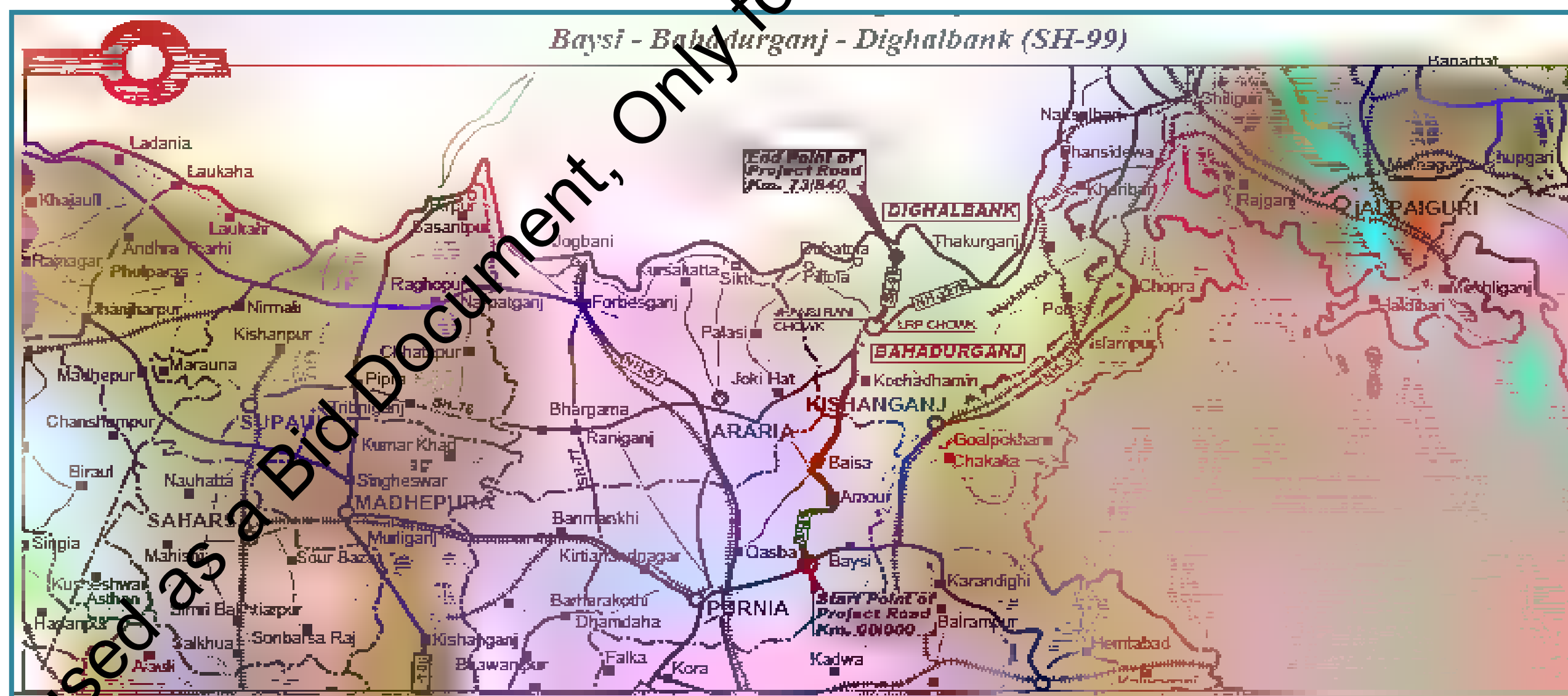




Volume – V

**IMPROVEMENT/UPGRADATION, WIDENING AND STRENGTHENING OF BAYSI -
BAHADURGANJ - DIGHALBANK ROAD (SH-99) UNDER CIVIL WORKS CONTRACT
PACKAGE NO. BSHP-III (PHASE-2)/PKG-2/SH-99**



BIHAR STATE ROAD DEVELOPMENT CORPORATION LIMITED

RCD Central Mechanical Workshop Campus (Near Patna Airport)

Sheikhpura, Patna-800014, Bihar, India

Phone- 91+-612-2226711

Fax : +91-612-2226723

IFB No.-BSHP-III(Phase-2)/ Pkg-2/SH-99/2021-22

Patna, Dated-17.02.2022



Bihar State Road Development Corporation Ltd.

(A Government of Bihar Undertaking)

**IMPROVEMENT/UPGRADATION, WIDENING AND STRENGTHENING OF
BAYSI- BAHADURGANGA DIGHALBANK ROAD (SH-99) UNDER CIVIL WORKS
CONTRACT PACKAGE NO. BSHP-III (PHASE-2)/PKG-2/SH-99**

Volume – V : DRAWINGS (Miscellaneous, Standard Drawing and Structure Drawing)

BIHAR STATE ROAD DEVELOPMENT CORPORATION LIMITED

RCD Mech. Workshop Campus, Sheikhpura,

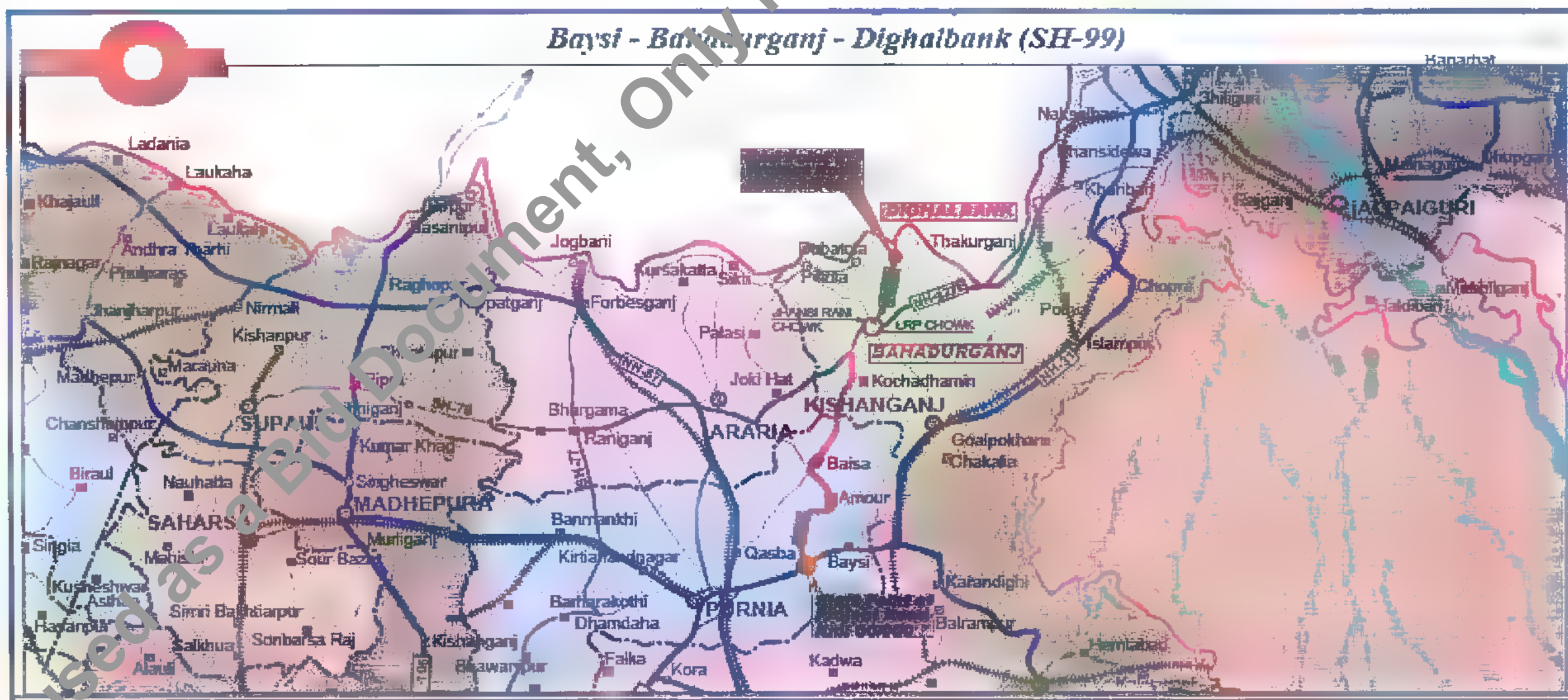
Patna - 800 014, BIHAR

January, 2022

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2.	Improvement Proposals	78-79
3.	Systematic Diagram	80-86
4.	Road Furniture Detail/Plan	88-100
5.	Junction	101-106
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7.	Structure Drawing	137-265
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**IMPROVEMENT/UPGRADATION, WIDENING AND STRENGTHENING OF BAYSI -
BAHADURGANJ - DIGHALBANK ROAD (SH-99) UNDER CIVIL WORKS CONTRACT
PACKAGE NO. BSHP-III (PHASE-2)/PKG-2/SH-99**



Fax : +91-612-2226723

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IFB No.-BSHP-III(Phase-2)/ Pkg-2/SH-99/2021-22

Patna, Dated-17.02.2022



Bihar State Road Development Corporation Ltd.

(A Government of Bihar Undertaking)

**IMPROVEMENT/UPGRADATION, WIDENING AND STRENGTHENING OF BAYSI
BAHADURGANJ - DIGHALBANK ROAD (SH-99) UNDER CIVIL WORKS
CONTRACT PACKAGE NO. BSHP-III (PHASE-2)/PKG-2/SH-99**

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BIHAR STATE ROAD DEVELOPMENT CORPORATION LIMITED

RCD Mech. Workshop Campus, Sheikhpura,

Patna - 800 014, BIHAR

January, 2022

INDEX

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2.	Structure Drawing	257-387


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

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LIST OF DRAWINGS (PACKAGE - I)

TITLE	DRAWING NO.
01. LEGEND	SAI-213007/DPR/M/TYP-LEG
02. SCHEMATIC DIAGRAM (LINER PLAN)	SAI-213007/DPR/C/H/LP - 01 TO 05
03. TYPICAL CROSS SECTION	SAI-213007/DPR/M/TYP-01
04. HORIZONTAL ALIGNMENT DETAILS FOR Km. 0+000 TO Km. 22+005	SAI-213007/DPR/C/H/H/D - 01
05. VERTICAL ALIGNMENT DETAILS FOR Km. 0+000 TO Km. 22+005	SAI-213007/DPR/C/H/VAD - 01
06. ALIGNMENT PLAN & PROFILE FOR Km. 0+000 TO Km. 22+005	SAI-213007/DPR/C/H/PP - 01 TO 22
07. ROAD FURNITURE TABLES FOR Km. 0+000 TO Km. 22+005	SAI-213007/DPR/C/H/RFT - 01 TO 02
08. ROAD FURNITURE PLAN FOR Km. 0+000 TO Km. 22+005	SAI-213007/DPR/C/H/RF - 01 TO 11
09. MAJOR JUNCTION AT CH. 0+000	SAI-213007/DPR/C/H/MJ - 01
10. TYPICAL LAYOUT OF FOUR LEGGED CHANNELISED JUNCTION WITH PAVED SHOULDER	SAI-213007/DPR/M/TYP/JUNC - 01
11. TYPICAL LAYOUT OF THREE LEGGED CHANNELISED JUNCTION WITH PAVED SHOULDER	SAI-213007/DPR/M/TYP/JUNC - 02
12. TYPICAL LAYOUT OF LEFT-IN LEFT-OUT FOUR LEGGED JUNCTION WITH PAVED SHOULDER	SAI-213007/DPR/M/TYP/JUNC - 03
13. TYPICAL LAYOUT OF LEFT-IN LEFT-OUT THREE LEGGED JUNCTION WITH PAVED SHOULDER	SAI-213007/DPR/M/TYP/JUNC - 04
14. TYPICAL LAYOUT OF THREE LEGGED CHANNELISED Y JUNCTION WITH PAVED SHOULDER	SAI-213007/DPR/M/TYP/JUNC - 05
15. GENERAL ARRANGEMENT DRAWING FOR BUS SHELTER	SAI-213007/DPR/M/TYP-01
16. STRUCTURAL DETAILS FOR BUS SHELTER	SAI-213007/DPR/M/TYP-01A
17. TYPICAL DETAILS OF OVER HEAD SIGNS	SAI-213007/DPR/M/TYP-02
18. FOOTING DETAILS FOR OVER HEAD/GANTRY SIGNS	SAI-213007/DPR/M/TYP-03
19. TYPICAL DETAILS OF REGULATORY MANDATORY TRAFFIC SIGNS	SAI-213007/DPR/M/TYP-04
20. SCHEDULE OF TRAFFIC SIGNS	SAI-213007/DPR/M/TYP-04A
21. TYPICAL DETAILS TRAFFIC SIGNS	SAI-213007/DPR/M/TYP-04B
22. PEDESTRIAN GUARD DETAILS	SAI-213007/DPR/M/TYP-05

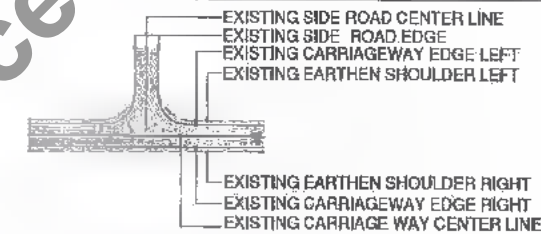
TITLE	DRAWING NO.
23. TYPICAL DETAILS OF LANE MARKINGS	SAI-213007/DPR/M/TYP-06
24. TYPICAL DETAILS OF LANE MARKINGS	SAI-213007/DPR/M/TYP-07
25. TYPICAL DETAILS OF CRASH BARRIER	SAI-213007/DPR/M/TYP-08
26. DISTANCE STONES	SAI-213007/DPR/M/TYP-09
27. TYPICAL DETAILS OF INDICATORS	SAI-213007/DPR/M/TYP-10
28. DETAILS OF UTILITY DUCTS	SAI-213007/DPR/M/TYP-11
29. TYPICAL PLANTATION LAYOUT WITH PAVED SHOULDER	SAI-213007/DPR/M/TYP-12
30. DRAIN DETAILS FOR RURAL SECTIONS	SAI-213007/DPR/M/TYP-14
31. DRAIN DETAILS FOR HIGH EMBANKMENT	SAI-213007/DPR/M/TYP-15
32. DETAILS FOR COVERED BOX DRAIN SECTIONS	SAI-213007/DPR/M/TYP-16 (SHEET 1 OF 2 & 2 OF 2)
33. TYPICAL DETAILS FOR RIGID PAVEMENT	SAI-213007/DPR/M/TYP-17
34. OFFICE CUM RESIDENTIAL COMPLEX FOR PIU	SAI-213007/DPR/M/TYP-18
35. TYPICAL DETAILS OF RUMBLE STRIPS	SAI-213007/DPR/M/TYP-19
36. TRAFFIC SAFETY DURING CONSTRUCTION	SAI-213007/DPR/M/TYP/TM-01
37. TRAFFIC MANAGEMENT REQUIREMENTS AND CONSTRUCTION METHODOLOGY	SAI-213007/DPR/M/TYP/TM-02
38. TRAFFIC MANAGEMENT REQUIREMENTS AND CONSTRUCTION METHODOLOGY	SAI-213007/DPR/M/TYP/TM-03
39. TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT CASE - 1	SAI-213007/DPR/M/TYP/TM-04
40. TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT CASE - 2	SAI-213007/DPR/M/TYP/TM-05
41. TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT CASE - 3	SAI-213007/DPR/M/TYP/TM-06
42. TYPICAL PLAN FOR TRAFFIC MANAGEMENT SEQUENCE DURING CONSTRUCTION	SAI-213007/DPR/M/TYP/TM-07
43. SCHEMATIC PLAN FOR TRAFFIC MANAGEMENT BETWEEN SUB-SECTION AT DIFFERENT STAGES	SAI-213007/DPR/M/TYP/TM-08
44. TYPICAL ARRANGEMENT OF TRAFFIC CONTROL DEVICES FOR 500M SUB-SECTION	SAI-213007/DPR/M/TYP/TM-09

A
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EXISTING FEATURES

	ELECTRIC POLE		WATER TAP
	OPTICAL FIBER CABLE STONE		GATE
	TREE		RIVER / STREAM
	ELECTRIC TRANSFORMER		RETAINING WALL
	TELEPHONE POLE		LAND TYPE
	NAME BOARD		LEVEL CROSSING MANUAL
	TEMPLE / MOSQUE / CHURCH		LEVEL CROSSING AUTOMATIC
	HAND PUMP		FENCING
	WELL		RAILWAY LINE
	PETROL PUMP		COMPOUND WALL
	MOBILE / BSF TOWER		ELECTRIC LINE / TOWER LINE
	STRUCTURE / BUILDING		TELEPHONE LINE
	PACCA RESIDENTIAL		HIGH TENSION LINE
	PACCA COMMERCIAL		EXISTING RIGHT OF WAY
	SEMI RESIDENTIAL		TBM MARKING
	SEMI COMMERCIAL		BM MARKING
	G+1 FLOOR		EXISTING KILOMETER STONE
	G+2 FLOOR		HECTOMETER STONE MARKING
	KACHHA RESIDENTIAL		TRAVERSE REFERENCE POINT
	KACHHA COMMERCIAL		BORE HOLE LOCATION
	WATER SUPPLY VALVE		POND / WATER LOGGED AREA
	TELEPHONE JUNCTION BOX		CULVERT & BRIDGE
	TRAFFIC SIGNAL		
	GAS PIPE STONE		
	BOUNDARY STONE		
	MANHOLE		
	HIGH TENSION TOWER		
	ELECTRIC POLE MOUNTED TRANSFORMER		
	ELECTRIC BOX		
	TELEPHONE BOOTH		
	ROAD SIGN ONE POST (WOOD OR TELSPAN)		
	BUS/BUS STOP		
	GPS BENCH MARK		
	WATER TANK		
	TUBE WELL		
	FIRE HYDRANT		
	TRAFFIC SIGNAL CONTROL BOX		
	TRAFFIC SIGN BOARD		

EXISTING FEATURES

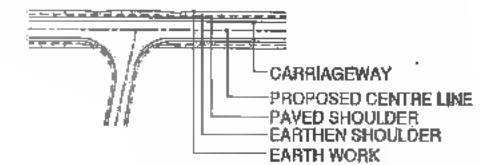


EXISTING DETAILS FOR 2-L CARRIAGEWAY

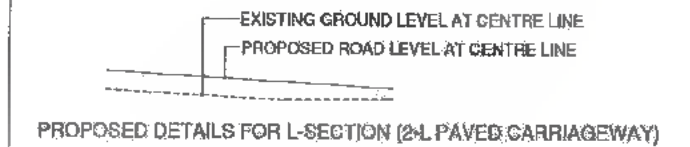
PROPOSED FEATURES

UTILITY RELOCATION

- ELECTRIC POST TO BE RELOCATED
- OPTICAL FIBER CABLE TO BE RELOCATED
- TELEPHONE POST TO BE RELOCATED
- ELECTRIC TRANSFORMER TO BE RELOCATED
- TELEPHONE JUNCTION BOX TO BE RELOCATED
- TREE TO BE CUT
- SIGN BOARD TO BE DISMANTLED
- NAME BOARD TO BE DISMANTLED
- TEMPLE TO BE DEMOLISHED
- MOSQUE TO BE DEMOLISHED
- CHURCH TO BE DEMOLISHED
- HAND PUMP TO BE DISMANTLED
- WELL TO BE FILL
- WATER TANK TO BE FILL
- TUBE WELL TO FILL
- HIGH TENSION TOWER TO BE RELOCATED
- ELECTRIC POLE MOUNTED TRANSFORMER TO BE RELOCATED
- STRUCTURE TO BE ACQUIRED



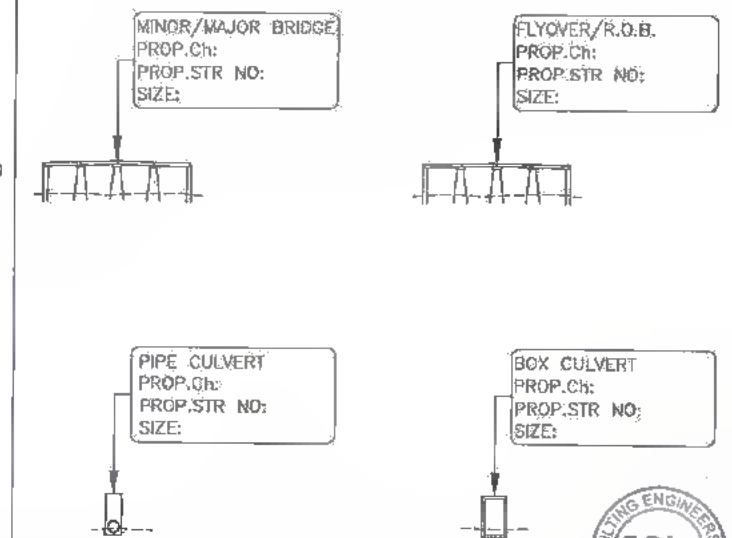
PROPOSED DETAILS FOR 2-L PAVED CARRIAGEWAY



PROPOSED DETAILS FOR L-SECTION (2-L PAVED CARRIAGEWAY)



PROPOSED RIGHT OF WAY



PROPOSED DETAILS OF CULVERT/BRIDGE FOR L-SECTION



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)

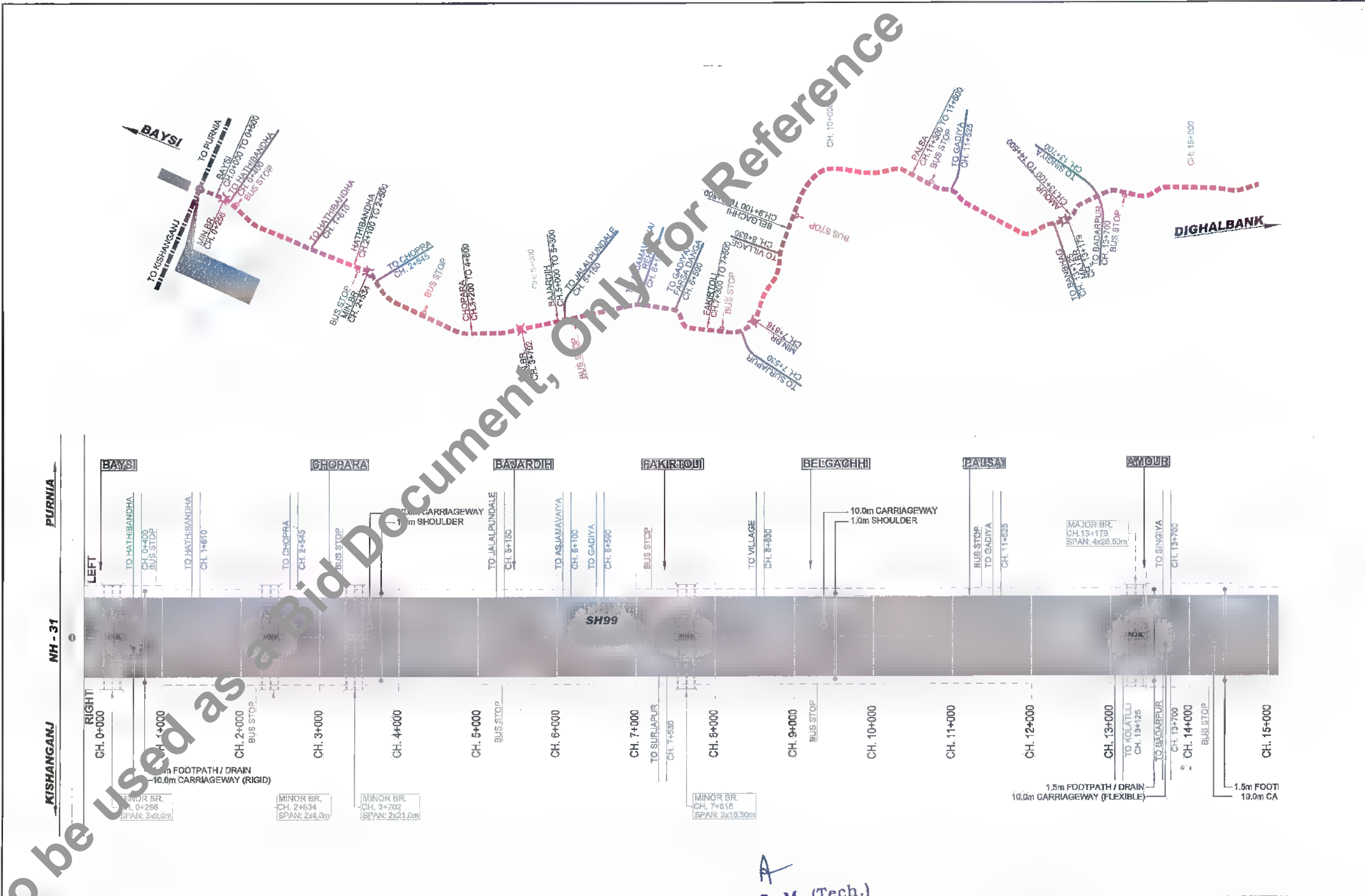
SAI
SYSTRA GROUP

SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "SAI House" Sanyal Corporate Square, 6/A Rajmohi
Club, Badli, New Delhi-110028, India
Phone: +91-11-6994100/780, Fax: +91-11-6994100
Email: sai@saiengg.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	DATE
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PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)			
PE	17/05/17	GOOD FOR CONSTRUCTION (DPR)			
PI	10/04/14	GOOD FOR CONSTRUCTION (DPR)			
PC	26/02/14	ISSUED WITH FINAL DPR			
PP	13/11/13	ISSUED WITH DPR			
PR	23/08/13	ISSUED WITH DPR			
DRAWN BY	: R.M.				
CHECKED BY	: C.S.				
APPROVED BY	: J.B.				
TITLE	BAYSI - RAUTA (PACKAGE-I) LEGEND				
DRG. NO.	SAI-213007/DPR/M/TYP -LEG				
REVISION	: PH				

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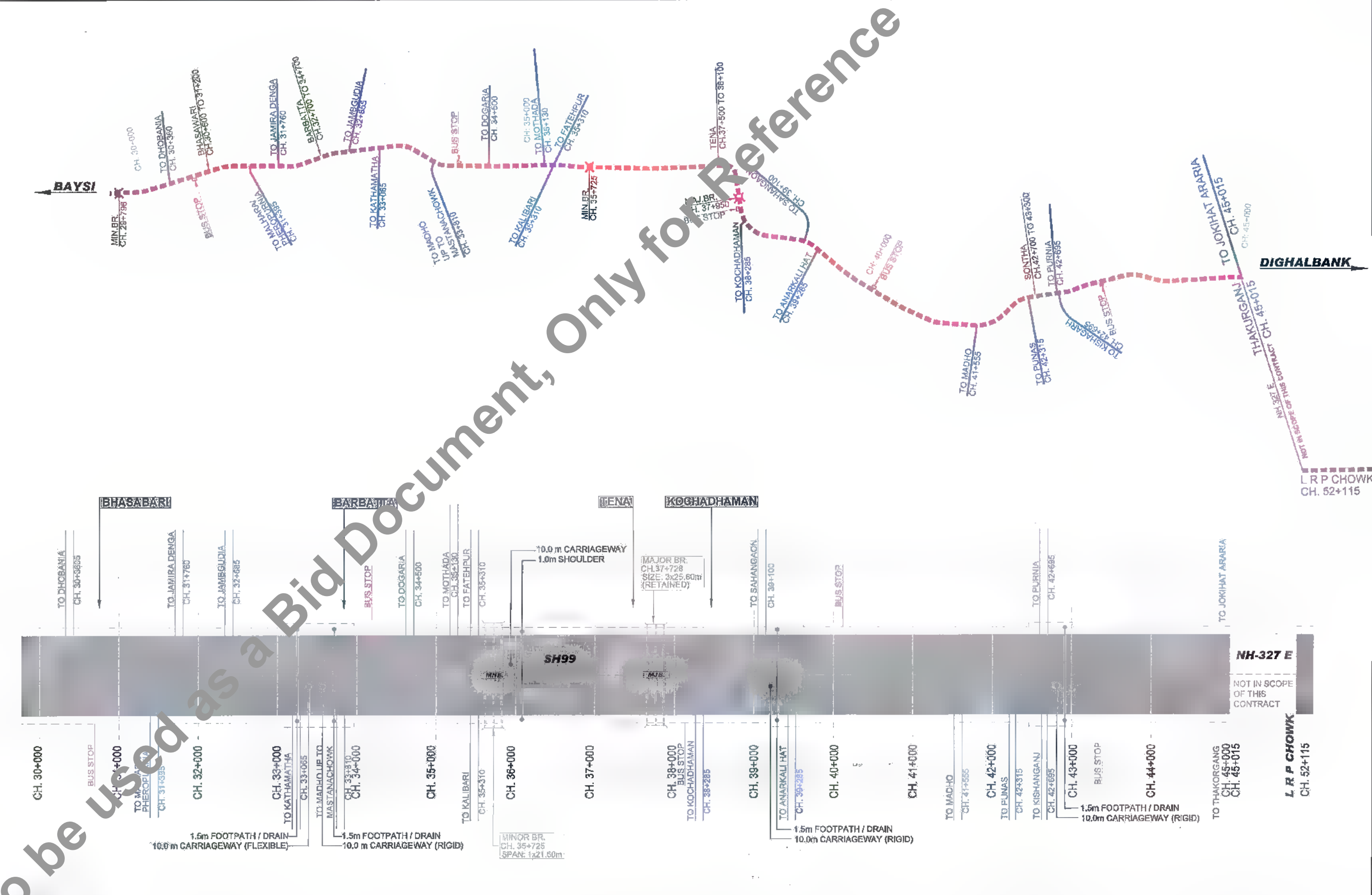
CLIENT:  Bihar State Road Development Corporation Limited (BSRDCL) (A Government of Bihar Undertaking)	PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar <i>Baysi - Bahadurganj - Dighalbank (SH-99)</i>	CONSULTANTS: SAL PIU Katihar A ISO 9001 Certified Company Block-A "Sal House" Sahyog Corporate Estate, Bypass Katihar Dist. Sahyog, Khasi Road-200009, Guwahati, India Phone : +91-361-2600700, Fax : +91-361-2600701 Email : mail@salpiu.com	<table border="1"> <tr> <td>REV.</td><td>DATE</td><td>DESCRIPTION</td><td>SIGN</td><td>ISSUED BY</td></tr> <tr> <td>PG</td><td>31/07/19</td><td>GOOD FOR CONSTRUCTION (REVISED DPR)</td><td></td><td>DRAWN BY : V.L.S.</td></tr> <tr> <td>PF</td><td>28/12/18</td><td>GOOD FOR CONSTRUCTION (DPR)</td><td></td><td>CHECKED BY : H.M.</td></tr> <tr> <td>PC</td><td>10/04/14</td><td>GOOD FOR CONSTRUCTION (DPR)</td><td></td><td>APPROVED BY : G.S.</td></tr> <tr> <td>PD</td><td>24/02/14</td><td>ISSUED WITH FINAL DPR</td><td></td><td></td></tr> <tr> <td>PE</td><td>13/11/13</td><td>ISSUED WITH ODR</td><td></td><td></td></tr> <tr> <td>PF</td><td>15/09/13</td><td>ISSUED WITH FFR</td><td></td><td></td></tr> </table> SCALE : NONE	REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	PG	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		DRAWN BY : V.L.S.	PF	28/12/18	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY : H.M.	PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY : G.S.	PD	24/02/14	ISSUED WITH FINAL DPR			PE	13/11/13	ISSUED WITH ODR			PF	15/09/13	ISSUED WITH FFR			TITLE: BAYSI TO DIGHALBANK ROAD SCHEMATIC DIAGRAM (LINEAR PLAN) DRS. NO. : SAL-213007/DPR/CH/LP-01 REVISION : PS
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY																																			
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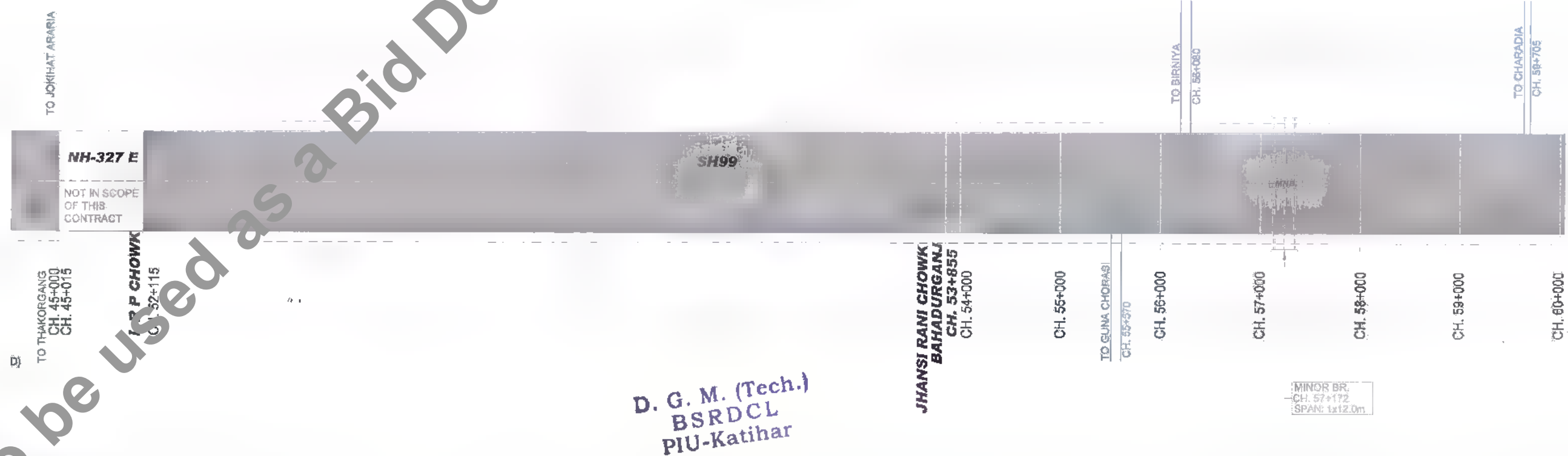
	Bihar State Road Development Corporation Limited (BSRDCL) (A Government of Bihar Undertaking)	PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)	CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company Block-A "SAI House", Sanyam Corporate Square, B.A. Rojhat Dhaka Road, Bahadurganj - 800079, Bihar, India Phone: +91-91-668330-700 / Fax: +91-39-668330-700 Email: sai@saiindia.com	PD	31/07/18	DDO FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : VLS.	TITLE :
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				PE	10/04/19	DDO FOR CONSTRUCTION (DPR)	APPROVED BY : C.S.	SCHEMATIC DIAGRAM
				PD	24/02/19	ISSUED WITH FINAL DPR		(LINEAR PLAN)
				PD	13/11/13	ISSUED WITH DPR		
				PB	15/08/13	ISSUED WITH DPR		
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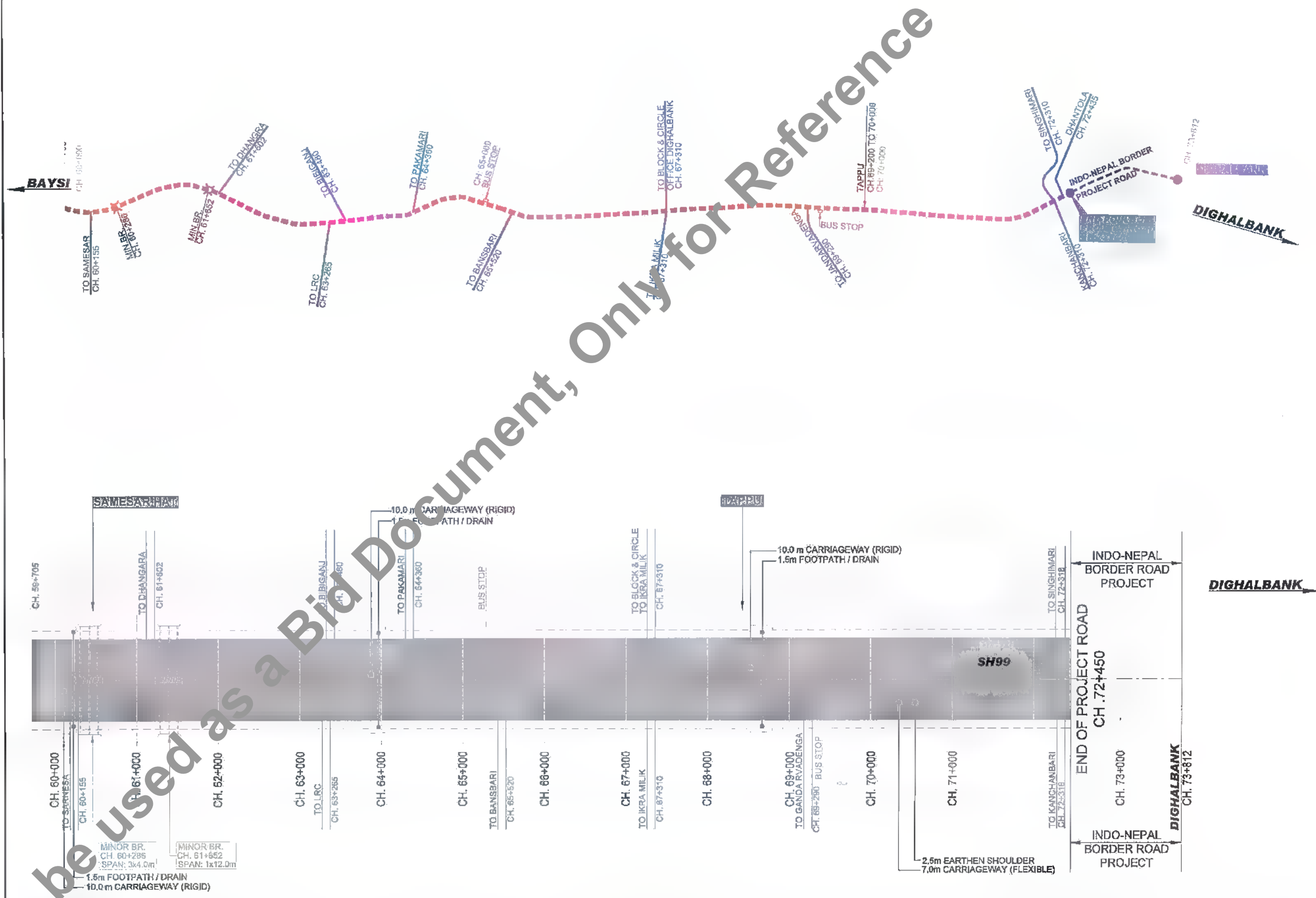
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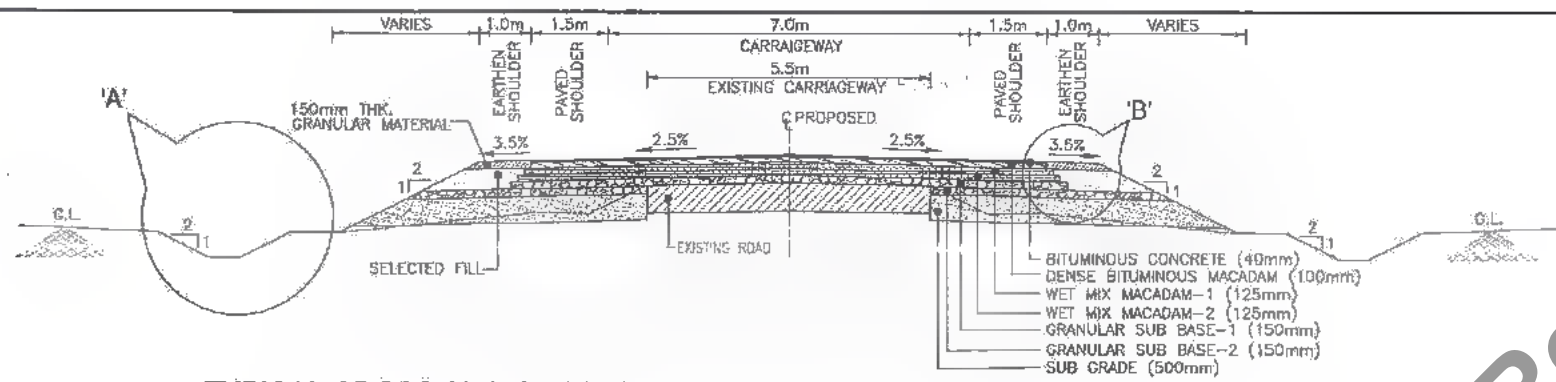
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BSRDCL
PIU-Katihar

 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 <i>Baysi - Bahadurganj - Dighalbank (SH-99)</i>	CONSULTANTS: SAI SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company Block-A 'SAI House', Sahyog Corporate Square, 3/11 Rajpath Club, Bhubaneswar, Odisha-751005 Phone : +91-674-661610/661700 Fax : +91-674-6616200 Email : mail@saiengineers.com	<table border="1"><tr><td>PH</td><td>31/07/19</td><td>GOOD FOR CONSTRUCTION (REVISED DPR)</td><td rowspan="5"><table border="1"><tr><td>DRAWN BY :</td><td>YLS.</td></tr><tr><td>CHECKED BY :</td><td>H.M.</td></tr><tr><td>APPROVED BY :</td><td>C.S.</td></tr><tr><td>ISSUED BY :</td><td>R.H.</td></tr></table></td></tr><tr><td>25</td><td>28/12/18</td><td>GOOD FOR CONSTRUCTION (DPR)</td></tr><tr><td>10</td><td>31/03/17</td><td>GOOD FOR CONSTRUCTION (DPR)</td></tr><tr><td>04</td><td>10/04/14</td><td>GOOD FOR CONSTRUCTION (DPR)</td></tr><tr><td>02</td><td>24/02/14</td><td>ISSUED WITH FINAL DPR</td></tr><tr><td>01</td><td>13/11/13</td><td>ISSUED WITH DPR</td></tr></table> SCALE : NONE	PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	<table border="1"><tr><td>DRAWN BY :</td><td>YLS.</td></tr><tr><td>CHECKED BY :</td><td>H.M.</td></tr><tr><td>APPROVED BY :</td><td>C.S.</td></tr><tr><td>ISSUED BY :</td><td>R.H.</td></tr></table>	DRAWN BY :	YLS.	CHECKED BY :	H.M.	APPROVED BY :	C.S.	ISSUED BY :	R.H.	25	28/12/18	GOOD FOR CONSTRUCTION (DPR)	10	31/03/17	GOOD FOR CONSTRUCTION (DPR)	04	10/04/14	GOOD FOR CONSTRUCTION (DPR)	02	24/02/14	ISSUED WITH FINAL DPR	01	13/11/13	ISSUED WITH DPR	TITLE: BAYSI TO DIGHALBANK ROAD SCHEMATIC DIAGRAM (LINEAR PLAN) DRG. NO. : SAI-213007/DPR/MLP - 04 REVISION : PH
	PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	<table border="1"><tr><td>DRAWN BY :</td><td>YLS.</td></tr><tr><td>CHECKED BY :</td><td>H.M.</td></tr><tr><td>APPROVED BY :</td><td>C.S.</td></tr><tr><td>ISSUED BY :</td><td>R.H.</td></tr></table>	DRAWN BY :	YLS.		CHECKED BY :	H.M.	APPROVED BY :	C.S.	ISSUED BY :	R.H.																		
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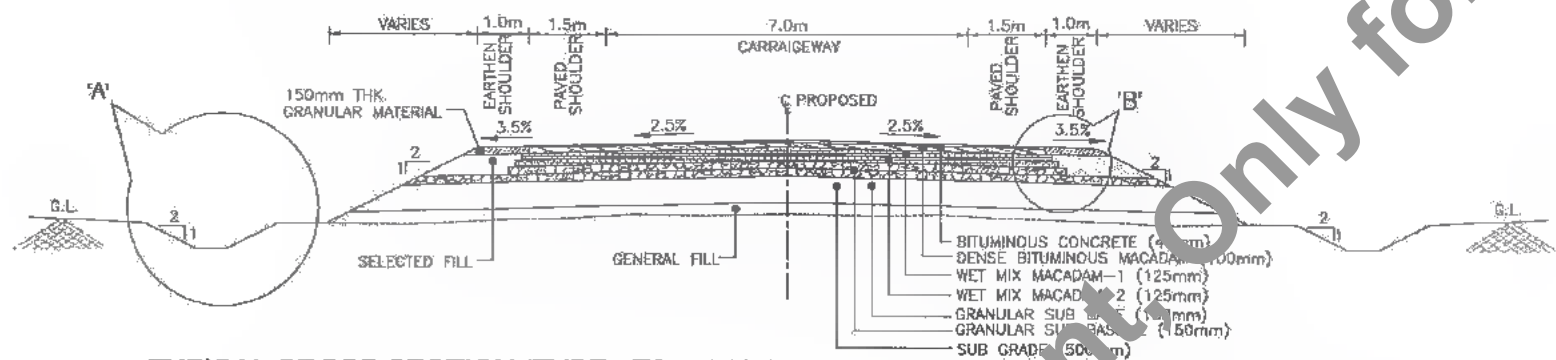


DATE: 2019/07/11 12:18pm
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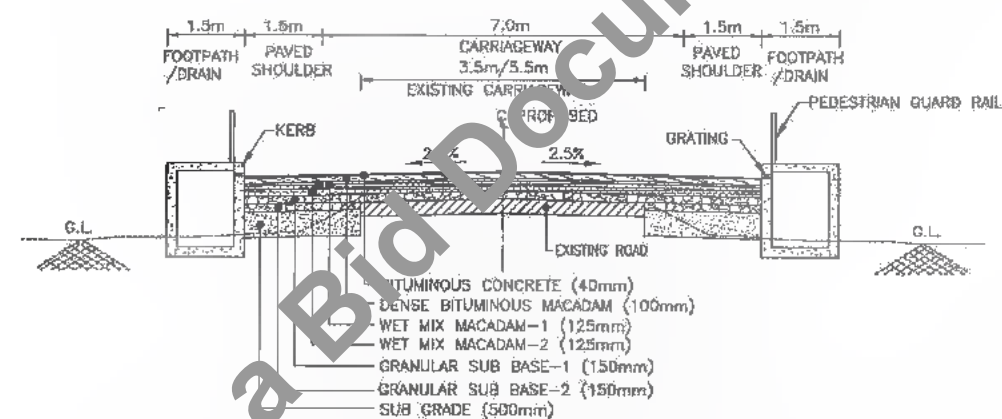
CLIENT :  Bihar State Road Development Corporation Limited (BSRDCL) (A Government of Bihar Undertaking)	PROJECT : D. G. M. (Tech.) BSRDCL Consultancy Services for Preparation of Detailed Project Report of different State Highways in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)	CONSULTANTS : SAI SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company Block-A, "SAI House", Sanyam Corporate Square, 8th Bypass Cross-Mohar, Ahmedabad-380015, Gujarat, India Phone : +91-79-6661600/700, Fax : +91-79-6661600 Email : mail@saiconsulting.com	<table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>SIGN</th> <th>ISSUED BY</th> </tr> <tr> <td>PH</td> <td>31/07/18</td> <td>GOOD FOR CONSTRUCTION (REVISED RPIQ)</td> <td></td> <td></td> </tr> <tr> <td>PG</td> <td>28/12/18</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> </tr> <tr> <td>PE</td> <td>21/02/19</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> </tr> <tr> <td>PD</td> <td>10/04/19</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> </tr> <tr> <td>PC</td> <td>24/02/19</td> <td>ISSUED WITH FINAL DPR</td> <td></td> <td></td> </tr> <tr> <td>PC</td> <td>15/11/19</td> <td>ISSUED WITH DPR</td> <td></td> <td></td> </tr> </table> SCALE : NONE	REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	PH	31/07/18	GOOD FOR CONSTRUCTION (REVISED RPIQ)			PG	28/12/18	GOOD FOR CONSTRUCTION (DPR)			PE	21/02/19	GOOD FOR CONSTRUCTION (DPR)			PD	10/04/19	GOOD FOR CONSTRUCTION (DPR)			PC	24/02/19	ISSUED WITH FINAL DPR			PC	15/11/19	ISSUED WITH DPR			TITLE : BAYSİ TO DİGHALBANK ROAD SCHEMATIC DIAGRAM (LINEAR PLAN) DRG. NO. : SAI-213007/DPR/C/H/LP - 05 REVISION : PH
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY																																			
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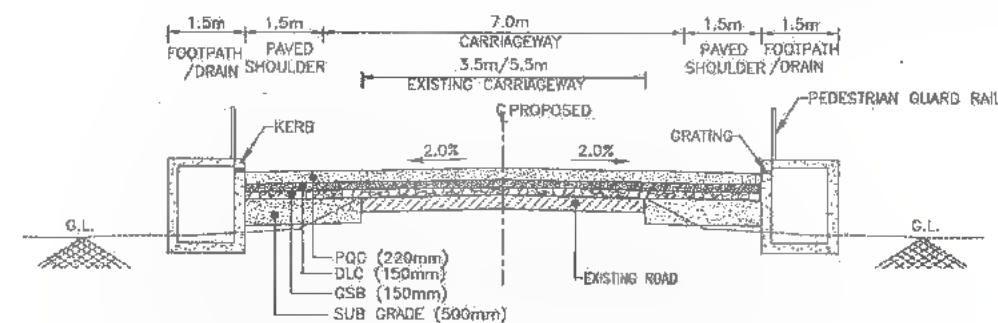
TYPICAL CROSS SECTION (TYPE : TS-01) FOR RECONSTRUCTION FROM GSB
TWO-LANE WITH PAVED SHOULDER
SCALE-1:100



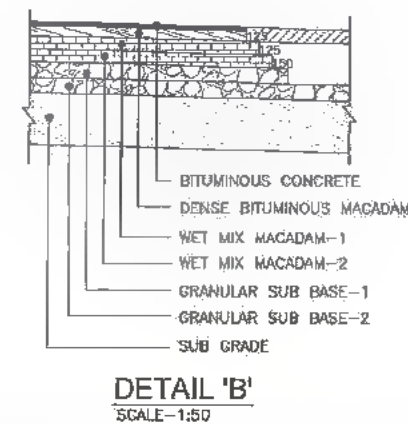
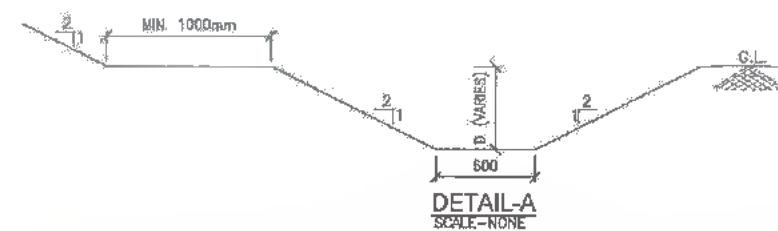
TYPICAL CROSS SECTION (TYPE : TS-03) NEW CONSTRUCTION FOR REALIGNMENT PORTION
TWO-LANE WITH PAVED SHOULDER
SCALE-1:100



TYPICAL CROSS SECTION (TYPE : TS-04) FOR RECONSTRUCTION FROM GSB IN URBAN SECTION - FLEXIBLE
TWO-LANE PAVED SHOULDER WITH LINED DRAIN
SCALE-1:100



TYPICAL CROSS SECTION (TYPE : TS-05) FOR RECONSTRUCTION FROM GSB IN URBAN SECTION - RIGID
TWO-LANE PAVED SHOULDER WITH LINED DRAIN
SCALE-1:100



DETAIL 'B'
SCALE-1:50

Sr. No.	Existing Km		Design Chainage		Length	Cross Section Type
	From	To	From	To		
1	0+230	4+800	0+230	4+800	4.570	TCS-1
2	4+800	5+300	4+800	5+300	0.500	TCS-1
3	5+300	6+500	5+300	6+500	1.200	TCS-1
4	6+500	6+650	6+500	6+650	0.150	TCS-1
5	6+650	6+840	6+650	6+840	0.190	TCS-1
6	6+840	7+450	6+840	7+450	0.610	TCS-1
7	7+450	8+100	7+450	8+100	0.650	TCS-1
8	8+100	8+785	8+100	8+775	0.675	TCS-1
9	8+785	10+315	8+775	10+305	1.530	TCS-1
10	10+315	10+360	10+305	10+350	0.045	TCS-1
11	10+360	11+715	10+600	11+705	1.105	TCS-1
12	11+715	13+020	11+705	13+005	1.300	TCS-1
13	13+020	13+470	13+005	13+450	0.445	TCS-1
14	14+570	21+000	14+555	20+910	6.355	TCS-1
15	21+000	21+375	20+910	21+310	0.400	TCS-1
16	21+375	21+745	21+310	21+685	0.375	TCS-1
17	21+745	22+115	21+685	22+005	0.320	TCS-1
18	10+360	10+610	10350	10600	0.25	TCS-3
19	13+470	13+790	13+450	13+775	0.325	TCS-4
20	0+000	0+230	0+000	0+230	0.230	TCS-5
21	13+790	14+570	13+775	14+555	0.780	TCS-5



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CONSULTANTS:

SAI Consulting Engineers Pvt. Ltd.

