPS.



DATE: 20/07/2019 2:22:01 PM PATH: T:\ADVT\BID\3007 BIHAR REVISD DPR\CLIP\PACKAGE-3\MINOR BRIDGE\05 CH.61-158\SUB STRU\01 ABUTMENT & ABUTMENT CAP.dwg

<p>CLIENT: Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)</p>	<p>PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)</p>	<p>CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company Block-3, "SAI House" Subjeeva Corporate Centre, Bids Nagar, Patna, Bihar-800005, India Phone: +91-91-4452680/707, Fax: +91-91-4452680 Email: saic@saiconsulting.com</p>	<p>REV. DATE DESCRIPTION</p> <table border="1"> <tr> <td>PC</td> <td>31/07/19</td> <td>GOOD FOR CONSTRUCTION (REVISED DPR)</td> </tr> <tr> <td>PP</td> <td>17/12/18</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> </tr> <tr> <td>PC</td> <td>10/04/14</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> </tr> <tr> <td>PA</td> <td>28/02/14</td> <td>ISSUED WITH FINAL DPR</td> </tr> <tr> <td>PA</td> <td>15/11/13</td> <td>ISSUED WITH DPR</td> </tr> </table>	PC	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	PP	17/12/18	GOOD FOR CONSTRUCTION (DPR)	PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	PA	28/02/14	ISSUED WITH FINAL DPR	PA	15/11/13	ISSUED WITH DPR	<p>DRWN BY : G.K.C.</p> <p>CHECKED BY : H.K.S.</p> <p>APPROVED BY : B.R.V.</p> <p>ISSUED BY : S.S.</p>	<p>TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) REINFORCEMENT DETAILS OF ABUTMENT/ABUTMENT CAP & DIRTWALL/MINOR BRIDGE AT EXIS.CH.61.158/PROP.CH.61+158</p> <p>DRG. NO.: SAI-213007(DPR)/MINOR/1,158/SUB-01</p> <p>REVISION: PE</p>
			PC	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)															
PP	17/12/18	GOOD FOR CONSTRUCTION (DPR)																		
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)																		
PA	28/02/14	ISSUED WITH FINAL DPR																		
PA	15/11/13	ISSUED WITH DPR																		
<p>SCALE: AS SHOWN</p>			<p>SAI CONSULTING ENGINEERS PVT. LTD.</p>																	



SCHEDULE OF REINFORCEMENT PER PILE

TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE) (DIMENSIONS ARE IN MM)	DIA OF BARS (mm.)	SPACING / NO. OF BARS
a		32	28 NOS. BUNCHING OF TWO BARS
b		8	150 C/C

SCHEDULE OF REINF. FOR PILE CAP

TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE) (DIMENSIONS ARE IN MM)	DIA OF BARS (mm.)	SPACING / NO. OF BARS
b		25	180 C/C
c		16	180 C/C
d		18	180 C/C
e		16	180 C/C
l	—	12	16 NOS.

- NOTES:-**
- ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED), CHANGES & LEVELS ARE IN METERS.
 - ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
 - IF FULL LENGTH BARS ARE NOT AVAILABLE LAPS MAY BE PROVIDED IN ACCORDANCE WITH CLAUSE 304.6.6.3 L.R.C. 21-2000. WHERE LAPS ARE PROVIDED, THEY SHOULD BE LOCATED AT POINT OF LOW STRESS AND SUITABLY STAGGERED SO THAT NOT MORE THAN 50% OF BARS ARE LAPPED AT ANY CROSS SECTION. THE LAP LENGTH SHALL NOT BE LESS THAN 87 TIMES BAR DIAMETER FOR PIER & SHALL NOT BE LESS THAN 77 TIMES BAR DIAMETER FOR PILE & PILE CAP. LAPING OF BARS SHALL BE DONE IN HORIZONTAL PLANE ONLY.
 - MINIMUM COVER TO ANY REINFORCEMENT SHALL BE (i) IN ABUTMENT 50mm (ii) IN FOUNDATION 75mm
 - GRADE OF CONCRETE (a) PILE : M-35 (b) PILE CAP : M-35
 - GRADE OF HYSD REINFORCEMENT : Fe-500

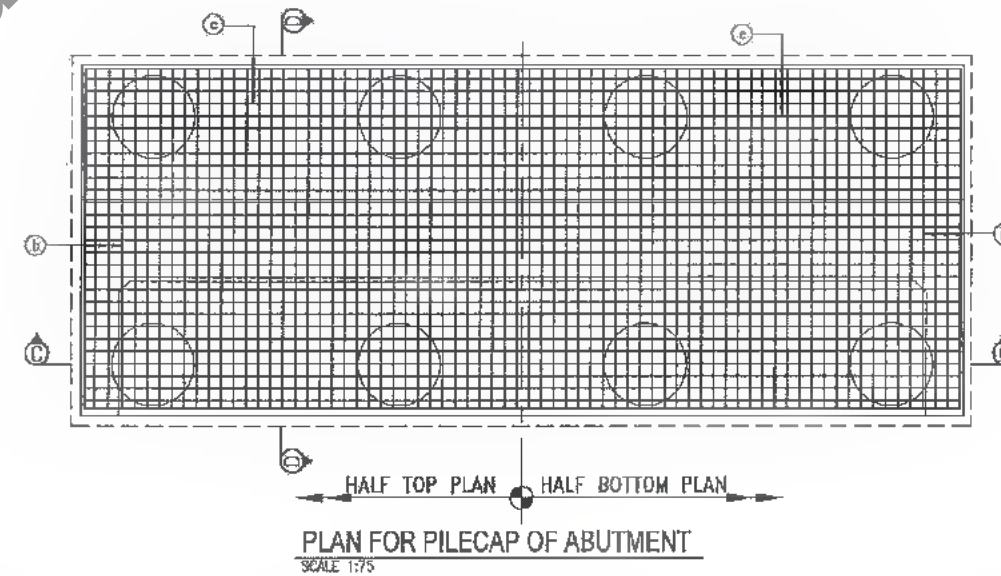
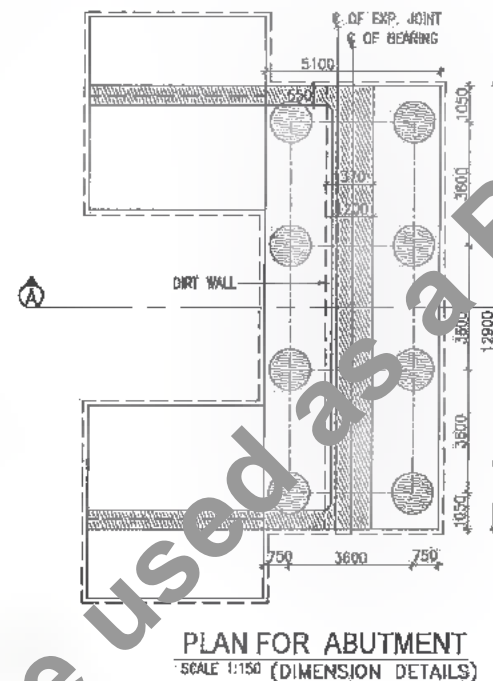


Table Showing Various Parameters of Piles

Existing Chainage	Proposed Chainage	Abutment	Ground Level (m)	Founding Level, FRL (m)	Length of Pile (m)	Top of Pile Cap (m)	Bottom of Pile Cap (m)	Formation Level (m)	Top of Abutment Cap (m)	Top of Abutment (m)	Height of Abutment (m)	Max. Vertical Load		Horizontal Load on Pile			
												Normal (Mton)	Seismic (Mton)	Longitudinal Normal (t)	Transverse Normal (t)	Seismic (t)	Seismic (t)
62/588	61+158	A1	61.068	31.089	17.700	50.589	46.789	55.011	53.38	52.780	2.161	168.40	229.84	31.75	31.75	28.04	10.03
		A2	51.085	31.089	17.700												

DATE: 2019/07/29 - 3:20PM PROJECT: BIHAR REVISIONED DPR(CB)PACKAGE-3 MINOR BRIDGE/05 CH.61+158(SUB. STRU)02 ABUTMENT PILE & PILE CAP.dwg

BSRDCL
Bihar State Road Development Corporation Limited (BSRDCL)
(A Government of Bihar Undertaking)

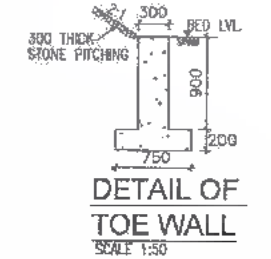
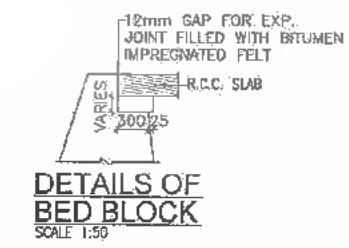
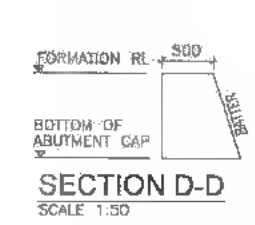
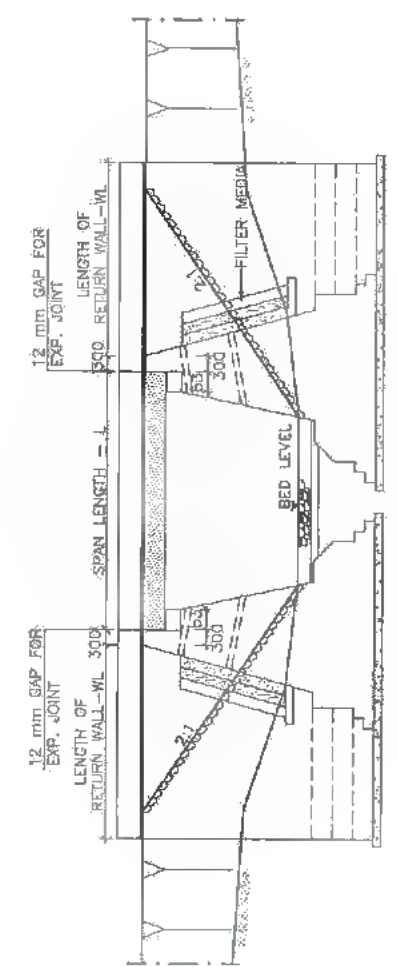
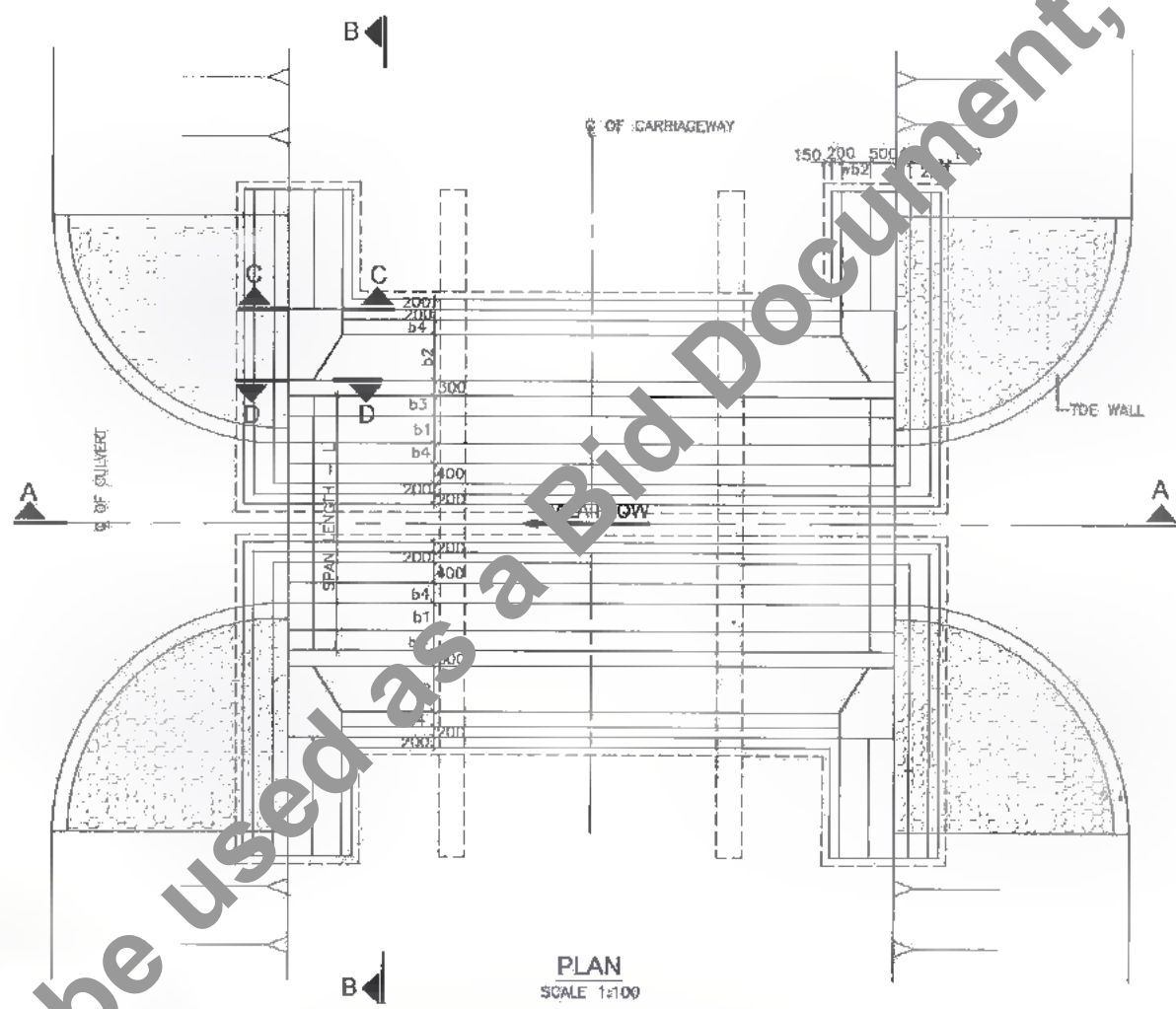
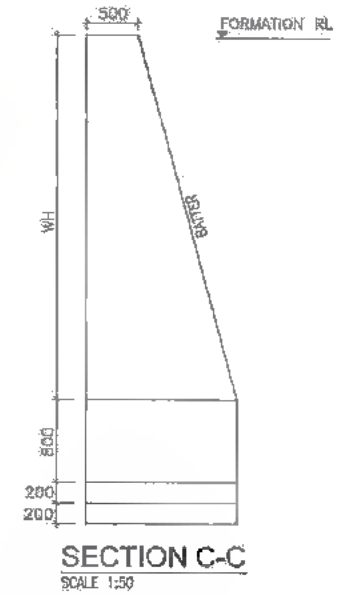
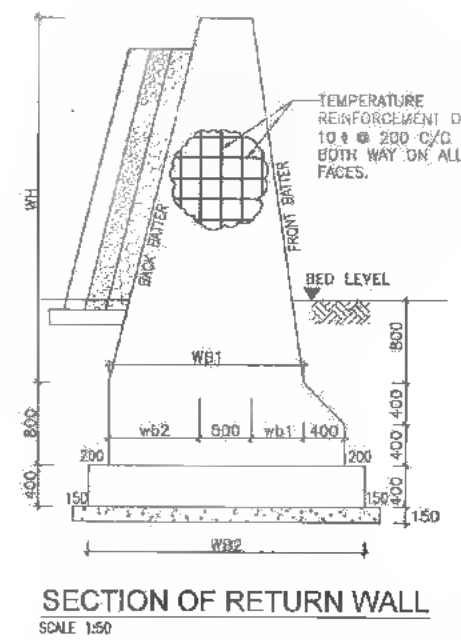
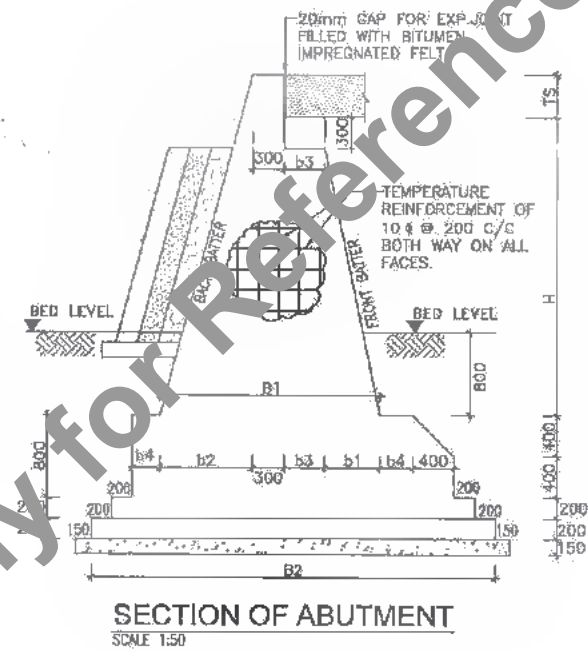
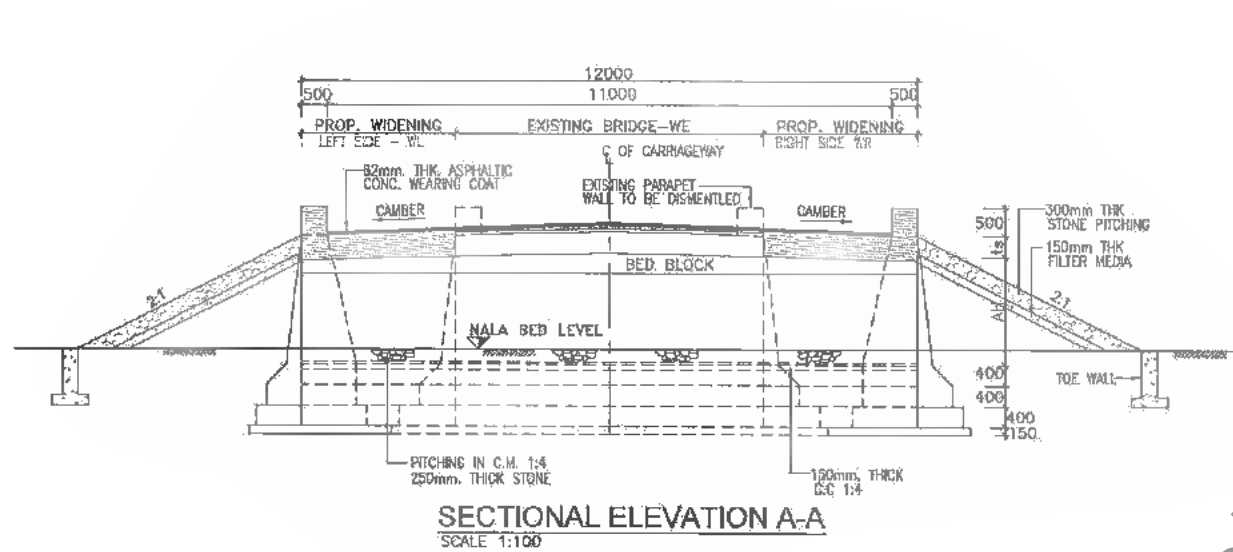
PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS: SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "Sai House" Sector Darapala System, Bih. Nagarh
Dist. Darbhanga, Bihar-801009 (Guwahati, India)
Phone : +91-91-6682500/700, Fax : +91-91-6684200
Email : saimail@saiconsulting.com

PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : G.S.R.	TITLE : LRP/CR/06 (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) REINFORCEMENT DETAILS OF ABUTMENT PILE & PILE CAP
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : M.K.S.	ABUTMENT FOR MINOR BRIDGE AT EXH. CH.62/588 & PROJ. CH.61+158
PC	10/04/16	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.A.Y.	DRG. NO. : SAI-21307/CP/RC/IB/MB/1.158/SUB-02
PE	26/02/14	ISSUED WITH FINAL DPR	ISSUED BY : B.S.	REVISION : PE
PK	13/11/13	ISSUED WITH DPR		



359
408



- NOTES:**
- (1) ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED ON DRAWING
 - (2) NO DIMENSION SHALL BE SCALED FROM THIS DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - (3) TEMPERATURE REINFORCEMENT OF 10# @ 200 C/C BOTH WAY SHALL BE PROVIDED ON ALL FACES.
 - (4) THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS:
 - (a) FOR GENERAL NOTES REFER DRG NO. SAI-213007/DPR/C/B/GEN
 - (b) DETAILS OF FILLER TYPE EXPANSION JOINT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-01
 - (c) APPROACH SLAB & DRAINAGE SPOUT REFER DRG. NO. SAI-213007/DPR/C/B/TYP-02
 - (d) TYP. DETAILS OF WIDENING OF PCC SLAB STRUCTURE DRG. NO. SAI-213007/DPR/C/B/TYP-04.
 - (e) TABLE SHOWING VARIOUS PARAMETER OF SLAB CULVERT REFER DRG NO. SAI-213007/DPR/C/B/SC/GAD-01 (SHEET 2 OF 3)
 - (5) GRADE OF HYSD REINFORCEMENT - FE-500,
 - (6) TYPE OF BEARING-TAR PAPER
 - (7) GRADE OF CONCRETE

ABUTMENT GAP/PIER GAP	RCC-M:20
SOLID SLAB	RCC-M:25
RAILING	RCC-M:30
ABUTMENT/PIER	PCC-M:20
RETURN WALL	PCC-M:20
TOE WALL	PCC-M:15
LEVELING COURSE	PCC-M:15



DATE: 20/07/2019 11:32:40 AM
PATH: C:\Users\sa\Documents\Projects\2019\07\20190720\101 SC SINGLE SPAN (Both side widening).dwg

CLIENT:
Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "SAI House" Srinagar Corporate Square, 8th Block
Tilak Road, Indira Nagar, Lucknow, India
Phone : +91-79-44142007/2008 Fax : +91-79-44142009
Email : sai@saiconsulting.com

PF	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRN BY : G.M.C.
PC	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : H.K.S.
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.V.
PI	26/02/14	ISSUED WITH FINAL DPR	ISSUE BY : B.C.
PS	01/01/14	ADDENDUM OF DPR	
REV.	DATE	DESCRIPTION	SIGN

SCALE : AS SHOWN

TITLE: LRP CHOWK (BAHADURGANJ) -DIGHALBANK (PACKAGE-III) TYP. GAD FOR WIDENING OF SLAB CULVERT (SINGLE SPAN)

DRG. NO.: (SHEET-1 OF 2)
SAI-213007/DPR/C/B/SC/GAD-01

REVISION: PF

TABLE SHOWING VARIOUS PARAMETERS FOR SLAB CULVERTS (Single Span) - Widening

Sr. No.	Existing Chainage "km"	Proposed Chainage "km"	Proposal	Proposed Width of Culvert, m.	Existing Ground Level, m	Formation Level		Vent Height, m.	Details of Span Arrangement		Total Length New Parameter, m.	slab thickness		Angle of Skew	Super Elevation / Camber		Proposed Widening		Remarks
						Existing m.	Proposed m.		Nos. of Spans	Span Length, L.m.		Centre	Edge		Left Carriage (%)	Right Carriage (%)	LHS m.	RHS m.	
1	68/262	67+846	Widening	12.00	55.746	57.711	57.711	1.50	1.00	3.00	8.00	0.40	0.40	0.00	-2.50	-2.50	2.30	2.30	-
2	69/887	68+481	Widening	12.00	57.233	59.098	59.098	1.40	1.00	3.00	8.00	0.40	0.40	0.00	-2.50	-2.50	2.25	2.25	-
3	70/039	68+633	Widening	12.00	57.311	59.276	59.276	1.50	1.00	3.00	8.00	0.40	0.40	0.00	-2.50	-2.50	2.25	2.25	-
4	70/896	69+490	Widening	12.00	58.655	60.370	60.370	1.40	1.00	3.00	4.00	0.25	0.25	0.00	-2.50	-2.50	-	7.20	-