An ISO 9001 Certified Company

Block-A "SAI House" Kalyan Corporate Square, 5th Bldg. Path,
Bhubaneswar, Odisha-751005, India
Phone : +91-75-6661990/799, Fax : +91-75-6661200
Email : sai@saiengg.com

REV. DATE DESCRIPTION
1 31/07/18 GOOD FOR CONSTRUCTION (REVISED DPR)
2 17/12/18 GOOD FOR CONSTRUCTION (DPR)
3 31/03/17 GOOD FOR CONSTRUCTION (DPR)
4 10/04/14 GOOD FOR CONSTRUCTION (DPR)
5 26/02/14 ISSUED WITH FINAL DPR
6 13/11/13 ISSUED WITH DPR
7 07/07/13 ISSUED WITH DPR

DRAWN BY : R.K.
CHECKED BY : A.S.
APPROVED BY : J.D.
ISSUED BY : B.S.

TITLE : BAYSI - RAUTA
TYPICAL CROSS SECTION
(PACKAGE-1)

DRG. NO. :
SAI-213007/DPR/TYP/CS-01
REVISION : PG

SCALE : AS SHOWN

Sl. No.	VIP Chainage	Level (m)	Gradient (%)	% Change In grade	Type of Curve	Curve Length (m)	K Value
1	0.000	35.966	0.000	0.000	0	0	0
2	56.119	34.563	-2.500	-2.641	Valley	50	18.93
3	155.933	34.704	0.141	-1.358	Valley	60	44.17
4	254.686	36.185	1.500	3.000	Summit	100	33.34
5	388.838	34.173	-1.500	-1.652	Valley	60	36.31
6	792.612	34.788	0.152	0.292	Summit	200	684.34
7	1378.758	33.969	-0.140	-0.240	Valley	300	1250.39
8	1646.208	34.236	0.100	0.250	Summit	70	279.59
9	1921.477	33.823	-0.150	-0.305	Valley	60	196.81
10	2313.749	34.429	0.155	0.394	Summit	60	152.13
11	2461.862	34.074	-0.240	-0.642	Valley	60	93.49
12	2589.925	34.589	0.402	0.302	Summit	100	331.13
13	2902.973	34.902	0.100	0.377	Summit	100	264.93
14	3128.536	34.276	-0.277	-0.177	Valley	60	338.11
15	3414.238	33.990	-0.100	-1.183	Valley	200	169.08
16	3670.196	36.762	1.083	1.829	Summit	200	109.37
17	3971.041	34.519	-0.746	-0.565	Valley	60	106.28
18	4265.849	33.984	-0.181	-0.379	Valley	60	158.22
19	4415.346	34.281	0.198	0.351	Summit	60	174.84
20	4593.083	34.008	-0.153	-0.308	Valley	60	244.58
21	4934.759	34.539	0.155	0.262	Summit	100	311.26
22	5085.981	34.377	-0.107	-0.263	Valley	60	228.12
23	5247.710	34.629	0.156	0.421	Summit	60	142.36
24	5531.485	33.876	-0.265	-0.443	Valley	60	135.55
25	5771.938	34.302	0.177	0.347	Summit	60	172.72
26	5945.822	34.006	-0.170	-0.380	Valley	60	158.00
27	6163.460	34.462	0.210	0.412	Summit	60	145.63
28	6545.112	33.689	-0.202	-0.302	Valley	60	198.36
29	6746.641	33.891	0.100	0.200	Summit	60	300.00
30	6901.728	33.736	-0.100	-0.202	Valley	60	297.03
31	7025.094	33.862	0.102	0.307	Summit	60	195.58
32	7186.493	33.531	-0.205	-0.313	Valley	60	191.42
33	7500.844	33.873	0.109	0.209	Summit	60	287.22
34	7665.081	33.708	-0.100	-1.076	Valley	65	35.60
35	7813.885	36.201	1.676	1.372	Summit	175	51.90
36	7971.440	33.529	-1.696	-2.003	Valley	70	29.85
37	8194.214	34.974	0.649	1.860	Valley	100	53.75
38	8435.881	41.038	2.009	5.079	Summit	170	33.47
39	8635.091	35.919	-2.000	-1.723	Valley	60	34.83
40	8831.589	34.254	-0.947	-0.605	Valley	100	165.29
41	9011.787	33.818	-0.242	-0.363	Valley	60	165.42
42	9206.161	34.604	0.121	0.370	Summit	60	161.95
43	9373.567	33.633	-0.250	-0.354	Valley	100	282.78
44	10480.000	34.784	0.104	0.201	Summit	60	298.05
45	10983.250	33.794	-0.100	-0.208	Valley	60	288.53
46	11113.460	34.138	0.111	0.412	Summit	60	145.75
47	11348.700	33.730	-0.301	-0.403	Valley	150	371.99
48	11572.000	33.958	0.102	0.325	Summit	60	184.66
49	11650.000	32.871	-0.223	-0.484	Valley	100	206.41
50	12200.000	33.241	0.262	0.162	Summit	100	618.56
51	12744.815	33.784	0.100	0.326	Summit	60	184.05
52	12997.452	33.213	-0.226	-2.726	Valley	60	22.01
53	13104.919	35.900	2.500	2.500	Summit	50	20.00
54	13241.967	35.900	0.000	2.500	Summit	50	20.00
55	13352.168	33.145	-2.500	-2.686	Valley	60	22.34
56	13614.640	33.633	0.186	0.347	Summit	100	287.82
57	13803.713	33.328	-0.161	0.361	Summit	60	157.33
58	13898.955	32.811	-0.543	-1.049	Valley	60	57.22
59	14031.545	33.481	0.506	0.287	Summit	60	208.88
60	14297.466	34.063	0.219	-0.783	Valley	60	76.66

Sl. No.	VIP Chainage	Level (m)	Gradient (%)	% Change In grade	Type of Curve	Curve Length (m)	K Value
61	14373.981	34.009	1.001	1.479	Summit	60	40.58
62	14533.097	34.009	-0.477	0.032	Summit	60	1861.41
63	14660.600	34.418	-0.510	-0.296	Valley	60	202.56
64	14876.000	32.957	-0.213	-0.492	Valley	60	121.95
65	15100.380	33.675	0.279	0.158	Summit	60	379.60
66	15260.000	34.028	0.121	0.311	Summit	60	192.95
67	15725.000	33.460	-0.190	-0.072	Valley	60	833.35
68	15918.021	33.232	-0.118	-0.241	Valley	60	248.47
69	16213.410	33.595	0.123	0.257	Summit	60	233.52
70	16445.744	33.284	-0.134	-0.237	Valley	60	253.56
71	16672.382	33.518	0.103	0.220	Summit	60	273.09
72	16984.100	33.153	-0.117	-0.212	Valley	60	282.36
73	18042.091	34.166	0.096	0.236	Summit	60	254.03
74	18500.219	33.521	-0.141	-0.240	Valley	60	250.40
75	18851.037	33.868	0.099	0.499	Summit	100	200.56
76	19055.622	33.051	-0.400	-0.500	Valley	125	250.21
77	19337.178	33.332	0.100	-0.062	Valley	60	974.97
78	19818.391	34.110	0.162	0.261	Summit	60	229.50
79	20002.729	33.926	-0.100	0.041	Summit	60	1458.90
80	20171.204	33.688	-0.141	-0.243	Valley	60	247.37
81	20377.055	33.897	0.102	-0.187	Valley	60	320.33
82	20615.000	34.584	0.289	0.385	Summit	100	259.71
83	20960.075	34.252	-0.100	0.218	Summit	60	275.48
84	21090.953	33.841	-0.314	-2.712	Valley	150	55.32
85	21240.753	37.433	2.398	-0.383	Valley	60	156.81
86	21477.650	44.020	2.780	5.867	Summit	250	44.12
87	21705.870	37.432	-2.887	-1.540	Valley	60	38.96
88	21901.128	34.802	-1.347	-1.138	Valley	60	52.96



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Email: saic@saiconsulting.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
1	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		
2	12/12/19	GOOD FOR CONSTRUCTION (DPR)		
3	10/04/20	GOOD FOR CONSTRUCTION (DPR)		
4	26/02/20	ISSUED WITH FINAL DPR		
5	01/01/20	ADDITION OF DOPR		
6	13/11/19	ISSUED WITH DPR		

TITLE: BAYSI - RAUTA (PACKAGE-I)
VERTICAL ALIGNMENT DETAIL
DRG. NO.: SAI-219007/DPR/CHVAD-01
REVISION: PG



SCHEDULE OF TRAFFIC SIGN				
Sr. No.	Design Chainage	Traffic Sign	Type of Sign	Side
1	00+000	S-4B	Advance direction sign	Left
2	00+000	TA-1	Object marker	Left
3	00+000	S-4B	Advance direction sign	Right
4	00+000	S-4B	SH route marker	Right
5	00+000	TA-1	Object marker	Right
6	00+000	TA-1	Object marker	Central Median
7	00+000	S-1	Stop sign	Right
8	00+060	S-4	Compulsory keep left	Central Median
9	00+062	TA-1	Object marker	Central Median
10	00+148	S-4B	Advance direction sign	Right
11	00+152	S-22	Right hand curve	Left
12	00+222	S-67A	Hazard marker	Left
13	00+272	S-67A	Hazard marker	Right
14	00+273	S-4B	Advance direction sign	Left
15	00+284	S-5B	Chevron sign	Left
16	00+335	S-5B	Chevron sign	Left
17	00+355	S-5B	Chevron sign	Left
18	00+375	S-5B	Chevron sign	Left
19	00+403	S-4B	Advance direction sign	Left
20	00+407	S-1	Stop sign	Left
21	00+424	S-5B	Bus stop	Left
22	00+435	S-17	Speed limit	Left
23	00+535	S-4B	Advance direction sign	Right
24	00+555	S-55	Bus stop	Right
25	00+595	S-33	Left hand curve	Right
26	00+596	S-21	Left hand curve	Left
27	00+736	S-17	Speed limit	Right
28	00+820	S-5B	Chevron sign	Right
29	00+891	S-5B	Chevron sign	Right
30	01+000	S-5B	Chevron sign	Right
31	01+110	S-32	Right hand curve	Right
32	01+261	S-17	Speed limit	Right
33	01+473	S-4B	Advance direction sign	Left
34	01+617	S-4B	Advance direction sign	Left
35	01+617	S-1	Stop sign	Left
36	01+752	S-4B	Advance direction sign	Right
37	02+008	S-17	Speed limit	Left
38	02+190	S-32	Right hand curve	Left
39	02+194	S-55	Bus stop	Left
40	02+325	S-55	Bus stop	Right
41	02+340	S-5B	Chevron sign	Left
42	02+370	S-5B	Chevron sign	Left
43	02+395	S-5B	Chevron sign	Left
44	02+415	S-4B	Advance direction sign	Left
45	02+418	S-5B	Chevron sign	Left
46	02+527	S-67A	Hazard marker	Left
47	02+541	S-67A	Hazard marker	Right
48	02+555	S-4B	Advance direction sign	Left
49	02+555	S-1	Stop sign	Left
50	02+575	S-5B	Chevron sign	Right
51	02+584	S-4B	Advance direction sign	Right
52	02+745	S-5B	Chevron sign	Right
53	02+819	S-5B	Chevron sign	Right
54	02+885	S-5B	Chevron sign	Right
55	02+857	S-5B	Chevron sign	Right
56	03+095	S-5B	Chevron sign	Right
57	03+135	S-32	Right hand curve	Right
58	03+235	S-55	Bus stop	Left
59	03+301	S-17	Speed limit	Right
60	03+355	S-55	Bus stop	Right
61	03+435	S-55	Bus stop	Left
62	03+585	S-21	Left hand curve	Left
63	03+674	S-67A	Hazard marker	Left
64	03+725	S-67A	Hazard marker	Right
65	03+853	S-5B	Chevron sign	Right
66	03+897	S-5B	Chevron sign	Right
67	04+117	S-5B	Chevron sign	Right
68	04+174	S-32	Right hand curve	Right
69	04+324	S-17	Speed limit	Right
70	04+331	S-5B	Chevron sign	Right

SCHEDULE OF TRAFFIC SIGN				
Sr. No.	Design Chainage	Traffic Sign	Type of Sign	Side
71	04+379	S-5B	Chevron sign	Right
72	04+500	S-5B	Chevron sign	Right
73	05+030	S-4B	Advance direction sign	Left
74	05+181	S-1	Stop sign	Left
75	05+200	S-4B	Advance direction sign	Left
76	05+210	S-5B	Bus stop	Left
77	05+302	S-4B	Advance direction sign	Right
78	05+340	S-5B	Bus stop	Right
79	05+715	S-17	Speed limit	Left
80	05+865	S-22	Right hand curve	Left
81	05+950	S-5B	Chevron sign	Left
82	05+871	S-4B	Advance direction sign	Left
83	06+070	S-5B	Chevron sign	Left
84	06+115	S-1	Stop sign	Left
85	06+125	S-4B	Advance direction sign	Left
86	06+130	S-5B	Chevron sign	Left
87	06+212	S-4B	Advance direction sign	Right
88	06+237	S-17	Speed limit	Left
89	06+337	S-22	Right hand curve	Left
90	06+420	S-33	Left hand curve	Right
91	06+445	S-17	Speed limit	Left
92	06+460	S-4B	Advance direction sign	Left
93	06+515	S-5B	Chevron sign	Left
94	06+554	S-5B	Chevron sign	Left
95	06+570	S-33	Left hand curve	Left
96	06+573	S-17	Speed limit	Right
97	06+600	S-4B	Advance direction sign	Left
98	06+600	S-1	Stop sign	Left
99	06+613	S-5B	Chevron sign	Left
100	06+630	S-5B	Chevron sign	Left
101	06+651	S-5B	Chevron sign	Left
102	06+735	S-4B	Advance direction sign	Right
103	06+750	S-33	Left hand curve	Right
104	06+809	S-5B	Chevron sign	Right
105	06+827	S-5B	Chevron sign	Right
106	06+847	S-5B	Chevron sign	Right
107	06+855	S-5B	Chevron sign	Right
108	06+854	S-5B	Chevron sign	Right
109	06+844	S-5B	Chevron sign	Right
110	06+855	S-17	Speed limit	Right
111	06+072	S-17	Speed limit	Left
112	07+175	S-32	Right hand curve	Right
113	07+221	S-21	Left hand curve	Left
114	07+235	S-5B	Bus stop	Left
115	07+285	S-17	Speed limit	Left
116	07+325	S-17	Speed limit	Right
117	07+365	S-55	Bus stop	Right
118	07+402	S-21	Left hand curve	Left
119	07+411	S-4B	Advance direction sign	Left
120	07+488	S-5B	Chevron sign	Right
121	07+510	S-5B	Chevron sign	Right
122	07+545	S-1	Stop sign	Right
123	07+560	S-4B	Advance direction sign	Right
124	07+583	S-5B	Chevron sign	Right
125	07+645	S-5B	Chevron sign	Right
126	07+680	S-4B	Advance direction sign	Right
127	07+690	S-5B	Chevron sign	Right
128	07+735	S-5B	Chevron sign	Right
129	07+780	S-5B	Chevron sign	Right
130	07+795	S-67A	Hazard marker	Left
131	07+835	S-5B	Chevron sign	Right
132	07+840	S-67A	Hazard marker	Right
133	07+854	S-32	Right hand curve	Right
134	07+913	S-5B	Chevron sign	Right
135	07+922	S-5B	Chevron sign	Left
136	07+983	S-17	Speed limit	Right
137	08+011	S-17	Speed limit	Left
138	08+062	S-5B	Chevron sign	Left
139	08+072	S-32	Right hand curve	Right
140	08+122	S-5B	Chevron sign	Left

SCHEDULE OF TRAFFIC SIGN				
Sr. No.	Design Chainage	Traffic Sign	Type of Sign	Side
141	08+161	S-33	Left hand curve	Left
142	08+181	S-5B	Chevron sign	Left
143	08+222	S-17	Speed limit	Right
144	08+355	S-5B	Chevron sign	Right
145	08+387	S-5B	Chevron sign	Right
146	08+445	S-5B	Chevron sign	Right
147	08+493	S-5B	Chevron sign	Right
148	08+497	S-4B	Advance direction sign	Left
149	08+522	S-5B	Chevron sign	Right
150	08+555	S-5B	Chevron sign	Left
151	08+545	S-4B	Advance direction sign	Left
152	08+545	S-1	Stop sign	Left
153	08+547	S-5B	Chevron sign	Right
154	08+594	S-5B	Chevron sign	Left
155	08+737	S-5B	Chevron sign	Left
156	08+777	S-4B	Advance direction sign	Right
157	09+008	S-33	Left hand curve	Right
158	09+134	S-55	Bus stop	Left
159	09+157	S-17	Speed limit	Right
160	09+222	S-5B	Chevron sign	Left
161	09+254	S-55	Bus stop	Right
162	09+352	S-5B	Chevron sign	Left
163	09+452	S-5B	Chevron sign	Left
164	09+476	S-17	Speed limit	Left
165	09+541	S-5B	Chevron sign	Left
166	09+521	S-55	Chevron sign	Left
167	09+526	S-22	Right hand curve	Left
168	09+700	S-5B	Chevron sign	Left
169	09+776	S-5B	Chevron sign	Left
170	09+805	S-5B	Chevron sign	Left
171	09+851	S-5B	Chevron sign	Left
172	09+884	S-5B	Chevron sign	Left
173	09+937	S-5B	Chevron sign	Left
174	09+981	S-5B	Chevron sign	Left
175	10+026	S-5B	Chevron sign	Left
176	10+175	S-33	Left hand curve	Right
177	10+326	S-17	Speed limit	Right
178	10+347	S-5B	Chevron sign	Right
179	10+427	S-5B	Chevron sign	Right
180	10+473	S-17	Speed limit	Left
181	10+506	S-5B	Chevron sign	Right
182	10+586	S-5B	Chevron sign	Right
183	10+622	S-22	Right hand curve	Left
184	10+665	S-5B	Chevron sign	Right
185	10+783	S-5B	Chevron sign	Left
186	10+815	S-5B	Chevron sign	Right
187	10+833	S-5B	Chevron sign	Left
188	10+851	S-5B	Chevron sign	Left
189	10+870	S-5B	Chevron sign	Left
190	11+032	S-17	Speed limit	Left
191	11+150	S-33	Left hand curve	Right
192	11+162	S-33	Left hand curve	Left
193	11+234	S-55	Bus stop	Left
194	11+300	S-17	Speed limit	Right
195	11+362	S-17	Speed limit	Left
196	11+363	S-55	Bus stop	Right
197	11+382	S-4B	Advance direction sign	Left
198	11+382	S-5B	Chevron sign	Right
199	11+405	S-5B	Chevron sign	Right
200	11+453	S-5B	Chevron sign	Left
201	11+485	S-5B	Chevron sign	Right
202	11+499	S-21	Left hand curve	Left
203	11+504	S-5B	Chevron sign	Left
204	11+524	S-4B	Advance direction sign	Left
205	11+535	S-1	Stop sign	Left
206	11+544	S-5B	Chevron sign	Left
207	11+584	S-5B	Chevron sign	Left
208	11+575	S-5B	Chevron sign	Left
209	11+659	S-4B	Advance direction sign	Right
210	11+741	S-5B	Chevron sign	Right

SCHEDULE OF TRAFFIC SIGN				
Sr. No.	Design Chainage	Traffic Sign	Type of Sign	Side
211	11+761	S-5B	Chevron sign	Right
212	11+762	S-5B	Chevron sign	Right
213	11+822	S-5B	Chevron sign	Right
214	11+878	S-33	Left hand curve	Right
215	12+072	S-32	Right hand curve	Right
216	12+126	S-17	Speed limit	Right
217	12+222	S-17	Speed limit	Right
218	12+274	S-17	Speed limit	Left
219	12+423	S-33	Left hand curve	Left
220	12+544	S-5B	Chevron sign	Right
221	12+554	S-5B	Chevron sign	Right
222	12+584	S-5B	Chevron sign	Right
223	12+703	S-5B	Chevron sign	Right
224	12+722	S-5B	Chevron sign	Right
225	12+738	S-5B	Chevron sign	Right
226	12+789	S-5B	Chevron sign	Right
227	12+887	S-5B	Chevron sign	Left
228	12+865	S-5B	Chevron sign	Left
229	12+985	S-5B	Chevron sign	Left
230	12+992	S-4B	Advance direction sign	Left
231	13+050	S-5B	Chevron sign	Right
232	13+055	S-17	Speed limit	Left
233	13+077	S-5B	Chevron sign	Right
234	13+107	S-5B	Chevron sign	Right
235	13+121	S-1	Stop sign	Right
236	13+125	S-4B	Advance direction sign	Right
237	13+133	S-67A	Hazard marker	Left
238	13+222	S-33	Left hand curve	Left
239	13+222	S-67A	Hazard marker	Right
240	13+231	S-5B	Chevron sign	Right
241	13+251	S-5B	Chevron sign	Right
242	13+262	S-4B	Advance direction sign	Right
243	13+270	S-5B	Chevron sign	Right
244	13+309	S-5B	Chevron sign	Right
245	13+328	S-5B	Chevron sign	Left
246	13+349	S-5B	Chevron sign	Right
247	13+370	S-5B	Chevron sign	Left
248	13+410	S-5B	Chevron sign	Left
249	13+430	S-5B	Chevron sign	Left
250	13+448	S-5B	Chevron sign	Left
251	13+472	S-5B	Chevron sign	Left
252	13+538	S-17	Speed limit	Left
253	13+552	S-4B	Advance direction sign	Left
254	13+529	S-32	Right hand curve	Left
255	13+577	S-1	Stop sign	Right
256	13+577	S-4B	Advance direction sign	Right
257	13+591	S-4B	Advance direction sign	Left
258	13+704	S-1	Stop sign	Left
259	13+719	S-22	Right hand curve	Left
260	13+732	S-33	Left hand curve	Right
261	13+780	S-17	Speed limit	Right
262	13+828	S-4B	Advance direction sign	Right
263	13+838	S-5B	Chevron sign	Left
264	13+882	S-17	Speed limit	Right
265	13+898	S-5B	Chevron sign	Left
266	13+928	S-5B	Chevron sign	Left
267	13+958	S-5B	Chevron sign	Left
268	13+961	S-17	Speed limit	Left
269	14+034	S-55	Bus stop	Left
270	14+107	S-33	Left hand curve	Left
271	14+164	S-55	Bus stop	Right
272	14+242	S-33	Left hand curve	Right
273	14+334	S-5B	Chevron sign	Right
274	14+354	S-5B	Chevron sign	Right
275	14+392	S-17	Speed limit	Right
276	14+392	S-5B	Chevron sign	Right
277	14+421	S-5B	Chevron sign	Right
278	14+445	S-5B	Chevron sign	Left
279	14+451	S-5B	Chevron sign	Right
280	14+503	S-5B	Chevron sign	Left

SCHEDULE OF TRAFFIC SIGN				
Sr. No.	Design Chainage	Traffic Sign	Type of Sign	Side
281	14+511	S-58	Chevron sign	Right
282	14+537	S-58	Chevron sign	Left
283	14+566	S-58	Chevron sign	Left
284	14+595	S-58	Chevron sign	Left
285	14+625	S-58	Chevron sign	Left
286	14+659	S-33	Left hand curve	Right
287	15+058	S-17	Speed limit	Right
288	15+117	S-58	Chevron sign	Left
289	15+149	S-17	Speed limit	Left
290	15+257	S-58	Chevron sign	Left
291	15+281	S-58	Chevron sign	Left
292	15+299	S-33	Left hand curve	Left
293	15+338	S-56	Chevron sign	Right
294	15+563	S-58	Chevron sign	Right
295	15+624	S-58	Chevron sign	Right
296	15+759	S-58	Chevron sign	Left
297	15+848	S-58	Chevron sign	Left
298	15+894	S-58	Chevron sign	Left
299	15+938	S-58	Chevron sign	Left
300	16+161	S-48	Advance direction sign	Left
301	16+181	S-58	Chevron sign	Right
302	16+204	S-58	Chevron sign	Right
303	16+231	S-58	Chevron sign	Right
304	16+266	S-1	Stop sign	Right
305	16+272	S-48	Advance direction sign	Right
306	16+306	S-48	Advance direction sign	Left
307	16+312	S-1	Stop sign	Left
308	16+320	S-58	Chevron sign	Right
309	16+418	S-48	Advance direction sign	Right
310	16+481	S-32	Right hand curve	Right
311	16+641	S-17	Speed limit	Right
312	16+676	S-17	Speed limit	Left
313	16+826	S-21	Left hand curve	Left
314	17+036	S-58	Chevron sign	Right
315	17+085	S-58	Chevron sign	Right
316	17+125	S-58	Chevron sign	Right
317	17+334	S-32	Right hand curve	Right
318	17+488	S-17	Speed limit	Right
319	17+492	S-17	Speed limit	Right
320	17+642	S-21	Left hand curve	Left
321	17+772	S-17	Speed limit	Left
322	17+847	S-58	Chevron sign	Right
323	17+884	S-58	Chevron sign	Right
324	17+922	S-22	Right hand curve	Left
325	17+952	S-58	Chevron sign	Right
326	18+073	S-58	Chevron sign	Left
327	18+084	S-17	Speed limit	Left
328	18+133	S-58	Chevron sign	Left
329	18+154	S-32	Right hand curve	Right
330	18+163	S-58	Chevron sign	Left
331	18+193	S-58	Chevron sign	Left
332	18+221	S-58	Chevron sign	Left
333	18+238	S-21	Left hand curve	Left
334	18+251	S-58	Chevron sign	Left
335	18+280	S-58	Chevron sign	Left
336	18+304	S-17	Speed limit	Right
337	18+446	S-58	Chevron sign	Right
338	18+474	S-58	Chevron sign	Right
339	18+504	S-58	Chevron sign	Right
340	18+564	S-58	Chevron sign	Right
341	18+569	S-3	Left hand curve	Right
342	18+712	S-17	Speed limit	Right
343	18+774	S-32	Right hand curve	Right
344	18+906	S-17	Speed limit	Left
345	18+92	S-17	Speed limit	Right
346	18+934	S-55	Bus stop	Left
347	18+904	S-48	Advance direction sign	Left
348	19+035	S-22	Right hand curve	Left
349	19+064	S-55	Bus stop	Right
350	19+118	S-48	Advance direction sign	Left

SCHEDULE OF TRAFFIC SIGN				
Sr. No.	Design Chainage	Traffic Sign	Type of Sign	Side
351	19+236	S-1	Stop sign	Left
352	19+236	S-58	Chevron sign	Left
353	19+265	S-48	Advance direction sign	Right
354	19+295	S-58	Chevron sign	Left
355	19+325	S-58	Chevron sign	Left
356	19+384	S-58	Chevron sign	Left
357	19+412	S-58	Chevron sign	Left
358	19+442	S-58	Chevron sign	Left
359	19+623	S-17	Speed limit	Left
360	19+772	S-22	Right hand curve	Left
361	19+786	S-33	Left hand curve	Right
362	19+789	S-55	Bus stop	Left
363	19+919	S-55	Bus stop	Right
364	19+922	S-58	Chevron sign	Left
365	19+937	S-17	Speed limit	Right
366	19+982	S-58	Chevron sign	Left
367	20+012	S-58	Chevron sign	Left
368	20+042	S-58	Chevron sign	Left
369	20+041	S-58	Chevron sign	Left
370	20+071	S-58	Chevron sign	Left
371	20+182	S-17	Speed limit	Left
372	20+312	S-33	Left hand curve	Left
373	20+357	S-33	Left hand curve	Right
374	20+508	S-17	Speed limit	Right
375	20+524	S-58	Chevron sign	Right
376	20+554	S-58	Chevron sign	Right
377	20+584	S-58	Chevron sign	Right
378	20+610	S-17	Speed limit	Left
379	20+612	S-58	Chevron sign	Right
380	20+672	S-58	Chevron sign	Right
381	20+762	S-32	Right hand curve	Left
382	20+851	S-32	Right hand curve	Right
383	20+902	S-5	Chevron sign	Left
384	20+981	S-58	Chevron sign	Left
385	20+992	S-58	Chevron sign	Left
386	21+020	S-58	Chevron sign	Left
387	21+031	S-17	Speed limit	Right
388	21+050	S-58	Chevron sign	Left
389	21+079	S-58	Chevron sign	Left
390	21+100	S-58	Chevron sign	Left
391	21+137	S-58	Chevron sign	Left
392	21+166	S-58	Chevron sign	Left
393	21+330	S-58	Chevron sign	Right
394	21+356	S-58	Chevron sign	Right
395	21+367	S-58	Chevron sign	Right
396	21+414	S-58	Chevron sign	Right
397	21+451	S-67A	Hazard marker	Left
398	21+506	S-67A	Hazard marker	Right
399	21+621	S-58	Chevron sign	Right
400	21+684	S-58	Chevron sign	Right
401	21+754	S-58	Chevron sign	Right
402	21+872	S-55	Bus stop	Left
403	21+914	S-32	Right hand curve	Right
404	22+002	S-55	Bus stop	Right

W-beam Metal Crash Barrier Locations-Package 1					
Sr. no.	Left Side Crash Barrier		Right Side Crash Barrier		
	Design Chainage	Length	Design Chainage	Length	
	From	To	From	To	
1	0+213	0+243	0+213	0+243	30
2	0+270	0+300	0+270	0+300	30
3	0+300	0+330	0+300	0+330	30
4	0+338	0+368	0+338	0+368	30
5	0+450	0+480	0+450	0+480	30
6	0+722	0+752	0+722	0+752	30
7	0+765	0+795	0+765	0+795	30
8	0+835	0+865	0+835	0+865	30
9	0+933	1+015	1+015	1+045	30
10	1+630	1+710	1+630	1+710	80
11	12+300	12+600	12+300	12+600	30
12	13+135	13+135	12+590	12+610	20
13	13+215	13+245	12+740	12+830	90
14	13+710	21+458	12+850	12+900	50
15	21+507	21+545	13+030	13+112	82
16	21+547	21+595	13+220	13+300	80
17	-	-	20+750	20+770	20
18	-	-	21+331	21+458	127
19	-	-	21+507	21+545	38
20	-	-	21+577	21+625	48

Pedestrian Guard Rail locations (Built-up area) - Package 1						
Sr No.	Existing Chainage		Design Chainage		Length (mt.)	Crown section Type
1	0/000	0/230	0+000	0+230	230	TCS-5
2	13/470	13/795	13+450	13+775	325	TCS-5
3	13/795	14/570	13+775	14+555	780	TCS-5

Road Studs (Built-up Area) - Package 1				
Sr. No.	Design Chainage		Length of section (mt.)	Nos. of studs
1	0+000	0+230	230	47
2	13+450	13+775	325	66
3	13+775	14+555	780	157

Road studs locations (Curves) - Package 1					
Sr. No.	Transition start	Transition end	Length (mt.)	Radius of curve (mt.)	Nos. of studs
1	303.138	407.49	104.352	180	22
2	2309.233	2507.213	197.980	180	41
3	3756.226	3972.886	217.460	310	44
4	6535.555	6703.922	168.367	105	35
5	6743.555	6918.568	175.013	105	36
6	7369.515	7631.783	262.288	320	63
7	7621.818	7792.812	170.994	230	35
8	8178.387	8261.337	82.950	200	18
9	8281.894	8421.301	139.407	290	29
10	8452.258	8559.372	107.114	290	22
11	8598.457	8845.096	46.638	110	19
12	9776.142	10026.835	250.693	305	61
13	10772.915	10940.050	167.135	150	34
14	11332.506	11465.295	132.789	200	28
15	11504.366	11758.095	253.729	180	52
16	11734.588	11782.511	47.923	180	11
17	12574.254	12818.100	244.846	170	50
18	12910.646	13038.074	127.428	200	26
19	13050.114	13142.316	92.202	250	19
20	13215.501	13425.292	209.691	160	43
21	13410.701	13472.576	61.875	125	13
22	13839.161	14031.943	192.782	200	40
23	14266.907	14506.583	240.676	230	51
24	14511.313	14698.287	186.974	200	38
25	15449.112	15653.774	204.662	250	42
26	15784.739	16007.483	222.744	350	46
27	16126.470	16285.992	159.522	250	33
28	16976.028	17124.925	148.899	240	31
29	17791.916	17949.409	157.493	250	32
30	18073.718	18352.846	279.128	200	57
31	18384.083	18564.061	179.976	200	37
32	19204.915	19548.030	343.115	250	69
33	19822.225	20148.978	326.753	200	46
34	20481.988	20672.332	210.344	200	43
35	20811.078	21239.587	428.509	290	67
36	21258.733	21440.415	181.682	230	37
37	21544.742	21736.931	192.189	310	38



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

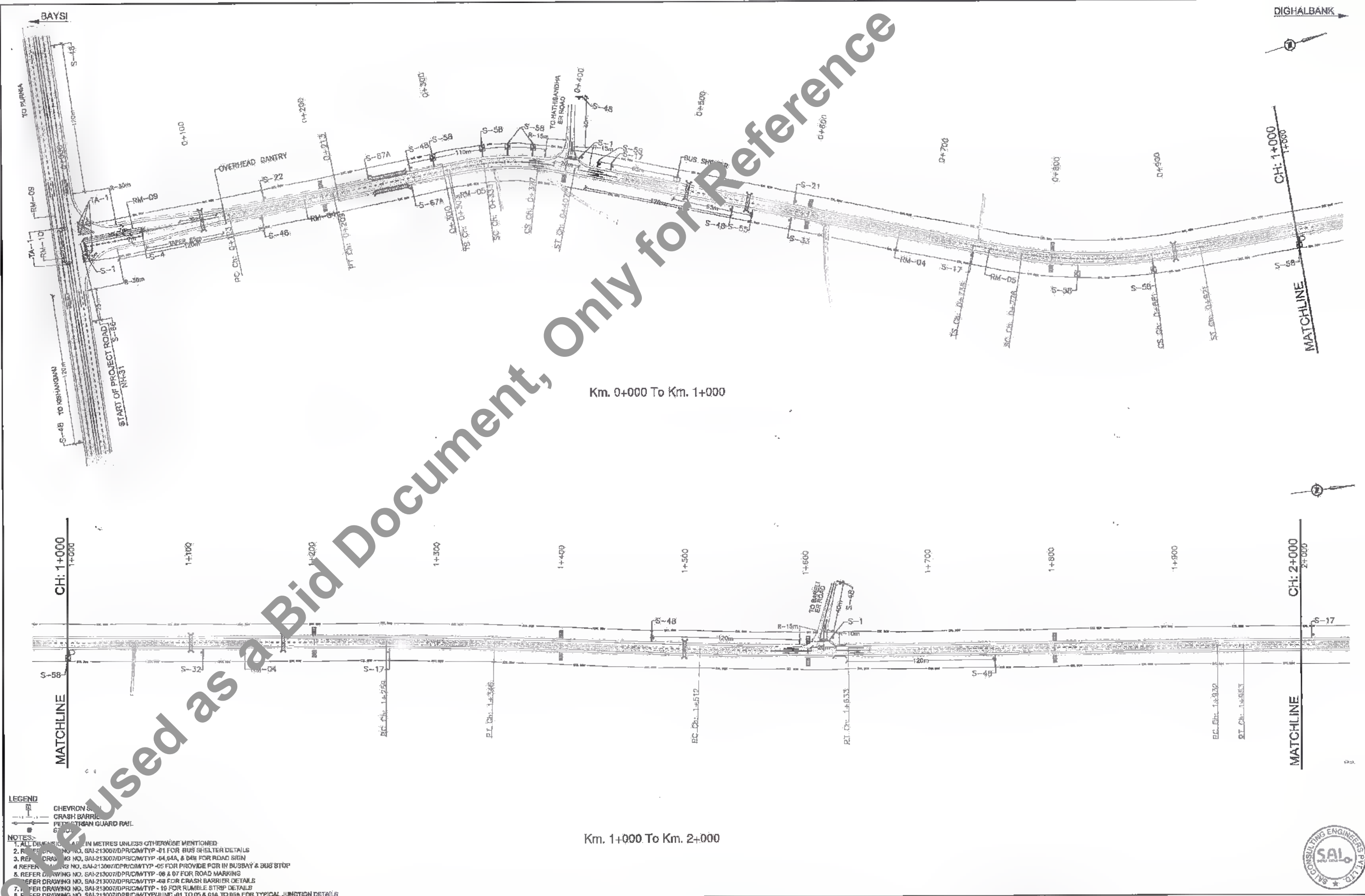
PROJECT:
Consultancy Services for Preparation of Detailed Project
Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

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REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	DATE
1	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)			
2	26/12/18	GOOD FOR CONSTRUCTION (REVISED DPR)			
3	10/04/19	GOOD FOR CONSTRUCTION (DPR)			
4	26/02/19	ISSUED WITH TPAAL-DPR			
5	16/11/19				
SCALE: NONE					
TITLE: BAYSI - RAUTA (PACKAGE-I) ROAD FURNITURE TABLES					
DRG. NO.: SAI-213007/DPR/CH/RFET-02					
REVISION: PE					

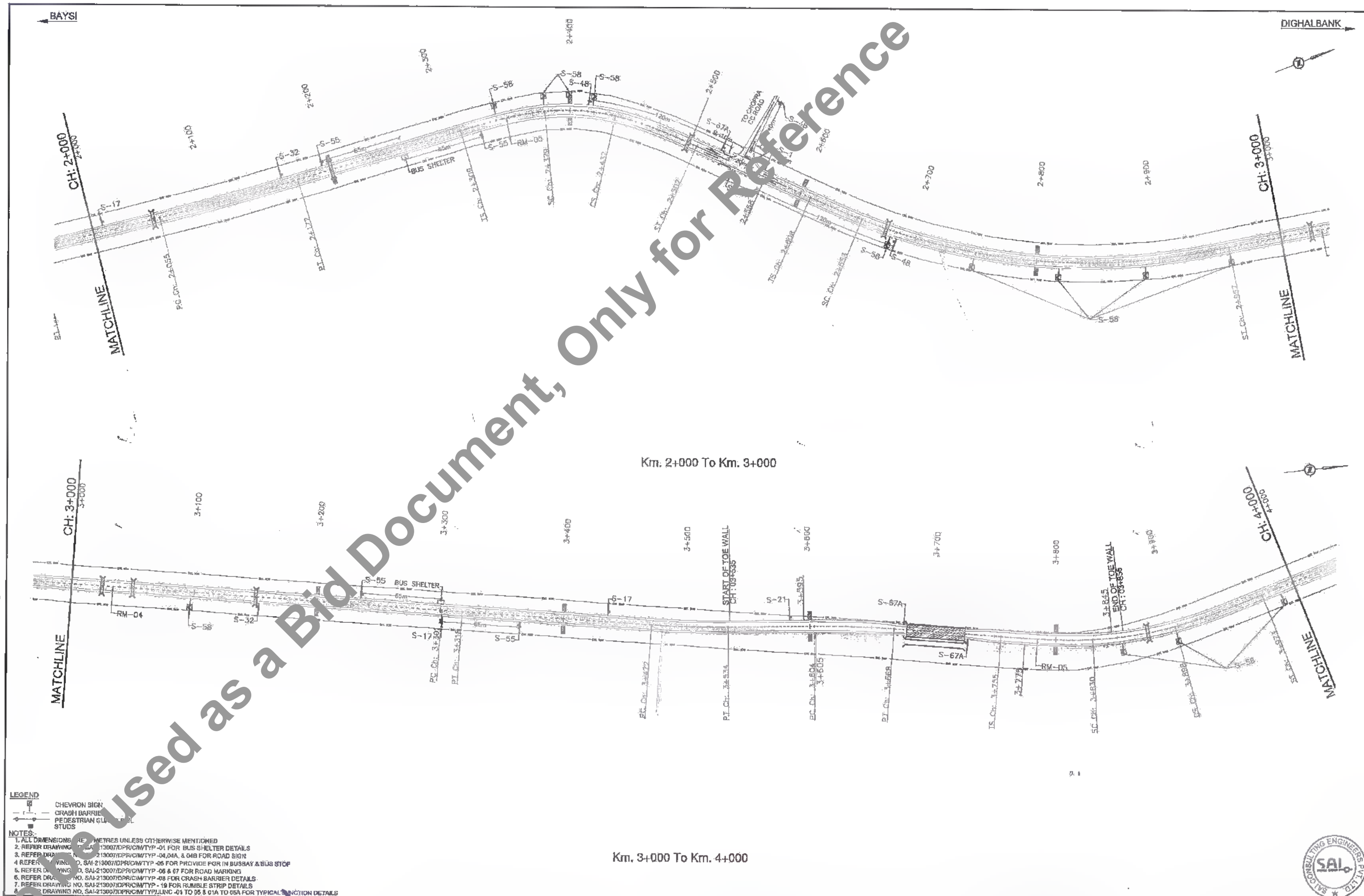


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- LEGEND**
- CHEVRON SIGN
 - CRASH BARRIER
 - PER STRAIN GUARD RAIL
- NOTES**
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE MENTIONED.
 2. REFER DRAWING NO. SAI-213007/DP/CM/TYP-01 FOR BUS SHELTER DETAILS
 3. REFER DRAWING NO. SAI-213007/DP/CM/TYP-04, 04A, & 04B FOR ROAD SIGN
 4. REFER DRAWING NO. SAI-213007/DP/CM/TYP-05 FOR PROVIDE PGR IN BUSSTOP & BUS STOP
 5. REFER DRAWING NO. SAI-213007/DP/CM/TYP-06 & 07 FOR ROAD MARKING
 6. REFER DRAWING NO. SAI-213007/DP/CM/TYP-08 FOR CRASH BARRIER DETAILS
 7. REFER DRAWING NO. SAI-213007/DP/CM/TYP-10 FOR RUMBLE STRIP DETAILS
 8. REFER DRAWING NO. SAI-213007/DP/CM/TYP/JUNC-01 TO 05 & 01A TO 05A FOR TYPICAL JUNCTION DETAILS

CLIENT :  Bihar State Road Development Corporation Limited (BSRDCL) (A Government of Bihar Undertaking) BSRDCL PIU-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 Plot-A, "SAI House", Sanyam Corporate Square, 8th, Rajpath Cross Road, Sector-1, Indira Nagar, New Delhi-110028 Phone : +91-11-26412600/700, Fax : +91-11-26412601 Email : info@saiengineers.com	<table border="1"><tr><th>REV.</th><th>DATE</th><th>DESCRIPTION</th><th>SIGN</th></tr><tr><td>RC</td><td>31/07/16</td><td>GOOD FOR CONSTRUCTION (REVISED DPR)</td><td></td></tr><tr><td>PF</td><td>29/12/16</td><td>GOOD FOR CONSTRUCTION (DPR)</td><td></td></tr><tr><td>PE</td><td>31/03/17</td><td>GOOD FOR CONSTRUCTION (DPR)</td><td></td></tr><tr><td>PD</td><td>10/04/14</td><td>GOOD FOR CONSTRUCTION (DPR)</td><td></td></tr><tr><td>PC</td><td>26/02/14</td><td>ISSUED WITH FINAL DPR</td><td></td></tr><tr><td>PE</td><td>04/01/14</td><td>ADDENDUM OF DPR</td><td></td></tr></table>	REV.	DATE	DESCRIPTION	SIGN	RC	31/07/16	GOOD FOR CONSTRUCTION (REVISED DPR)		PF	29/12/16	GOOD FOR CONSTRUCTION (DPR)		PE	31/03/17	GOOD FOR CONSTRUCTION (DPR)		PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)		PC	26/02/14	ISSUED WITH FINAL DPR		PE	04/01/14	ADDENDUM OF DPR		<table border="1"><tr><td>DRAWN BY : VLS.</td><td rowspan="3">TITLE: BAYSI - RAUTA (PACKAGE-I) ROAD FURNITURE PLAN KM. 0+000 TO KM. 2+000</td></tr><tr><td>CHECKED BY : HM.</td></tr><tr><td>APPROVED BY : C.S.</td></tr><tr><td>ISSUED BY : B.S.</td><td>DRG. NO. : SAI-213007/DP/CM/HRF - 01</td></tr><tr><td colspan="2">REVISION : PG</td></tr></table>	DRAWN BY : VLS.	TITLE: BAYSI - RAUTA (PACKAGE-I) ROAD FURNITURE PLAN KM. 0+000 TO KM. 2+000	CHECKED BY : HM.	APPROVED BY : C.S.	ISSUED BY : B.S.	DRG. NO. : SAI-213007/DP/CM/HRF - 01	REVISION : PG	
			REV.	DATE	DESCRIPTION	SIGN																																		
RC	31/07/16	GOOD FOR CONSTRUCTION (REVISED DPR)																																						
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DRAWN BY : VLS.	TITLE: BAYSI - RAUTA (PACKAGE-I) ROAD FURNITURE PLAN KM. 0+000 TO KM. 2+000																																							
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REVISION : PG																																								



Bihar State Road Development Corporation
Limited (BSRDL)
(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" Sakam Corporate Square, 8/1 Rajpath
Lubbock Road, Ahmednagar-414009, Maharashtra
Phone : +91-79-46112681/7940 Fax : +91-79-46112680
Email : mail@saiengineers.com

PG 28/07/19	GOOD FOR CONSTRUCTION (DPR) (REVISED DPR)	DRAWN BY : V.S.S.	TITLE: BAYSE - RAUTA (PACKAGE-I) ROAD REVISION PLAN KM. 2+000 TO KM. 4+000
PG 28/07/19	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : J.M.	
PG 31/03/17	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : G.S.	
PG 10/04/14	GOOD FOR CONSTRUCTION (DPR)	DESIGNED BY : B.S.	
PG 25/02/12	ISSUED WITH FINAL DPR		
PG 04/01/14	ADDENDUM OF DPR		
REV.	DATE	DESCRIPTION	SIGN
SCALE : 1:5000 			
DRG. NO. : SAI-213007/DPR/C/H/R/ - 02			REVISION : 02



NOTES:

1. ALL DIMENSIONS IN METRES UNLESS OTHERWISE MENTIONED
2. REFER DRAWING NO. SA1-213007/DP/RCM/TYP-01 FOR BUS SHELTER DETAILS
3. REFER DRAWING NO. SA1-213007/DP/RCM/TYP-04,04A, & 04B FOR ROAD SIGN
4. REFER DRAWING NO. SA1-213007/DP/RCM/TYP-05 FOR PROVIDE FOR IN BUSBAY & BUS STOP
5. REFER DRAWING NO. SA1-213007/DP/RCM/TYP-06 & D7 FOR ROAD MARKING
6. REFER DRAWING NO. SA1-213007/DP/RCM/TYP-08 FOR CRASH BARRIER DETAILS
7. REFER DRAWING NO. SA1-213007/DP/RCM/TYP-19 FOR RUBBER STRIP DETAILS
8. REFER DRAWING NO. SA1-213007/DP/RCM/TYP/JUNC-01 TO 05A & 01A TO 05A FOR TYPICAL JUNCTION DETAILS



BSRDC Mech.
Bihar Undertak
BSRDC
PU-Katihar

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



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

Block-A, "SAI House", Saijaya Corporate Square, Bldg. Rajjinhik,
Club Road, Ahmedabad-380 059 Gujarat, India.
Phone: +91-79-8612600/700 Fax: +91-79-8612600
Email: mail@saiconsult.com

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SAI-213007/DPR/CN/RE - 03

pradplot : no



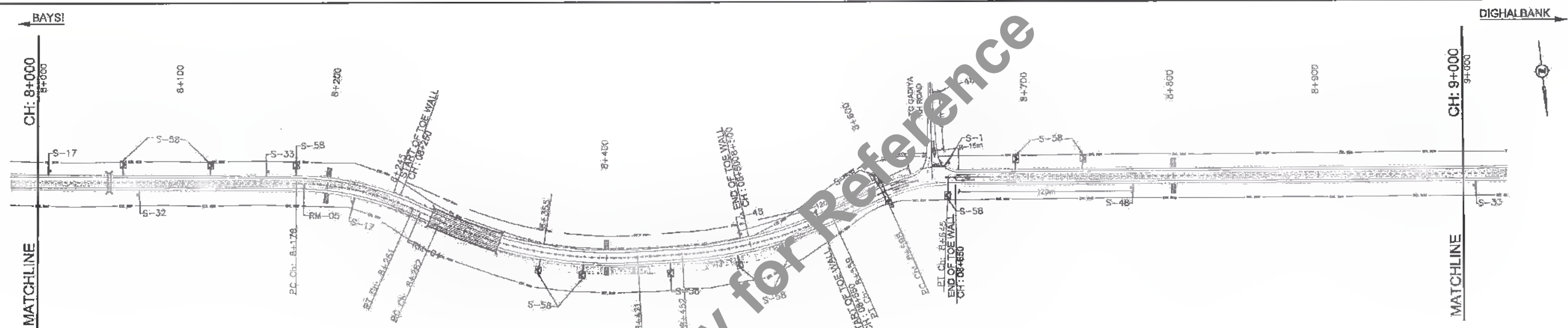
LEGEND

	CHEVRON SIGN
	CRASH BARRIER
	PEDESTRIAN GUARD RAIL
	STUDS

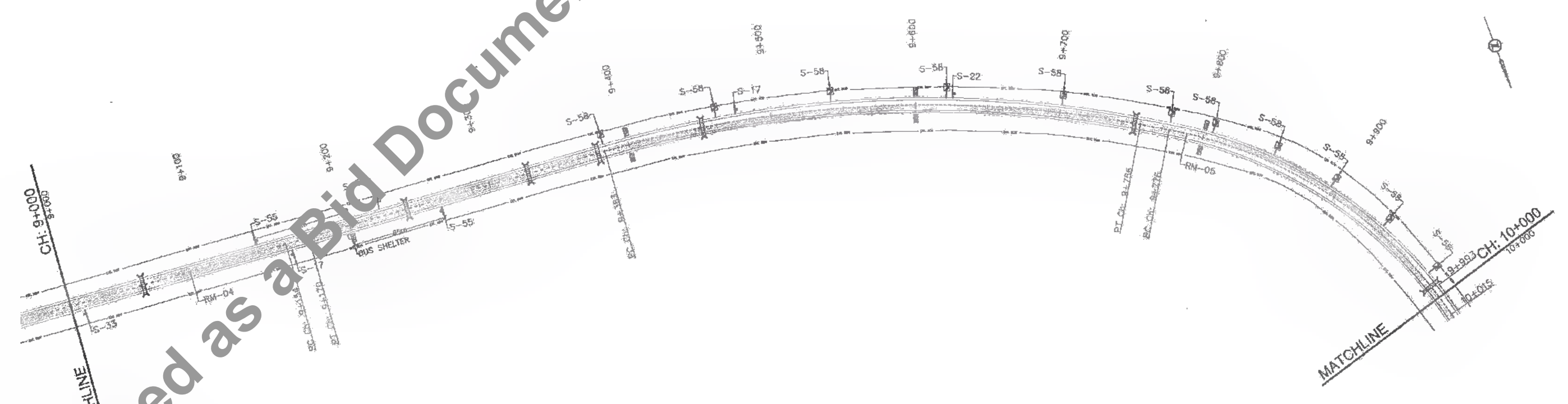
NOTES:-

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE MENTIONED
2. REFER DRAWING NO. SA-I-213007/DP/RC/INT/TPY-01 FOR BUS SHELTER DETAILS
3. REFER DRAWING NO. SA-I-213007/DP/RC/INT/TPY-04,04A, & 04B FOR ROAD SIGN
4. REFER DRAWING NO. SA-I-213007/DP/RC/INT/TPY-05 FOR PROVIDE PGR IN BUSSTOP & BUS STOP
5. REFER DRAWING NO. SA-I-213007/DP/RC/INT/TPY-06 & 07 FOR ROAD MARKING
6. REFER DRAWING NO. SA-I-213007/DP/RC/INT/TPY-08 FOR CRASH BARRIER DETAILS
7. REFER DRAWING NO. SA-I-213007/DP/RC/INT/TPY-09 FOR RUMBLE STRIP DETAILS
8. REFER DRAWING NO. SA-I-213007/DP/RC/INT/TPY-JUNC-01 TO 05 & 01A TO 05A FOR TYPICAL JUNCTION DETAILS

	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 Block-A "Sal House" Solihah Corporate Square, 8th Solihah Qasr, Doha, Al Khayma - 310099, Qatar Phone : +93-39-4517668/150 Fax : +93-39-5683320 Email : mal@salinfo.com	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"> PD 31/07/19 RF 28/07/18 RE 31/03/17 PC 10/05/14 PD 26/02/14 PD 04/02/14 GOOD FOR CONSTRUCTION (REVISED DPR) GOOD FOR CONSTRUCTION (DPR) GOOD FOR CONSTRUCTION (DPR) GOOD FOR CONSTRUCTION (DPR) ISSUED WITH FINAL BOPR ADDENDUM OF BOPR </td> <td style="width: 10%;"> DRAWN BY : V.L.S. CHECKED BY : K.M. APPROVED BY : C.S. ISSUED BY : B.S. TITLE : BAYSI - RAUTA (PACKAGE-I) ROAD FURNITURE PLAN KM. 6+000 TO KM. 8+000 </td> </tr> <tr> <td> <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: 40%;">DESCRIPTION</td> <td style="width: 10%;">SIGN</td> <td style="width: 30%;">ISSUED BY</td> </tr> <tr> <td colspan="5" style="text-align: center;"> SCALE : 1:2000 0m 20 0 40 80m </td> </tr> </table> </td> <td> DRG. NO. : SAL-213007/DPR/QH/RF - 04 REVISION : PG </td> </tr> </table>	PD 31/07/19 RF 28/07/18 RE 31/03/17 PC 10/05/14 PD 26/02/14 PD 04/02/14 GOOD FOR CONSTRUCTION (REVISED DPR) GOOD FOR CONSTRUCTION (DPR) GOOD FOR CONSTRUCTION (DPR) GOOD FOR CONSTRUCTION (DPR) ISSUED WITH FINAL BOPR ADDENDUM OF BOPR	DRAWN BY : V.L.S. CHECKED BY : K.M. APPROVED BY : C.S. ISSUED BY : B.S. TITLE : BAYSI - RAUTA (PACKAGE-I) ROAD FURNITURE PLAN KM. 6+000 TO KM. 8+000	<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: 40%;">DESCRIPTION</td> <td style="width: 10%;">SIGN</td> <td style="width: 30%;">ISSUED BY</td> </tr> <tr> <td colspan="5" style="text-align: center;"> SCALE : 1:2000 0m 20 0 40 80m </td> </tr> </table>	REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	SCALE : 1:2000 0m 20 0 40 80m					DRG. NO. : SAL-213007/DPR/QH/RF - 04 REVISION : PG
	PD 31/07/19 RF 28/07/18 RE 31/03/17 PC 10/05/14 PD 26/02/14 PD 04/02/14 GOOD FOR CONSTRUCTION (REVISED DPR) GOOD FOR CONSTRUCTION (DPR) GOOD FOR CONSTRUCTION (DPR) GOOD FOR CONSTRUCTION (DPR) ISSUED WITH FINAL BOPR ADDENDUM OF BOPR	DRAWN BY : V.L.S. CHECKED BY : K.M. APPROVED BY : C.S. ISSUED BY : B.S. TITLE : BAYSI - RAUTA (PACKAGE-I) ROAD FURNITURE PLAN KM. 6+000 TO KM. 8+000																
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REV.	DATE	DESCRIPTION	SIGN	ISSUED BY														
SCALE : 1:2000 0m 20 0 40 80m																		



Km. 8+000 To Km. 9+000



Km. 9+000 To Km. 10+000

- LEGEND**
- CHEVRON
 - CRASH BARRIER
 - PEDESTRIAN GUARD RAIL
- NOTES:**
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE MENTIONED
 2. REFER DRAWING NO. SAI-213007/DPR/CM/TYP-01 FOR BUS SHELTER DETAILS
 3. REFER DRAWING NO. SAI-213007/DPR/CM/TYP-04, 04A, & 04B FOR ROAD SIGN
 4. REFER DRAWING NO. SAI-213007/DPR/CM/TYP-05 FOR PROVIDE PGR IN BUBBAY & BUS STOP
 5. REFER DRAWING NO. SAI-213007/DPR/CM/TYP-06 & 07 FOR ROAD MARKING
 6. REFER DRAWING NO. SAI-213007/DPR/CM/TYP-08 FOR CRASH BARRIER DETAILS
 7. REFER DRAWING NO. SAI-213007/DPR/CM/TYP-19 FOR RUMBLE STRIP DETAILS
 8. REFER DRAWING NO. SAI-213007/DPR/CM/TYP/JUNG-01 TO 06 & 01A TO 05A FOR TYPICAL JUNCTION DETAILS

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
B-10, "Sai Home" Scheme Corporate Square, B-10, Rajpath, Conchik, New Delhi-110028
Phone : +91-11-26100700, Fax : +91-11-26100700
Email : mail@saiengg.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
PC	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		
PF	26/12/19	GOOD FOR CONSTRUCTION (DPR)		
PE	31/03/17	GOOD FOR CONSTRUCTION (DPR)		
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PC	26/02/14	ISSUED WITH FINAL DPR		
PD	04/01/14	APPROVAL OF DPR		

SCALE : 1:2000



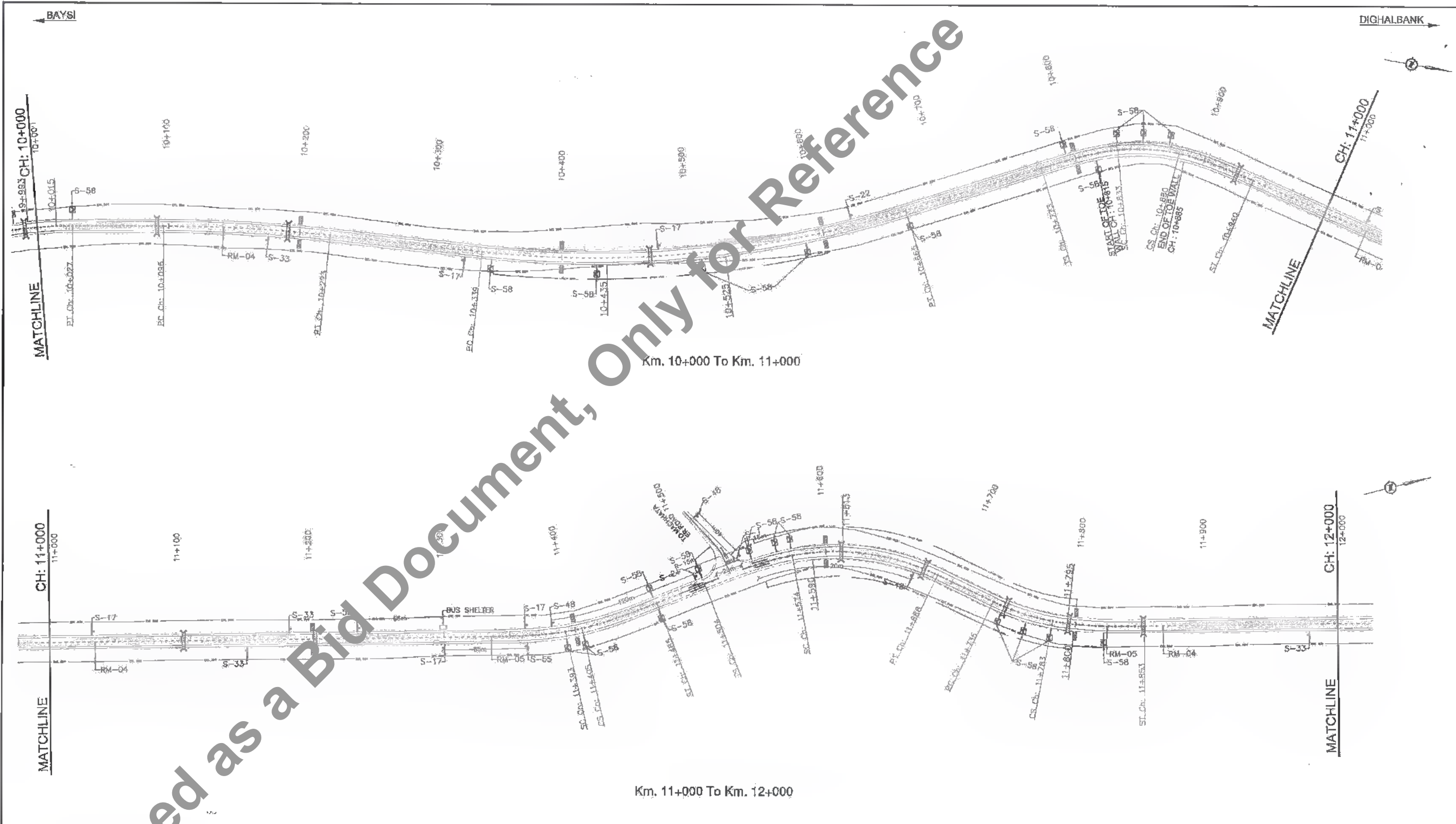
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ROAD FURNITURE PLAN
KM. 8+000 TO KM. 10+000

DRG. NO.: SAI-213007/DPR/CM/RF-05
REVISION: PG



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LEGEND
CHEVRON SIGN
CRASH BARRIER
PEDESTRIAN GUARDRAIL
STUDS

NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE MENTIONED
2. REFER DRAWING NO. SAI-213007/DP/RC/M/TYP - 01 FOR BUS SHELTER DETAILS
3. REFER DRAWING NO. SAI-213007/DP/RC/M/TYP - 04.04A & 04B FOR ROAD SIGN
4. REFER DRAWING NO. SAI-213007/DP/RC/M/TYP - 05 FOR PROVIDE PCR IN BUSBAY & BUS STOP
5. REFER DRAWING NO. SAI-213007/DP/RC/M/TYP - 06 & 07 FOR ROAD MARKING
6. REFER DRAWING NO. SAI-213007/DP/RC/M/TYP - 08 FOR CRASH BARRIER DETAILS
7. REFER DRAWING NO. SAI-213007/DP/RC/M/TYP - 10 FOR RUMBLE STRIP DETAILS
8. REFER DRAWING NO. SAI-213007/DP/RC/M/TYP - 01 TO 05 & 01A TO 05A FOR TYPICAL JUNCTION DETAILS

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
SYSTRA GROUP
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001:2015 Certified Company
Block-A "SAI House" Sanyam Corporate Square, 8th, Rajpath
110006 New Delhi-110009, India
Phone: +91-11-45122900/100 Fax: +91-11-45122903
Email: info@salindia.com

REV	DATE	DESCRIPTION	SKIN	ISSUED BY	DATE
1	31/07/19	GOOD FOR CONSTRUCTION (REVISED DRR)		Y.S.	
2	28/12/18	GOOD FOR CONSTRUCTION (DPR)		Y.S.	
3	31/03/17	GOOD FOR CONSTRUCTION (DPR)		Y.S.	
4	10/04/14	GOOD FOR CONSTRUCTION (DPR)		Y.S.	
5	20/02/14	ISSUED WITH FINAL DRR		Y.S.	
6	04/01/14	ADDITIONAL OF DRR		Y.S.	

DRG. NO.:	SAI-213007/DP/RC/M/TYP - 08
REVISION:	PG

TITLE: BAYSI - RAUTA (PACKAGE-I)
ROAD FURNITURE PLAN
KM. 10+000 TO KM. 12+000

SCALE: 1:2000
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NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE MENTIONED
2. REFER DRAWING NO. SAI-213067(DPR/CMT/TP -01) FOR BUS SHELTER DETAILS
3. REFER DRAWING NO. SAI-213067(DPR/CMT/TP -04,0A, & 04B FOR ROAD SIGN
4. REFER DRAWING NO. SAI-213067(DPR/CMT/TP -05 FOR PROVIDE FOR IN BUSBAY & BUS STOP
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6. REFER DRAWING NO. SAI-213067(DPR/CMT/TP -08 FOR CRASH BARRIER DETAILS
7. REFER DRAWING NO. SAI-213067(DPR/CMT/TP -19 FOR RUMBLE STRIP DETAILS
8. REFER DRAWING NO. SAI-213067(DPR/CMT/TP/JUNC-01 TO 05 & 01A TO 05A FOR TYPICAL JUNCTION DETAILS

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

CONSULTANTS:

SAI
SYSTRA GROUP

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

Block-A "SAI House", Sanyal Corporate Square, 6th Floor/6th
Link Road, 4th Avenue, 200039, Gurgaon, India
Phone : +91-12-6626184/180/181 +91-28-6642800
Email : mail@saiinfo.com

PT 31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : V.L.S.	TITLE: BAYSJ- RAUTA (PACKAGE-I) ROAD FURNITURE PLAN KM. 12+000 TO KM. 14+000
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PE 31/03/17	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : C.S.	
PD 10/04/18	GOOD FOR CONSTRUCTION (DPR)		
PG 26/02/14	ISSUED WITH FINAL DPR		
PR 04/01/14	ADDENDUM OF DPR	ISSUED BY : D.S.	
REV.	DATE	DESCRIPTION	SIGN
DRG. NO.: SAJ-213007/DPR/C/HRF - 07			REVISION: PG



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

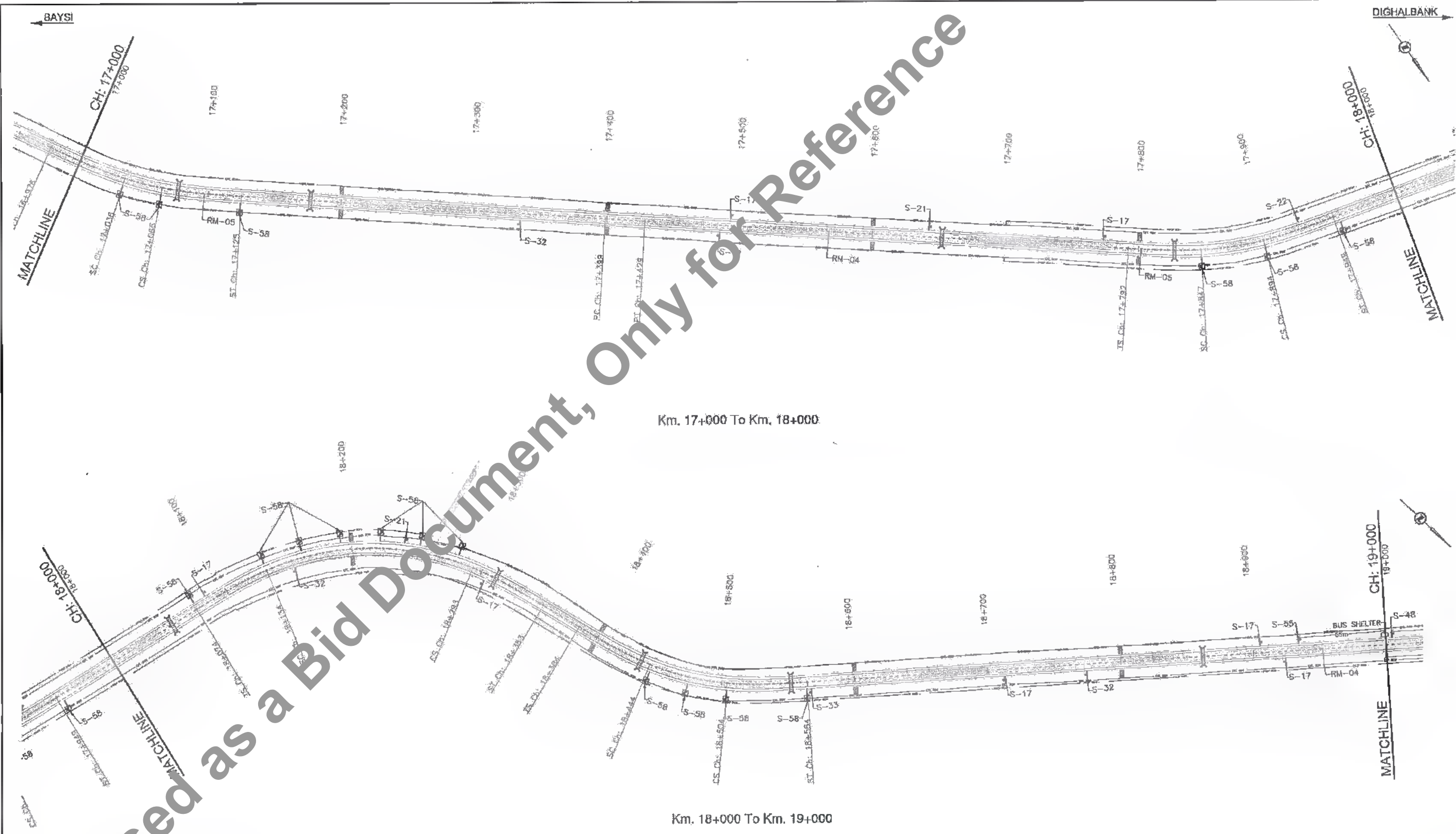
CONSULTANTS :

SAI
SYSTRA GROUP

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

Block-A, "SAI House" Sayram Caperade Square, 87th Main Road,
Chennai-600 094 (Above Metro-230057) (Near) SAI
Phone : +91-9-66362607100 Fax : +91-9-66342880
Email : sai@saiconsults.com

PG	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		DRAWN BY : V.L.B.	TITLE : BAYSI - RAUTA (PACKAGE-I)
FF	26/12/18	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY : H.M.	ROAD FURNITURE PLAN KM. 14+000 TO KM. 17+000
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FD	10/04/14	GOOD FOR CONSTRUCTION (DPR)			
PD	26/02/14	ISSUED WITH FINAL DPR ATTENDANCE OF DURS			
PG	04/03/14				
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY : D.S.	
SCALE : 1:2000		40m 20 0 40 80m		DRG. NO. : SAI-213007/DPR/CH/RF - 08 REVISION : PG	



LEGEND

- CHEVRON SIGN
- CRASH BARRIER
- PEDESTRIAN GUARD RAIL
- STOPS

NOTES:

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7. REFER DRAWING NO. SAI-213007/DPR/CIW/TYP-19 FOR RUMBLE STRIP DETAILS
8. REFER DRAWING NO. SAI-213007/DPR/CIW/TYP/PLUNG-01 TO 05 & 01A TO 05A FOR TYPICAL JUNCTION DETAILS

CLIENT :

 **Bihar State Road Development Corporation Limited (BSRIDC)**
(A Government 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-1, Connaught Place, New Delhi-110028
Phone : +91-11-26102000 Fax : +91-11-26102000
Email : mail@saiengineers.com

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PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PC	28/02/14	ISSUED WITH FINAL DPR		
PE	04/01/14	ADDENDUM OF DPR		

SCALE : 1:2000

40m 20m 0 40m 80m

TITLE : BAYSJ - RAUTA (PACKAGE-I)
ROAD FURNITURE PLAN
KM. 17+000 TO KM. 19+000

ORG. NO. : SAI-213007/DPR/CIW/HRF - 08
REVISION : PG





CONSULTANTS :

SAI
SYSTRA GROUP

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

Block-A, "Sai Bhumi" Saitop Corporate Square, 4th, 5th, 6th
Floor, Panchsheel, New Market, 540009, Gurgaon, India
Phone : +91-79-569-2607/7900 Fax : +91-79-569-2609
Email : mail@saiindia.com

PG PC PE PD PC PD	31/07/18 20/12/18 31/03/19 10/04/19 28/02/19 04/01/19	GOOD FOR CONSTRUCTION (REVISED DPR) GOOD FOR CONSTRUCTION (DPR) GOOD FOR CONSTRUCTION (DPR) GOOD FOR CONSTRUCTION (DPR) ISSUED WITH FINAL DPR ADDITIONAL OF DPR	DRAWN BY : V.L.S. CHECKED BY : H.M. APPROVED BY : S.S.	TITLE : BAYS1 - RAUTA (PACKAGE-I) ROAD FURNITURE PLAN KM. 19+000 TO KM. 21+000
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY : S.S.
SCALE : 1:2000 			DRG. NO. : SAI-21S007/DPR/CH-VRF - 10 REVISION : PS	

DATE: 2019/07/31 - 11:18am
PATH: C:\Users\raut\AppData\Local\Temp\AsPublish_2906\101_IMP_Km 0+000 To Km 45+000.dwg



LEGEND
CHEVRON SIGN
CRASH BARRIER
PEDESTRIAN GUARD RAIL
STOP SIGN

NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE MENTIONED
2. REFER DRAWING NO. SAI-213007/DPR/C/M/TYP - 01 FOR BUS SHELTER DETAILS
3. REFER DRAWING NO. SAI-213007/DPR/C/M/TYP - 04, 04A, & 04B FOR ROAD SIGN
4. REFER DRAWING NO. SAI-213007/DPR/C/M/TYP - 06 FOR PROVIDE PGR IN BUSBAY & BUS STOP
5. REFER DRAWING NO. SAI-213007/DPR/C/M/TYP - 06 & 07 FOR ROAD MARKING
6. REFER DRAWING NO. SAI-213007/DPR/C/M/TYP - 08 FOR CRASH BARRIER DETAILS
7. REFER DRAWING NO. SAI-213007/DPR/C/M/TYP - 10 FOR RUMBLE STRIP DETAILS
8. REFER DRAWING NO. SAI-213007/DPR/C/M/TYP/UNION-01 TO 05 & 01A TO 05A FOR TYPICAL JUNCTION DETAILS

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	SIGN.	ISSUED BY :	S.S.
PG	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		DRAWN BY :	V.L.S.
PT	28/12/18	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY :	H.M.
PE	31/03/19	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY :	C.S.
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)			
PC	28/02/14	ISSUED WITH FINAL DPR			
PR	06/01/14	ADDITION OF DPR			

TITLE: **BAYSI - RAUTA (PACKAGE-I)**
ROAD FURNITURE PLAN
KM. 21+000 TO KM. 22+005

DRG. NO. : **SAI-213007/DPR/C/M/R/F - 11**

REVISION : PG



DATE: 10/01/18 - 3544m
PATH: T:\CITYAD 213007 BIHAR\REVISED DPR\CHINA\DR JUNCTION\PACKAGE-III\01.HAL_Km 0+000 To Km 4.5 -000.dwg

LEGEND
CHEVRON SIGN
CRASH BARRIER
PEDESTRIAN GUARD RAIL
NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE MENTIONED.
2. REFER DRAWING NO. SAI-213007/DPR/CH/MTYP-08 & 07 FOR ROAD MARKING.
3. REFER DRAWING NO. SAI-213007/DPR/CH/MTYP-04, 04A & 04B FOR ROAD SIGN.
4. REFER DRAWING NO. SAI-213007/DPR/CH/MTYP-06 FOR CRASH BARRIER DETAILS
5. REFER DRAWING NO. SAI-213007/DPR/CH/MTYP-05 FOR PROVIDE PGR IN BUSSTOP & BUS STOP
6. REFER DRAWING NO. SAI-213007/DPR/CH/MTYP/JUNC-01 TO 05 & 01A TO 05A FOR TYPICAL JUNCTION DETAILS

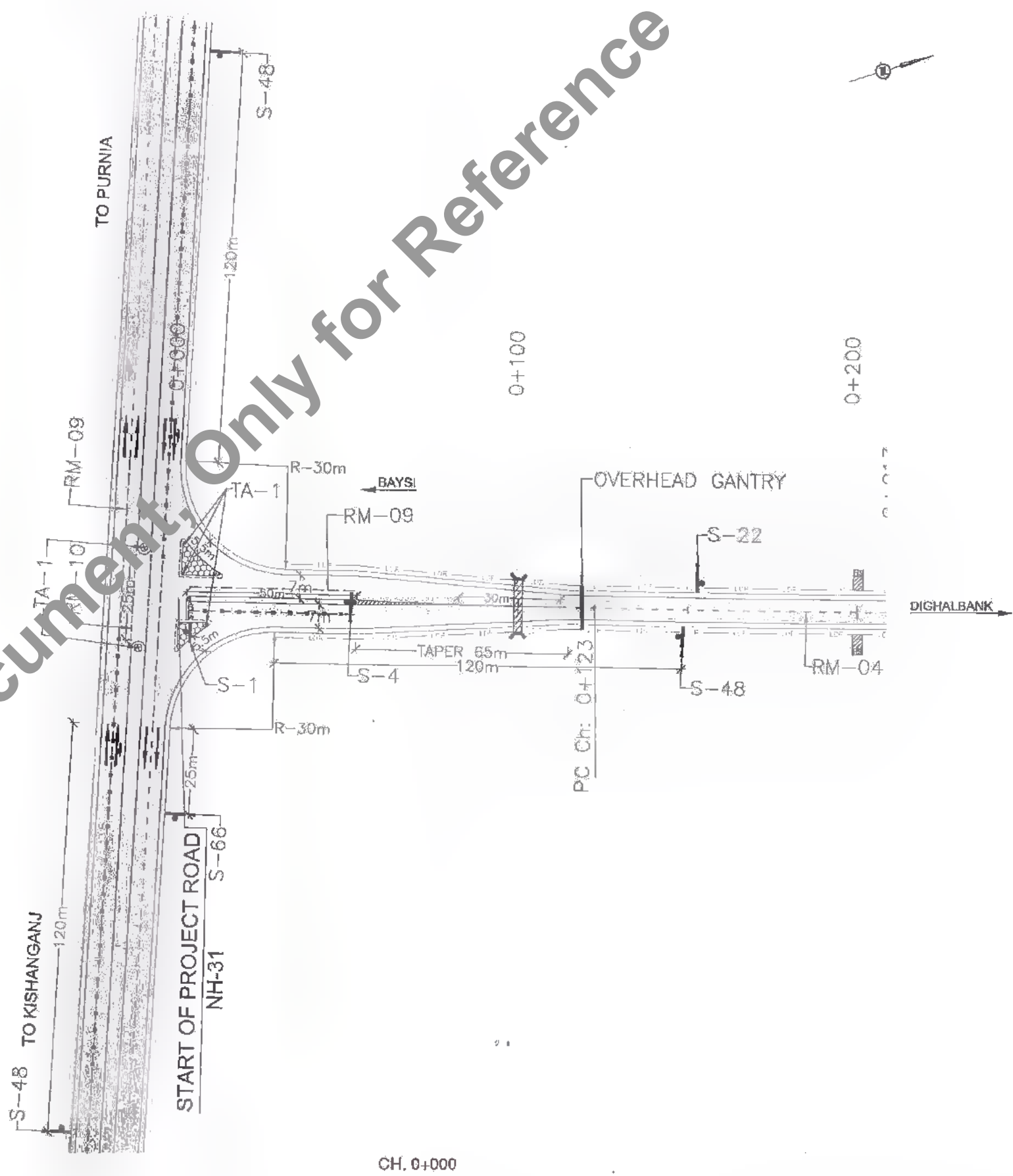
CLIENT:
**Bihar State Road Development Corporation Limited (BSRDCL)**
(A Government of Bihar Undertaking)

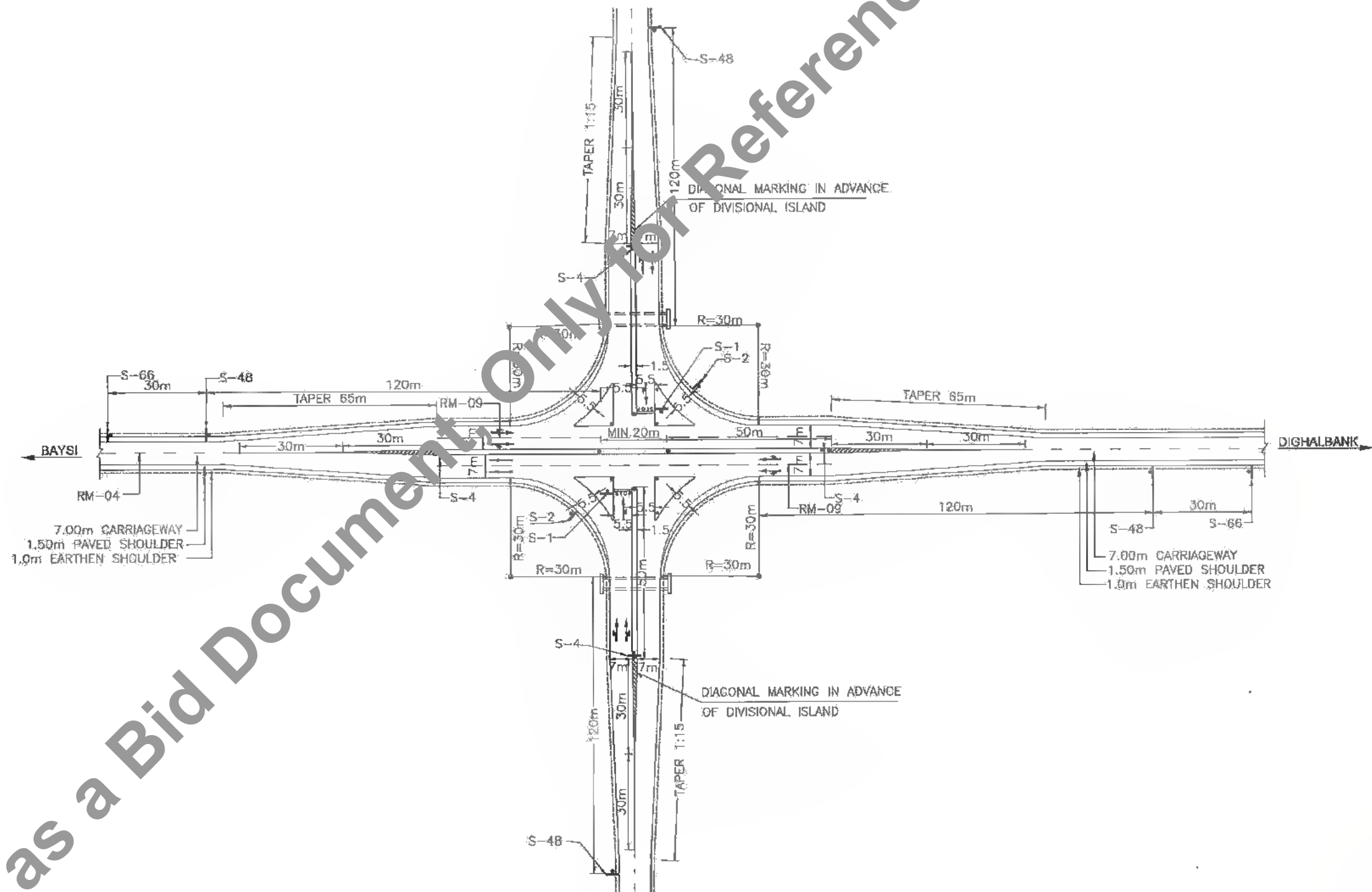
PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
**SAI Consulting Engineers Pvt. Ltd.**
An ISO 9001 Certified Company
Block-A "SAI House" Solihum Corporate Square, 8th Bughath
Old Sector 4, Gandhinagar, Gandhinagar, Gandhinagar, Gandhinagar
Phone: +91-79-4314280/7100 Fax: +91-79-4314280
Email: saiconsulting@gmail.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
PE	31/07/17	GOOD FOR CONSTRUCTION (REVISED DPR)		
PC	30/12/18	GOOD FOR CONSTRUCTION (DPR)		
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PC	25/02/14	ISSUED WITH FINAL DOPR		
PC	13/11/13	ISSUED WITH DOPR		

TITLE: BAYSI - RAUTA
(PACKAGE-I)
MAJOR JUNCTION
AT Km 0+000
DRG. NO.:
SAI-213007/DPR/CH/MTYP-01
REVISION: PE





NOTES :-

1. ALL DIMENSIONS ARE AS NOTED.
2. CROSS DRAIN PIPE CULVERT OF NP4 1200 mm ϕ SHALL BE PROVIDED AS PER THE SITE CONDITION AT DITCH LOCATION AS DIRECTED BY THE ENGINEER.
3. LEFT TURN RADIUS SHOULD NOT BE LESS THEN 15m.
4. FOR DETAILS SIGN BOARD DWG. REFER DWG.NO.SAI-213007/DPR/M/TYP-04,04A & 04B
5. FOR PAVEMENT MARKING DETAILS REFER DWG.NO.SAI-213007/DPR/M/TYP-07 & 08

6. 'RM' REPRESENT ROAD MARKING.
7. 'R' REPRESENT RADIUS.

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" Saltra Corporate Square, B/4 Rajpath
Chandrasekhar, Ahmednagar-430009, Solapur (Mh)
Phone : +91-20-6663482/190, Fax : +91-20-6663480
Email : mail@spindia.com

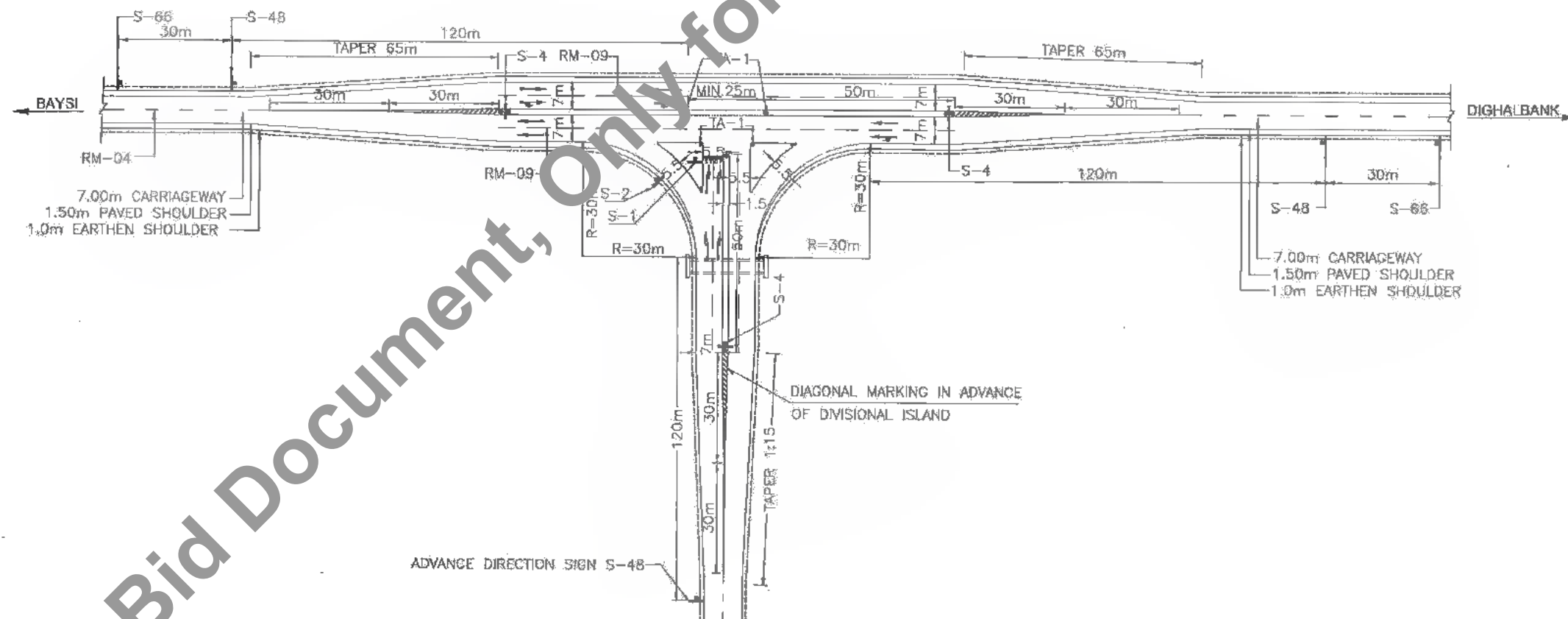
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PF	28/12/10	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY : C.S.	
PE	16/04/14	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY : S.S.	
PD	26/02/14	ISSUED WITH FINAL DPR		ISSUED BY : S.S.	
PC	13/11/13	ISSUED WITH DPR			
PA	15/07/13	ISSUED WITH FFR			

TITLE : **BAYSI - RAJITA (PACKAGE-I)**

TYPICAL LAYOUT OF FOUR LEGGED CHANNELISED JUNCTION WITH PAVED SHOULDER

DRG. NO. : **SAI-213007/DPR/M/TYP/JUNC - 01**

REVISION : PG



NOTES:-

1. ALL DIMENSIONS ARE AS NOTED.
2. CROSS DRAIN PIPE CULVERT OF NP4 1200 mm ϕ SHALL BE PROVIDED AS PER THE SITE CONDITION AT DITCH LOCATION AS DIRECTED BY THE ENGINEER.
3. LEFT HAND RADIUS SHOULD NOT BE LESS THEN 15m.
4. FOR DETAILS SIGN BOARD DWG. REFER DWG.NO.SAI-213007/DPR/M/TYP-04.04A & 04B
5. FOR PAVEMENT MARKING DETAILS REFER DWG.NO.SAI-213007/DPR/M/TYP-07 & 08

6. 'RM' REPRESENT ROAD MARKING.
7. 'R' REPRESENT RADIUS.



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", Solihum Corporate Square, Bih Rajgohat,
C/O. P. K. Sharma, Ahmedabad-380057, Gujarat, India
Phone : +91-79-8542050/700 Fax : +91-79-8542050
Email : mail@saiconsulting.com

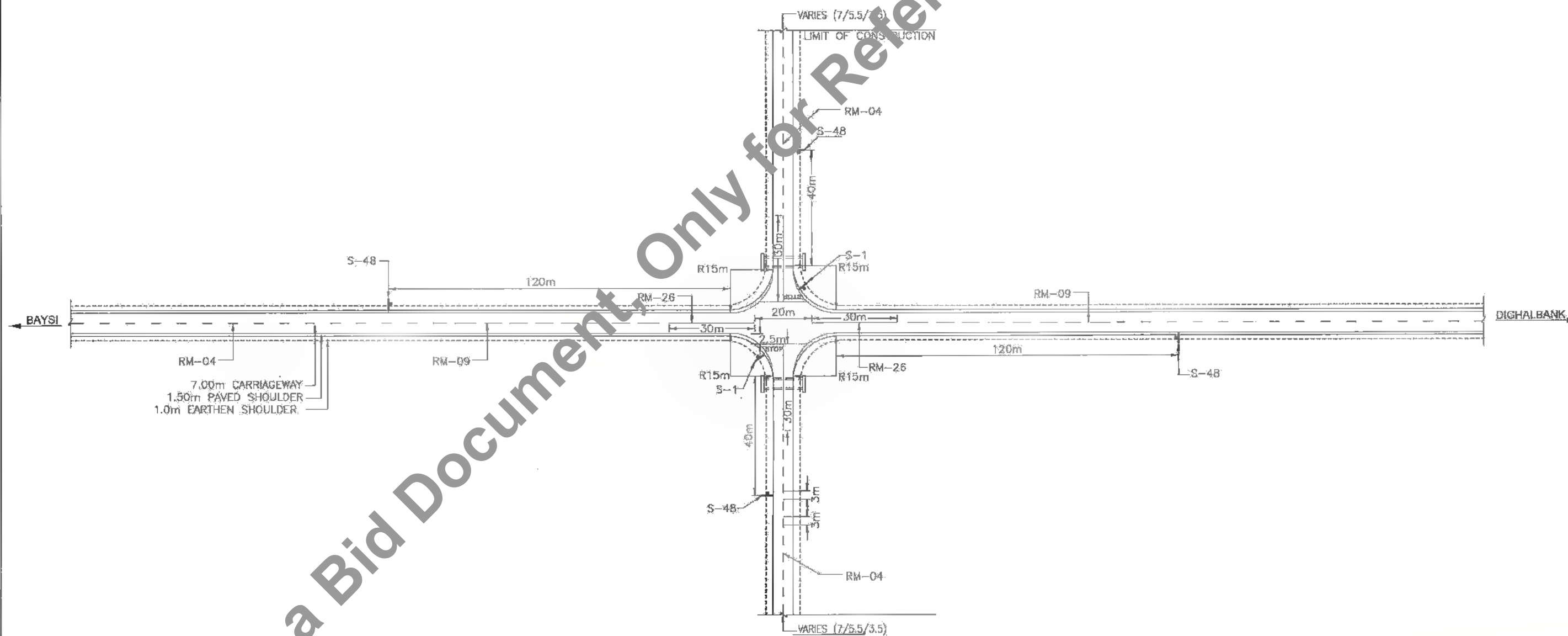
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PE	28/12/18	GOOD FOR CONSTRUCTION (DPR)
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)
PD	26/02/14	ISSUED WITH FINAL DPR
PC	13/11/13	ISSUED WITH DPR
PS	15/07/13	ISSUED WITH DPR

DRAWN BY :	R.M.
CHECKED BY :	C.S.
APPROVED BY :	J.D.
ISSUED BY :	R.S.