TABLE SHOWING VARIOUS PARAMETERS OF ABUTMENT FOR SLAB CULVERTS (Single Span) - Widening

Sr. No.	Existing Chainage "km"	AH	b1	b2	b3	b4 backside	B1	B2	Foundation Level at Abutment	Ground Level at Abutment Location	Front Bater	Back Bater	Front Projection	Back Projection	Vertical Offset v	
													h1	h2		
		IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	
1	68/262	2.30	0.25	0.67	0.40	0.40	1.64	3.64	0.80	53.75	55.75	8.00	3.00	0.400	0.400	0.200
2	69/887	2.20	0.24	0.63	0.40	0.40	1.59	3.59	0.80	55.23	57.23	8.00	3.00	0.400	0.400	0.200
3	70/039	2.30	0.25	0.67	0.40	0.40	1.64	3.64	0.80	55.31	57.31	8.00	3.00	0.400	0.400	0.200
4	70/896	2.20	0.24	0.63	0.40	0.40	1.59	3.59	0.80	56.66	58.66	8.00	3.00	0.400	0.400	0.200

TABLE SHOWING VARIOUS PARAMETERS OF RETURNWALL FOR SLAB CULVERTS (Single Span) - Widening

Sr. No.	Existing Chainage "km"	WH	wb1	wb2	W31	WB2	RWL (length from face)	WH'	Foundation Level at Return Location	Ground Level at Return Location	Front Bater	Back Bater	Front Projectio	Back Projectio	Vertical Offset v
													Wh1	Wh2	
		IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"	IN "MT"
1	68/262	2.55	0.36	0.85	1.72	2.52	3.74	0.80	53.75	55.75	7.00	3.00	0.000	0.000	0.400
2	69/887	2.45	0.35	0.82	1.67	2.47	3.55	0.80	55.23	57.23	7.00	3.00	0.000	0.000	0.400
3	70/039	2.55	0.36	0.85	1.72	2.52	3.74	0.80	55.31	57.31	7.00	3.00	0.000	0.000	0.400
4	70/896	2.30	0.33	0.77	1.60	2.40	3.25	0.80	56.66	58.66	7.00	3.00	0.000	0.000	0.400

DATE: 2019/07/29 - 3:27:00 PM
PATH: C:\Users\jgopal\Documents\Bids\2019\101 SC SINGLE SPAN (Both side widening).dwg



Bihar State Road Development Corporation Limited (BSRDCL)
(A Government of Bihar Undertaking)

PROJECT: **Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar**
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS: **SAI Consulting Engineers Pvt. Ltd.**
An ISO 9001 Certified Company
SYSTRA GROUP

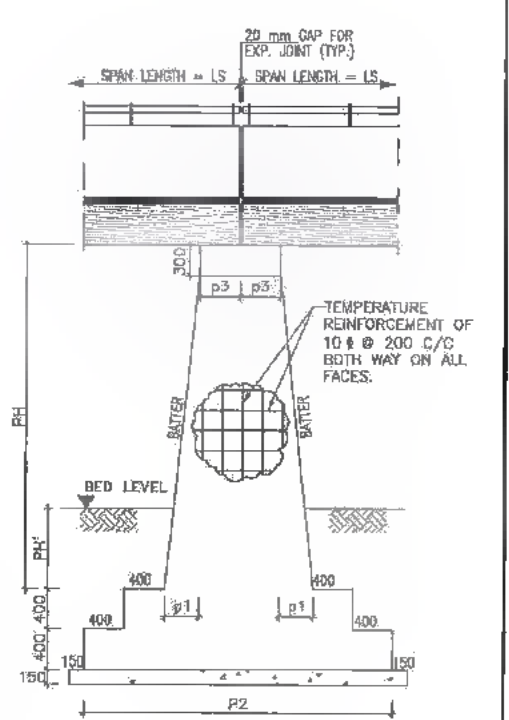
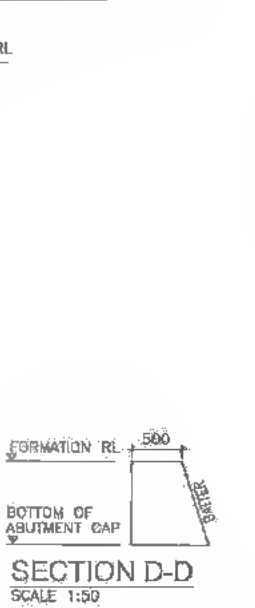
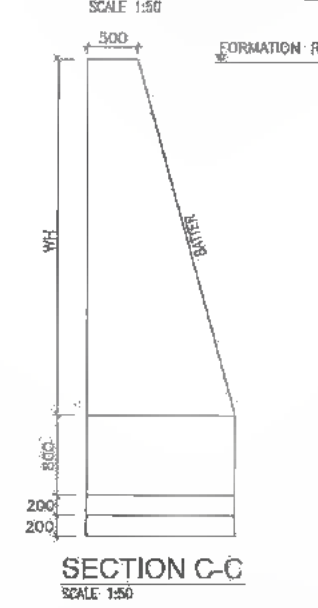
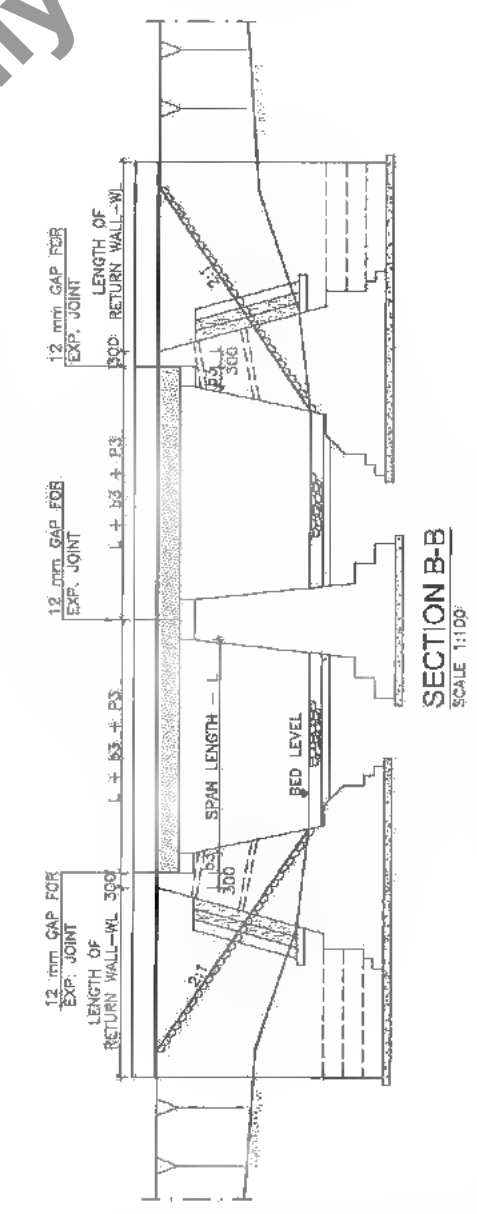
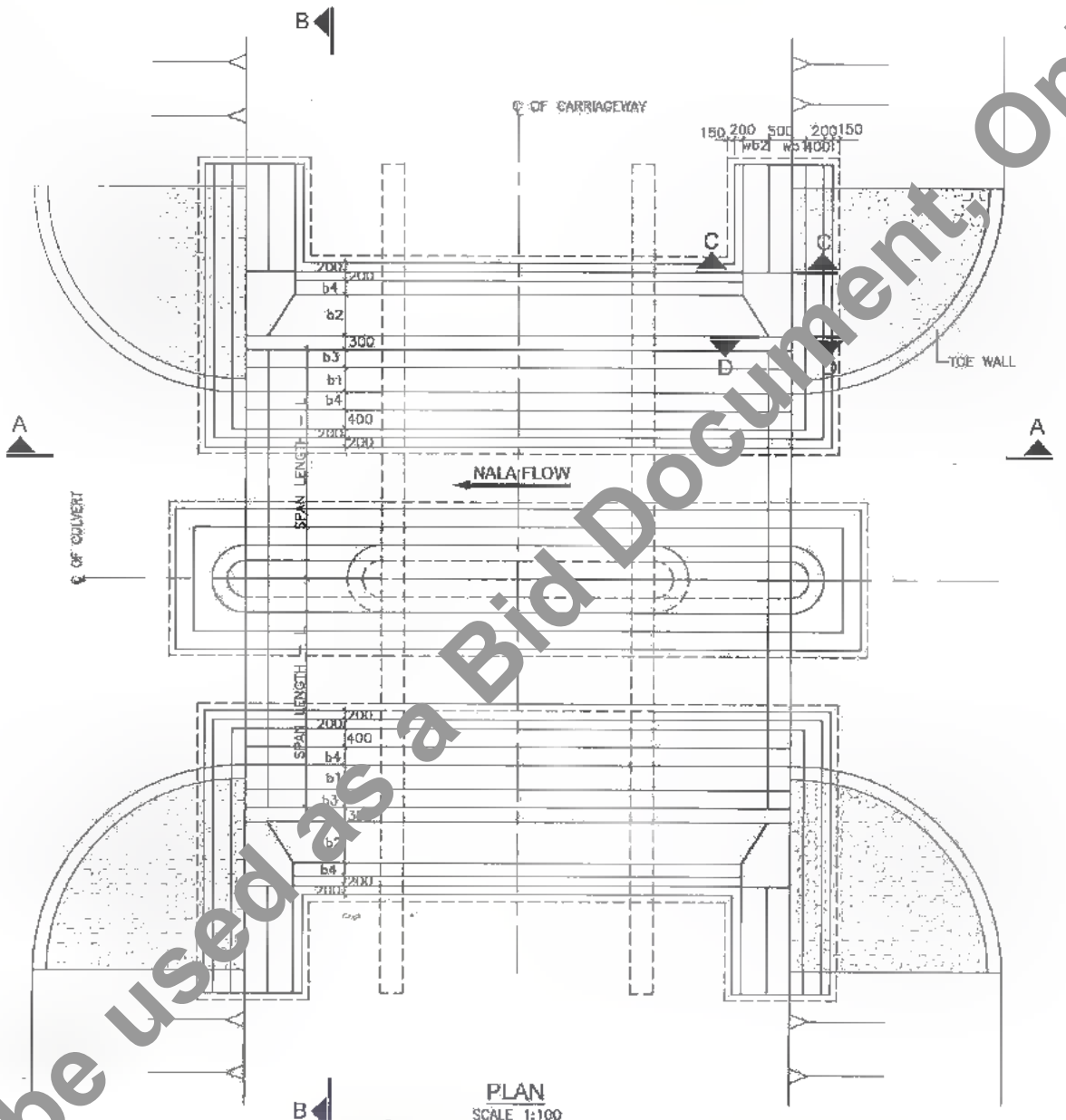
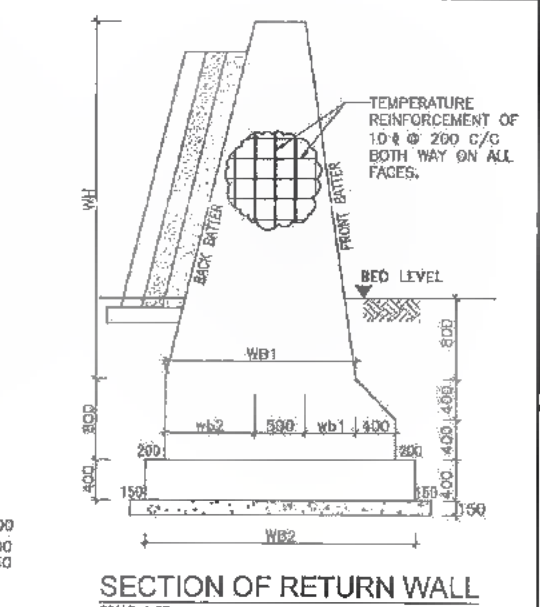
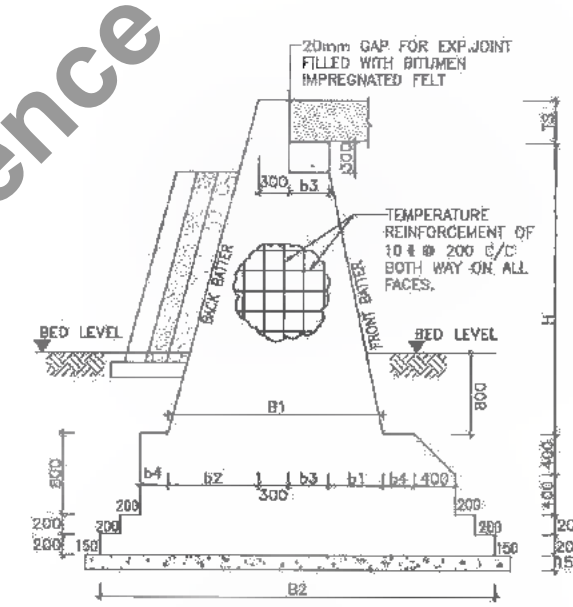
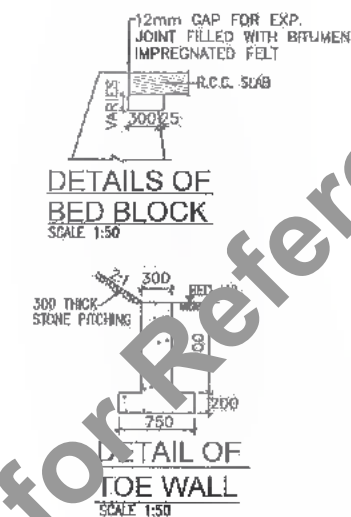
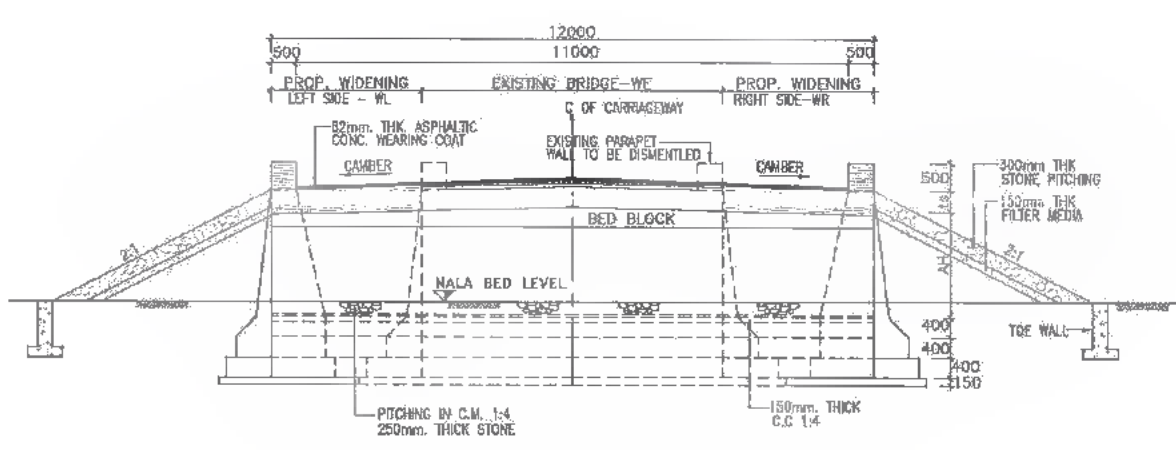
PC	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : G.M.G.
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : N.R.S.
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.R.Y.
PS	26/02/14	ISSUED WITH FINAL DDPR	
PR	01/07/14	ADDENDUM OF DDPR	
REV.	DATE	DESCRIPTION	ISSUED BY

TITLE: **LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-II) TYP. GAD FOR WIDENING OF SLAB CULVERT (SINGLE SPAN)**

DRG. NO.: **(SHEET-2 OF 2)**
SAI-213007/DRP/CR/S/C/ROAD-01
REVISION: PF



Not to be used as a Bid Document Only for Reference



- NOTES:
- (1) ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED ON DRAWING
 - (2) NO DIMENSION SHALL BE SCALED FROM THIS DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - (3) TEMPERATURE REINFORCEMENT OF 10 ϕ 200 C/C BOTH WAY SHALL BE PROVIDED ON ALL FACES OF HEAD WALL
 - (4) THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS:
 - (a) FOR GENERAL NOTES REFER DRG NO. SA-213007/DPR/C/B/GEN
 - (b) DETAILS OF FILLER TYPE EXPANSION JOINT REFER DRG. NO. SA-213007/DPR/C/B/TYP-01
 - (c) APPROACH SLAB & DRAINAGE SPOUT REFER DRG. NO. SA-213007/DPR/C/B/TYP-02
 - (d) TYP. DETAILS OF WIDENING OF PCC SUB STRUCTURE DRG. NO. SA-213007/DPR/C/B/TYP-04
 - (e) TABLE SHOWING VARIOUS PARAMETER OF SLAB CULVERT REFER DRG. NO. SA-213007/DPR/C/B/SLC/AD-02 (SHEET 2 OF 2)
 - (5) GRADE OF HYSD REINFORCEMENT - FE-500.
 - (6) TYPE OF BEARING-TAR PAPER
 - (7) GRADE OF CONCRETE:

ABUTMENT CAP/PIER CAP	RCC-M20	RETURN WALL	PCC-M20
SOLID SLAB	RCC-M25	TOE WALL	PCC-M15
RAILING	RCC-M30	LEVELLING COURSE	PCC-M15
ABUTMENT/PIER	PCC-M20		

<p>CLIENT:</p> <p>Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)</p>	<p>PROJECT:</p> <p>Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)</p>	<p>CONSULTANTS:</p> <p>SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company 1102-A "SAI House" Saran Corporate Sector, 6th, Rajgatala, Patna-800 015 Phone : 91-79-68428770, Fax : 91-79-6842200 E-mail : mail@saiindia.com</p>	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>SIGN</th> <th>ISSUED BY</th> </tr> <tr> <td>PF</td> <td>31/07/19</td> <td>GOOD FOR CONSTRUCTION (REVISED DWP)</td> <td></td> <td></td> </tr> <tr> <td>PE</td> <td>17/12/18</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> </tr> <tr> <td>PC</td> <td>16/04/14</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> </tr> <tr> <td>PP</td> <td>26/02/14</td> <td>ISSUED WITH FINAL DWP</td> <td></td> <td></td> </tr> <tr> <td>PI</td> <td>01/01/14</td> <td>ADDITION OF DWP</td> <td></td> <td></td> </tr> </table> <p>DRG. NO.: (SHEET 1 OF 2) SAI-213007/DPR/C/B/SC/AD-02 REVISION: PF</p>	REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	PF	31/07/19	GOOD FOR CONSTRUCTION (REVISED DWP)			PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)			PC	16/04/14	GOOD FOR CONSTRUCTION (DPR)			PP	26/02/14	ISSUED WITH FINAL DWP			PI	01/01/14	ADDITION OF DWP		
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY																													
PF	31/07/19	GOOD FOR CONSTRUCTION (REVISED DWP)																															
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)																															
PC	16/04/14	GOOD FOR CONSTRUCTION (DPR)																															
PP	26/02/14	ISSUED WITH FINAL DWP																															
PI	01/01/14	ADDITION OF DWP																															

371
406

Not to be used as a Bid Document, Only for Reference

TABLE SHOWING VARIOUS PARAMETERS FOR SLAB CULVERTS (Multi Span) - Widening

Sr. No.	Existing Chainage "km"	Proposed Chainage "km"	Proposal	Proposed Width of Culvert, m.	Existing Ground Level, m	Formation Level		Vent Height, m.	Details of Span Arrangement		Total length of new parapets, m.	Slab thickness		Angle of Skew	Super Elevation / Camber		Proposed Widening		Remarks
						Existing m.	Proposed m.		Nos. of Spans	Span Length, m.		Centre	Edge		Left Carriage (%)	Right Carriage (%)	LHS m.	RHS m.	
1	66/570	66+180	Widening	12.00	53.891	56.056	56.056	1.70	2.00	90	13.60	0.40	0.40	0.00	-2.50	-2.50	3.15	3.15	-

TABLE SHOWING VARIOUS PARAMETERS OF ABUTMENT FOR SLAB CULVERTS (Multi Span) - Widening

Sr. No.	Existing Chainage "km"	AH	b1	b2	b3	b4	B1	B2	H'	Foundation Level at Abutment Location	Ground Level at Abutment Location	Front Bater	Back Bater	Front Projection	Back Projection	Vertical Offset
														h1	h2	v
														IN "MT"	IN "MT"	IN "MT"
1	66/570	2.50	0.28	0.73	0.40	0.40	1.73	3.73	0.80	51.89	53.89	8.00	3.00	0.400	0.400	0.200

TABLE SHOWING VARIOUS PARAMETERS OF PIER FOR SLAB CULVERTS (Multi Span) - Widening

Sr. No.	Existing Chainage "km"	PH	p1	p2	p3	PH'	Foundati on Level at Pier Location	Ground Level at Pier Location	Side Bater
1	66/570	2.90	0.22	2.85	0.40	1.20	51.89	53.89	12.00

TABLE SHOWING VARIOUS PARAMETERS OF RETURNWALL FOR SLAB CULVERTS (Multi Span) - Widening

Sr. No.	Existing Chainage "km"	WH	wb1	wb2	WB1	WB2	RWL (length from)	WH'	Foundati on Level at Return Location	Ground Level at Return Location	Front Bater	Back Bater	Front Projecti	Back Projection	Vertical Offset
													Wh1	Wh2	v
													IN "MT"	IN "MT"	IN "MT"
1	66/570	2.75	0.39	0.92	1.81	2.61	4.11	0.80	51.89	53.89	7.00	3.00	0.000	0.000	0.400

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CLIENT:



Bihar State Road Development Corporation Limited (BSRDCL)
(A Government of Bihar Undertaking)

PROJECT:


Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)


CONSULTANTS:





SAL Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
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Phone : +91-11-6662880/700, Fax : +91-11-66162800
Email : mail@saiinfo.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
PF	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)		
PE	17/12/16	GOOD FOR CONSTRUCTION (DPR)		
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PC	26/02/14	ISSUED WITH FINAL DPR		
PB	01/01/14	SCHEDULE OF DPR		

DRWN BY : E.M.C. 

CHECKED BY : H.K.S. 

APPROVED BY : B.A.V. 