TITLE :	BAYSI - RAUTA (PACKAGE-I)
	TYPICAL LAYOUT OF THREE LEGGED CHANNELISED JUNCTION WITH PAVED SHOULDER

REV.	DATE	DESCRIPTION	SIGN
SCALE :	NONE		

DRG. NO. :	SAI-213007/DPR/M/TYP/JUNC - 02
REVISION :	PG



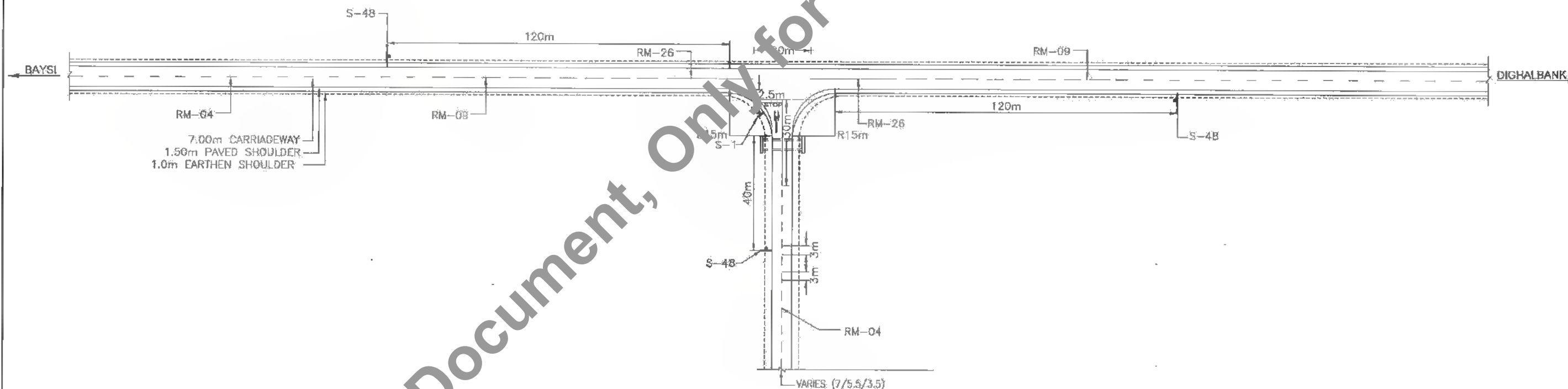
NOTES:-

1. ALL DIMENSIONS ARE AS NOTED.
2. CROSS DRAIN PIPE CULVERT OF NP4 1200 mm ϕ SHALL BE PROVIDED AS PER THE SITE CONDITION AT DITCH LOCATION AS DIRECTED BY THE ENGINEER.
3. LEFT TURN RADIUS SHOULD NOT BE LESS THEN 15m.
4. FOR DETAILS SIGN BOARD DWG. REFER DWG.NO:SAI-213007/DPR/M/TYP-04,04A & 04B
FOR PAVEMENT MARKING DETAILS REFER DWG.NO:SAI-213007/DPR/M/TYP-07 & 08
5. 'RM' REPRESENT ROAD MARKING.
6. 'R' REPRESENT RADIUS.

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, 8th Rajpath Chh. Bhabha Nagar, Khandasari - 200059, Gurgaon, India Phone : +91-79-45142800/7000 Fax : +91-79-45142800 Email : saiconsulting@gmail.com		<table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>SIGN</th> <th>ISSUED BY</th> </tr> <tr> <td>01</td> <td>31/07/19</td> <td>GOOD FOR CONSTRUCTION (REVISED DPR)</td> <td></td> <td></td> </tr> <tr> <td>02</td> <td>26/12/19</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> </tr> <tr> <td>03</td> <td>10/04/20</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> </tr> <tr> <td>04</td> <td>26/02/20</td> <td>ISSUED WITH FINAL DPR</td> <td></td> <td></td> </tr> <tr> <td>05</td> <td>13/11/20</td> <td>ISSUED WITH DPR</td> <td></td> <td></td> </tr> <tr> <td>06</td> <td>15/07/21</td> <td>ISSUED WITH DPR</td> <td></td> <td></td> </tr> </table>		REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	01	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)			02	26/12/19	GOOD FOR CONSTRUCTION (DPR)			03	10/04/20	GOOD FOR CONSTRUCTION (DPR)			04	26/02/20	ISSUED WITH FINAL DPR			05	13/11/20	ISSUED WITH DPR			06	15/07/21	ISSUED WITH DPR			<table border="1"> <tr> <td> DRAWN BY : R.M. CHECKED BY : C.S. APPROVED BY : A.P. </td> <td> TITLE : BAYSI - RALYA (PACKAGE-B) TYPICAL LAYOUT OF LEFT-IN LEFT-OUT FOUR LEGGED JUNCTION WITH PAVED SHOULDER DRG. NO. : SAI-213007/DPR/M/TYP/04C - 06 REVISION : PG </td> </tr> </table>		DRAWN BY : R.M. CHECKED BY : C.S. APPROVED BY : A.P.	TITLE : BAYSI - RALYA (PACKAGE-B) TYPICAL LAYOUT OF LEFT-IN LEFT-OUT FOUR LEGGED JUNCTION WITH PAVED SHOULDER DRG. NO. : SAI-213007/DPR/M/TYP/04C - 06 REVISION : PG
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY																																										
01	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)																																												
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DRAWN BY : R.M. CHECKED BY : C.S. APPROVED BY : A.P.	TITLE : BAYSI - RALYA (PACKAGE-B) TYPICAL LAYOUT OF LEFT-IN LEFT-OUT FOUR LEGGED JUNCTION WITH PAVED SHOULDER DRG. NO. : SAI-213007/DPR/M/TYP/04C - 06 REVISION : PG																																													

DATE: 2019/07/31 16:30am
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1003
674



NOTES :-

1. ALL DIMENSIONS ARE AS NOTED.
2. CROSS MAIN PIPE CULVERT OF NP4 1200 mm ϕ SHALL BE PROVIDED AS PER THE SITE CONDITION AT DITCH LOCATION AS DIRECTED BY THE ENGINEER.
3. MIN TURN RADIUS SHOULD NOT BE LESS THEN 15m.
4. FOR DETAILS SIGN BOARD DWG. REFER DWG.NO.SAI-213007/DPR/M/TYP-04.04A & 04B
5. FOR PAVEMENT MARKING DETAILS REFER DWG.NO.SAI-213007/DPR/M/TYP-07 & 08

6. 'RM' REPRESENT ROAD MARKING.
7. 'R' REPRESENT RADIUS.



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
SYSTRA GROUP

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

Block-A "SAI House", Satguru, Expendia Square, 8th Floor,
Old, Saket, New Delhi-110005, India
Phone : +91-11-46112400/100 Fax : +91-11-46112400
Email : mail@saiengineers.com

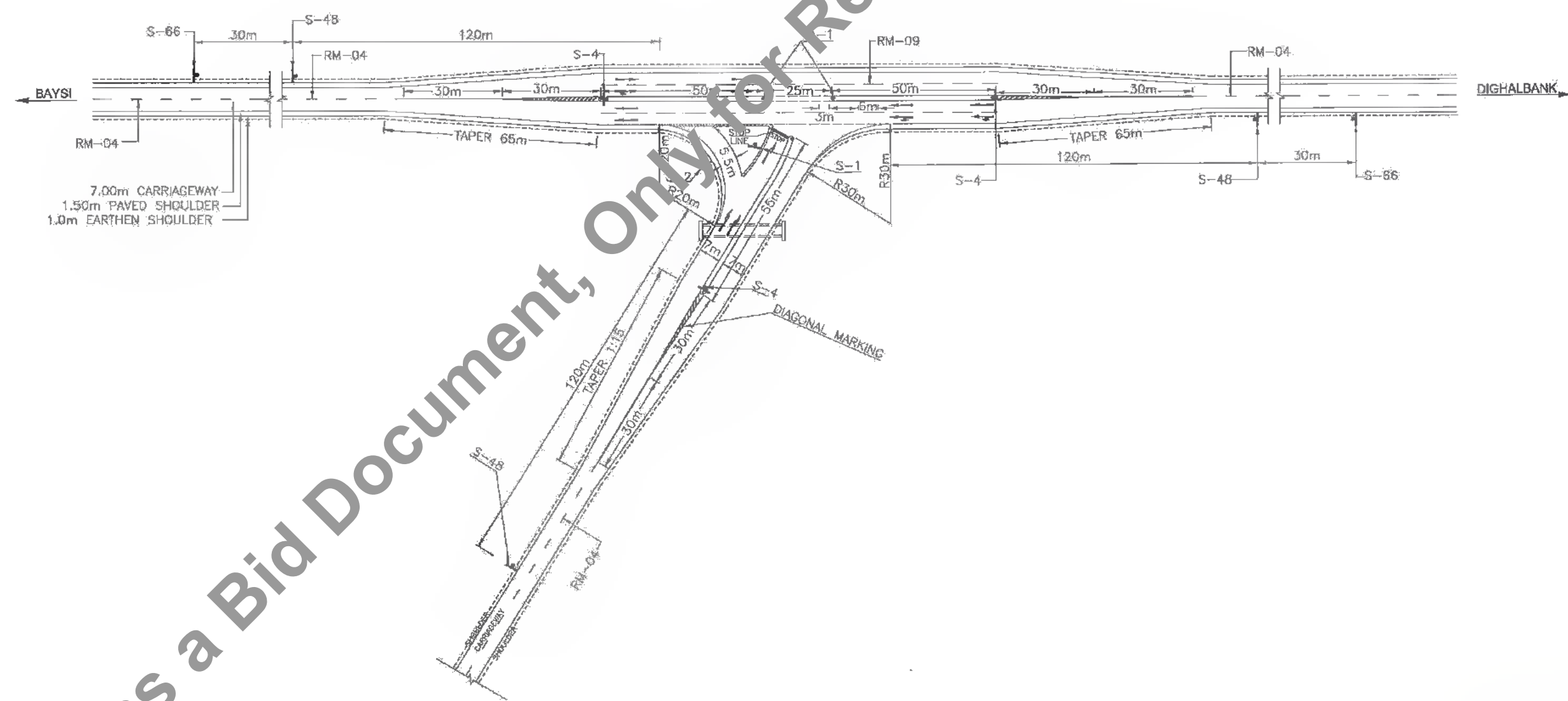
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PE	10/04/14	GOOD FOR CONSTRUCTION (DPR)	
PD	26/02/14	ISSUED WITH FINAL DPR	
PC	13/11/13	ISSUED WITH DPR	
PB	15/07/13	ISSUED WITH FFE	

DRAWN BY : R.S.
CHECKED BY : C.S.
APPROVED BY : J.D.
ISSUED BY : B.S.

TITLE: BAYSI - RAUTA
(PACKAGE-I)
TYPICAL LAYOUT OF
LEFT-IN LEFT-OUT
THREE LEGGED JUNCTION
WITH PAVED SHOULDER

DRG. NO.:
SAI-213007/DPR/M/TYP/JUNC - 04
REVISION : PG





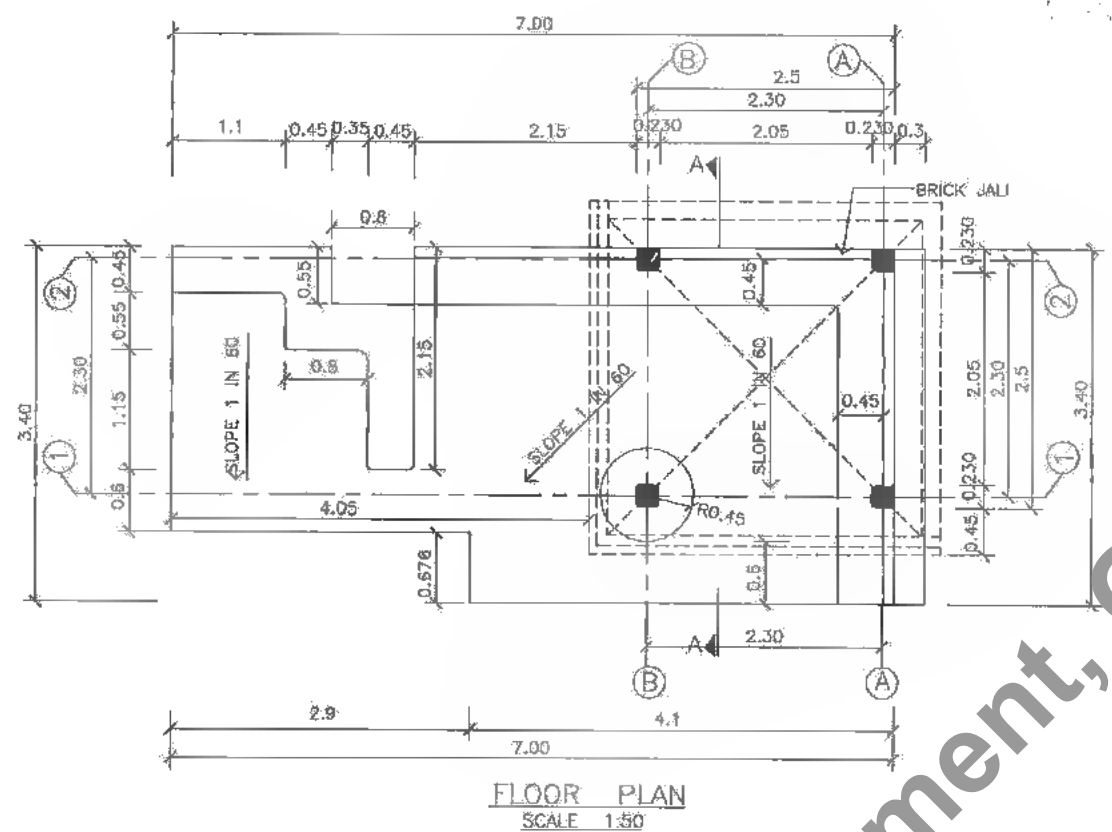
NOTES:-

1. ALL DIMENSIONS ARE AS NOTED.
2. CROSS DRAIN PIPE CULVERT OF NP4 1200 mmØ SHALL BE PROVIDED AS PER THE SITE CONDITION AT DITCH LOCATION AS DIRECTED BY THE ENGINEER.
3. LEFT TURN RADIUS SHOULD NOT BE LESS THEN 15m.
4. FOR DETAILS SIGN BOARD DWG. REFER DWG.NO.SAI-213007/DPR/M/TYP-04,04A & 04B
FOR PAVEMENT MARKING DETAILS REFER DWG.NO.SAI-213007/DPR/M/TYP-07 & 08

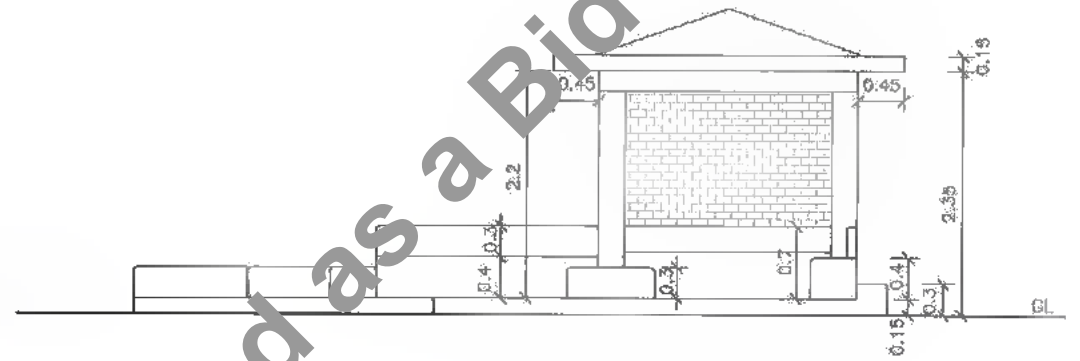
6. 'RM' REPRESENT ROAD MARKING.
7. 'R' REPRESENT RADIUS.

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' Satyam Corporate Square, 8th Floor, Dab, Dehli, New Delhi-110059, India Phone : +91-11-26112000/2001 Fax : +91-11-26112001 Email : saic@saiconsulting.com		<table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>SIGN</th> <th>ISSUED BY</th> </tr> <tr> <td>01</td> <td>31/07/10</td> <td>GOOD FOR CONSTRUCTION (REVISED DPR)</td> <td></td> <td>RAJ.</td> </tr> <tr> <td>02</td> <td>28/12/10</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td>C.S.</td> </tr> <tr> <td>03</td> <td>10/04/14</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td>J.B.</td> </tr> <tr> <td>04</td> <td>26/02/14</td> <td>ISSUED WITH FINAL DPR</td> <td></td> <td>B.S.</td> </tr> <tr> <td>05</td> <td>13/11/15</td> <td>ISSUED WITH DPR</td> <td></td> <td></td> </tr> <tr> <td>06</td> <td>13/07/13</td> <td>ISSUED WITH FTR</td> <td></td> <td></td> </tr> </table>		REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	01	31/07/10	GOOD FOR CONSTRUCTION (REVISED DPR)		RAJ.	02	28/12/10	GOOD FOR CONSTRUCTION (DPR)		C.S.	03	10/04/14	GOOD FOR CONSTRUCTION (DPR)		J.B.	04	26/02/14	ISSUED WITH FINAL DPR		B.S.	05	13/11/15	ISSUED WITH DPR			06	13/07/13	ISSUED WITH FTR			TITLE: BAYSI - RAJITA (PACKAGE-2) TYPICAL LAYOUT OF THREE LEGGED CHANNELISED Y JUNCTION WITH PAVED SHOULDER DRG. NO.: SAI-213007/DPR/M/TYP/JUNC-05 REVISION: PG	
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01	31/07/10	GOOD FOR CONSTRUCTION (REVISED DPR)		RAJ.																																								
02	28/12/10	GOOD FOR CONSTRUCTION (DPR)		C.S.																																								
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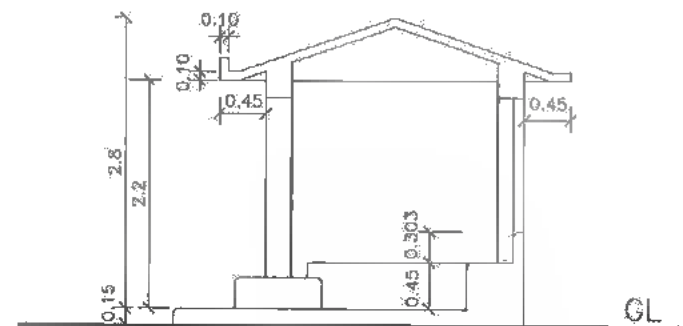


FLOOR PLAN
SCALE 1:50

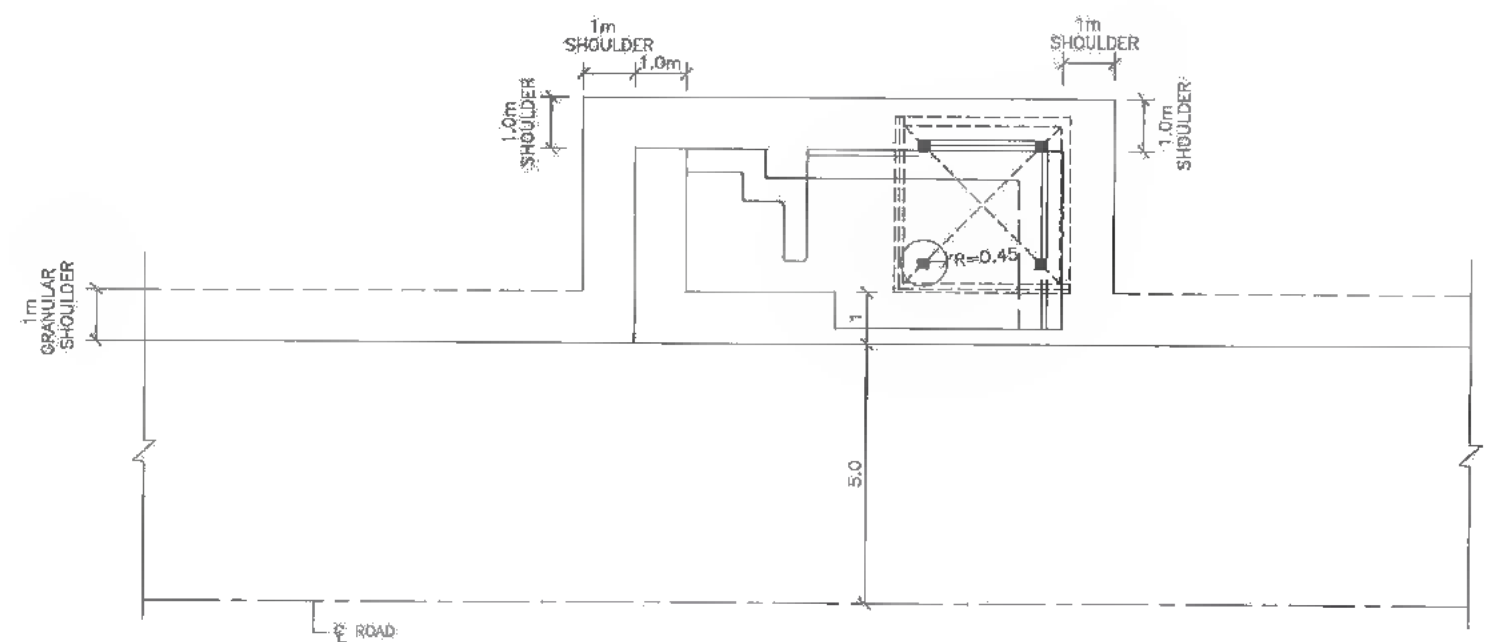


FRONT ELEVATION
SCALE 1:50

NOTE:
BRICK WORK SHOULD BE EXPOSED WITH POINTED JOINTS AS PER
MOST TECHNICAL SPECIFICATION CLAUSE 1003 AND 1300



SECTION AA
SCALE 1:50



SITE PLAN
SCALE 1:100

- NOTES:-
1. REFER DRAWING NO. SAI-213007/DPR/M/TYP-01A FOR STRUCTURAL DETAILS.
 2. HONEY-COMBED BRICK WALL TO BE CONSTRUCTED ON WEST OR SOUTH SIDE OF THE STRUCTURE EXCEPT WHERE BUS-STOP FACES WEST. THE SIZE AND PATTERN OF OPENINGS TO BE DECIDED BY THE ENGINEER AS PER AVAILABLE BRICK SIZE.
 3. ALL CONCRETE SURFACES SHOULD BE FINISHED AS PER MOST TECHNICAL SPECIFICATION CLAUSE 1714.



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

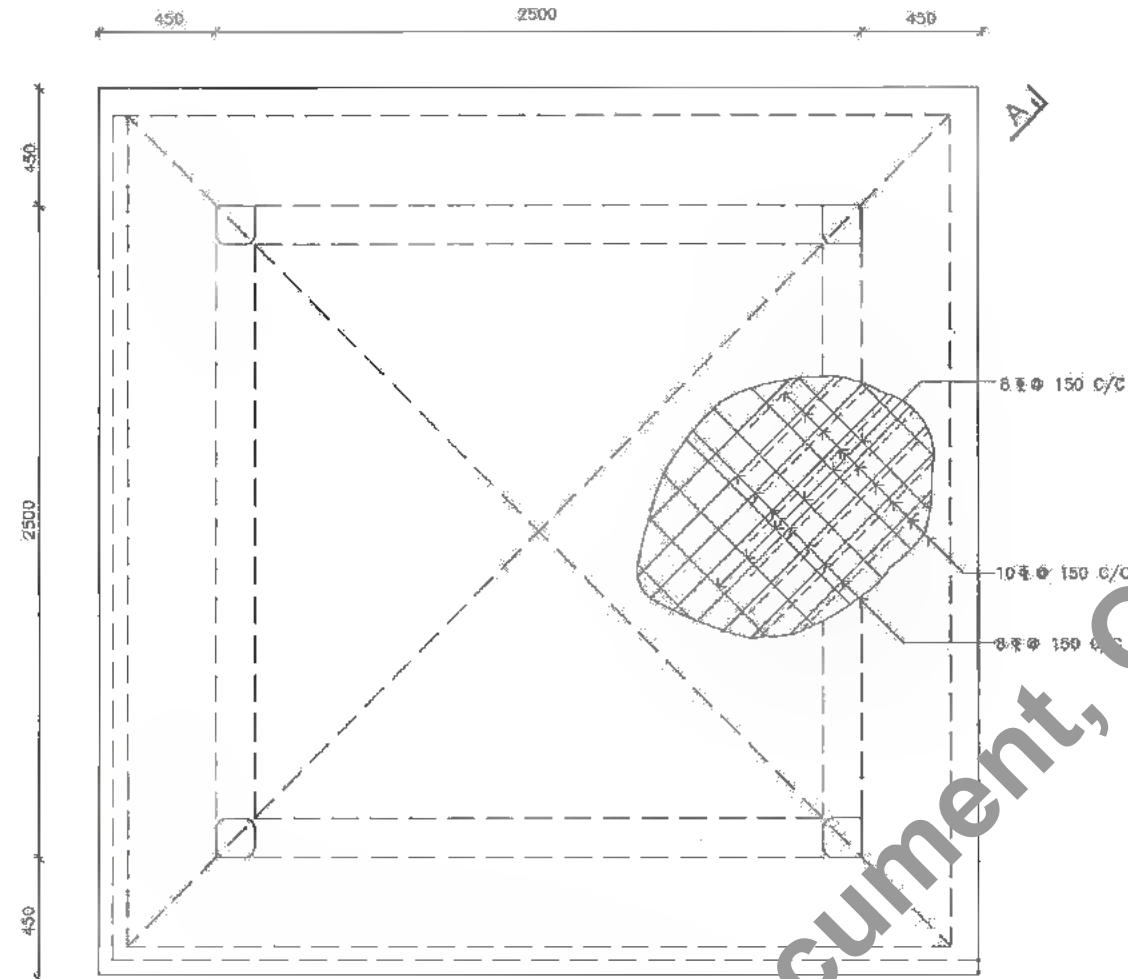
PROJECT:
Consultancy Services for Preparation of Detailed Project
Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "Sai House" 3rd Floor, Corporate Square, 8th Region,
Club Road, Sector-4, Gurgaon-122001, Gujarat, India
Phone : +91-79-66462600/7700 Fax : +91-79-66462600
Email : mail@saiindia.com

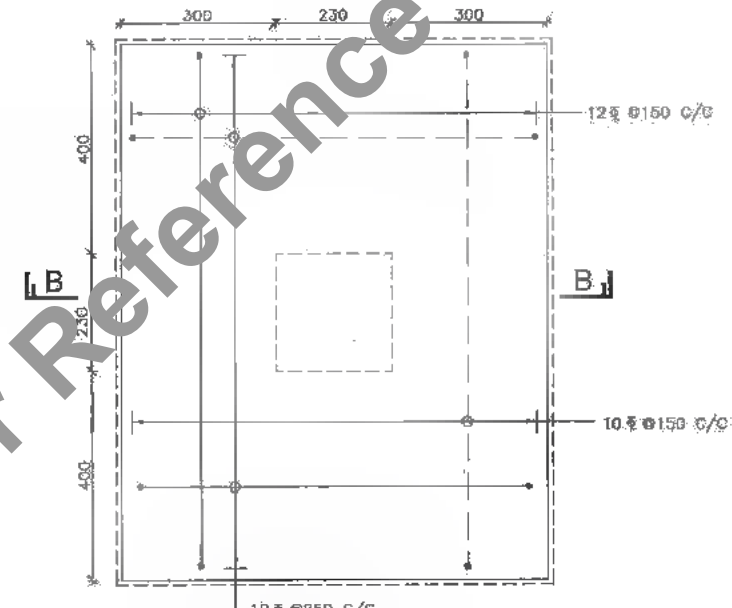
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PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	
PD	25/02/14	ISSUED WITH FINAL DPR	
PC	13/11/13	ISSUED WITH FINAL DPR	
PD	20/08/13	ISSUED WITH FER	

TITLE: BAYSI - RAUTA
(PACKAGE-4)
GENERAL ARRANGEMENT
DRAWING FOR BUS SHELTER
DRG. NO.:
SAI-213007/DPR/M/TYP-01
REVISION: PH

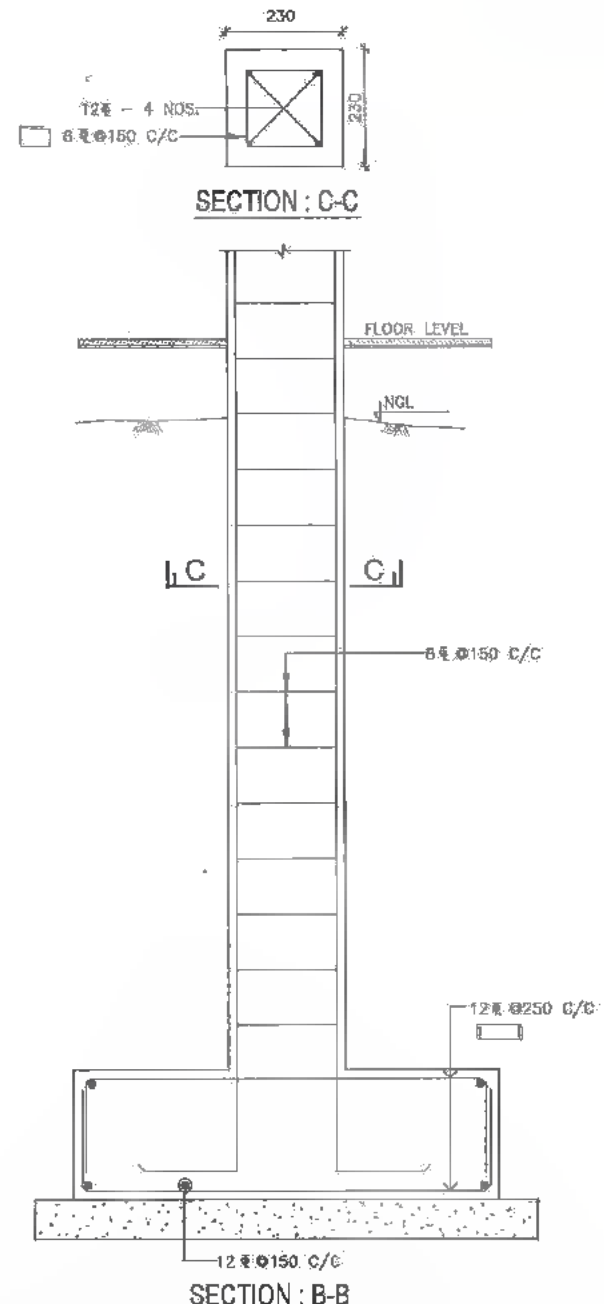




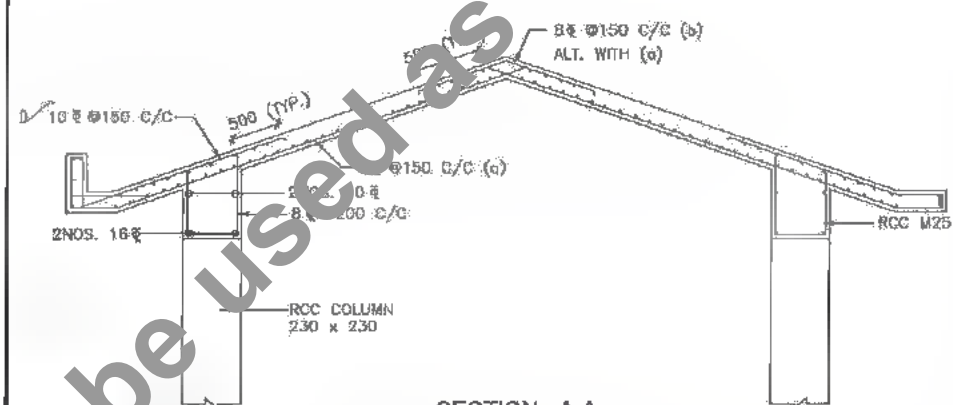
REINFORCEMENT DETAILS FOR SLAB
SCALE 1:10



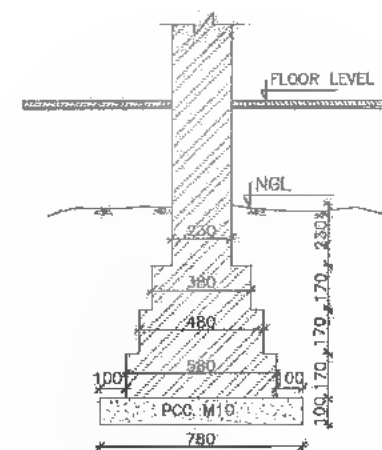
FOOTING FOR RCC COLUMN
REIN. DETAILS
(SCALE 1:10)



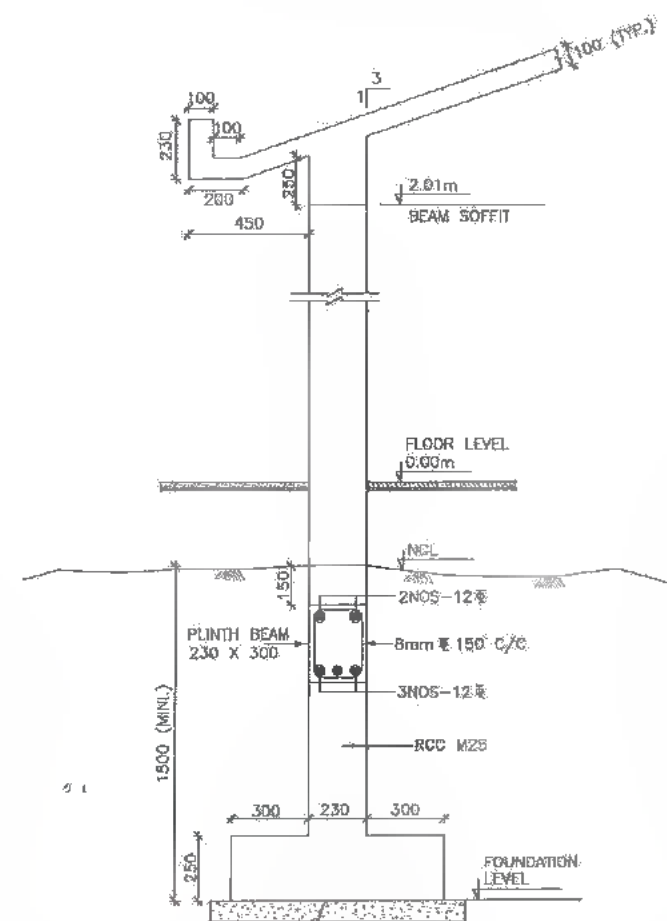
SECTION : C-C



SECTION : A-A
SCALE 1:10



FOUNDATION DETAILS
FOR 230 THK. BRICK MASONRY
SCALE 1:10



FOUNDATION DETAILS FOR RCC
COLUMN 230 x 230
SCALE 1:10

- NOTES :**
1. ALL DIMENSIONS ARE IN mm AND ALL LEVELS ARE IN m. UNLESS OTHERWISE MENTIONED.
 2. DIMENSIONS SHOULD NOT BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 3. THIS DRAWING HAS TO BE READ IN CONJUNCTION WITH SAI-213007/DPR/M/TYP-01
 4. GRADE OF CONCRETE IS M25 FOR ALL R.C.C. WORKS.
 5. THE MIX SHALL BE DESIGN MIX CONFORMING TO THE REQUIREMENTS OF IS 456-2000.
 6. CLEAR COVER TO REINFORCEMENTS SHALL BE AS GIVEN BELOW.
SLAB = 20mm
COLUMN = 40mm
BEAM = 25mm
OTHER R.C.C. MEMBERS = 25mm
 7. ONLY HYSD BARS OF GRADE Fe415/Fe500 SHALL BE USED FOR REINFORCEMENT.
 8. LAP LENGTH, HOOK, ETC., WHEREVER NECESSARY SHALL BE PROVIDED AS PER IS 456-2000 AND AS DIRECTED BY THE ENGINEER.
 9. DESIGN HAS BEEN CARRIED OUT AS PER IS 456-2000. FOR DESIGN OF FOOTING SAFE BEARING CAPACITY OF SOIL HAS BEEN CONSIDERED 75 KN/m².
 10. AT THE TIME OF CONSTRUCTION CONTRACTOR SHOULD PLACE THE LONGER SIDE OF THE FOOTING PARALLEL TO THE PREDOMINANT DIRECTION OF WIND.

- LEGEND :**
1. TOP REINFORCEMENT SHOWN THIS: ————
 2. BOTTOM REINFORCEMENT SHOWN THIS: ————



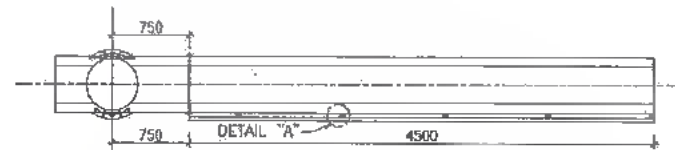
CLIENT : Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)

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

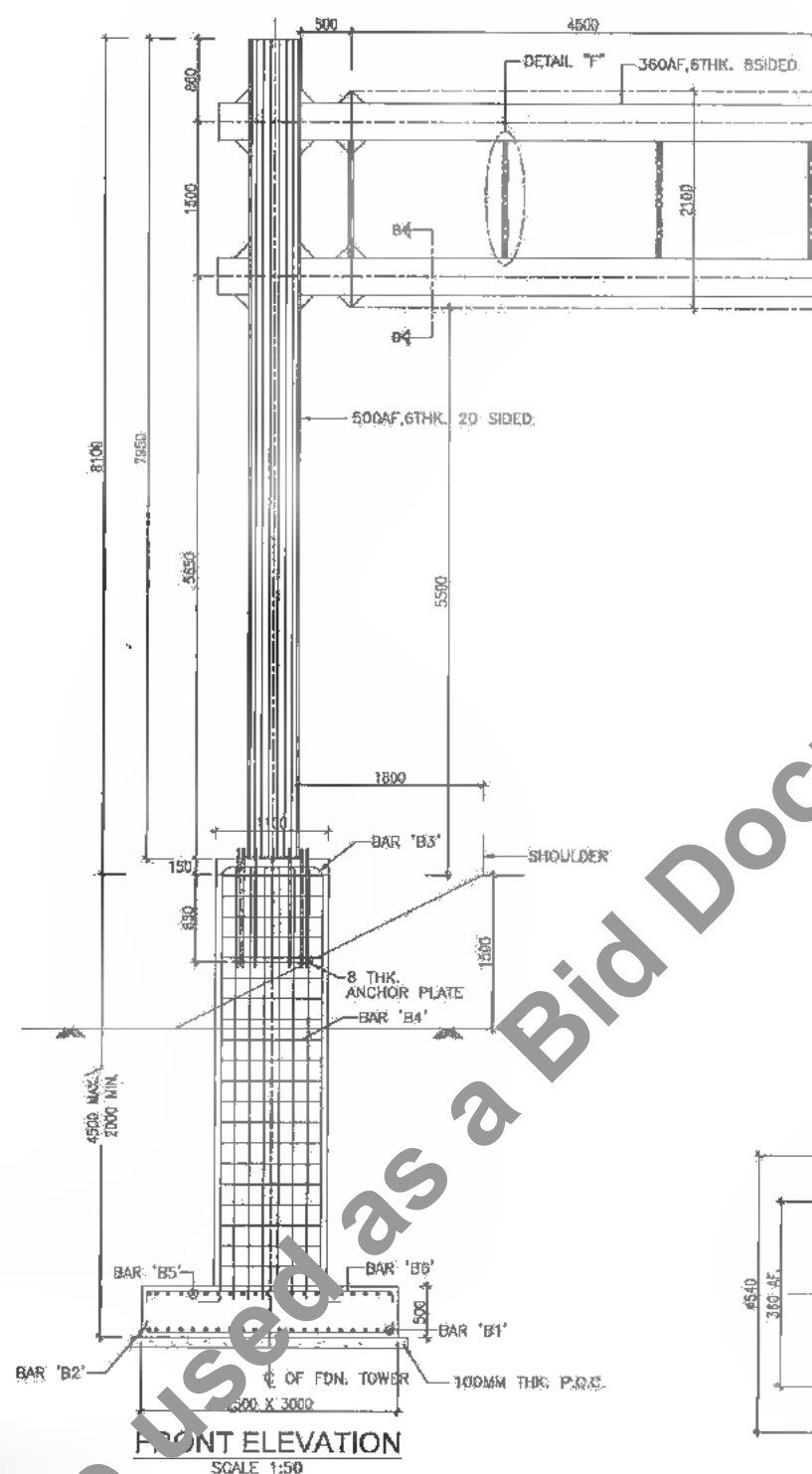
CONSULTANTS : SAI Consulting Engineers, Pvt. Ltd. An ISO 9001 Certified Company

PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : R.A.	TITLE : BAYSI - RAUTA (PACKAGE-I)
PC	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : C.S.	STRUCTURAL DETAIL FOR BUS SHELTER
PF	13/05/17	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : J.D.	
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	ISSUED BY : G.S.	
PC	25/02/14	ISSUED WITH FINAL DPR		
PC	15/11/13	ISSUED WITH DPR		
PC	25/09/13	ISSUED WITH ETR		
REV.	DATE	DESCRIPTION	SIGN	DRG. NO. : SAI-213007/DPR/M/TYP-01A
				REVISION : PH

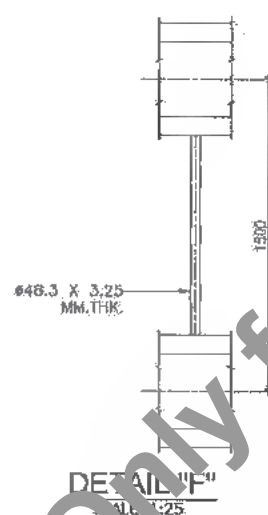
SCALE : AS SHOWN



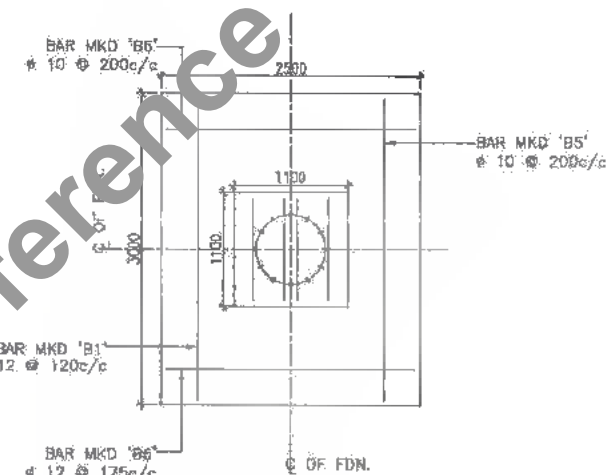
PLAN
SCALE 1:50



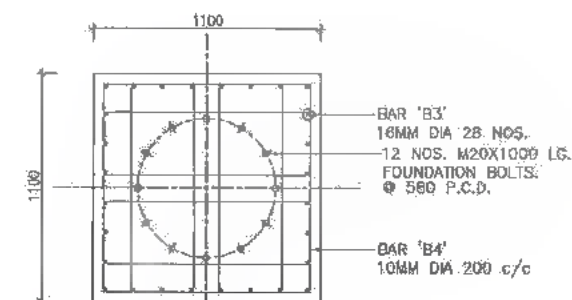
FRONT ELEVATION
SCALE 1:50



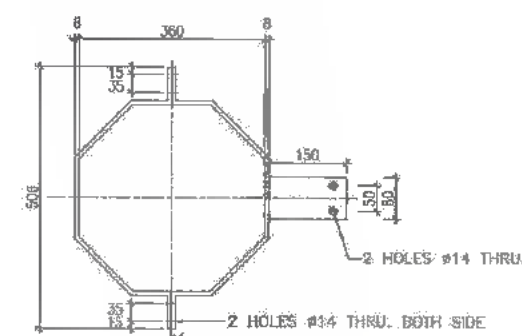
DETAIL "F"



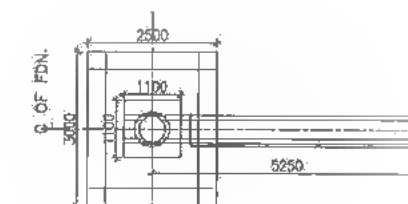
FOUNDATION PLAN
SCALE 1:50



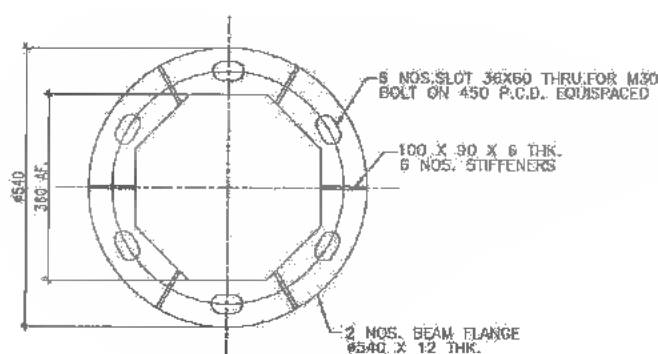
DETAIL OF PEDESTAL
SCALE 1:25



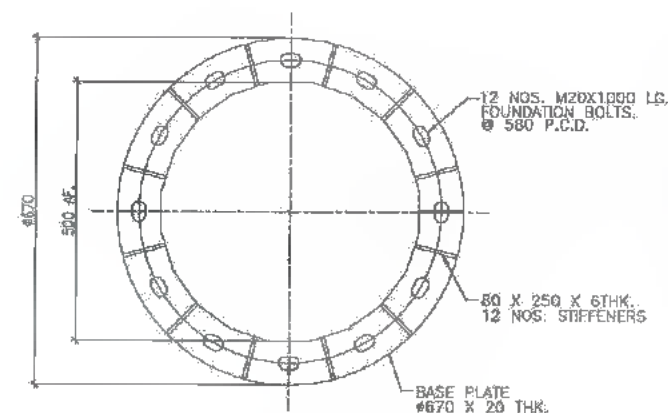
DETAIL-A
SCALE 1:10.



ORIENTATION DETAIL



SECTION B-B
SCALE 1:10



BASE PLATE DETAIL
SCALE 1:10

- GENERAL NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. MATERIAL OF CONSTRUCTION: CONCRETE-M-ZO
REINFORCEMENT-Fe-415
P.C.C-1:4:8
POLYGONAL SECTION-S355JO AS PER BS EN 10025 OR EQUI-
OTHER-Fe410 OR EQUI AS PER 2052
 3. COVER TO ALL REINFORCEMENT-SOUM
 4. MINIMUM LAP LENGTH OF BARS SHALL BE 39 X DIA.
 5. FOUNDATION SHOULD REST ON VIRGIN SOIL, IF SAID S.B.C IS NOT AVAILABLE AT
SPECIFIED FOUNDATION LEVEL, IT SHOULD BE TAKEN DEEPER.
 6. WAST FLANGE SHOULD REMAIN UNGROUTED FOR DRAINAGE & VENTILATION.
 7. IF WAST FLANGE IS GROUTED WITH-4 NOS OF 25MM DIA DUCTS SHALL BE PLACED
AROUND IT TO ALLOW DRAINAGE & VENTILATION.
 8. FOUNDATION IS DESIGNED CONSIDERING NET SAFE BEARING CAPACITY AS 127/SQMM
 9. PLEASE VERIFY THE BOLT DETAILS BEFORE CASTING THE FOUNDATION.
 10. FINISH-HOT DIP GALVANIZED AS PER BS EN 1461.
 11. HARDWARE : ALL THE HARDWARE SHALL BE HOT DIP GALVANIZED.



**Bihar State Road Development Corporation
Limited (BSRDSL)
(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)**

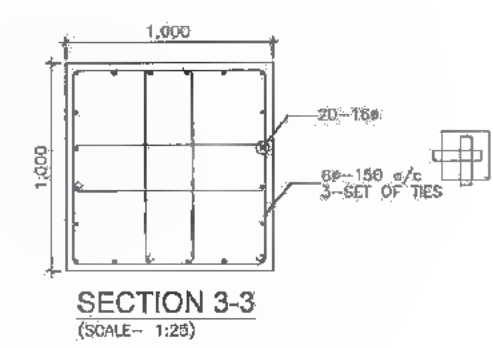
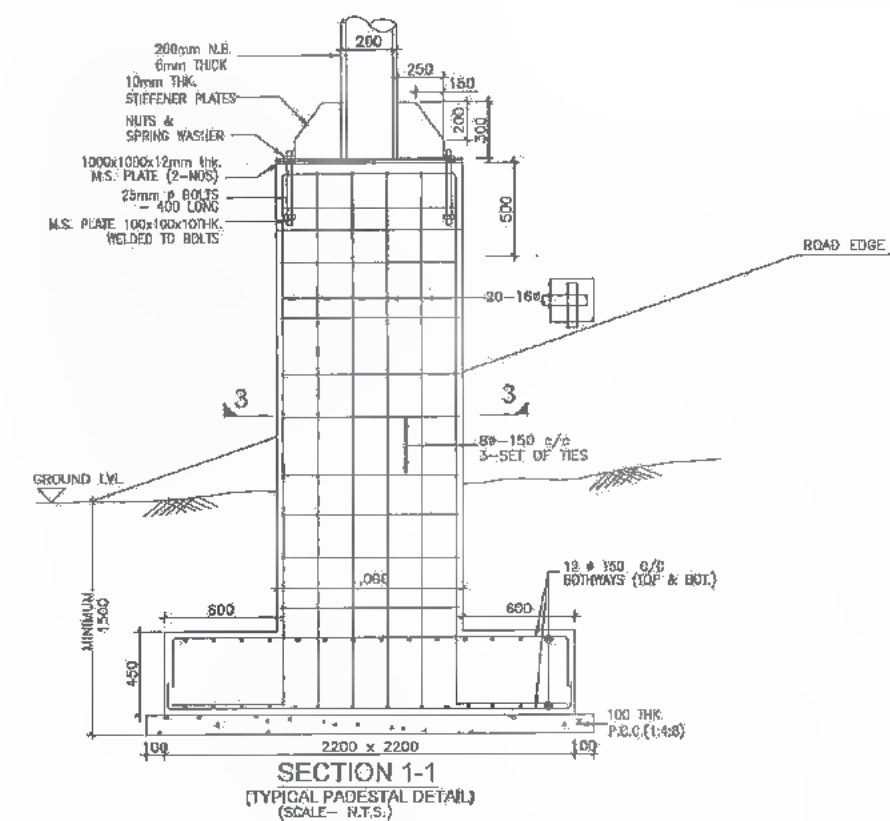
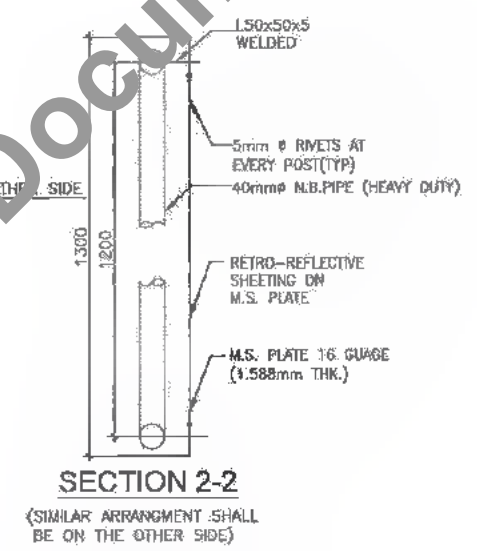
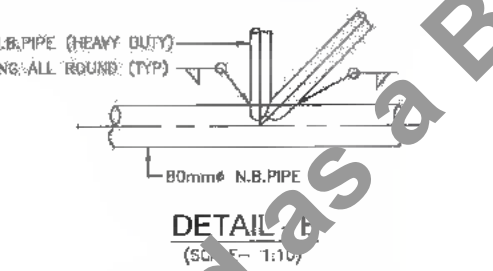
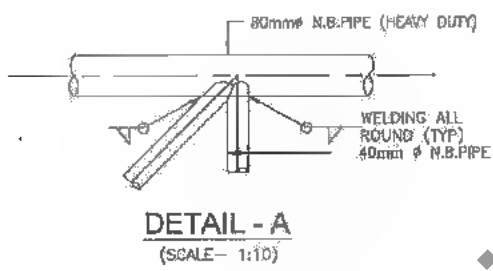
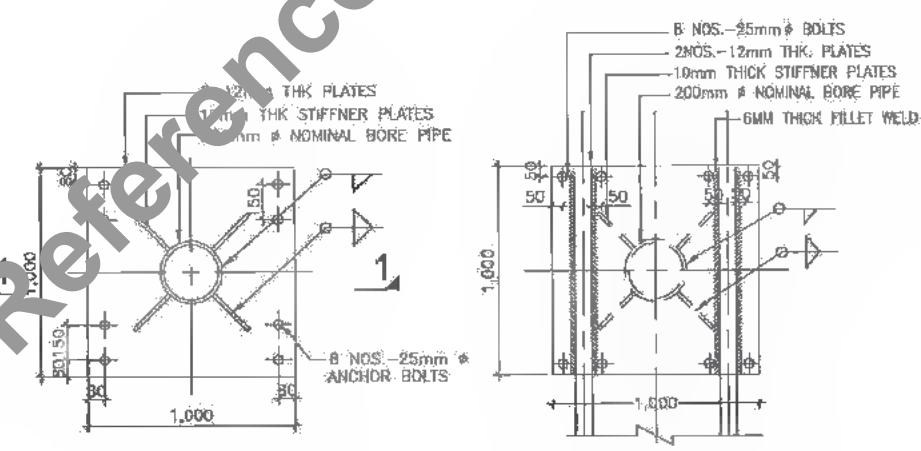
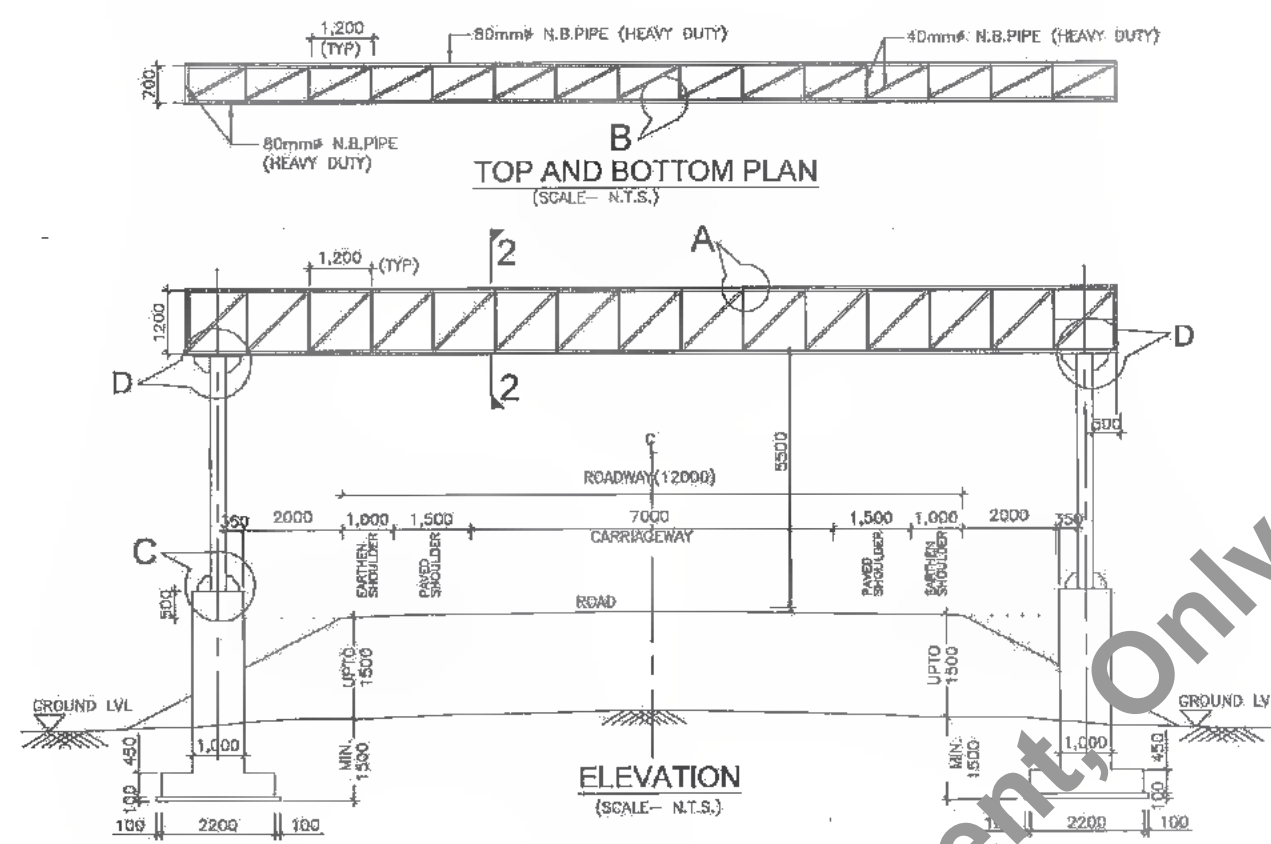
CONSULTANTS*



S&I Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company

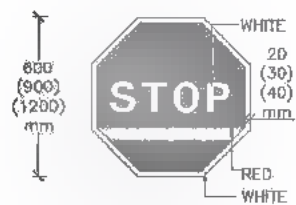
Block-A "SAI House",Satyam Corporate Square, B/h Rajpath
Club,Bhadrabad,Ahmedabad-380059 Gujarat,India
Phone : +91-79-46342600/700,Fax :+91-79-46142880
E-mail: info@satyamsai.com

PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	GRAPH BY : R.JL	TITLE: BAYSII- RAUTA (PACKAGE-I) TYPICAL DETAILS OF OVER HEAD SIGNS
CP	17/12/19	GOOD FOR CONSTRUCTION (DPR)		
PC	31/03/19	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : G.S.	
PE	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : J.D.	
PD	26/02/14	ISSUED WITH FINAL DPR		
PC	13/11/13	ISSUED WITH DPR		
PD	28/06/13	ISSUED WITH FFR		
REV.	DATE	DESCRIPTION	SIGN	ISSUED BY : G.S.
SCALE : AS SHOWN				DRG. NO. : SAI-213007/DPR/M/TYP -02
				REVISION : PH

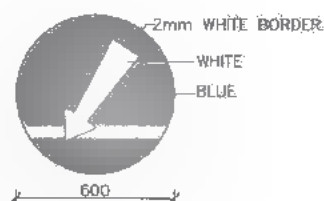


- Notes:**
1. ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
 2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED AND NO DIMENSIONS SHALL BE SCALED.
 3. SAFE BEARING CAPACITY HAS BEEN TAKEN AS 10 TONS/Sqm.
 4. THE FINISH GRADE SHALL BE M-25.
 5. CLEAR COVER TO THE OUTER MOST STEEL SHALL BE:
i) PAVEMENT - 40mm
ii) FOUNDATION - 50mm
 6. STEEL TUBES ARE DESIGNATED BY THEIR NOMINAL BORES INDICATED ON DRAWING.
 7. STEEL TUBE USED ARE CLASSIFIED (HEAVY DUTY) TYPE STEEL TUBES.
 8. STEEL TUBE SHALL CONFORM TO GRADE Yst-210.
 9. STEEL TUBE USED SHALL BE CONFORMING TO IS:1161-1998.
 10. TUBER MEMBERS SHALL HAVE ANNULAR CUT HEAD SMOOTH FINISHED SO AS TO HAVE PROPER SEAT OVER THE SUPPORTING TUBE.
 11. ELECTRODE USED SHALL CONFORM RELEVANT I.S. SPECIFICATIONS AND THE CHEMICAL COMPOSITION OF ELECTRODE AND THE TUBE SHOULD MATCH.
 12. SLUG SHALL BE REMOVED BEFORE MEASURING THE DIMENSIONS OF FILLET WELD.
 13. WELDING SHALL BE DONE BY ARC WELDING.
 14. 4.5mm. SIZE WELD SHALL BE MADE WITH A SINGLE PASS.
 15. WELD SIZE SHALL BE 4.5mm UNLESS OTHERWISE MENTIONED & SHALL BE DONE ALL ROUND ON THE CONTACT LENGTH OF MEMBERS.
 16. HIGH STRENGTH BOLTS SHALL CONFORM TO IS:1367-1364.
 17. DIA. OF HOLES IN M.S. PLATE SHALL BE MACHINE MADE AND AS FOLLOWS SIA OF BOLTS DIA. OF HOLES:
i) 20mm. 21.5mm.
ii) 25mm. 26.5mm.
 18. SIZE OF LETTERS AND COLOUR OF PAINT SHALL CONFORM:
i) IRC : 67-2012
ii) IRC : 30-1988
 19. SHADE OF ANTICORROSIVE PAINT FOR PIPES SHALL BE DECIDED BY ENGINEER INCHARGE.
 20. RETRO - REFLECTIVE SHEETING SHALL BE AS PER MORT & H SPECIFICATIONS SECTIONS 800.
 21. METALIC CRASH BARRIER SHALL BE PROVIDED ON EARTHEN SHOULDER 50m. EITHER SIDE OF CENTER LINE OF COLUMN OF PORTAL AS PER DRAWING & MORTH SPECIFICATIONS.
 22. ALL STRUCTURAL STEEL CONFORM TO IS:2062-1999.
 23. THE OVERHEAD SIGNBOARD IS DESIGNED TO WITHSTAND A WIND LOAD OF 150KG/M2 FOR NORMAL FACE AND 30KG/M2 FOR TRANSVERSE FACE OF THE SIGN.

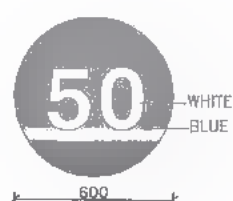
CLIENT: Bihar State Road Development Corporation Limited (A Government of Bihar Undertaking)		PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)		CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company Black-A "541 West" Gurgaon Corporate Square, 20th Mayapuri Gurgaon, Haryana-122002, India Phone : +91-11-4612497/100, Fax : +91-11-4612498 Email : mail@saiinfo.com		<table border="1"><tr><td>REV.</td><td>DATE</td><td>DESCRIPTION</td><td>SIGN</td><td>ISSUED BY</td><td>BY S.S.</td></tr><tr><td>PH</td><td>31/07/18</td><td>GOOD FOR CONSTRUCTION (REVISED DPR)</td><td></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><td></td></tr><tr><td>PF</td><td>17/02/17</td><td>GOOD FOR CONSTRUCTION (DPR)</td><td></td><td></td><td></td></tr><tr><td>PD</td><td>10/04/14</td><td>GOOD FOR CONSTRUCTION (DPR)</td><td></td><td></td><td></td></tr><tr><td>PO</td><td>28/02/14</td><td>ISSUED WITH FINAL DPR</td><td></td><td></td><td></td></tr><tr><td>PR</td><td>13/11/13</td><td>ISSUED WITH DPR</td><td></td><td></td><td></td></tr><tr><td>PR</td><td>20/09/13</td><td>ISSUED WITH DPR</td><td></td><td></td><td></td></tr></table>		REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	BY S.S.	PH	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)				PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)				PF	17/02/17	GOOD FOR CONSTRUCTION (DPR)				PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)				PO	28/02/14	ISSUED WITH FINAL DPR				PR	13/11/13	ISSUED WITH DPR				PR	20/09/13	ISSUED WITH DPR				<table border="1"><tr><td colspan="2">DRAWN BY : R.N.</td><td colspan="2">TITLE : BAYSI - RAUTA (PACKAGE-I) FOOTING DETAILS FOR OVER HEAD /GANTRY SIGNS</td></tr><tr><td colspan="2">CHECKED BY : C.S.</td><td colspan="2"></td></tr><tr><td colspan="2">APPROVED BY : A.D.</td><td colspan="2"></td></tr><tr><td colspan="2">ISSUED BY : B.S.</td><td colspan="2"></td></tr></table>		DRAWN BY : R.N.		TITLE : BAYSI - RAUTA (PACKAGE-I) FOOTING DETAILS FOR OVER HEAD /GANTRY SIGNS		CHECKED BY : C.S.				APPROVED BY : A.D.				ISSUED BY : B.S.			
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ORG. NO. : SAI-213007/DPR/M/TYP -03.						REVISION : PH																																																																			



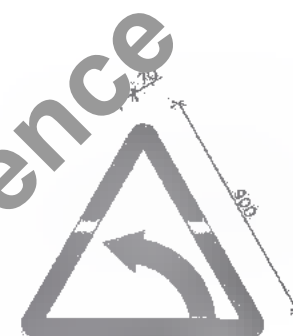
S-1 STOP SIGN
SCALE-1:20



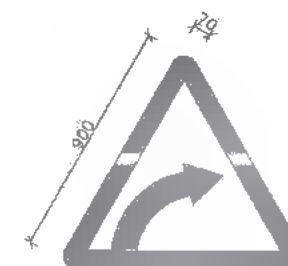
S-4 COMPULSORY KEEP LEFT
SCALE 1:20



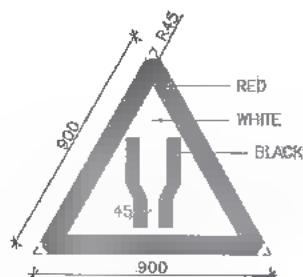
S-17 SPEED LIMIT
SCALE 1:20



S-21/33 LEFT HAND CURVE
SCALE-1:20



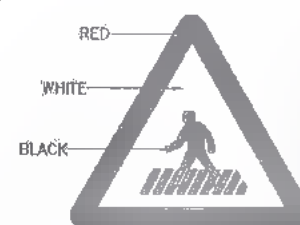
S-22/32 RIGHT HAND CURVE
SCALE-1:20



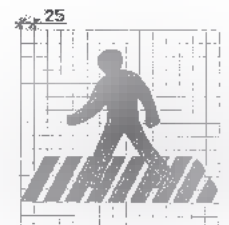
S-35 ROAD WIDENS AHEAD
SCALE 1:20



S-38 NARROW ROAD AHEAD
SCALE-1:20



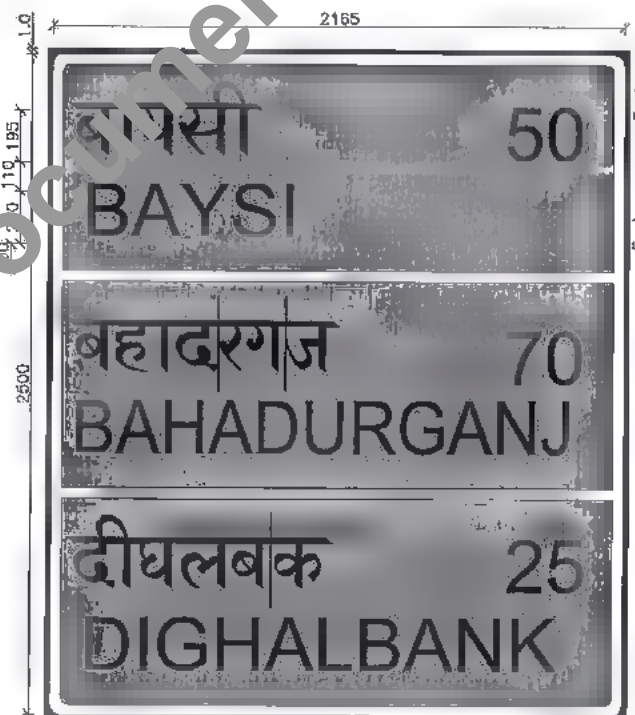
S-23 PEDESTRIAN CROSSING
SCALE-1:20



S-62 FILLING STATION
(Fuel Pump)
SCALE 1:20



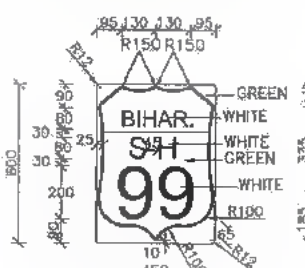
S-48 ADVANCE DIRECTION/DESTINATION SIGN
SCALE-1:20



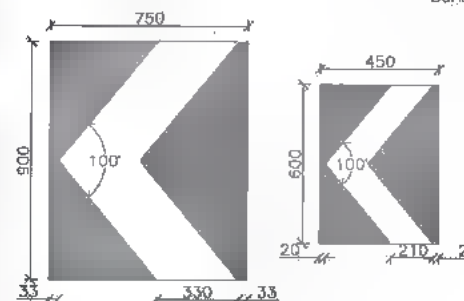
S-52 REASSURANCE SIGN
SCALE-1:20



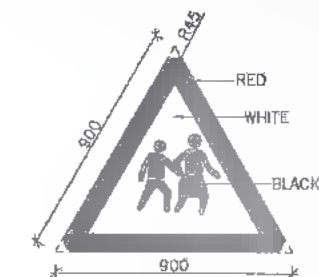
S-55 BUS STOP



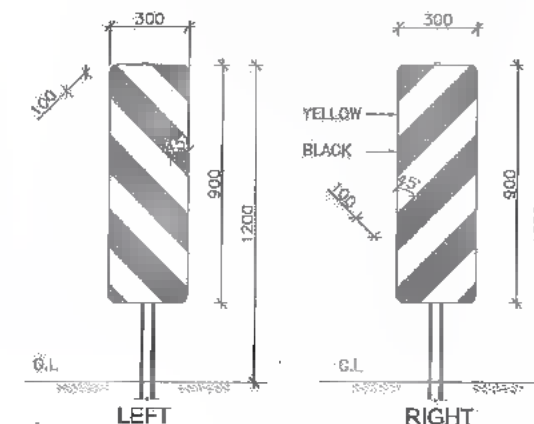
S-66 STATE HIGHWAY
ROUTE MARKER SIGN
SCALE 1:20



S-58 CHEVRON
SCALE 1:20



S-24 SCHOOL AHEAD
SCALE 1:20



S-67A OBJECT HAZARD MARKERS
SCALE 1:20

GENERAL NOTES:-

- 1) DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- 2) MATERIAL AND COLOUR FOR ROAD SIGNS SHALL BE AS PER IRC : 67-2012
- 3) SIZES OF ARROWS, LETTERS AND NUMERALS FOR ROAD SIGNS SHALL BE AS PER IRC : 67-2012 AND IRC : 35-1997



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" Subhan Corporate Square, B-14 Rajendra
Nagar, Bhopal-462010 (M.P.)
Phone : +91-79-6612288/289 Fax : +91-79-6612289
Email : sai@saiconsulting.com

REV.	DATE	DESCRIPTION	SIGN
PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)	
PE	31/03/17	GOOD FOR CONSTRUCTION (DPR)	
PE	10/04/14	GOOD FOR CONSTRUCTION (DPR)	
PE	26/02/14	ISSUED WITH FINAL DPR	
PE	13/11/13	ISSUED WITH DPR	
PE	29/09/13	ISSUED WITH DPR	

DRAWN BY : R.N.
CHECKED BY : C.S.
APPROVED BY : J.D.
ISSUED BY : R.S.

TITLE : BAYSI - RAUTA
(PACKAGE-I)
TYPICAL DETAILS OF REGULATORY
/ MANDATORY TRAFFIC SIGNS

DRG. NO. :
SAI-213007/DPR/MTYP-04
REVISION : PH.



SIZES AND DIMENSIONS OF 'STOP' SIGNS

APPROACH SPEED ON MINOR ROAD	SIZE	HEIGHT (mm)	BORDER (mm)	FONT SIZE (mm)
Up to 30 kmph	Small	750	25	125
31 - 65 kmph	Normal	900	30	150
> 65 kmph	Large	1200	40	225

SIZES AND DIMENSIONS OF 'GIVE WAY' SIGNS

APPROACH SPEED ON MINOR ROAD	SIZE	SIDE (mm)	BORDER (mm)
Up to 30 kmph	Small	600	45
31 - 60 kmph	Normal	800	70
> 60 kmph	Large	1200	90

SIZES AND DIMENSIONS OF MANDATORY AND REGULATORY SIGNS

DESIGN SPEED	SIZE	REGULATORY (mm)	MANDATORY SIGNS			
		DIAMETER (mm)	DIAMETER (mm)	BORDER (mm)	OBLIQUE BAR (mm)	FONT SIZE (mm)
Up to 30 kmph	In conjunction with traffic light signal		300	35	35	75
31 - 60 kmph	Small	600	600	50	50	100
61 - 80 kmph	Medium	750	750	60	60	125
81 - 100 kmph	Normal	900	900	75	75	150
> 100 kmph	Large	1200	1200	100	100	225

SIZES AND DIMENSIONS OF CAUTIONARY AND THEIR SITING DISTANCES

DESIGN SPEED	SIZE	SIDE (mm)	BORDER (mm)	CLEAR VISIBILITY DISTANCES (mm)	DISTANCE OF SIG. FROM HAZARD (m)
Up to 30 kmph	Small	600	45	45	15
31 - 65 kmph	Medium	750	60	60	45-110
66 - 80 kmph	Normal	900	70	80	110-180
> 80 kmph	Large	1200	90	90	180-245

COLOUR PATTERN FOR DIRECTION INFORMATION SIGNS

ROAD TYPE	BACKGROUND	ARROWS/BORDER/LETTERS
Expressway	Blue	White
National Highway (NH)	Green	White
State Highway (SH)	Green	White
Major District Road (MDR)	Green	White
Village Road (ODR & VR)	White	Black
Urban/City Road	Blue	White

SPACING OF SIGNAL CHEVRON SIGNS

CURVE RADIUS (m)	DISTANCE BETWEEN CHEVRON (m)	
	ON CURVE	BEFORE CURVE
50	15	30
100	20	40
200	30	60
300	45	90
400	60	120
500	70	140
> 500	80	150

LETTER SIZE AND SITING OF INFORMATION SIGNS (SHOULDER & GANTRY MOUNTED)

1	ADVANCE DIRECTION SIGNS (SHOULDER MOUNTED)					FLAG TYPE DIRECTION SIGNS REASSURANCE SIGNS PLACE IDENTIFICATION SIGNS			GANTRY MOUNTED SIGNS		
	2	3	4	5	6	7	8	9	10	11	12
Design Speed	"x" height (mm) Lower case	"x" height (mm) upper case	Minimum clear visibility to the sign (m)	ONE sign: distance from junction (m)	TWO sign: distance between 1st and 2nd sign (m)	"x" height (mm) Lower case	"x" height (mm) upper case	Minimum clear visibility to the sign (m)	"x" height (mm) Lower case	"x" height (mm) upper case	Minimum clear visibility to the sign (m)
Up to 30 kmph km/h	75 (60)*	105 (84)	60 (35)	20	—	60 (50)	84 (70)	35 (30)			
31-50 km/h	100 (75)*	140 (105)	75 (45)	45	45	75 (60)	105 (84)	45 (35)	200 (175)	280 (245)	150
51-65 km/h	125 (100)	175 (140)	100 (60)	90	50	100 (75)	140 (105)	60 (45)			
66-80 km/h	150 (125)	210 (175)	135	90-150	70	125 (100)	175 (140)	75 (60)			
81-100 km/h	200 (150)	280 (210)	165	150-225	100	150 (125)	210 (175)	105 (75)	250 (200)	350 (280)	200
101-110 km/h	250 (200)	350 (280)	225	225-300, See also Note 1	100	200 (150)	280 (210)	135 (105)	275 (250)	385 (350)	240
111-120 km/h	300 (250)	420 (350)	260	See Note 1	See Note 1	300 (250)	420 (350)	180 (150)	300 (275)	420 (385)	260

*Note:- The values in brackets are the minimum values to be adopted when there are site/space constraints.

GENERAL NOTES:-

- SCHEDULE OF TRAFFIC SIGNS SHALL BE AS PER IRC : 87-2012

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" Solus Corporate Square, 8th Floor
Old, Bafra Road, Ahmedabad-380015, Gujarat, India
Phone : +91-79-43132600/708/709 +91-79-43132680
Email : info@saiengineers.com

REV.	DATE	DESCRIPTION	CHKD	ISSUED BY
PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		
PP	31/03/17	GOOD FOR CONSTRUCTION (DPR)		
PE	10/04/14	GOOD FOR CONSTRUCTION (DPR)		
PD	25/02/14	ISSUED WITH FINAL DPR		
PC	13/11/13	ISSUED WITH DPR		
PR	29/08/13	ISSUED WITH DPR		

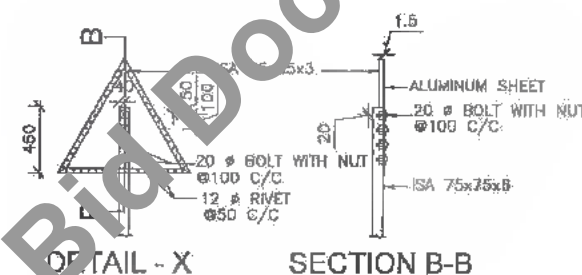
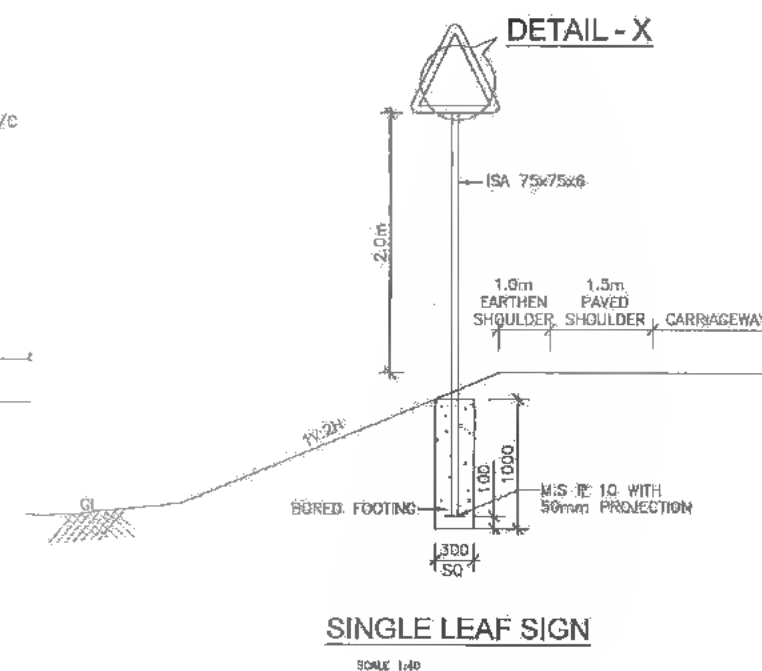
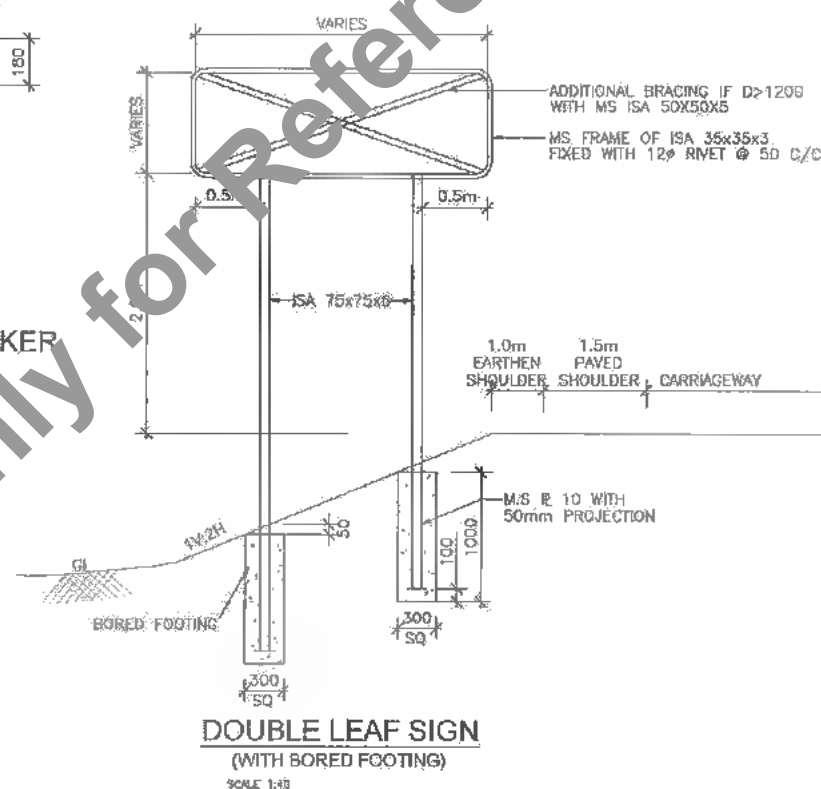
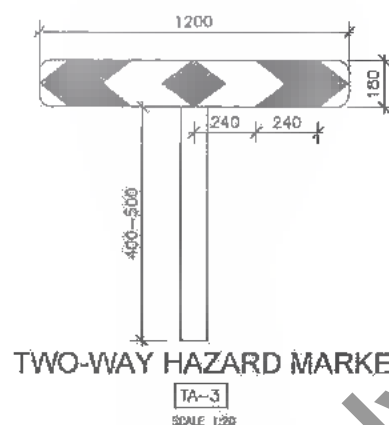
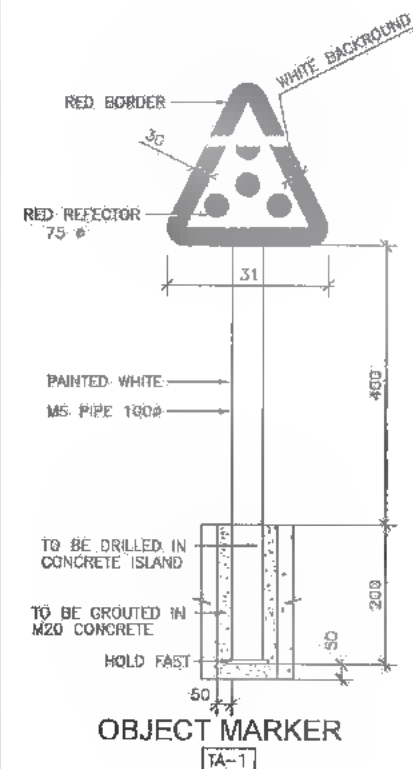
DRAWN BY : R.M.
CHECKED BY : C.S.
APPROVED BY : J.S.

TITLE: **BAYSI - RAUTA (PACKAGE-I)**
SCHEDULE OF TRAFFIC SIGNS

DRG. NO.: **SAI-213007/DPR/MTYP - D4A**
REVISION : PH

SCALE : AS SHOWN





Notes :

1. ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. RETROREFLECTORISED SHEETING SHALL BE CONFORMING TO ASTM D-4956-01, TYPE VIII OR TYPE IX.
3. SHEETING SHALL BE SECURELY BOLTED TO THE POST, THE REMAINING PORTION OF THE BOLT AFTER TIGHTENING THE NUT SHALL BE HAMMERED TO FORM RIVETING.
4. IN CASE OF ROAD SIGNS, IRON POST SHALL BE PAINTED WITH ONE COAT OF EPOXY PRIMER AND TWO COATS OF EPOXY FINISH PAINT HAVING BLACK AND WHITE BANDS OF 250MM WIDTH.
5. OBJECT MARKER SHALL BE SETBACK BY 500MM FROM THE FACE OF THE KERB. IT SHALL BE DRILLED INTO CONCRETE KERBS UPTO 600 MM DEPTH.
6. ALL FOUNDATIONS SHALL BE IN M20 GRADE CEMENT CONCRETE.
7. HAZARD MARKERS SHALL BE PRESSED INTO GROUND.
8. BACK SIDE OF SIGN BOARD SHALL BE PAINTED WITH TWO COATS OF GRAY EPOXY PAINT.
9. ALUMINUM SHEET SHALL BE 2mm THICK (min.).
10. ALL BLACK NUTS & BOLTS SHALL CONFORM TO IS:1353-1992.
11. RETRO REFLECTIVE SHEETING OF HIGH INTENSITY GRADE ENCAPSULATED TYPE SHALL BE AFFIXED TO ALUMINIUM SHEET BY PRESSURE SENSITIVE ADHESIVE.
12. STEEL SECTION SHALL CONFORM TO IS:1977-1996 & SHALL BE SUITABLY PAINTED.



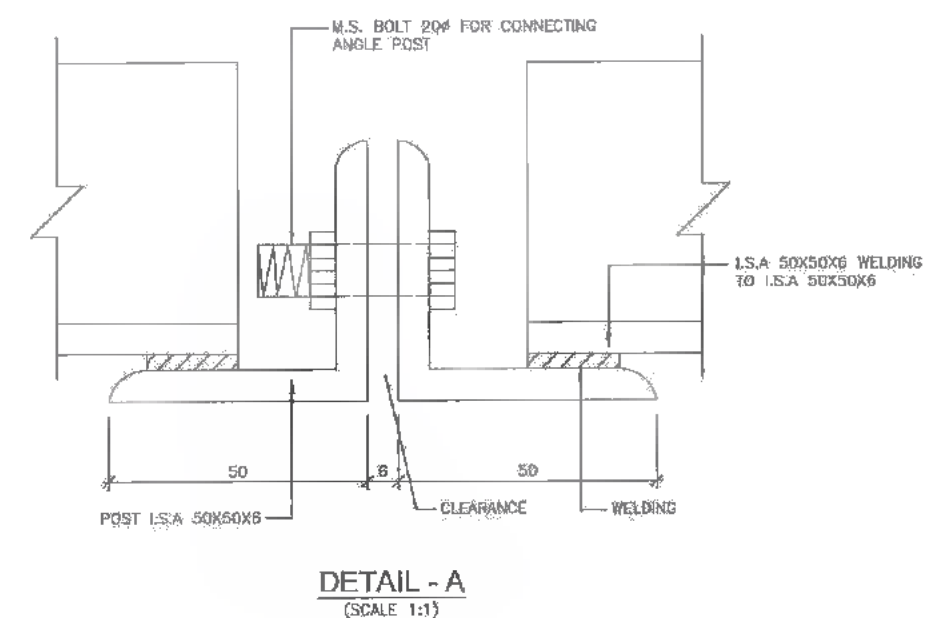
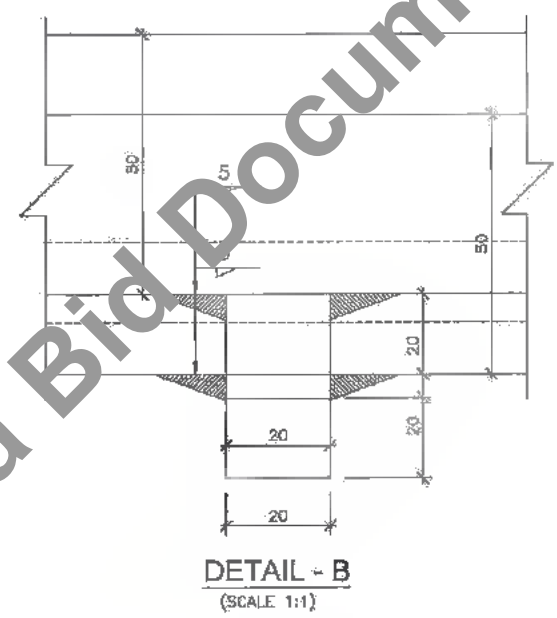
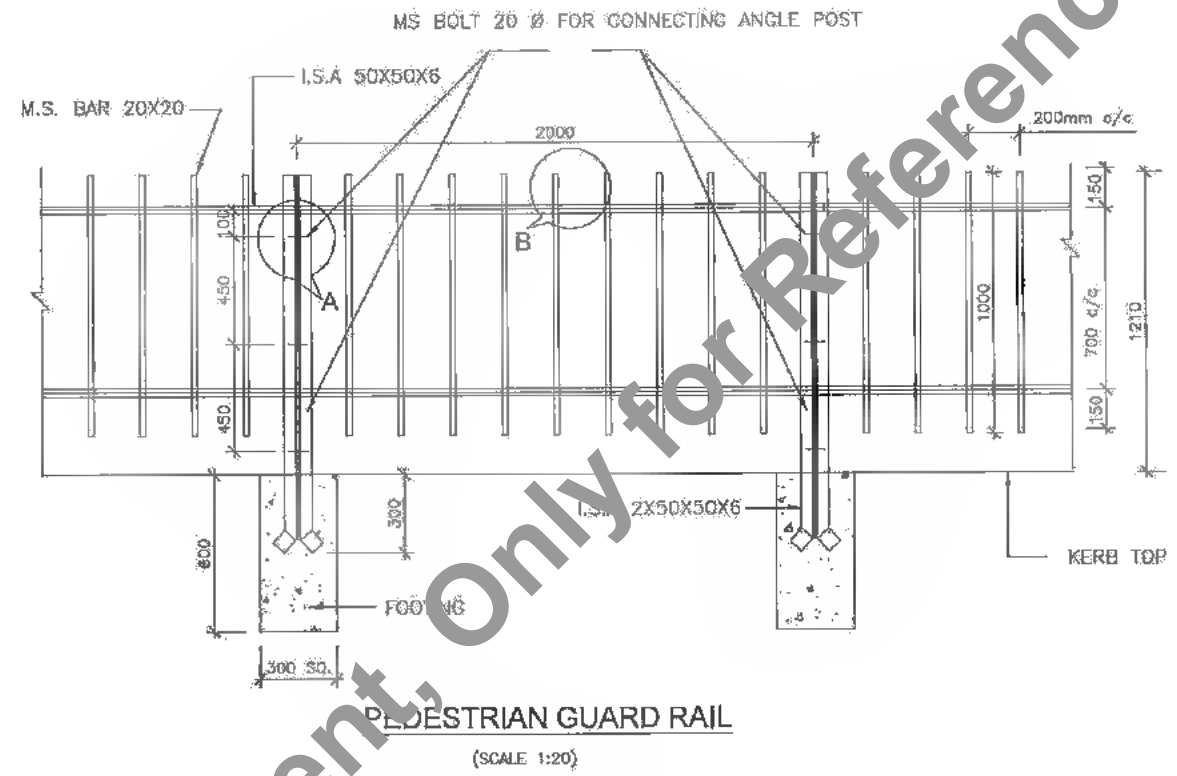
Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)

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

PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : K.N.	TITLE: BAYSI - RAUTA (PACKAGE-I) TYPICAL DETAILS OF TRAFFIC SIGNS
PG	17/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : C.S.	
PE	31/03/17	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : J.S.	
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	ISSUED BY : B.S.	
PC	26/02/14	ISSUED WITH FINAL DPR		
PF	15/11/13	ISSUED WITH DPR		
PR	28/08/13	ISSUED WITH EIR		

DRG. NO.: SAI-219007/OPRM/TYP-4B
REVISION: PH



NOTES :

1. ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. FOOTING SHALL BE IN PLAIN CEMENT CONCRETE OF M20 GRADE.
3. HIGH STRENGTH BOLT SHALL CONFORM TO IS:4000-1992
4. WELD SHALL BE MADE WITH SINGLE PASS.
5. WELDING SHALL BE DONE BY ARC WELDING.
6. ELECTRODE USED SHALL CONFORM TO RELEVANT IS SPECIFICATIONS.
7. SLAG SHALL BE REMOVED BEFORE MEASURING THE DIMENSIONS OF FILLET WELD.
8. STRUCTURAL STEEL SHALL CONFORM TO IS: 1977-1996
9. SHADE OF ANTI CORROSIVE PAINT SHALL BE DECIDED BY ENGINEER-IN-CHARGE.
10. POST ENDS IN CONCRETE FOOTING SHALL BE BENDED TO SERVE THE PURPOSE OF HOLD FAST.

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 :

SAL
SYSTRA GROUP
SAL Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A, "SRI HANU" Sector Corporate Square, B-16, Bapahat
Lucknow, India. Pin-226005. Uttar Pradesh
Phone : +91-522-668-2800/2801 Fax : +91-522-668-2808
Email : info@salindia.com

REV.	DATE	DESCRIPTION	BY
PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	
PD	17/10/18	GOOD FOR CONSTRUCTION (DPR)	
PE	31/05/17	GOOD FOR CONSTRUCTION (DPR)	
PF	10/04/14	GOOD FOR CONSTRUCTION (DPR)	
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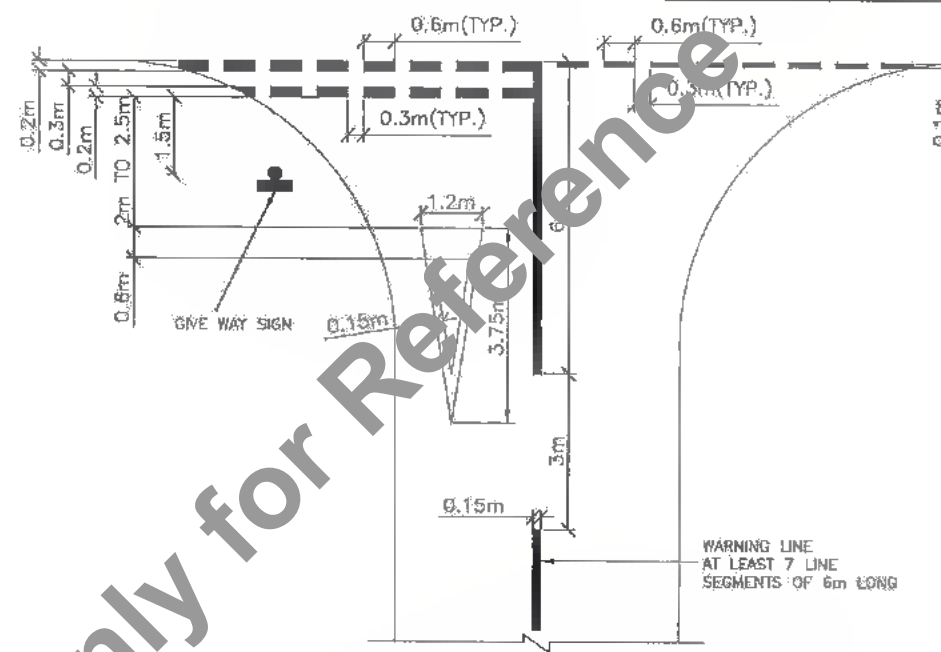
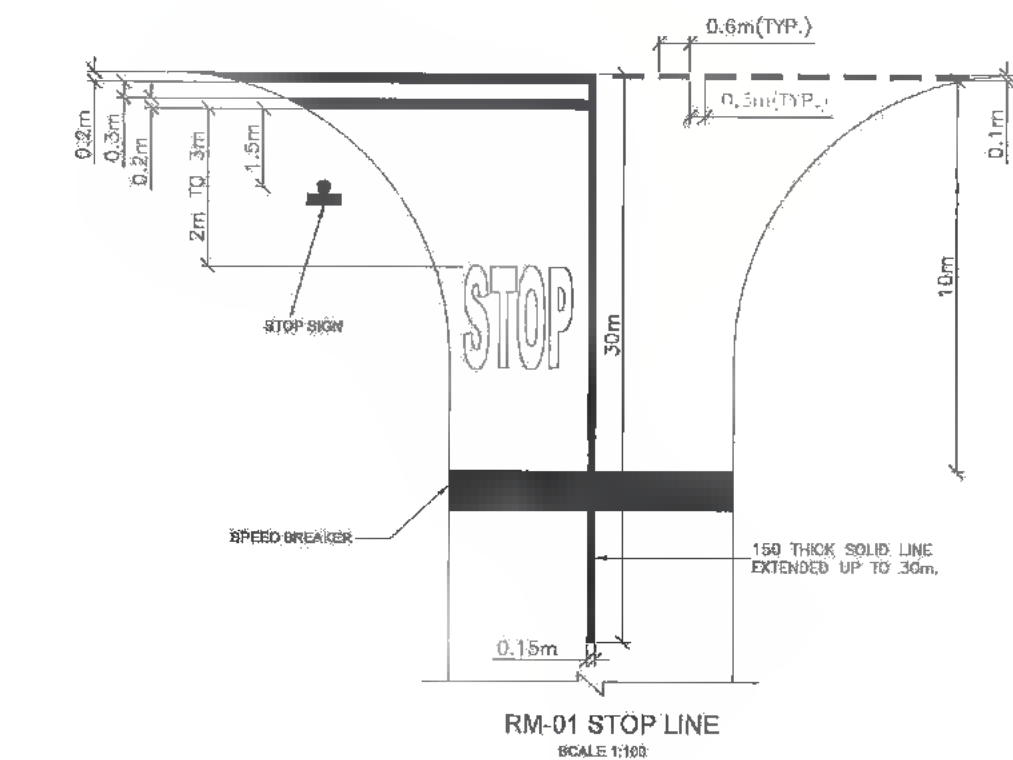
DRAWN BY : R.M.
CHECKED BY : C.S.
APPROVED BY : J.D.
ISSUED BY : B.S.