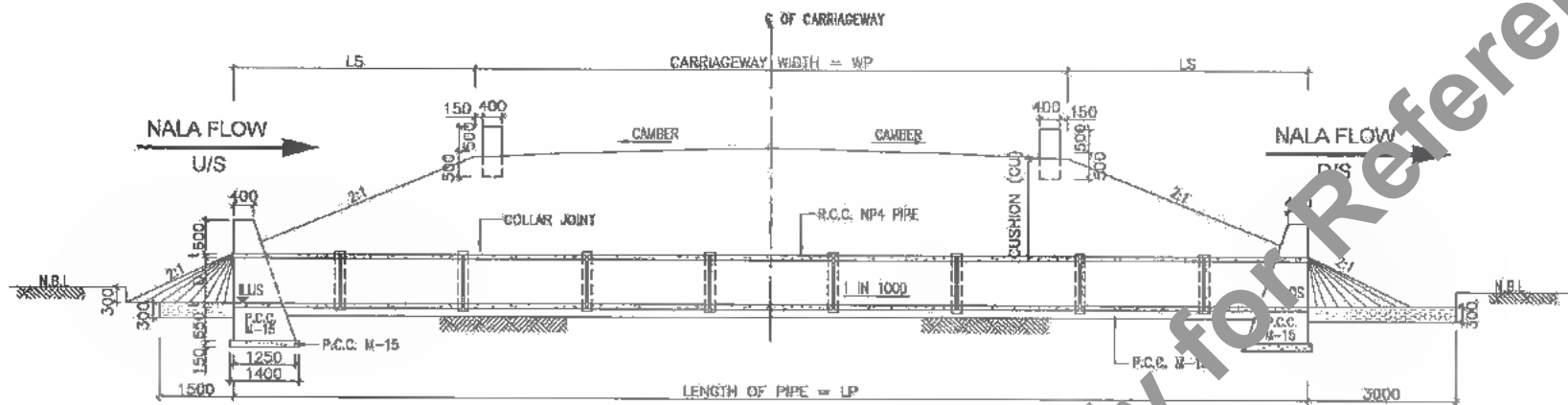
ISSUED BY : B.S. 

TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) TABLE SHOWING VARIOUS PARAMETERS OF WIDENING OF SLAB CULVERT (MORE THEN SINGLE SPAN)

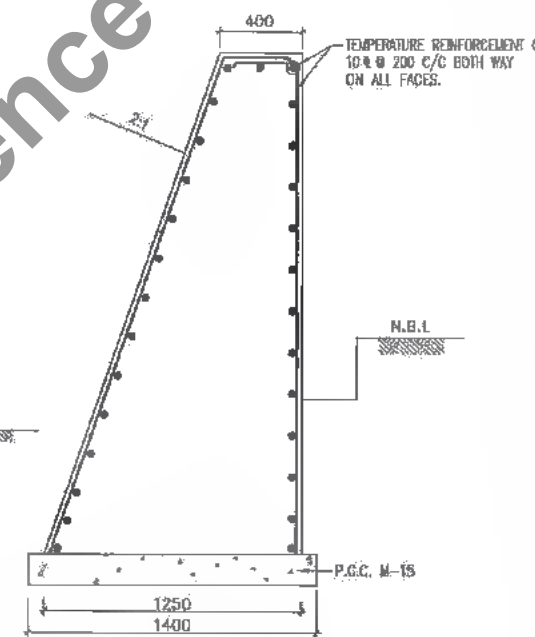
DRG. NO.: (SHEET 2 OF 2)
SAL-213007/DPR/CIB/99CIGAD-02

REVISION: PF



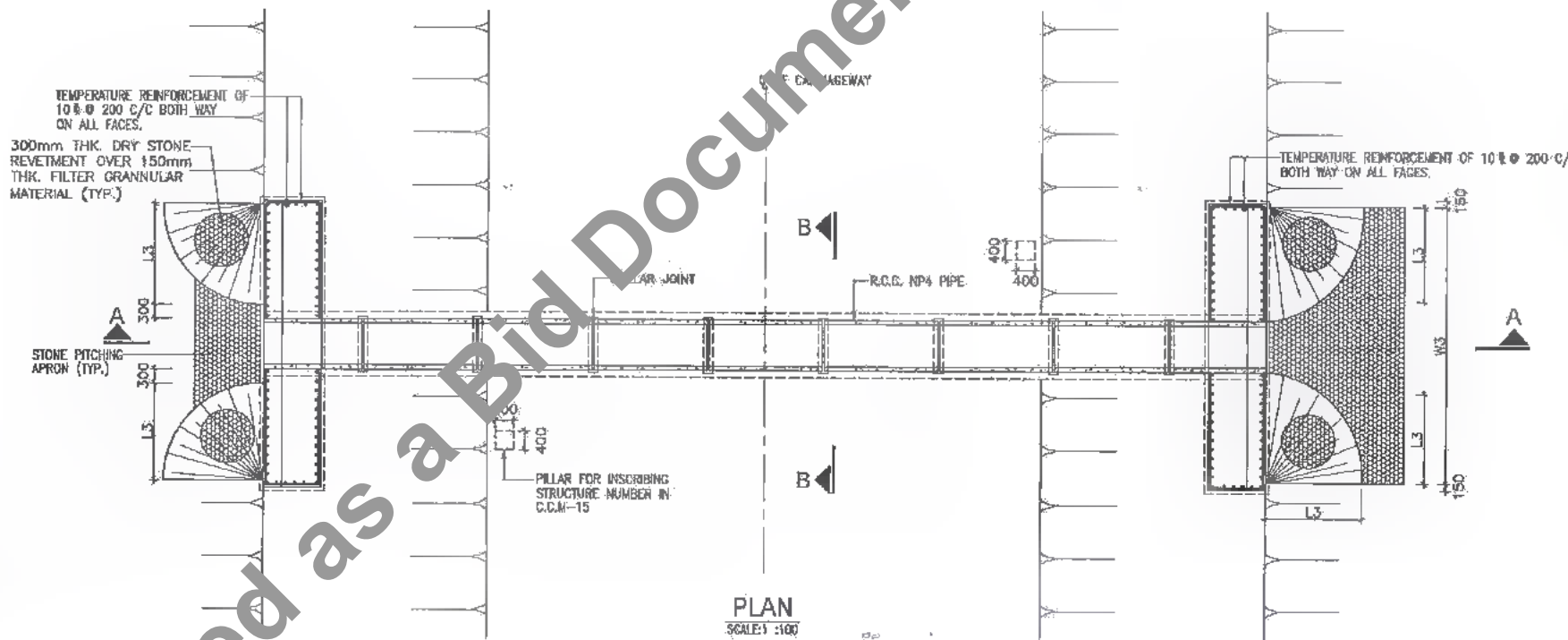


SECTIONAL ELEVATION AT A-A
SCALE: 1:100

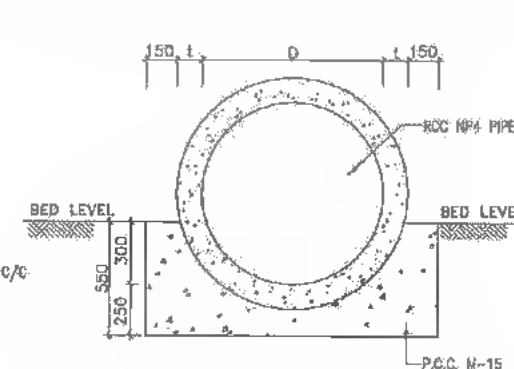


DETAILS OF HEAD WALL
SCALE: 1:50

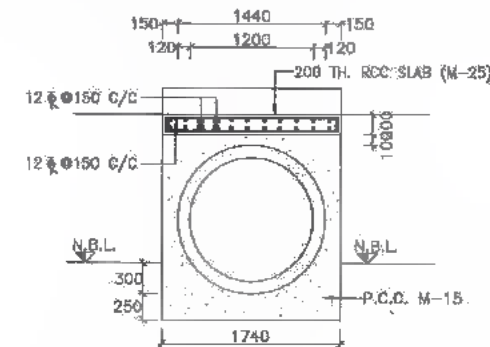
- NOTES:**
- (1) ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES. UNLESS OTHERWISE MENTIONED ON DRAWING.
 - (2) LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1 IN 1000.
 - (3) DRAWING SHALL NOT BE SCALED.
 - (4) FOUNDATION R.L. OF HEAD WALL SHALL BE MINIMUM 0.9M BELOW NATURAL BED LEVEL AS PER SP-13.
 - (5) ALL R.C.C. PIPE OF NP4 TYPE CONFORMING TO I.S. 458.
 - (6) PROVIDE 300mm THICK STONE REVETMENT OVER GRANULAR MATERIAL BACKING 150mm THICK IN ENVELOPE PORTION.
 - (7) ABBREVIATIONS USED
 - (i) LP = LENGTH OF PIPE
 - (ii) D = DIA OF NP4 CLASS PIPE.
 - (iii) t = THICKNESS OF PIPE.
 - (iv) W3 = LENGTH OF HEAD WALL.
 - (v) L3 = ENVELOPE LENGTH.
 - (vi) ILS = INVERT LVL. OF U/S
 - (vii) ILS = INVERT LVL. OF D/S
 - (viii) LS = EXTRA LENGTH
 - (8) TEMPERATURE REINFORCEMENT OF 10# @ 200 C/C SHALL BE PROVIDED ON ALL FACES OF HEAD WALL.
 - (9) TABLE SHOWING VARIOUS PARAMETERS FOR PIPE CULVERT REFER DWG. NO. SAI-213007/DPR/C/B/PC/GAD-01 (SHEET 02 OF 02)
 - (10) UPSTREAM AND DOWNSTREAM SHOWN IN DRAWING ARE INDICATIVE. THE SAME SHALL BE DECIDED AS PER SITE CONDITION OF EACH, BALANCING CULVERT AND AS DIRECTED BY ENGINEER IN CHARGE.



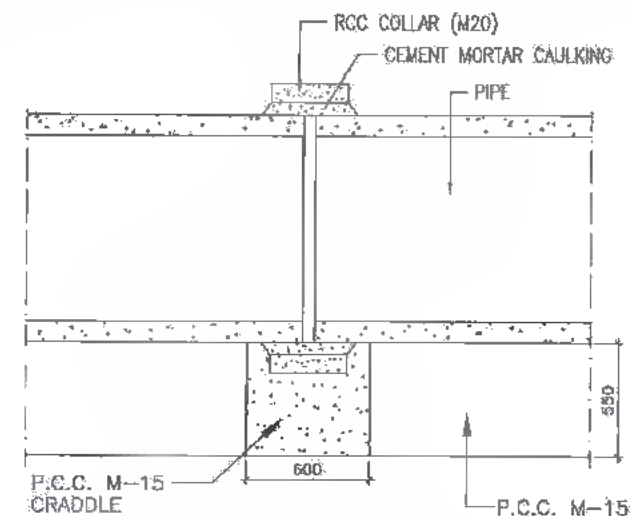
PLAN
SCALE: 1:100



SECTION B-B
SCALE: 1:50



ENCASING DETAILS OF PIPE
SCALE: 1:50



TYPICAL DETAILS OF COLLAR JOINT
SCALE: 1:50



CLIENT:
Bihar State Road Development Corporation Limited (BSRDCL)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "SAI House" Salyan Corporate Square, 8/B Rajesh B, Hub Road, Bhubaneswar-751005, Odisha, India
Phone: +91-75-4112448/7100 Fax: +91-75-4112449 Email: info@saiindia.com

PF	31/07/10	BOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY: G.M.G.	TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) TYP. GAD FOR PIPE CULVERT(SINGLE ROW)
PE	17/12/10	BOOD FOR CONSTRUCTION (DPR)	CHECKED BY: M.K.S.	
PD	10/04/14	BOOD FOR CONSTRUCTION (DPR)	APPROVED BY: B.V.V.	
PC	26/02/14	ISSUED WITH FINAL DPR	ISSUED BY: B.S.	
PS	01/01/14	ADDENDUM OF DPR		
REV.	DATE	DESCRIPTION	BY	
SCALE: AS SHOWN				
DRG. NO.: (SHEET 01 OF 02)				SAI-213007/DPR/C/B/PC/GAD-01
REVISION: PF				

Only for Reference

Details of Pipe Culvert - New/Reconstruction (Single Row)																								
Sr. No.	Proposed Structure No.	Existing Ch. km	Proposed Ch. km	Existing Ground Level In m.		Proposed Formation Level		Existing Width in m. "WE"	Proposed Carriageway in m. "WE"	Earth Cushion, m.	No. of Pipes	Pipes		Envelope Length in m. "LS"	Super Elevation/Camber (%)		Extra Length in m. "LS"	Length of Head Well in m. "WS"	Invert Level, "m"		Ht. of Head Wall in m.	Skew Angle	Length of pipe (Rounding to 2.5m)	Proposed
				D/S	U/S	Left in "mt"	Right in "mt"					Left Carriage %	Right Carriage %		ILUS	ILDS								
1	53/2	-	52+938	45.09	45.09	46.81	46.81	0.00	12.00	0.5	1	1.20	0.120	2.740	-2.00%	-2.00%	3.43	7.520	44.80	44.79	2.69	0	20.000	New -with Pipe Encasing
2	53/3	-	52+967	44.99	44.99	46.78	46.78	0.00	12.00	0.5	1	1.20	0.120	2.740	-2.00%	-2.00%	3.96	7.520	44.70	44.69	2.69	0	20.000	New -with Pipe Encasing
3	53/4	-	52+995	44.61	44.61	46.75	46.75	0.00	12.00	0.92	1	1.20	0.120	2.740	-2.00%	-2.00%	1.64	7.520	44.32	44.31	2.69	0	17.500	New
4	54/1	-	53+194	45.33	45.33	46.95	46.95	0.00	12.00	0.41	1	1.20	0.120	2.740	-2.00%	-2.00%	3.13	7.520	45.04	45.03	2.69	0	20.000	New -with Pipe Encasing
5	54/2	-	53+510	46.00	46.00	47.58	47.58	0.00	12.00	0.36	1	1.20	0.120	2.740	-2.00%	-2.00%	2.71	7.520	45.71	45.70	2.69	0	17.500	New -with Pipe Encasing
6	56/1	-	55+434	46.29	46.29	49.28	49.28	0.00	12.00	1.75	1	1.20	0.120	2.740	-2.50%	-2.50%	3.050	7.520	46.00	45.99	2.690	0	20.000	New
7	57/1	-	56+422	47.13	47.13	49.54	49.54	0.00	12.00	1.16	1	1.20	0.120	2.740	-2.50%	-2.50%	2.286	7.520	46.84	46.83	2.690	0	17.500	New
8	58/1	-	57+182	48.17	48.17	50.05	50.05	0.00	12.00	0.63	1	1.20	0.120	2.740	-2.50%	-2.50%	1.262	7.520	47.88	47.87	2.690	0	15.000	New
9	59/2	-	58+214	47.84	47.84	50.75	50.75	0.00	12.00	1.66	1	1.20	0.120	2.740	-2.50%	-2.50%	3.116	7.520	47.56	47.54	2.690	0	20.000	New
10	59/3	-	58+883	48.90	48.90	51.36	51.36	0.00	12.00	1.21	1	1.20	0.120	2.740	-2.50%	-2.50%	2.476	7.520	48.61	48.60	2.690	0	17.500	New
11	63/1	-	62+322	51.38	51.38	53.23	53.23	0.00	12.00	0.61	1	1.20	0.120	2.740	-2.50%	-2.50%	1.232	7.520	51.09	51.08	2.690	0	15.000	New
12	63/2	-	62+757	50.77	50.77	53.67	53.67	0.00	12.00	1.65	1	1.20	0.120	2.740	-2.50%	-2.50%	3.306	7.520	50.48	50.47	2.690	0	20.000	New
13	64/2	-	63+958	52.58	52.58	54.69	54.69	0.00	12.00	0.86	1	1.20	0.120	2.740	-2.50%	-2.50%	1.520	7.520	52.30	52.28	2.690	0	17.500	New
14	66/3	-	65+621	54.04	54.04	56.27	56.27	0.00	12.00	0.98	1	1.20	0.120	2.740	-2.50%	-2.50%	1.678	7.520	53.75	53.74	2.690	0	17.500	New
15	70/2	-	69+795	58.62	58.62	60.99	60.99	0.00	12.00	1.12	1	1.20	0.120	2.740	-2.50%	-2.50%	2.256	7.520	58.33	58.32	2.690	0	17.500	New
16	71/2	-	70+974	59.80	59.80	62.25	62.25	0.00	12.00	1.20	1	1.20	0.120	2.740	-2.50%	-2.50%	2.388	7.520	59.52	59.50	2.690	0	17.500	New
17	72/1	-	71+334	59.75	59.75	62.19	62.19	0.00	12.00	1.19	1	1.20	0.120	2.740	-2.50%	-2.50%	2.154	7.520	59.46	59.45	2.690	0	17.500	New

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CLIENT:



Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

M. (Tech.)
PIU, BCL
Patna

PROJECT:

Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:



SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company

Block-A "SAI House" Indira Corporate Square, B-8 Rajpath
Civil Lines, New Delhi, India
Phone : +91-11-26104011/12, Fax : +91-11-26104014
Email : mail@saiindia.com

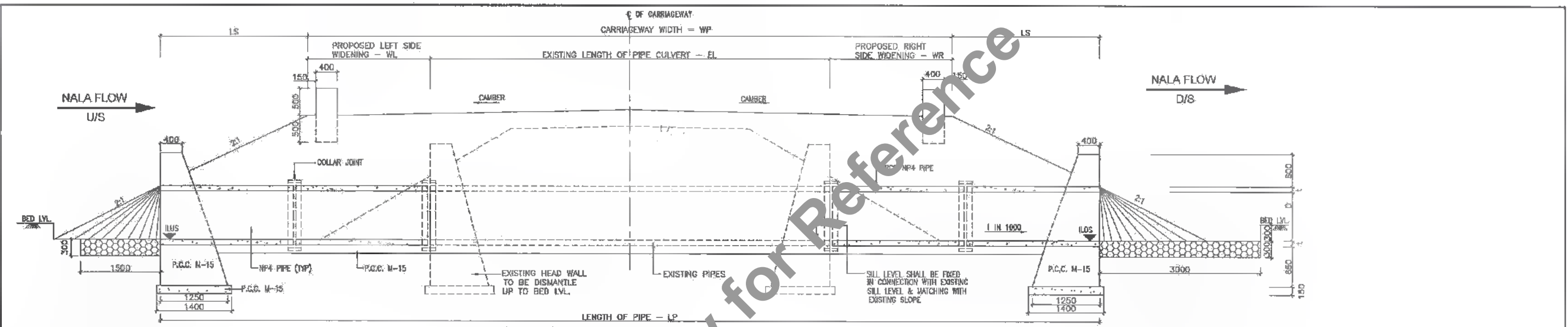
REV.	DATE	DESCRIPTION	ISSN	ISSUED BY	BY : S.S. S...
RF	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)		DRAWN BY : G.M.C. S...	
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY : N.K.S. S...	
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY : B.R.V. S...	
PD	26/02/14	ISSUED WITH FINAL DPR			
PE	01/01/14	ADDENDUM OF DPR			

SCALE : AS SHOWN

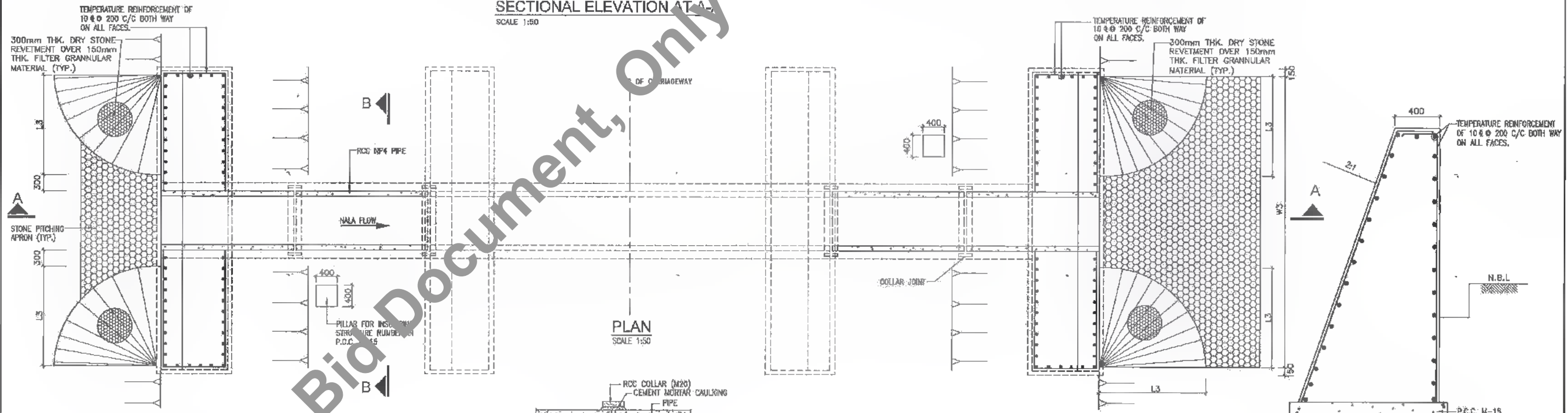
DRG. NO. : (SHEET 02 OF 02)
SAI-213007/0PR/0B/PO/GAD-01
REVISION : PF



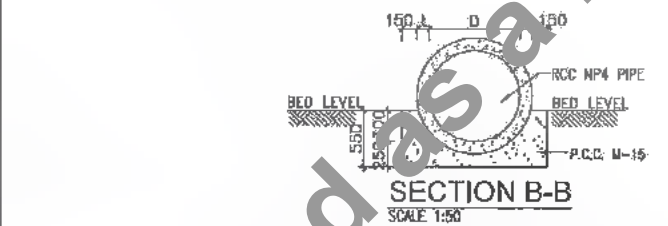
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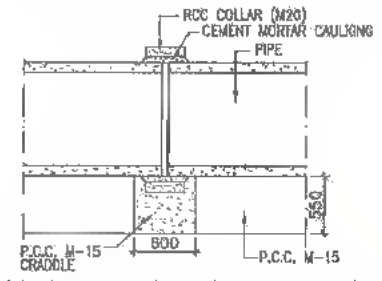
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SCALE 1:50



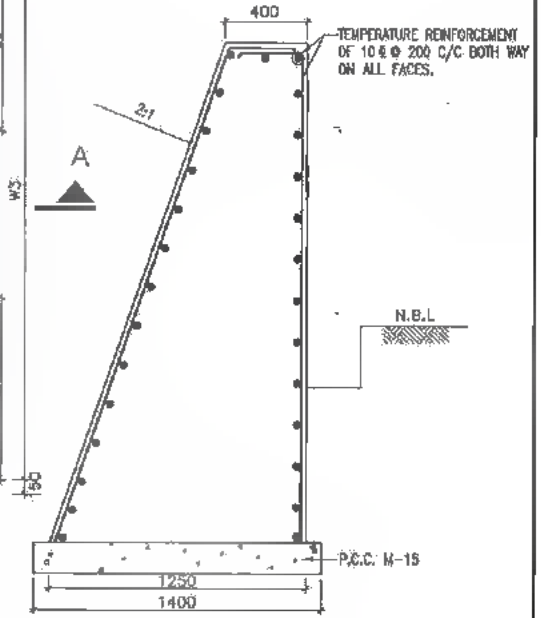
PLAN
SCALE 1:50



SECTION B-B
SCALE 1:50



TYPICAL DETAILS OF COLLAR JOINT
SCALE 1:50



DETAILS OF HEAD WALL
SCALE 1:50

NOTES:

- (1) ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED ON DRAWING
- (2) LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1 IN 1000
- (3) DRAWING SHALL NOT BE SCALED.
- (4) FOUNDATION R.L. OF HEAD WALL SHALL BE MINIMUM 0.8M BELOW NATURAL BED LEVEL AS PER SP-13.
- (5) ALL R.C.C. PIPE OF NP4 TYPE CONFORMING TO I.S. 458.
- (6) PROVIDE 300mm THICK STONE REVETMENT OVER GRANULAR MATERIAL BACKING 150mm THICK IN ENVELOPE PORTION.
- (7) TEMPERATURE REINFORCEMENT OF 10 & Ø 200/C BOTH WAY SHALL BE PROVIDED ON ALL FACES OF HEAD WALL.
- (8) ABBREVIATIONS USED:
 - (i) LP = LENGTH OF PIPE
 - (ii) D = DIA OF NP4 CLASS PIPE
 - (iii) t = THICKNESS OF PIPE
 - (iv) W3 = LENGTH OF HEAD WALL
 - (v) L3 = ENVELOPE LENGTH
 - (vi) ILUS = INVERT LVL. OF U/S
 - (vii) ILDS = INVERT LVL. OF D/S
 - (viii) LS = EXTRA LENGTH
- (9) EXTRA LENGTH OF PIPE IN EXCESS OF 2.5m BE CHECKED WITH MANUFACTURER OR SUPPLIER & BE USED ALL EXPOSED FACES OF HEAD WALL.
- (10) UPSTREAM AND DOWNSTREAM SHOWN IN DRAWING ARE INDICATIVE, THE SAME SHALL BE DECIDED AS PER SITE CONDITION OF EACH BALANCING CULVERT AND AS DIRECTED BY ENGINEER IN CHARGE.