TITLE : BAYSI - RAUTA
(PACKAGE-I)
PEDESTRIAN GUARD DETAILS

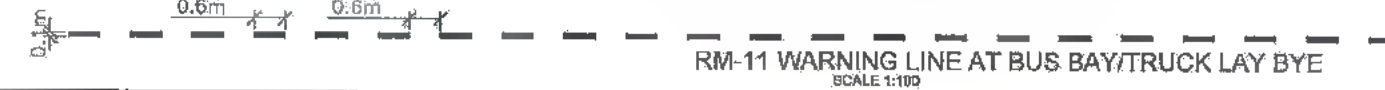
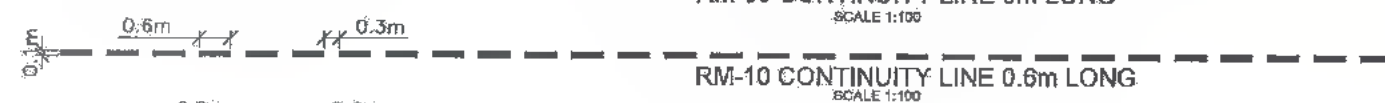
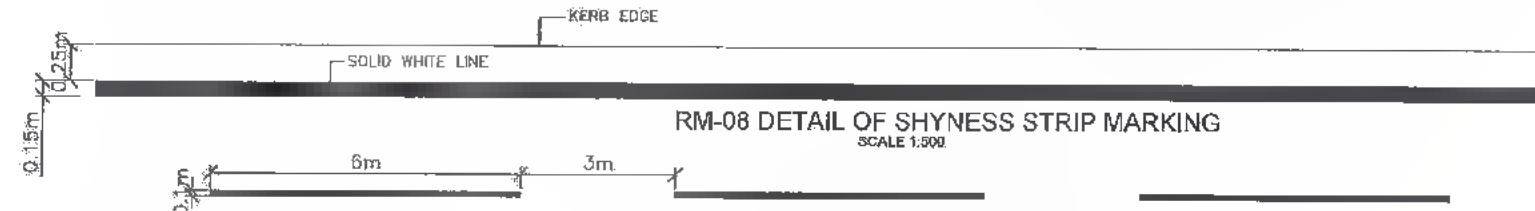
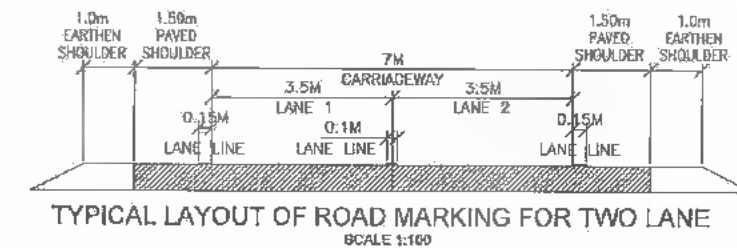
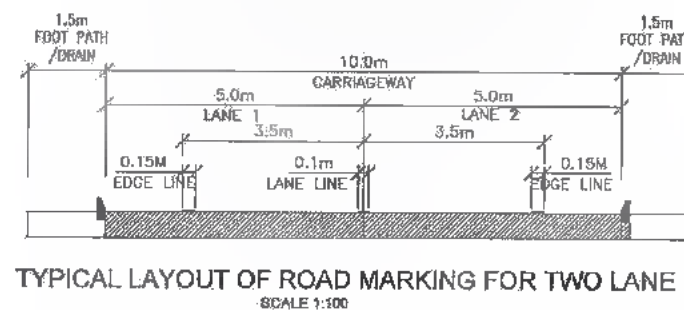
DRG. NO. :
SAJ-213007/DPR/M/TYP - 05
REVISION : PH



DATE: 20/07/2019 10:08am
PATH: F:\DO\TNO 213007 BAYSI - RAUTA\PACKAGE-I\PEDESTRIAN GUARD RAIL - 05.DWG



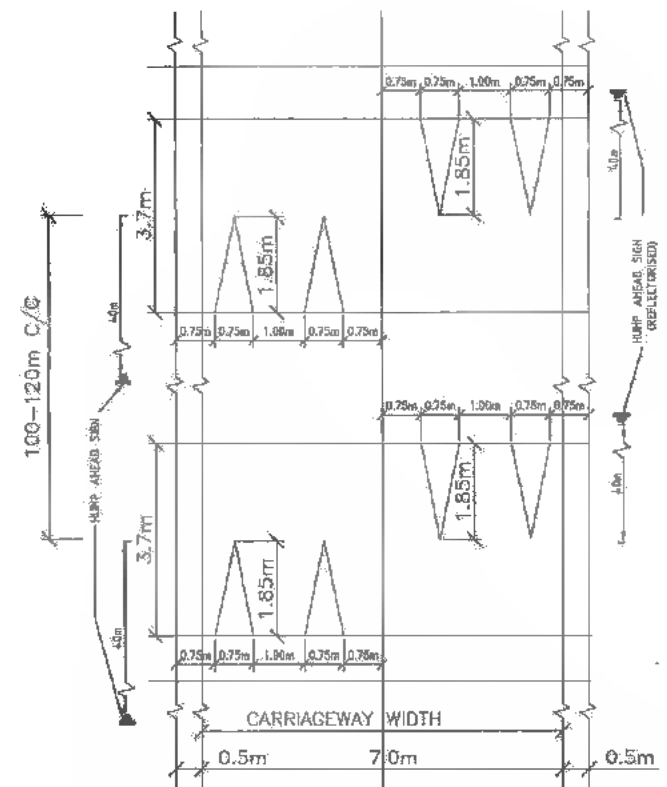
TYPICAL LAYOUT OF ROAD MARKING FOR TWO LANE
SCALE 1:100



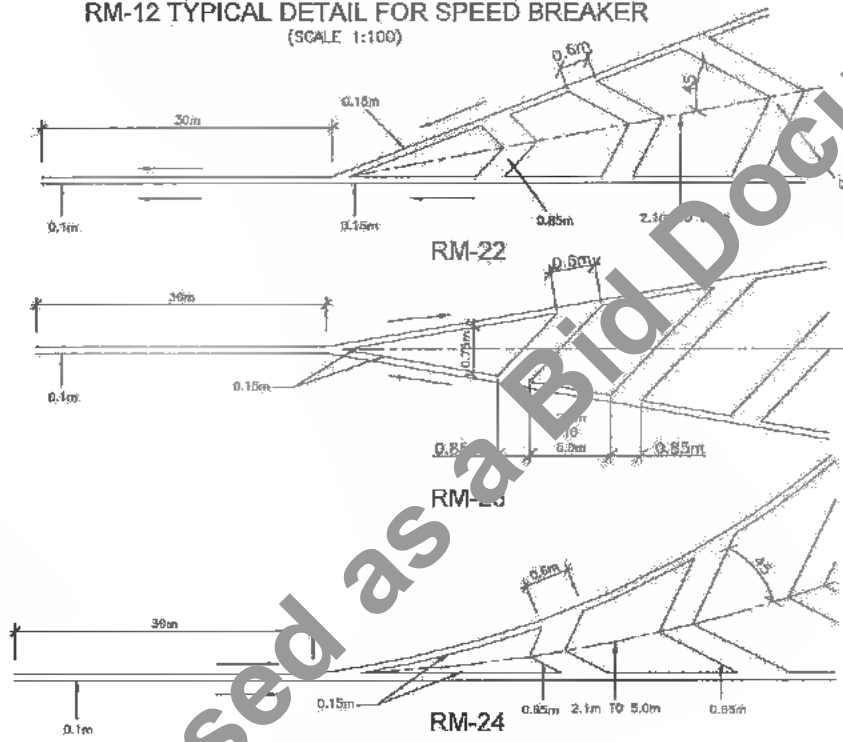
NOTES:
1. ROAD MARKING SHALL BE OF HOT APPLIED THERMOPLASTIC MATERIALS WITH GLASS REFLECTORISING BEADS OF TYPE 15 PER CLAUSES OF SECTION 803 OF MORTH SPECIFICATIONS.



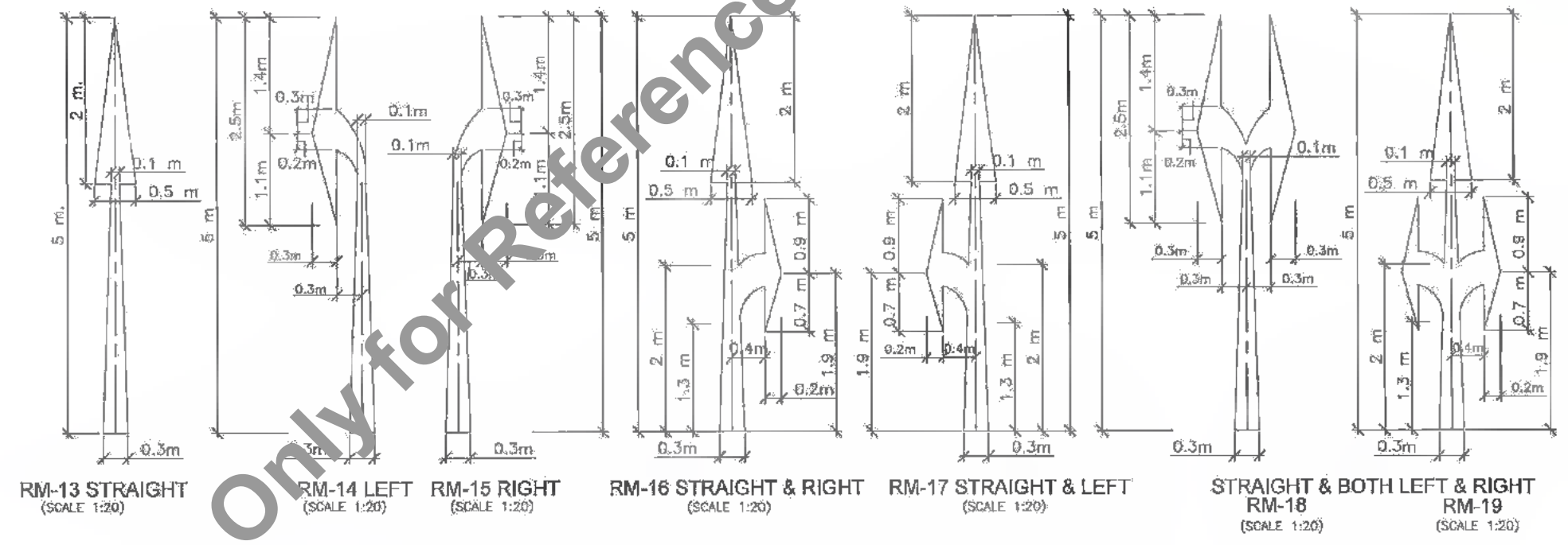
COMPANY: Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)	PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar Baysi - Bahadurganj - Dighalbank (SH-99)	CONSULTANTS: SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company Block-A, "SAI House", Station Corporate Square, B.N. Bagicha Link Road, Lohia, Kharagpur - 751005, Odisha, India Phone : +91-75-6642495/720303, +91-75-6642800 Email : sai@saiconsulting.com	<table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>CHKD.</th> <th>ISSUED BY</th> </tr> <tr> <td>PH</td> <td>31/07/19</td> <td>GOOD FOR CONSTRUCTION (REVISED DPR)</td> <td></td> <td></td> </tr> <tr> <td>PD</td> <td>17/12/18</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> </tr> <tr> <td>PE</td> <td>15/03/17</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> </tr> <tr> <td>PE</td> <td>10/04/14</td> <td>GOOD FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> </tr> <tr> <td>PD</td> <td>26/02/14</td> <td>ISSUED WITH FINAL DPR</td> <td></td> <td></td> </tr> <tr> <td>PD</td> <td>15/11/13</td> <td>ISSUED WITH DPR</td> <td></td> <td></td> </tr> <tr> <td>PD</td> <td>29/08/13</td> <td>ISSUED WITH DPR</td> <td></td> <td></td> </tr> </table>	REV.	DATE	DESCRIPTION	CHKD.	ISSUED BY	PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)			PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)			PE	15/03/17	GOOD FOR CONSTRUCTION (DPR)			PE	10/04/14	GOOD FOR CONSTRUCTION (DPR)			PD	26/02/14	ISSUED WITH FINAL DPR			PD	15/11/13	ISSUED WITH DPR			PD	29/08/13	ISSUED WITH DPR			TITLE: BAYSI - RAUTA (PACKAGE-I) TYPICAL DETAILS OF LANE MARKINGS DRG. NO.: SAI-213007DPRM/TYP-06 REVISION: PH
REV.	DATE	DESCRIPTION	CHKD.	ISSUED BY																																								
PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)																																										
PD	17/12/18	GOOD FOR CONSTRUCTION (DPR)																																										
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PD	15/11/13	ISSUED WITH DPR																																										
PD	29/08/13	ISSUED WITH DPR																																										



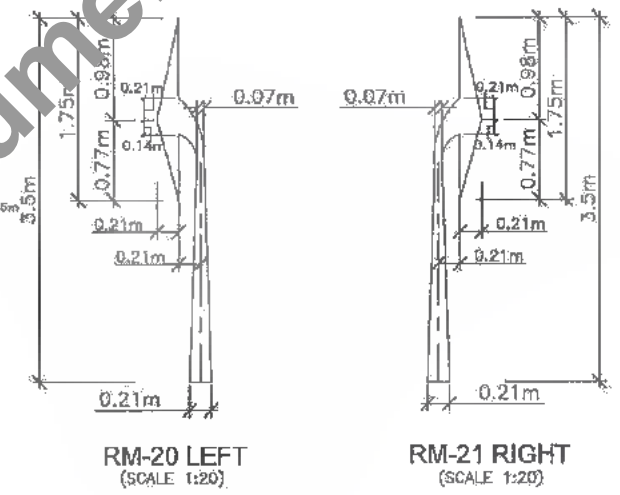
RM-12 TYPICAL DETAIL FOR SPEED BREAKER
(SCALE 1:100)



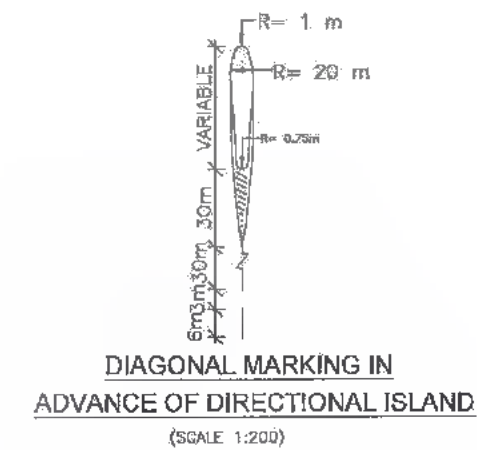
DETAILS OF DIAGONAL AND CHEVRON MARKING



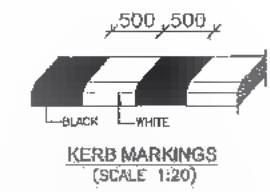
ARROW MARKING FOR ROUTE DIRECTION



RM-20 LEFT (SCALE 1:20)
RM-21 RIGHT (SCALE 1:20)



DIAGONAL MARKING IN
ADVANCE OF DIRECTIONAL ISLAND
(SCALE 1:200)



TOTAL LENGTH OF MARKING (M)	SPACING BETWEEN BARS OR CHEVRONS (MM)	
	LOW SPEED (75 KM/H)	HIGH SPEED (75 KM/H)
< 5.7	2100	---
5.7 to 22.5	3500	---
> 22.5	5000	---
< 10.5	---	4000
> 10.5	---	6000



RM-26 DETAIL OF EDGE LING MARKING
SCALE 1:100

NOTES:
1. RM-12 MARKING SHALL BE OF HOT APPLIED THERMOPLASTIC MATERIALS WITH GLASS REFLECTORISING BEADS
2. AS PER CLAUSES OF SECTION 803 OF MORTH SPECIFICATIONS.

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
Black-A "SAI House" Salarpur Corporate Square, B/A Rajpatti
Chak, Boudh, Ahmedabad-380059, Gujarat, India
Phone : +91-79-6682860/702/Fax : +91-79-6682860
Email : saiconsulting@gmail.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY : B.S.
1	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		
2	17/12/19	GOOD FOR CONSTRUCTION (DPR)		
3	31/03/20	GOOD FOR CONSTRUCTION (DPR)		
4	10/04/20	GOOD FOR CONSTRUCTION (DPR)		
5	26/02/24	ISSUED WITH FINAL DPR		
6	13/11/23	ISSUED WITH DPR		
7	29/08/23	ISSUED WITH DPR		

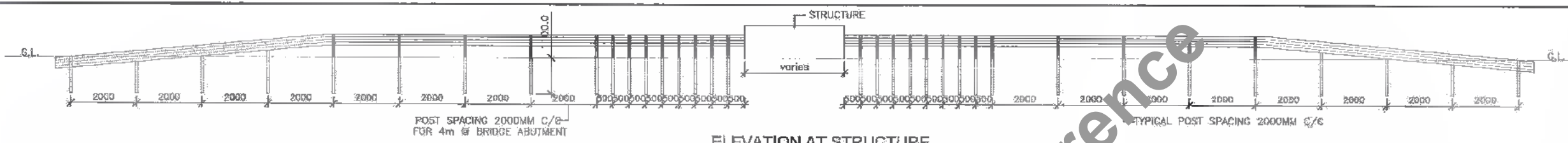
SCALE : AS SHOWN

DRAWN BY : S.N.
CHECKED BY : C.S.
APPROVED BY : J.S.

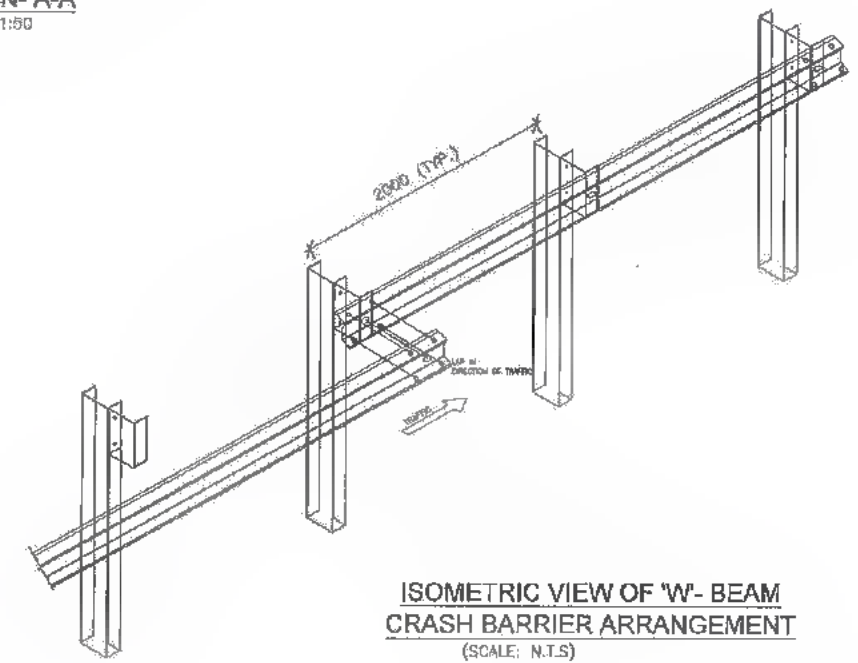
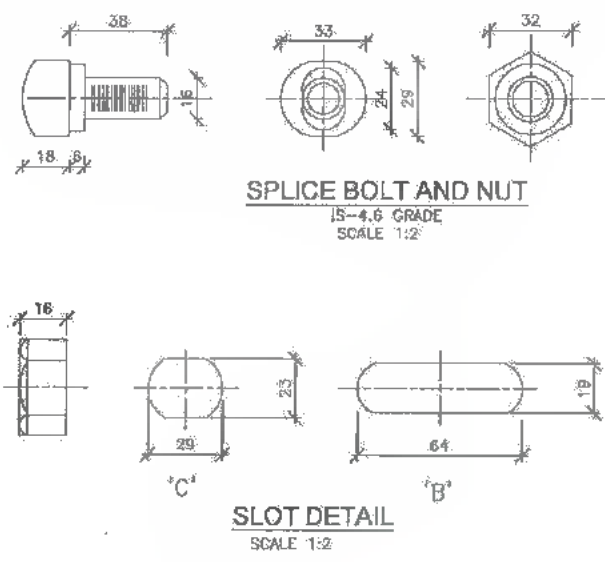
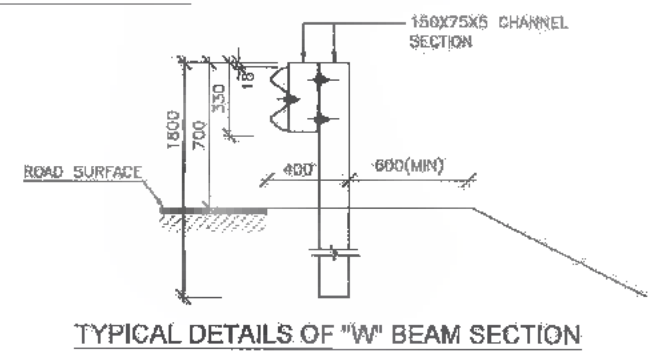
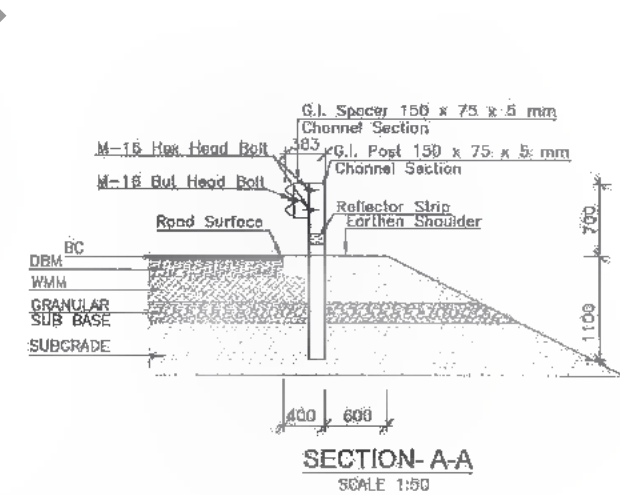
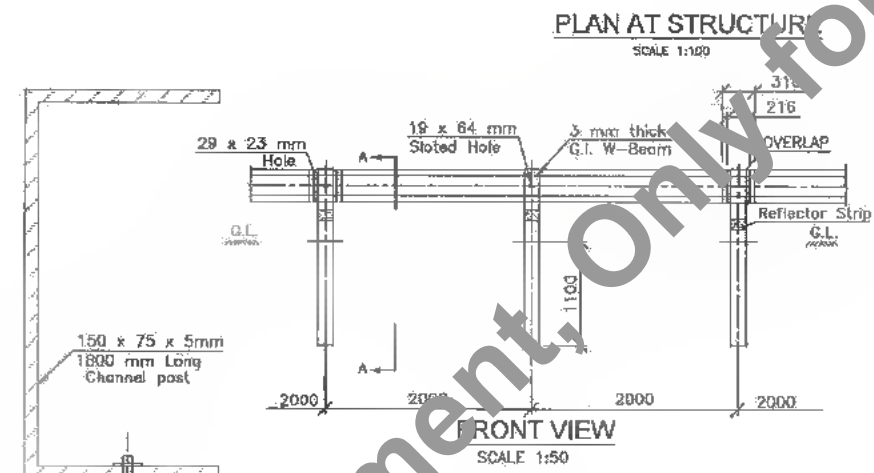
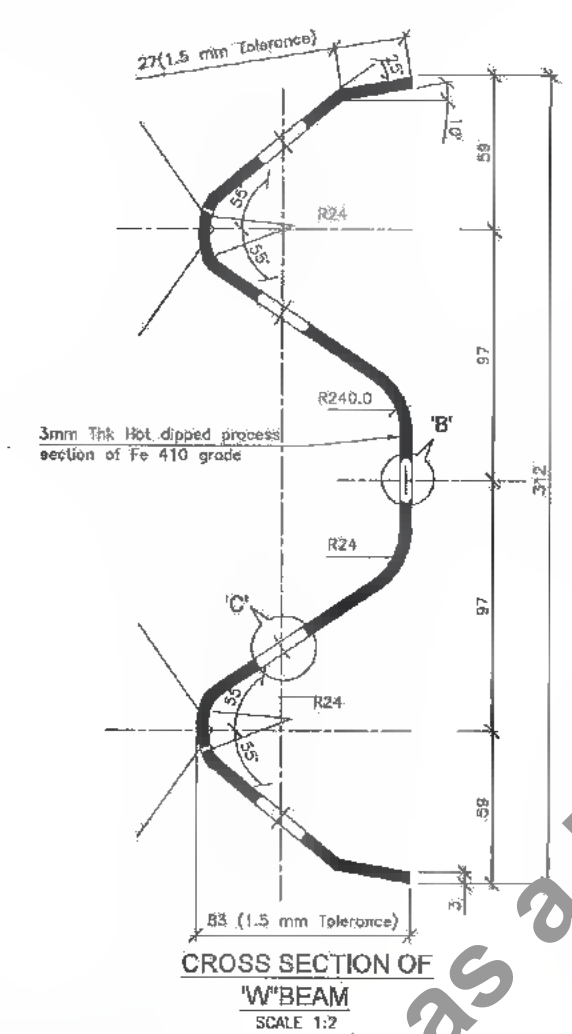
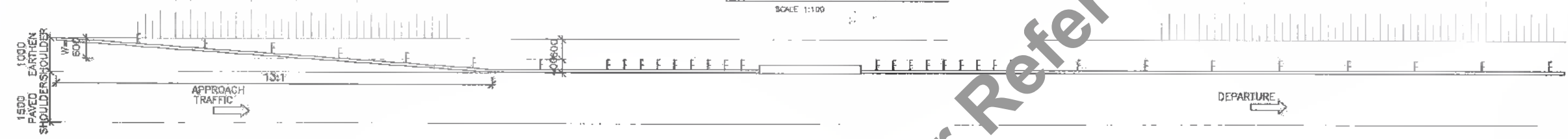
TITLE: **BAYSI - RAUTA (PACKAGE-I)**
TYPICAL DETAILS OF LANE MARKINGS

DRG. NO.: **SAI-219007/DPR/MTYP-07**
REVISION: PH





SUGGESTED FLARE RATES FOR END TREATMENTS	
DESIGN SPEED (km/hr)	SEMI RIGID
100	18:1
80	14:1
65	9:1
50	7:1



Notes :

1. ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. CORRUGATED 'W' BEAM SHALL BE 3MM THICK.
3. 'W'-BEAM SHALL BE COLD ROLL FORMED SECTION.
4. ALL RAW MATERIAL SHALL CONFORM TO IS 5985 (Gr.Fe 410:ST-42) NOT DIP GALVANISED TO 550 gm/Sqm.
5. SPACERS SHALL BE AS PER IS :2062-1992
6. EVERY CHANNEL POST SHALL BE 500MM C/C APART EXCEPT STRUCTURE LOCATIONS.
7. THE ENDS OF FASTENERS ARE TO BE FLARED BY PNEUMATIC OPERATION TO ENSURE THAT THE BOLTS ARE NOT REMOVABLE

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, Birla Road, Dik-Bhadrachar, Bhubaneswar-751005, Odisha, India
Phone : +91-28-2543665/987987 Fax : +91-28-2543666
Email : srai@saiengg.com

REV. DATE DESCRIPTION SIGN ISSUED BY :

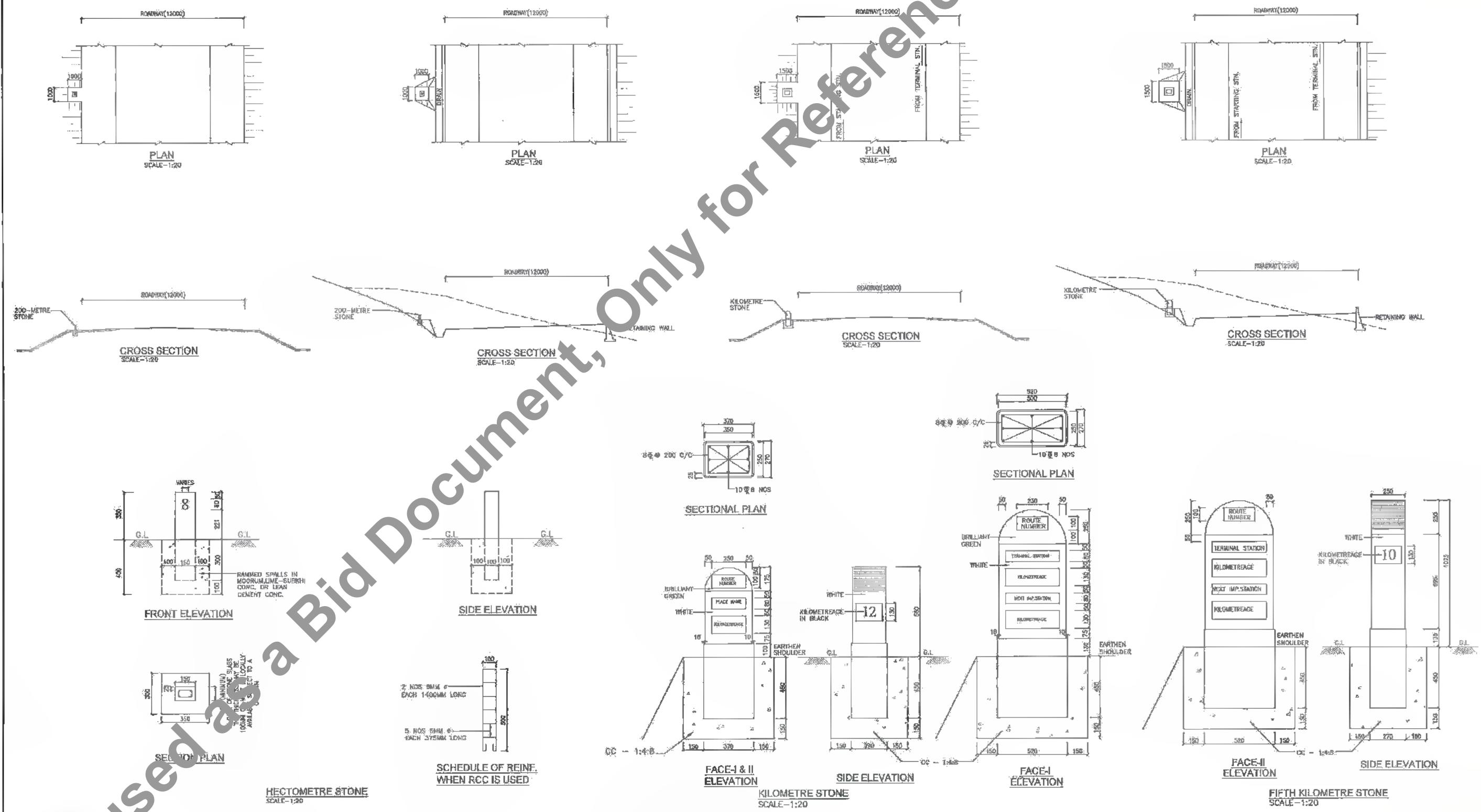
PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	
PC	17/12/18	GOOD FOR CONSTRUCTION (DPR)	
PC	31/03/17	GOOD FOR CONSTRUCTION (DPR)	
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	
PC	26/02/14	ISSUED WITH FINAL DPR	
PC	13/11/13	ISSUED WITH DPR	
PC	29/06/13	ISSUED WITH DPR	

SCALE : AS SHOWN

TITLE : BAYSI - RAUTA (PACKAGE-I)
TYPICAL DETAILS OF CRASH BARRIER

DRG. NO. : SAI-213067/DPR/MTYP-08

REVISION : PH



NOTES:

- 1). ALL DIMENSIONS ARE IN MM, UNLESS OTHERWISE MENTIONED.
- 2). KILOMETRE STONE / HECTOMETRE STONE / FIFTH KILOMETRE STONE SHALL BE CONSTRUCTED IN RCC M:20 GRADE.
- 3). FOUNDATION OF KILOMETRE STONE / HECTOMETRE STONE / FIFTH KILOMETRE STONE SHALL BE IN PCC M:20 GRADE.
- 4). DISTANCE STONES SHALL BE PROVIDED ON LEFT SIDE OF THE ROAD AS SHOWN INDEPENDENT OF DIRECTION OF TRAFFIC FLOW. ALL NUMERALS SHALL BE PAINTED BLACK.

- 5). SIZE OF LETTERS AND NUMERALS SHALL BE AS PER IRC: 8-1980.
- 6). STEEL REINFORCEMENT SHALL BE MILD STEEL Fe 415.
- 7). BOUNDARY STONES SHALL BE FIXED AT THE EDGE OF ROW STAGGERED ON EACH SIDE AT INTERVAL OF 100 METRE.
- 8). NO PAINTING SHALL BE CARRIED OUT ON BOUNDARY STONES.
- 9). HECTOMETRE STONE SHALL BE PAINTED WHITE.
- 10). KILOMETRE STONE AND FIFTH KILOMETRE STONE SHALL BE PAINTED AS SHOWN.

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" Sakinaka Corporate Square, B-14, Bhubaneswar, Odisha-751005, India Phone : +91-79-5556260/780 Fax : +91-79-5694288 Email : mail@saiindia.com		<table border="1"><tr><td>PH</td><td>31/07/19</td><td>GOOD FOR CONSTRUCTION (REVISED DRR)</td><td>DESIGNED BY : R.M.</td><td rowspan="4">TITLE: BAYSI - RAUTA (PACKAGE-I) DISTANCE STONES.</td></tr><tr><td>PC</td><td>31/07/19</td><td>GOOD FOR CONSTRUCTION (DRR)</td><td>CHECKED BY : C.S.</td></tr><tr><td>PE</td><td>10/08/19</td><td>GOOD FOR CONSTRUCTION (DRR)</td><td>APPROVED BY : J.D.</td></tr><tr><td>PD</td><td>25/08/19</td><td>ISSUED WITH FINAL DRR</td><td>ISSUED BY : D.S.</td></tr><tr><td>REV.</td><td>DATE</td><td>DESCRIPTION</td><td>SIGN</td><td>ISSUED BY</td></tr></table>		PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DRR)	DESIGNED BY : R.M.	TITLE: BAYSI - RAUTA (PACKAGE-I) DISTANCE STONES.	PC	31/07/19	GOOD FOR CONSTRUCTION (DRR)	CHECKED BY : C.S.	PE	10/08/19	GOOD FOR CONSTRUCTION (DRR)	APPROVED BY : J.D.	PD	25/08/19	ISSUED WITH FINAL DRR	ISSUED BY : D.S.	REV.	DATE	DESCRIPTION	SIGN	ISSUED BY
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REV.	DATE	DESCRIPTION	SIGN	ISSUED BY																									
DATE: 20/07/2019 SCALE: 1:AS SHOWN						ORG. NO.: SAI-213007/DRP/M/TYP - 08																							
						REVISION: PH																							

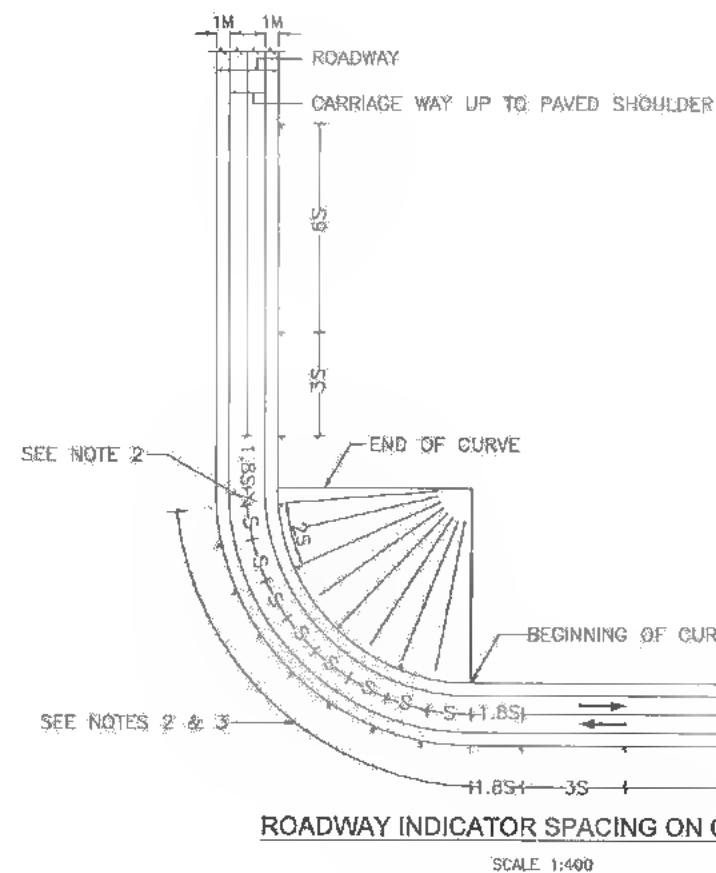
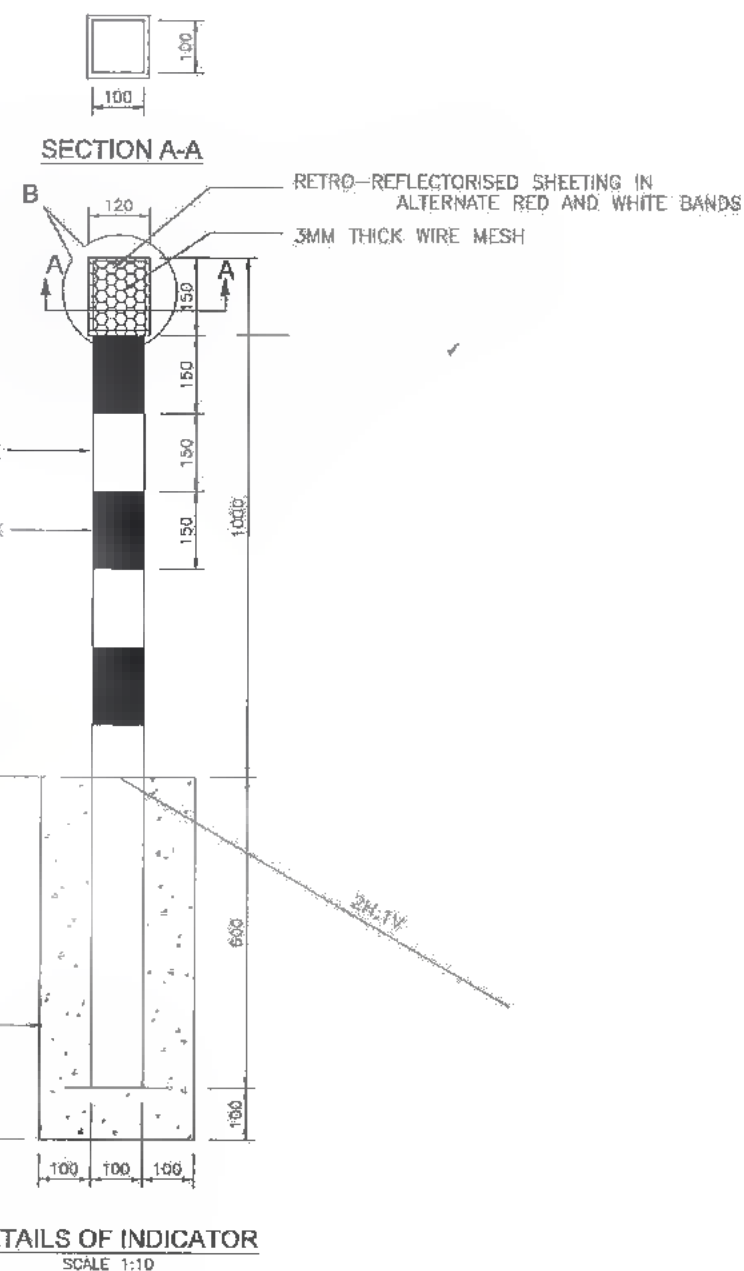
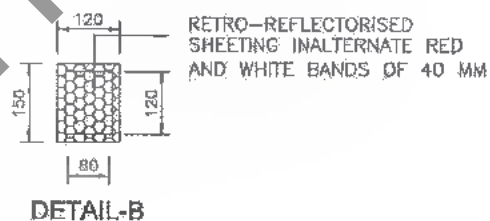


TABLE FOR RECOMMENDED SPACING FOR ROADWAY
DELINEATORS ON HORIZONTAL CURVES

RADIUS OF CURVE (METERS)	SPACING ON CURVE, S (METERS)
300	25
400	30
500	35
600	38
700	42
800	45
900	48
1000	50



Notes :

- ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
- ADJUST DISTANCE 'X' SUITABLY SO THAT THE LAST ROADWAY DELINEATOR IS AT THE END OF THE CURVE.
- INSTALL ALL DELINEATORS PERPENDICULAR TO THE ONCOMING TRAFFIC.
- SEE TABLE FOR VALUE OF 'S' I.E. SPACING OF DELINEATORS ON THE CURVE.
- THE SPACING OF FIRST, SECOND & THIRD DELINEATORS ON THE APPROACHES SHALL BE 1.85S, 3S & 6S RESPECTIVELY BUT NOT EXCEEDING 50m.
- INDICATORS SHALL BE DIE CAST IN ALUMINUM, RESISTANT TO CORROSIVE EFFECT OF SILT AND GRIT, FITTED WITH LENS REFLECTORS.
- STEEL REINFORCEMENT SHALL BE OF HYSD Fe 415 GRADE.

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

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

CONSULTANTS :
SAL
SYSTRA GROUP
SAL Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "Sai Housa" Sahyambhawan Complex, 8th Rajpath
Cross, Pashan, Ahmednagar - 411007, Maharashtra
Phone : +91-20-26112000/2001 Fax : +91-20-26112005
Email : sal@saiindia.com

REV. DATE DESCRIPTION
1. 31/07/19 GOOD FOR CONSTRUCTION (REVISED DPR)
2. 17/12/18 GOOD FOR CONSTRUCTION (DPR)
3. 17/03/17 GOOD FOR CONSTRUCTION (DPR)
4. 10/04/14 GOOD FOR CONSTRUCTION (DPR)
5. 28/02/14 ISSUED WITH FINAL DPR
6. 13/11/13 ISSUED WITH DPR
7. 28/08/13 ISSUED WITH DPR

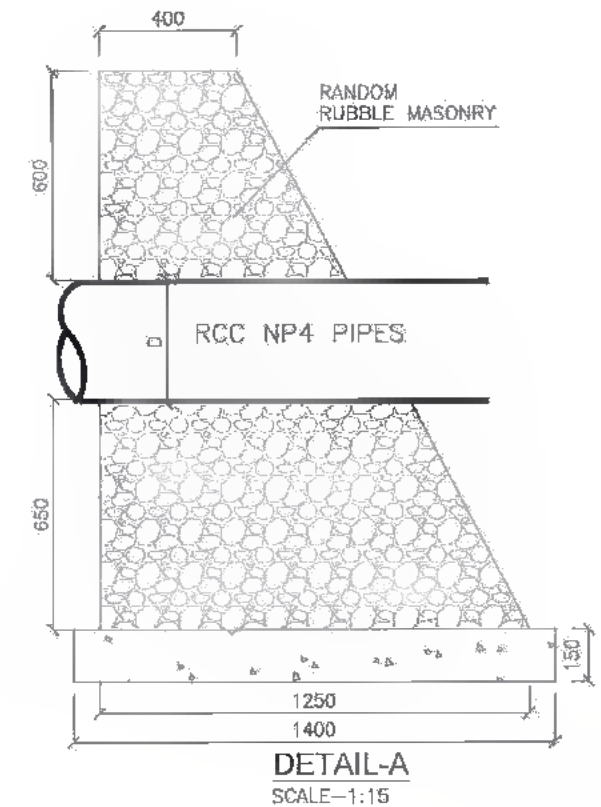
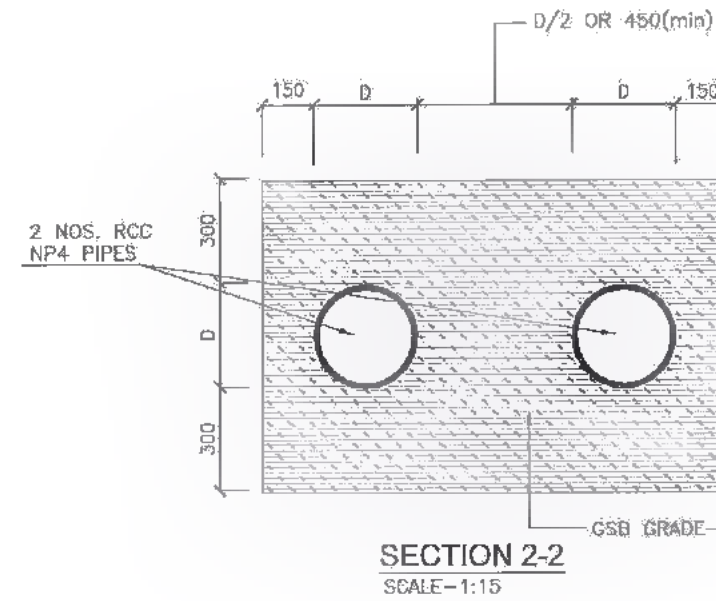
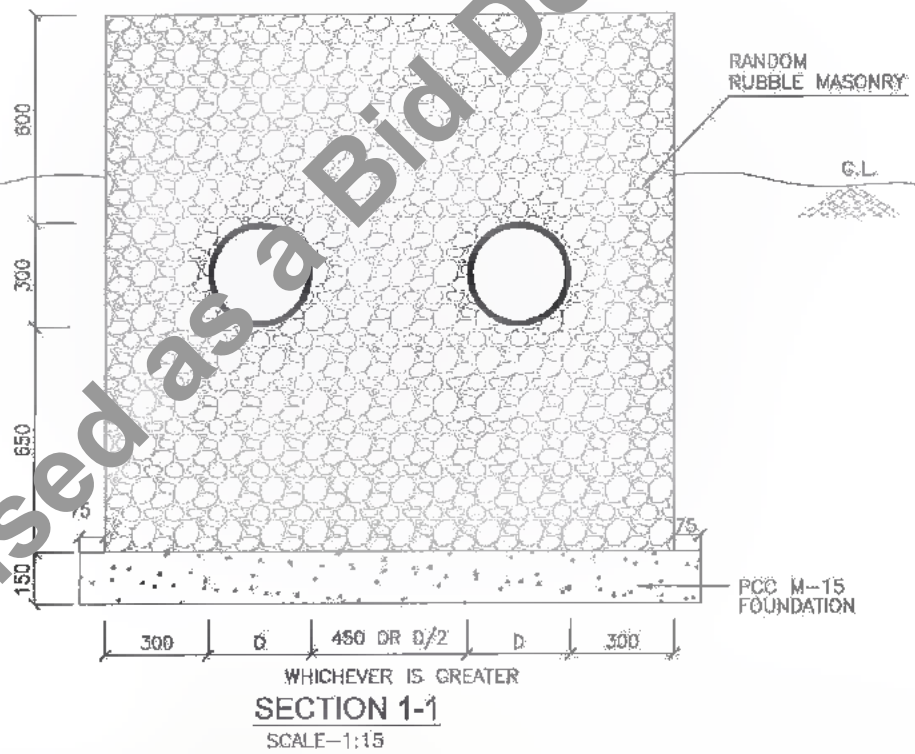
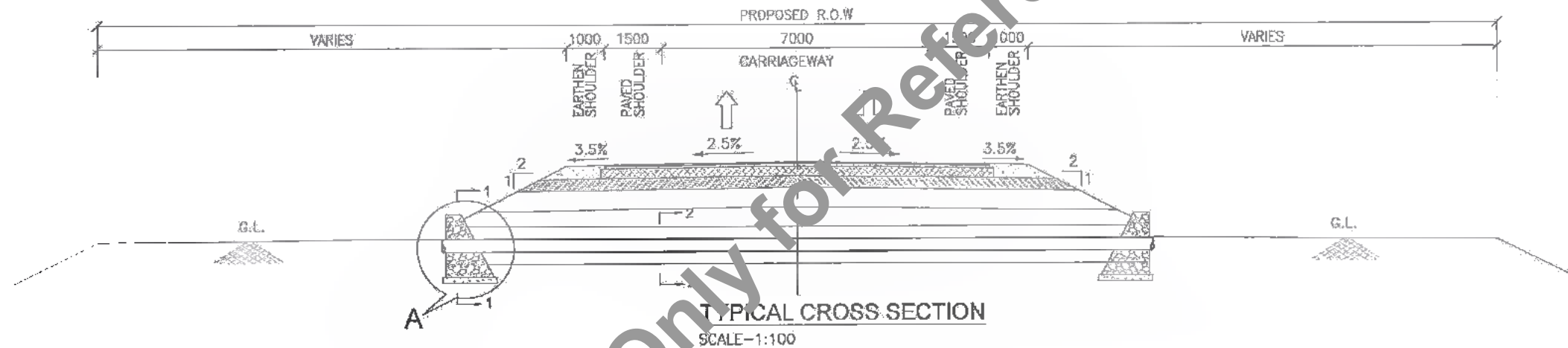
DRAWN BY : R.N.
CHECKED BY : C.S.
APPROVED BY : J.D.
ISSUED BY : B.S.

TITLE : BAYSIL - RAUTA
(PACKAGE-I)
TYPICAL DETAILS OF
INDICATORS

DRG. NO. :
SAI-213007/DPR/TYP - 10
REVISION : PH

SCALE : AS SHOWN.





CLIENT :
Bihar State Road Development Corporation Limited (BSRDC) CL
(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)

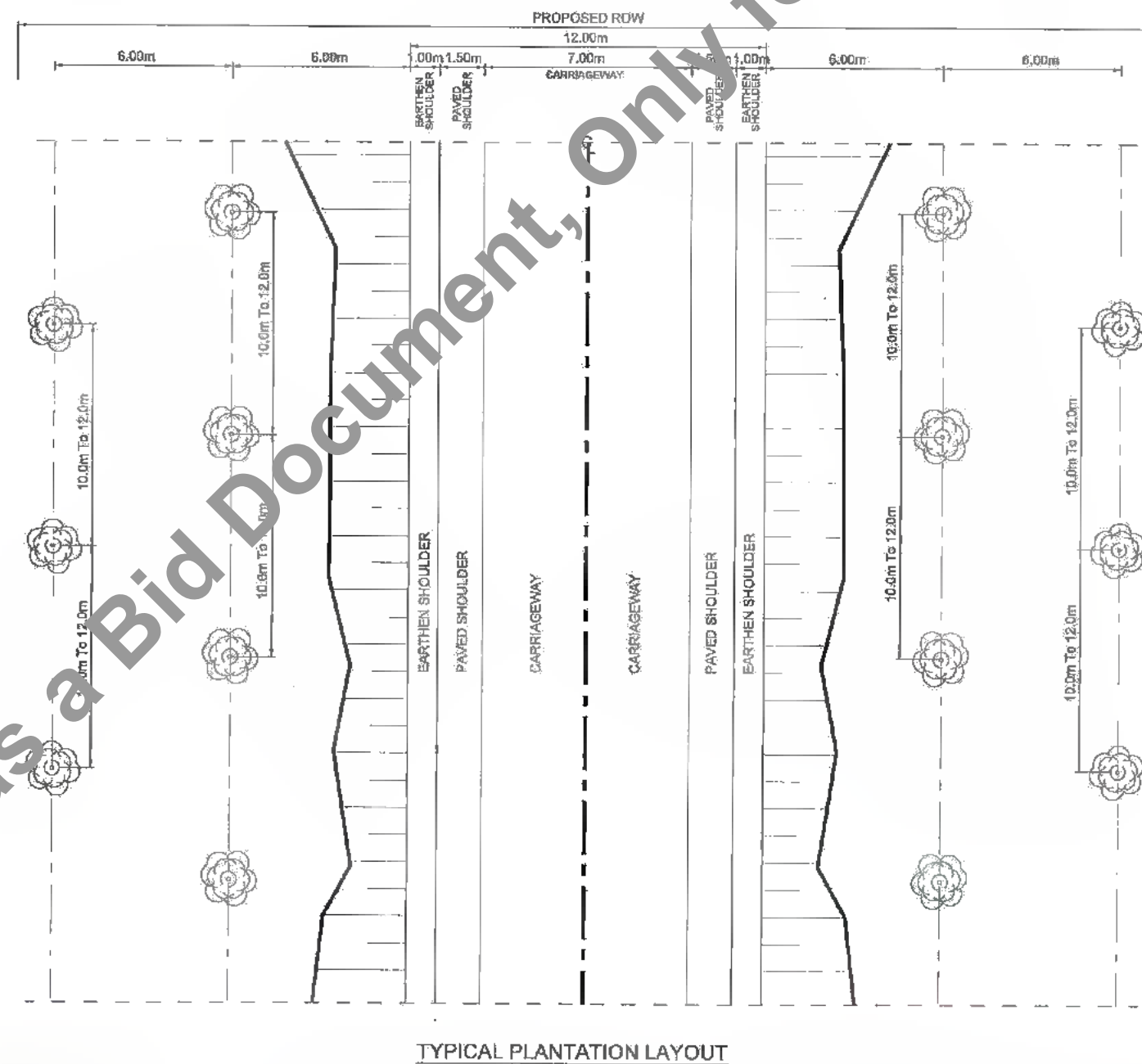
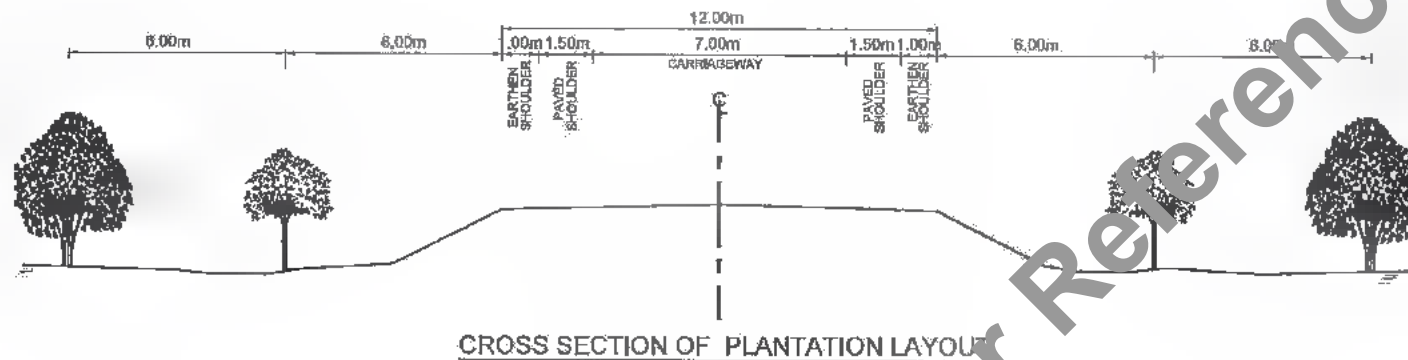
CONSULTANTS :
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A, "SAI House", Sector-10, Gurgaon, Haryana
Phone : 012-2612600/2600700 Fax : 012-2612600
Email : saic@saiconsulting.com

REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	DATE
PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)			
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)			
PE	31/03/17	GOOD FOR CONSTRUCTION (DPR)			
PE	10/04/14	GOOD FOR CONSTRUCTION (DPR)			
PD	26/02/14	ISSUED WITH FINAL DPR			
PC	13/11/13	ISSUED WITH DPR			
PH	29/08/13	ISSUED WITH DPR			

DRAWN BY	: R.N.	CHECKED BY	: C.S.	APPROVED BY	: J.D.
ISSUED BY	: J.D.				

TITLE	: BAYSI - RAUTA (PACKAGE-I)
DETAILS OF UTILITY DUCTS	
DRG. NO. :	SAI-213007/DPR/MTYP - 11
REVISION	: PH

DATE: 20/07/2019 - 5:11 PM
PATH: C:\Users\213007\Desktop\Baysi\Baysi-RAUTA\Baysi-RAUTA.dwg



SYMBOL	TYPE OF TREE
	KACHINAR (BAUHINIA VARIEGATE) AMALTUS (CASSIA FISTULA) PEEPAL (ALBIZZIA LEBECK) for water logged condition & alkaline soil ADNLA (EMBLIC MYROBALAN) SILVER OAK (GREVILLEA ROBUSTA)



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 9001:2015 Certified Company
Block-A, "SM House", Sahibganj Corporate Square, 3rd Floor, Sahibganj, Patna - 800 015 (Bihar)
Phone : +91-91-4513200/10, Fax : +91-91-4513200
Email : mail@saiconsulting.com

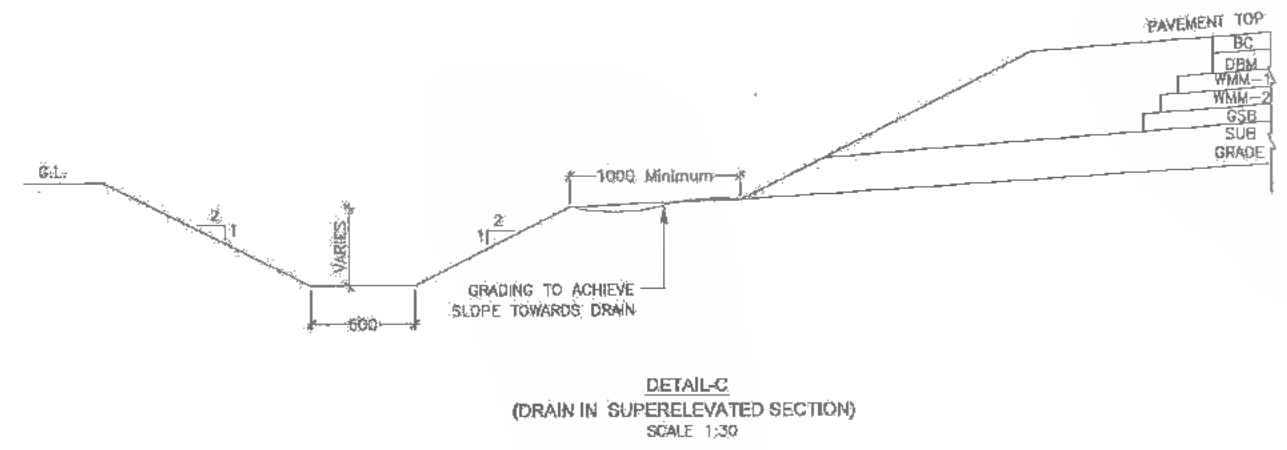
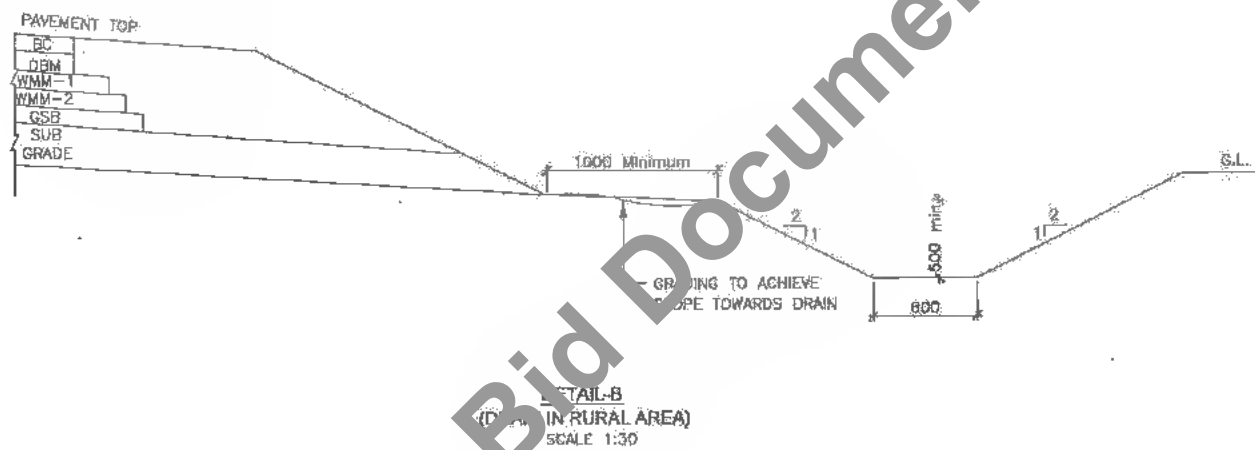
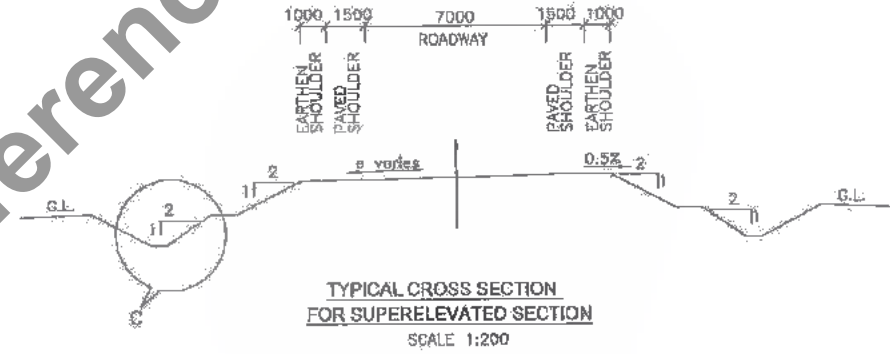
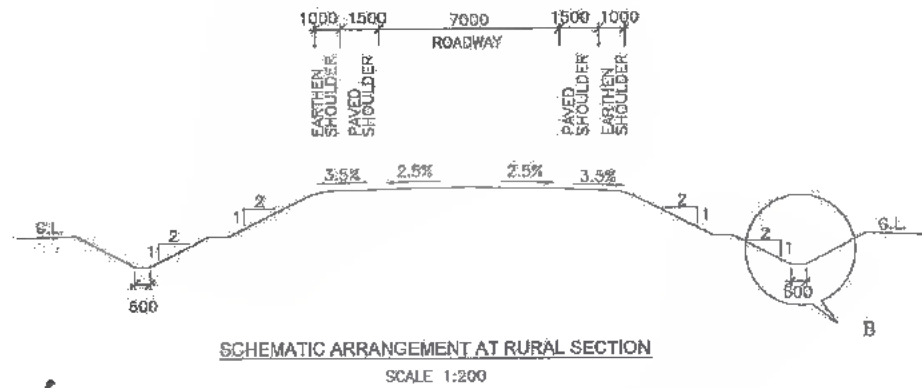
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PE	17/02/19	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY : J.D.	
PD	10/01/14	GOOD FOR CONSTRUCTION (DPR)		ISSUED BY : B.S.	
PC	26/02/14	ISSUED WITH FINAL DPR			
PD	13/11/13	ISSUED WITH DPR			
PC	28/08/13	ISSUED WITH DPR			

SCALE : AS SHOWN

TITLE: BAYSI - RAUTA (PACKAGE-I)
TYPICAL PLANTATION LAYOUT WITH PAVED SHOULDER

DRG. NO.: SAI-213007ADPR/MTYP-12

REVISION: PH



CONSTRUCTION NOTES:

- 1). FOUNDATION OF LINED DRAIN SHALL BE CAST IN PCC OF CONCRETE GRADE M20.
- 2). BASE AND SIDE WALLS OF LINED DRAIN AND CATCH PIT SHALL BE CAST IN M20 GRADE.
- 3). CATCH PIT TO BE PROVIDED AT DESIGNATED LOCATION OF OUTFALL.
- 4). SEE SPECIFIC ADJUSTMENTS TO BE MADE IN HILLY TERRAINS. CONCRETE LINED DRAIN SHOULD BE PROVIDED IN PLACE OF EARTHEN DRAIN.



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
SYSTRA GROUP
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A "SAI House", Sanyam Corporate Square, 8th, Rajgriha, Udaipur, Rajasthan, India-311005
Phone : +91-79-4612040/700, Fax : +91-79-4612041
Email : sai@salindia.com

REV.	DATE	DESCRIPTION	SIGN
PR	31/07/18	GOOD FOR CONSTRUCTION (REVISED DPR)	
PE	17/12/18	GOOD FOR CONSTRUCTION (DPR)	
PF	21/03/17	GOOD FOR CONSTRUCTION (DPR)	
PD	10/04/14	GOOD FOR CONSTRUCTION (DPR)	
PC	26/02/14	ISSUED WITH FINAL DPR	
PS	13/11/13	ISSUED WITH DPR	
PS	26/08/13	ISSUED WITH FFR	

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CHECKED BY : G.S.
APPROVED BY : J.D.

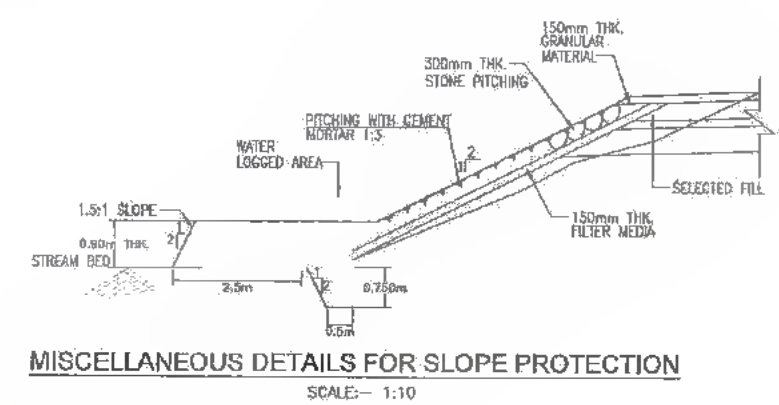
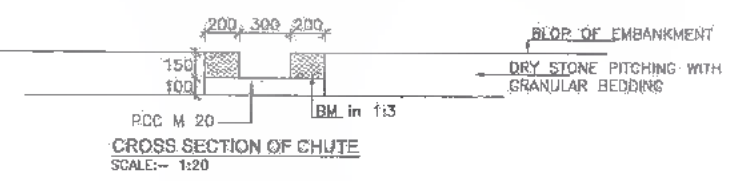
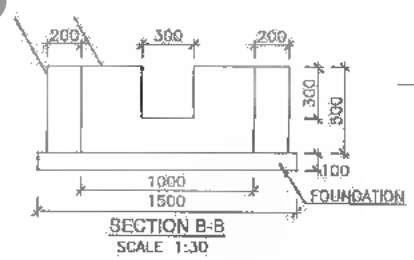
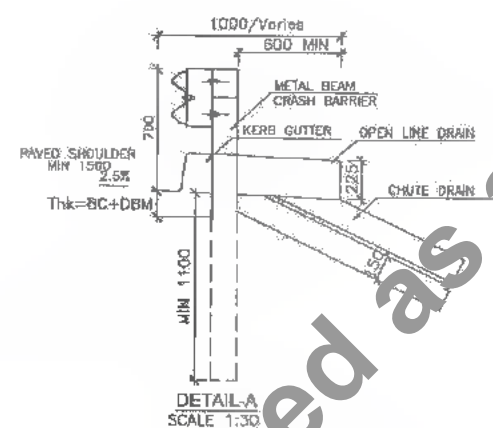
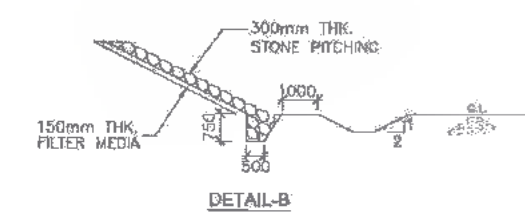
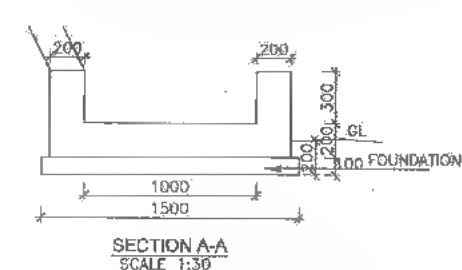
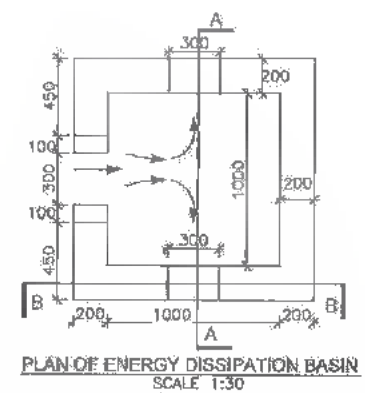
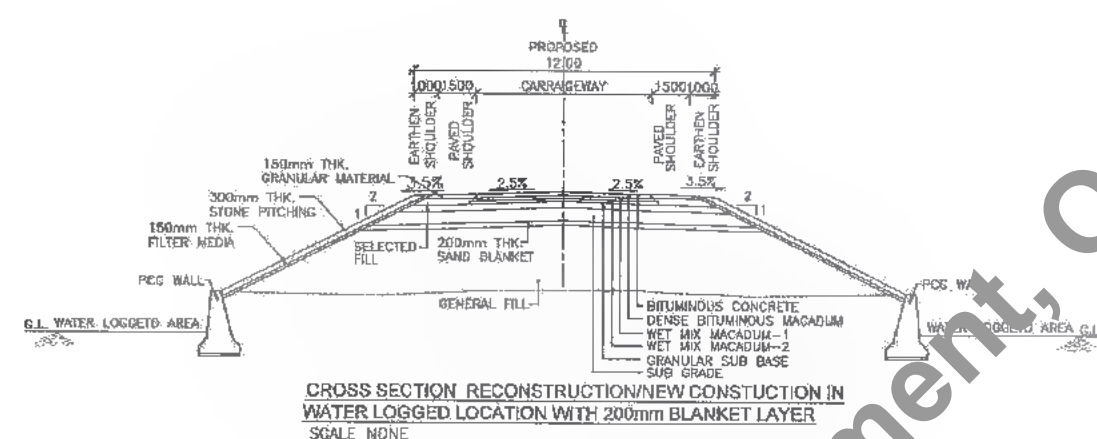
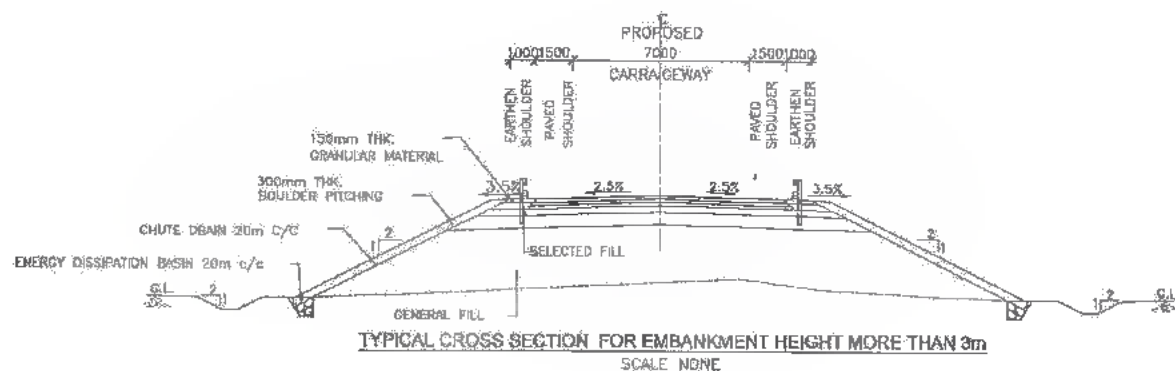
TITLE: BAYS - RAUTA (PACKAGE-I)
DRAIN DETAILS FOR RURAL SECTIONS

SCALE : AS SHOWN

DRG. NO.: SAI-213007/DPR/TYP-14
REVISION: PH



DATE: 25/07/2018, 09:22 AM
PATH: T:\GARD 213007\PROJECTS\BAYS RAUTA\BAYS RAUTA\BAYS RAUTA.DWG



- CONSTRUCTION NOTES:**
- 1). SPACING FOR CHUTES SHALL BE 20M.
 - 2). METAL BEAM OR CONCRETE CRASH BARRIER SHALL BE PROVIDED FOR EMBANKMENT HEIGHT OF 3M.
 - 3). IF EMBANKMENT IS SUBJECTED TO DIRECT FRONTAL ATTACK OF RIVER, SPECIAL PROTECTION MEASURE INDICATED IN ALIGNMENT PLAN DRAWINGS SHALL BE ADOPTED.
 - 4). STONE PITCHING SHALL BE PROVIDED FOR HEIGHT OF EMBANKMENT IS MORE THAN 3M.
 - 5). STONE PITCHING 300MM SHALL BE PROVIDED TO PROTECT EMBANKMENT AGAINST SOIL EROSION AS DIRECTED BY THE ENGINEER.
 - 6). ENERGY DISSIPATION BASIN SHALL BE CONSTRUCTED IN PCC M20 GRADE AND LEVELLING COURSE IN PCC M15 GRADE.
 - 7). METAL BEAM CRASH BARRIER EITHER TO BE INSERTED IN GROUND DIRECTLY.
 - 8). THE SOIL TO BE USED IN EMBANKMENT MORE THAN 6.0M HEIGHT SHOULD HAVE DENSITY MORE THAN 1.79 gm/cc.
 - 9). HIGH EMBANKMENT SHALL BE DESIGNED IN ACCORDANCE WITH IRC-75 AND BORROW SOIL SHALL HAVE ANGLE OF INTERNAL FRICTION(ϕ) NOT LESS THAN 26°.

Client: Bihar State Road Development Corporation Limited (BSRDL) (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	<table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>ISSN</th> <th>ISSUED BY</th> <th>APPROVED BY</th> </tr> <tr> <td>PH</td> <td>31/07/19</td> <td>1000 FOR CONSTRUCTION (REVISED DPR)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>PG</td> <td>17/12/18</td> <td>6000 FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>PE</td> <td>10/09/14</td> <td>6000 FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>PD</td> <td>25/02/14</td> <td>6000 FOR CONSTRUCTION (DPR)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>PO</td> <td>13/11/13</td> <td>ISSUED WITH FINAL DOPR</td> <td></td> <td></td> <td></td> </tr> <tr> <td>PS</td> <td>28/08/13</td> <td>ISSUED WITH DPR</td> <td></td> <td></td> <td></td> </tr> </table>	REV.	DATE	DESCRIPTION	ISSN	ISSUED BY	APPROVED BY	PH	31/07/19	1000 FOR CONSTRUCTION (REVISED DPR)				PG	17/12/18	6000 FOR CONSTRUCTION (DPR)				PE	10/09/14	6000 FOR CONSTRUCTION (DPR)				PD	25/02/14	6000 FOR CONSTRUCTION (DPR)				PO	13/11/13	ISSUED WITH FINAL DOPR				PS	28/08/13	ISSUED WITH DPR				Title: BAYSIL - RAUTA (PACKAGE-I) DRAIN DETAILS FOR HIGH EMBANKMENT DRG. NO.: SAI-213007/DPR/MTYP-15 REVISION: PH
REV.	DATE	DESCRIPTION	ISSN	ISSUED BY	APPROVED BY																																									
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PS	28/08/13	ISSUED WITH DPR																																												



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12/3
654

Design Chainage (M)	PRL at CL (M)	PRL at CW Edge (M)	DRAIN BED LEVEL at RHS (M)	DRAIN BED LEVEL at LHS (M)	Wall HEIGHT at RHS (M)	Wall HEIGHT at LHS (M)
1	2	3	4	5	10	11
0	35.396	35.396	34.435	34.435	0.961	0.961
25	35.341	35.341	34.469	34.469	1.072	1.072
50	34.810	34.790	33.904	33.904	0.896	0.896
75	34.600	34.590	33.639	33.639	0.961	0.961
100	34.625	34.525	33.374	33.374	1.251	1.251
125	34.650	34.550	33.319	33.319	1.240	1.240
150	34.751	34.651	33.264	33.264	1.397	1.397
175	35.003	34.903	33.209	33.209	1.694	1.694
200	35.355	35.255	33.154	33.154	2.111	2.111
225	35.678	35.578	33.099	33.099	2.479	2.479
250	35.678	35.578	33.099	33.099	2.479	2.479

13450	33.327	33.202	30.67	30.67	2.582	2.592
13475	33.373	33.248	30.733	30.733	2.515	2.515
13500	33.42	33.295	30.797	30.797	2.498	2.498
13525	33.466	33.341	30.86	30.86	2.481	2.481
13550	33.513	33.388	30.923	30.923	2.465	2.465
13575	33.558	33.433	30.986	30.986	2.447	2.447
13600	33.584	33.459	31.05	31.05	2.409	2.409
13625	33.589	33.464	31.113	31.113	2.351	2.351
13650	33.572	33.447	31.176	31.176	2.271	2.271
13675	33.536	33.411	31.239	31.239	2.172	2.172
13700	33.495	33.370	31.303	31.303	2.067	2.067
13725	33.455	33.330	31.366	31.366	1.954	1.954
13750	33.415	33.290	31.429	31.429	1.831	1.831
13775	33.374	33.274	31.492	31.492	1.702	1.702
13800	33.312	33.212	31.556	31.556	1.566	1.566
13825	33.21	33.110	31.619	31.619	1.423	1.423
13850	33.077	32.977	31.682	31.682	1.295	1.295
13875	32.944	32.844	31.745	31.745	1.099	1.099
13900	32.889	32.789	31.809	31.809	0.980	0.980
13925	32.944	32.844	31.874	31.874	0.970	0.970
13950	33.069	32.969	31.946	31.946	1.023	1.023
13975	33.195	33.095	32.017	32.017	1.078	1.078
14000	33.322	33.222	32.089	32.089	1.139	1.139

Design Chainage (M)	PRL at CL (M)	PRL at CW Edge (M)	DRAIN BED LEVEL at RHS (M)	DRAIN BED LEVEL at LHS (M)	Wall HEIGHT at RHS (M)	Wall HEIGHT at LHS (M)
1	2	3	4	5	10	11
14000	33.322	33.222	32.089	32.089	1.233	1.233
14025	33.435	33.335	32.16	32.16	1.175	1.175
14050	33.519	33.419	32.232	32.232	1.187	1.187
14075	33.576	33.476	32.303	32.303	1.173	1.173
14100	33.611	33.511	32.375	32.375	1.156	1.156
14125	33.625	33.525	32.447	32.447	1.139	1.139
14150	33.74	33.640	32.518	32.518	1.122	1.122
14175	33.7	33.605	32.59	32.59	1.105	1.105
14200	33.75	33.759	32.661	32.661	1.089	1.089
14225	33.904	33.804	32.733	32.733	1.071	1.071
14250	33.959	33.859	32.805	32.805	1.054	1.054
14275	34.017	33.917	32.876	32.876	1.041	1.041
14300	34.137	34.037	32.948	32.948	1.089	1.089
14325	34.339	34.239	33.019	33.019	1.220	1.220
14350	34.584	34.484	33.091	33.091	1.393	1.393
14375	34.72	34.620	33.163	33.163	1.457	1.457
14400	34.703	34.603	33.175	33.175	1.428	1.428
14425	34.585	34.485	32.913	32.913	1.572	1.572
14450	34.466	34.366	32.65	32.65	1.716	1.716
14475	34.347	34.247	32.387	32.387	1.860	1.860
14500	34.227	34.127	32.125	32.125	2.002	2.002
14525	34.107	34.007	31.862	31.862	2.145	2.145
14550	33.983	33.883	31.6	31.6	2.289	2.289
14555	33.982	33.832	31.495	31.495	2.337	2.337

Design Chainage (M)	PRL at CL (M)	PRL at CW Edge (M)	DRAIN BED LEVEL at RHS (M)	DRAIN BED LEVEL at LHS (M)	Wall HEIGHT at RHS (M)	Wall HEIGHT at LHS (M)
1	2	3	4	5	10	11
22005	34.58	34.455	33.171	33.171	1.284	1.284
22005	34.538	34.413	33.19	33.19	1.223	1.223

DATE: 28/07/2019 11:00 AM
BY: S. K. Singh, Senior Engineer (Roads)
PROJECT: BAYSI - RAUTA
SHEET: 2 OF 2



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:



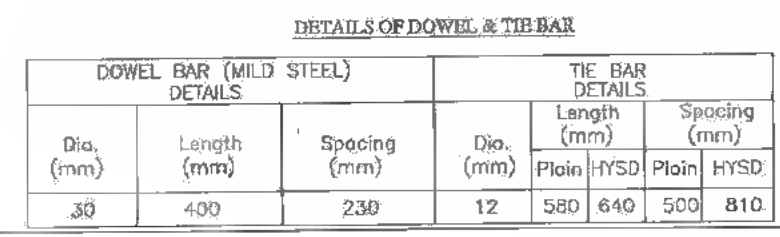
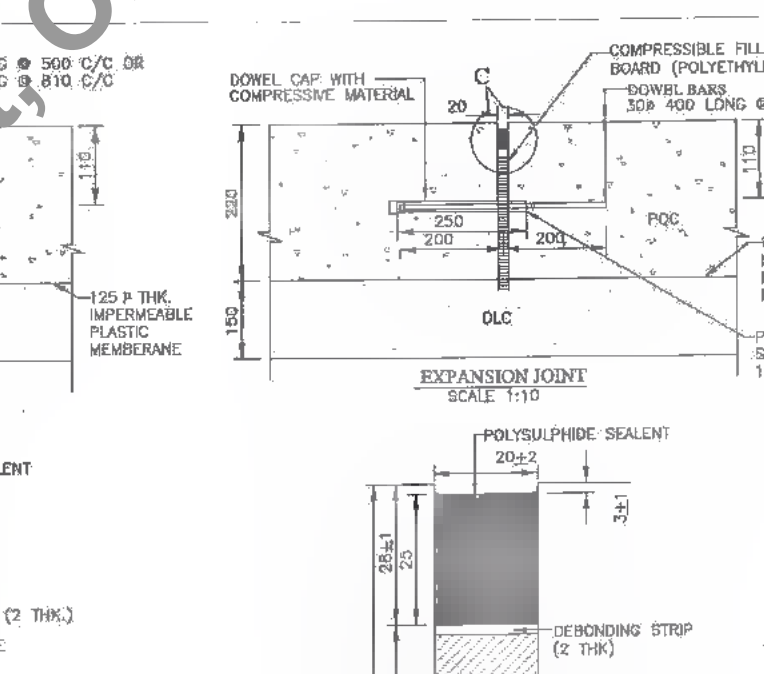
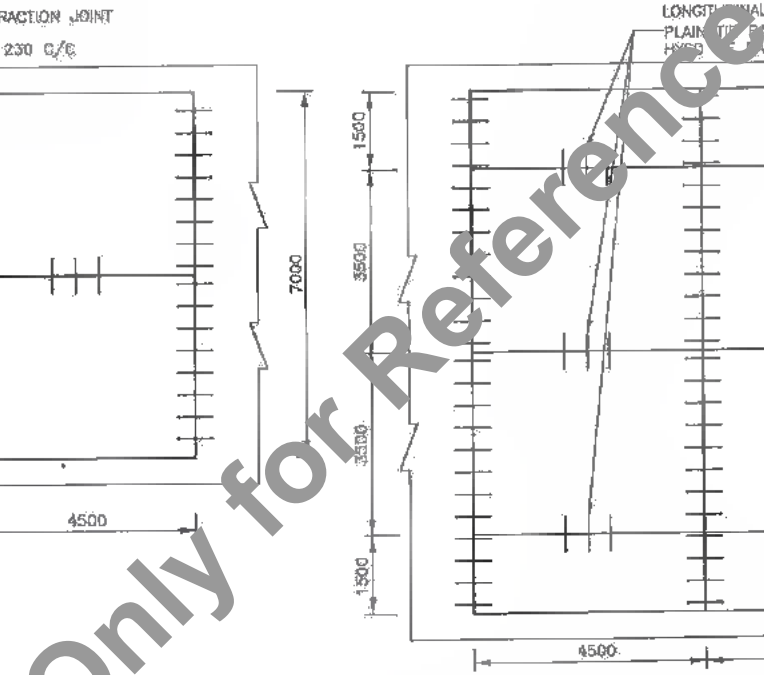
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
Block-A, "SAI House", Sector-10, Gurgaon, Haryana
Phone: +91-12-2600180/181/182/183/184/185
Email: mail@saiconsulting.com

PH	31/07/19	GOOD FOR CONSTRUCTION (REVISED DWP)
PG	17/12/18	GOOD FOR CONSTRUCTION (DPR)
PF	31/03/17	GOOD FOR CONSTRUCTION (DPR)
PE	10/04/14	GOOD FOR CONSTRUCTION (DPR)
PD	26/02/14	ISSUED WITH FINAL DPR
PC	13/11/13	ISSUED WITH DPR
PB	23/08/13	ISSUED WITH ITR

DRAWN BY : R.M.
CHECKED BY : C.S.
APPROVED BY : J.B.
ISSUED BY : B.S.

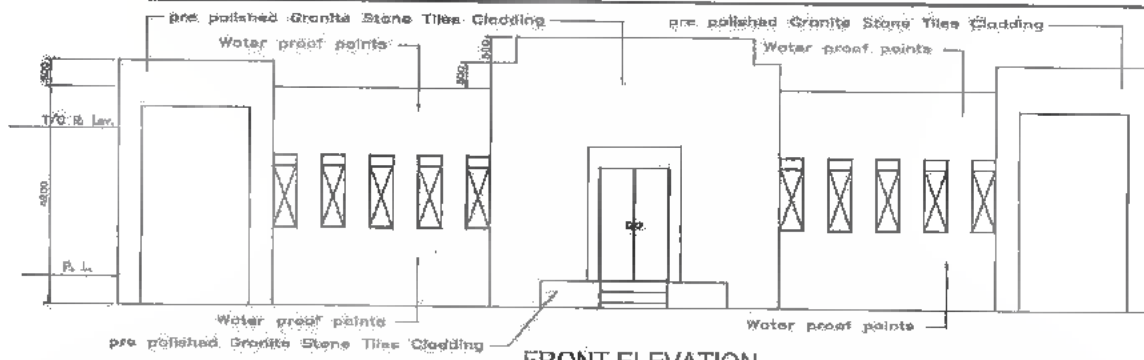
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(PACKAGE-I)
DETAILS FOR
COVERED BOX DRAIN SECTIONS

DRG. NO.: (SHEET-2 OF 2)
SAI-213007/DPR/ITP-16
REVISION: PH

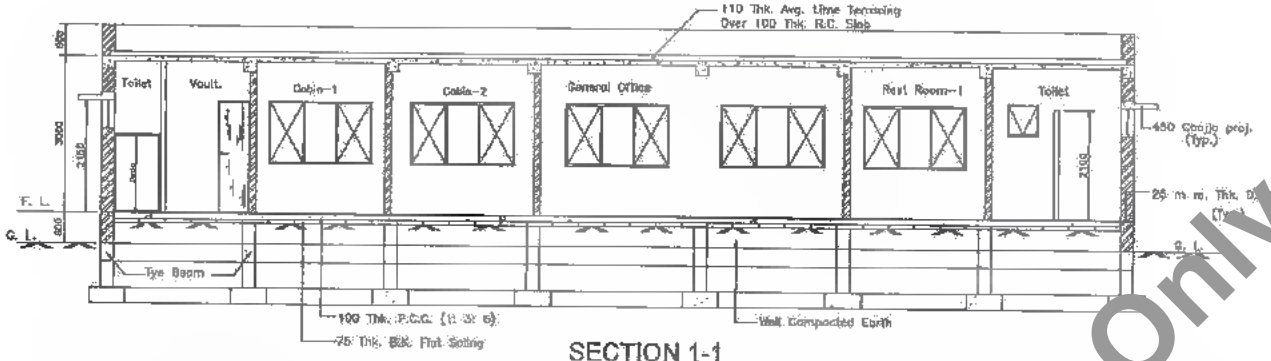


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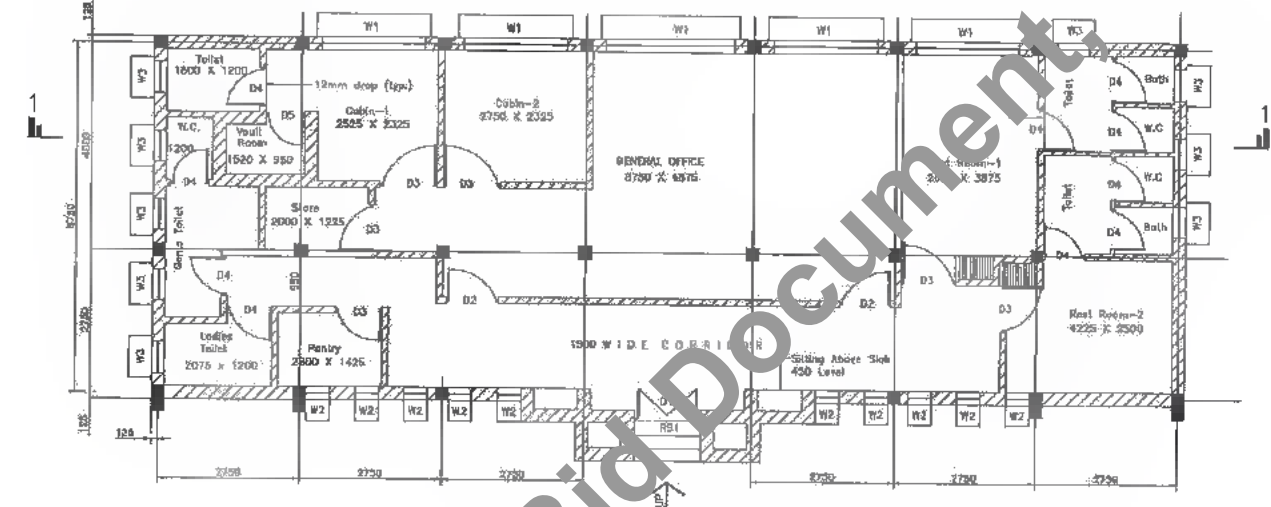
CLIENT:  Bihar State Road Development Corporation Limited (BSRDC) (A Government of Bihar Undertaking)	PROJECT: Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar <i>Baysi - Bahadurganj - Dighalbank (SH-99)</i>	CONSULTANTS:  SAI Consulting Engineers Pvt. Ltd. An ISO 9001 Certified Company Block-A, "SAI House", Saitam Corporate Square, 2nd Floor Chokkikuland, Subashnagar-380009, Gujarat, India Phone : +91-79-5646240/241, Fax : +91-79-5646240 Email : saic@saicenter.com	PH 31/07/18 GOOD FOR CONSTRUCTION (REVISED DPR) PF 17/12/19 GOOD FOR CONSTRUCTION (DPR) PF 17/12/19 GOOD FOR CONSTRUCTION (DPR) PE 10/04/14 GOOD FOR CONSTRUCTION (DPR) PD 28/02/14 ISSUED WITH FINAL DPR PC 13/11/13 ISSUED WITH DPR PB 28/08/11 ISSUED WITH FFR	DRAWN BY : R.M. CHECKED BY : C.S. APPROVED BY : J.B. ISSUED BY : B.S.	TITLE: BAYSI - RAUTA (PACKAGE-4) TYPICAL DETAILS FOR RIGID PAVEMENT
			REG. DATE DESCRIPTION SIGN SCALE : AS SHOWN	DRG. NO.: 'SAI-Z13007/DPR/MTYP - 17' REVISION: PH	



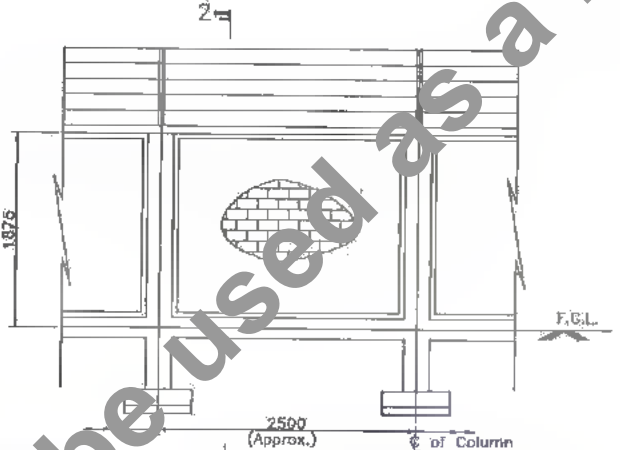
FRONT ELEVATION



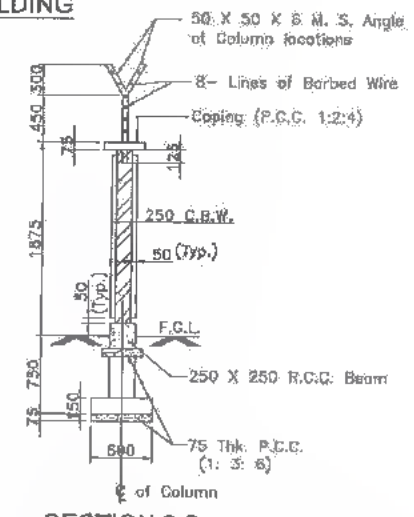
SECTION 1-1



PLAN
ADMINISTRATIVE BUILDING



ELEVATION BOUNDARY WALL



SECTION 2-2

SCHEDULE OF OPENINGS FOR DOOR

SL. NO.	TYPE	SIZE	NOS.	DESCRIPTION
1.	D1	1500 X 2100	1	Wooden Glazed Frame With Double Leaf Wooden Glazed Panel Door
2.	D2	1000 X 2100	2	35 m.m. Wooden Flush Door
3.	D3	900 X 2100	6	35 m.m. Wooden Flush Door
4.	D4	750 X 2100	10	Sintex or Eq. PVC Door
5.	D5	750 X 2100	1	M. S. Door
6.	RS1	1500 X 2100	1	Profile type rolling Shutter

All Doors to be Provided With Locks

SCHEDULE OF OPENINGS FOR WINDOW

SL. NO.	TYPE	SIZE	NOS.	DESCRIPTION
1.	W1	2000 X 2100	5	MS Glazed Window With Side Hung Outside Opening Shutters.
2.	W2	450 X 1200	10	MS Glazed Window With Side Hung Outside Opening Shutters.
3.	W3	600 X 600	10	MS Glazed Window With Bottom Half Fixed & Top Hung
4.	W4	1000 X 300	2	MS Fixed Glazing With 150 x 150 Sq. Panel