Sr. No.		Proposed Structure No.	Existing Ch. No.	Existing Ground Level in m.	Proposed Formation Level	Bedding Width in m. "W"	Proposed Carriage Way in m. "WP"	Birth Cushion, m.	Pipes				Invert Level, "m"		Length of pipe (Rounding to 2.5m)	Proposal								
		D/S	U/S	Left in "m"	Right in "m"	No.	Dia. in m. "D"	Thk. in m. "t"	Envelope Length in m. "L3"	Super Elevation Carriage (%)	Left Carriage %	Right Carriage %	Extra Length in m. "L3"	Length of Head Wall in m. "W3"	ILUS	ILDS								
1	01	82/510	81+099	50.40	50.40	54.71	54.71	10.00	12.00	3.38	1.00	0.80	0.10	2.10	-2.50%	-2.50%	6.78	5.90	50.11	50.10	2.35	0.00	17.50	Two side Widening
2	02	63/317	61+907	50.84	50.84	53.19	53.19	10.00	12.00	1.43	1.00	0.80	0.10	2.10	-2.50%	-2.50%	1.91	5.90	50.55	50.54	2.35	0.00	7.50	Two side Widening
3	03	67/851	66+435	55.14	55.14	57.44	57.44	7.10	12.00	1.37	1.00	0.80	0.10	2.10	-2.50%	-2.50%	2.74	5.90	54.85	54.84	2.35	0.00	12.50	Two side Widening
4	04	68/521	67+105	55.90	55.90	58.18	58.18	10.00	12.00	1.36	1.00	0.80	0.10	2.10	-2.50%	-2.50%	2.91	5.90	55.61	55.60	2.35	0.00	5.00	One side Widening
5	05	70/297	68+892	57.56	57.56	59.61	59.61	7.10	12.00	1.13	1.00	0.80	0.10	2.10	-2.50%	-2.50%	2.01	5.90	57.27	57.28	2.35	0.00	10.00	Two side Widening

DATE: 20/07/2019
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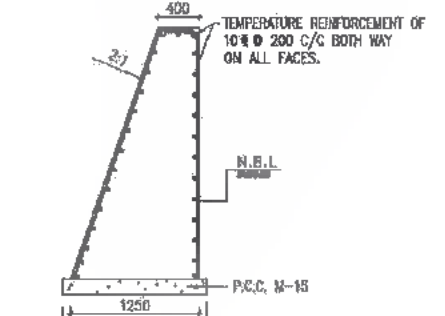
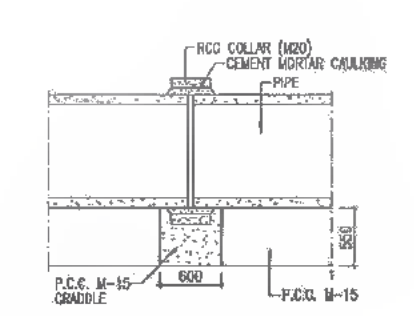
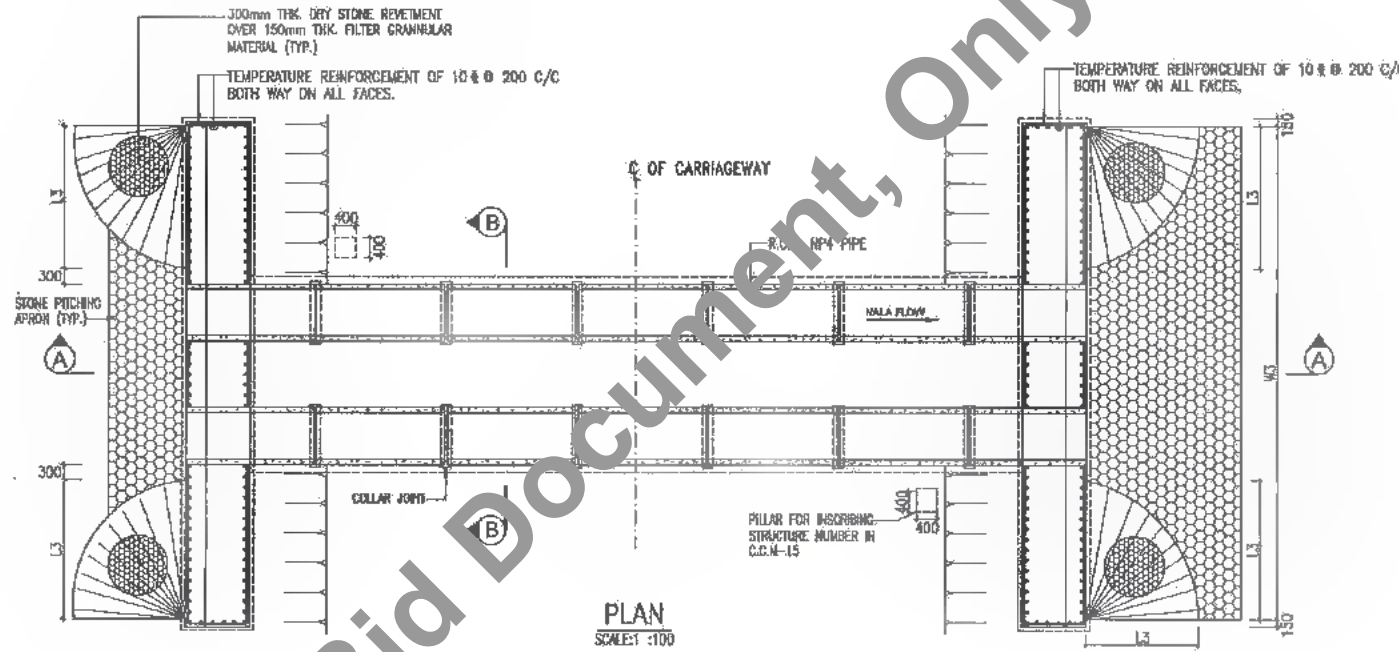
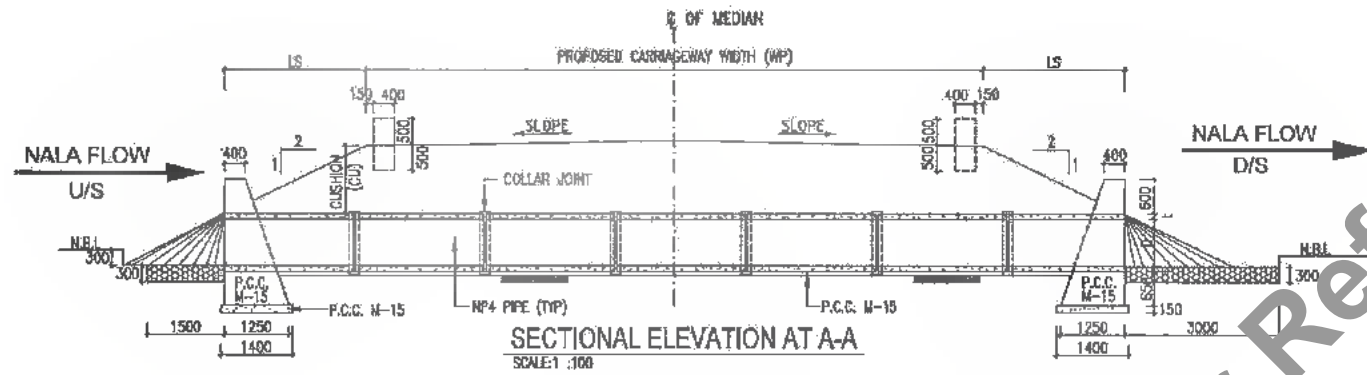
PROJECT: Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)

PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company
Block-A 'SAI House' Sanyam Corporate Square, B/5 Rajpath, Old Bazar, Ahmedabad-380015, Gujarat India
Phone: +91-79-4312487/8/9, +91-79-65182022
Email: saic@saiconsulting.com

PF	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY: G.A.G.	TITLE: LRP CHOWK (BAHADURGANJ) -DIGHALBANK (PACKAGE-III) TYP. GAD FOR WIDENING OF PIPE CULVERT (SINGLE ROW)
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY: N.K.S.	
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY: B.M.	
PP	01/01/14	ADDENDUM OF DPR	ISSUED BY: B.S.	
REV.	DATE	DESCRIPTION	SIGN	DRG. NO.: SAI-213007/DPR/CB/PC/GAD-02
				REVISION: PF

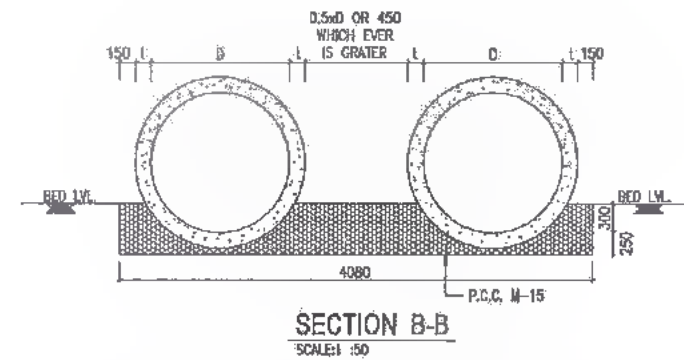




TYPICAL DETAILS OF COLLAR JOINT
SCALE 1:50

DETAILS OF HEAD WALL
SCALE 1:50

Details of Pipe Culvert - New Construction (Multi Row)																								
Sr. No.	Proposed Structure No.	Existing Ch. km	Proposed Existing Ground Level		Proposed Formation Level		Slope	Proposed Carriageway width in m. "WP"	Bench Station, m.	Pipe		Envelope Length in m. "L3"	Super Elevation/Chamber (%)		Chamber Length in m. "L4"	Length of Head Wall in m. "W4"	Invert Level, "m"		Ht. of Head Wall in m.	Flow Angle	Length of pipe (Rounding to 2.5m)	Proposed		
			Left in "m"	Right in "m"	Left in "m"	Right in "m"				No.	Ch. in m. "g"		TR. in m. "t"	Left Carriage %			Right Carriage %	I.L. US					I.L. DS	
1	59/1	-	47.107	47.74	47.74	40.40	40.40	0.000	12.000	1.51	2	1.20	0.120	2.740	-2.50%	-2.50%	2.810	9.580	47.45	47.44	2.690	0	20.000	New
2	61/1	-	50.107	50.12	50.12	52.34	52.34	0.000	12.000	0.97	2	1.20	0.120	2.740	-2.50%	-2.50%	1.946	9.560	49.53	49.82	2.690	0	17.500	New
3	66/2	-	53.500	53.37	53.37	56.03	56.03	0.000	12.000	1.42	2	1.20	0.120	2.740	-2.50%	-2.50%	2.302	9.560	53.06	53.07	2.690	0	17.500	New



SECTION B-B
SCALE 1:50

- NOTES:**
- (1) ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED ON DRAWING
 - (2) LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1 IN 1000
 - (3) DRAWING SHALL NOT BE SCALED.
 - (4) FOUNDATION R.L. OF HEAD WALL SHALL BE MINIMUM 0.30M BELOW NATURAL BED LEVELS PER SP-13.
 - (5) ALL R.C.C. PIPE OF NP4 TYPE CONFORMING TO IS. 456.
 - (6) PROVIDE 300mm THICK STONE REVETMENT OVER GRANULAR MATERIAL BACKING 150mm THICK IN ENVELOPE PORTION.
 - (7) ABBREVIATIONS USED
 - (i) LP = LENGTH OF PIPE
 - (ii) D = DIA OF NP4 CLASS PIPE.
 - (iii) t = THICKNESS OF PIPE.
 - (iv) WS = LENGTH OF HEAD WALL
 - (v) L3 = ENVELOPE LENGTH.
 - (8) TEMPERATURE REINFORCEMENT OF 10# @ 200 C/C BOTH WAY SHALL BE PROVIDED ON ALL FACES OF HEAD WALL
 - (9) UPSTREAM AND DOWNSTREAM SHOWN IN DRAWING ARE INDICATIVE, THE SAME SHALL BE DECIDED AS PER SITE CONDITION OF EACH BALANCING CULVERT AND AS DIRECTED BY ENGINEER IN CHARGE.

DATE: 2019/05/29 13:07 BHARREVISSED DRR/CB/PACKAGE-3/PIPE CULVERT/03 MULTI PIPE-NEW CONST.dwg



Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Head-A "SAI House", Sakyam Corporate Square, 8th Floor, Bhubaneswar, Odisha-751005, India
Phone: +91-674-2581778/Fax: +91-674-2581779
Email: mail@saiengg.com

REV.	DATE	DESCRIPTION	ISSN	ISSUED BY
PF	31/07/18	GOOD FOR CONSTRUCTION (REVISED DWP)		
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)		
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PC	28/02/14	ISSUED WITH FINAL DWP		
PD	01/01/14	ADDENDUM OF DWP		

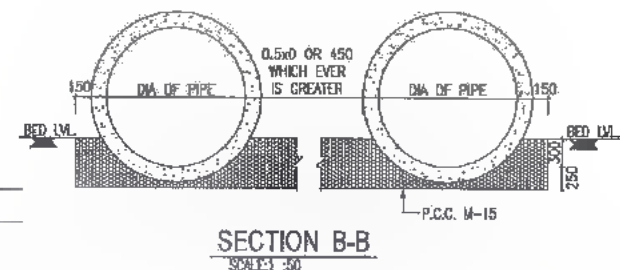
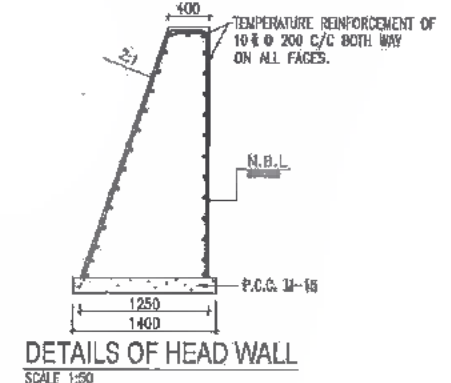
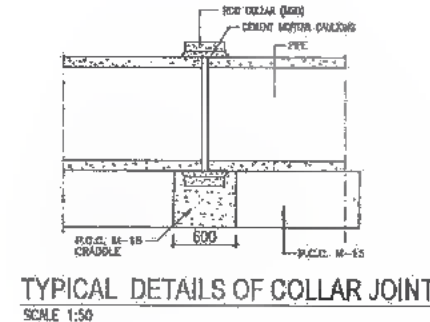
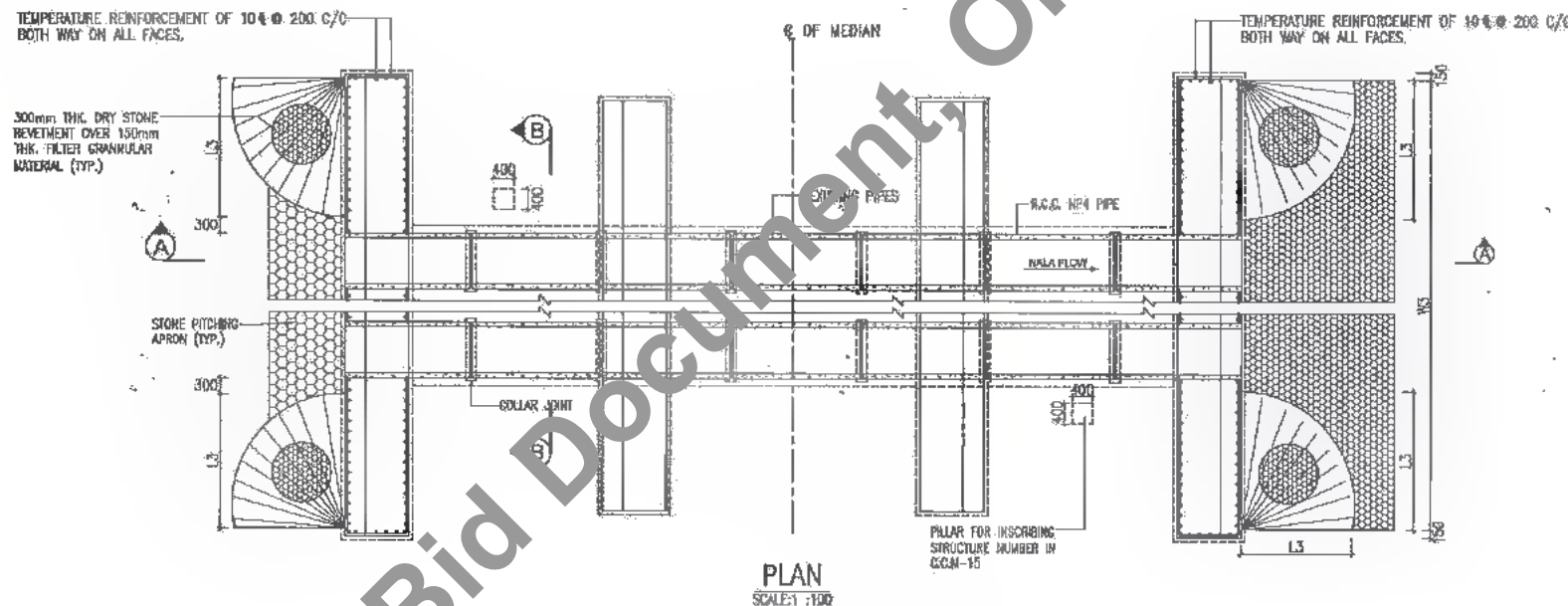
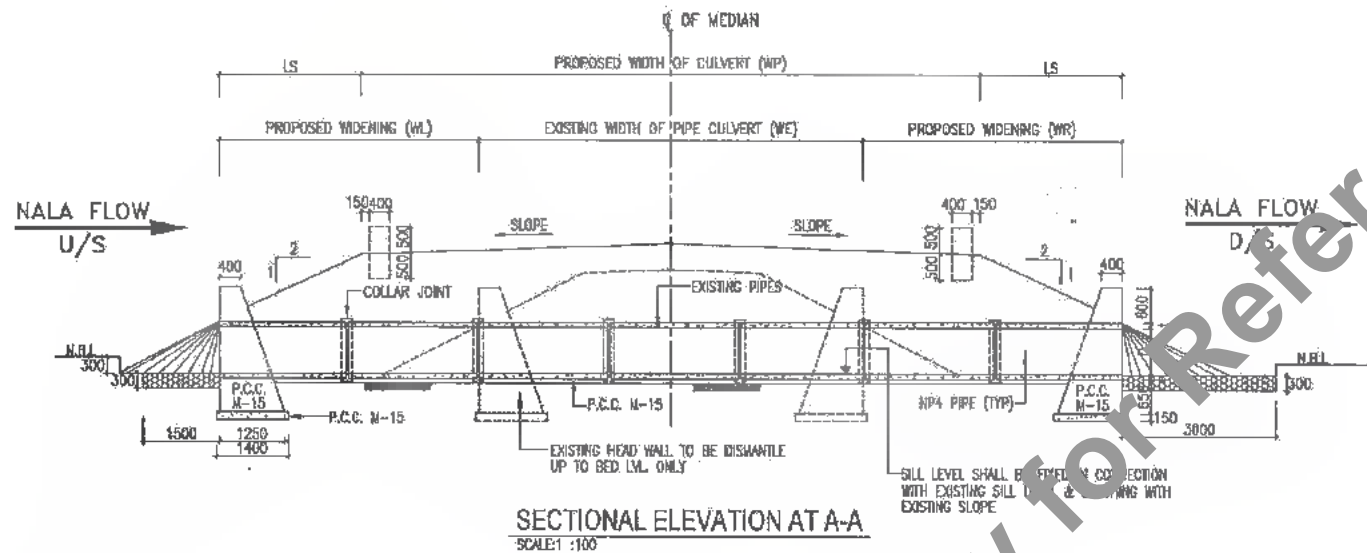
TITLE: ERP SHOWK (BAHADURGANJ) -DIGHALBANK(PACKAGE-II)
TYPICAL CAD FOR PIPE CULVERT HAVING DOUBLE ROW

DRG. NO.:
SAI-213007/DRP/CB/PC/IGAD-03

REVISION: PF



377
400



- NOTES:**
- (1) ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED ON DRAWING.
 - (2) LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1 IN 1000.
 - (3) DRAWING SHALL NOT BE SCALED.
 - (4) FOUNDATION R.L. OF HEAD WALL SHALL BE MINIMUM 0.3M BELOW NATURAL BED LEVEL AS PER SP-13.
 - (5) ALL R.C.C. PIPE OF NP4 TYPE CONFORMING TO I.S. 458.
 - (6) PROVIDE 300mm THICK STONE REVETMENT OVER GRANULAR MATERIAL BACKING 150mm THICK IN ENVELOPE PORTION.
 - (7) ABBREVIATIONS USED:
 - (i) LP = LENGTH OF PIPE
 - (ii) D = DIA OF NP4 CLASS PIPE
 - (iii) t = THICKNESS OF PIPE
 - (iv) WS = LENGTH OF HEAD WALL
 - (v) L3 = ENVELOPE LENGTH.
 - (8) TEMPERATURE REINFORCEMENT OF 10% @ 200 C/C BOTH WAY SHALL BE PROVIDED ON ALL FACES OF HEAD WALL.
 - (9) UPSTREAM AND DOWNSTREAM SHOWN IN DRAWING ARE INDICATIVE, THE SAME SHALL BE DECIDED AS PER SITE CONDITION OF EACH BALANCING CULVERT AND AS DIRECTED BY ENGINEER IN CHARGE.


Details of Pipe Culvert - Widening (Multi Row)

Sr. No.	Proposed Structure No.	Existing Ch. km	Prop. ssa Ch. km	Existing Ground Level in m.		Proposed Formation Level		Existing Width in m. "WE"	Proposed Carriageway in m. "WP"	Birth Cushion, m.	Pipes			Envelope Length in m. "L3"	Super Elevation/Camber (%)		Extra Length in m. "LS"	Length of Head Wall in m. "WS"	Invert Level, "m"		Ht. of Head Wall in m.	Skew Angle	Length of pipe (Rounding to 2.5m)	Proposal
				D/S	U/S	Left in "m"	Right in "m"				No.	Dia. in m. "D"	Thk. in m. "t"		Left Carriage %	Right Carriage %			ILUS	ILDS				
1	56/2	57/803	55+967	46.70	48.70	49.00	49.00	7.500	12.000	1.38	2.000	0.900	0.100	2.100	-2.50%	-2.50%	2.750	7.450	46.41	46.40	2.350	0.000	10.000	Two side Widening
2	58/2	59/219	57+808	48.21	48.21	50.62	50.62	10.600	12.000	1.48	2.000	0.900	0.100	2.100	-2.50%	-2.50%	3.236	7.450	47.93	47.91	2.350	0.000	5.000	One side Widening
3	64/1	64/112	63+304	52.39	52.39	54.26	54.26	10.000	12.000	0.85	2.000	0.900	0.100	2.100	-2.50%	-2.50%	2.190	7.450	52.10	52.09	2.350	0.000	7.500	Two side Widening
4	68/2	68/723	67+307	56.32	56.32	58.02	58.02	10.000	12.000	0.77	2.000	0.900	0.100	2.100	-2.50%	-2.50%	1.606	7.450	56.03	56.02	2.350	0.000	7.500	Two side Widening
5	71/1	71/737	70+330	58.89	58.89	61.45	61.45	9.600	12.000	1.83	4.000	0.900	0.100	2.100	-2.50%	-2.50%	3.328	10.550	58.60	58.59	2.350	0.000	7.500	One side Widening
6	72/1	72/962	71+561	59.76	59.76	62.56	62.56	9.200	12.000	1.87	2.000	0.900	0.100	2.100	-2.50%	-2.50%	3.744	7.450	59.47	59.46	2.350	0.000	12.500	Two side Widening
7	73/1	73/785	72+385	60.21	60.21	62.67	62.67	7.500	12.000	1.53	5.000	0.900	0.100	2.100	-2.50%	-2.50%	3.122	12.100	59.92	59.91	2.350	0.000	10.000	One side Widening

DATE: 2019/07/29 14:25:00 PATH: T:\CAD\2019\BIHAR\REVISED DPR\CLIP\PACKAGE-3\PIPE CULVERT\104 MULTI PIPE WIDENING.dwg

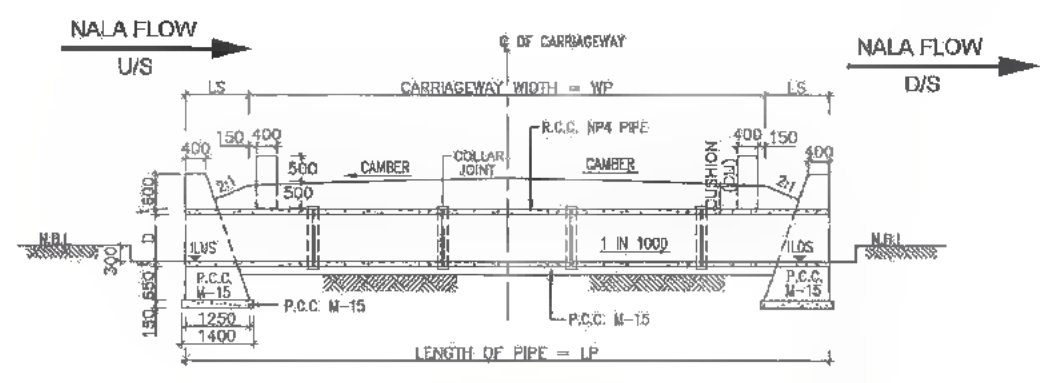
CLIENT:
 Bihar State Road Development Corporation Limited (BSRDCL)
 (A Government of Bihar Undertaking)

PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
 Baysi - Bahadurganj - Dighalbank (SH-99)

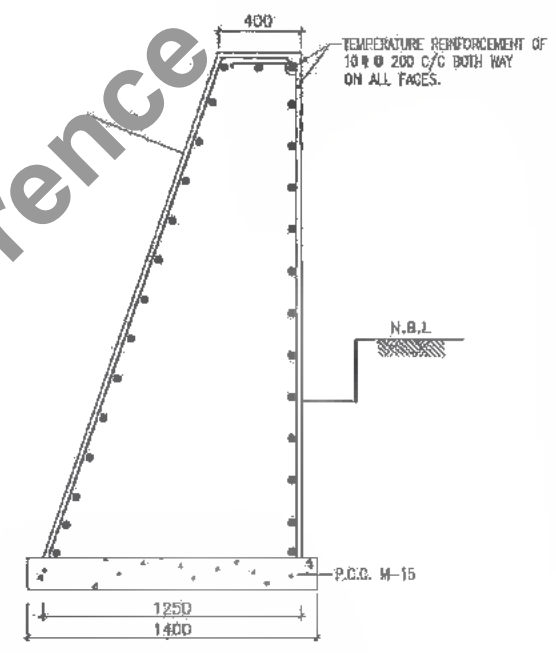
CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 Block-A "SAI House", Sezion Corporate Square, W/4 Begunah, Club Road, Patna-800004, Bihar, India
 Phone: +91-75-5412345678, Fax: +91-75-54123456
 Email: info@saiindia.com

PF	31/07/19	5000 FOR CONSTRUCTION (REVISED DPR)	DRAWN BY: I.G.N.G.	TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-II) TYPICAL GAD FOR WIDENING OF PIPE CULVERTS (MULTI ROW)
PE	17/12/18	5000 FOR CONSTRUCTION (DPR)	CHECKED BY: N.K.E.	
PD	10/04/14	5000 FOR CONSTRUCTION (DPR)	APPROVED BY: B.A.Y.	
PC	26/02/14	ISSUED WITH FINAL DPR		
PD	01/01/14	ADDENDUM OF DPR		
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY: B.S.
SCALE: AS SHOWN				
ORG. NO.: SAI-213007/DPR/C/B/PC/GAD-04				REVISION: PF



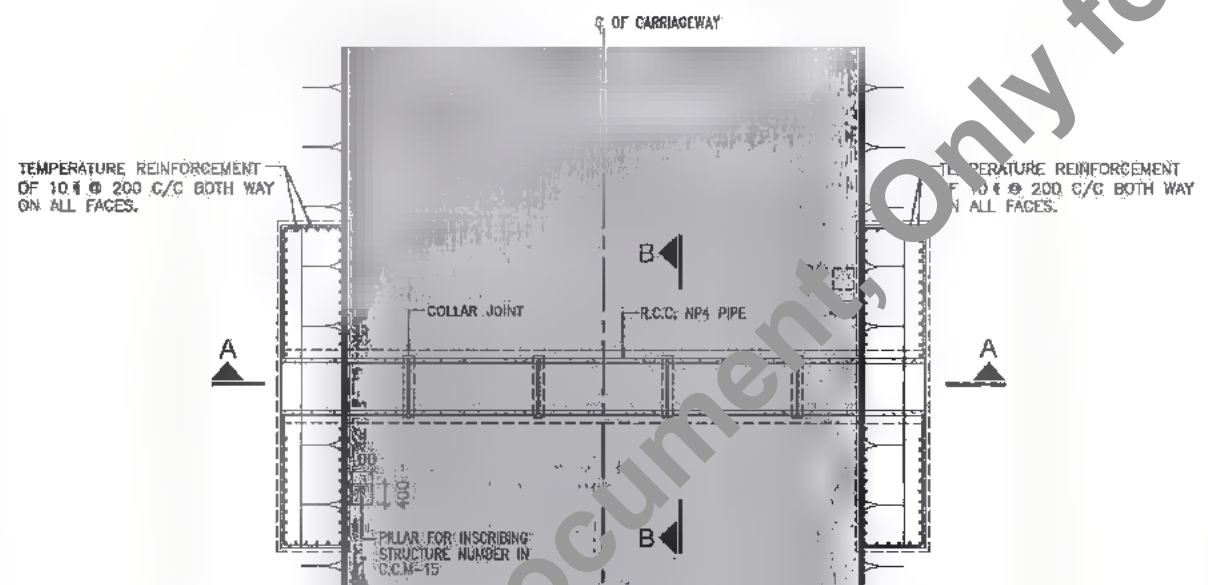


SECTIONAL ELEVATION AT A-A
SCALE: 1:100

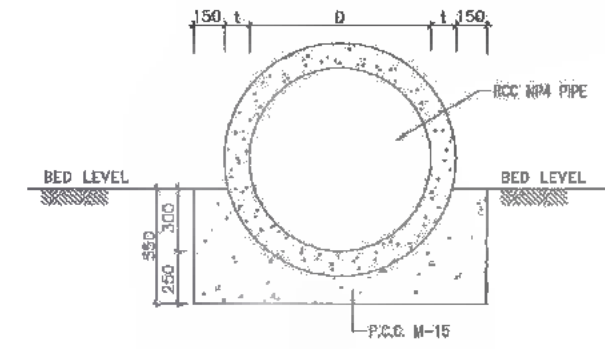


DETAILS OF HEAD WALL
SCALE 1:50

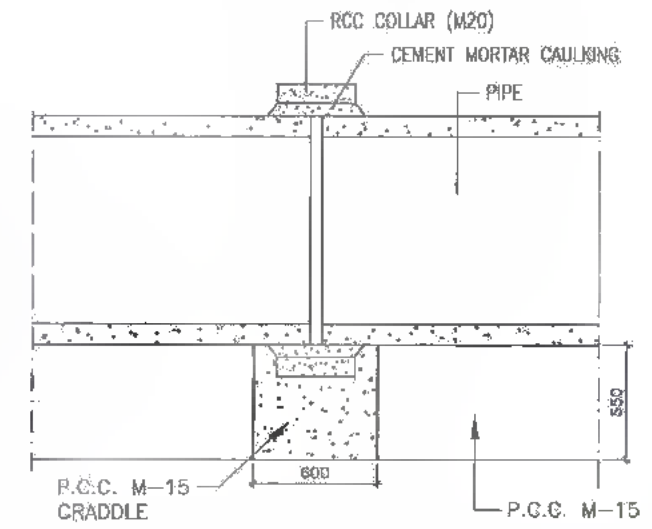
- NOTES:**
- (1) ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES UNLESS OTHERWISE MENTIONED ON DRAWING
 - (2) LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1 IN 1000
 - (3) DRAWING SHALL NOT BE SCALED.
 - (4) FOUNDATION R.L. OF HEAD WALL SHALL BE MINIMUM 0.9M BELOW NATURAL BED LEVELS PER SP-13.
 - (5) ALL R.C.C. PIPE OF NP4 TYPE CONFORMING TO I.S. 458.
 - (6) PROVIDE 300mm THICK STONE REVETMENT OVER GRANULAR MATERIAL BACKING 150mm THICK IN ENVELOPE PORTION.
 - (7) ABBREVIATIONS USED:
 (i) LP = LENGTH OF PIPE
 (ii) D = DIA OF NP4 CLASS PIPE.
 (iii) t = THICKNESS OF PIPE.
 (iv) W3 = LENGTH OF HEAD WALL.
 (v) LZ = ENVELOPE LENGTH.
 (vi) ILUS = INVERT LVL OF U/S
 (vii) ILDS = INVERT LVL OF D/S
 (viii) LS = EXTRA LENGTH
 - (8) TEMPERATURE REINFORCEMENT OF 10 # @ 200 C/C BOTH WAY SHALL BE PROVIDED ON ALL FACES OF HEAD WALL
 - (9) TABLE SHOWING VARIOUS PARAMETERS FOR PIPE CULVERT REFER DWG. NO. SAI-213007/DPR/C/B/PC/GAD-05 (SHEET 02 OF 02)
 - (10) UPSTREAM AND DOWNSTREAM SHOWN IN DRAWING ARE INDICATIVE, THE SAME SHALL BE DECIDED AS PER SITE CONDITION OF EACH BALANCING CULVERT AND AS DIRECTED BY ENGINEER IN CHARGE.



PLAN
SCALE: 1:100



SECTION B-B
SCALE 1:50



TYPICAL DETAILS OF COLLAR JOINT
SCALE 1:50



DATE: 2019/07/14 2:45pm
PATH: C:\Users\stgogam\OneDrive\Documents\appdata\Local\Temp\AcPublish\5784\1\05 CROSS ROAD PIPE CUL-SINGLE ROW (New Constr).dwg

Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company

DT	31/07/14	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : G.M.C.	TITLE: LRP CHOWK (BAHADURGANJ)-DIGHALBANK (PACKAGE-III) TYP:GADFORGROSS ROAD PIPECULVERT (SINGLE ROW)
PE	17/12/10	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : N.K.S.	DRG. NO.: (SHEET 01 OF 02)
PC	29/02/14	ISSUED WITH FINAL DPR	APPROVED BY: B.R.V.	SAI-213007BPR03/PC/GAD-05
PB	01/01/14	ADDENDUM OF DPR	ISSUED BY : B.S. K.	REVISION : PF

SCALE : AS SHOWN

379
398

DATE: 20/07/10 - 2:45pm
PATH: C:\Users\lg...am\appdata\local\Temp\AcPub\1st_9704\105 CROSS ROAD PIPE CUL-SINGLE ROW (New Constr).dwg

Details of Cross Road Pipe Culvert - New/Reconstruction

Sr. No.	Prop. Str. No.	Culvert Chainage In "km" Proposed	Type of Junction	Left/Right/Both	Existing Ground Level In m.		Proposed Formation Level		Existing Width in m. "WE"	Proposed Carriageway In m. "WPP"	Earth Cushion, m.	Pipe			Envelope Length in m. "L3"	Extra Length in m. "L8"	Length of Head Wall in m. "W3"	Invert Level, "m"		Ht. of Head Wall in m.	Skew Angle	Length of pipe (Rounding to 2.5m)	Proposal	Junction connecting To
					D/S	U/S	Left In "m"	Right In "m"				No.	D in m.	Thk. in m.				ILUS	ILDS					
1	-	52+115	Major	Left	45.889	45.889	47.281	47.281	0.00	10.00	0.172	1	1.20	0.120	2.74	0.344	7.52	45.598	45.589	21.250	0.00	12.50	New	L - Thakurganj
2	-	52+115	Major	Right	45.889	45.889	47.281	47.281	0.00	10.00	0.172	1	1.20	0.120	2.74	0.344	7.52	45.598	45.589	21.250	0.00	12.50	New	R - Araria
3	-	53+855	Minor	Right	43.264	43.264	44.454	44.454	0.00	7.50	0.004	1	1.20	0.120	2.74	0.007	7.52	42.972	42.964	16.250	0.00	10.00	New	R- Bhadurganj
4	-	55+570	Minor	Right	47.851	47.851	49.468	49.468	0.00	7.50	0.432	1	1.20	0.120	2.74	0.884	7.52	47.559	47.551	16.250	0.00	10.00	New	R-Guna Chotasi
5	-	56+060	Minor	Left	47.212	47.212	49.136	49.136	0.00	7.50	0.738	1	1.20	0.120	2.74	1.476	7.52	46.920	46.912	16.250	0.00	12.50	New	L-Birnia
6	-	60+115	Minor	Right	50.318	50.318	52.401	52.401	0.00	7.50	0.897	1	1.20	0.120	2.74	1.794	7.52	50.026	50.018	16.250	0.00	12.50	New	R-Sarriesa
7	-	61+602	Minor	Left	51.653	51.653	52.849	52.849	0.00	7.50	0.010	1	1.20	0.120	2.74	0.019	7.52	51.361	51.353	16.250	0.00	10.00	New	L-Dhangara
8	-	63+265	Minor	Right	52.238	52.238	54.202	54.202	0.00	7.50	0.778	1	1.20	0.120	2.74	1.555	7.52	51.946	51.938	16.250	0.00	12.50	New	R-LRC
9	-	63+480	Minor	left	52.238	52.238	54.202	54.202	0.00	7.50	0.778	1	1.20	0.120	2.74	1.555	7.52	51.946	51.938	16.250	0.00	12.50	New	L-Bibiganj
10	-	64+360	Minor	Left	53.375	53.375	55.368	55.368	0.00	7.50	0.827	1	1.20	0.120	2.74	1.653	7.52	53.083	53.075	16.250	0.00	12.50	New	L-Pakamari
11	-	65+250	Minor	Right	54.635	54.635	56.259	56.259	0.00	7.50	0.438	1	1.20	0.120	2.74	0.876	7.52	54.343	54.335	16.250	0.00	10.00	New	R-Bansadi
12	-	67+310	Minor	Left	56.318	56.318	58.051	58.051	0.00	7.50	0.547	1	1.20	0.120	2.74	1.094	7.52	56.026	56.018	16.250	0.00	10.00	New	L-Office
13	-	67+310	Minor	Right	56.318	56.318	58.051	58.051	0.00	7.50	0.547	1	1.20	0.120	2.74	1.094	7.52	56.026	56.018	16.250	0.00	10.00	New	R-Ikratikak
14	-	69+290	Minor	Right	58.754	58.754	59.940	59.940	0.00	7.50	0.000	1	1.20	0.120	2.74	0.000	7.52	58.462	58.454	16.250	0.00	7.50	New	R-Gandavadenga
15	-	72+310	Minor	Left	60.946	60.946	62.740	62.740	0.00	7.50	0.608	1	1.20	0.120	2.74	1.216	7.52	60.654	60.646	16.250	0.00	10.00	New	L-Singhimari
16	-	72+435	Minor	Right	60.789	60.789	62.774	62.774	0.00	7.50	0.789	1	1.20	0.120	2.74	1.598	7.52	60.497	60.489	16.250	0.00	12.50	New	R-Dhantola

CLIENT:

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 (A Government of Bihar Undertaking)

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Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:

SAI Consulting Engineers. Pvt. Ltd.
 An ISO 9001 Certified Company
 Block-A "SAI House" Salpara Corporate Square, 8th Rajpalle, Chh. Boudh, Patna-800039, Bihar, India
 Phone : +91-91-5426201/2/3, Fax : +91-91-6681206
 Email : mail@saiconsulting.com

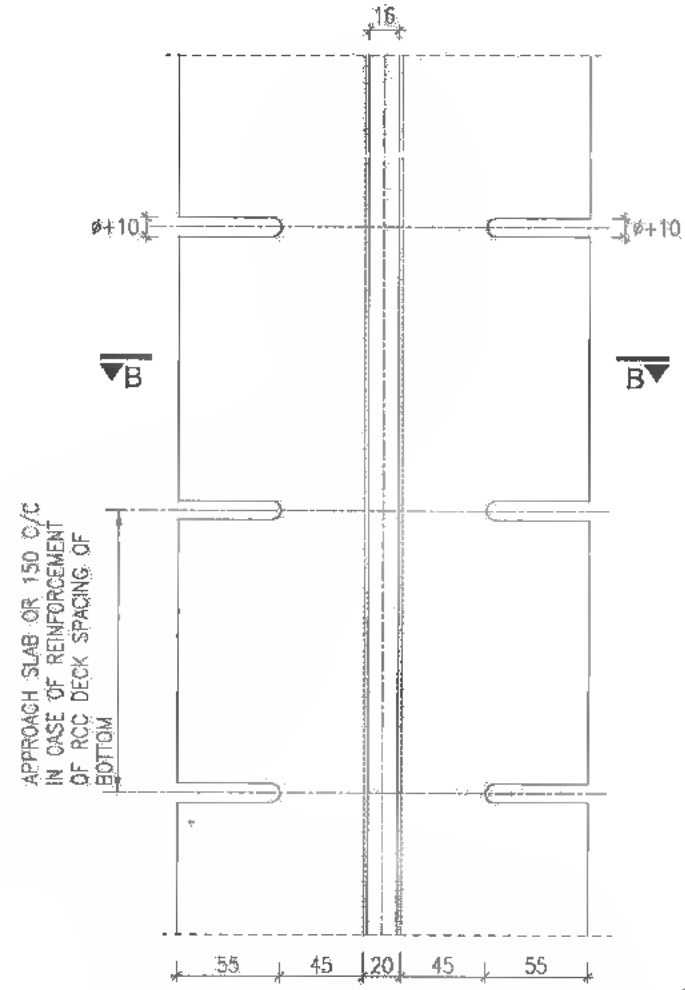
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PF	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	ISSUED BY : S.A.C.
PR	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : M.K.S.
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.K.
PC	28/02/14	ISSUED WITH FINAL DPR	
PB	01/01/14	ADDENDUM OF DPR	

TITLE:
LRP CHOWK (BAHADURGANJ) -DIGHAIBANK (PACKAGE-III) TYP. GAD FOR CROSS ROAD PIPE CULVERT (SINGLE ROW)

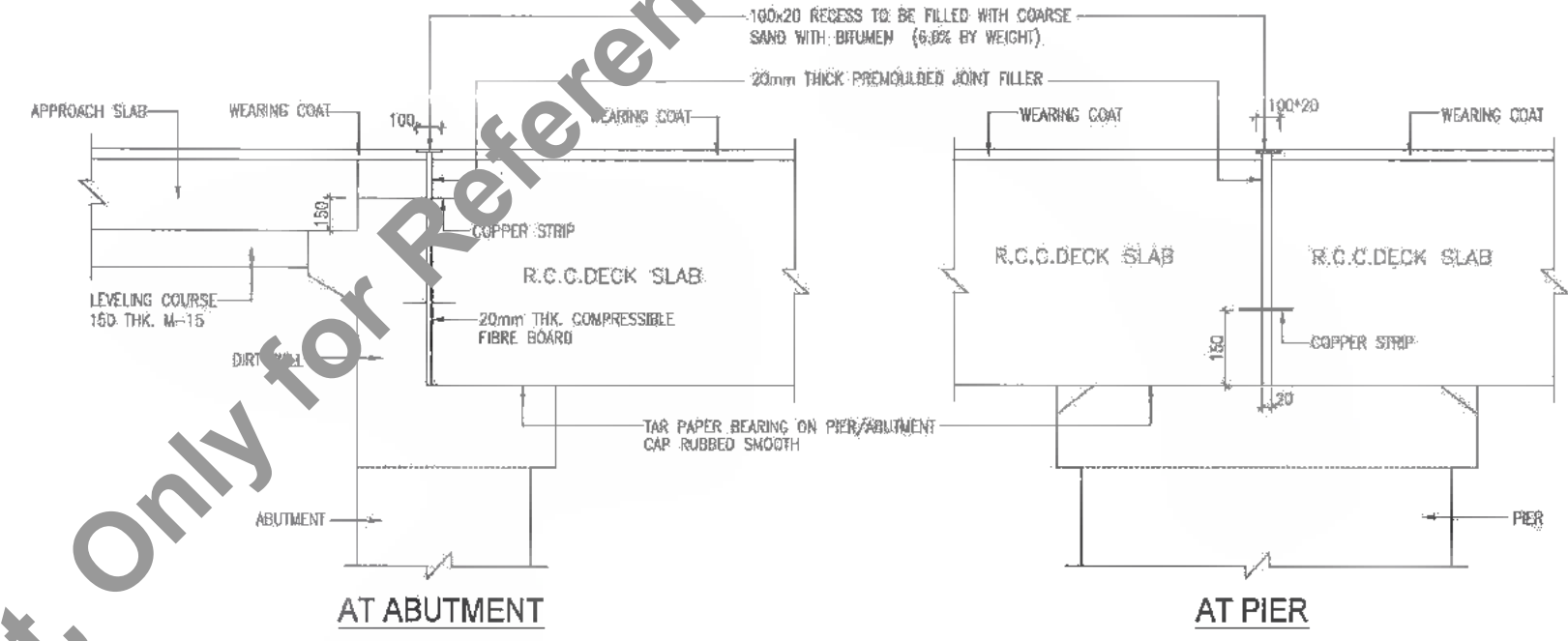
DRG. NO. : (SHEET 02 OF 02)
 SAI-213087/DPR/CB/PC/GAD-06
 REVISION : PF



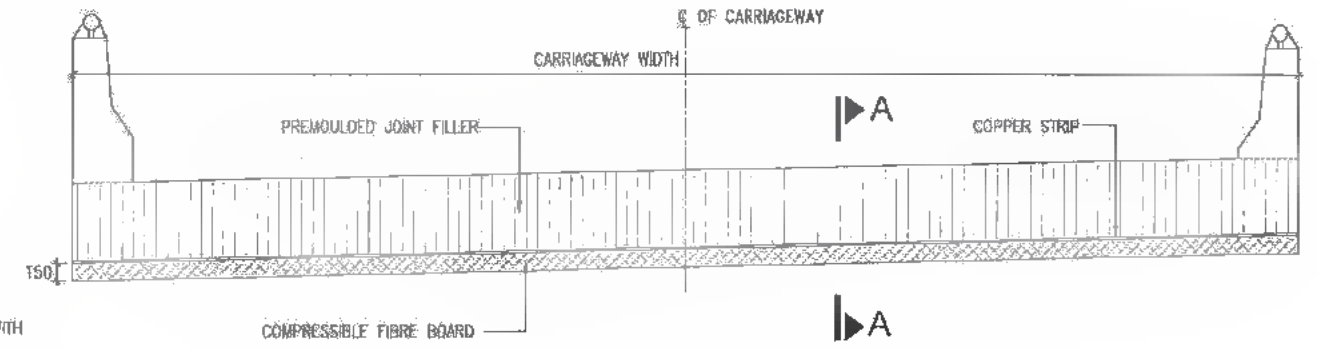
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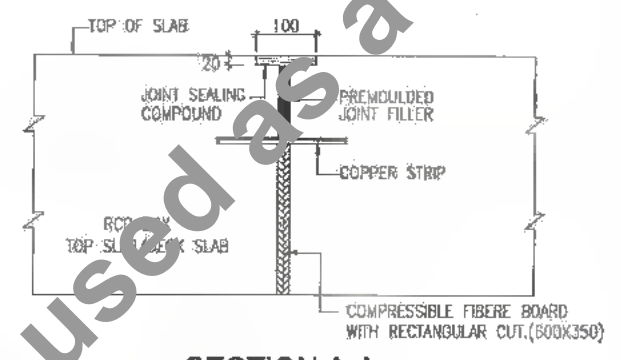
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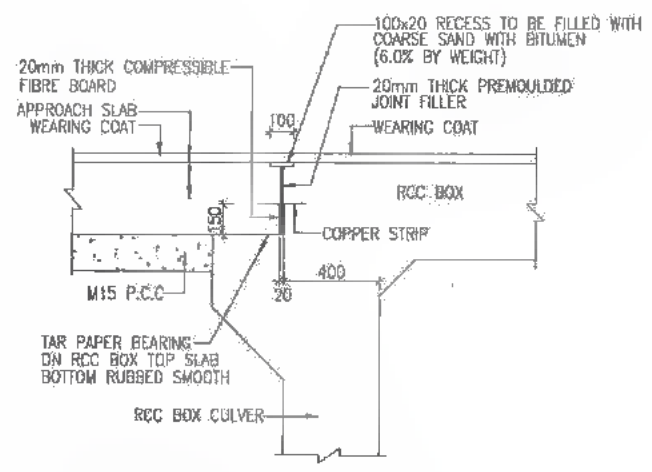
AT ABUTMENT AT PIER
DETAILS OF EXPANSION JOINT FOR NEW CONSTRUCTION OF SOLID SLAB
SCALE 1 : 25



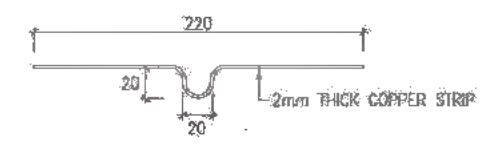
LAYOUT OF COPPER STRIP AT PIER
SCALE 1 : 50



SECTION A-A
SCALE 1 : 10



DETAIL OF EXPANSION JOINT FOR BOX CULVERT
SCALE 1 : 25



SECTION B-B
SCALE N.T.S.

- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 2. JOINT FILLER SHALL CONFORM TO I.S. 1838. PRODUCTS WITH I.S.I. CERTIFICATION MARK SHALL ONLY BE USED.



DATE: 2019/07/28 2:28pm PATH: T:\CAD\YAD-25007 P\REVISED DPR\CB\PACKAGE-3\TYPICAL DRAWING\01_Expansion Joint Filler.dwg

CLIENT:

Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:

Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:

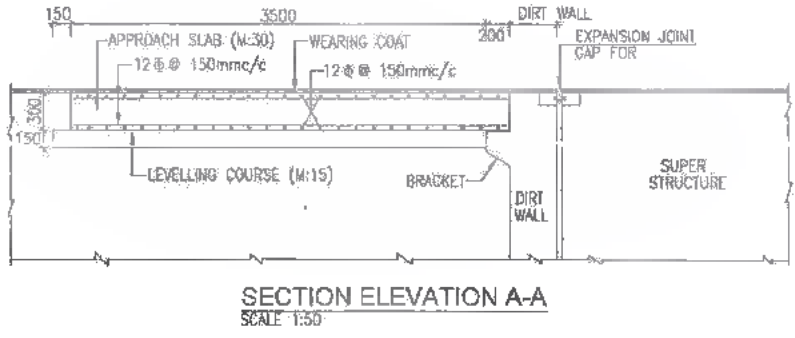
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company

Block-A "SAI House", Seelam Corporate Square, 6th Westpath, Club Road, New Market, Patna-800 002, Bihar, India.
Phone : +91-91-9417466746/9417466746 Fax : +91-91-9417466746
Email : mail@saiconsulting.com

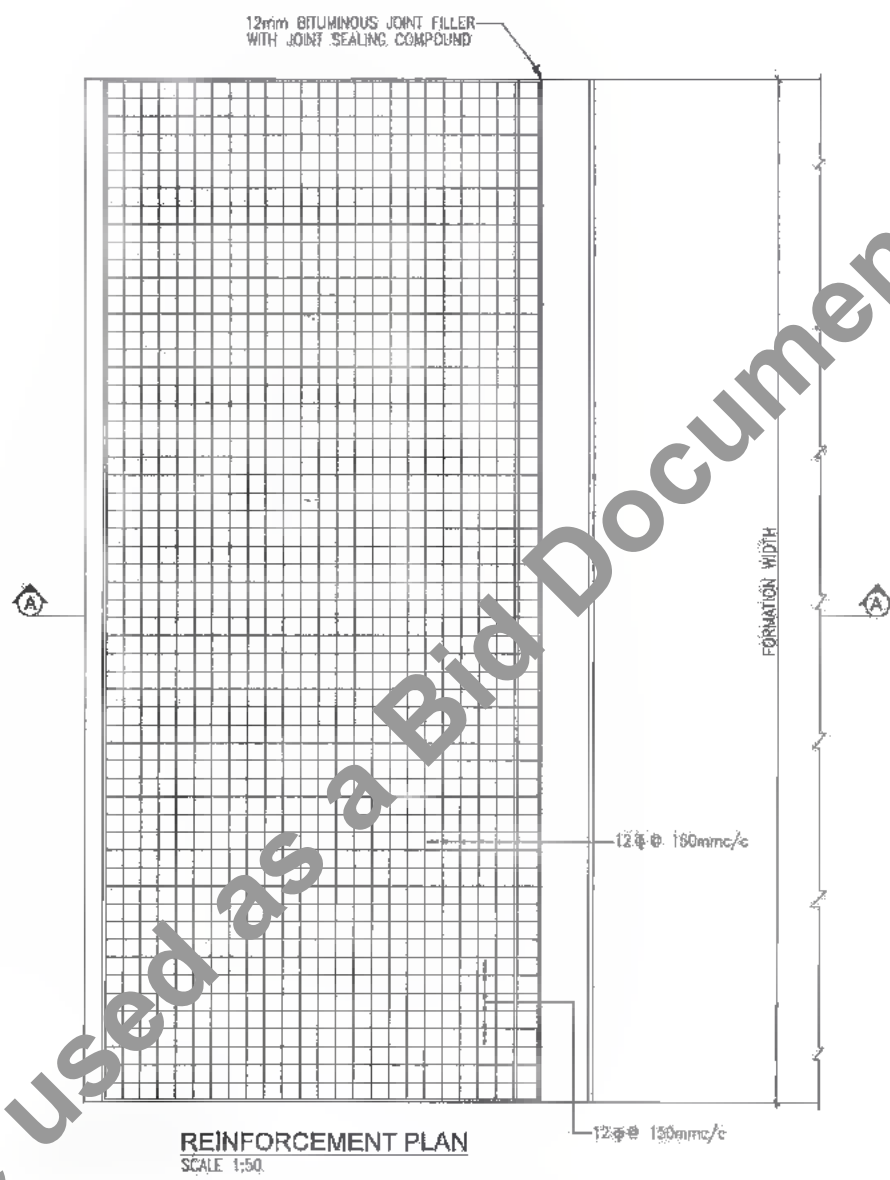
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		
PC	17/12/18	GOOD FOR CONSTRUCTION (DPR)		
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PA	26/02/14	ISSUED WITH FINAL DPR		
PA	13/11/13	ISSUED WITH DPR		

SCALE : AS SHOWN

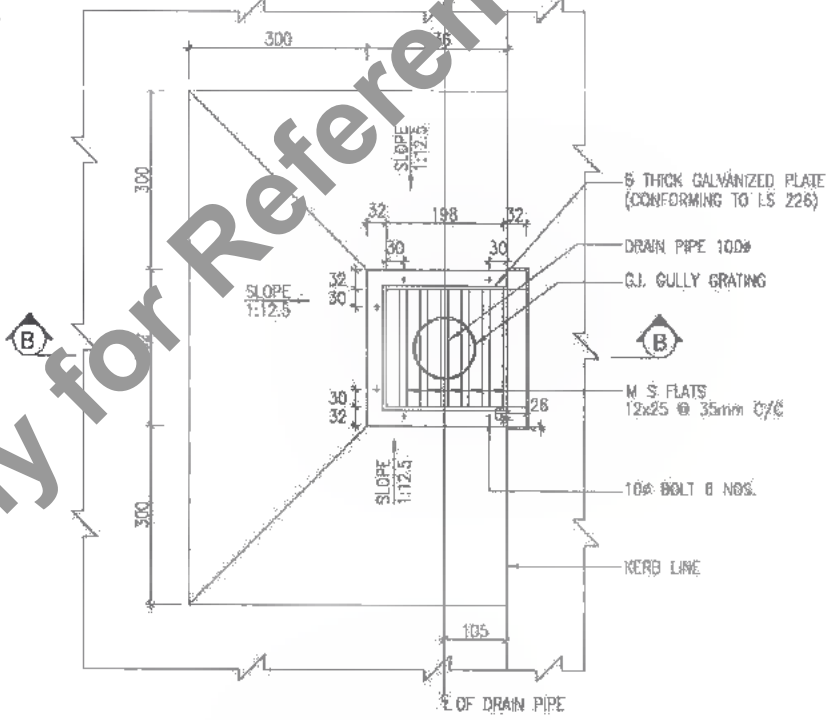
DESIGNED BY : H.M.M.	TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) DETAILS OF FILLER TYPE EXPANSION JOINT
CHECKED BY : H.K.S.	
APPROVED BY : B.A.V.	
ISSUED BY : B.S.	
DRG. NO. :	SAI-S13007/DPR/REV/TYP-01
REVISION :	PE



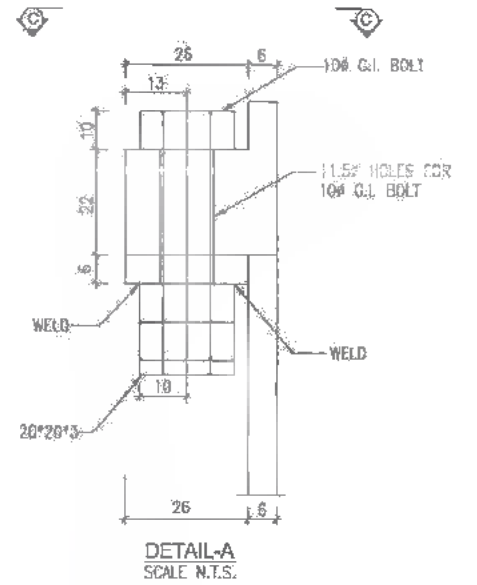
SECTION ELEVATION A-A
SCALE 1:50



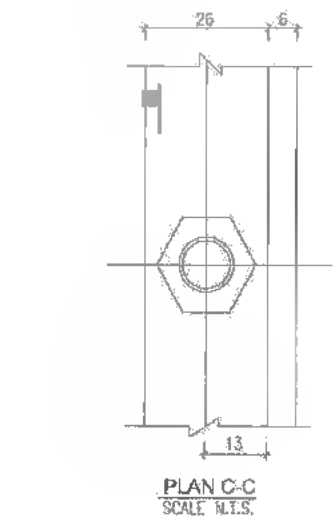
REINFORCEMENT PLAN
SCALE 1:50



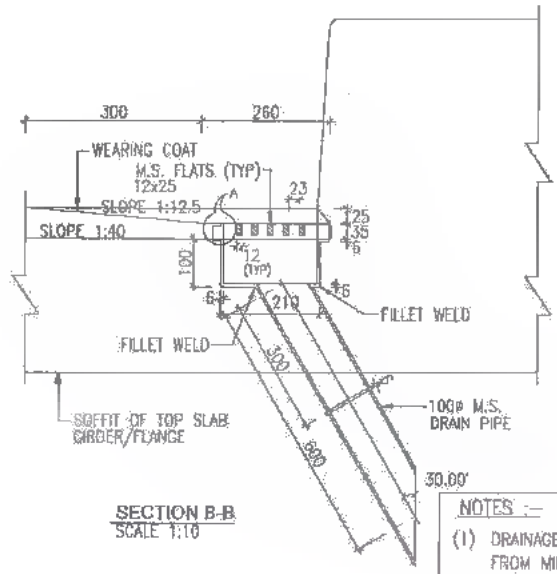
PLAN
DETAILS OF DRAINAGE SPOUT & COLLECTION PIT
SCALE 1:10



DETAIL-A
SCALE N.T.S.



PLAN C-C
SCALE N.T.S.



SECTION B-B
SCALE 1:10

NOTES :-
(1) DRAINAGE SPOUT ASSEMBLY SHELL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANIZED COATING

DATE: 2019/07/11 11:32:27 pm
PATH: F:\CAD\TADU 215007\HARR\REVISED DPR\CV\B\PACKAGE-B\TYPICAL DRAWING\02_Drain_Approach.dwg

Not to be used as a Bid Document, Only for Reference

CLIENT :
 Bihar State Road Development Corporation Limited (BSRDCL)
 (A Government of Bihar Undertaking)

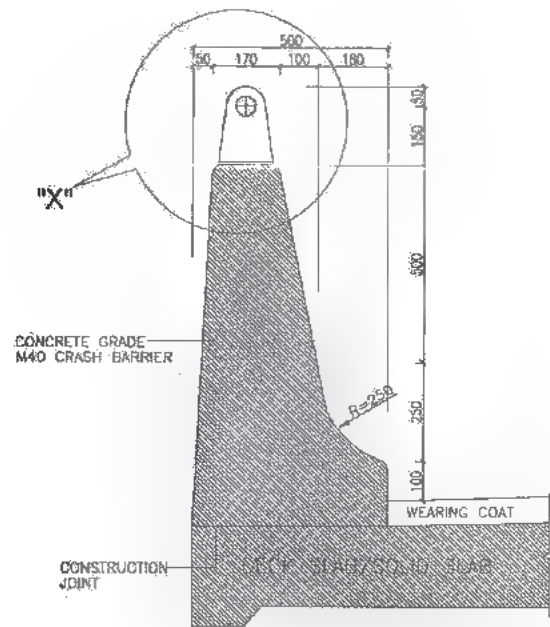
PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
 Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 SYSTRA GROUP

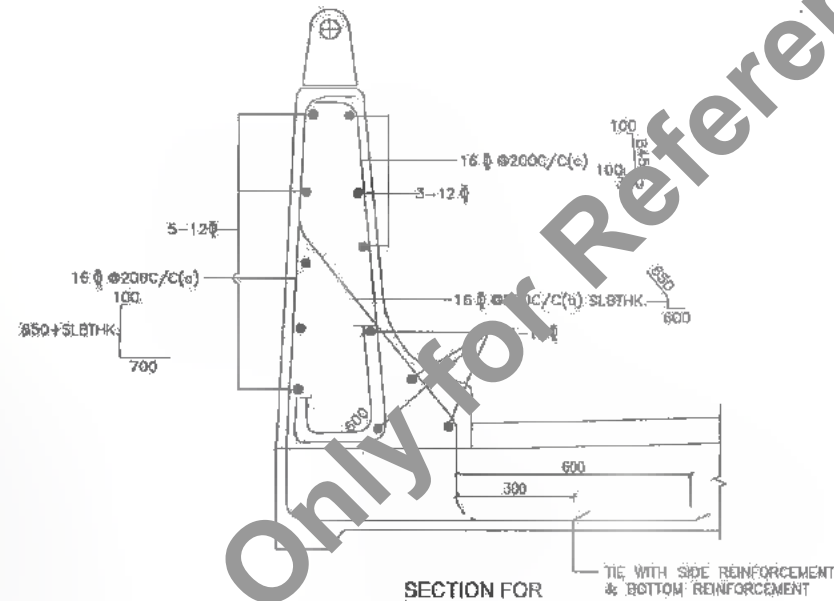
PE	21/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : M.M. S
PD	17/12/18	GOOD FOR CONSTRUCTION (OPR)	CHECKED BY : M.K.S
PC	10/04/14	GOOD FOR CONSTRUCTION (OPR)	APPROVED BY : B.S. S
PD	28/09/14	ISSUED WITH FINAL DOPR	
PA	13/11/12	ISSUED WITH DOPR	

TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) DETAILS OF APPROACH SLAB & DRAINAGE SPOUT
DRG. NO.: SAI-213007DPR/CIB/TYP-02
REVISION: PE



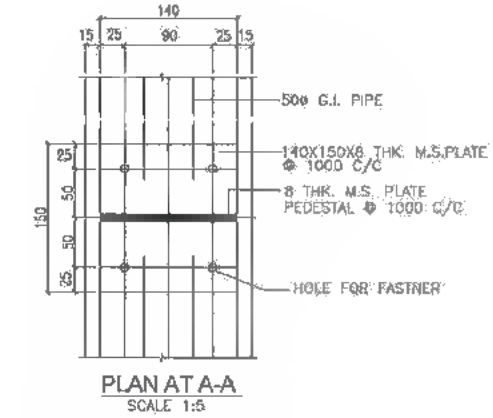


SECTION FOR CRASH BARRIER (DIMENSIONS ONLY)

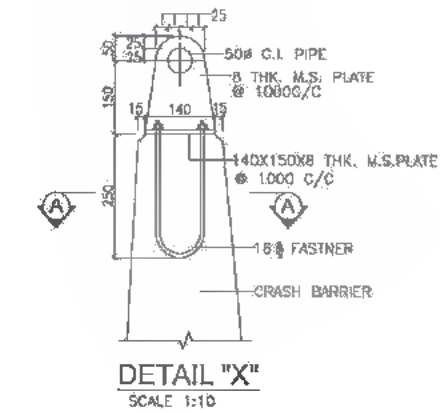


SECTION FOR CRASH BARRIER (REINFORCEMENT ONLY)

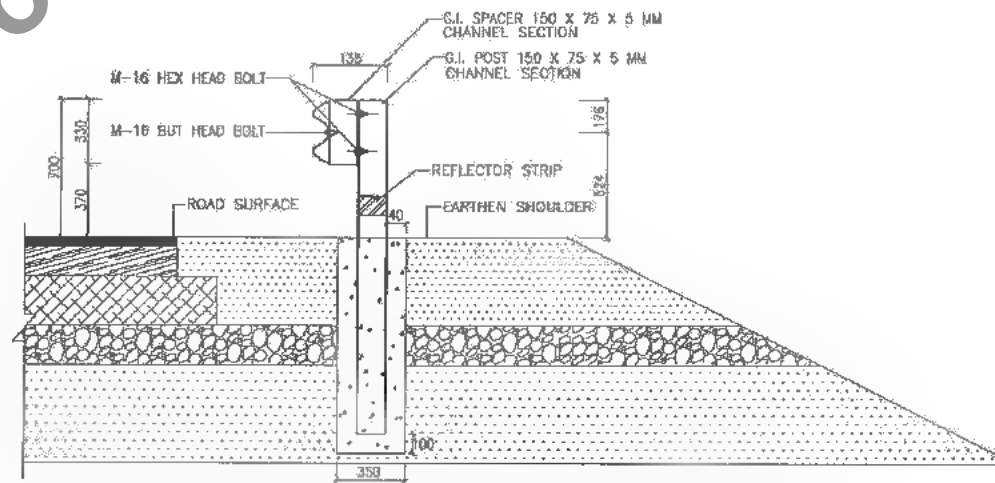
DETAILS OF CRASH BARRIER FOR DECK SLAB / RCC BOX
SCALE 1:12.5



PLAN AT A-A
SCALE 1:5



DETAIL 'X'
SCALE 1:10



DETAILS OF CRASH BARRIER FOR DECK WITH EARTH CUSHION
SCALE 1:12.5

NOTES:

- 1. EXPANSION JOINT IN CRASH BARRIER SHALL BE PROVIDED AT THE LOCATION OF EXPANSION JOINT OF DECK SLAB.



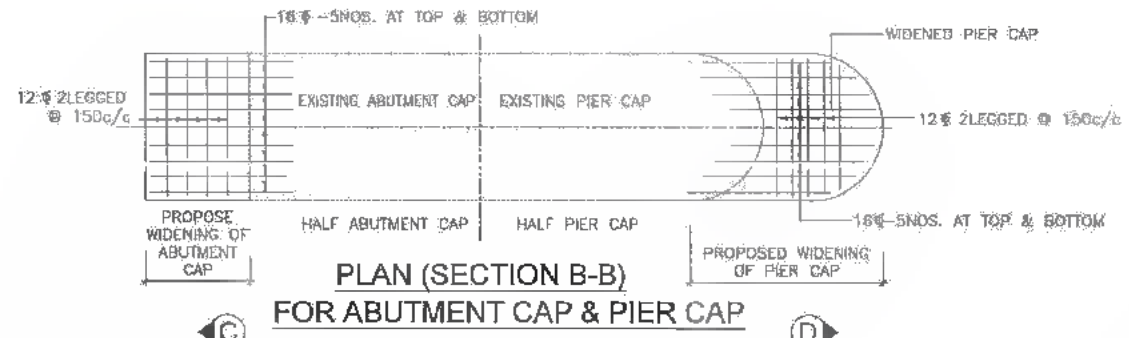
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CLIENT:
 Bihar State Road Development Corporation Limited (BSRDCL) (A Government of Bihar Undertaking)

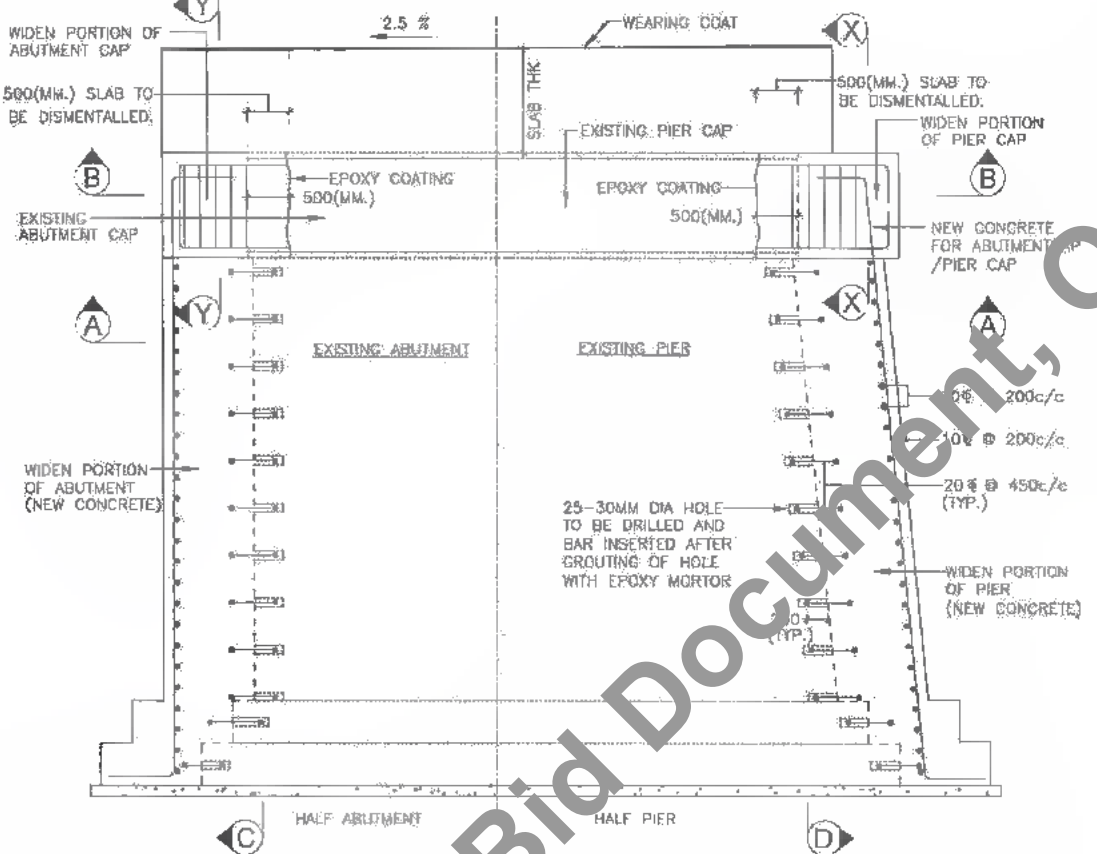
PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A, "SAI House", Sakinaka Corporate Square, 8th Floor, Sector-16, Gurgaon, Haryana-122002
Phone: +91-122-4813889/3890174 Fax: +91-122-4813299
Email: info@saiconsulting.com

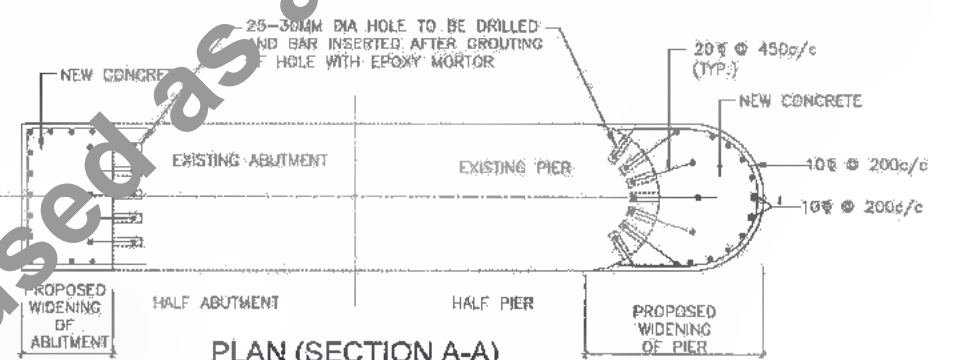
PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : N.H.M.	TITLE: LRP CHOWK (BAHADURGANJ)
PA	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : N.H.S.	DIGHALBANK (PACKAGE-III)
PC	10/04/16	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.R.A.	TYPICAL DRAWING FOR
PD	28/02/16	ISSUED WITH FINAL DPR		RCC CRASH BARRIER
PA	13/11/15	ISSUED WITH DPR		
REV.	DATE	DESCRIPTION	ISSUED BY : B.S.	
SCALE: AS SHOWN				DRG. NO. : SAI-218007(DPR)/C/ATYP-03
				REVISION : PE



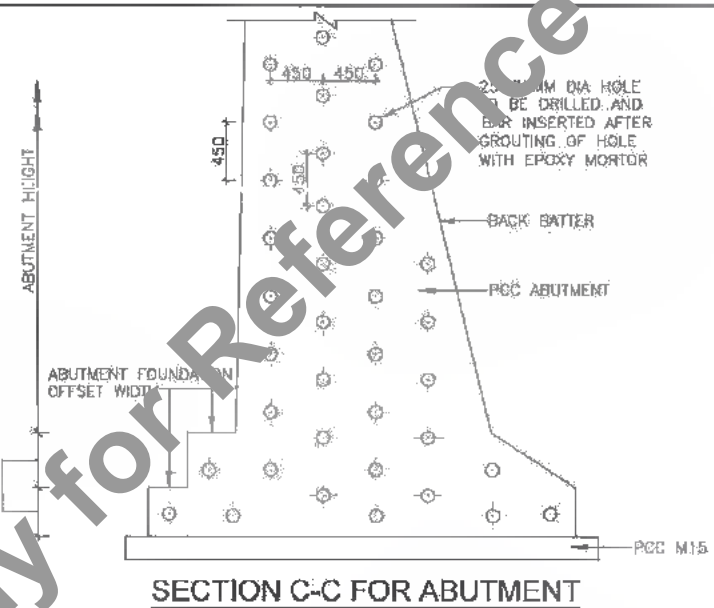
PLAN (SECTION B-B) FOR ABUTMENT CAP & PIER CAP



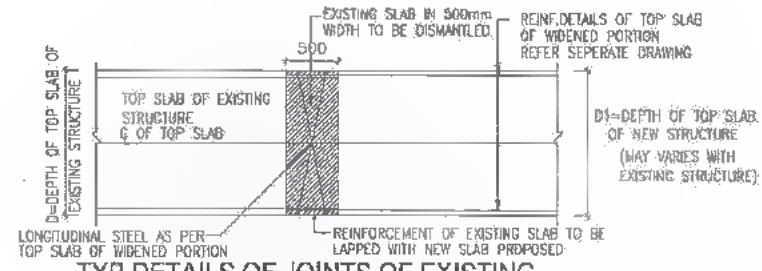
TYPICAL ELEVATION (1) OF PIER/ABUTMENT SHOWING WIDENING DETAIL



PLAN (SECTION A-A) FOR ABUTMENT & PIER

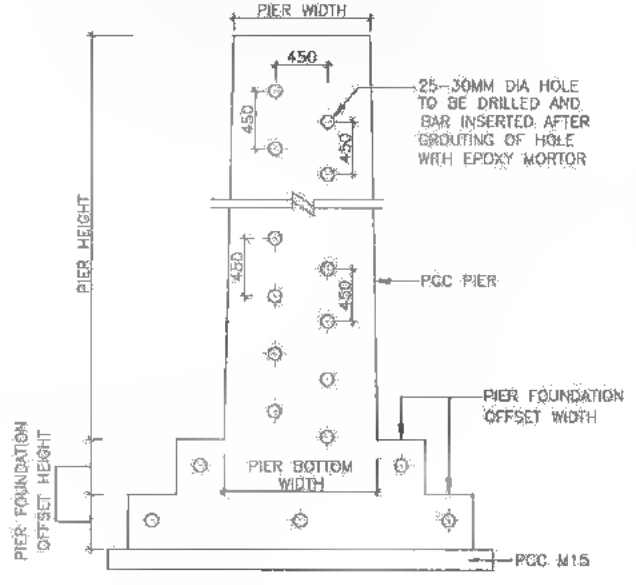


SECTION C-C FOR ABUTMENT

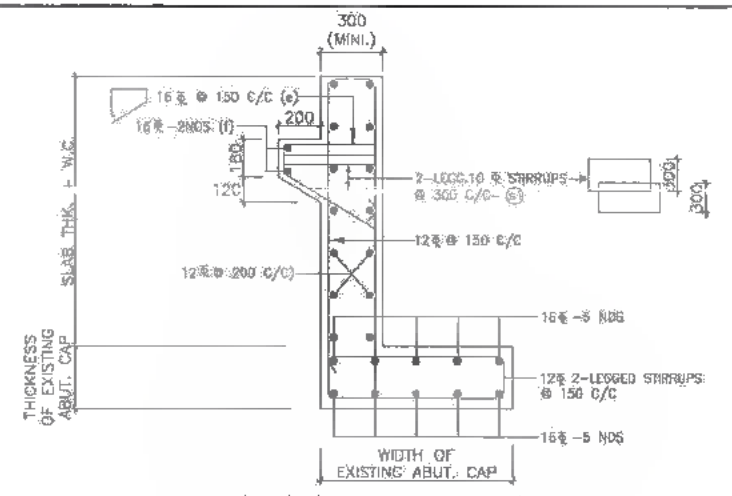


TYP. DETAILS OF JOINTS OF EXISTING STRUCTURE WITH NEW STRUCTURE

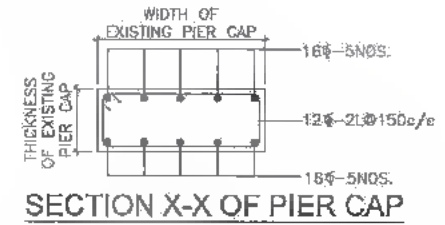
- NOTE :- 1. GAP JOINING EXISTING TOP SLAB & NEW TOP SLAB SHALL BE CASTED AFTER RELEASING OF NEW TOP SLAB FORAWORK
 2. A COAT OF EPOXY ADHESIVE SHALL BE APPLIED ON THE SURFACE OF EXISTING CONCRETE BEFORE POURING NEW CONCRETE.



SECTION D-D FOR PIER



SECTION Y-Y OF ABUT. CAP



SECTION X-X OF PIER CAP

NOTES

1. ALL DIMENSIONS ARE IN MM. AND LEVELS IN METERS UNLESS MENTIONED OTHERWISE.

METHODOLOGY FOR WIDENING OF FOUNDATION AND SUB STRUCTURE

1. DISMANTLE EXISTING PIER CAP, ABUTMENT CAP AT LOCATION UP TO EXISTING SLAB DISMANTLED FOR WIDENING i.e. 500mm AS SHOWN IN TYPICAL ELEVATION (1) BY APPROPRIATE METHOD WITH SPECIAL CARE, NOT TO DAMAGE THE EXISTING BARS.
2. EXPOSE REINFORCEMENT OF PIER CAP ABUTMENT CAP UP TO EXISTING SLAB DISMANTLED FOR WIDENING i.e. 500mm AS SHOWN IN TYPICAL ELEVATION (1)
3. REMOVE LOOSE MATERIAL/DUST OF ABUTMENT CAP PIER CAP BY SAND BLASTING FOR EXPOSED CONCRETE SURFACE AND REINFORCEMENT PORTION.
4. APPLY EPOXY BOND COAT OF APPROVED QUALITY ON EXISTING REINFORCEMENT AS PER SPECIFICATION.
5. APPLY PRIMER SLURRY ON PREPARED CONCRETE SURFACE.
6. REPLACE IF ABUTMENT/PIER CAP REINFORCEMENT CORRODED BADLY OR MISSING.
7. INSTALL DOWELS EMBEDDED WITH EPOXY MORTAR TO LAP WITH NEW BARS WHERE REQUIRED DOWELS SHALL MATCH WITH EXISTING REINFORCEMENT.
8. FORM AND CONCRETE THE DISMANTLED PORTION OF ABUTMENT CAP/PIER CAP RETURN WALL AS PER CONCRETE GRADE SHOWN IN THE CAD OF RESPECTIVE MINOR BRIDGE / SLAB CULVERT TO BE WIDEN.
9. DRILL 20-30 MM DIA. HOLE IN EXISTING ABUTMENT/PIER @ 450 MM C/C AS SHOWN IN SECTION C-C AND D-D. 20 MM DIA. BARS HAVE TO BE INSERTED AFTER GROUTING OF HOLE WITH EPOXY MORTAR AS SHOWN IN TYPICAL ELEVATION 1.
10. POUR NEW CONCRETE FOR WIDEN PORTION OF ABUTMENT CAP/ABUTMENT AND PIER CAP/PIER WITH SURFACE REINFORCEMENT OF 10 DIA @ 200 C/C BOTHWAYS AS SHOWN IN TYPICAL ELEVATION 1.



DATE: 20/07/19 3:27pm PATH: I:\CADTAD 213007\SHAR\REVISED DPR\CV\PACKAGE-3\TYPICAL DRAWING\04_Widening_Sub-structure.dwg

CLIENT: Bihar State Road Development Corporation Limited (BSRDCL) (A Government of Bihar Undertaking)

PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar (Baysi - Bahadurganj) - Dighalbank (SH-99)

CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company

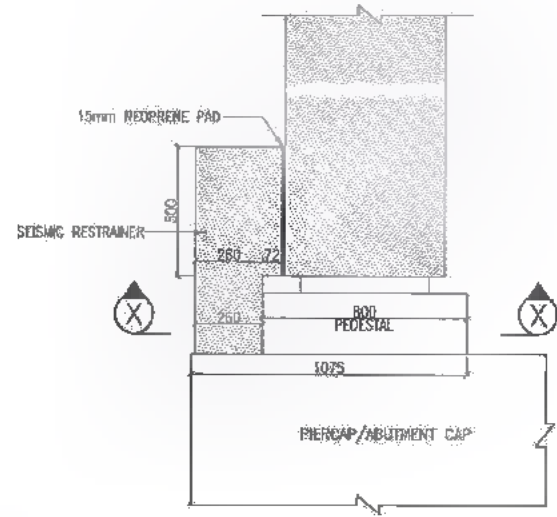
PE	23/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRN BY : H.M. G.	TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-II) TYP. DETAILS OF WIDENING OF PCC SUB STRUCTURE
PD	17/07/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : N.K.S.	
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : S.K.V.	
PI	28/02/14	ISSUED WITH FINAL DPR		
PI	13/11/13	ISSUED WITH DMR		

REV.	DATE	DESCRIPTION	ISSN	ISSUED BY

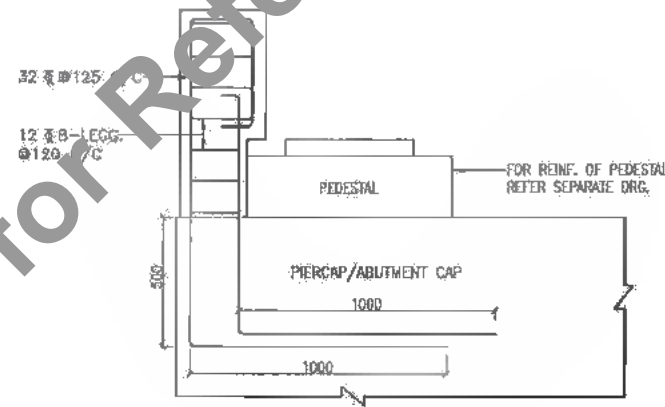
SCALE : AS SHOWN

DRG. NO. : SAI-213007/DPR/CRIB/TYP-04

REVISION : PE

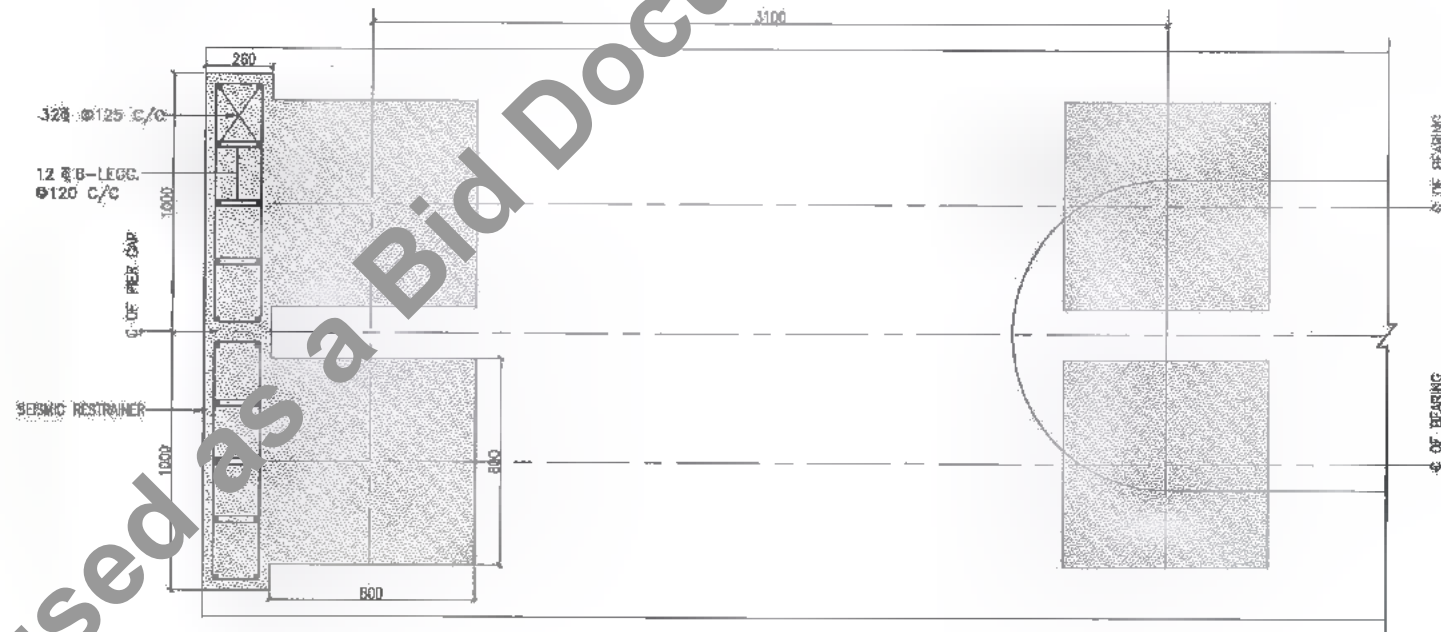


CONNECTION DETAILS OF SEISMIC RESTRAINER WITH PEDESTAL
SCALE 1:20



REINFORCEMENT DETAILS OF SEISMIC RESTRAINER
SCALE 1:20

- NOTES:-
1. ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED), CHAINAGES & LEVELS ARE IN METERS.
 2. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
 3. GRADE OF CONCRETE : M-40
 4. GRADE OF HYSD REINFORCEMENT : Fe-500
 5. MINIMUM COVER TO ANY REINFORCEMENT SHALL BE 40mm



PLAN (SECTION X - X)
SCALE 1:20

DATE: 2019/07/29 - 3:26PM
PATH: T:\CANTAD - 007 BIHAR\REVISED_DPR\PACKAGE-3\TYPICAL DRAWING\05 SEISMICRESTRAINER.dwg



Bihar State Road Development Corporation Limited (BSRDC)
(A Government of Bihar Undertaking)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "Sai House" Soliga Exporte Square, Bih Rajbh
Ind. Estate, Bahadurganj-800019, Bihar, India
Phone : +91-91-8654268/2807 Fax : +91-91-8654288
Email : saic@saiconsulting.com

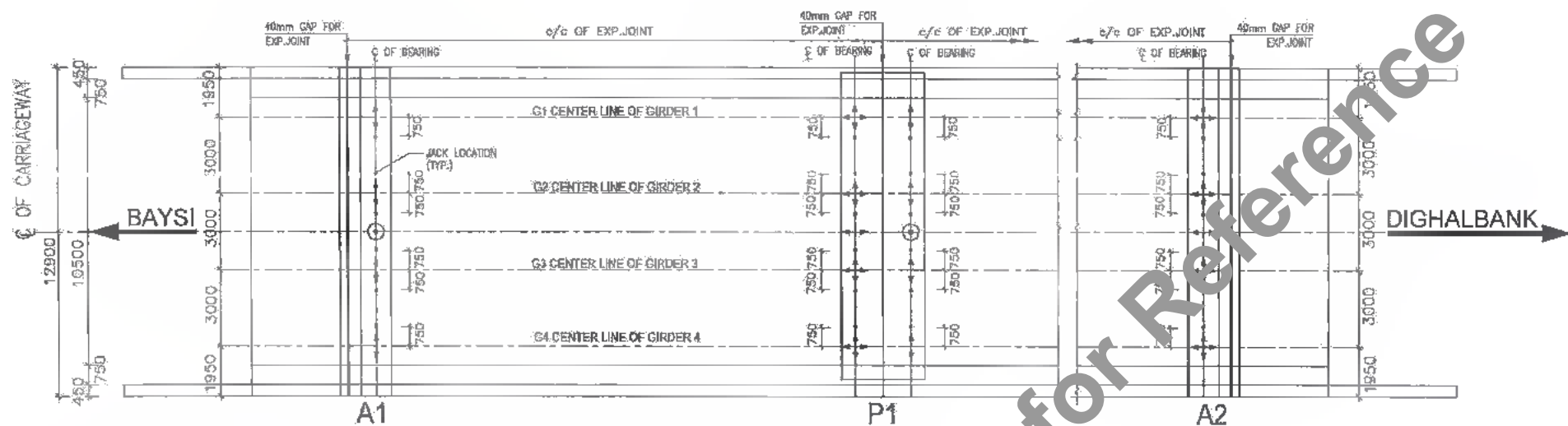
PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : G.L.G.
PD	17/10/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : H.K.S.
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : B.V.
PB	26/02/14	ISSUED WITH FINAL DPR	
PA	15/11/13	ISSUED WITH DPR	

TITLE : LRP CHOWK (BAHADURGANJ)
-DIGHALBANK (PACKAGE-II)
TYPICAL DETAILS OF SEISMIC RESTRAINER

REV.	DATE	DESCRIPTION	SGN	ISSUED BY : B.S.
SCALE : AS SHOWN				

DRG. NO. :
SAI-213007/DPR/CB/TYP-05
REVISION : PE





TYPE-1 SCHEMATIC ARRANGEMENT OF BEARINGS FOR MAJOR BR. AT PROP. CH: 13+179
MINOR BR. AT PROP. CH: 56+678,61+158 & 73+576

- LEGEND**
- ⊙ PIN BEARING
 - ↑ GUIDED BEARING IN TRANSVERSE DIRECTION
 - ↔ FREE BEARING
 - GUIDED BEARING IN LONGITUDINAL DIRECTION
 - JACK LOCATION

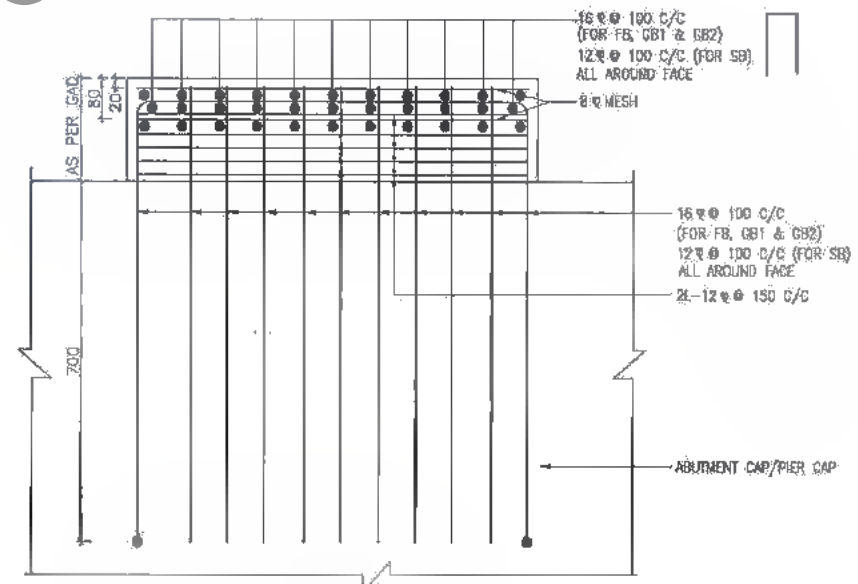
- NOTES :**
01. THE CONTRACTOR SHALL SUBMIT DESIGN/DRAWING OF INDIVIDUAL BEARINGS BASED ON FORCES, TRANSLATIONS & ROTATIONS AS GIVEN IN THIS DRAWING FOR APPROVAL OF THE ENGINEER.
 02. BEARINGS SHALL BE PROCURED FROM THE LIST OF APPROVED MANUFACTURER'S GIVEN BY MORT & H.
 03. DESIGN & INSTALLATION OF BEARINGS SHALL CONFORM TO LATEST MORT & H SPECIFICATIONS & IRC : 83 (PART II) - 2002.
 04. THE TESTING OF RAW MATERIALS, METALLIC COMPONENTS, ELASTOMER & PTFE AND ACCEPTANCE TESTS ON BEARINGS SHALL CONFORM TO MORT & H SPECIFICATIONS.
 05. MANUFACTURER SHALL SUBMIT THE CERTIFICATES FOR LOAD TESTING AND DIMENSIONS OF BEARINGS.
 06. SUITABLE ERECTION CLAMPS FOR SAFE TRANSPORTATION AND HANDLING ALONG WITH TEMPLATE FOR ALIGNMENT SHALL BE PROVIDED BY THE MANUFACTURER.
 07. PEDESTAL PLAN SIZE GIVEN HERE IN ARE TENTATIVE ONLY. THE PLAN SIZE AND HEIGHT OF PEDESTALS SHALL BE ADJUSTED TO SUIT THE FINALISED SIZE OF BEARINGS AT THE TIME OF EXECUTION. THE MINIMUM PLAN DIMENSIONS OF PEDESTAL SHALL BE BEARING SIZE + 300mm.
 08. THE GROUT/BEDDING MORTAR SHALL BE OF HIGH STRENGTH FREE FLOWING AND NON SHRINK TYPE.
 09. ANCHORING ARRANGEMENT SHALL BE AS PER CLAUSE 923.13 OF IRC : 83 (PART II) - 2002 TO BE THE BEARING TO THE STRUCTURE.
 10. ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED) & CHAINAGES ARE IN METRES. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
 11. THE FOLLOWING LIVE LOADS HAVE BEEN CONSIDERED:
 - a. ONE LANE OF IRC CLASS 70R OR TWO LANES OF IRC CLASS A PLUS FOOTPATH.
 - b. ONE LANE OF 70R PLUS ONE LANE OF CLASS A OR THREE LANES OF CLASS A.
 12. SEISMIC ZONE V HAS BEEN CONSIDERED FOR ALL BRIDGES.

Summary of Loads and Forces on POT/PTFE Bearings :-

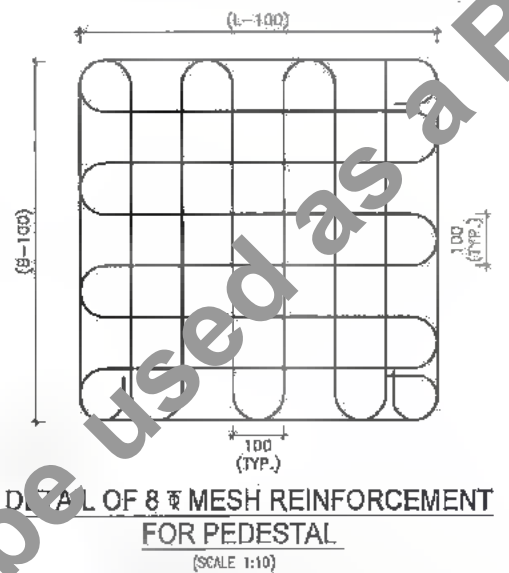
Sr. No.	Bridge No.	Span (m)	Span C/C (m)	Skew Degree	Type of Bearing	No. of Bearings	Normal Condition				Normal + Seismic Condition				Movement in mm	Rotation in all directions (Rad)	Prescribed "x"	
							Vertical Load in Ton	Horizontal Load in Ton	Long.	Trans.	Max.	Min.	Long.	Trans.				
1	SH-99	1	12.000	0	Pin Bearing	1	-	-	5.00	5.00	-	-	15.00	20.00	-	-	0.01	0
					Guided (T)	4	85.00	15.00	5.00	0.00	85.00	15.00	15.00	0.00	-	5	0.01	0
					Free	4	85.00	15.00	12.00	12.00	85.00	15.00	12.00	12.00	20	5	0.01	0
					Metallic long shank bearing	1	-	-	0.00	5.00	-	-	0.00	20.00	20	-	0.01	0
2	56+678	1	12.000	0	Fixed	1	-	-	5.00	5.00	-	-	15.00	20.00	-	-	0.01	0
					Guided (T)	4	85.00	15.00	5.00	0.00	85.00	15.00	15.00	0.00	-	5	0.01	0
					Free	4	85.00	15.00	12.00	12.00	85.00	15.00	12.00	12.00	20	5	0.01	0
					Guided (L)	1	-	-	0.00	5.00	-	-	0.00	20.00	20	-	0.01	0

Summary of Loads and Forces on POT/PTFE Bearings :-

Sr. No.	Bridge No.	Span (m)	Span C/C (m)	Skew Degree	Type of Bearing	No. of Bearings	Normal Condition				Normal + Seismic Condition				Movement in mm	Rotation in all directions (Rad)	Prescribed "x"	
							Vertical Load in Ton	Horizontal Load in Ton	Long.	Trans.	Max.	Min.	Long.	Trans.				
3	73+576	1	21.000	0	Pin Bearing	1	-	-	7.00	12.00	-	-	15.00	20.00	-	-	0.01	0
					Guided (T)	4	140.00	20.00	7.00	0.00	140.00	20.00	20.00	0.00	-	5	0.01	0
					Free	4	140.00	20.00	12.00	12.00	140.00	20.00	12.00	12.00	20	5	0.01	0
					Metallic long shank bearing	1	-	-	0.00	12.00	-	-	0.00	24.00	20	-	0.01	0



R.C. DETAIL OF PEDESTAL
(SCALE 1:10)
DIMENSIONS MARKED THUS (*) ARE TENTATIVE AND TO BE ADJUSTED AT SITE



DETAIL OF 8ϕ MESH REINFORCEMENT FOR PEDESTAL
(SCALE 1:10)

REFERENCE DRAWING
SCHEMATIC ARRANGEMENT AND DESIGN FORCES OF POT/PTFE BEARINGS. SAI-213007/DPR/C/B/TYP-06 (SHEET 1 OF 2)

DATE: 20/07/2019 2:26pm PATH: T:\CAD\TAP\3307 BHAR\REVISED DPR\CAD\PACKAGE-3\TYPICAL DRAWING\06 POT BEARING.dwg

CLIENT: Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)

PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company

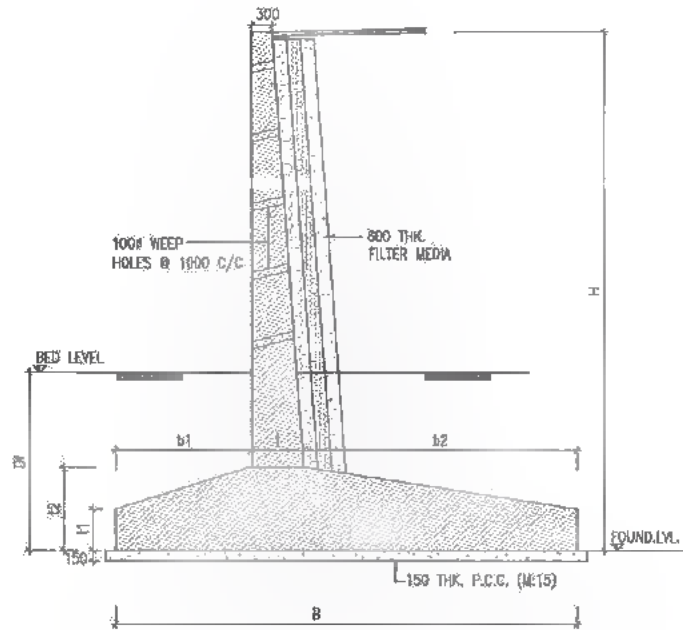
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PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY: N.K.S.
PO	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY: B.R.V.
PI	26/02/14	ISSUED WITH FINAL DPR	ISSUED BY: B.S.
PA	13/11/13	ISSUED WITH DPR	

TITLE: LSP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) SCHEMATIC ARRANGEMENT AND DESIGN FORCES OF POT/PTFE BEARINGS & PEDESTAL

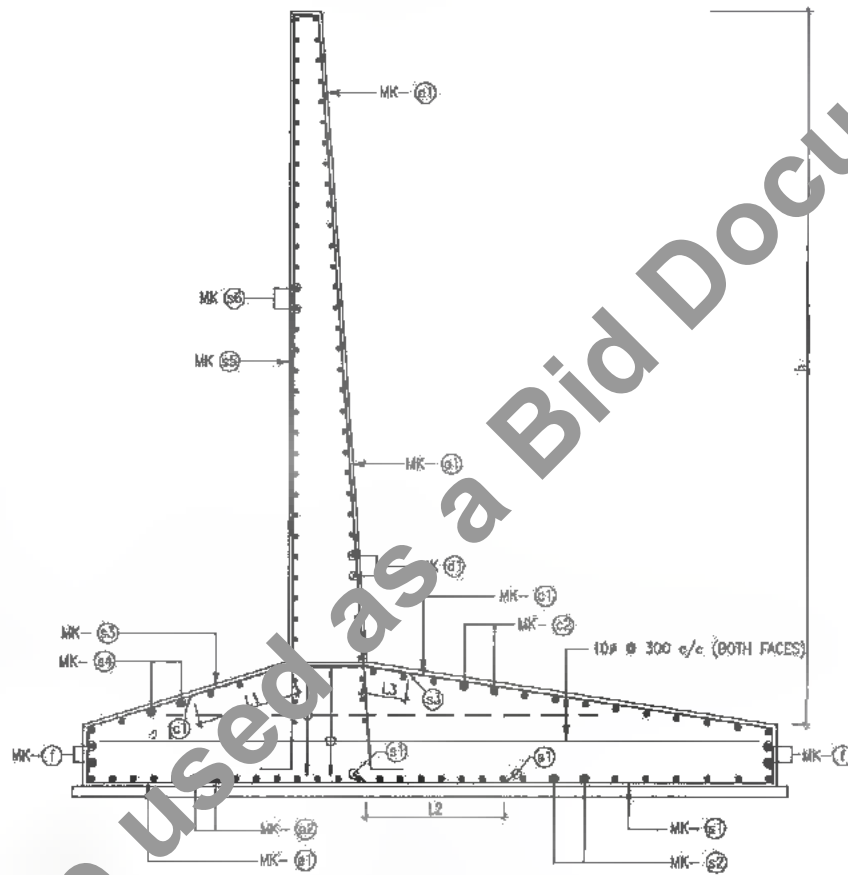
DRG. NO.: SAI-213007/DPR/C/B/TYP-06

REVISION: PE





SECTION OF RETURN WALL
AT APPROACH PORTION
SCALE-1:75



SECTION OF RETURN WALL
SCALE 1:50 (REINF. DETAILS)

RCC RETURN WALL
(ALL DIMENSIONS ARE IN M)

SR NO.	PARAMETERS	Proposed Chainage	
		I	II
	HEIGHT H	5.0 TO 6.0 m	6.0 TO 7.0 m
1	B	4.200	5.300
2	b1	1.500	2.200
3	b2	1.000	2.500
4	L1	0.500	0.800
5	L2	0.300	0.400
6	L3	0.600	0.750
7	L4	1.000	1.200
8	L5	0.700	0.900
9	L6	0.450	0.600
10	Df	2.000	2.000
11	Maximum base pressure T/m ²	14.876	14.982

REINFORCEMENT SCHEDULE FOR RETURN WALL

SR. NO.	TYPE OF BARS	SHAPE OF BARS (NOT TO SCALE)	GROUP I		GROUP II		GROUP III		GROUP IV		GROUP V	
			HEIGHT (H) 4.0m TO 5.0m		HEIGHT (H) 5.0m TO 6.0m		HEIGHT (H) 6.0m TO 7.0m		HEIGHT (H) 7.0m TO 8.0m		HEIGHT (H) 8.0m TO 9.0m	
			DIA OF BARS (mm)	SPACING / NO. OF BARS (mm)	DIA OF BARS (mm)	SPACING / NO. OF BARS (mm)	DIA OF BARS (mm)	SPACING / NO. OF BARS (mm)	DIA OF BARS (mm)	SPACING / NO. OF BARS (mm)	DIA OF BARS (mm)	SPACING / NO. OF BARS (mm)
1	a1		16	100	20	110	25	150	25	150	25	115
2	a3		12	120	16	160	16	150	20	160	20	160
3	a2		10	300	10	275	10	225	10	140	12	140
4	d1		10	125	12	140	12	120	12	120	16	150
5	a1		12	110	20	160	20	130	20	130	20	130
6	a2		10	300	10	275	10	225	10	140	12	140
7	f		10	4 NOS	10	4 NOS	10	4 NOS	10	4 NOS	10	4 NOS
8	a1		10	300	10	300	10	300	10	300	10	300
9	a2		10	300	10	300	10	300	10	300	10	300
10	a3		10	300	10	300	10	300	10	300	10	300
11	a4		10	300	10	300	10	300	10	300	10	300
12	a5		10	300	10	300	10	300	10	300	10	300
13	a6		10	300	10	300	10	300	10	300	10	300

NOTES:-

- ALL DIMENSIONS ARE IN MM (UNLESS OTHERWISE SPECIFIED) & CHAINAGES ARE IN METRES. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSIONS SHALL BE SCALED.
- BACKFILL MATERIAL BEHIND ABUTMENT SHALL BE SELECTED, SOIL HAVING PROPERTIES AS C = 0 KG/SQ.CM, $\phi > 30^\circ$, $r = 1800$ TO 2000 KG/CUM.
- GRADE OF CONCRETE - M30
GRADE OF STEEL - FE-500
- MINIMUM COVER TO ANY REINFORCEMENT SHALL BE 75mm.
- LAP LENGTH FOR M-30 GRADE OF CONCRETE SHALL BE:
 - 87 x BAR DIA
 - AT PARTICULAR LOCATION LAPPING OF BAR SHALL NOT BE GREATER THAN 50%



DATE: 2019/07/29 3:26:04pm PATH: TAUNTAAD 907 BIHAR\REVISED DPR\CLB\PACKAGE-3\TYPICAL DRAWING\107_REC RETURN TYP.dwg

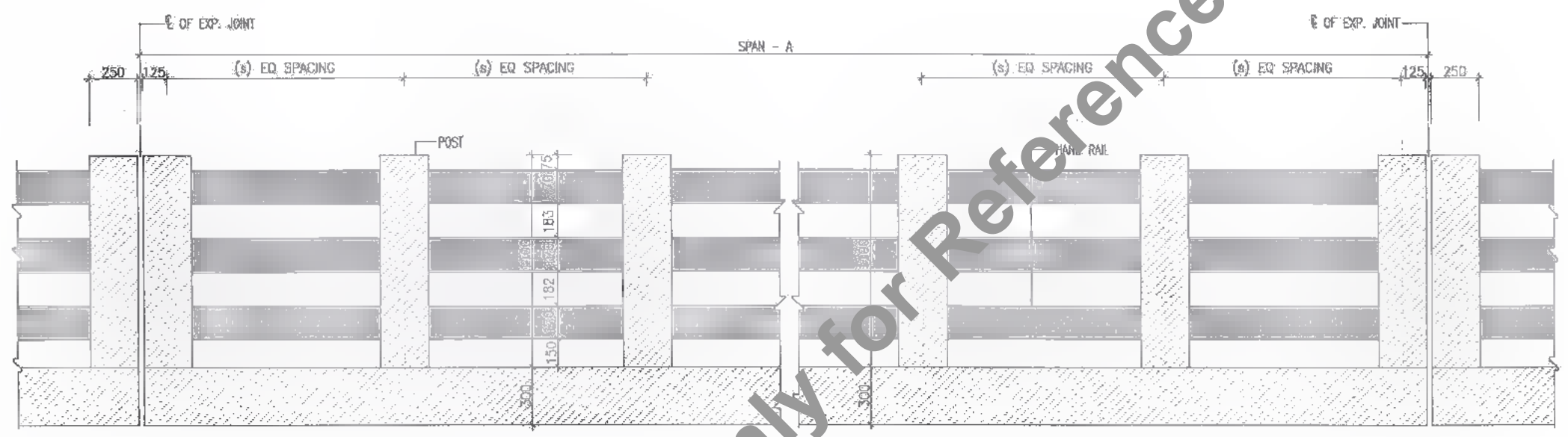
CLIENT:
 Bihar State Road Development Corporation Limited (BSRDCL) (A Government of Bihar Undertaking)
 G.M. (Tech.)
 BSRDC
 PRU-Katihar

PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
 Baysi - Bahadurganj - Dighalbank (SH-99)

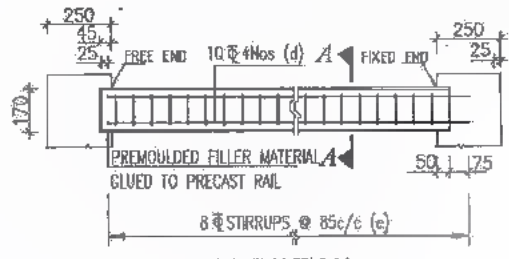
CONSULTANTS:
 SAI Consulting Engineers Pvt. Ltd.
 An ISO 9001 Certified Company
 Block-A "SAI House" Sanyam Corporate Square, Bih. Nagar
 Dab-Bahadurganj, Bahadurganj-800059, Bihar, India
 Phone : +91-78-6612807/700, Fax : +91-78-6612800
 Email : saic@saiconsulting.com

PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : A.H.S.	TITLE: LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) TYPICAL REINFORCEMENT DETAILS OF RETURN WALL
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : M.H.S.	
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : S.K.V.	
PA	26/02/14	ISSUED WITH FINAL DPR		
PR	13/11/13	ISSUED WITH DPR		
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY : B.S. S.
SCALE : AS SHOWN				
				DRG. NO. : SAI-213007/DPR/CLB/TYP-07
				REVISION : PE

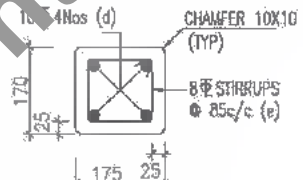
387
390



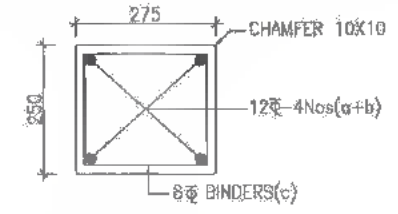
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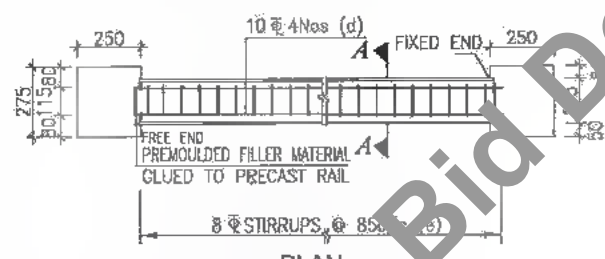
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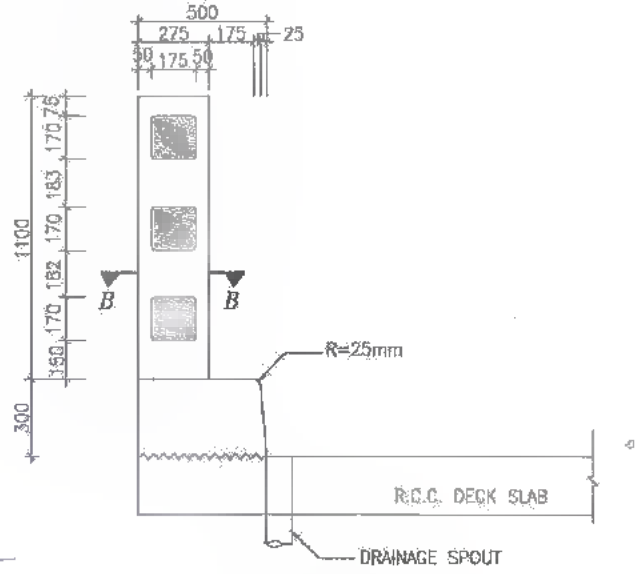
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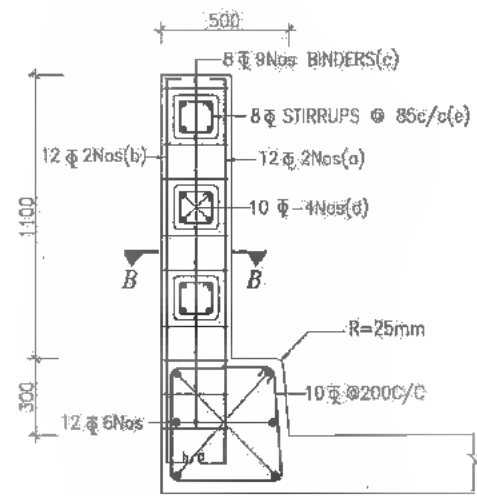
SECTION B-B
SCALE - 1:10



PLAN
DETAIL OF PRECAST HANDRAIL
SCALE - 1:10



SECTION THROUGH POST
(DIMENSIONS ONLY)
SCALE - 1:20




SECTION THROUGH POST
(REINFORCEMENT ONLY)
SCALE - 1:20

NOTES :

1. REINFORCEMENT OF RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
2. CASTING OF POST SHALL BE DONE IN SINGLE POUR AFTER ACCURATELY POSITIONING THE PRECAST HANDRAIL.
3. EXPANSION GAPS IN RAILING SHALL BE PROVIDED AT THE SAME LOCATIONS AS SHOWN IN DRAWING.
4. GRADE OF CONCRETE : M30
5. GRADE OF HYSD REINFORCEMENT : Fe-500



DATE: 20/07/19 13:26:07 PATH: T:\CAD\2019\BIM\REVISED\PRICING\PACKAGE-3\TYPICAL DRAWING\108 PARAPET.dwg

CLIENT :
 Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)

PROJECT:
 Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
 Baysi - Bahadurganj - Dighalbank (SH-99)

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PC	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		
PD	17/12/19	GOOD FOR CONSTRUCTION (DPR)		
PC	10/02/14	GOOD FOR CONSTRUCTION (DPR)		
PE	26/02/14	ISSUED WITH FINAL DPR		
PA	13/11/13	ISSUED WITH DPR		
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY : B.S. S.

DRAWN BY : A.R.G.	CHECKED BY : N.K.S.	APPROVED BY : B.R.Y.	ISSUED BY : B.S. S.
TITLE : LRP CHOWK (BAHADURGANJ) - DIGHALBANK (PACKAGE-III) DIMENSIONS & REINFORCEMENT DETAILS OF R.C.C. PARAPET WALL & R.C.C. RAILING FOR BOX CULVERTS			
DRG. NO. : SAI-213007/DPR/CB/TYP-06			
REVISION : PE			

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