SCHEDULE OF FINISHES

AREA	FLOOR/TREAD	SKIRTING / DADO	WALL	CEILING	REMARKS
Entry Lobby / Corridor / Rest Room / Office / Canteen	Terrazzo Floor Cast-in-Situ	150 mm. High Terrazzo	12 mm. Thk. Cement Plaster & White Washing	6 mm. Thk. Cement Plaster & White Washing	
Kitchen / Store / Vault	Terrazzo Floor Cast-in-Situ	For Kitchen Only White Glazed Tile Dado Upto 2100 For Others 150 high Terrazzo Skirting	12 mm. Thk. Cement Plaster & White Washing	6 mm. Thk. Cement Plaster & White Washing	
Toilet	300 X300 Sikk Ceramic Tile	White Glazed Tiles Dado Upto 2100 m.m.	12 mm. Thk. Cement Plaster & White Washing	6 mm. Thk. Cement Plaster & White Washing	

NOTE:

1. All Dimensions Are in Millimetre Unless Stated Otherwise.



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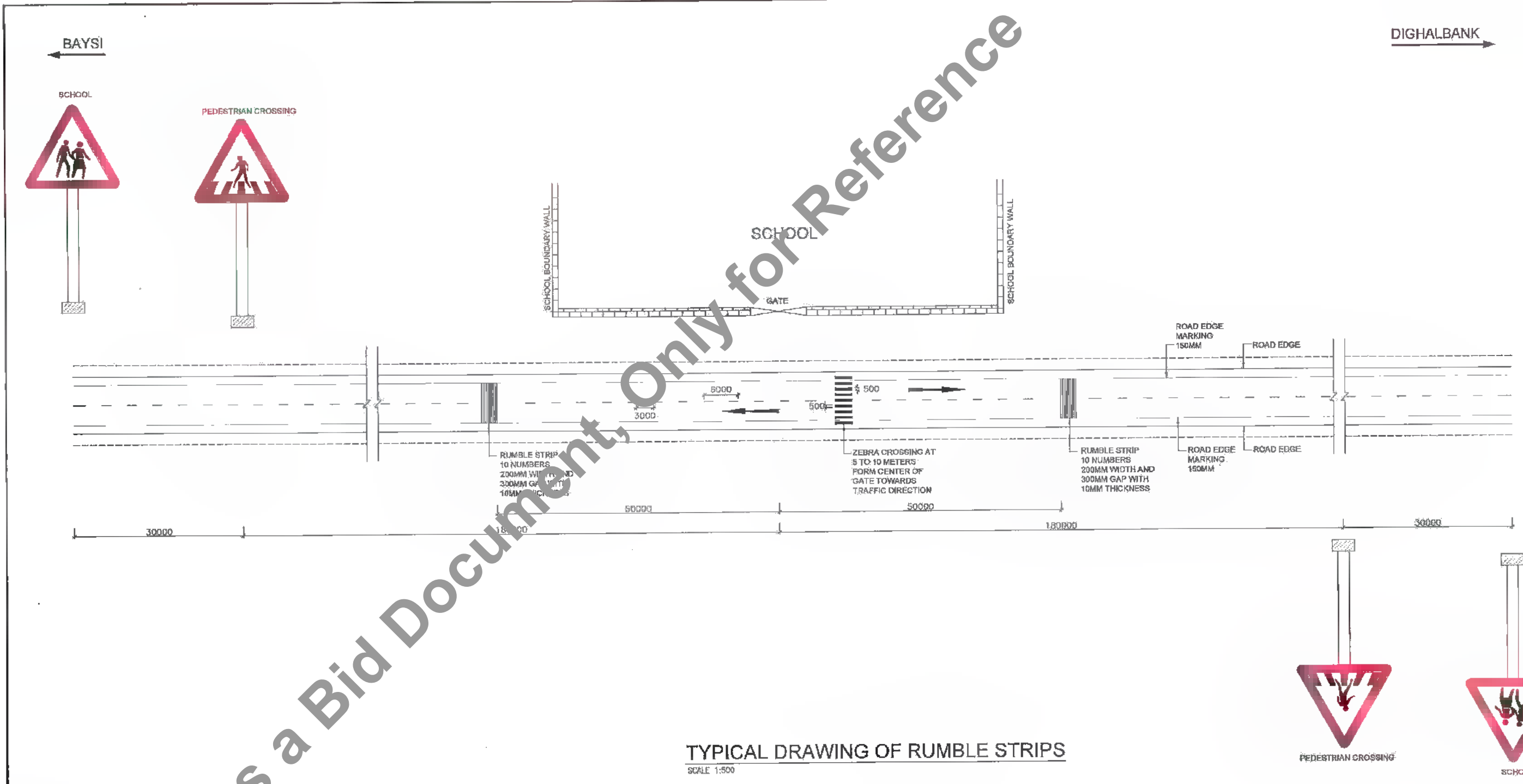
PROJECT:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

CONSULTANTS:
SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
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PH	15/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)		DRAWN BY : R.N.	
PG	17/12/18	GOOD FOR CONSTRUCTION (DPR)		CHECKED BY : C.S.	
PL	17/02/17	GOOD FOR CONSTRUCTION (DPR)		APPROVED BY : J.D.	
PE	19/04/14	GOOD FOR CONSTRUCTION (DPR)		ISSUED BY : R.S.	
PD	26/02/14	ISSUED WITH FINAL DPR			
PC	13/11/13	ISSUED WITH DPR			
PP	28/08/13	ISSUED WITH PPR			

TITLE: BAYSI - RAUTA (PACKAGE-I)
OFFICE CUM RESIDENTIAL COMPLEX FOR PH
DRG. NO.: SAI-213007/OPRM/TYP-18
REVISION: PH



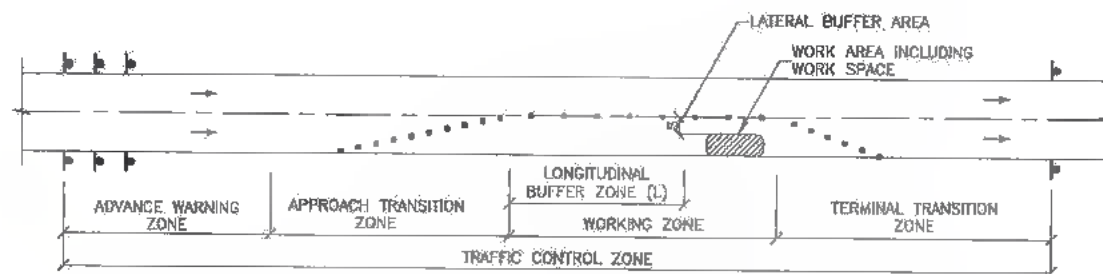


TYPICAL DRAWING OF RUMBLE STRIPS
SCALE 1:500

NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETRE UNLESS STATED OTHERWISE.
MATERIAL AND COLOUR FOR ROAD SIGNS SHALL BE AS PER IRC : 87-2012

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 "SM House", Soljani Corporate Square, B/h Rajpath Club, Bodoland, Ahmedabad - 380009, Gujarat, India Phone : +91-79-86142600/700, Fax : +91-79-86142606 Email : mail@saiconsulting.com		<table border="1"><tr><td>PA.</td><td>17/12/18</td><td>GOOD FOR CONSTRUCTION (GPR)</td></tr><tr><td>REV.</td><td>DATE</td><td>DESCRIPTION</td></tr></table>		PA.	17/12/18	GOOD FOR CONSTRUCTION (GPR)	REV.	DATE	DESCRIPTION	<table border="1"><tr><td>DRAWN BY :</td><td>RAH</td></tr><tr><td>CHECKED BY :</td><td>C.S.</td></tr><tr><td>APPROVED BY :</td><td>J.D.</td></tr><tr><td>ISSUED BY :</td><td>S.S.</td></tr></table>		DRAWN BY :	RAH	CHECKED BY :	C.S.	APPROVED BY :	J.D.	ISSUED BY :	S.S.	TITLE : BAYSI - RAUTA (PACKAGE-I) TYPICAL DETAILS OF RUMBLE STRIPS	
PA.	17/12/18	GOOD FOR CONSTRUCTION (GPR)																							
REV.	DATE	DESCRIPTION																							
DRAWN BY :	RAH																								
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ISSUED BY :	S.S.																								
						DRG. NO. : SAI-213007/IDPR/MTYP-18																			
						REVISION : PA																			





ELEMENTS OF TRAFFIC CONTROL ZONE

GENERAL NOTES

- THE RECOMMENDED LENGTHS FOR EACH COMPONENT OF TRAFFIC CONTROL ZONES FOR A WELL LOCATED SITE ARE GIVEN IN THE FOLLOWING TABLE. IT MAY BE NECESSARY TO EXTEND THE ADVANCED WARNING ZONE WHERE APPROACH VISIBILITY IS POOR. HOWEVER, THE ZONE LENGTH SHOULD NOT BE LESS THAN THE VALUES SPECIFIED IN THE FOLLOWING TABLE.

AVERAGE APPROACH SPEED (km/h)	LENGTH OF ADVANCE WARNING ZONE (m)	LENGTH OF APPROACH TRANSITION ZONE (m)	LENGTH OF WORKING ZONE (m)
50 or less	100	50	VARIES
51-80	100-200	50-100	VARIES
81-100	200-300	100-200	VARIES
Over 100	1000	200-300	VARIES

- PRIOR TO ANY ROAD CONSTRUCTION, TRAFFIC CONTROL SIGNS AND DEVICES SHALL BE IN PLACE.
- ALL EXISTING ROAD SIGNS, PAVEMENT MARKINGS AND ANY OTHER TRAFFIC CONTROL DEVICES WHICH CONFLICT WITH THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE COVERED, REMOVED OR RELOCATED.
- MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE DONE IN ACCORDANCE WITH IRC:SP:55:2001, "GUIDELINES ON SAFETY IN ROAD CONSTRUCTION ZONES." THE SIZE, COLOURS AND PLACEMENT OF SIGNS SHALL CONFORM TO IRC:67 AND IRC:SP:55:2001, UNLESS OTHERWISE NOTED IN THE PLANS.
- THE CONTRACTOR SHALL PREPARE A PLAN FOR THE SAFE ACCESS OF CONSTRUCTION VEHICLES THROUGHOUT THE WORK SITE WHERE SPACE CONSTRAINTS PREVENT THE USE OF LANE CLOSURES.
- ALL EXCAVATED AREAS WITHIN OR ADJACENT TO THE ROADWAY SHALL BE BACKFILLED AND GRADED ON A MINIMUM 1V:6H SLOPE PRIOR TO THE END OF EACH WORK DAY. OTHER EXCAVATED AREAS WITHIN THE CLEAR ZONE ARE TO BE EITHER BACKFILLED OR A TYPE II BARRICADE SET TEMPORARILY IN PLACE TO SHIELD VEHICULAR AND PEDESTRIAN TRAFFIC. IF THE EXCAVATIONS ARE DEEPER THAN 1.2 M, STRONG BARRIERS SHALL BE REQUIRED.
- BITUMINOUS LAYERS PLACED DURING THE VARIOUS CONSTRUCTION STAGES SHALL BE TRANSITIONED ON A MINIMUM 1V:20H SLOPE TO MEET THE ADJACENT EXISTING GRADE AT THE LONGITUDINAL AND TRANSVERSE LIMITS OF THE STAGE CONSTRUCTION.
- CONSTRUCTION ZONE SPEED LIMIT TO BE DECIDED ON SITE BY INDEPENDENT RESIDENT ENGINEER. A REDUCED SPEED AHEAD SIGN SHOULD BE LOCATED IN ADVANCE OF THE SPEED LIMIT SIGN WHICH WILL REDUCE THE NORMAL POSTED SPEED LIMIT SIGN THROUGH THE CONSTRUCTION ZONE.
- TRAFFIC CONTROL DEVICES FOR LANE CLOSURES INCLUDING SIGNS, BARRICADES ETC. SHALL BE PLACED AS SHOWN IN IRC:SP:55:2001. SIGNS SHALL NOT BE PLACED WITHIN ACTUAL LANE CLOSURES AND SHALL BE IMMEDIATELY REMOVED UPON REMOVAL OF THE CLOSURE.
- GAPS IN WORK AREA MAY BE AVOIDED AS THESE MAY ALSO GIVE AN IMPRESSION TO THE ROAD USERS THAT THEY HAVE PASSED THE WORK AREA. THE GUIDE SIGNS IN THIS REGARD SHOULD BE INSTALLED AT APPROPRIATE LOCATIONS.
- AS FAR AS POSSIBLE, ROAD WORKS IN URBAN AREAS SHOULD BE CARRIED OUT AT NIGHT. WHENEVER NIGHT TIME ROAD REPAIRS ARE NOT POSSIBLE, THEN ONLY DAY TIME REPAIRS SHOULD BE CARRIED OUT. REPAIRS DURING PEAK HOURS SHOULD ALSO BE AVOIDED. ADEQUATE MEASURES FOR PEDESTRIAN SAFETY SHOULD BE TAKEN IN URBAN AREAS.
- DEFINITION/SUPPLEMENTARY PLATE SHALL BE PLACED (BELOW) 150 MM FROM THE BOTTOM OF WARNING SIGNS.
- THE ROAD WIDTH THROUGH THE CONSTRUCTION ZONE MUST BE AT LEAST AS TRAFFIC MANAGEMENT PLAN FOR TWO WAY TRAFFIC TO ENSURE THAT THE PROBLEMS FOR BUSES AND LORRIES ARE MINIMIZED. A GREATER WIDTH IS DESIRED IF THERE ARE A HIGH PROPORTION OF VULNERABLE ROAD USERS.
- ON THE ROADS WITH BUSES OR GOODS VEHICLES AND LOW FLOWS OF VULNERABLE USERS, WIDTH OF 5.5 M COULD BE ADEQUATE BUT TWO-WAY WORKING WOULD NOT BE POSSIBLE. IN THIS CASE THE CONES SHOULD BE USED TO REDUCE THE CARRIAGEWAY TO NOT MORE THAN 3.7 M AND TRAFFIC SHOULD BE CONTROLLED BY GUIDELINES GIVEN IN IRC:SP:55:2001.
- THE MINIMUM WIDTH OF ONE-WAY TRAFFIC IS 3.25M WITH AN ABSOLUTE MINIMUM OF 3 M.
- IN CASES WHERE A TRAFFIC CONTROL ZONE MAY AFFECT AN ADJACENT RAILWAY CROSSING AND THERE IS A CHANCE THAT TRAFFIC MAY BLOCK BACK ACROSS THE RAILWAY LINE, THE RAILWAY AUTHORITIES SHOULD BE INFORMED. ADEQUATE MEASURES SHOULD BE TAKEN TO MONITOR SUCH SITUATIONS AND TO ENSURE THAT THE TRAFFIC DOES NOT WAIT ON THE CROSSING ITSELF.
- THE LENGTH OF THE DOWNSTREAM OR CLOSING TAPER, PLACED IN THE TERMINAL TRANSITION ZONE, MAY BE 25-30 m.

SIZE AND SITING DISTANCE DETAIL OF SIGNS AND CONES

Type of Road	Minimum and Normal maximum siting distance "D" (m)	Minimum clear visibility to first sign (m)	Minimum size of signs (mm)	Minimum height of cones (or equivalent delineator) (mm)	Details of lead-in cone tapers (Note 2)	Width of Hazard (m)
All purpose single carriageway road, urban, restricted to 50 km/h or less	25 to 50	60	600	500	Length of Transition Zone "T" (m) Minimum number of cones Minimum number of lamps at night	1 2 3 4 5 6 7 13 26 39 52 65 78 91 4 3 6 7 9 10 12 3 3 5 5 8 9 11
All purpose single carriageway road, restricted to 60 km/h or less	50 to 110	60	750	500	Length of Transition Zone "T" (m) Minimum number of cones Minimum number of lamps at night	20 40 60 80 100 120 140 4 6 8 10 13 15 17 3 5 7 9 12 14 16
All purpose divided carriageway road, restricted to 60 km/h or less	110 to 275	60	750	500	Length of Transition Zone "T" (m) Minimum number of cones Minimum number of lamps at night	25 50 75 100 125 150 175 4 7 10 13 15 18 21 3 6 9 12 14 17 20
All purpose single carriageway road, with speed limit 80 km/h or less	275 to 450	75	900	500	Length of Transition Zone "T" (m) Minimum number of cones Minimum number of lamps at night	25 50 75 100 125 150 175 4 7 10 13 15 18 21 3 6 9 12 14 17 20
All purpose divided carriageway road, with speed limit 80 km/h or more	725 to 1800	105	1200	750	Length of Transition Zone "T" (m) Minimum number of cones Minimum number of lamps at night	32 64 96 128 160 192 224 5 9 12 16 19 23 25 4 8 11 15 18 22 25

NOTES

- ON ROADS WITH SPEED LIMITS OF 60 KM/H OR MORE, ALL ADVANCE SIGNS SHOULD HAVE PLATES GIVING THE DISTANCE TO THE WORKS IN m OR km.
- LEAD-IN TAPERS USED WITH TRAFFIC CONTROL, AND ALL EXIT TAPERS, SHALL BE ABOUT 45° TO THE KERB LINE WITH CONES SPACED 1.2 m APART.
- THE MAXIMUM SPACING DISTANCE OF CONES IN LONGITUDINAL LENGTHS OF CONING SHALL BE 9 m, BUT NOT LESS THAN 2 CONES SHALL BE USED IN ANY LENGTH BETWEEN TAPERS.
- THE RANGE OF SITING DISTANCE (D) IS GIVEN TO ALLOW THE SIGN TO BE PLACED IN THE MOST CONVENIENT POSITION BEARING IN MIND AVAILABLE SPACE AND VISIBILITY FOR DRIVERS.
- IT MAY BE APPROPRIATE TO USE THE NEXT LARGER SIZE OF CONE IN LEAD-IN TAPERS I.e. 750 mm CONES IN TAPERS WHERE 450 mm CONES ARE INDICATED IN THE TABLE. IF 1.0 m HIGH CONES ARE AVAILABLE, THESE ARE RECOMMENDED FOR EXPRESSWAYS AND HIGH SPEED ROADS.

BUFFER ZONE SAFETY CLEARANCES

Speed Restriction (km/h)	Minimum Longitudinal Buffer Zone (L) (m)	Minimum Lateral Buffer Zone (S) (m)
50 or Less	5	0.5
60	15	0.5
80	30	1.2
100	60	1.2
120	120	1.2



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

CONSULTANTS:
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SAI Consulting Engineers Pvt. Ltd.
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REV.	DATE	DESCRIPTION	SIGN	ISSUED BY	DATE
PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)			
PD	28/12/18	GOOD FOR CONSTRUCTION (DPR)			
PC	10/04/18	GOOD FOR CONSTRUCTION (DPR)			
PR	26/02/14	ISSUED WITH FINAL DPR			
PA	13/11/13	ISSUED WITH DPR			

TITLE: BAYSI - RAUTA (PACKAGE-I)
TRAFFIC SAFETY DURING CONSTRUCTION

DRG. NO.: SAI-213007/DPR/MT/PTM-01
REVISION: PE



Traffic Management Requirements and Construction Methodology

Contractor's Submission

The Contractor shall submit, for the Engineer's approval, Traffic Management Plans and associated method statements at least 7 working days prior to commencement of the works. The Traffic Management Plans and method statements shall include the following minimum information and details:

- 1) Proposed location and sequence of sub-sections for construction.
- 2) Proposed staging of "half-width" by "half-width" road construction and traffic safety and control.
- 3) Details of transitions to maintain safe traffic flow between various road construction stages.
- 4) Details of temporary diversions in accordance with Specification Clause 112.3.
- 5) Typical details of arrangements for construction under traffic including details of traffic arrangements after the cessation of work each day.

Special consideration shall be given in the Traffic Management Plans to the safety of pedestrians and workers, both by day and at night.

Temporary diversions will be constructed only with the approval of the Engineer.

In general the contractor must plan his works in consideration of the following basic principles:

1. Partial pavement construction over long lengths shall not be permitted. The contractor should concentrate his activities over sections such that he can complete continuous fronts of up to a maximum of say 10km before starting the adjacent front. (10km is taken as a reasonable guide.) The contractor may open more than one continuous 10km front provided that he has the separate resources to do so. The resources working on a 10km front may not be shifted to another front until no longer required on that front. It is acknowledged that as one front nears completion plant will become available to work on a successive front. This implies some inevitable overlap between one front and its successor, which is acceptable.
2. The construction activities should be staggered over sub-sections to the extent that the use of plant and equipment is optimized for maximum efficiency and to avoid idling. For road widening operations, excavation adjacent to the existing road shall not be permitted on both sides simultaneously. Earthworks must be completed to the level of the existing road before excavation work on the opposite side will be permitted.
3. The construction operations taking place on a particular front must be managed efficiently such that delays between successive pavement layers are minimized.
4. Before the start of the monsoon season (June) the contractor shall ensure that the pavement over any front is complete, full width, at least to DBM level, but preferably with AC wearing course. The contractor should not start any sections of pavement that he cannot complete by the start of the monsoon season.
5. In the absence of permanent facilities, temporary drainage and erosion control measures, as required by the Specifications, are to be implemented prior to the onset of the monsoon.
6. Project road has its own unique conditions and therefore the above traffic management concept should be modified to suit, but respecting the basic principle of completion of discrete sections.
7. Works on CD structures requiring diversions should be sequenced in with the overall traffic management plan, but can be treated independently of the established 10km working fronts where separate resources are available.
8. When separate traffic diversions are required for CD works and other situations that demand them, the minimum requirements of Spec Clause 112.3 should be equalled or bettered. Such diversions should have smooth connections to the road with well-established and clear signage to give all required information to the road user. Such diversions should be maintained throughout their required duration.
9. In general traffic management and safety measures implemented should be inspected regularly (day and night) to rectify problem areas before giving cause for complaint.
10. The Employer is highly concerned about the quality of traffic management and safety as an integral part of the project and will not compromise on this aspect.

Separate traffic diversions as per Spec. Clause 112.3 shall in general be required for the following construction situations as determined by the Engineer:

- 1) For CD reconstruction
- 2) For CD widening if considered necessary by the Engineer
- 3) For new road works when the FRL is substantially above existing RL
- 4) For new road works when the FRL is substantially below the existing RL such that a separate diversion is required in the judgment of the engineer

The above criteria may be adjusted as decided by the Engineer if alternative methodology is possible and cost-effective as per actual site conditions. The above criteria may also be adjusted where the design centreline is significantly offset with respect to the existing.

In cases where separate traffic diversions are not essential or cost effective the construction methodology should be in accordance with the guidelines following:

The contractor working a 10km section, the pavement construction (except new alignments) should be limited to 500m sub-sections with a minimum of 1 to 1.5 km between successive sub-sections to ease traffic management and safety issues. The earthworks in the widening portions are not limited in this respect. Excavation on both sides of the existing road over the same sub-section simultaneously shall not be permitted for reasons of safety to the traffic, particularly at night. Sub-sections longer than 500m may be authorized by the Engineer if two-way traffic flow can be comfortably managed and the Contractor can demonstrate his ability to maintain dust control, proper road edge delineation, proper signage and traffic control. The number of sub-sections open for construction shall suit the contractor's needs to meet his approved clause 14 Programme.

Where single file traffic is permitted (only applicable to final wearing course operations), the sub-sections shall be reduced to a maximum length whereby safe traffic regulation can be physically managed. Single file traffic may not be permitted at certain locations or times of the day when traffic volumes are such that excessive congestion shall occur.

Three typical traffic management scenarios for which separate traffic diversions are not required are illustrated on the attached drawings and described as follows:

Case 1: Proposed FRL at Approximately the same level as the existing RL (Refer to drawing TM-03) Overlay Sections

Stage 1

1. Traffic running normally on the existing road.
2. Install proper edge delineation and temporary road signs on existing carriageway edge.
3. Construct the earthworks on one side only with proper benching into the existing embankment as appropriate and as per Pavement Crust design upto Selected fill of Earthen Shoulder. Temporary additional widening by 2.50m would be required. This shall later form part of permanent works, hence should be constructed as per contract specification.
4. Construct temporary overfilling to match the level of the adjacent existing pavement.

Stage 2

1. Divert traffic on new partial construction and half width of existing road.
2. Install proper edge delineation and temporary road signs to suit next stage. Earth running surface to be kept watered periodically to control dust.
3. Breakout / excavate earthen shoulder of existing road on the other side. Reuse salvaged materials elsewhere or dispose as appropriate.
4. Prepare cut formation as per Spec Clause 301.6 or as otherwise directed by the Engineer.
5. Construct earthworks to the design levels including the use of salvaged materials from the existing road where possible.
6. Scarify the bituminous surface of existing carriageway if required for overlay. Construct BM/ DBM /BC including Profile correction and Earthen Shoulder with Granular top to the design levels.
7. BC and earthen shoulder completed to half width. Adjust temporary delineation and signs ready for next stage.

Stage 3

1. Divert traffic onto the new prepared carriageway and work on the other side.
2. Scarify temporary earthworks and break out remaining portion of the earthen shoulder of existing road, which is not part of permanent works. (salvage materials for reuse in earthworks of adjacent section)
3. Construct earthworks / granular earthen shoulder to the design levels including use of salvaged materials from the existing road where possible.
4. Scarify the bituminous surface of existing carriageway if required for overlay. Construct BM/ DBM /BC including Profile correction and Earthen Shoulder with Granular top to the design levels.
5. Construct BC wearing course complete half width.

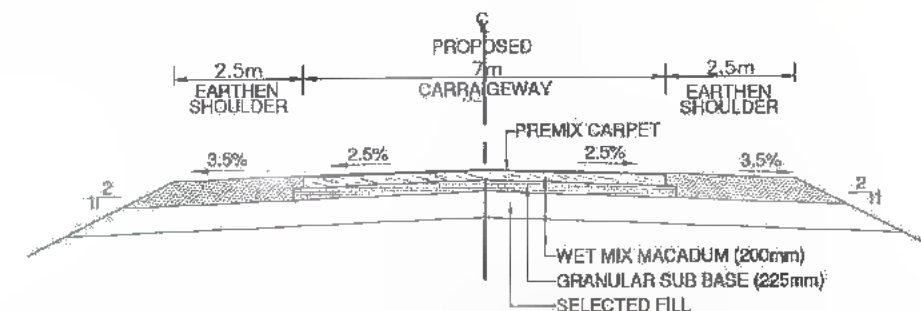
(The Engineer may allow the full road width to be open for traffic after completion of DBM (Stage 3) provided that wearing course operations follow without undue delay.)

Stage 4

1. Regulate traffic to single file flow properly controlled by signalmen while the BC wearing course is completed on the other side to complete the full width, if Stage 2 completed with DBM only.
2. Shoulders and side slopes made good and finished during this stage.
3. This stage with single file traffic flow should be limited to the shortest duration possible to minimize disruption to traffic flow.

Move to the next 500m and repeat the process. The bituminous paving works should be planned in conjunction with the staging of the road base works to give a continuity of operations in accordance with the contractor's materials production and paying rate. The bituminous paving works must take place as soon as practicable.

During paving operations short stretches of alternating single file traffic may be permitted during off-peak times. Traffic control for single file traffic must meet the approval of the Engineer and be diligently controlled throughout its implementation.



TYPICAL CROSS SECTION FOR DIVERSION

CLIENT :



Bihar State Road Development Corporation
Limited (BSRDC) (M. Tech.)
(A Government of Bihar Undertaking)
Bihar State Road Development Corporation
P.O. Box 10, Patna - 800 001

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, B-4, Rajendra
Nagar, New Delhi-110028
Phone : +91-11-64112500/2001/2002 +91-11-66611000
Email : mail@saiconsulting.com

PE 31/07/19 GOOD FOR CONSTRUCTION (REVISED DPR)
PD 28/12/18 GOOD FOR CONSTRUCTION (DPR)
PS 10/04/14 GOOD FOR CONSTRUCTION (DPR)
PS 26/02/14 ISSUED WITH FINAL ORDER
PA 13/11/13 ISSUED WITH DPR

REV. DATE DESCRIPTION SIGN

SCALE : 1/125

DRAWN BY : R.M.

CHECKED BY : C.S.

APPROVED BY : J.D.

ISSUED BY : B.S.

TITLE : BAYSIL - RAUTA
(PACKAGE-I)
TRAFFIC MANAGEMENT
REQUIREMENTS AND
CONSTRUCTION METHODOLOGY

DRG. NO. : SAI-213007/DPR/M/TYP/TM - 02

REVISION : PE



Case 2: Proposed FRL upto 0.5m above the existing RL (Refer to drawings TM-04)
Reconstruction Sections

Stage 1

1. Traffic running normally on the existing road.
2. Install proper edge delineation and temporary road signs on existing carriageway edge.
3. Construct the earthworks on one side only with proper benching into the existing embankment as appropriate with approved material. Temporary additional widening by 3.00m (min.) would be required.
4. Construct temporary overfilling to match the level of the adjacent existing pavement.

Stage 2

1. Install proper edge delineation and temporary road signs.
2. Divert traffic on new partial construction and half width of existing road. Earth running surface to be kept watered periodically to control dust.
3. Breakout half width of the existing road on the other side. Reuse salvaged materials elsewhere or dispose as appropriate.
4. Prepare cut formation as per Spec Clause 301.6 or as otherwise directed by the Engineer.
5. Construct earthworks to the design levels including the use of salvaged materials from the existing road where possible.
6. Construct GSB to the design levels.
7. Adjust temporary delineation and signs ready for next stage.

Stage 3

1. Divert traffic onto the new GSB and work on the other side.
2. Break out remaining portion of the existing road (salvage materials for reuse in earthworks of adjacent section,) and trim adjacent earthworks to the required level.
3. Prepare cut formation as per Spec Clause 301.6.
4. Construct earthworks to the design levels including use of salvaged materials from the existing road where possible.
5. Construct GSB and WMM layers to the design levels.
6. Construct DBM and earthen shoulder for complete half width. (or BC II approved by The Engineer)
7. Adjust temporary delineation and signs ready for next stage.

Stage 4

1. Divert traffic onto the new DBM and work on the other side.
2. Prepare surface of GSB, repair any traffic damage.
3. Construct WMM and DBM. (DBM now complete to full width.)

Stage 5

1. Regulate traffic to single file flow properly controlled by signalmen while the BC wearing course is completed on each side to complete the full width.
2. Shoulders and side slopes made good and finished during this stage.
3. This stage with single file traffic flow should be limited to the shortest duration possible to minimize disruption to traffic flow.

Case 3: Proposed FRL >0.5m above the existing RL (Refer to drawings TM-05) Reconstruction Sections

Stage 1

1. Traffic running normally on the existing road.
2. Install proper edge delineation and temporary road signs on existing carriageway edge.
3. Construct the earthworks on one side only with proper benching into the existing embankment as appropriate with approved material. Temporary additional widening by 3.50m (min.) would be required.
4. Construct temporary overfilling to match the level of the adjacent existing pavement.

Stage 2

1. Install proper edge delineation and temporary road signs.
2. Divert traffic on new partial construction and half width of existing road. Earth running surface to be kept watered periodically to control dust.
3. Breakout half width of the existing road on the other side. Reuse salvaged materials elsewhere or dispose as appropriate.
4. Prepare cut formation as per Spec Clause 301.6 or as otherwise directed by the Engineer.
5. Construct earthworks to the design levels including the use of salvaged materials from the existing road where possible.
6. Construct GSB to the design levels.
7. Protect half width construction edge with sandbags or other approved method.
8. Adjust temporary delineation and signs ready for next stage.

Stage 3

1. Divert traffic onto the new GSB and work on the other side.
2. Break out remaining portion of the existing road (salvage materials for reuse in earthworks of adjacent section,) and trim adjacent earthworks to the required level.
3. Prepare cut formation as per Spec Clause 301.6.
4. Construct earthworks to the design levels including use of salvaged materials from the existing road where possible.
5. Construct GSB and WMM layers to the design levels.
6. Construct DBM and earthen shoulder for complete half width. (or BC II approved by The Engineer)
7. Adjust temporary delineation and signs ready for next stage.

Stage 4

1. Divert traffic onto the new DBM and work on the other side.
2. Construct WMM and DBM and earthen shoulder. (DBM now complete to full width)

Stage 5

1. Regulate traffic to single file flow properly controlled by signal men while the BC wearing course is completed on each side to complete the full width.
2. Shoulders and side slopes made good and finished during this stage.
3. This stage with single file traffic flow should be limited to the shortest duration possible to minimize disruption to traffic flow.

For all the above construction scenarios there shall be a need for a considerable input into planning and implementing the different stages in a practical and safe manner. There shall correspondingly be a need for clear and explicit signage correctly positioned to give adequate warning and guidance to road users. The contractor shall pay particular attention to the control of dust during the trafficking of earthen or granular surfaces and proper delineation of the edges of the travelled way. Watering to control dust should be carried out at least three times per day. If the Contractor fails to control dust from the trafficking of earthen or granular surfaces the Engineer will instruct the Contractor to apply a temporary bituminous surface treatment at the Contractor's cost. The Contractor is responsible for maintaining and making good any surface under trafficking to the approval of the Engineer and at no additional cost to the Employer.

The contractor may propose alternative traffic management systems provided that the concept of sectional completion and contained working sub-section are respected.

Other Traffic Management Consideration during Construction

During any particular stage of traffic management, the Contractor shall make sure that adjoining properties and access roads are not cut off unless there are viable alternatives available. Where required, the Contractor shall construct and maintain temporary access respecting all necessary safety requirements.

Bus stops shall be preserved and adjusted to suit the traffic management staging with proper and safe accessibility for pedestrians.

The Contractor must train his personnel who are assigned for the purpose of traffic control and safety. These personnel must understand the importance of their role and have a proper awareness of the concept of safe traffic management. Such personnel should themselves be road users to understand safe traffic control procedures

Safety Requirements

The importance of proper safety measures cannot be over-emphasized. It is the sole responsibility of the Contractor to implement and maintain all necessary safety measures during the course of the works. The Contractor shall adhere to the requirements of the MOST Specifications and the latest IRC codes, particularly IRC:SP-55-2001 concerning safety in road construction zones. The Engineer shall strictly monitor the Contractor's performance in the execution of his duties with respect to safety and The Engineer shall exercise his authority under the Contract to have any deficiencies remedied.

REFERENCE DRAWINGS

- 1.) TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT CASE-1 DWG.NO. TM-04
- 2.) TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT CASE-2 DWG.NO. TM-05
- 3.) TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT CASE-3 DWG.NO. TM-06
- 4.) TYPICAL PLAN FOR TRAFFIC MANAGEMENT SEQUENCE DURING CONSTRUCTION DWG.NO. TM-07
- 5.) SCHEMATIC PLAN FOR TRAFFIC MANAGEMENT BETWEEN SUB-SECTION AT DIFFERENT STAGES DWG.NO. TM-08
- 6.) TYPICAL ARRANGEMENT OF TRAFFIC CONTROL DEVICES FOR 500M SUB-SECTION DWG.NO. TM-09



Client:

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

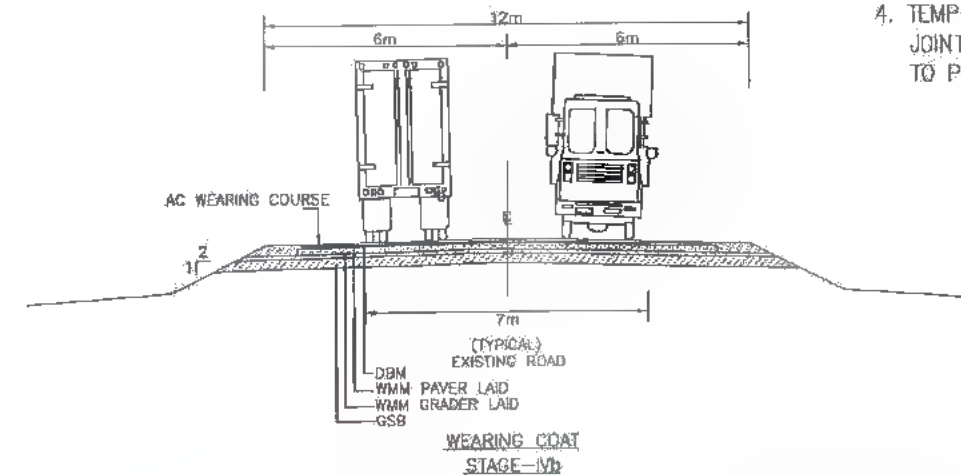
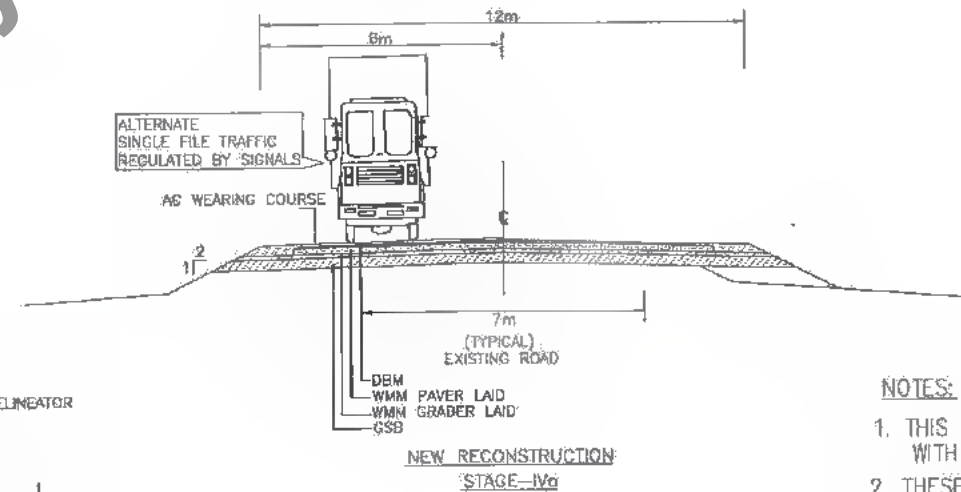
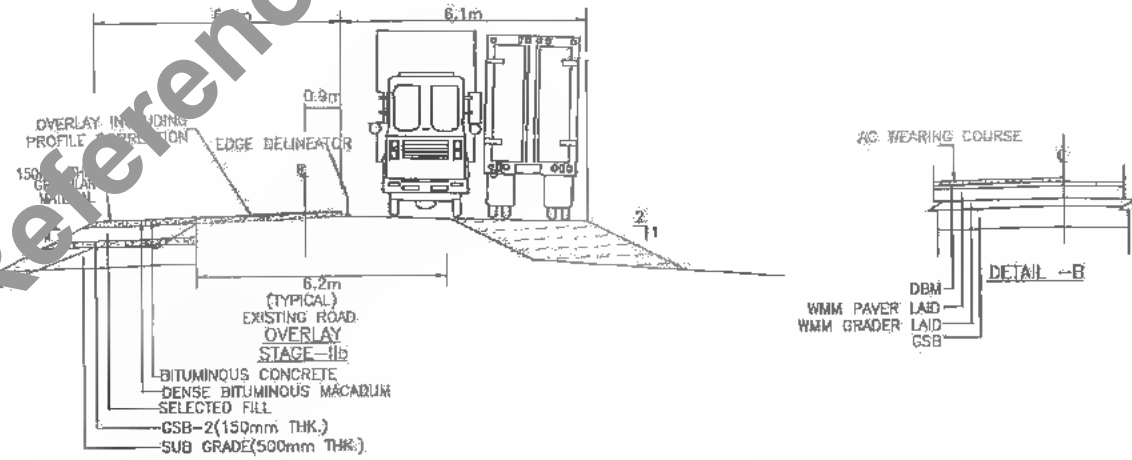
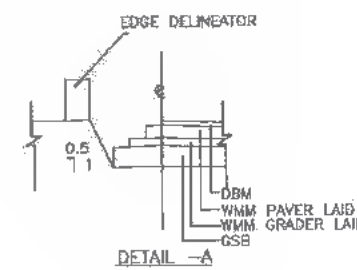
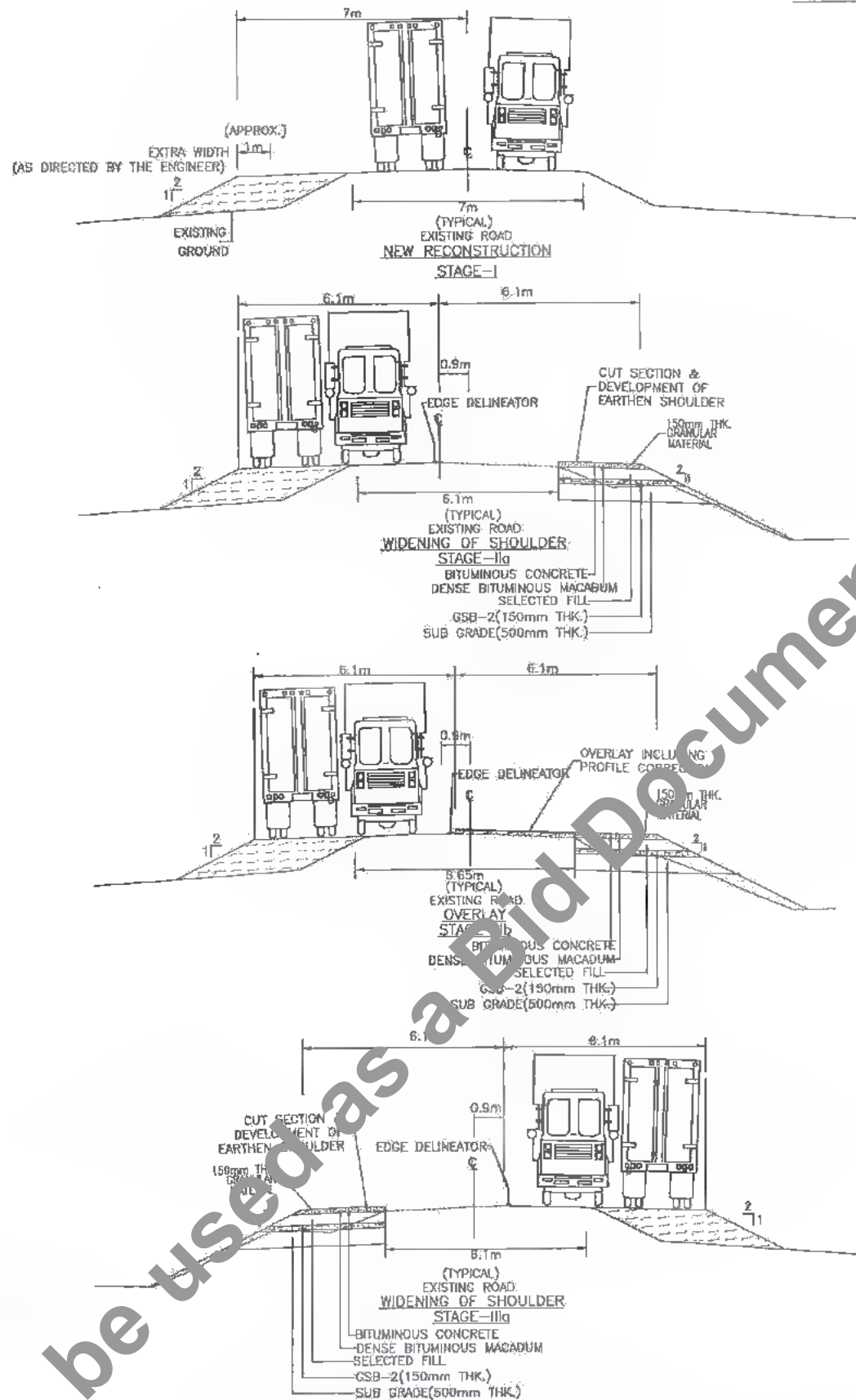
Project:
Consultancy Services for Preparation of Detailed Project Report of different State Highway in Bihar
Baysi - Bahadurganj - Dighalbank (SH-99)

Consultants:

SAI Consulting Engineers Pvt. Ltd.
An ISO 9001 Certified Company
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Phone: +91-91-4612680/199, Fax: +91-91-4612680
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PE	31/07/18	GOOD FOR CONSTRUCTION (REVISED DOP)	DRAWN BY : RAL	TITLE : BAYSI - RAUTA (PACKAGE-I)
PD	28/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : C.S.	TRAFFIC MANAGEMENT REQUIREMENTS AND CONSTRUCTION METHODOLOGY
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : J.B.	DRG. NO. : SAI-213007/DPR/MT/TP/TM-03
PA	13/11/13	ISSUED WITH DOPR	ISSUED BY : J.B.S.	REVISION : PE
REV.	DATE	DESCRIPTION	SIGN.	
SCALE : N.T.S.				

PROPOSED FRL. AT APPROXIMATELY THE SAME LEVEL
AS EXISTING ROAD LEVEL.



NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING TM-01 TO TM-07
2. THESE DRAWINGS SHOW TYPICAL TRAFFIC MANAGEMENT STAGING DURING CONSTRUCTION. FOR COMPLETE TECHNICAL DETAILS OF THE PAVEMENT WORKS REFER TO THE RELEVANT DRAWINGS AND SPECIFICATIONS.
3. DIMENSIONS SHOWN ACROSS THE WIDTH ARE INDICATIVE OF THE PARTICULAR CONSTRUCTION STAGE. AT INTERMEDIATE STAGES THE WIDTHS SHALL BE THE MINIMUM REQUIRED TO SUSTAIN TWO-WAY TRAFFIC.
4. TEMPORARILY EXPOSED EARTHEN/GRANULAR CONSTRUCTION JOINTS ARE TO BE PRIMED AS DIRECTED BY THE ENGINEER TO PREVENT LOSS OF MATERIAL.



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
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CONSULTANTS:
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An ISO 9001 Certified Company
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PE	31/07/19	GOOD FOR CONSTRUCTION (REVISED DPR)	DRAWN BY : RAL	TITLE : BAYSIL - RAUTA (PACKAGE-I)
PD	28/12/18	GOOD FOR CONSTRUCTION (DPR)	CHECKED BY : C.S.	TYPICAL CROSS SECTIONS FOR TRAFFIC MANAGEMENT CASE - 1
PC	10/04/14	GOOD FOR CONSTRUCTION (DPR)	APPROVED BY : J.D.	DRG. NO. : SAI-213007/DPR/WTYP/ TM-04
PA	26/02/14	ISSUED WITH FINAL DPR	ISSUED BY : B.S.	REVISION : PE
PA	13/11/13	ISSUED WITH DPR		
REV.	DATE	DESCRIPTION	SIGN	
SCALE : N.T.S.				

TO 0.5m ABOVE LEVEL.

COMPLETE TO 0.5m LEVEL

EXISTING ROAD

NEW RECONSTRUCTION STAGE-IIIb

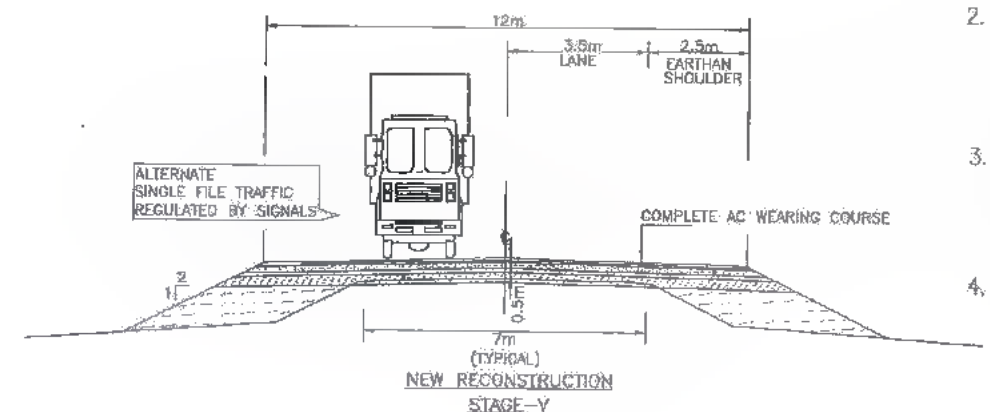
WMM PAYER LAID

DBM

WMM GRADER LAID

SSB

NEW RECONSTRUCTION STAGE-IIIb (TYPICAL)



1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING TM-01 TO TM-07
2. THESE DRAWINGS SHOW TYPICAL TRAFFIC MANAGEMENT STAGING DURING CONSTRUCTION. FOR COMPLETE TECHNICAL DETAILS OF THE PAVEMENT WORKS REFER TO THE RELEVANT DRAWINGS AND SPECIFICATIONS.
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and Development Coordination
Unit (BSRDCU)
Department of Biotechnology

SAI
SYSTRA GROUP

DRG. NO.: