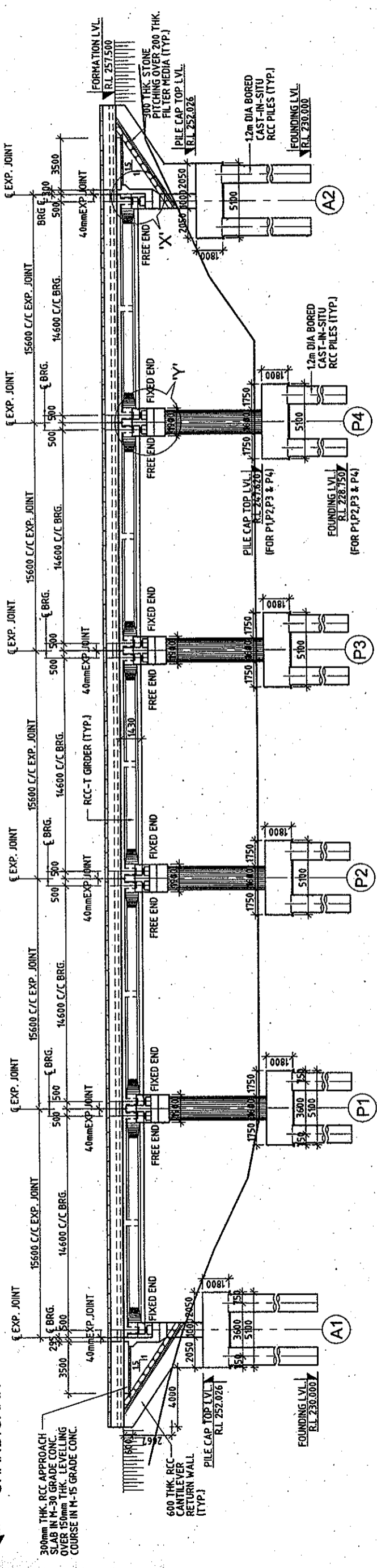


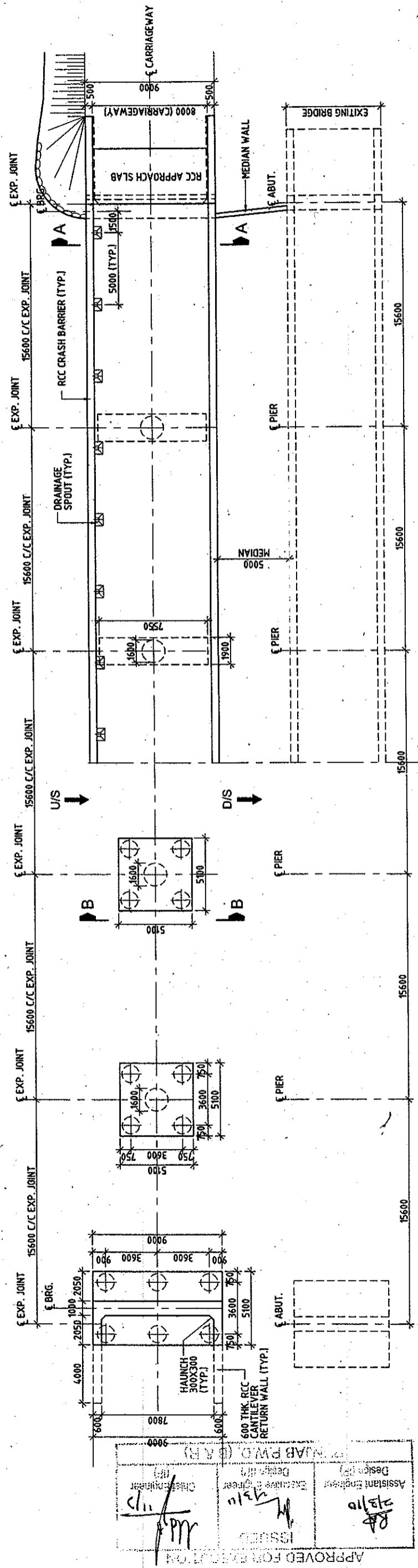
DORAHHA / LUDHIANA

CHANDIGARH



SECTIONAL ELEVATION OF BRIDGE  
(SCALE 1:200)

BED LEVEL (m)	DISTANCE (m)
38.500	253.348
23.400	248.121
7.800	248.121
0.000	248.121
23.400	248.121
7.800	248.121
23.400	248.121
38.500	253.500



HALF BOTTOM PLAN  
PLAN  
SCALE 1:200

HALF TOP PLAN

APPROVED FOR SUBMISSION

ISSUED

Chief Engineer  
Designer (M)

Executive Engineer  
Designer (M)

Assistant Engineer  
Designer (M)

31/10  
21/10

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CLIENT: PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

CONSULTANT: SMEC INDIA PVT. LTD.  
SMEC INDIA PVT. LTD.  
D/F BUILDING NO. 8 C TOWER 5th FLOOR,  
CYBER CITY, PHASE-2 GURGAON,  
HARYANA, INDIA - 122002  
Tel: 0124-480042, 4557100

PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA

SCALE: AS SHOWN

SHEET SIZE: A2

REVISED AS PER P.B. PWD COMMENTS

REV	DATE	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION
R1	26/08/2009	RAWAT	VNM	VNM	REVISED AS PER P.B. PWD COMMENTS
R0	30/03/2009	RAWAT	VNM	VNM	FIRST ISSUE

DETAILS OF REVISION

SCALE: AS SHOWN

SHEET SIZE: A2

DPR

DRW

1213/SMEC/LUDHIANA/DORAHHA/G-01

R1

ISHEET 1 OF 21

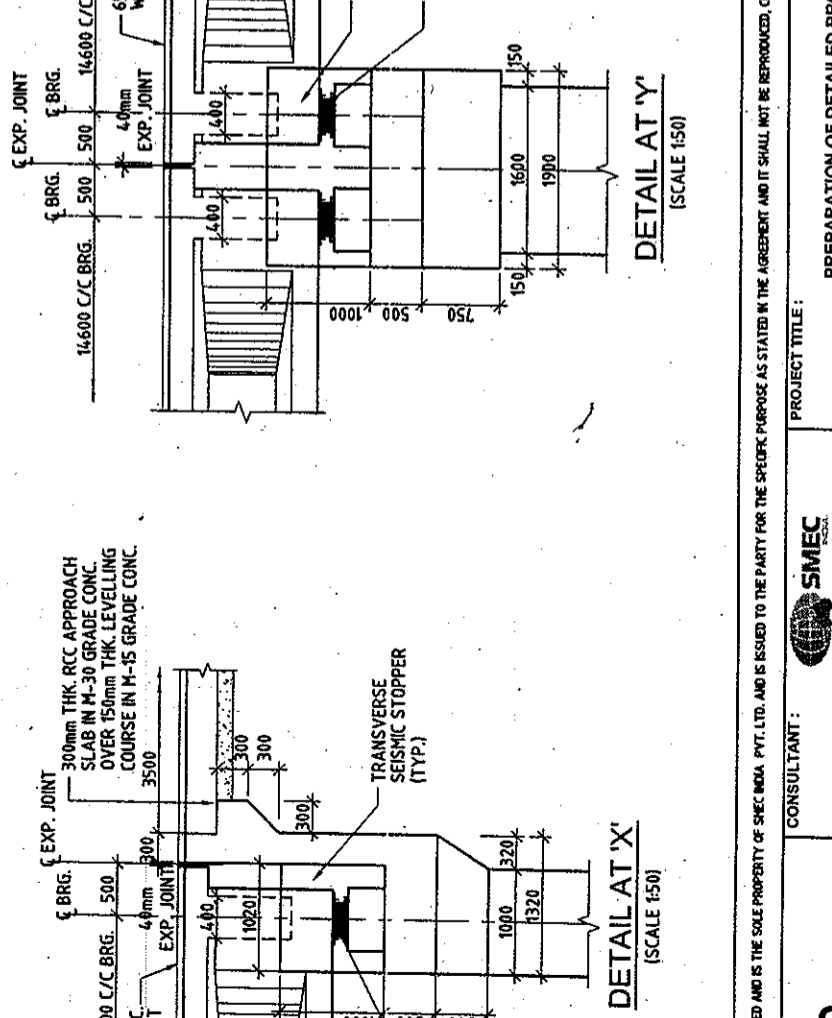
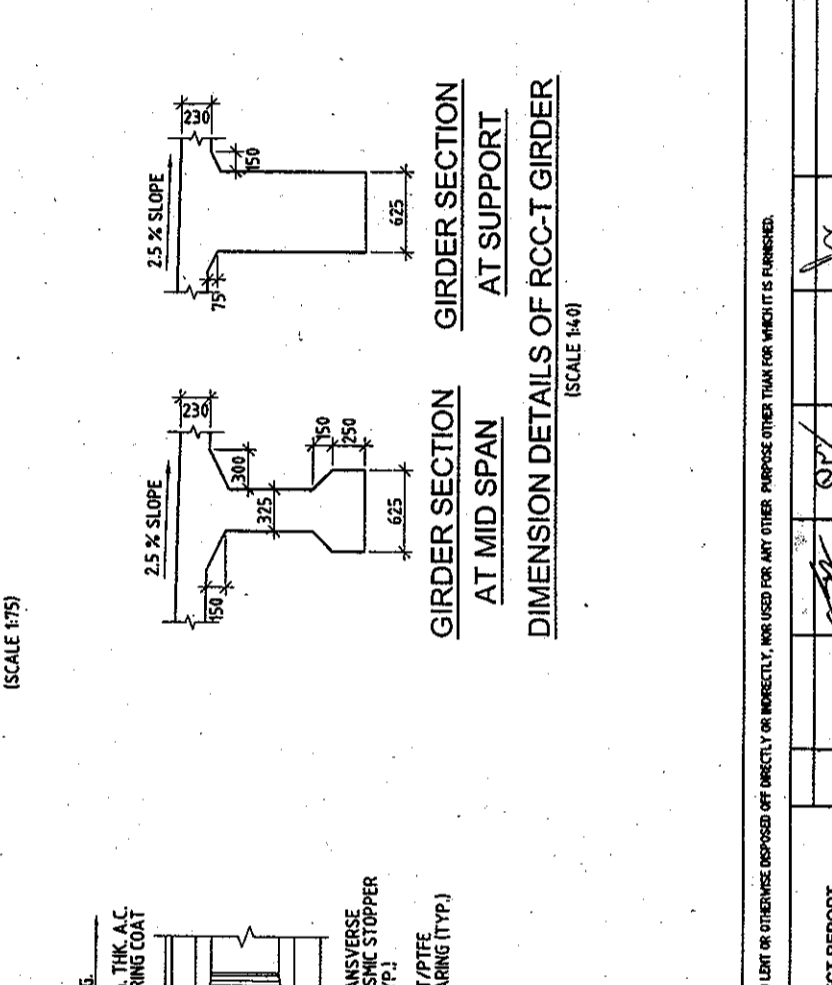
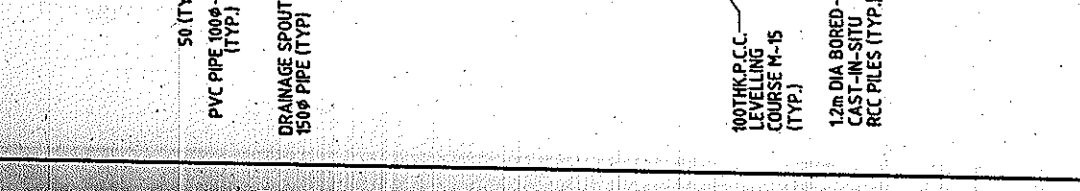
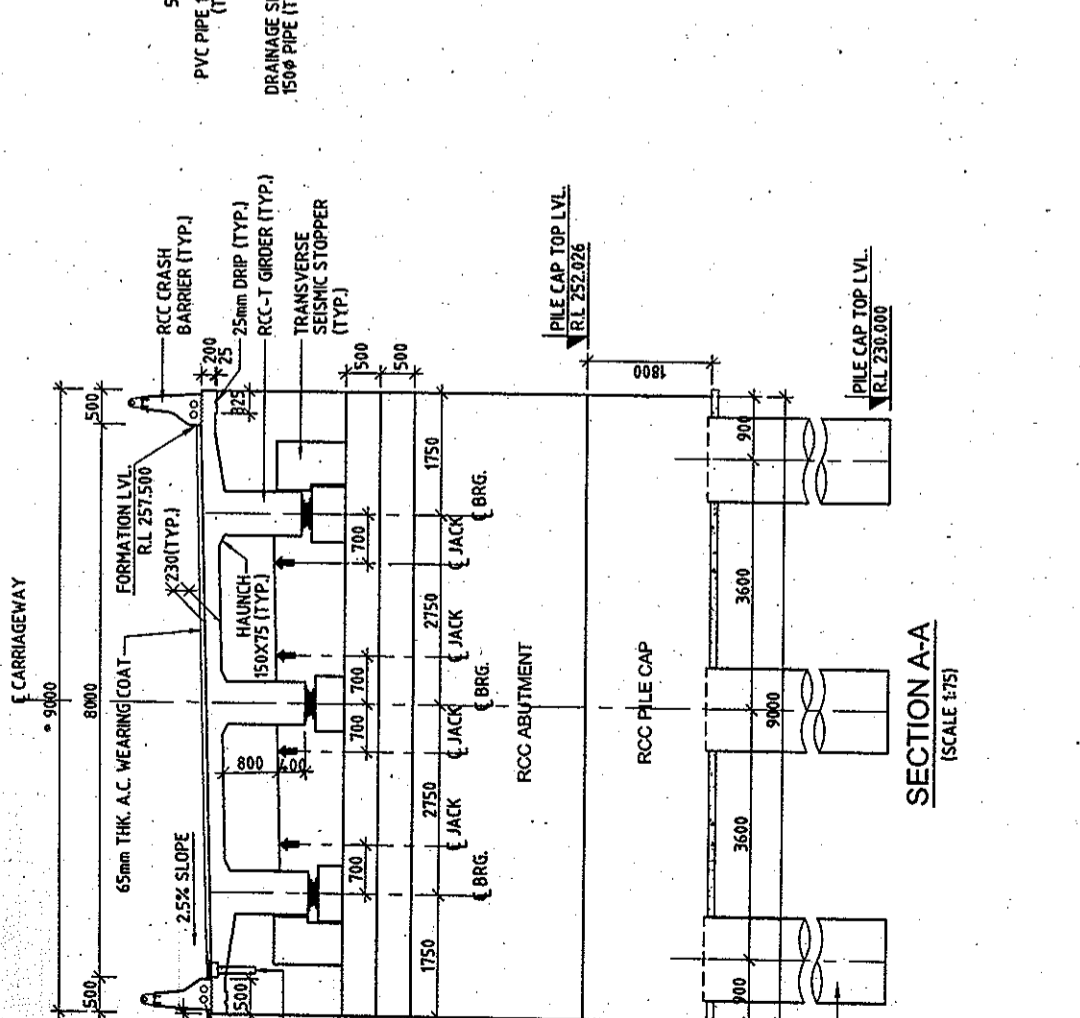
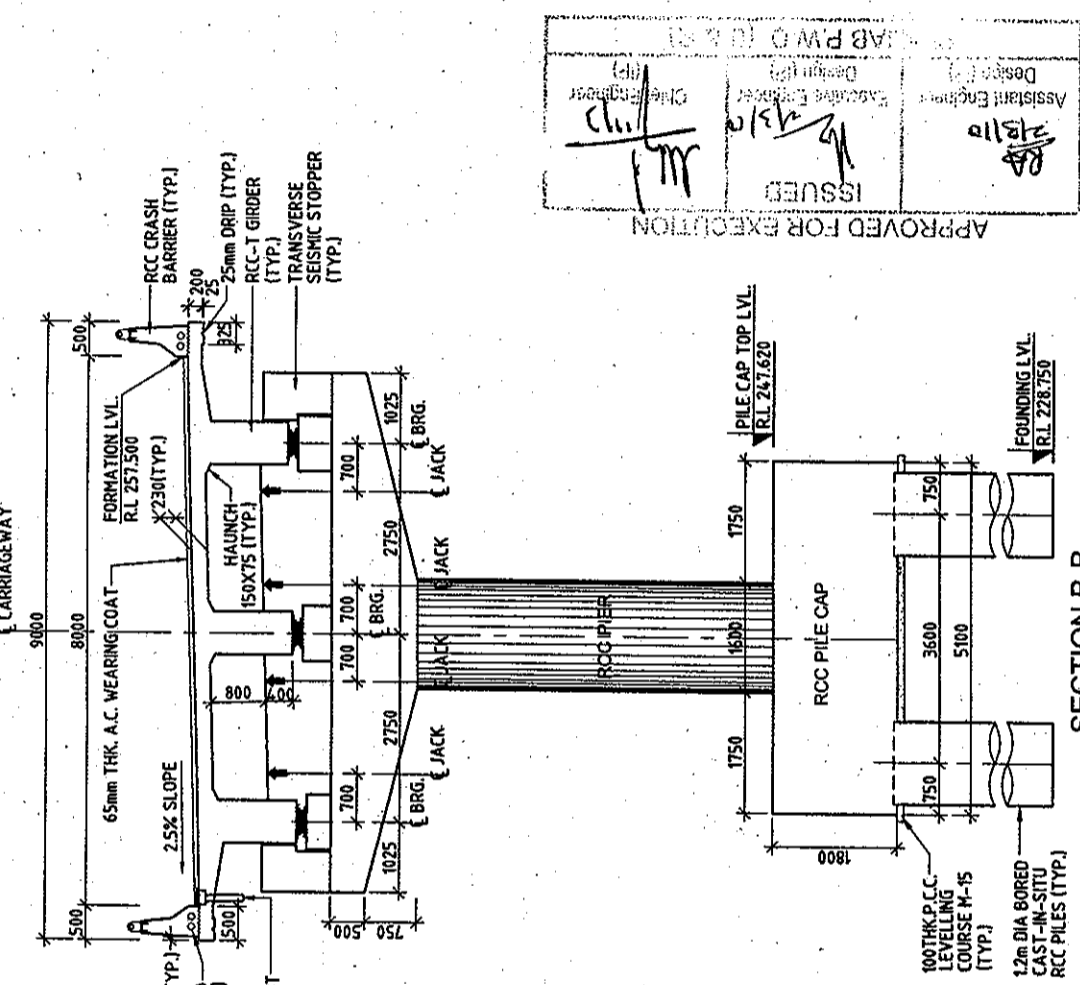


PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

CAD File Ref: HAS\Structure\1213\FINAL DPR\Revised Drawings R2 (Feb 10)\Bridge CH. 0+400\DORAHHA BRIDGE-G01.dwg

- NOTES:-**
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
  - PROPOSED BRIDGE IS DESIGNED FOR ONE LANE OF IRC CLASS 70R OR 2 LANE OF CLASS 'A' LOADING WHICHEVER GOVERNS.
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS 35MPa FOR SUPERSTRUCTURE, 40MPa FOR CRASH BARRIER & 35MPa FOR PILE, PILE CAP & SUBSTRUCTURE.
  - CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.
    - i) FOR SUPERSTRUCTURE ----- 35mm
    - ii) FOR SUBSTRUCTURE ----- 50mm
    - iii) FOR PILE & PILE CAP ----- 75mm
  - TMT HIGH YIELD STRENGTH DEFORMED BARS OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
  - BACK FILLING BEHIND ABUTMENTS & RETURN WALLS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC78-2000 HAVING PROPERTIES  $C=0$ ,  $\phi=30^\circ$ ,  $\delta=20^\circ$  &  $\gamma_d = 18 \text{ KN/M}^3$ .
  - 65mm THK. A.C WEARING COAT SHALL CONSIST OF UNDER LAYER OF MASTIC ASPHALT 25mm THK. AND ONE LAYER OF ASPHALTIC CONC. 40mm. AS PER MORTH SPECIFICATION SECTION 500.
  - STRIP SEAL TYPE EXPANSION JOINTS OF PROVEN QUALITY SHALL BE PROVIDED, IN TERMS OF MODIFIED INTERIM SPECIFICATIONS FOR EXPANSION JOINTS ISSUED VIDE "MORTH" CIRCULAR NO.RW/NH-34/059/1/96-S&R DATED 30-11-2000 & 25-01-2001. SLOPE/MEDIAN WIDTH AT THE STRUCTURE LOCATION SHALL BE PROVIDED AS PER RELEVANT HIGHWAY CROSS SECTION.
  - PILE CAP TOP AND FOUNDING LEVELS SHOWN IN THE DRAWINGS ARE TO BE VERIFIED AT SITE AND ANY SIGNIFICANT CHANGE IN THOSE SHALL BE BROUGHT INTO NOTICE OF DESIGNER BEFORE EXECUTION.
  - VERTICAL PILE CAPACITY 200 TONS FOR 12M DIA PILES. LATERAL LOAD CAPACITY 25 TONS FOR 12M DIA PILES. PILE CAPACITY TO BE CONFIRMED BY PILE LOAD TEST.
  - DESIGN DATA
    - (a) DISCHARGE - 410.4 CUMECs
    - (b) BED LEVEL - 248.12 M
    - (c) F.S.L. - 252.621 M
    - (d) VERTICAL CLEARANCE - 120 M
    - (e) SILT FACTOR - 1
    - (f) VELOCITY - 12 M/ Sec.

- REFERENCE DRAWINGS:-**
- 1213/SMEC/LUDHIANA/DORAH/G-01 (SHEET 1 OF 2)
  - 1213/SMEC/LUDHIANA/DORAH/A/E-01 (SHEET 1 OF 3 TO 3 OF 3)
  - 1213/SMEC/LUDHIANA/DORAH/A/E-02 (SHEET 1 OF 2 TO 2 OF 2)
  - 1213/SMEC/LUDHIANA/SUP-01
  - 1213/SMEC/LUDHIANA/SUP-02 (SHEET 1 OF 2 TO 2 OF 2)
  - 1213/SMEC/LUDHIANA/SUP-03
  - 1213/SMEC/LUDHIANA/SUP-04
  - 1213/SMEC/LUDHIANA/SUP-05
  - 1213/SMEC/LUDHIANA/MISC-01
  - 1213/SMEC/LUDHIANA/MISC-02



APPROVED FOR EXECUTION

ISSUED

Assistant Engineer

Design

2/18/11

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**CLIENT:** PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

**CONSULTANT:** SMEC INDIA PVT. LTD.  
SMEC (INDIA) PVT. LTD.  
D/F BUILDING NO. 2, C TOWER, 5th FLOOR,  
CYBER CITY, PHASE-II, GURGAON,  
HARYANA, INDIA - 122 002  
Tel: 0124-396642, 491100

**PROJECT TITLE:** PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA

REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	REVISION COMMENTS
R1	26/02/2009	RAVAT	VNM	VNM	S/AHRI	REVISED AS PER P.B. PWD COMMENTS
R0	30/03/2009	RAVAT	VNM	VNM	S/AHRI	FIRST ISSUE

**SCALE:** AS SHOWN

**SHEET SIZE:** A2

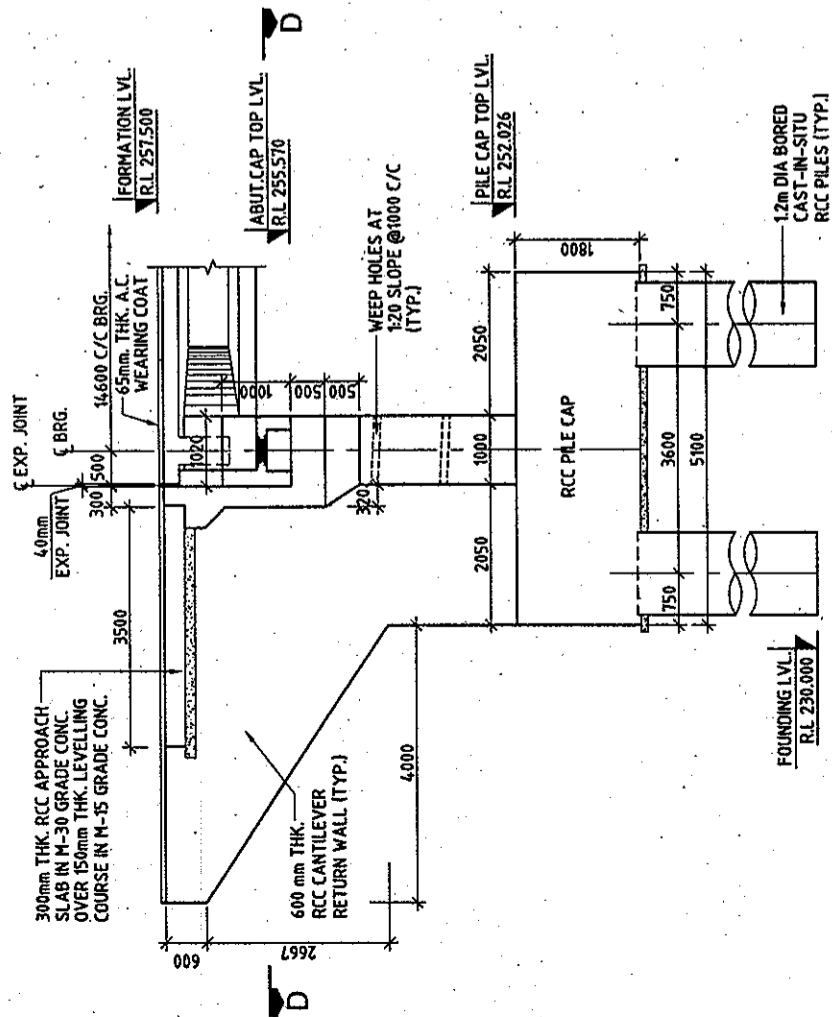
**DRW:** DPR

**PROJECT REPORT:** DETAILED PROJECT REPORT

**GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT DORAH JUNCTION (SHEET 2 OF 2)**

1213/SMEC/LUDHIANA/DORAH/G-01 R1

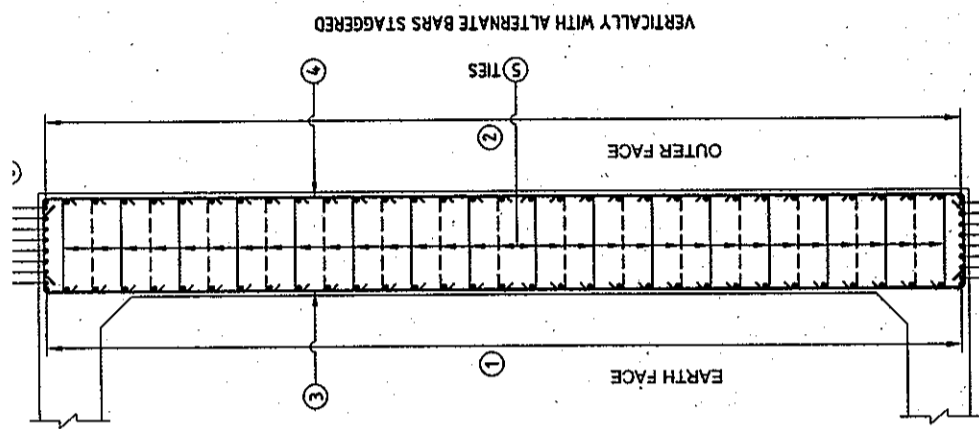




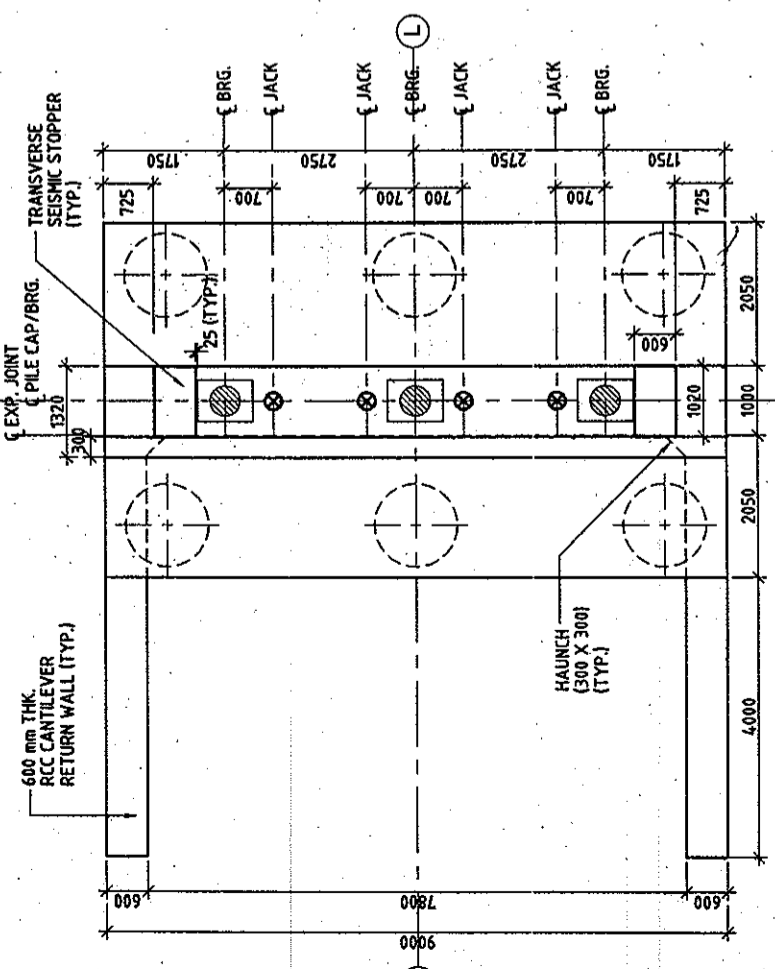
ELEVATION ALONG L-L AXIS  
(SHOWING ABUTMENT DIMENSION)  
(SCALE 1:75)

REINFORCEMENT DETAIL:

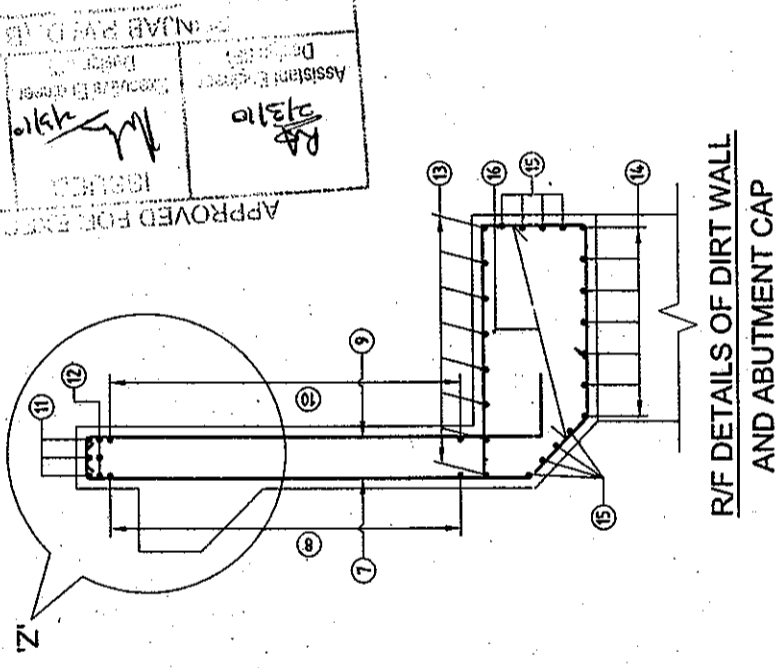
BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	20	60 Nos.	[Shape]
2	16	45 Nos.	[Shape]
3	16	150	[Shape]
4	16	150	[Shape]
5	10	200	[Shape]
6	20	8 Nos.	[Shape]
7	16	150	[Shape]
8	12	150	[Shape]
9	12	150	[Shape]
10	12	150	[Shape]
11	16	3 Nos.	[Shape]
12	16	3 Nos.	[Shape]
13	16	8 Nos.	[Shape]
14	16	7 Nos.	[Shape]
15	16	8 Nos.	[Shape]
16	16	100	[Shape]
17	12	75	[Shape]
18	10	125	[Shape]



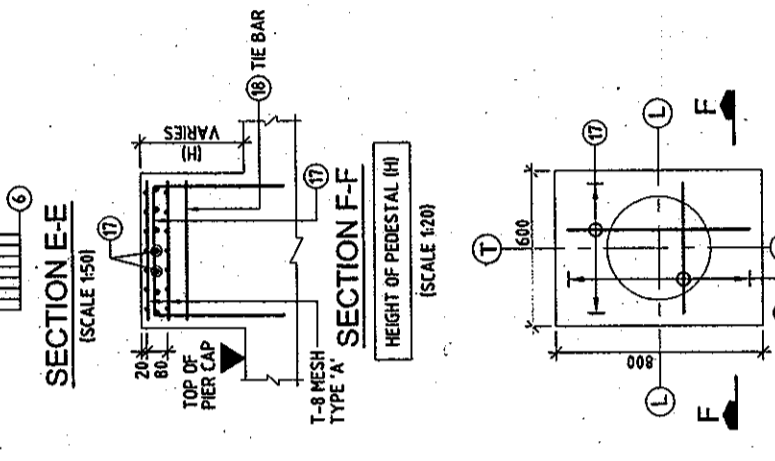
ELEVATION ALONG L-L AXIS  
(SHOWING ABUTMENT REINFORCEMENT)  
(SCALE 1:50)



PLAN AT D-D  
(SCALE 1:75)

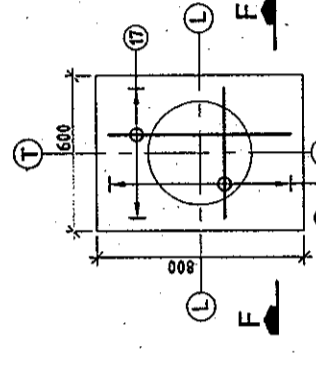


R/F DETAILS OF DIRT WALL  
AND ABUTMENT CAP  
(SCALE 1:25)

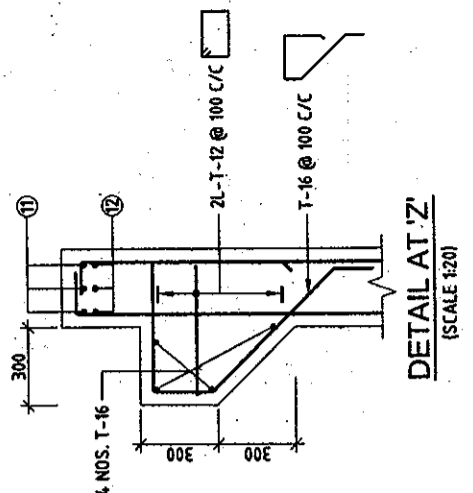


SECTION E-E  
(SCALE 1:50)

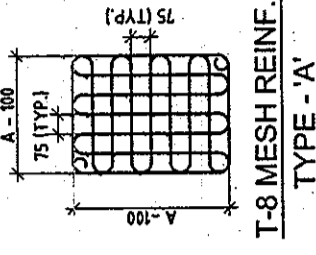
SECTION F-F  
(SCALE 1:20)



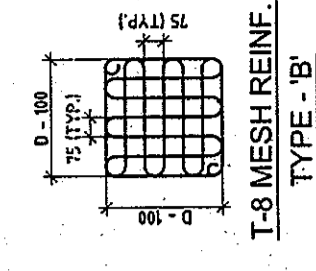
PLAN  
(DETAILS OF PEDESTAL)  
(SCALE 1:20)



DETAIL AT 'Z'  
(SCALE 1:20)



T-8 MESH REINF.  
TYPE - 'A'  
(UNDER BEARING)  
(SCALE 1:20)



T-8 MESH REINF.  
TYPE - 'B'  
(UNDER JACK)  
(SCALE 1:20)

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CLIENT: PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD  
 CONSULTANT: SMEC INDIA PVT. LTD.  
 PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BY-PASS LUDHIANA

DATE: 09/06/2009  
 DRAWN: MMS  
 CHECKED: VNM  
 DESIGN: VNM  
 APPROVED: SLAHRI  
 DETAILS OF REVISION: FIRST ISSUE

SCALE: AS SHOWN  
 SHEET SIZE: A2  
 DPR: DRW  
 SHEET NO: 1213/SMEC/LUDHIANA/DORAHAE-01

RO



**REINFORCEMENT DETAIL:**

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
19	20	4 Nos.	[Shape]
19a	20	4 Nos.	[Shape]
20	25	4 Nos.	[Shape]
21	12	150	[Shape]
21a	12	150	[Shape]
22	12	150	[Shape]
22a	12	150	[Shape]
23	16	150	[Shape]
23a	16	150	[Shape]
24	12	150	[Shape]
24a	12	150	[Shape]
25	12	5 Nos.	[Shape]
26	12	3 Nos.	[Shape]
27	12	4 Nos.	[Shape]
28	12	150	[Shape]
29	12	150	[Shape]

**LEGENDS:**

---	BAR ON TOP FACE/
---	BAR ON OUTER FACE
---	BAR ON BOTTOM FACE/
---	BAR ON EARTH FACE
---	REINFORCEMENT
R/F	

**NOTES:-**

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS.  
(i) ABUTMENT SHAFT, ABUTMENT CAP -----M35  
(ii) RETURN WALL -----M35
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.  
(i) FOR SUBSTRUCTURE ----- 50mm  
(ii) FOR FOUNDATION ----- 75mm
- TMT HIGH YIELD STRENGTH DEFORMED BARS OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.  
MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.  
MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
- LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
- A IS THE DIMENSIONS OF THE BEARINGS WHICH IS TO BE FURNISHED BY THE MANUFACTURER.
- D = DIA OF JACK.

**REFERENCE DRAWINGS:-**

- 1213/SMEC/LUDHIANA/DORAH/A/G-01 (SHEET 1 OF 2 & 2 OF 2)
- 1213/SMEC/LUDHIANA/DORAH/A/E-01 (SHEET 1 OF 3 & 2 OF 3)

**DETAILED PROJECT REPORT**  
DIMENSIONAL & REINFT. DETAILS OF PILE  
CAP, RETURN WALL, ABUTMENT SHAFT,  
ABUTMENT CAP & DIRT WALL  
(SHEET 3 OF 3)

SCALE: AS SHOWN  
SHEET SIZE: A2  
DPR DRW  
R0

FIRST ISSUE  
DETAILS OF REVISION

APPROVED  
CHECKED  
DESIGN  
DRAWN  
DATE  
REV

VNM  
MKS  
09/06/2009

VNM  
MKS  
09/06/2009

VNM  
MKS  
09/06/2009

VNM  
MKS  
09/06/2009

VNM  
MKS  
09/06/2009

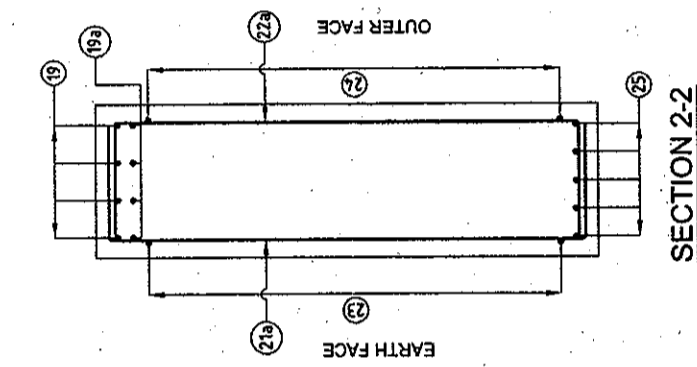
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09/06/2009

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09/06/2009

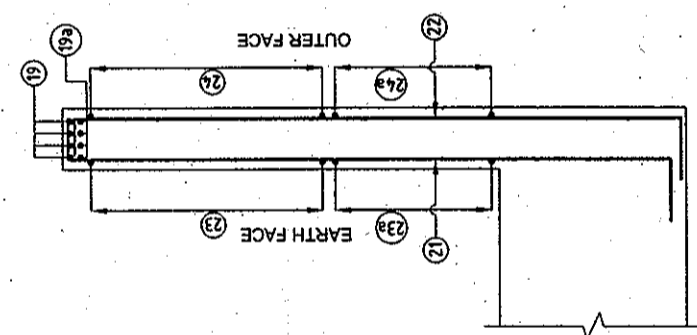
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09/06/2009

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MKS  
09/06/2009

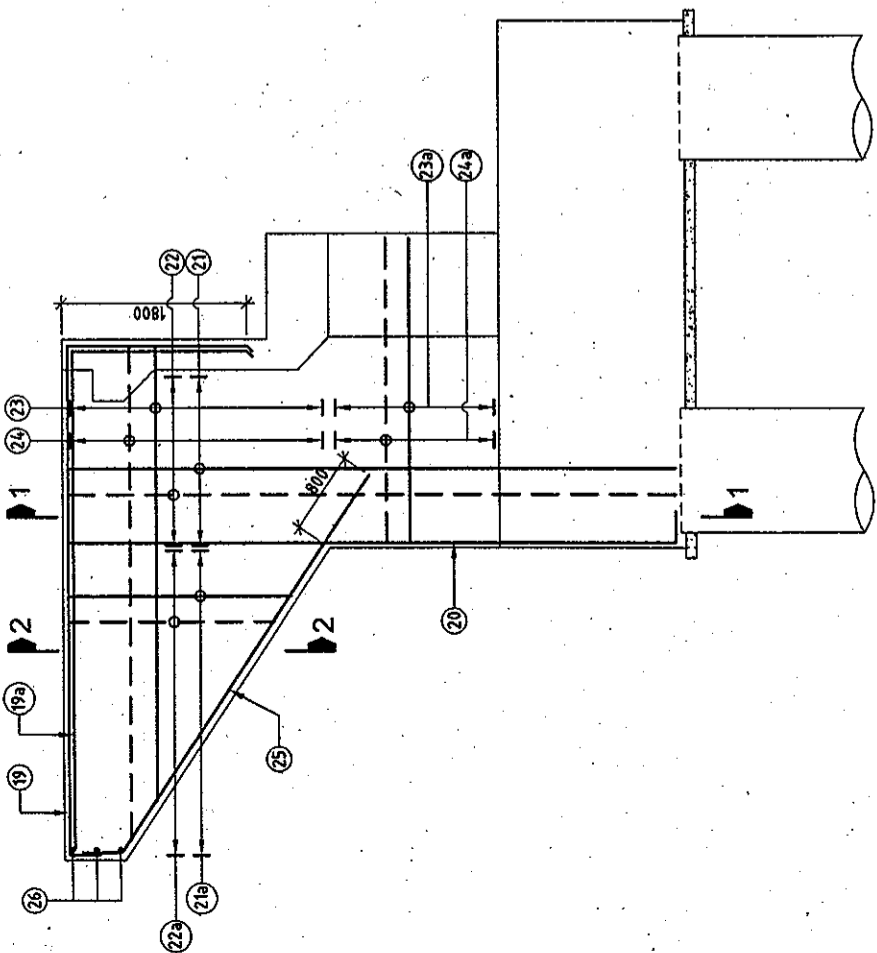
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MKS  
09/06/2009



**SECTION 2-2**  
(SCALE 1:20)

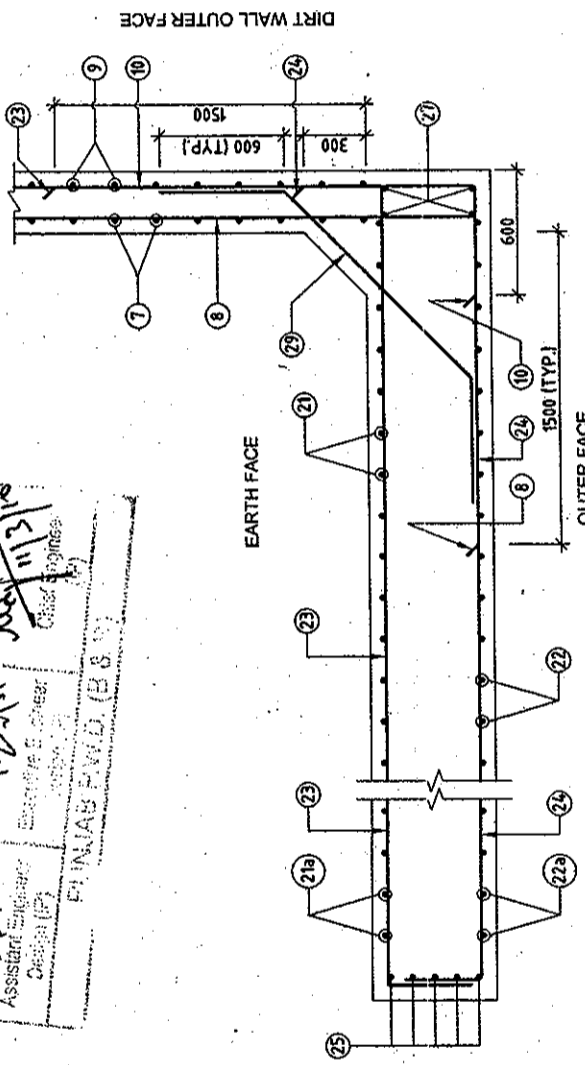


**SECTION 1-1**  
(SCALE 1:50)

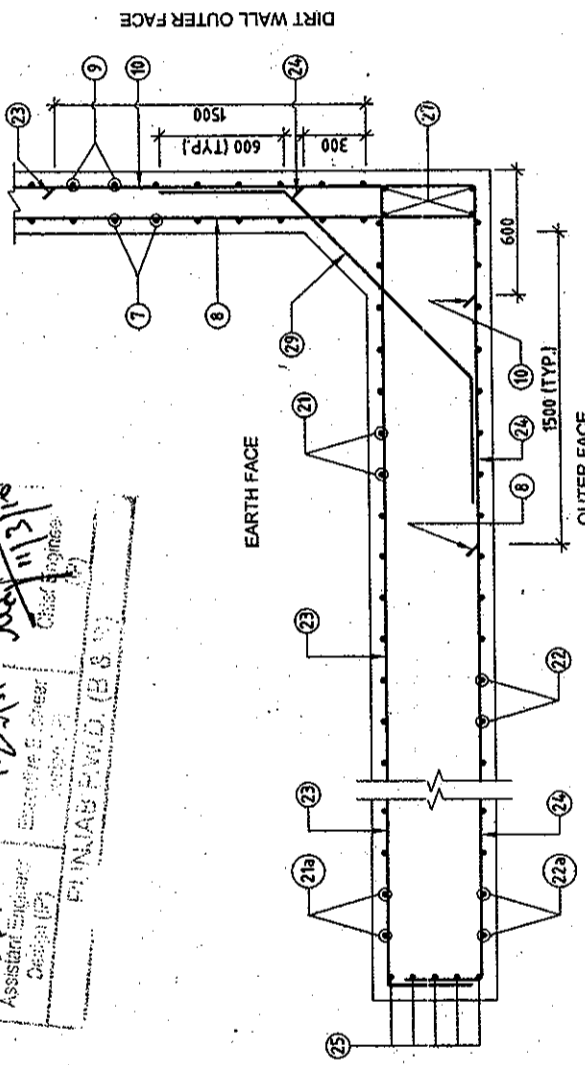


**R/F DETAILS OF RETURN WALL**  
(SCALE 1:50)

APPROVED FOR EXECUTION  
DESIGNED  
CHECKED  
DATE  
DESIGNER  
DRAWN  
DATE  
REV



**JUNCTION DETAILS OF RCC**  
**ABUTMENT AND SOLID RETURN WALL**  
(SCALE 1:25)



**JUNCTION DETAILS OF RCC**  
**SOLID RETURN WALL AND DIRT WALL**

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CLIENT: PWD

CONSULTANT: SMC

PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

APPROVED  
CHECKED  
DESIGN  
DRAWN  
DATE  
REV

FIRST ISSUE  
DETAILS OF REVISION

APPROVED  
CHECKED  
DESIGN  
DRAWN  
DATE  
REV

SCALE: AS SHOWN  
SHEET SIZE: A2  
DPR DRW  
R0

DETAILED PROJECT REPORT  
DIMENSIONAL & REINFT. DETAILS OF PILE  
CAP, RETURN WALL, ABUTMENT SHAFT,  
ABUTMENT CAP & DIRT WALL  
(SHEET 3 OF 3)

CLIENT: PWD

CONSULTANT: SMC

PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

APPROVED  
CHECKED  
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DRAWN  
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FIRST ISSUE  
DETAILS OF REVISION

APPROVED  
CHECKED  
DESIGN  
DRAWN  
DATE  
REV

SCALE: AS SHOWN  
SHEET SIZE: A2  
DPR DRW  
R0

DETAILED PROJECT REPORT  
DIMENSIONAL & REINFT. DETAILS OF PILE  
CAP, RETURN WALL, ABUTMENT SHAFT,  
ABUTMENT CAP & DIRT WALL  
(SHEET 3 OF 3)

CLIENT: PWD

CONSULTANT: SMC

PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

APPROVED  
CHECKED  
DESIGN  
DRAWN  
DATE  
REV

FIRST ISSUE  
DETAILS OF REVISION

APPROVED  
CHECKED  
DESIGN  
DRAWN  
DATE  
REV

SCALE: AS SHOWN  
SHEET SIZE: A2  
DPR DRW  
R0

DETAILED PROJECT REPORT  
DIMENSIONAL & REINFT. DETAILS OF PILE  
CAP, RETURN WALL, ABUTMENT SHAFT,  
ABUTMENT CAP & DIRT WALL  
(SHEET 3 OF 3)

CLIENT: PWD

CONSULTANT: SMC

PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

APPROVED  
CHECKED  
DESIGN  
DRAWN  
DATE  
REV

FIRST ISSUE  
DETAILS OF REVISION

APPROVED  
CHECKED  
DESIGN  
DRAWN  
DATE  
REV

SCALE: AS SHOWN  
SHEET SIZE: A2  
DPR DRW  
R0

DETAILED PROJECT REPORT  
DIMENSIONAL & REINFT. DETAILS OF PILE  
CAP, RETURN WALL, ABUTMENT SHAFT,  
ABUTMENT CAP & DIRT WALL  
(SHEET 3 OF 3)

CLIENT: PWD

CONSULTANT: SMC

PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

APPROVED  
CHECKED  
DESIGN  
DRAWN  
DATE  
REV

FIRST ISSUE  
DETAILS OF REVISION

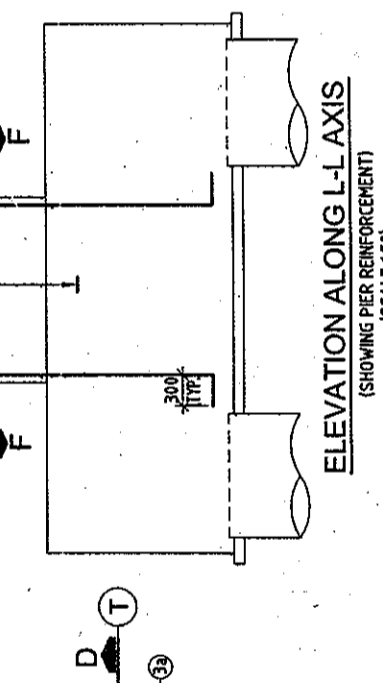
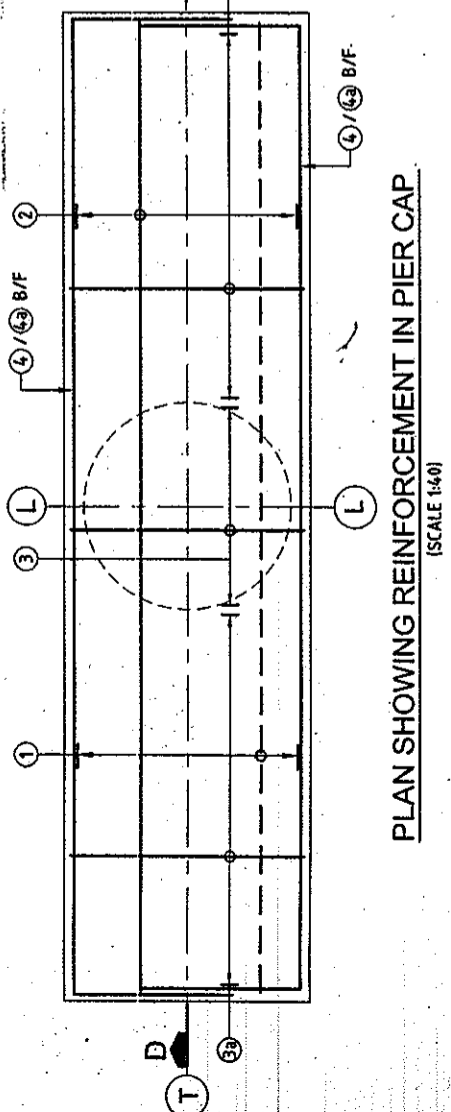
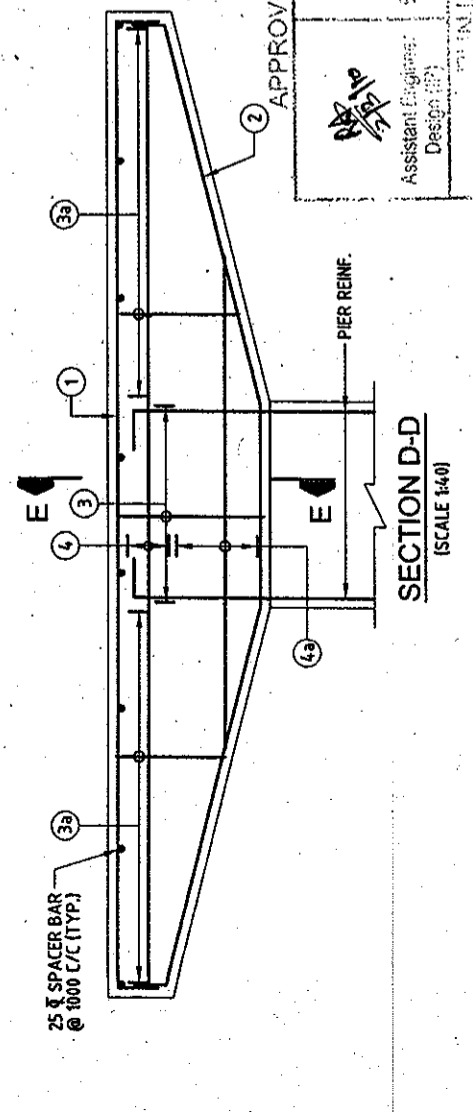
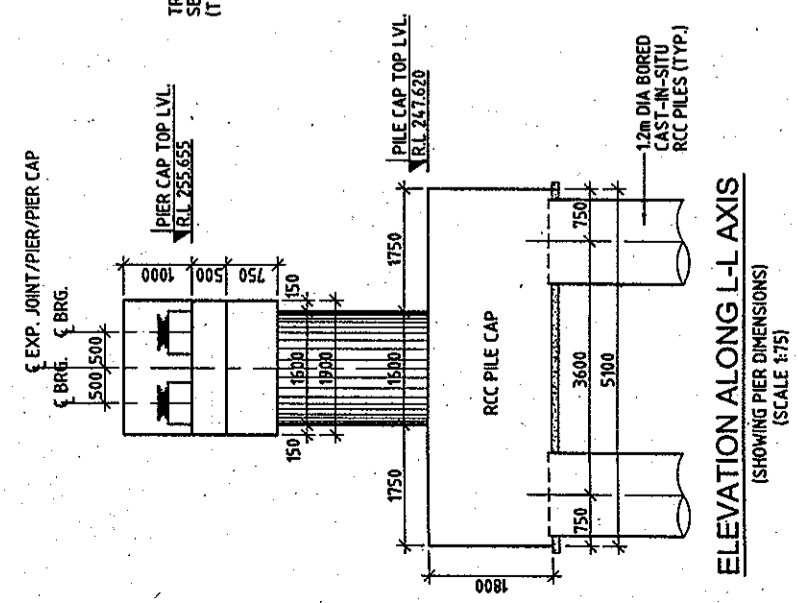
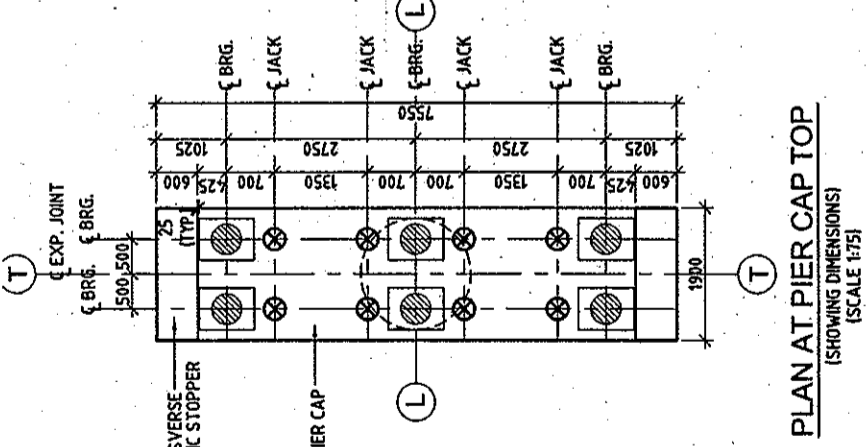
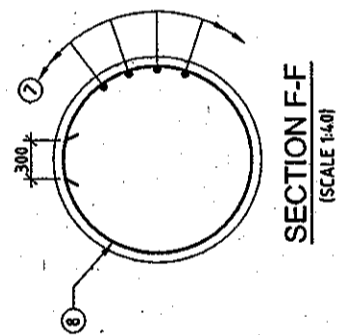
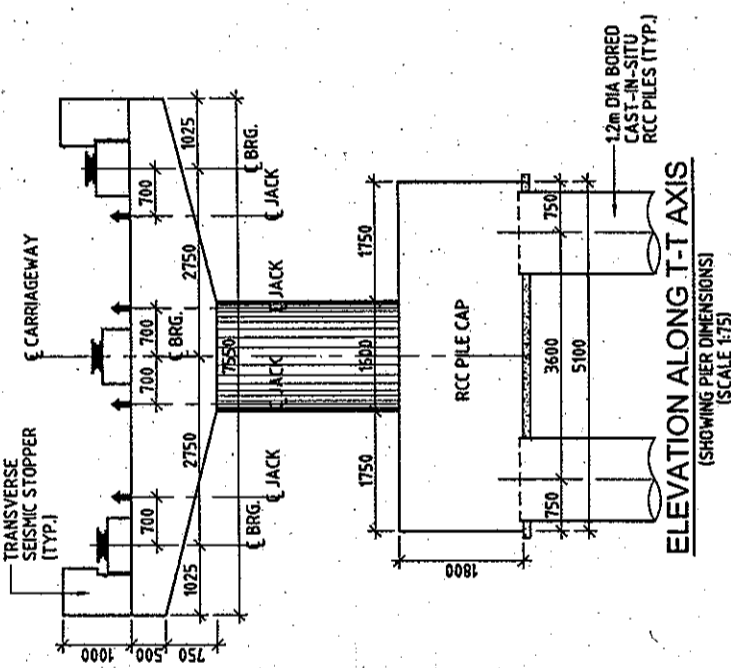
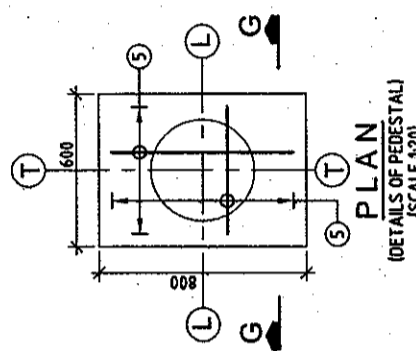
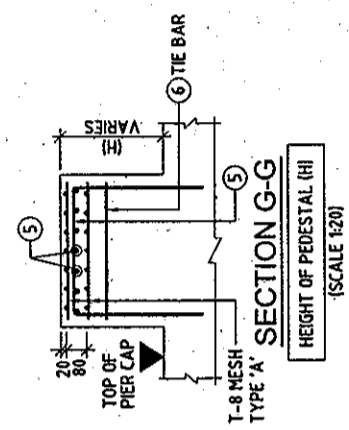
APPROVED  
CHECKED  
DESIGN  
DRAWN  
DATE  
REV

SCALE: AS SHOWN  
SHEET SIZE: A2  
DPR DRW  
R0

DETAILED PROJECT REPORT  
DIMENSIONAL & REINFT. DETAILS OF PILE  
CAP, RETURN WALL, ABUTMENT SHAFT,  
ABUTMENT CAP & DIRT WALL  
(SHEET 3 OF 3)

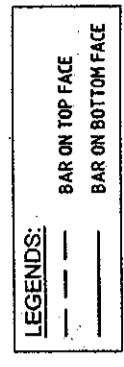


- NOTES:-**
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH 150mm CUBES AS FOLLOWS:-  
PIER ----- M35  
PIER CAP ----- M35  
CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.  
(i) FOR SUBSTRUCTURE ----- 50mm  
(ii) FOR FOUNDATION ----- 75mm  
TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.  
MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.  
MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
  - IN PIER SHAFT T-10 OPEN LINKS (OR S LOOPS) WITH HOOK PLACED AROUND THE VERTICAL BARS ARE PLACED AT THE RATE OF 4 LINKS IN ONE SQUARE METER.
  - LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
  - A IS THE DIMENSIONS OF THE BEARINGS WHICH IS TO BE FURNISHED BY THE MANUFACTURER.
  - D = DIA OF JACK.
- REFERENCE DRAWINGS:-**
- 1213/SMEC/LUDHIANA/DORAH/A/G-01 (SHEET 1 OF 2 & 2 OF 2)
  - 1213/SMEC/LUDHIANA/DORAH/A/E-02 (SHEET 1 OF 2)



**REINFORCEMENT DETAIL:**

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	32	16 Nos.	[Diagram]
2	16	16 Nos.	[Diagram]
3	16	125	[Diagram]
3a	16	125	[Diagram] 6 LEGGED
4	12	2Nos.	[Diagram]
4a	12	3Nos.	[Diagram]
5	12	75	[Diagram]
6	12	150	[Diagram]
7	25	60 Nos.	[Diagram]
8	12	125	[Diagram]



**PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYEPASS LUDHIANA**

**CLIENT:** PIDB  
PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD  
14/Structure/1213/FINAL DPR/Revised Drawings R2 (Feb 16)/Bridge Cl. 4-686/DORAH/A BRIDGE-602.dwg

**CONSULTANT:** SMEC  
SMEC (INDIA) PVT. LTD.  
DLF BUILDING No. 8, C TOWER, 28 FLOOR,  
CHANDLER SQUARE, CHANDLER SQUARE,  
SAHIBZAD, INDIA - 141002  
TEL: 0182-383000, 383100

**PROJECT TITLE:** PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYEPASS LUDHIANA

**APPROVED FOR EXECUTION:**  
[Signature] Chief Engineer  
[Signature] Executive Engineer  
[Signature] Designer  
JNABPWD (B&I)

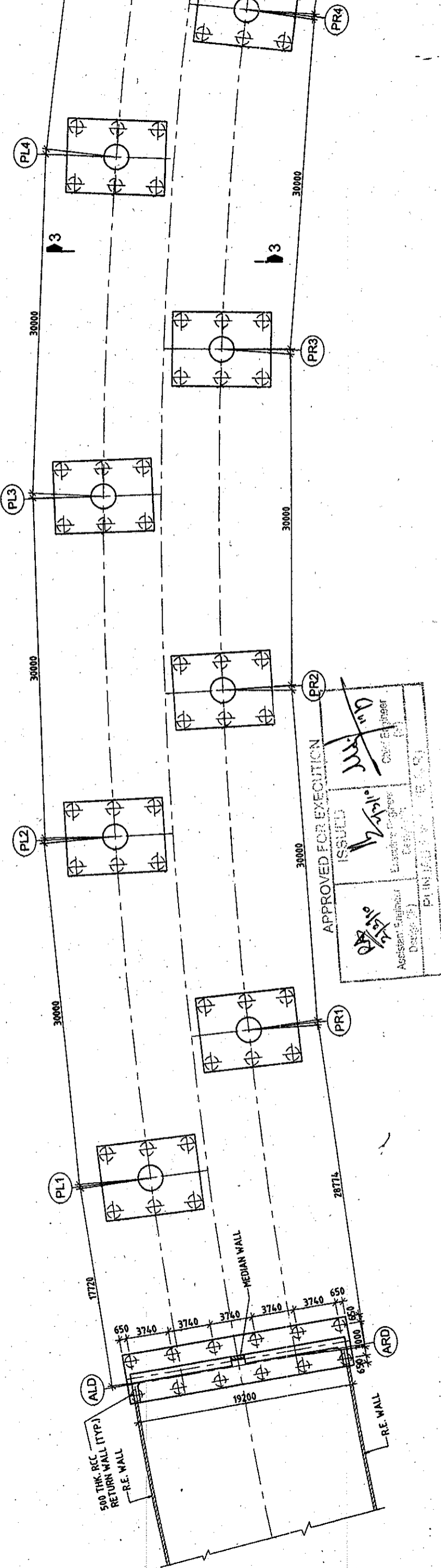
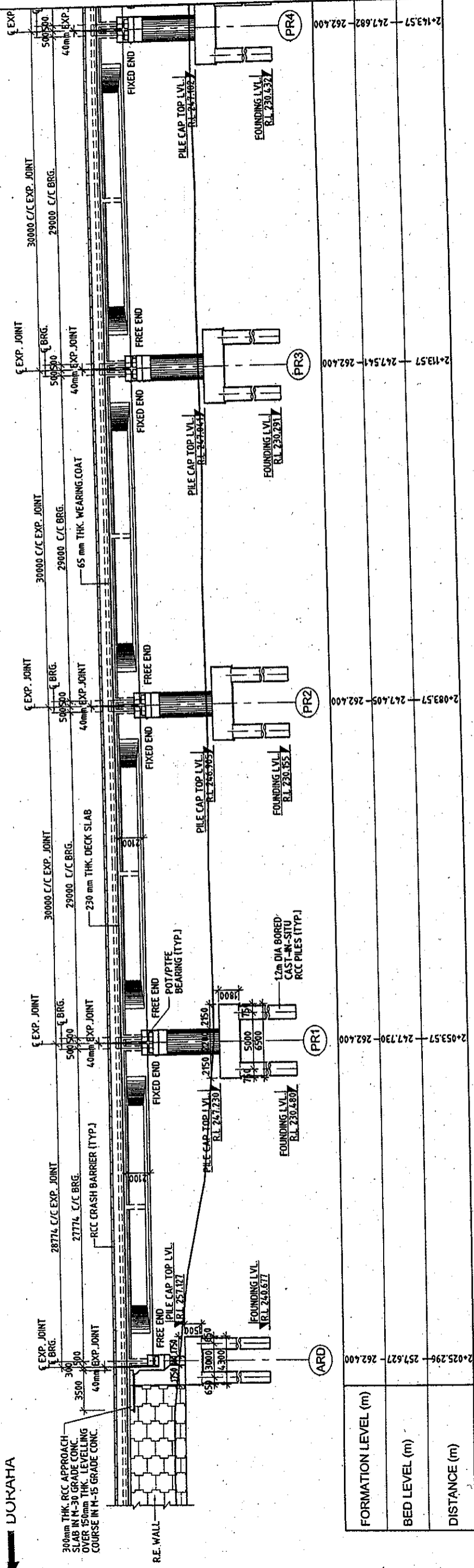
**REVISIONS:**

REV	DATE	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION
R0	09/05/2009	MKS	VNM	S/SHIRI	FIRST ISSUE

**SCALE:** AS SHOWN  
**SHEET SIZE:** A2  
**DPR:** DRW  
**RO:** 1213/SMEC/LUDHIANA/DORAH/AE-02 (SHEET 2 OF 2)

**DETAILED PROJECT REPORT DIMENSIONAL AND REINF DETAILS OF PILE, PILE CAP, PIER AND PIER CAP**

← DUKAHA



APPROVED FOR EXECUTION  
ISSUED

24/10/2009  
Assistant Engineer  
Design

26/02/2009  
S. LAHRI  
Checked

06/05/2009  
S. LAHRI  
Design

17/04/2009  
S. LAHRI  
Design

09/01/2009  
S. LAHRI  
Design

**CLIENT:** PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

**CONSULTANT:** SM&C PVT. LTD.  
SMEC (INDIA) PVT. LTD.  
D/F BUILDING No. 1, C TOWER, 8th FLOOR,  
CHANDIGARH, INDIA - 160006  
TEL: 0174-430042, 430100

**PROJECT TITLE:** PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

**REVISIONS:**

REV	DATE	DRAWN	CHECKED	APPROVED	DESIGN
R0	09/01/2009	MKS	VNM	S LAHRI	FIRST ISSUE
R1	17/04/2009	MKS	VNM	S LAHRI	REVISED SPAN ARRANGEMENT
R2	06/05/2009	MKS	VNM	S LAHRI	GROUND LEVEL MODIFIED
R3	26/02/2009	RAJWAT	PCK	S LAHRI	REVISED AS PER P.B. PWD COMMENTS

**DETAILS OF REVISION:**

SCALE:	AS SHOWN
<b>SHEET SIZE:</b>	A2
<b>DPR</b>	DRW
<b>PROJECT NO.:</b>	1213/SM&C/LUDHIANA/2+025(G-01)
<b>SHEET NO.:</b>	P3

**GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT MANPUR (PROP. CH. 2+025.296) (SHEET 1 OF 7)**

**PREPARED BY:** S. LAHRI

**CHECKED BY:** VNM

**DESIGNED BY:** PCK

**APPROVED BY:** S. LAHRI

**DATE:** 24/10/2009

**SCALE:** AS SHOWN

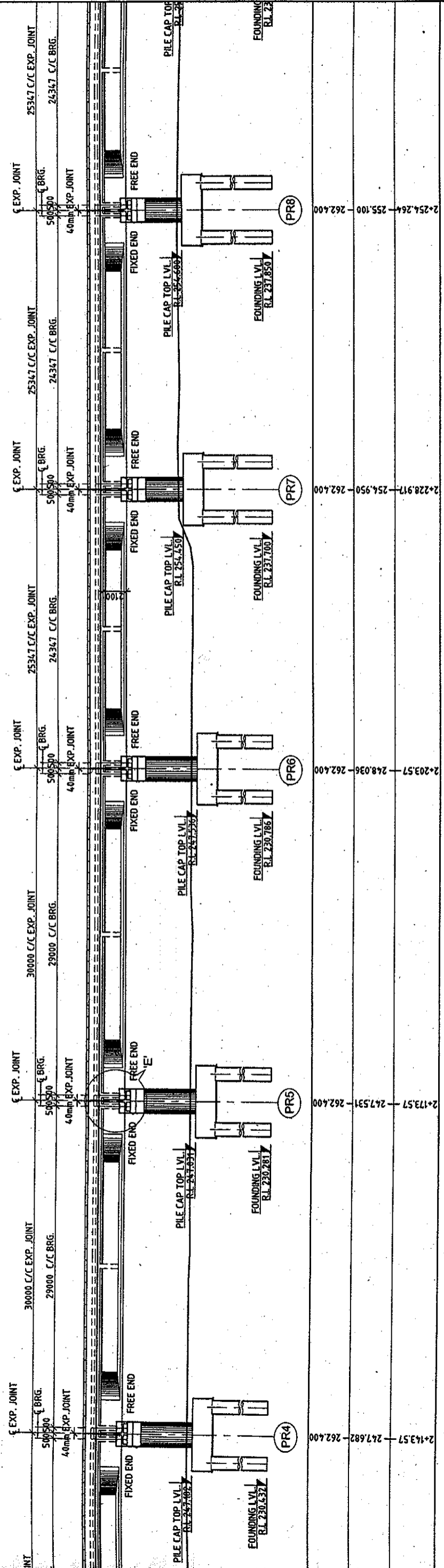
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**SHEET NO.:** P3

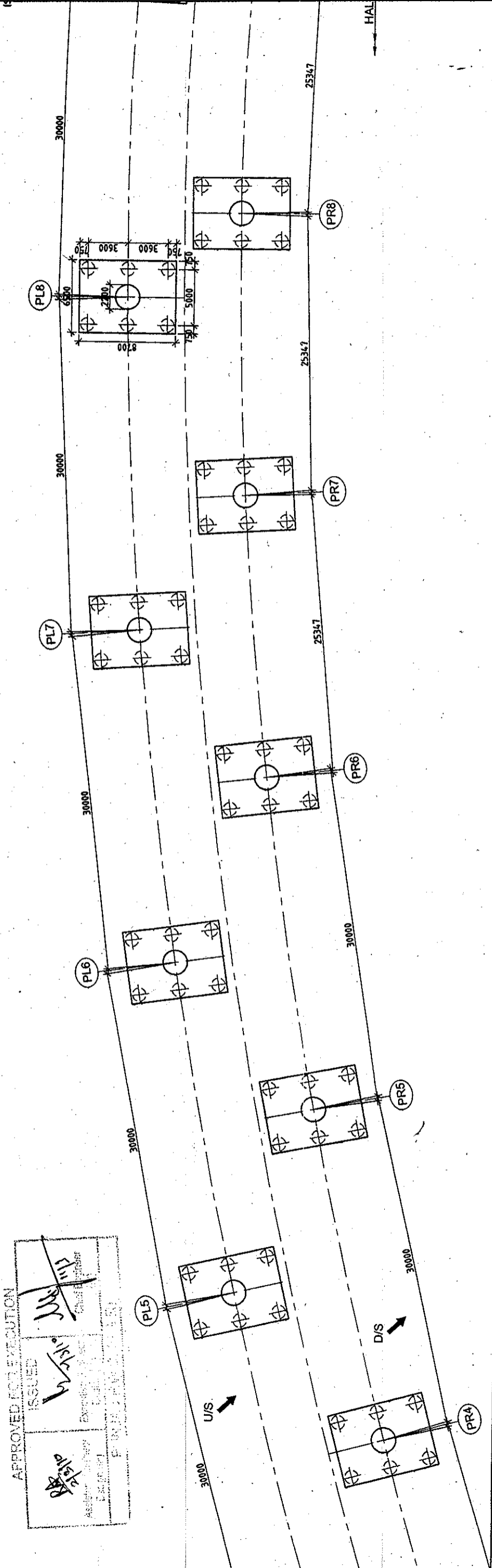


DORAHA ←

→ LUDHIANA

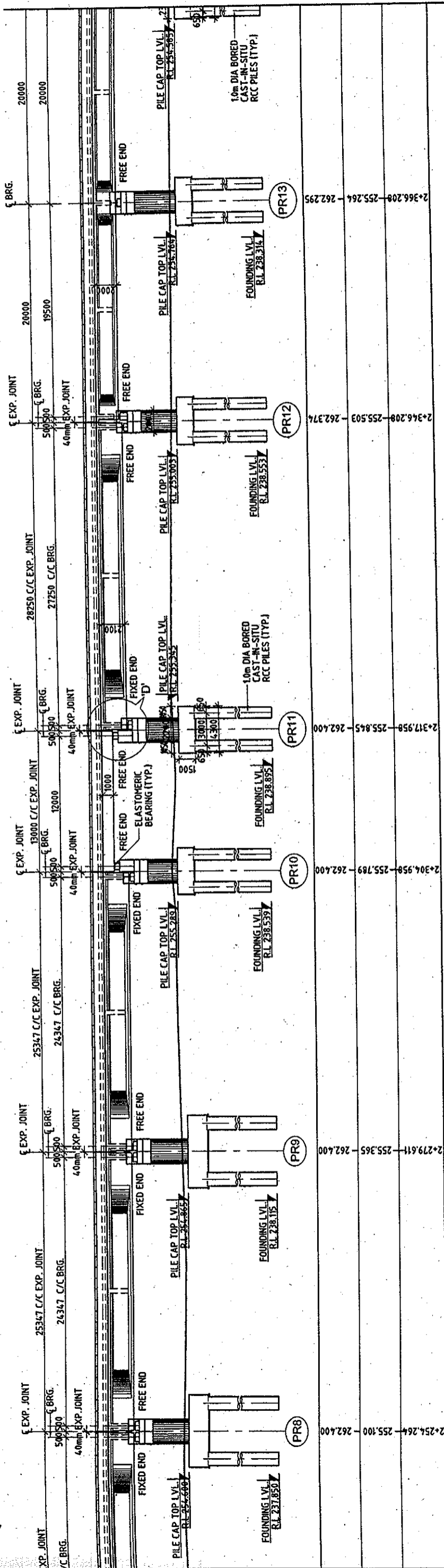


RIGHT SIDE SECTION



APPROVED FOR EXECUTION  
 ISSUED  
 24/12/10  
 [Signature]  
 [Signature]

<p>CLIENT: <b>PIDB</b>          PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD</p>		<p>CONSULTANT: <b>SMEC</b>          SMC (INDIA) PVT. LTD.          6/F BUILDING, PHASE-1, GURGAON,          HARYANA, INDIA-122002          TEL: 0124-433042, 430100</p>		<p>PROJECT TITLE:          PREPARATION OF DETAILED PROJECT REPORT          FOR UPGRADATION OF SOUTHERN BYE-PASS          LUDHIANA</p>		<p>SCALE:          AS SHOWN</p>		<p>REVISIONS:</p> <table border="1"> <tr> <th>REV</th> <th>DATE</th> <th>DRAWN</th> <th>DESIGN</th> <th>CHECKED</th> <th>APPROVED</th> <th>DETAILS OF REVISION</th> </tr> <tr> <td>R3</td> <td>26/02/2009</td> <td>RAWAT</td> <td>PCK</td> <td>VNIM</td> <td>S LAHRI</td> <td>REVISED AS PER PR. PRD COMMENTS</td> </tr> <tr> <td>R2</td> <td>06/05/2009</td> <td>MKS</td> <td>PCK</td> <td>VNIM</td> <td>S LAHRI</td> <td>GROUND LEVEL MODIFIED</td> </tr> <tr> <td>R1</td> <td>17/04/2009</td> <td>MKS</td> <td>PCK</td> <td>VNIM</td> <td>S LAHRI</td> <td>REVISED SPAN ARRANGEMENT</td> </tr> <tr> <td>R0</td> <td>09/01/2009</td> <td>MKS</td> <td>PCK</td> <td>VNIM</td> <td>S LAHRI</td> <td>FIRST ISSUE</td> </tr> </table>		REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION	R3	26/02/2009	RAWAT	PCK	VNIM	S LAHRI	REVISED AS PER PR. PRD COMMENTS	R2	06/05/2009	MKS	PCK	VNIM	S LAHRI	GROUND LEVEL MODIFIED	R1	17/04/2009	MKS	PCK	VNIM	S LAHRI	REVISED SPAN ARRANGEMENT	R0	09/01/2009	MKS	PCK	VNIM	S LAHRI	FIRST ISSUE	<p>GENERAL ARRANGEMENT DRAWING          FOR BRIDGE AT MANPUR          (PROP. CH. 2+025.296)          (SHEET 2 OF 7)</p>		<p>DETAILED PROJECT REPORT</p>	
REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION																																										
R3	26/02/2009	RAWAT	PCK	VNIM	S LAHRI	REVISED AS PER PR. PRD COMMENTS																																										
R2	06/05/2009	MKS	PCK	VNIM	S LAHRI	GROUND LEVEL MODIFIED																																										
R1	17/04/2009	MKS	PCK	VNIM	S LAHRI	REVISED SPAN ARRANGEMENT																																										
R0	09/01/2009	MKS	PCK	VNIM	S LAHRI	FIRST ISSUE																																										
<p>THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF SMC INDIA PVT. LTD. AND IS ISSUED TO THE PARTY FOR THE SPECIFIC PURPOSE AS STATED IN THE AGREEMENT AND IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OFF DIRECTLY OR INDIRECTLY, NOR USED FOR ANY OTHER PURPOSE OTHER THAN FOR WHICH IT IS PREPARED.</p>						<p>DRW</p>		<p>DPR</p>		<p>1213/SMEC/LUDHIANA/2+025/G-01</p>																																						



**RIGHT SIDE SECTIONAL ELEVATION OF BRIDGE**  
(SCALE 1:250)

APPROVED FOR EXECUTION

ISSUED

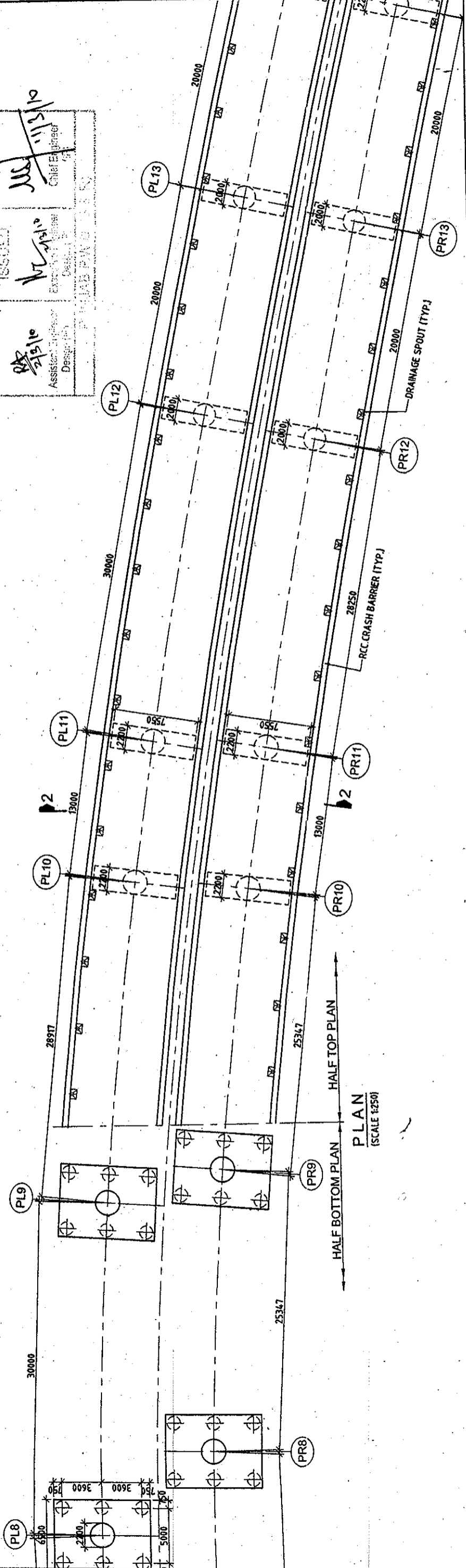
23/10

23/10

Chief Engineer

Assistant Engineer

Designer



**PLAN**  
(SCALE 1:250)

CLIENT: **PIDB**  
PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

CONSULTANT: **SMEC**  
SMEC (INDIA) PVT. LTD.  
OFF: BUILDING NO. 3, C TOWER, 3RD FLOOR,  
CHANDIGARH, INDIA - 160010  
TEL: 0174-450042, 450100

PROJECT TITLE: **PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA**

THE DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF SMEC INDIA PVT. LTD. AND IS ISSUED TO THE PARTY FOR THE SPECIFIC PURPOSE AS STATED IN THE AGREEMENT AND IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE EXPOSED OFF DIRECTLY OR INDIRECTLY, NOR USED FOR ANY OTHER PURPOSE OTHER THAN FOR WHICH IT IS PREPARED.

REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION
R3	26/8/2009	RAWAT	PCK	VNM	S LAHRI	REVISD AS PER PR. PWD COMMENTS
R2	06/05/2009	MKS	PCK	VNM	S LAHRI	GROUND LEVEL MODIFIED
R1	17/04/2009	MKS	PCK	VNM	S LAHRI	REVISED SPAN ARRANGEMENT
R0	09/01/2009	MKS	PCK	VNM	S LAHRI	FIRST ISSUE

SCALE: AS SHOWN

SCALE: AS SHOWN

SHEET SIZE: A2

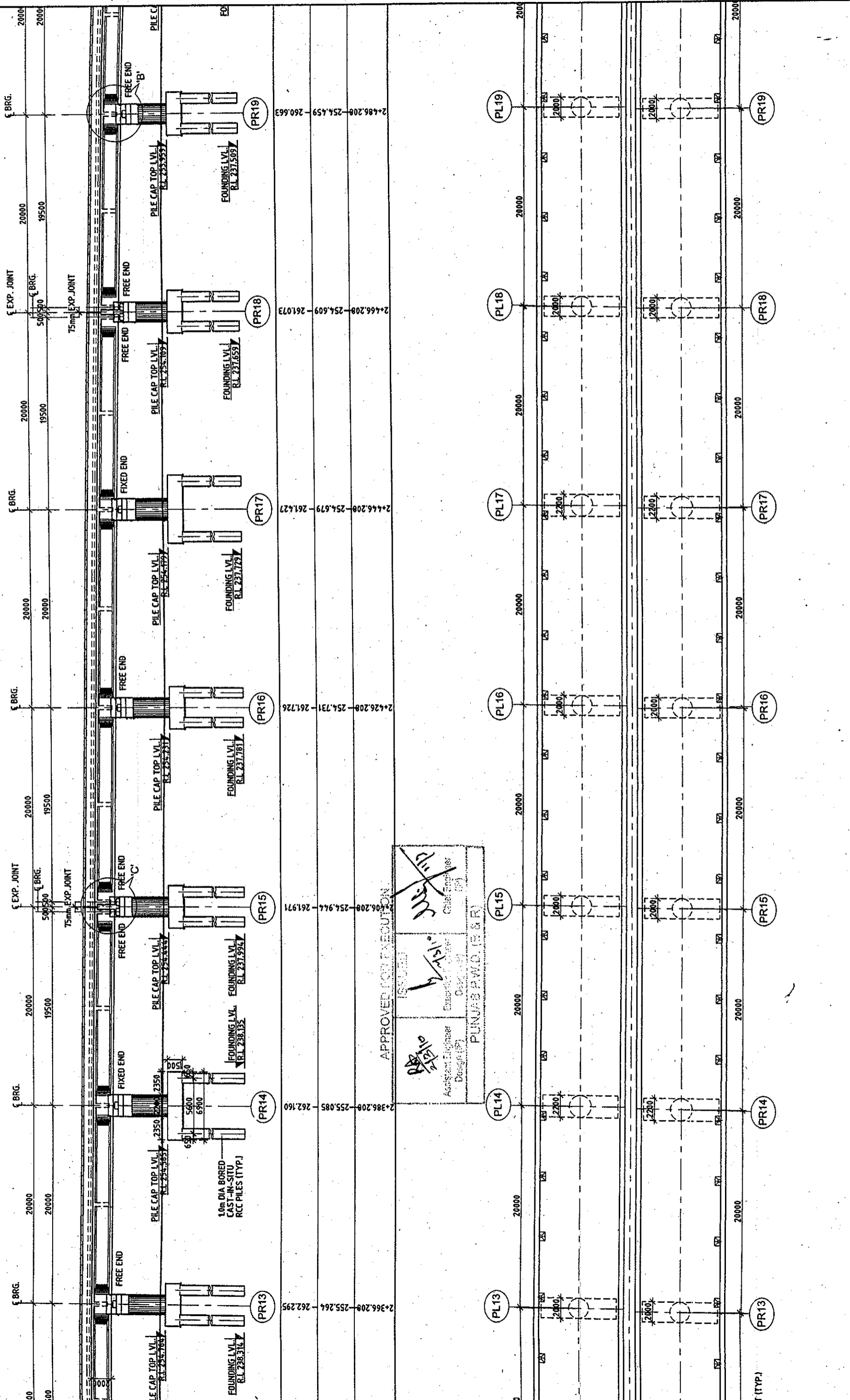
DRW: DPR

DRW: 1213/SMEC/LUDHIANA/2-025/G-01

PROJECT REPORT: R3

← DORAHA

LUDHIANA →



APPROVED FOR EXECUTION

 Assistant Engineer Design (P)	 Executive Engineer Design (P)	 Chief Engineer (P)
PUNJAB P.W.D. (E & R)		

<b>PREPARATION OF DETAILED PROJECT REPORT</b> FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA		<b>REVISIONS</b>	
REV	DATE	CHECKED	APPROVED
R3	09/01/2009	VNM	VNM
R2	17/04/2009	VNM	VNM
R1	06/05/2009	VNM	VNM
R0	09/01/2009	VNM	VNM

REVISIONS AS PER P.B. P.W.D. COMMENTS GROUND LEVEL MODIFIED REVISED SPAN ARRANGEMENT FIRST ISSUE	SCALE: AS SHOWN
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<b>GENERAL ARRANGEMENT DRAWING</b> FOR BRIDGE AT MANPUR (PROP. CH. 2+025.296) (SHEET 4 OF 7)	PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA
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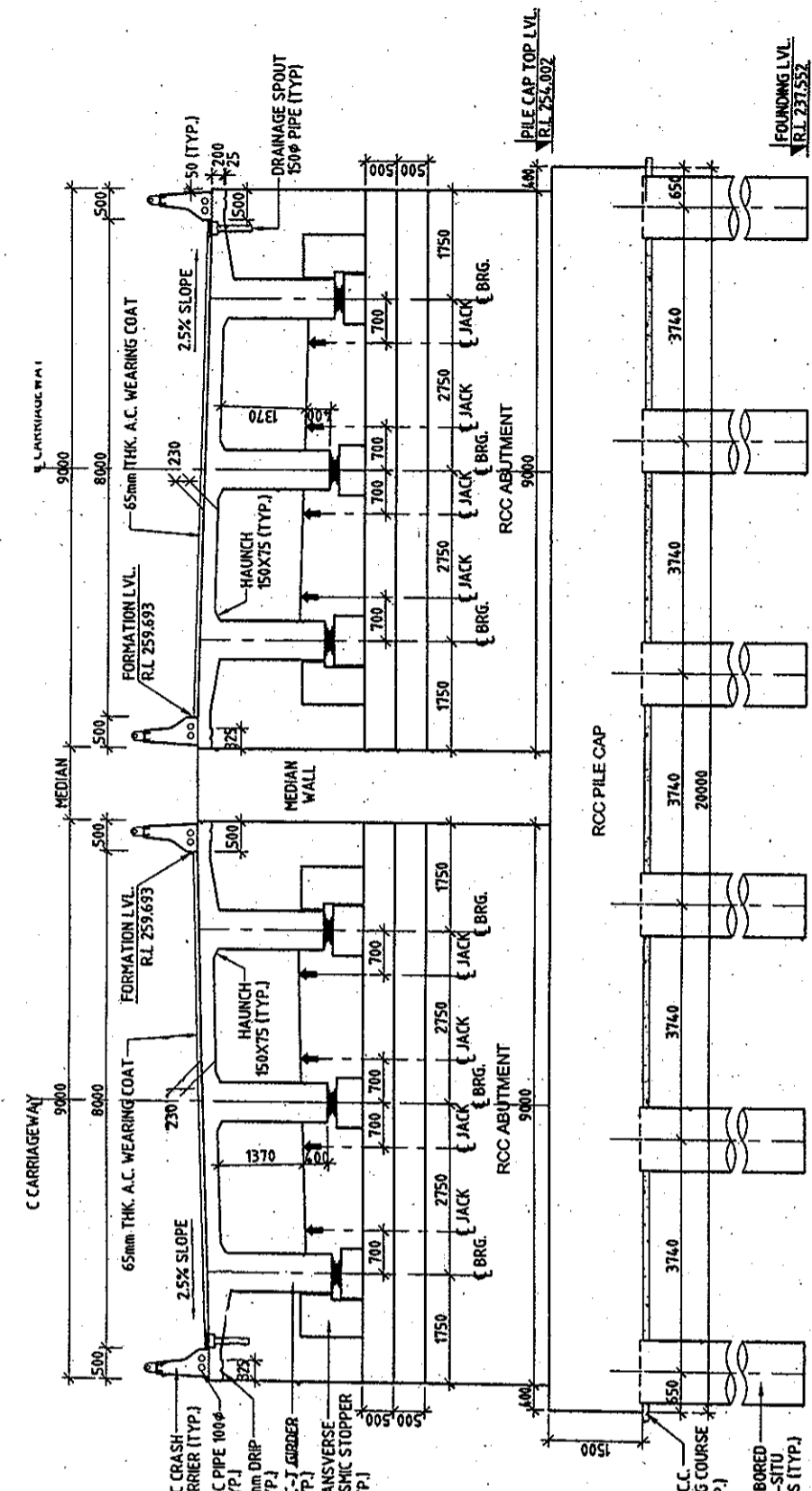
<b>DETAILED PROJECT REPORT</b>	CONSULTANT:  SMEC (INDIA) PVT. LTD. 6/2, BALUWADA, PHASE-1, 6TH FLOOR, CHANDRYA, PUNJAB, INDIA - 151002 Tel: 0154-480002, 480100
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<b>PIDB</b> PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD	DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF SREC INDIA PVT. LTD. AND IS ISSUED TO THE PARTY FOR THE SPECIFIC PURPOSE AS STATED IN THE AGREEMENT AND IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF SREC INDIA PVT. LTD.
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1213/SM/EC/LUDHIANA/2+025/G-01 R3	DRW DPR
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APPROVED FOR EXECUTION

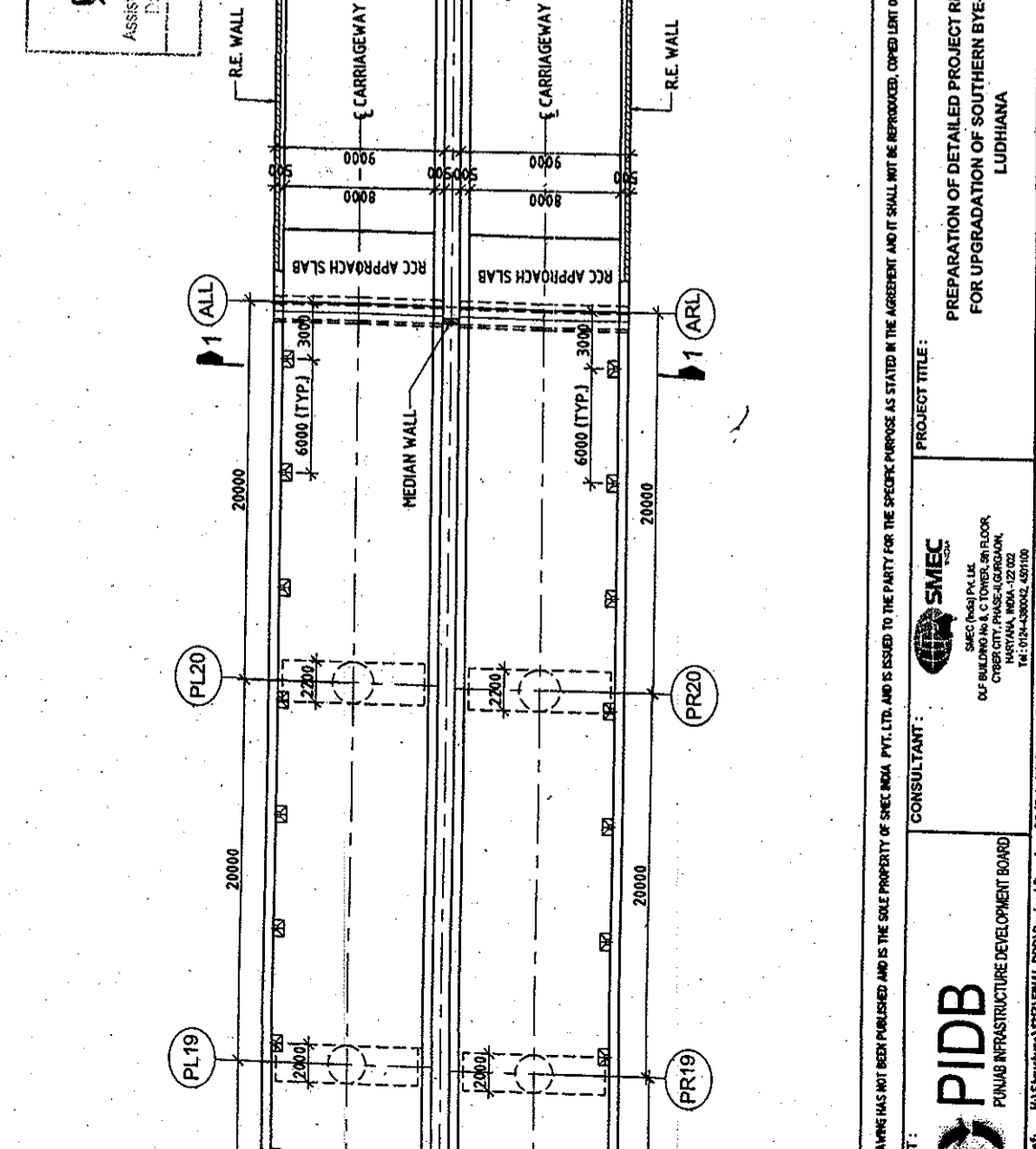
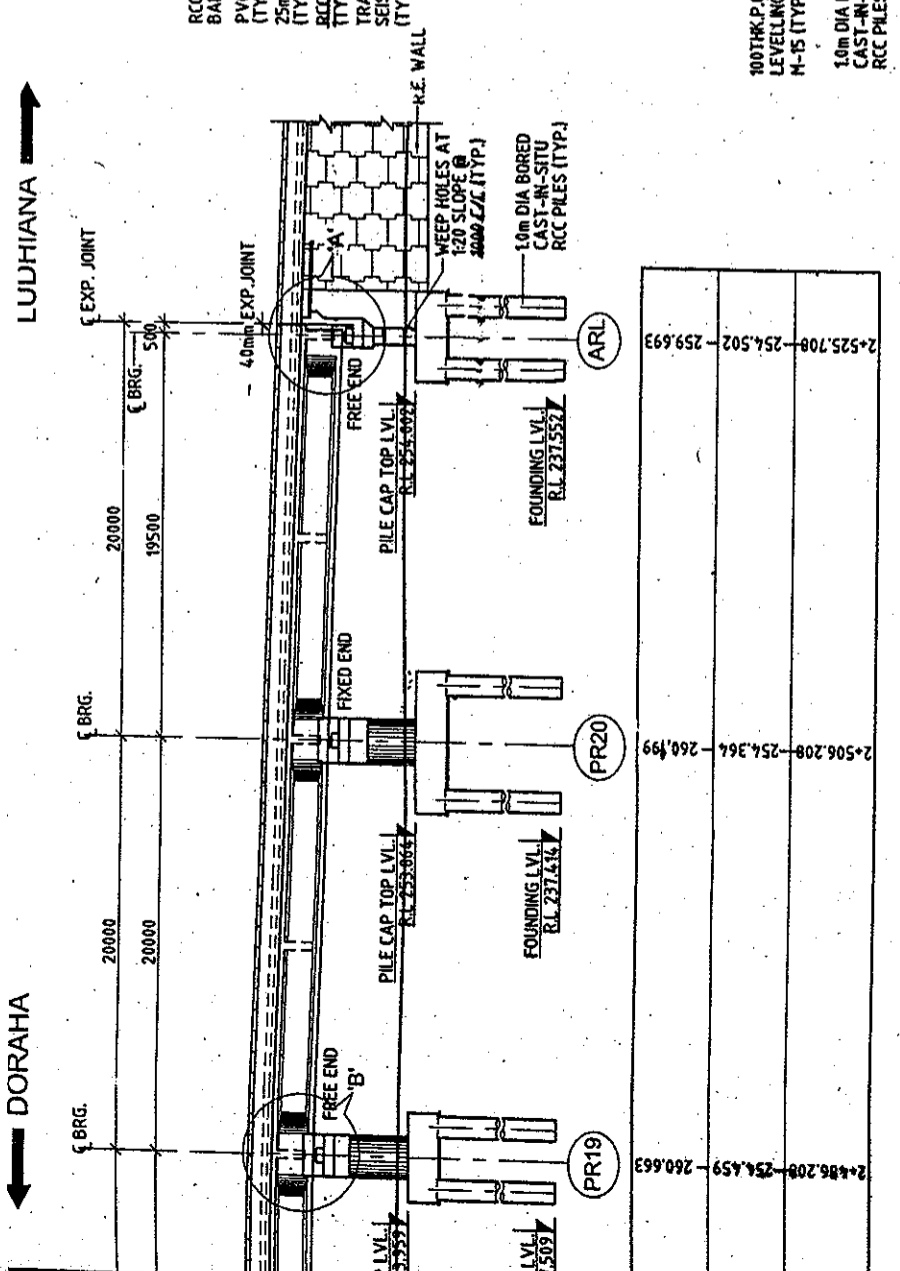
ISSUED

27/12/10

Assistant Engineer

Chief Engineer

PUNJAB P.W.D. (S.R.)



LUDHIANA ←

← DORAHA

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CLIENT: PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

CONSULTANT: SM&C

PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA

REVISIONS:

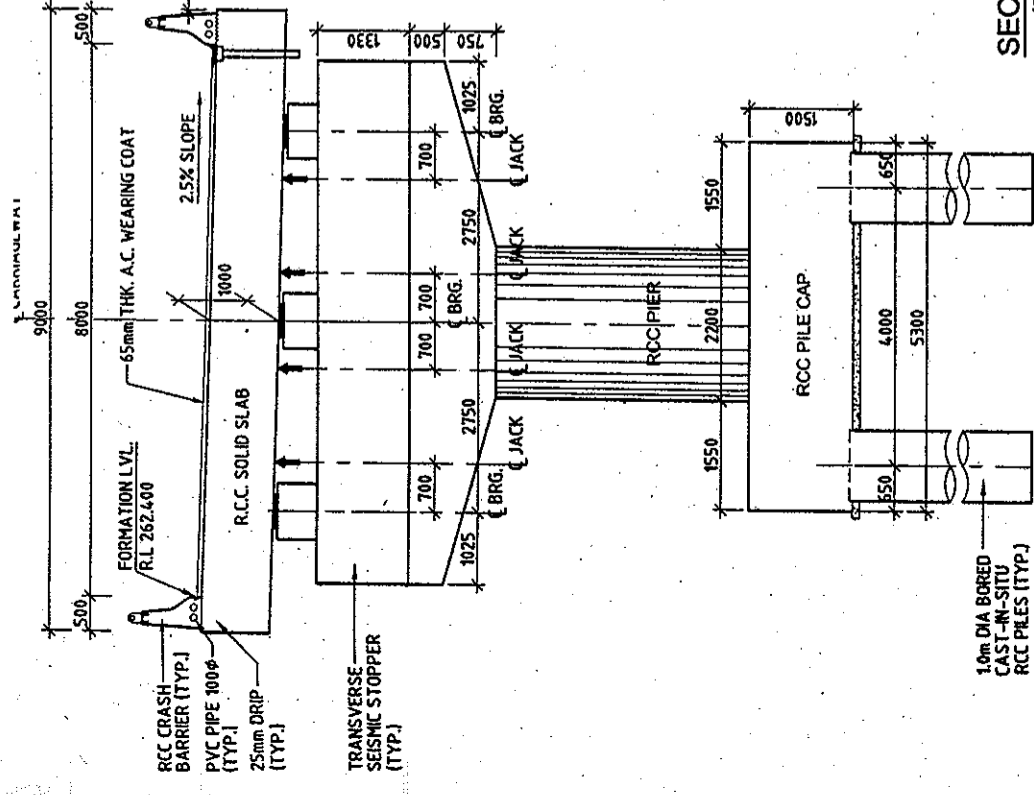
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R3	26/02/2009	RAWAT	PCK	VNM	REVISED AS PER P.B. PWD COMMENTS
R2	06/05/2009	MKS	PCK	VNM	GROUND LEVEL MODIFIED
R1	17/04/2009	MKS	PCK	VNM	REVISED SPAN ARRANGEMENT
R0	09/01/2009	MKS	PCK	VNM	FIRST ISSUE

SCALE: AS SHOWN

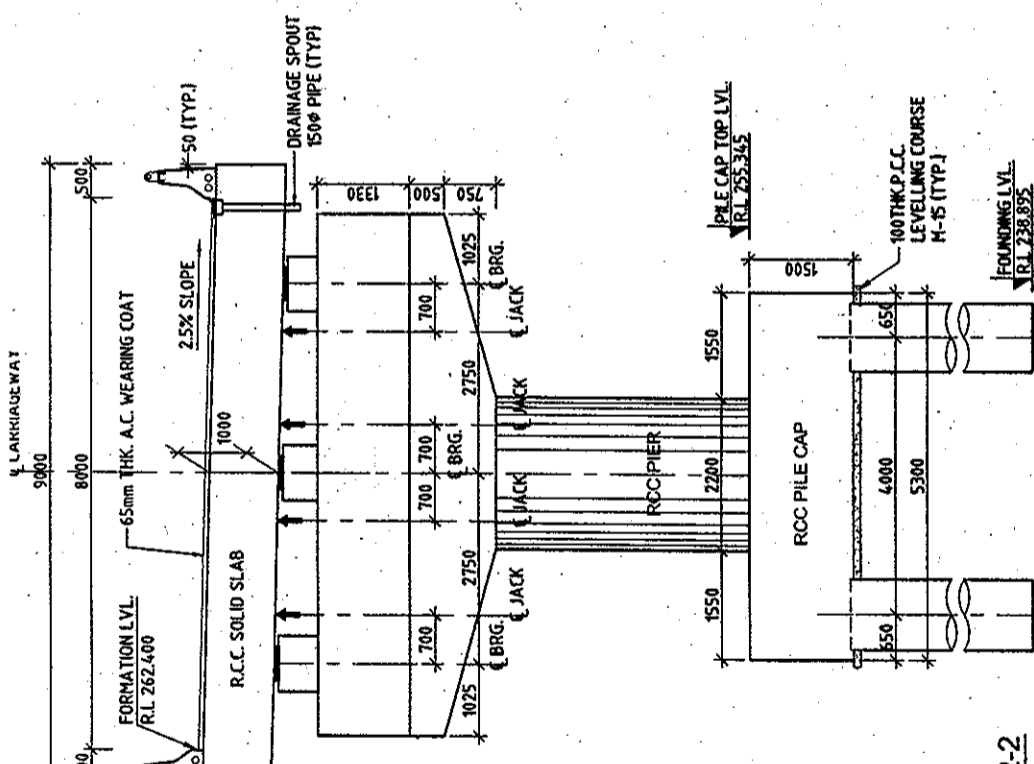
GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT MANPUR (PROP. CH. 2+025.296) (SHEET 5 OF 7)

DPR: 1213/SM&C/LUDHIANA/2+025/G-01

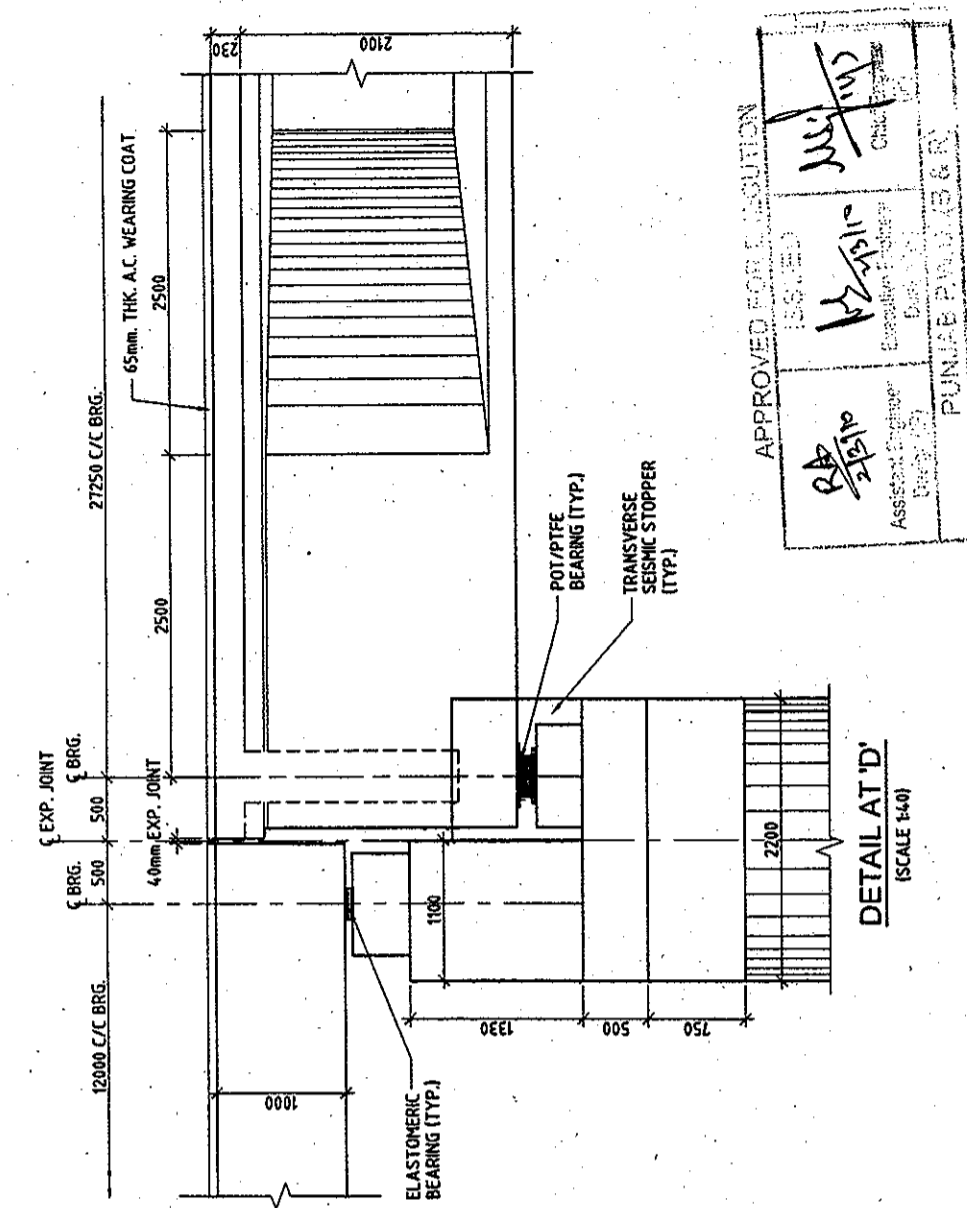
DRW: R3



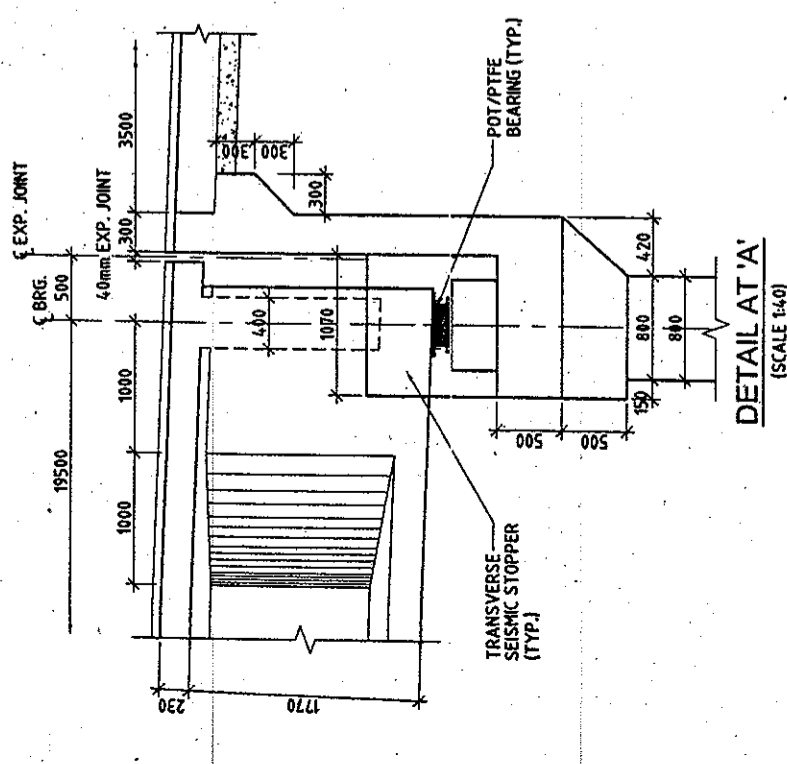
SECTION 2-2  
(SCALE 1:75)



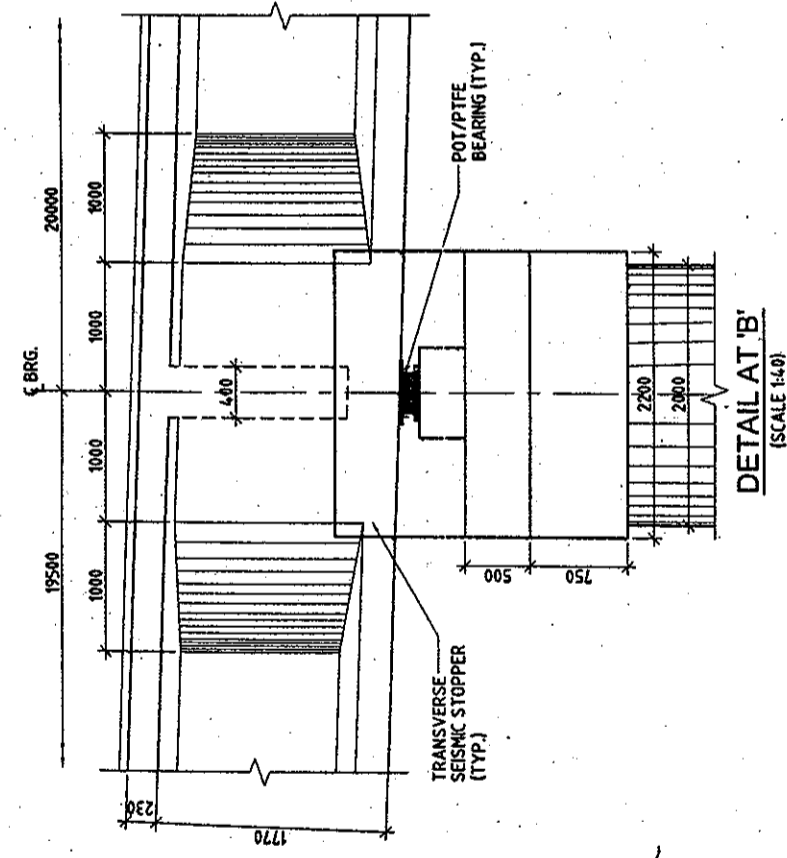
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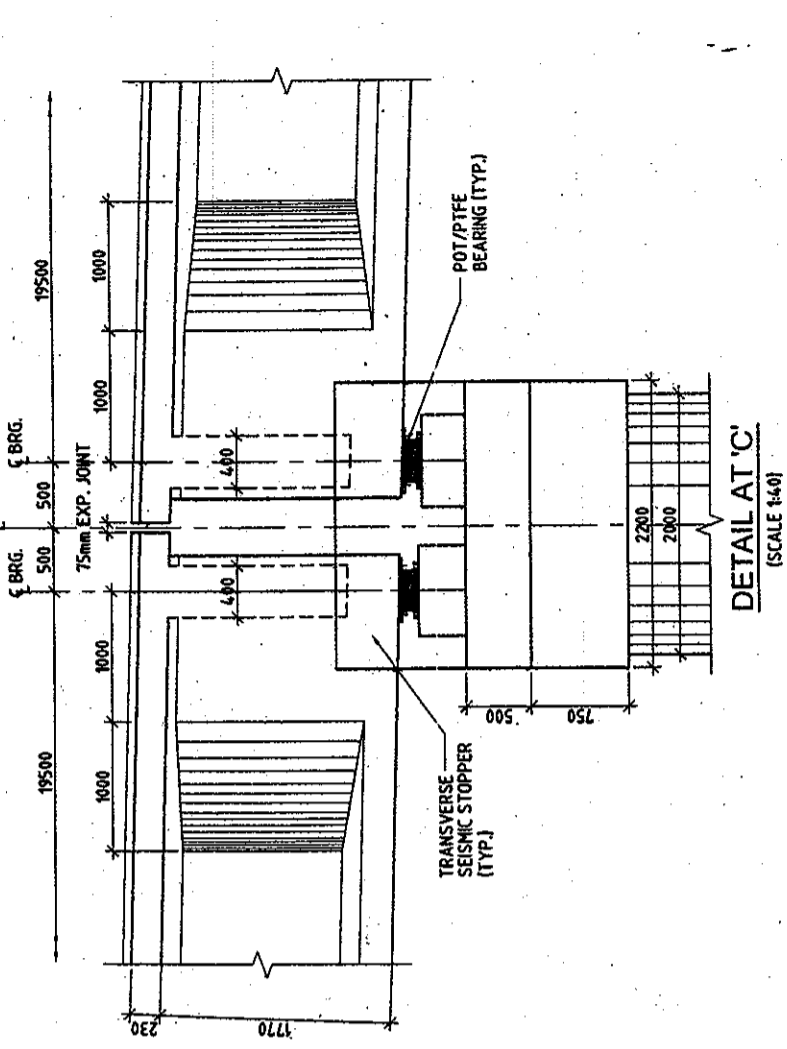
DETAIL AT 'D'  
(SCALE 1:40)



DETAIL AT 'A'  
(SCALE 1:40)



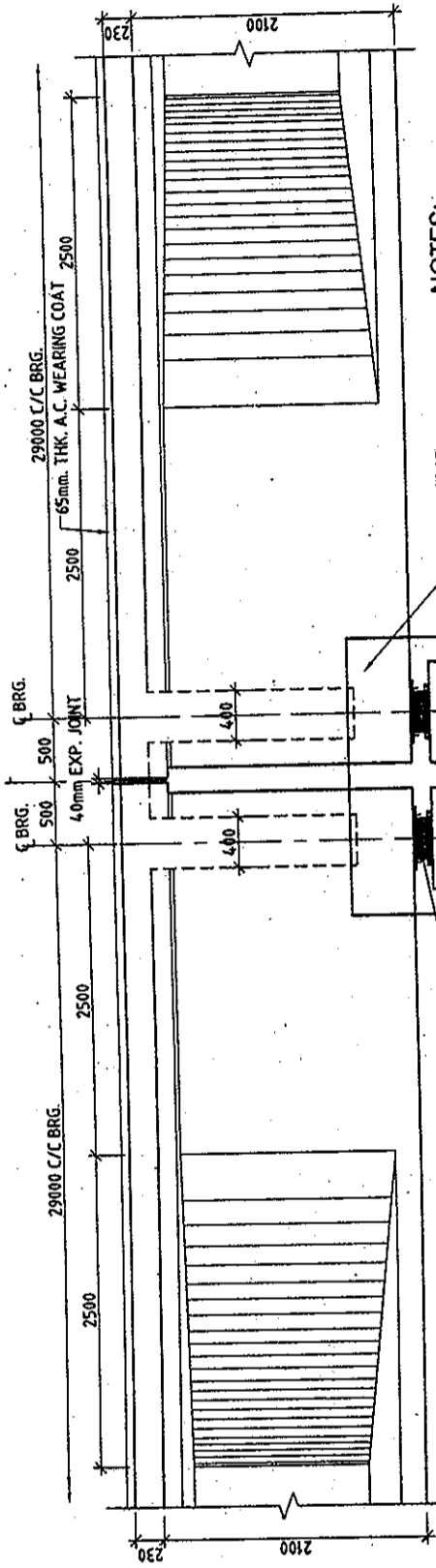
DETAIL AT 'B'  
(SCALE 1:40)



DETAIL AT 'C'  
(SCALE 1:40)

APPROVED FOR EXECUTION  
 ISSUED  
 RAJESH K. SINGH  
 Assistant Engineer  
 PUNJAB PWD (B & R)

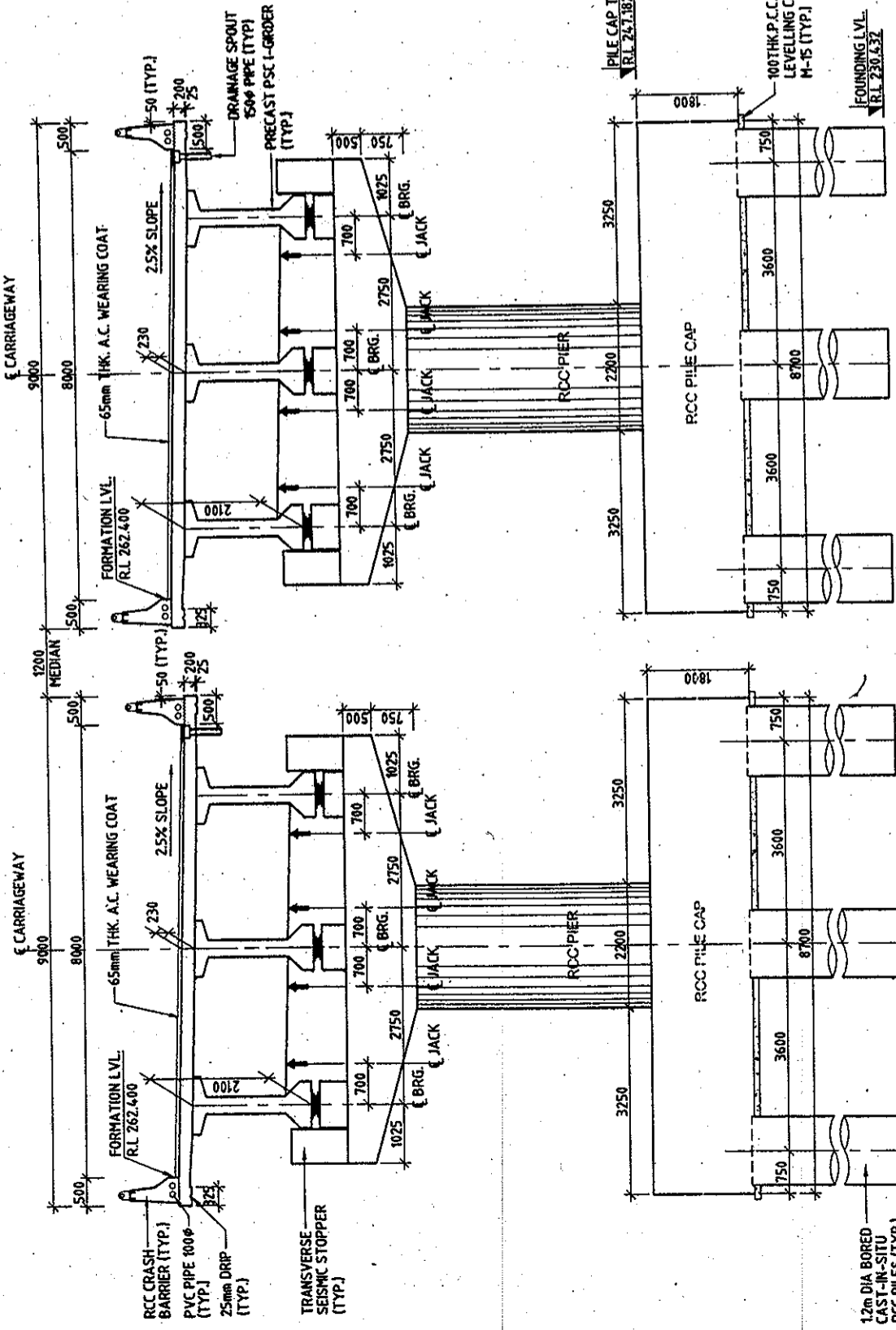
<b>PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA</b>		<b>GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT MANPUR (PROP. CH. 2+025.296)</b> (SHEET 6 OF 7)	
PROJECT TITLE:	PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA	SCALE: AS SHOWN	DETAILED PROJECT REPORT
CONSULTANT:	SMCC CONSULTANTS SMC CONSULTANTS 01F BUILDING IN C.TOWER, 5th FLOOR, OTHER CITY, PHASE-III REGION, HARYANA, INDIA-121002 TEL: 0172-430042, 430100	SHEET SIZE: A2	GENERAL ARRANGEMENT DRAWING FOR BRIDGE AT MANPUR (PROP. CH. 2+025.296) (SHEET 6 OF 7)
PROJECT NO:	R3	REVISED AS PER PB. PWD COMMENTS	DATE:
DRAWN:	MKS	GROUND LEVEL MODIFIED	APPROVED:
CHECKED:	MKS	REVISED SPAN ARRANGEMENT	DESIGN:
DESIGN:	MKS	FIRST ISSUE	DRAWN:
DATE:	09/01/2009	DETAILS OF REVISION	CHECKED:
REV:	R0	APPROVED:	DESIGN:
REV:	R1	APPROVED:	DRAWN:
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REV:	R3	APPROVED:	DESIGN:
REV:	R4	APPROVED:	DRAWN:
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REV:	R6	APPROVED:	DESIGN:
REV:	R7	APPROVED:	DRAWN:
REV:	R8	APPROVED:	CHECKED:
REV:	R9	APPROVED:	DESIGN:
REV:	R10	APPROVED:	DRAWN:
REV:	R11	APPROVED:	CHECKED:
REV:	R12	APPROVED:	DESIGN:
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REV:	R83	APPROVED:	CHECKED:
REV:	R84	APPROVED:	DESIGN:
REV:	R85	APPROVED:	DRAWN:
REV:	R86	APPROVED:	CHECKED:
REV:	R87	APPROVED:	DESIGN:
REV:	R88	APPROVED:	DRAWN:
REV:	R89	APPROVED:	CHECKED:
REV:	R90	APPROVED:	DESIGN:
REV:	R91	APPROVED:	DRAWN:
REV:	R92	APPROVED:	CHECKED:
REV:	R93	APPROVED:	DESIGN:
REV:	R94	APPROVED:	DRAWN:
REV:	R95	APPROVED:	CHECKED:
REV:	R96	APPROVED:	DESIGN:
REV:	R97	APPROVED:	DRAWN:
REV:	R98	APPROVED:	CHECKED:
REV:	R99	APPROVED:	DESIGN:
REV:	R100	APPROVED:	DRAWN:



**NOTES:-**

1. ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
2. PROPOSED BRIDGE IS DESIGNED FOR ONE LANE OF IRC CLASS TOR OR 2 LANE OF CLASS 'A' LOADING WHICHEVER GOVERNS.
3. CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS :-
  - i) FOR RCC SUPERSTRUCTURE ----- 40MPa
  - ii) FOR PSC SUPERSTRUCTURE ----- 45MPa
  - iii) FOR CRASH BARRIER ----- 40MPa
  - iv) FOR SUBSTRUCTURE ----- 35MPa
  - v) FOR PILE & PILE CAP ----- 35MPa
  - vi) FOR SUPERSTRUCTURE ----- 40mm
  - vii) FOR SUBSTRUCTURE ----- 50mm
  - viii) FOR PILE & PILE CAP ----- 75mm
4. CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.
  - i) FOR SUPERSTRUCTURE ----- 40mm
  - ii) FOR SUBSTRUCTURE ----- 50mm
  - iii) FOR PILE & PILE CAP ----- 75mm
5. TMT HIGH YIELD STRENGTH DEFORMED BARS OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
6. BACK FILLING BEHIND ABUTMENTS & RETURN WALLS SHALL CONSIST OF GRANULAR MATERIAL.
7. 65mm THK. A.C WEARING COAT SHALL CONSIST OF UNDER LAYER OF MASTIC ASPHALT 25mm THK. AND ONE LAYER OF ASPHALTIC CONC. 40mm. AS PER MONTH SPECIFICATION SECTION 500.
8. STRIP SEAL TYPE EXPANSION JOINTS OF PROVEN QUALITY SHALL BE PROVIDED. IN TERMS OF MODIFIED INTERIM SPECIFICATIONS FOR EXPANSION JOINTS ISSUED VIDE "MORTH" CIRCULAR NO.RW/NH-34059/1/96-S&R DATED 30-11-2000 & 25-01-2001.
9. SLOPE/MEDIAN WIDTH AT THE STRUCTURE LOCATION SHALL BE PROVIDED AS PER RELEVANT HIGHWAY CROSS SECTION.
10. PILE CAP TOP AND FOUNDING LEVELS SHOWN IN THE DRAWINGS ARE TO BE VERIFIED AT SITE AND ANY SIGNIFICANT CHANGE IN THOSE SHALL BE BROUGHT INTO NOTICE OF DESIGNER BEFORE EXECUTION.
11. LATERAL LOAD CAPACITY 270 TONS FOR 1.0M DIA AND 1.2M DIA PILES. LATERAL LOAD CAPACITY 28 TONS FOR 1.0M DIA PILES. LATERAL LOAD CAPACITY 38 TONS FOR 1.2M DIA PILES. PILE CAPACITY TO BE CONFIRMED BY PILE LOAD TEST.
12. DESIGN DATA
  - (a) DISCHARGE - 410.4 CUMecs
  - (b) BED LEVEL - 247.405 M
  - (c) F.S.L. - 251.905 M
  - (d) VERTICAL CLEARANCE - 120 M
  - (e) SILT FACTOR - 1
  - (f) VELOCITY - 12 M/ Sec

**DETAIL AT 'E'**  
(SCALE 1:40)



**SECTION 3-3**  
(SCALE 1:75)

APPROVED FOR EXECUTION  
 [Signature]  
 [Stamp]

**REFERENCE DRAWINGS:-**

- i) 1213/SMEC/LUDHIANA/2-025/G-01 (SHEET 1 OF 7 TO 6 OF 7)
- ii) 1213/SMEC/LUDHIANA/2-025/E-01 (SHEET 1 OF 4 TO 4 OF 4)
- iii) 1213/SMEC/LUDHIANA/2-025/E-02 (SHEET 1 OF 3 TO 3 OF 3)
- iv) 1213/SMEC/LUDHIANA/2-025/E-03 (SHEET 1 OF 2 & 2 OF 2)
- v) 1213/SMEC/LUDHIANA/2-025/E-04 (SHEET 1 OF 3 TO 3 OF 3)
- vi) 1213/SMEC/LUDHIANA/2-025/E-05 (SHEET 1 OF 3 TO 3 OF 3)
- vii) 1213/SMEC/LUDHIANA/2-025/E-06 (SHEET 1 OF 2 & 2 OF 2)
- viii) 1213/SMEC/LUDHIANA/SUP-06 TO 52
- ix) 1213/SMEC/LUDHIANA/SUP-77
- x) 1213/SMEC/LUDHIANA/MISC-01 & 03

<b>CLIENT:</b> <b>PIDB</b> PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD		<b>CONSULTANT:</b> <b>SMEC</b> S.M. ENGINEERING CONSULTANTS 8/2, BUILDING NO. 8, C TOWER, 5th FLOOR CYBER CITY, PHASE-II, GURGAON, HARYANA, INDIA - 122002 Tel: 0122-4990042, 4991000		<b>PROJECT TITLE:</b> PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA		<b>SCALE:</b> AS SHOWN		<b>GENERAL ARRANGEMENT DRAWING          FOR BRIDGE AT MANPUR          (PROP. CH. 2-025.296)          (SHEET 1 OF 7)</b>	
<b>REV</b> R3 R2 R1 R0		<b>DATE</b> 26/08/2009 06/05/2009 17/04/2009 09/01/2009		<b>CHECKED</b> VNM VNM VNM VNM		<b>DESIGN</b> PCK PCK PCK PCK		<b>APPROVED</b> S LAHRI S LAHRI S LAHRI S LAHRI	
<b>REVISED AS PER P.B. PWD COMMENTS</b>		<b>GROUND LEVEL MODIFIED</b>		<b>REVISED SPAN ARRANGEMENT</b>		<b>FIRST ISSUE</b>		<b>DETAILS OF REVISION</b>	
<b>SCALE:</b> AS SHOWN		<b>SHEET SIZE:</b> A2		<b>DPR</b>		<b>DRW</b>		<b>1213/SMEC/LUDHIANA/2-025/G-01</b>	
								<b>R3</b>	

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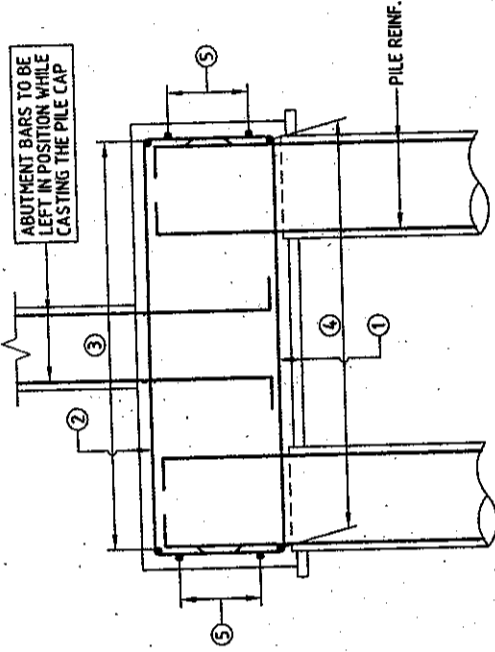
CAD File Ref: H:\Structure\1213\FINAL DPR\Revised Drawings R2 (Feb 10)\Bridge CH 2-025 BRIDGE CH 2-025 G-01.dwg

**NOTES:-**

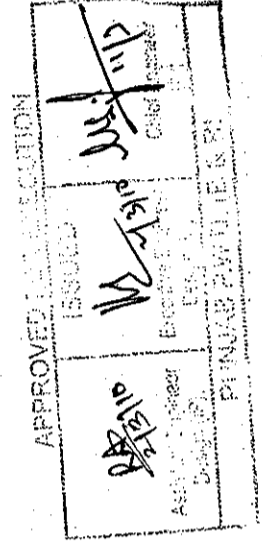
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 35MPa FOR BORED CAST-IN-SITU PILE AND PILE CAP.
- CLEAR COVER TO SHALL BE AS FOLLOWS.  
(i) FOR PILE --- 75mm  
(ii) FOR PILE CAP --- 75mm
- TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
- MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
- MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BARLAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
- LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
- ACTUAL LOAD TEST SHALL BE CARRIED OUT ON A TEST PILE AS PER STANDARD SPECIFICATIONS TO DETERMINE VERTICAL AND LATERAL CAPACITY OF PILE. IT SHALL HOWEVER BE ENSURED THAT IT IS NOT LESS THAN DESIGN VALUES.

**REFERENCE DRAWINGS:-**

- 1213/SMEC/LUDHIANA/2+025/G-01 (SHEET 1 OF 7 TO 7)
- 1213/SMEC/LUDHIANA/2+025/E-01 (SHEET 2 OF 4 TO 4 OF 4)

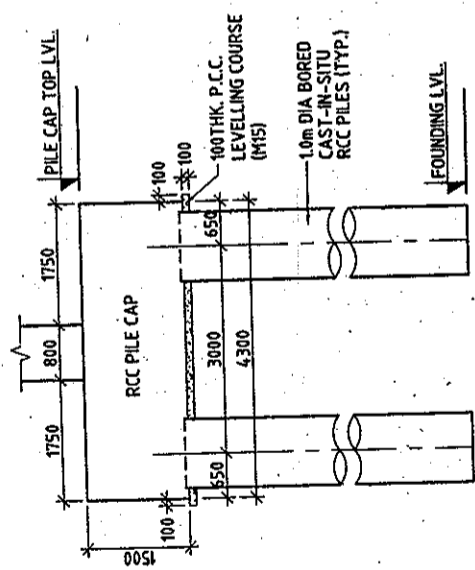


**SECTION A-A**  
(SCALE 1:50)

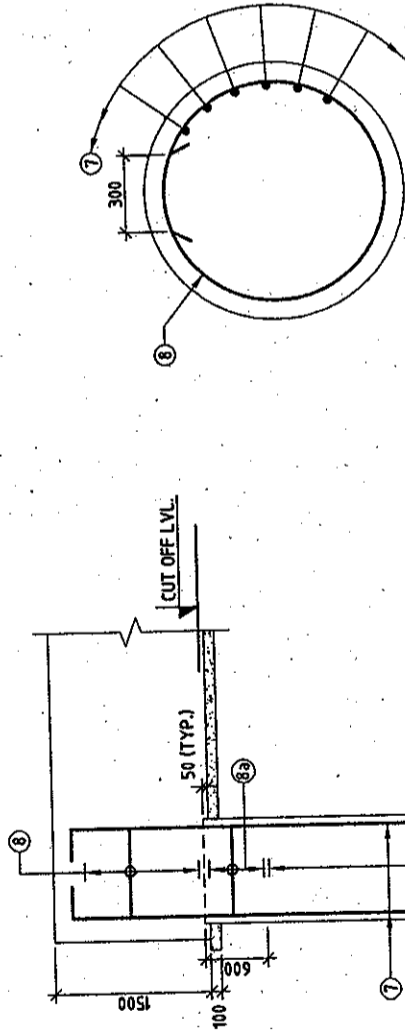


**LEVELS CHART FOR PILE CAP LAYOUT** \* SUBJECT TO SITE CHECK

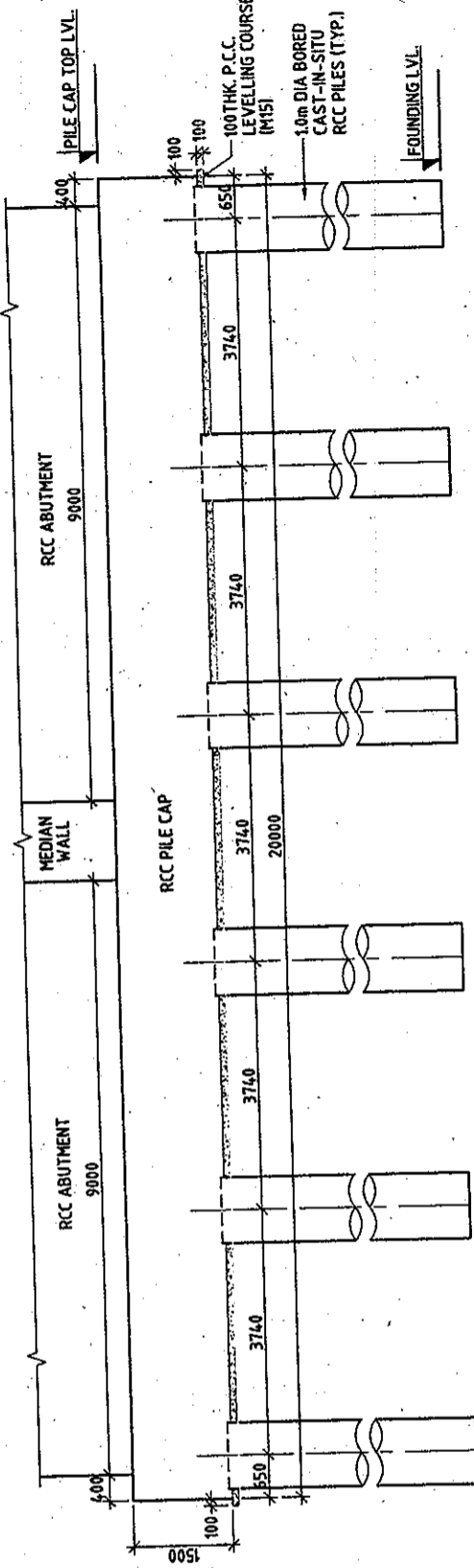
ABUTMENT DESIGNATION	BED LEVELS	TOP OF PILE CAP LEVELS	CUT OFF LEVELS	FOUNDING LEVELS
ARD	251.627	251.127	255.677	240.677
ARL	254.502	254.002	252.552	237.552
ALD	251.627	251.127	255.677	240.677
ALL	254.502	254.002	252.552	237.552



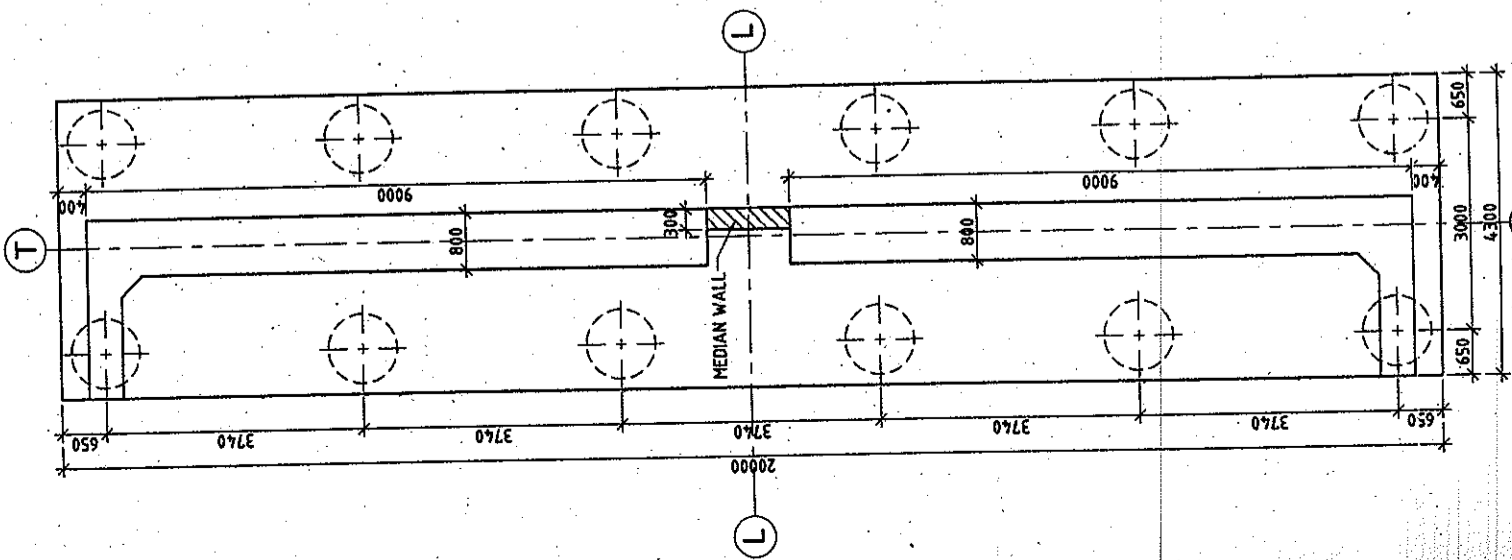
**ELEVATION ALONG L-L AXIS**  
(SCALE 1:75)



**SECTION C-C**  
(SCALE 1:20)

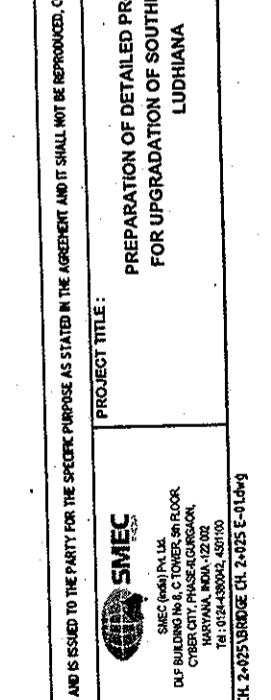


**ELEVATION ALONG T-T AXIS**  
(SCALE 1:75)



**PLAN AT TOP OF PILE CAP**  
(SHOWING DIMENSIONS)  
(SCALE 1:75)

**R.C.C. DETAILS OF PILE**  
(SCALE 1:50)



**PROJECT TITLE:**  
PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADEATION OF SOUTHERN BYE-PASS LUDHIANA

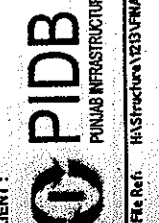
**CONSULTANT:**  
SMEC  
SMEC (INDIA) PVT. LTD.  
D/E BUILDING IN A.C. TOWER, 3RD FLOOR  
CYBER CITY, PHASE-2, GURGAON,  
HARYANA, INDIA - 122002  
Tel: 0124-430002, 430100

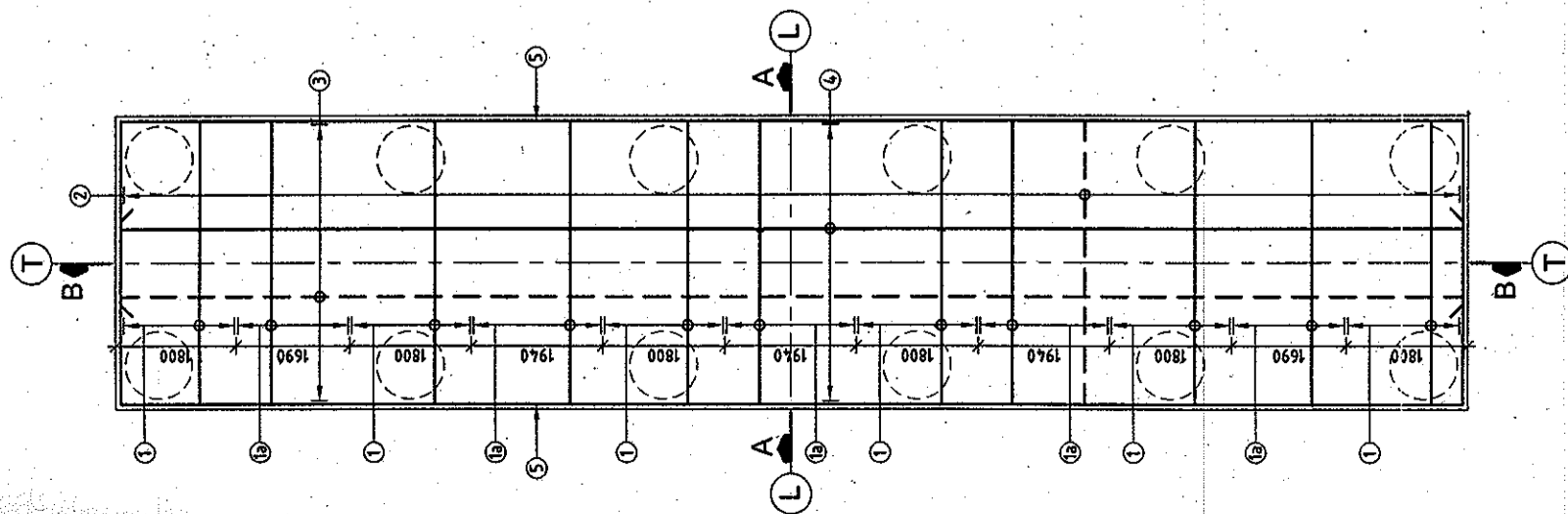
**CLIENT:**  
PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD  
H-1 Structure 1213/UPRAL DPR/Revised Drawings R2 (Part 10) Bridge CHL 2+025 UBRIDGE CHL 2+025 E-01d+g

REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION
R1	26/08/2009	MKS	VNM	VNM	S LAHRI	REVISED AS PER P.E.P.WD COMMENTS
R0	10/06/2009	MKS	VNM	VNM	S LAHRI	FIRST ISSUE

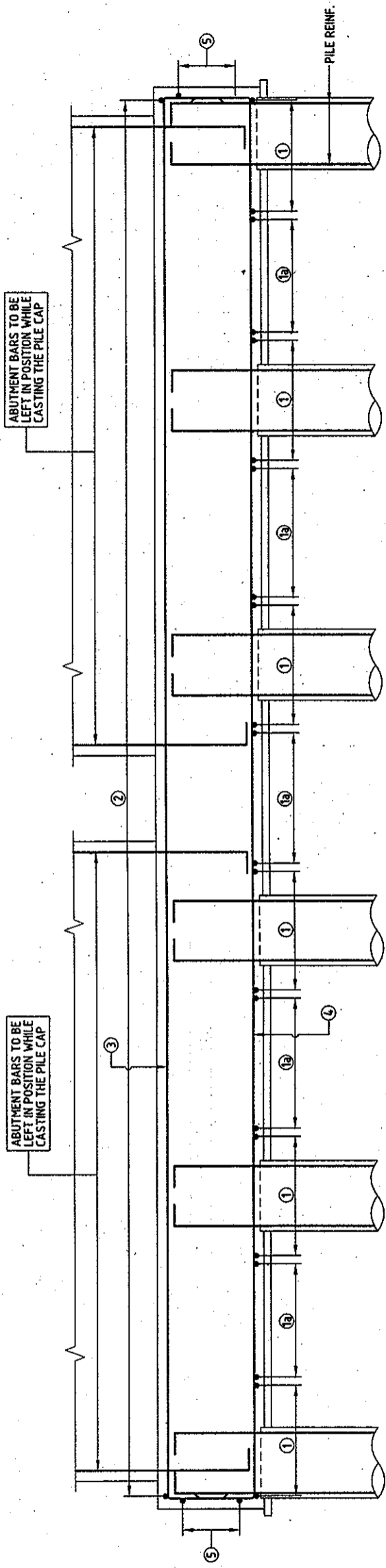
SCALE: AS SHOWN  
SHEET SIZE: A2  
DPR  
DRAW  
1213/SMEC/LUDHIANA/2+025/E-01  
R1  
(SHEET 1 OF 4)

**DETAILED PROJECT REPORT**  
**DIMENSIONAL & REINFT. DETAILS OF**  
**PILE, PILE CAP, ABUTMENT SHAFT,**  
**ABUTMENT CAP, RETURN WALL & DIRT WALL**  
(SHEET 1 OF 4)





**PLAN**  
(SHOWING PILE CAP REINFORCEMENT)  
(SCALE 1:75)



**SECTION B-B**  
(SCALE 1:50)

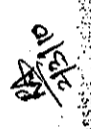


**REINFORCEMENT DETAIL:**

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	25	13 Nos.	—
1a	16	110	—
2	16	150	—
3	16	150	—
4	16	110	—
5	16	8 Nos.	□
7	32	22 Nos.	—
8	10	200	○
8a	10	100	○

**LEGENDS:**



- BAR ON TOP FACE
- BAR ON BOTTOM FACE

**APPROVED FOR EXECUTION**

 Assistant Engineer Design (DR)	 Executive Engineer Design (DR)	 Chief Engineer Design (DR)
--	---	--

PUNJAB P.W.D. (D & R)

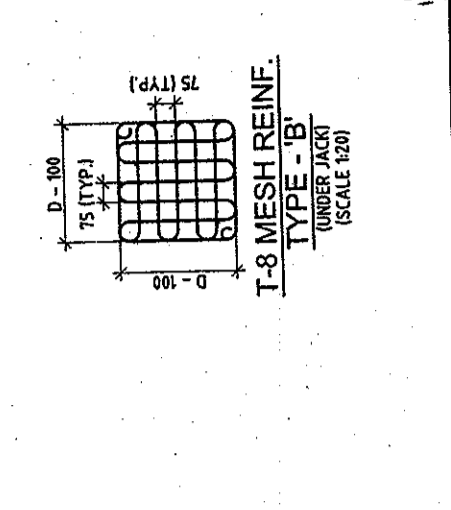
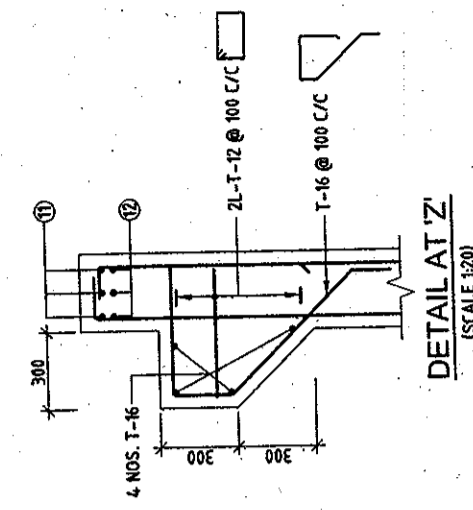
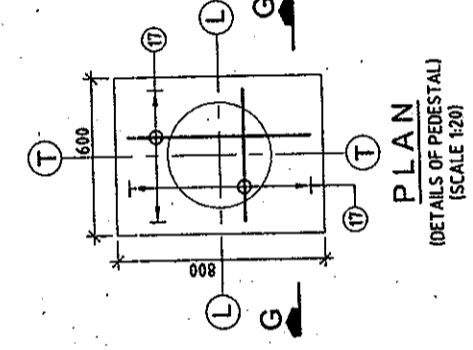
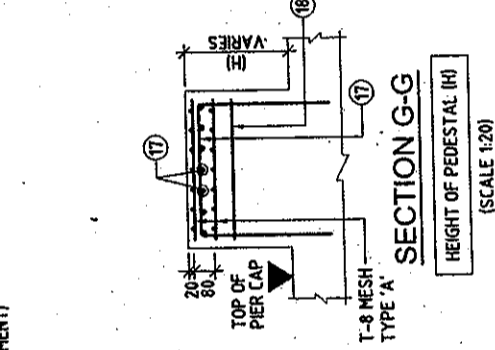
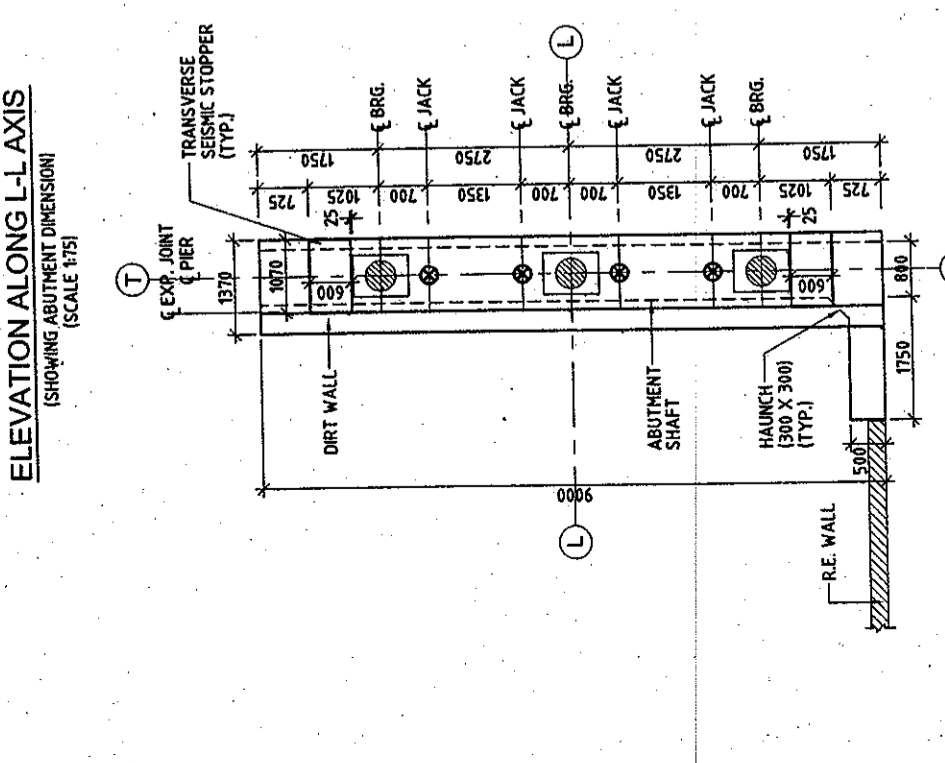
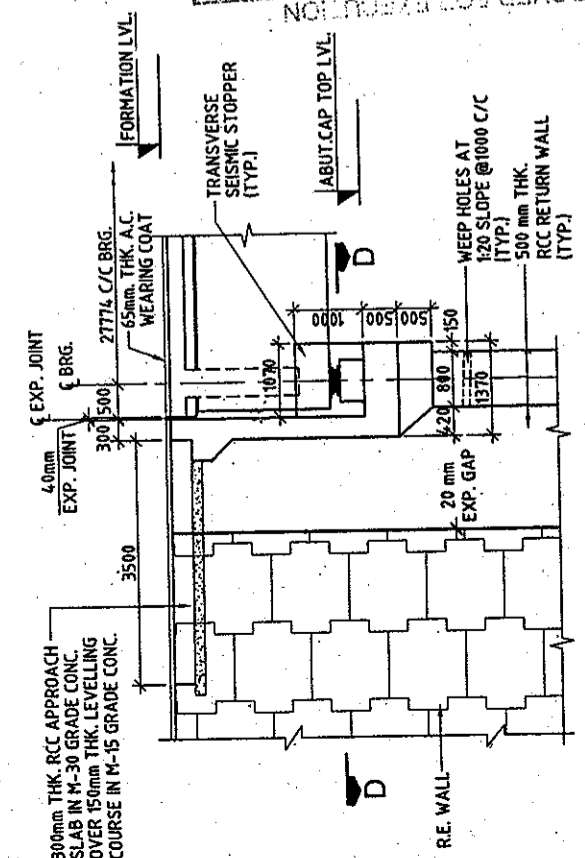
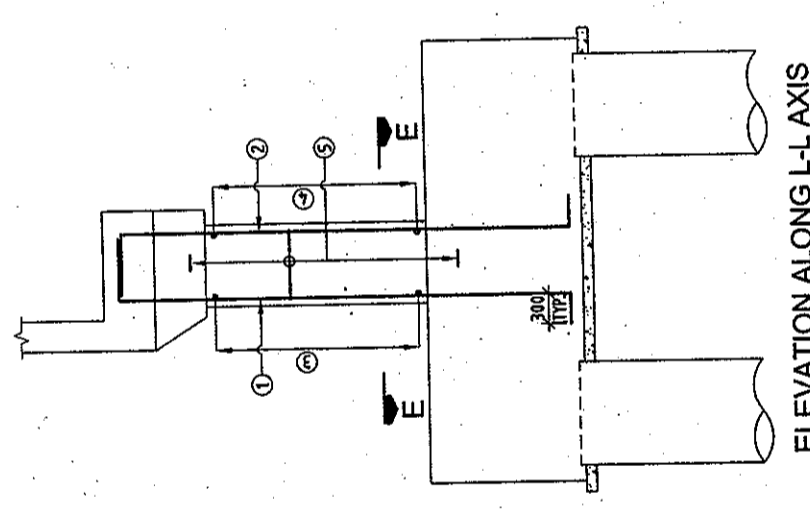
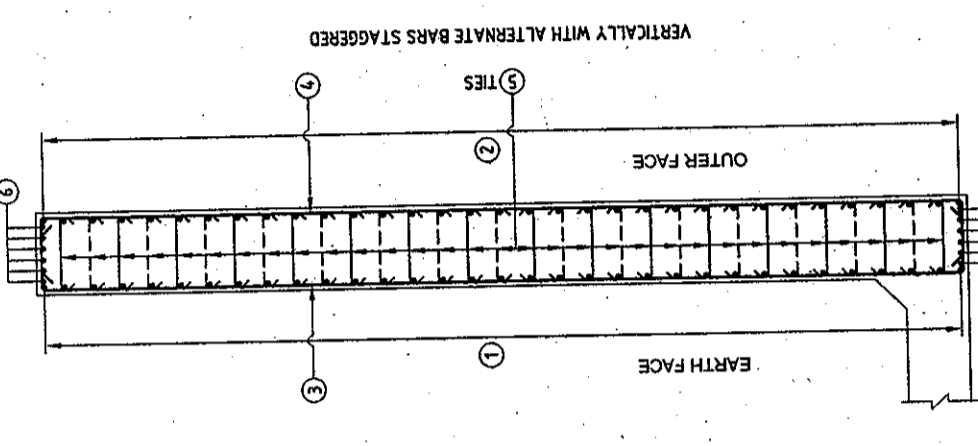
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<b>CLIENT:</b>		<b>CONSULTANT:</b>	
 <b>PIDB</b> PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD		 <b>SMC</b> SMEC (INDIA) PVT. LTD. 2/F, BUNGALOW, 10/10/10, 10/10/10, CHANDER NAGAR, PHASE-1, LUDHIANA, PUNJAB, INDIA - 142 002 TEL: 0174-489042, 489110	
<b>PROJECT TITLE:</b>		<b>PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADEMENT OF SOUTHERN BYPASS LUDHIANA</b>	
R1	26/08/2009	VNM	VNM
R0	10/06/2009	MKS	MKS
REV	DATE	DRAWN	CHECKED
APPROVED	APPROVED	APPROVED	APPROVED
S. LAHRI	S. LAHRI	S. LAHRI	S. LAHRI
REVISED AS PER P.B.P.W.D COMMENTS		FIRST ISSUE	
AS SHOWN		SHEET SIZE: A2	
SCALE:		DPR	
AS SHOWN		DRW	
<b>DETAILED PROJECT REPORT</b>		<b>1213/SMC/LUDHIANA/2+025/E-01</b>	
<b>DIMENSIONAL &amp; REINFT. DETAILS OF PILE, PILE CAP, ABUTMENT SHAFT, ABUTMENT CAP, RETURN WALL &amp; DIRT WALL</b>		<b>(SHEET 2 OF 4)</b>	
R1		R1	



**REINFORCEMENT DETAIL:**

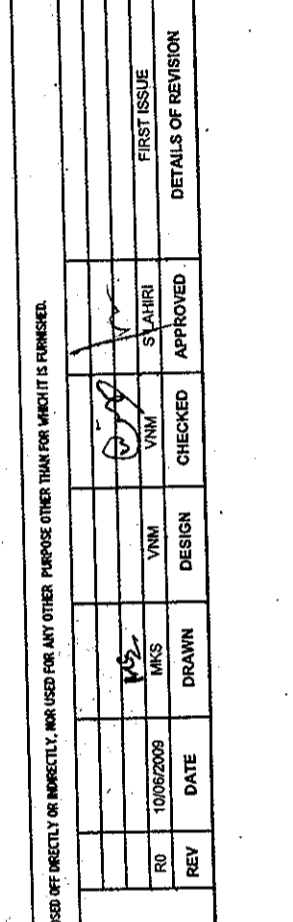
BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	20	42 Nos.	[Diagram]
2	20	42 Nos.	[Diagram]
3	12	110	[Diagram]
4	12	110	[Diagram]
5	10	200	[Diagram]
6	20	6 Nos.	[Diagram]
7	16	150	[Diagram]
8	12	150	[Diagram]
9	16	150	[Diagram]
10	12	150	[Diagram]
11	16	3 Nos.	[Diagram]
12	16	3 Nos.	[Diagram]
13	16	8 Nos.	[Diagram]
14	16	6 Nos.	[Diagram]
15	16	15 Nos.	[Diagram]
16	16	100	[Diagram]
17	12	75	[Diagram]
18	10	125	[Diagram]



**R/F DETAILS OF DIRT WALL AND ABUTMENT CAP**  
(SCALE 1/25)

**LEVELS CHART FOR ABUTMENT \* SUBJECT TO SITE CHECK**

ABUTMENT DESIGNATION	FORMATION LEVELS	ABUTMENT CAP TOP LEVELS	BED LEVELS
ARD	262.400	259.505	257.627
ARL	259.693	257.278	254.502
ALD	262.400	259.835	257.627
ALL	259.693	257.278	254.502



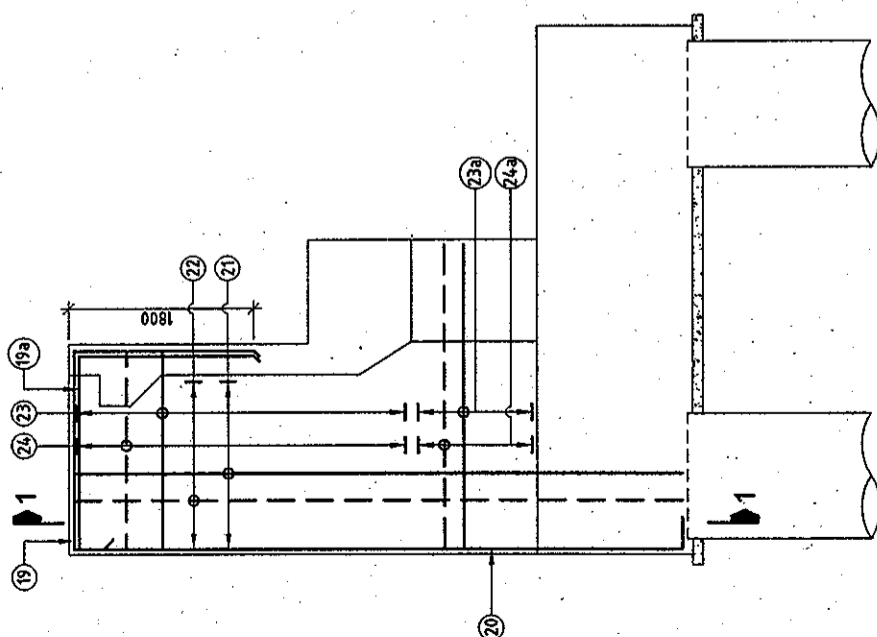
**REINFORCEMENT DETAIL:**

SCALE:	AS SHOWN	AS SHOWN
SHEET SIZE:	A2	A2
DPR	DRW	DRW
DETAILS OF REVISION	APPROVED	APPROVED
DATE	10/06/2009	10/06/2009
DESIGN	VNMI	VNMI
CHECKED	VNMI	VNMI
DESIGN	MKS	MKS
DRAWN	MKS	MKS
DATE	10/06/2009	10/06/2009
REV	01	01
PROJECT TITLE:	PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BY-PASS LUDHIANA	
CLIENT:	PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD	
CONSULTANT:	SMEC	
CONTRACT NO.:	1213/SMEC/LUDHIANA/2+025/E-01	
PROJECT NO.:	1213/SMEC/LUDHIANA/2+025/E-01	
SHEET NO.:	R0	
TOTAL SHEETS:	R0	

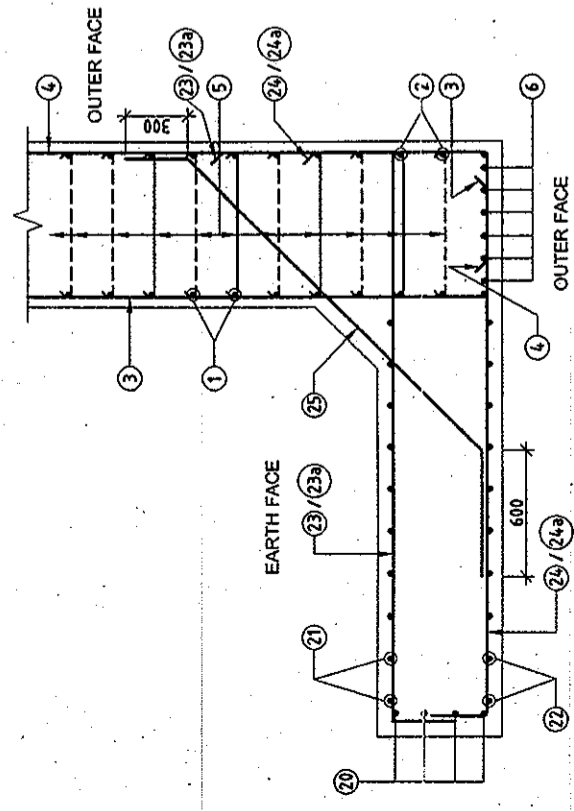
**PIDB**  
PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

**SMEC**  
SMC (India) Pvt. Ltd.  
D/F BUILDING 10 & C TOWER, 28 FLOOR,  
CHANDLER STREET, PHASE-II GURGAON,  
HARYANA, INDIA-122002  
Tel: 0124-650442, 650102

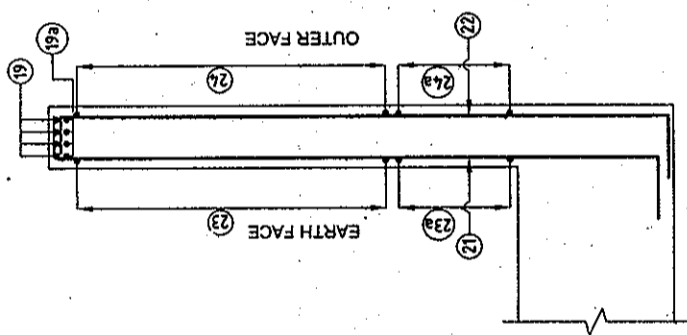
CAD File Ref: R/S/Structure/1213/FORMAL DPR/Revised Drawings R2 (Feb 10)/Bridge Ch. 2-425/BRIDGE CH. 2-425 E-01.dwg



R/F DETAILS OF RETURN WALL  
[SCALE 1:50]



JUNCTION DETAILS OF RCC  
ABUTMENT AND SOLID RETURN WALL  
[SCALE 1:25]



SECTION 1-1  
[SCALE 1:50]

REINFORCEMENT DETAIL:

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
19	20	4 Nos.	[Diagram of bar shape]
19a	20	4 Nos.	[Diagram of bar shape]
20	12	4 Nos.	[Diagram of bar shape]
21	12	200	[Diagram of bar shape]
22	12	150	[Diagram of bar shape]
23	12	200	[Diagram of bar shape]
23a	12	200	[Diagram of bar shape]
24	12	200	[Diagram of bar shape]
24a	12	200	[Diagram of bar shape]
25	12	200	[Diagram of bar shape]

LEGENDS:

- BAR ON TOP FACE/
- BAR ON OUTER FACE/
- BAR ON BOTTOM FACE/
- BAR ON EARTH FACE/
- REINFORCEMENT

R/F

- NOTES:-**
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES AS FOLLOWS.
    - (i) ABUTMENT SHAFT, ABUTMENT CAP -----M35
    - (ii) RETURN WALL -----M35
    - (iii) CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.
      - (i) FOR SUBSTRUCTURE ----- 50mm
      - (ii) FOR FOUNDATION ----- 75mm
  - TMT HIGH YIELD STRENGTH DEFORMED BARS OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
  - MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
  - MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
  - LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
  - A IS THE DIMENSIONS OF THE BEARINGS WHICH IS TO BE FURNISHED BY THE MANUFACTURER.
  - D = DIA OF JACK.

**REFERENCE DRAWINGS:-**

- 1213/SMEC/LUDHIANA/2-025/G-01 (SHEET 1 OF 7 TO 7 OF 7)
- 1213/SMEC/LUDHIANA/2-025/E-01 (SHEET 1 OF 3 TO 3 OF 4)

APPROVED FOR EXECUTION

ISSUED

Assistant Engineer  
Design

Executive Engineer  
Design

Chief Engineer

DATE: 21/11/13

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CLIENT: PWD  
CONSULTANT: SMEC INDIA PVT. LTD.  
PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

SCALE: AS SHOWN  
SHEET SIZE: A2  
SHEET NO: 02

DATE: 10/06/2009  
REV: 01

DESIGN: VNM  
CHECKED: VNM  
APPROVED: S. LAHIRI

DETAILS OF REVISION

1213/SMEC/LUDHIANA/2-025/E-01 (SHEET 2 OF 4)

DRW: R0  
DPR: R0



**NOTES:-**

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 35MPa FOR BORED CAST-IN-SITU PILE AND PILE CAP.
- CLEAR COVER TO SHALL BE AS FOLLOWS.  
(i) FOR PILE --- 75mm  
(ii) FOR PILE CAP --- 75mm
- THE HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
- MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
- MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BARLAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
- LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
- ACTUAL LOAD TEST SHALL BE CARRIED OUT ON A TEST PILE AS PER STANDARD SPECIFICATIONS TO DETERMINE VERTICAL AND LATERAL CAPACITY OF PILE. IT SHALL HOWEVER BE ENSURED THAT IT IS NOT LESS THAN DESIGN VALUES.
- GROUND LEVELS/ PILE CAP LEVEL ARE SUBJECT TO SITE CHECK.

**REFERENCE DRAWINGS:-**

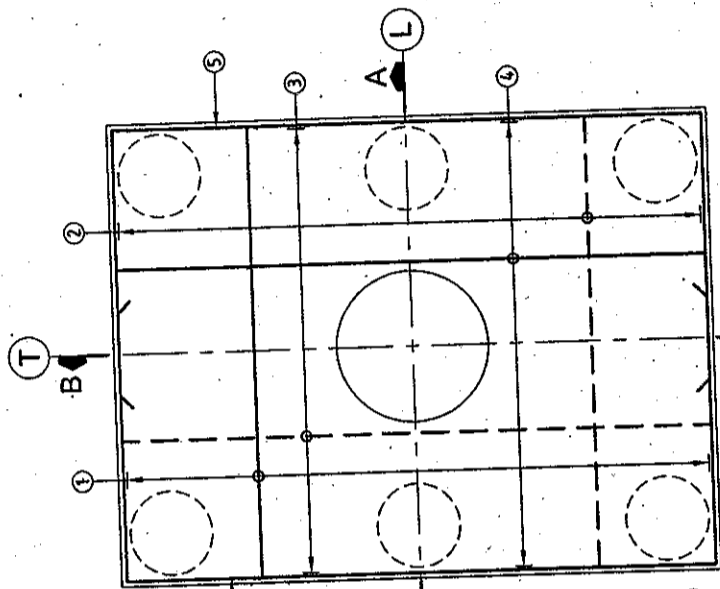
- 1213/SHEC/LUDHIANA/2-025/G-01 (SHEET 1 OF 7 OF 7)
- 1213/SHEC/LUDHIANA/2-025/E-02 (SHEET 2 OF 3 & 3 OF 3)

**REINFORCEMENT DETAIL:-**

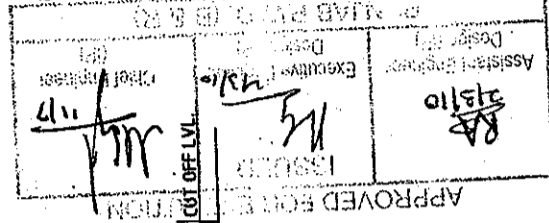
BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	25	64 Nos.	[ ]
2	16	150	[ ]
3	16	150	[ ]
4	25	76 Nos.	[ ]
5	16	8 Nos.	[ ]
7	25	20 Nos.	[ ]
8	10	200	[ ]
8a	10	100	[ ]
9	16	150	[ ] 7 LEGGED
10	16	150	[ ] 6 LEGGED

**LEGENDS:**

- BAR ON TOP FACE
- BAR ON BOTTOM FACE

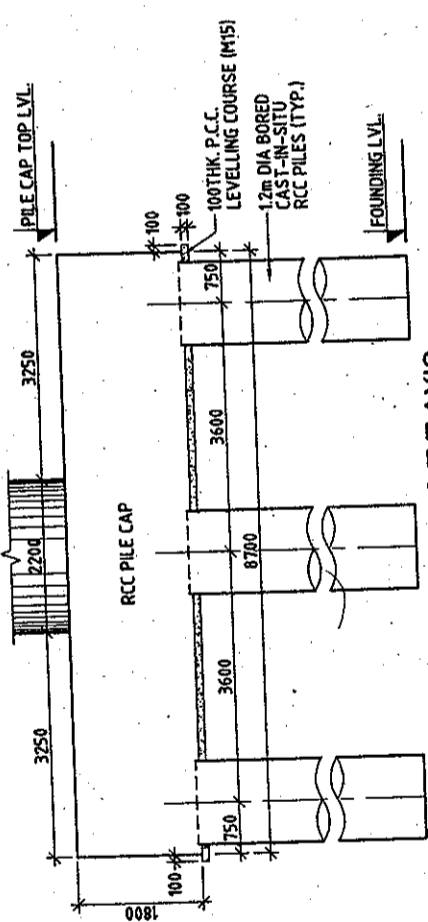


**PLAN**  
(SHOWING PILE CAP REINFORCEMENT)  
(SCALE 1/75)



**SECTION A-A**  
(SCALE 1/50)

**SECTION B-B**  
(SCALE 1/50)



**ELEVATION ALONG T-T AXIS**  
(SCALE 1/75)

**LEVELS CHART FOR PILE CAP LAYOUT** \* SUBJECT TO SITE CHECK

PIER DESIGNATION	BED LEVELS	TOP OF PILE CAP LEVELS	CUT OFF LEVELS	FOUNDING LEVELS
PR1	247.730	247.230	245.480	230.480
PR2	247.405	246.905	245.155	230.155
PR3	247.541	247.041	245.291	230.291
PR4	247.682	247.182	245.432	230.432
PR5	247.531	247.031	245.281	230.281
PR6	248.036	247.536	245.786	230.786
PR7	254.950	254.450	252.700	237.700
PR8	255.100	254.600	252.850	237.850
PR9	255.365	254.865	253.115	238.115

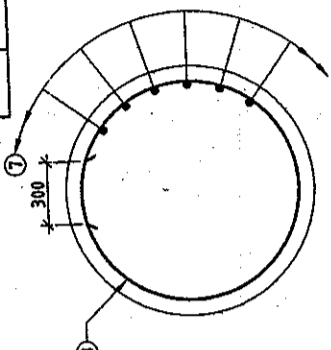
**LEVELS CHART FOR PILE CAP LAYOUT** \* SUBJECT TO SITE CHECK

PIER DESIGNATION	BED LEVELS	TOP OF PILE CAP LEVELS	CUT OFF LEVELS	FOUNDING LEVELS
PL1	247.730	247.230	245.480	230.480
PL2	247.405	246.905	245.155	230.155
PL3	247.541	247.041	245.291	230.291
PL4	247.682	247.182	245.432	230.432
PL5	247.531	247.031	245.281	230.281
PL6	248.036	247.536	245.786	230.786
PL7	254.950	254.450	252.700	237.700
PL8	255.100	254.600	252.850	237.850
PL9	255.365	254.865	253.115	238.115

**PLAN AT TOP OF PILE CAP**  
(SHOWING DIMENSIONS)  
(SCALE 1/75)

**ELEVATION ALONG L-L AXIS**  
(SCALE 1/75)

**SECTION C-C**  
(SCALE 1/25)



**R.C.C. DETAILS OF PILE**  
(SCALE 1/75)

**DETAILED PROJECT REPORT**

AS SHOWN

SHEET SIZE: A2

REVISAS PER P.B.PWD COMMENTS

FIRST ISSUE

DETAILS OF REVISION

DESIGN APPROVED

CHECKED

DATE

DRAWN

DESIGN

DATE

REV

FOR UPGRADATION OF SOUTHERN BY-PASS LUDHIANA

PROJECT TITLE:

PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BY-PASS LUDHIANA

CONSULTANT:

SMEC

SMEC (India) PVT. LTD.

DLF BUILDINGS, 2ND FLOOR, CHANDLER BLDG. COMPLEX, GATEWAY, HARIDWAR, INDIA - 221002

Tel: 0134-430002, 430100

CLIENT:

PIDDB

PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

HA/Structure/Vertical DPR/Revised Drawings R2 (Feb '01) Bridge C/L 2-025/BRIDGE C/L 2-025 E-02.dwg

AD File Ref:

**REVISIONS**

NO.	DATE	DESCRIPTION
R1	26/08/2009	REVISED AS PER P.B.PWD COMMENTS
R0	10/05/2009	FIRST ISSUE

**DESIGN APPROVED**

**CHECKED**

**DATE**

**DRAWN**

**DESIGN**

**DATE**

**REV**

**PROJECT TITLE:**

PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BY-PASS LUDHIANA

**CONSULTANT:**

SMEC

SMEC (India) PVT. LTD.

DLF BUILDINGS, 2ND FLOOR, CHANDLER BLDG. COMPLEX, GATEWAY, HARIDWAR, INDIA - 221002

Tel: 0134-430002, 430100

**CLIENT:**

PIDDB

PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

**AD File Ref:**

HA/Structure/Vertical DPR/Revised Drawings R2 (Feb '01) Bridge C/L 2-025/BRIDGE C/L 2-025 E-02.dwg

**SCALE:**

AS SHOWN

SHEET SIZE: A2

REVISAS PER P.B.PWD COMMENTS

FIRST ISSUE

DETAILS OF REVISION

DESIGN APPROVED

CHECKED

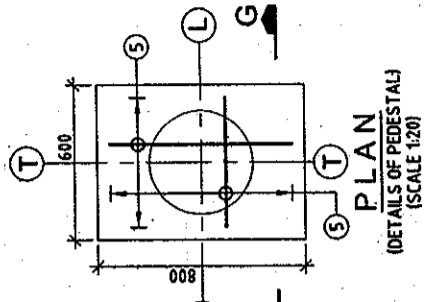
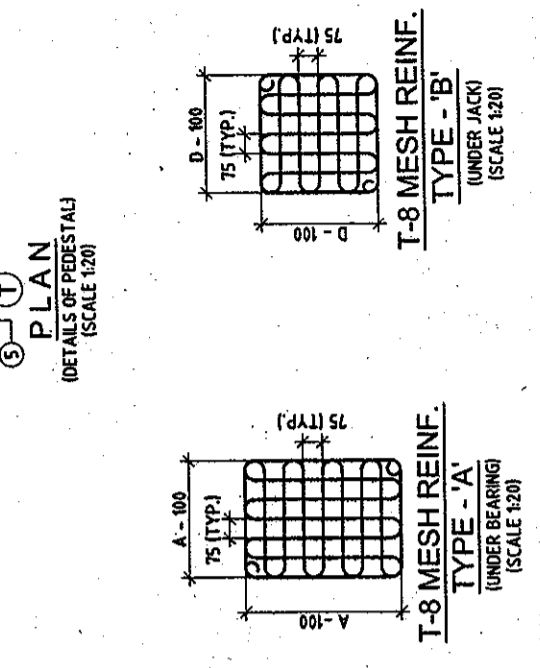
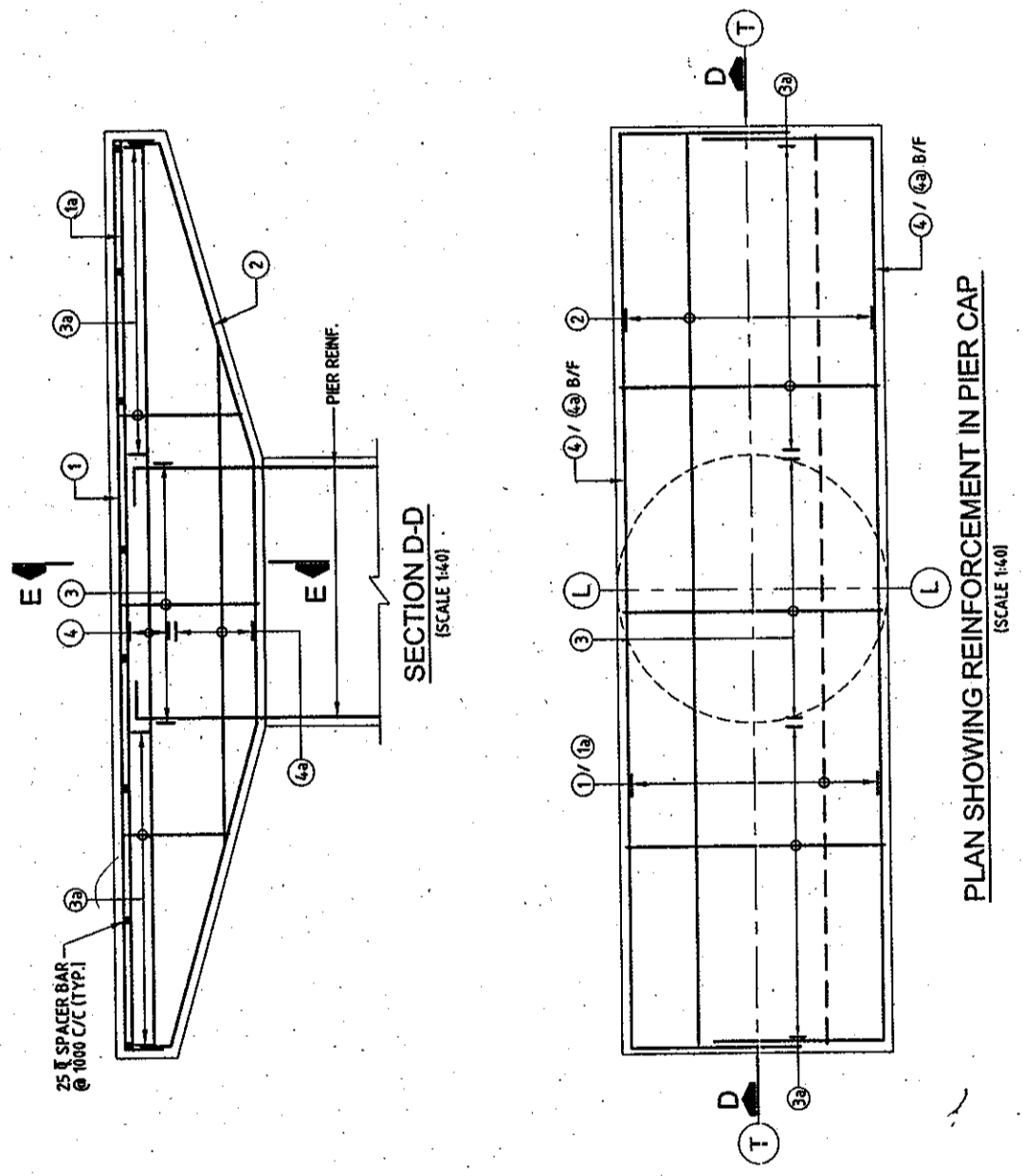
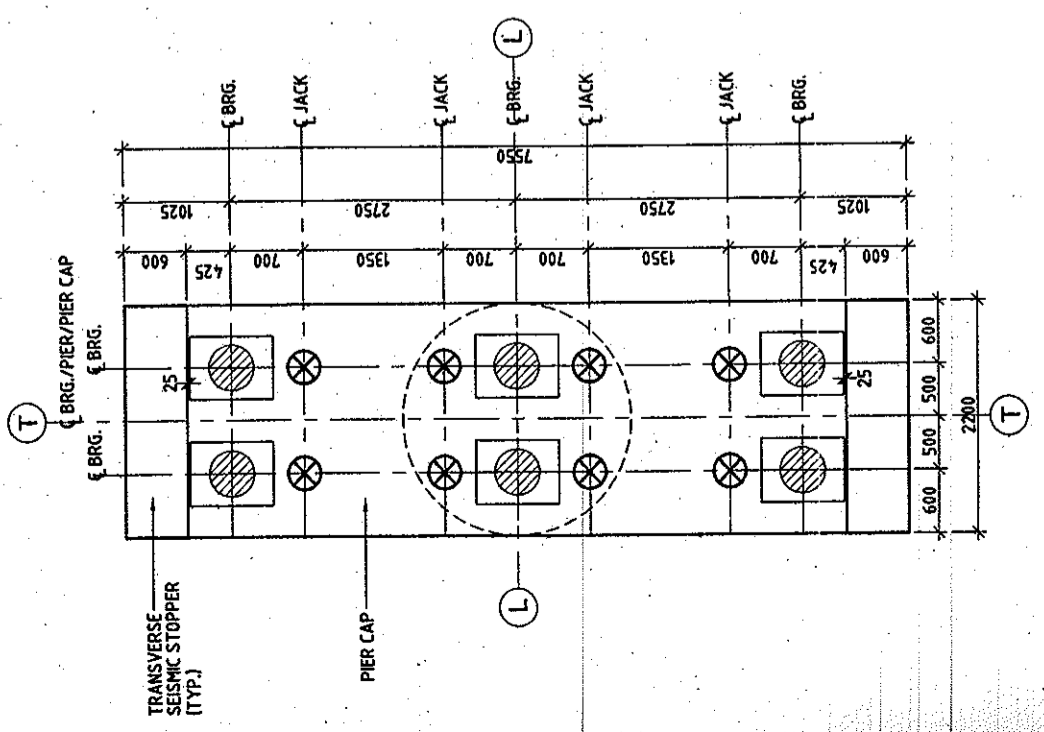
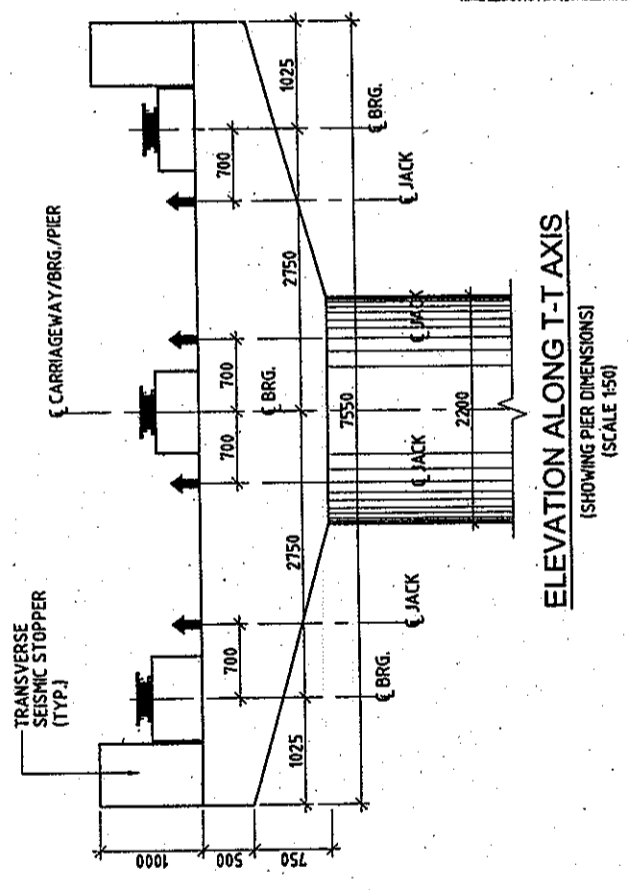
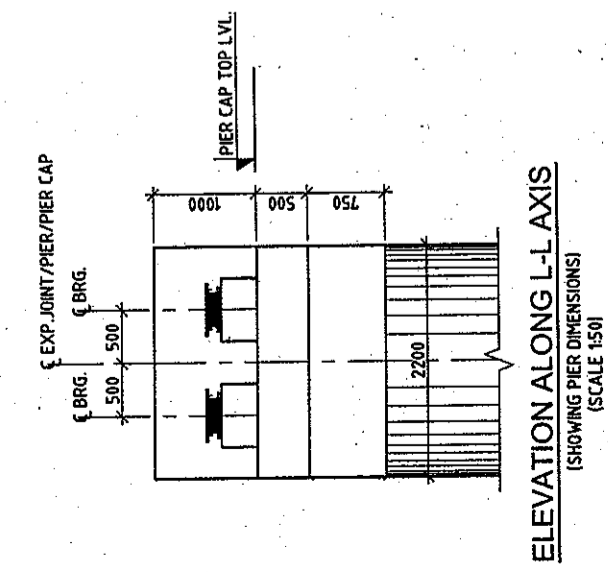
DATE

DRAWN

DESIGN

DATE

REV



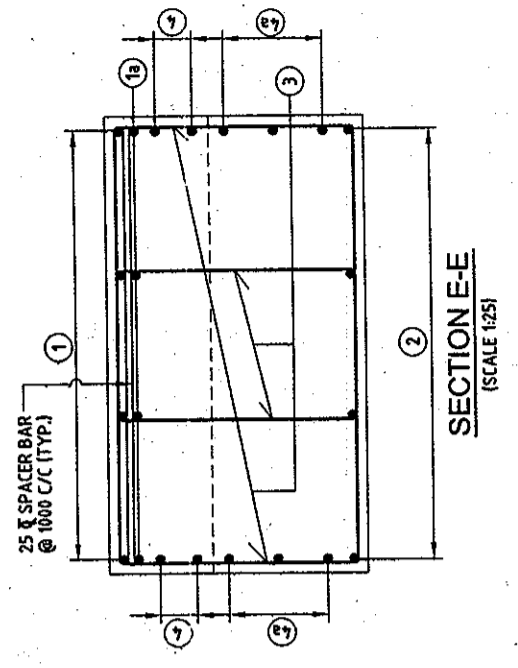
**APPROVED FOR EXECUTION**

ISSUED

Executive Engineer  
Design (I)

Assistant Engineer  
Design (II)

Principal PWD (B & R)



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CLIENT:	PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADEATION OF SOUTHERN BAY-PASS LUDHIANA		PROJECT TITLE:	
	REV	DATE	DRAWN	CHECKED
	R0	10/06/2009	MKS	VNM
CONSULTANT:	SMEC (INDIA) PVT. LTD. DUP BUILDING No. 8, C TOWER, 5TH FLOOR, CYBER CITY, PHASE-II, GURGAON, HARYANA, INDIA - 122002 TEL: 0124-430002, 430100		SMEC	
	PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD		PUNJAB PWD (B & R)	
PROJECT NO:		1213/SMEC/LUDHIANA/2+025/E-02		SHEET 2 OF 3
SCALE:		AS SHOWN		
SHEET SIZE:		A2		DRAWING NO:
DETAILS OF REVISION		DPR		
REVISION		APPROVED		R0
DESIGN		VNM		
DATE		10/06/2009		R0
DRAWN		MKS		
CHECKED		S LAHIRI		R0
APPROVED		S LAHIRI		
PROJECT NO:		1213/SMEC/LUDHIANA/2+025/E-02		R0
SCALE:		AS SHOWN		
SHEET SIZE:		A2		DRAWING NO:
DETAILS OF REVISION		DPR		
REVISION		APPROVED		R0
DESIGN		VNM		
DATE		10/06/2009		R0
DRAWN		MKS		
CHECKED		S LAHIRI		R0
APPROVED		S LAHIRI		
PROJECT NO:		1213/SMEC/LUDHIANA/2+025/E-02		R0
SCALE:		AS SHOWN		
SHEET SIZE:		A2		DRAWING NO:
DETAILS OF REVISION		DPR		
REVISION		APPROVED		R0
DESIGN		VNM		
DATE		10/06/2009		R0
DRAWN		MKS		
CHECKED		S LAHIRI		R0
APPROVED		S LAHIRI		

CLIENT: PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

CONSULTANT: SMEC

PROJECT NO: 1213/SMEC/LUDHIANA/2+025/E-02

SCALE: AS SHOWN

SHEET SIZE: A2

DETAILS OF REVISION: DPR

REVISION: APPROVED

DESIGN: VNM

DATE: 10/06/2009

DRAWN: MKS

CHECKED: S LAHIRI

APPROVED: S LAHIRI

PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADEATION OF SOUTHERN BAY-PASS LUDHIANA

CAD File Ref: H:\Structure\1213\FINAL DPR\Revised Drawings R2 (Feb 10)\Bridge Ch. 2-025 BRIDGE Ch. 2-025 E-02.dwg

**NOTES:-**

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH 150mm CUBES AS FOLLOWS:-  
PIER -----M35  
PIER CAP -----M35  
CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.  
3. FOR SUBSTRUCTURE ----- 50mm  
(iii) FOR FOUNDATION ----- 75mm
- THE HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
- MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
- MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
- IN PIER SHAFT T-10 OPEN LINKS (OR S LOOPS) WITH HOOK PLACED AROUND THE VERTICAL BARS ARE PLACED AT THE RATE OF 4 LINKS IN ONE SQUARE METER.
- LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
- A IS THE DIMENSIONS OF THE BEARINGS WHICH IS TO BE FURNISHED BY THE MANUFACTURER.
- D = DIA OF JACK.

**REFERENCE DRAWINGS:-**

- 1213/SMEC/LUDHIANA/2-025/G-01 (SHEET 1 OF 7 TO 7 OF 7)
- 1213/SMEC/LUDHIANA/2-025/E-02 (SHEET 1 OF 3 & 2 OF 3)

**REINFORCEMENT DETAIL:**

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	32	14 Nos.	[Diagram]
1a	32	14 Nos.	[Diagram]
2	16	28 Nos.	[Diagram]
3	16	150	[Diagram]
3a	16	100	[Diagram]
4	20	2Nos.	[Diagram]
4a	20	3Nos.	[Diagram]
5	12	75	[Diagram]
6	12	150	[Diagram]
7	32	85 Nos.	[Diagram]
8	12	125	[Diagram]

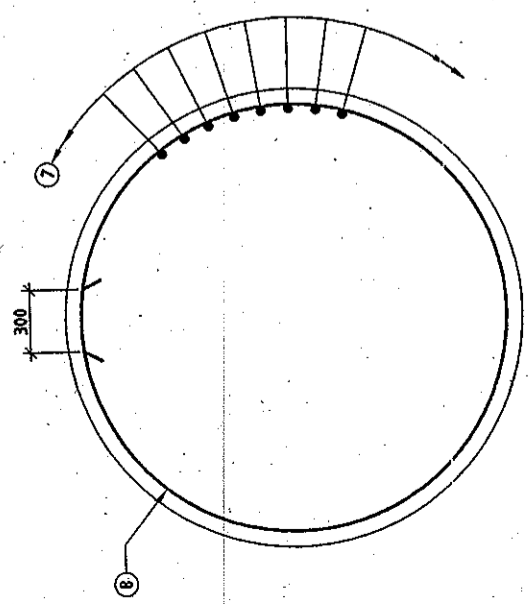
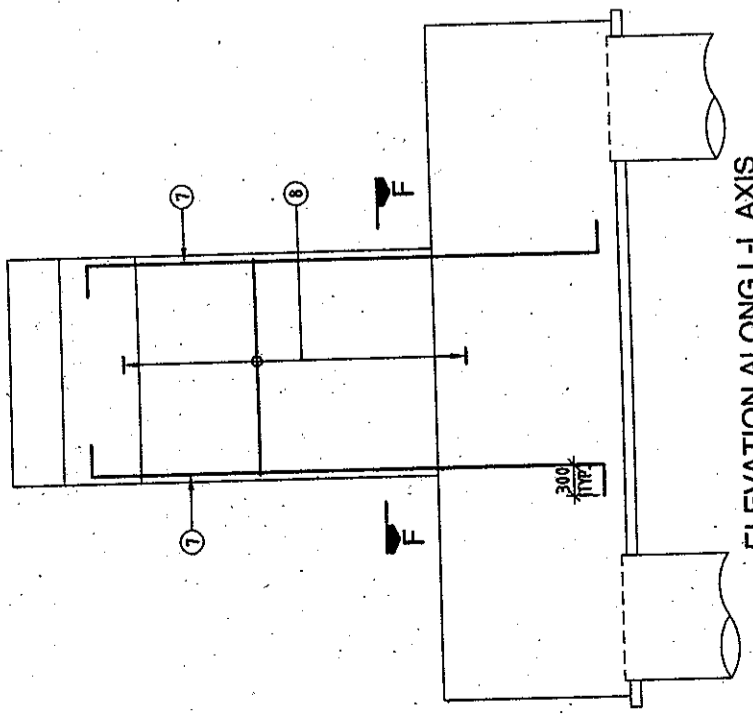
**LEGENDS:**

--- BAR ON TOP FACE

--- BAR ON BOTTOM FACE

**LEVELS CHART FOR PIER \* SUBJECT TO SITE CHECK**

PIER DESIGNATION	FORMATION LEVELS	PIER CAP TOP LEVELS	BED LEVELS
PL1	262.400	259.655	247.730
PL2	262.400	259.655	247.405
PL3	262.400	259.655	247.541
PL4	262.400	259.655	247.682
PL5	262.400	259.655	248.036
PL6	262.400	259.655	254.950
PL7	262.400	259.655	255.100
PL8	262.400	259.655	255.365
PL9	262.400	259.655	247.730
PR1	262.400	259.655	247.405
PR2	262.400	259.655	247.541
PR3	262.400	259.655	247.682
PR4	262.400	259.655	247.821
PR5	262.400	259.655	248.036
PR6	262.400	259.655	254.950
PR7	262.400	259.655	255.100
PR8	262.400	259.655	255.365
PR9	262.400	259.655	255.365



**APPROVED FOR EXECUTION**

ISSUED: [Signature]

Executive Engineer: [Signature]

Design: [Signature]

Chief Engineer (P): [Signature]

DATE: 10/06/2009

PROJECT: PUNJAB P.W.D. (B & R)

**DETAILED PROJECT REPORT**  
**DIMENSIONAL & REINFT. DETAILS OF PILE, PILE CAP, PIER & PIER CAP**  
(SHEET 3 OF 3)

SCALE: AS SHOWN

SHEET SIZE: A2

DRW: DPR

REV: 01

DATE: 10/06/2009

DESIGN: VNM

CHECKED: VNM

APPROVED: S. LAHIRI

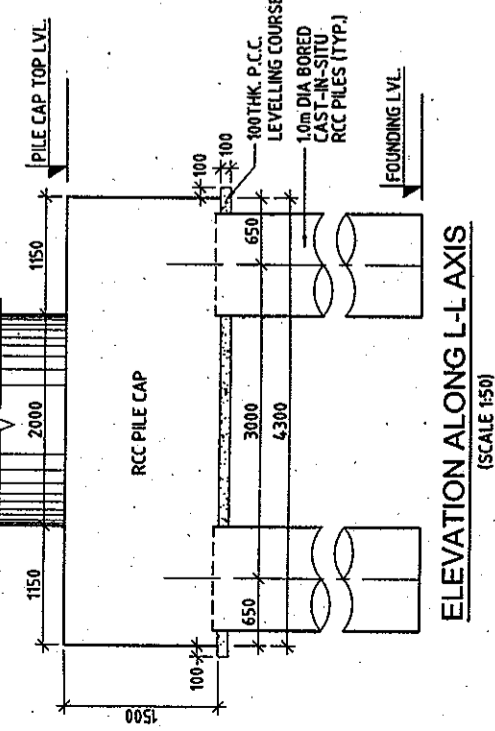
PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

CONSULTANT: SMEC

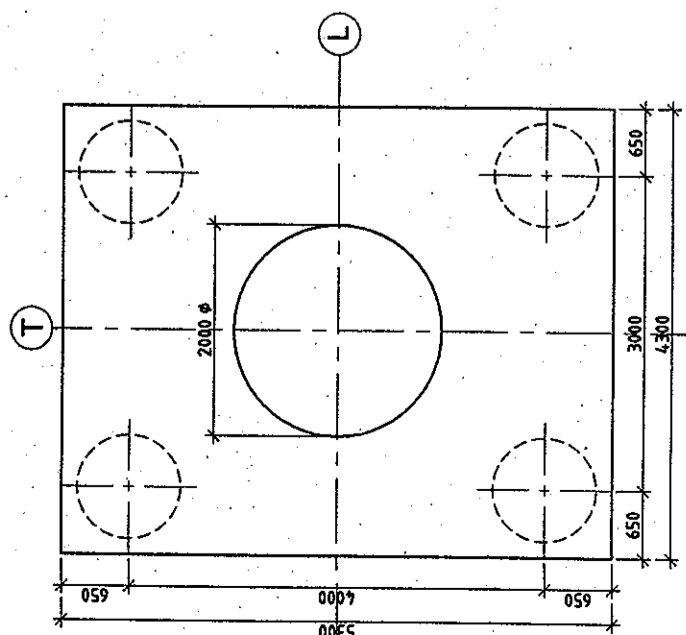
CLIENT: PIDB

PROJECT NO: 1213/SMEC/LUDHIANA/2-025/E-02

CAO File Ref: H:\Structure\1213\VERNAL DPR\Revised Drawings R2 Feb '09\Bridge CH. 2+025\BRIDGE CH. 2+025 E-02.dwg



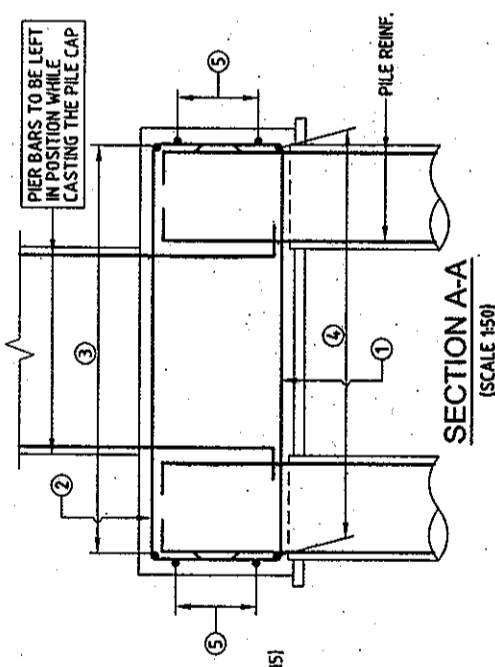
**ELEVATION ALONG L-L AXIS**  
(SCALE 1:50)



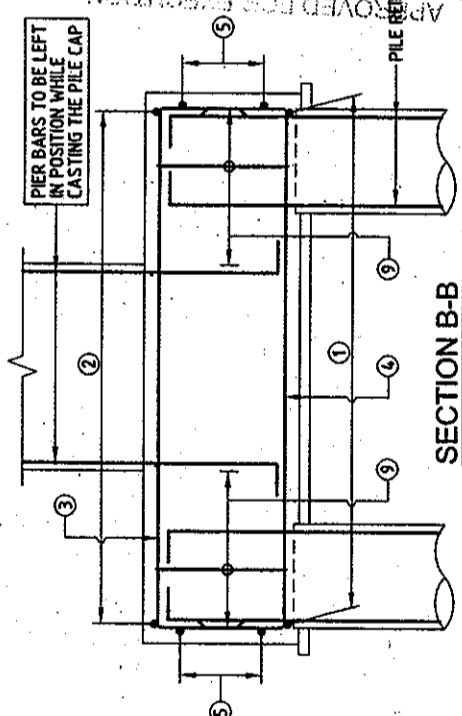
**PLAN AT TOP OF PILE CAP**  
(SHOWING DIMENSIONS)  
(SCALE 1:50)

LEVELS CHART FOR PILE CAP LAYOUT \* SUBJECT TO SITE CHECK

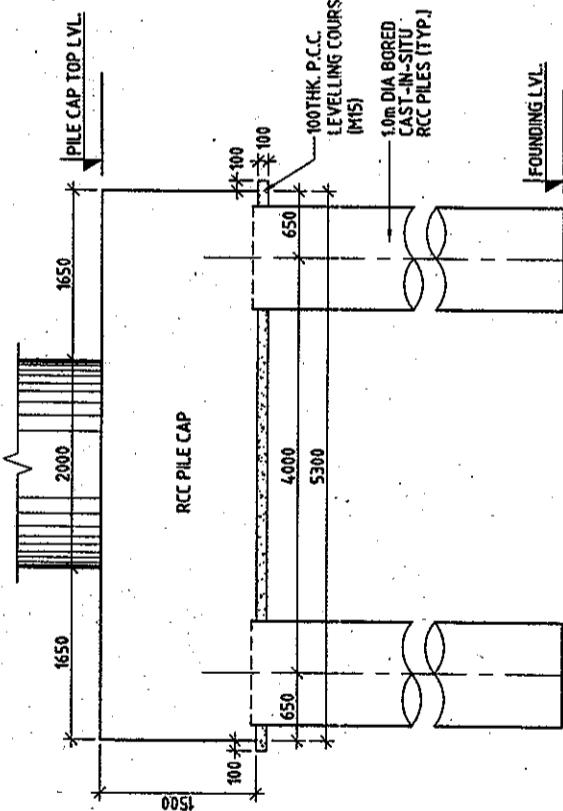
PIER DESIGNATION	BED LEVELS	TOP OF PILE CAP LEVELS	CUT OFF LEVELS	FOUNDING LEVELS
PL12	255.503	255.003	253.553	238.553
PL13	255.264	254.764	253.314	238.314
PL15	254.944	254.444	252.994	237.994
PL16	254.731	254.231	252.781	237.781
PL18	254.609	254.109	252.659	237.659
PL19	254.459	253.959	252.509	237.509
PR12	255.503	255.003	253.553	238.553
PR13	255.264	254.764	253.314	238.314
PR15	254.944	254.444	252.994	237.994
PR16	254.731	254.231	252.781	237.781
PR18	254.609	254.109	252.659	237.659
PR19	254.459	253.959	252.509	237.509



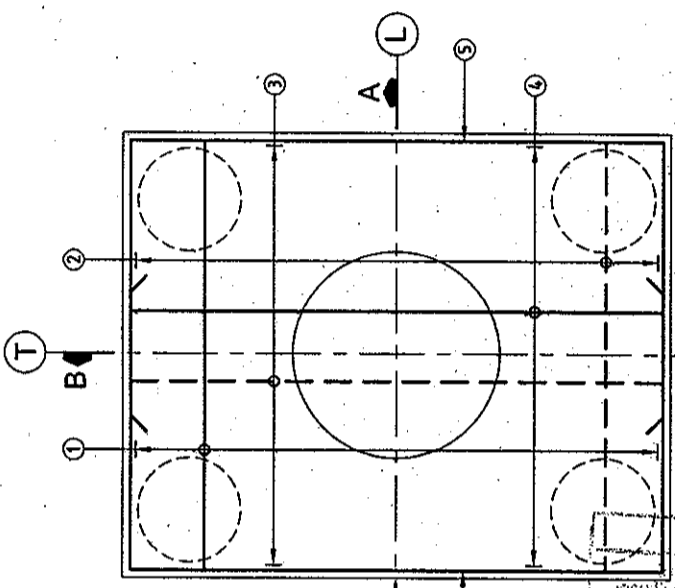
**SECTION A-A**  
(SCALE 1:50)



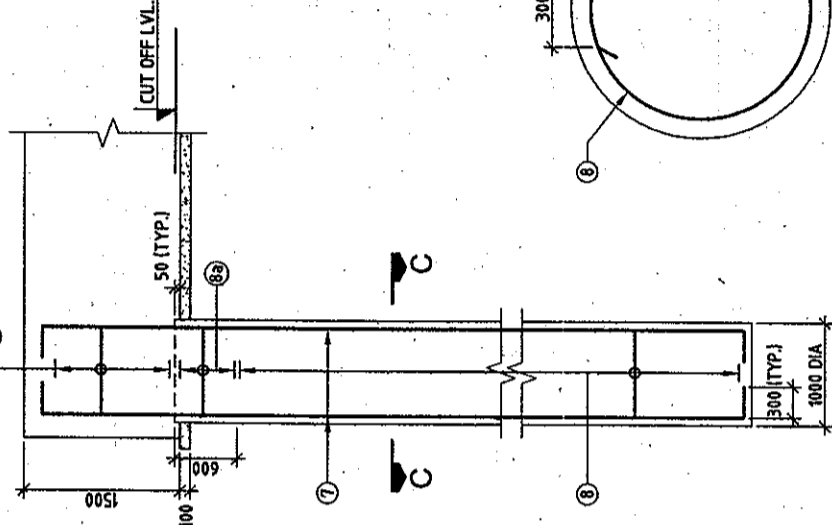
**SECTION B-B**  
(SCALE 1:50)



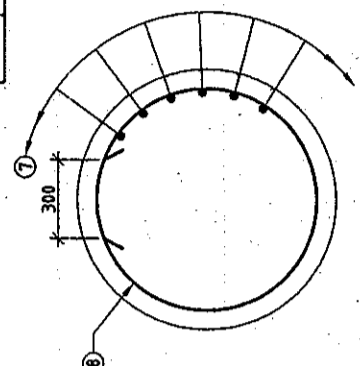
**ELEVATION ALONG T-T AXIS**  
(SCALE 1:50)



**PLAN**  
(SHOWING PILE CAP REINFORCEMENT)  
(SCALE 1:50)



**R.C.C. DETAILS OF PILE**  
(SCALE 1:50)



**SECTION C-C**  
(SCALE 1:20)

REINFORCEMENT DETAIL:

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	25	18 Nos.	[U]
2	16	150	[U]
3	16	150	[U]
4	25	36 Nos.	[U]
5	16	8 Nos.	[U]
7	25	17 Nos.	[U]
8	10	200	[O]
8a	10	100	[O]
9	16	150	[U] 4 LEGGED

LEGENDS:  
 --- BAR ON TOP FACE  
 --- BAR ON BOTTOM FACE

- NOTES:-**
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 35Mpa FOR BORED CAST-IN-SITU PILE AND PILE CAP.
  - CLEAR COVER TO SHALL BE AS FOLLOWS.  
 (i) FOR PILE --- 75mm  
 (ii) FOR PILE CAP --- 75mm
  - TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
  - MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
  - MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
  - LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
  - ACTUAL LOAD TEST SHALL BE CARRIED OUT ON A TEST PILE AS PER STANDARD SPECIFICATIONS TO DETERMINE VERTICAL AND LATERAL CAPACITY OF PILE. IT SHALL HOWEVER BE ENSURED THAT IT IS NOT LESS THAN DESIGN VALUES.
  - GROUND LEVELS/ PILE CAP LEVEL ARE SUBJECT TO SITE CHECK.

**REFERENCE DRAWINGS:-**

- 1213/SM/EC/LUDHIANA/2+025/G-01 (SHEET 1 OF 7 TO 7 OF 7)
- 1213/SM/EC/LUDHIANA/2+025/E-03 (SHEET 2 OF 2)

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CLIENT: **PIDB**  
 PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD  
 H-1 Structure 1213/VFNL DPR/Revised Drawings R2 (Feb '91) Bridge Ch. 2+025 BRIDGE CH. 2+025 E-03.dwg

CONSULTANT: **SMEC**  
 SMEC INDIA PVT. LTD.  
 G/F BUILDING IN C TOWER, 9th FLOOR  
 CYBER CITY, PHASE-1, GURGAON,  
 HARYANA, INDIA - 122002  
 Tel.: 0124-438002, 439100

PROJECT TITLE: **PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA**

REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION
R1	26/08/2009	MKS	VNM	VNM	S LAHRI	REVISED AS PER FB.PWD COMMENTS
R0	02/05/2009	MKS	VNM	VNM	S LAHRI	FIRST ISSUE

SCALE: AS SHOWN  
 SHEET SIZE: A2  
 DIMENSIONAL & REINFT. DETAILS OF PILE, PILE CAP, PIER & PIER CAP (SHEET 1 OF 2)  
 1213/SM/EC/LUDHIANA/2+025/E-03 R1

**NOTES:-**

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH 150mm CUBES AS FOLLOWS:-  
PIER -----M35  
PIER CAP -----M35  
CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.  
(i) FOR SUBSTRUCTURE ----- 50mm  
(ii) FOR FOUNDATION ----- 75mm  
TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.  
MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.  
MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAP'S SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.  
IN PIER SHAFT T-10 OPEN LINKS (OR S LOOPS) WITH HOOK PLACED AROUND THE VERTICAL BARS ARE PLACED AT THE RATE OF 4 LINKS IN ONE SQUARE METER.  
LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.  
A IS THE DIMENSIONS OF THE BEARINGS WHICH IS TO BE FURNISHED BY THE MANUFACTURER.  
D = DIA OF JACK.  
9. GROUND LEVELS/ PILE CAP LEVEL ARE SUBJECT TO SITE CHECK.

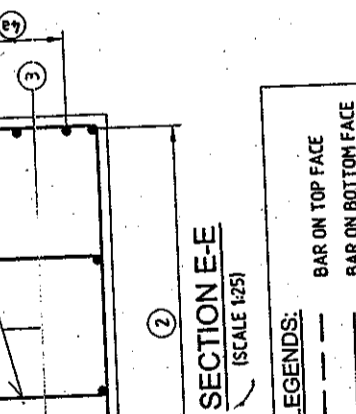
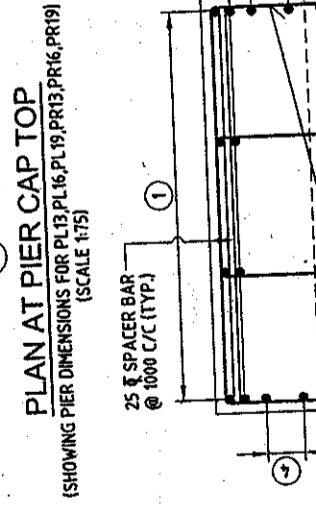
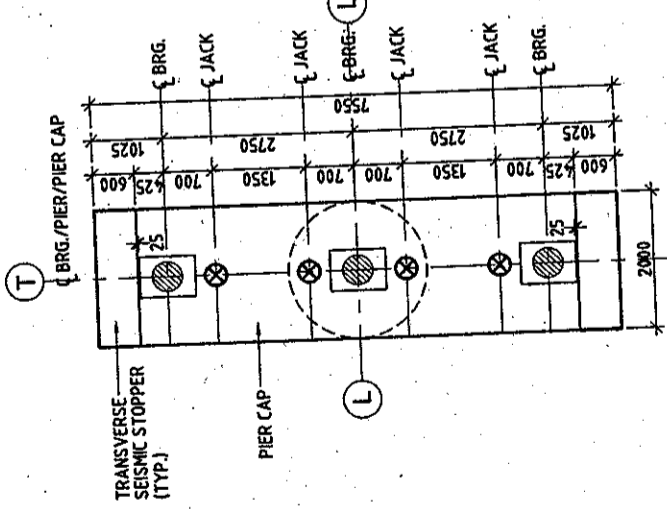
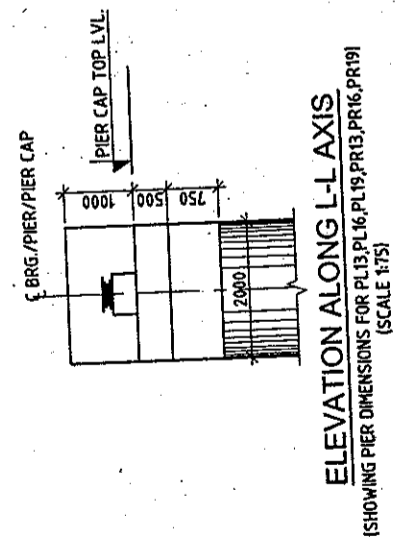
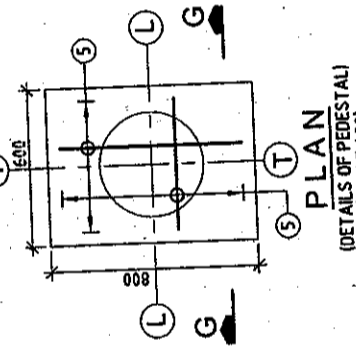
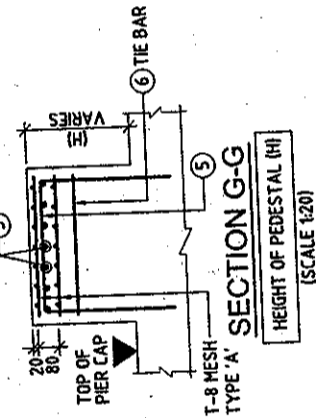
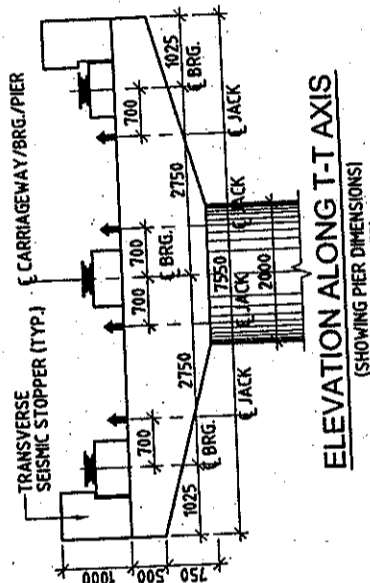
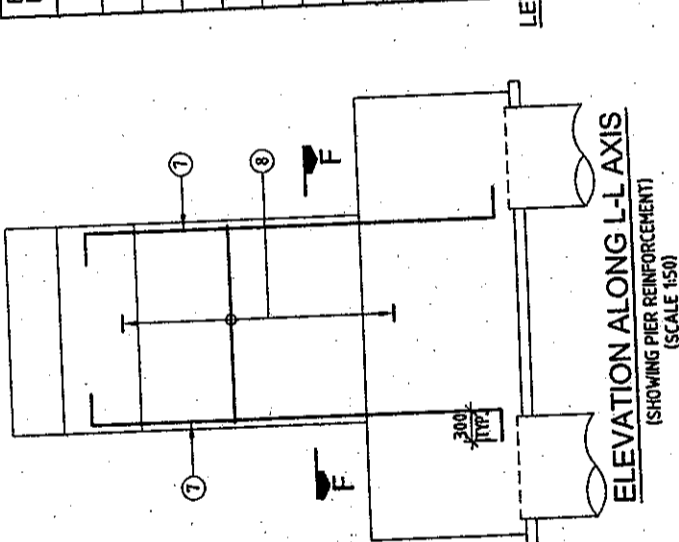
**REFERENCE DRAWINGS:-**

- 1213/SMEC/LUDHIANA/2-025/G-01 (SHEET 1 OF 7 TO 7 OF 7)
- 1213/SMEC/LUDHIANA/2-025/E-03 (SHEET 1 OF 2)

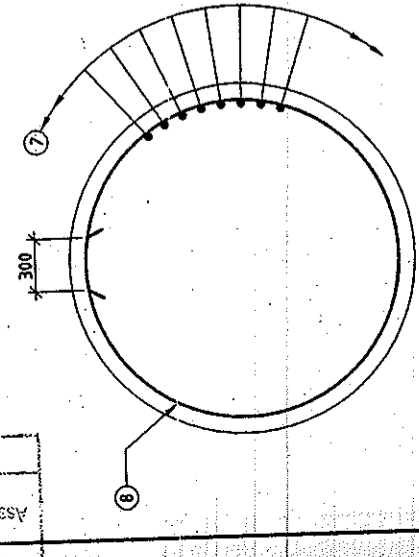
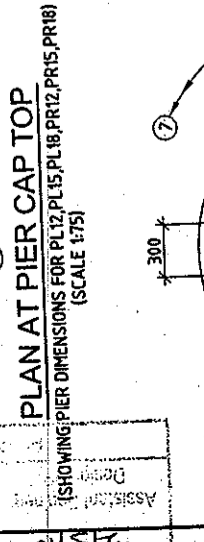
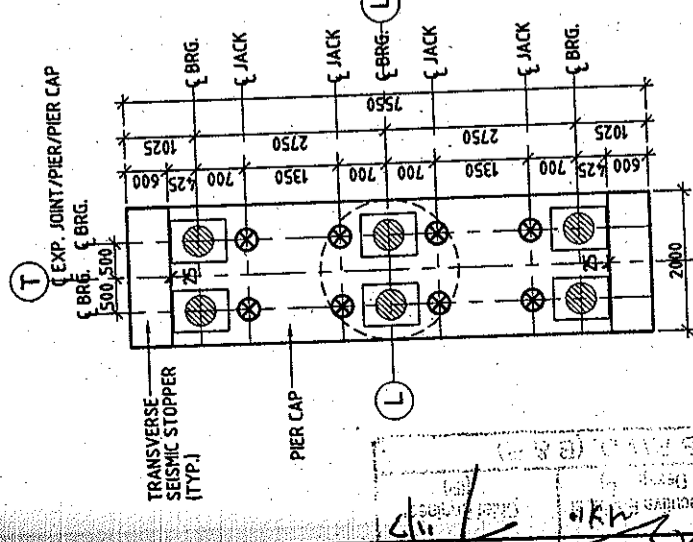
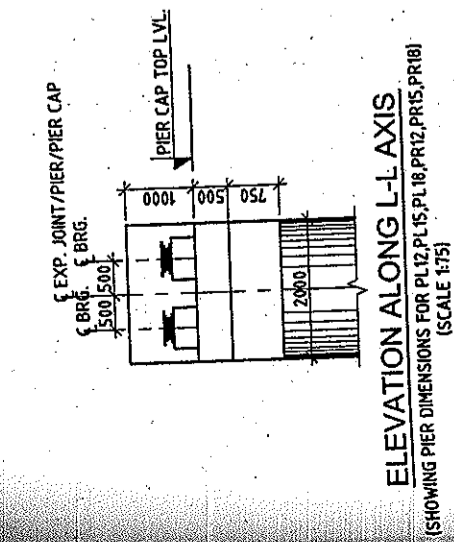
BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	32	13 Nos.	[Diagram]
1a	32	13 Nos.	[Diagram]
2	16	26 Nos.	[Diagram]
3	16	150	[Diagram]
3a	16	150	[Diagram]
4	20	2Nos.	[Diagram]
4a	20	3Nos.	[Diagram]
5	12	75	[Diagram]
6	12	150	[Diagram]
7	25	40 Nos.	[Diagram]
8	12	125	[Diagram]

**LEVELS CHART FOR PIER \* SUBJECT TO SITE CHECK**

PIER DESIGNATION	FORMATION LEVELS	PIER CAP TOP LEVELS	BED LEVELS
PL12	262.374	259.629	255.503
PL13	262.295	259.880	255.264
PL15	261.971	259.556	254.944
PL16	261.726	259.311	254.731
PL18	261.073	258.658	254.609
PL19	260.663	258.248	254.459
PR12	262.374	259.629	255.503
PR13	262.295	259.880	255.264
PR15	261.971	259.556	254.944
PR16	261.726	259.311	254.731
PR18	261.073	258.658	254.609
PR19	260.663	258.248	254.459



**LEGENDS:**  
 --- BAR ON TOP FACE  
 --- BAR ON BOTTOM FACE



**SECTION F-F**  
(SCALE 1/30)

**SECTION E-E**  
(SCALE 1/25)

**SECTION G-G**  
(HEIGHT OF PEDESTAL (H))  
(SCALE 1/20)

**SECTION D-D**  
(SCALE 1/40)

**PLAN SHOWING REINFORCEMENT IN PIER CAP**  
(SCALE 1/40)

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**CLIENT:** PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

**CONSULTANT:** SMC INDIA PVT. LTD.  
 SMC INDIA PVT. LTD.  
 4/F BUILDING No. 8, C TOWER, 3RD FLOOR,  
 CYBER CITY, PHASE-II, GURGAON,  
 HARYANA, INDIA-122002  
 TEL: 0124-280002, 280100

**PROJECT TITLE:** PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA

**SCALE:** AS SHOWN

**SHEET SIZE:** A2

**DATE:** 02/06/2009

**REV:** M2

**DESIGN:** VNM

**DRAWN:** MKS

**CHECKED:** VNM

**APPROVED:** S LADHRI

**DETAILS OF REVISION:**

NO.	DESCRIPTION	DATE	BY	CHKD.
1	FIRST ISSUE			

**DETAILED PROJECT REPORT DIMENSIONAL & REINF. DETAILS OF PILE, PILE CAP, PIER & PIER CAP**

**SCALE:** AS SHOWN

**SHEET SIZE:** A2

**DATE:** 02/06/2009

**REV:** M2

**DESIGN:** VNM

**DRAWN:** MKS

**CHECKED:** VNM

**APPROVED:** S LADHRI

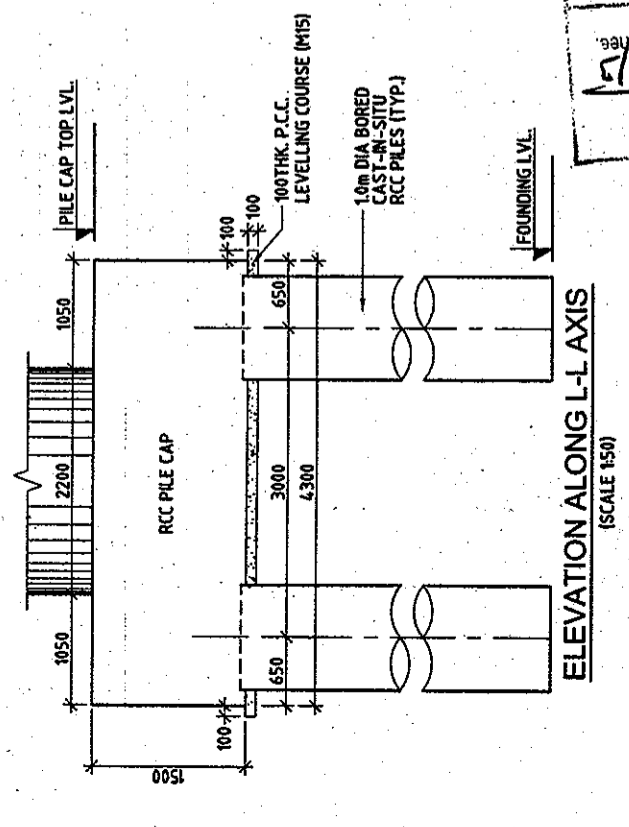
**DETAILS OF REVISION:**

NO.	DESCRIPTION	DATE	BY	CHKD.
1	FIRST ISSUE			

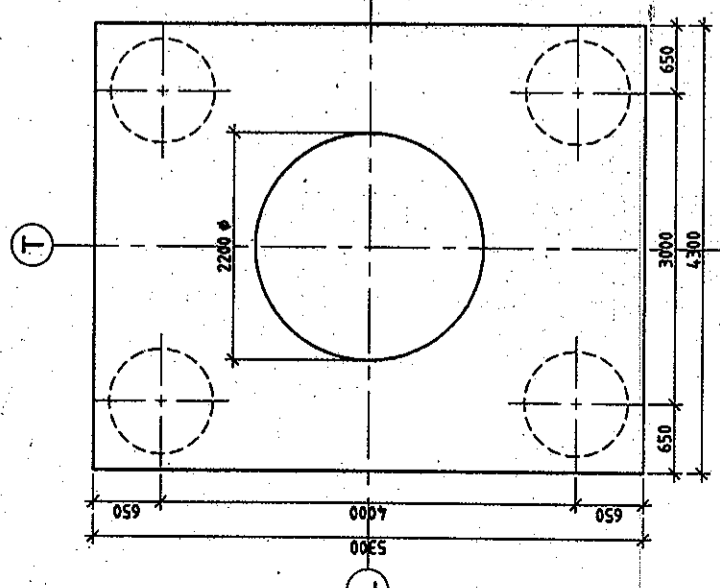
**PROJECT NO.:** 1213/SMEC/LUDHIANA/2+025/E-03

**SHEET 2 OF 21**





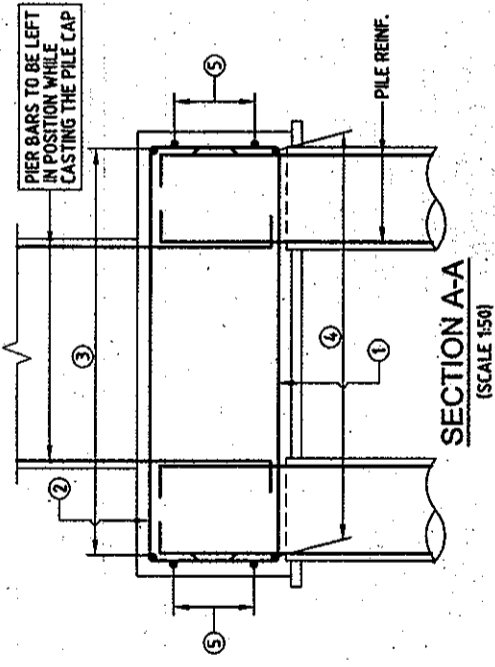
**ELEVATION ALONG L-L AXIS**  
(SCALE 1:50)



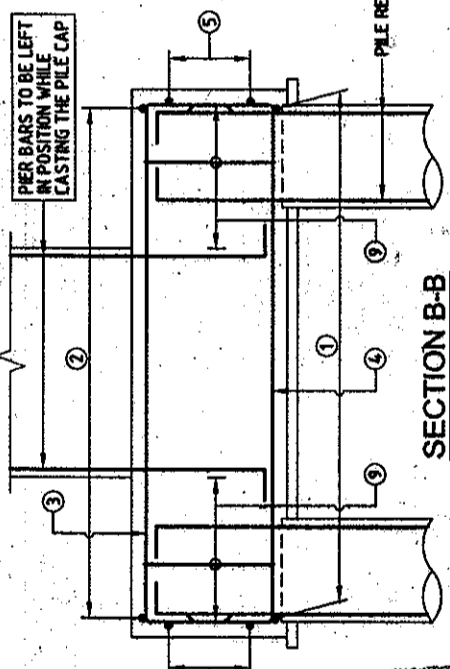
**PLAN AT TOP OF PILE CAP**  
(SHOWING DIMENSIONS)  
(SCALE 1:50)

**LEVELS CHART FOR PILE CAP LAYOUT** • SUBJECT TO SITE CHECK

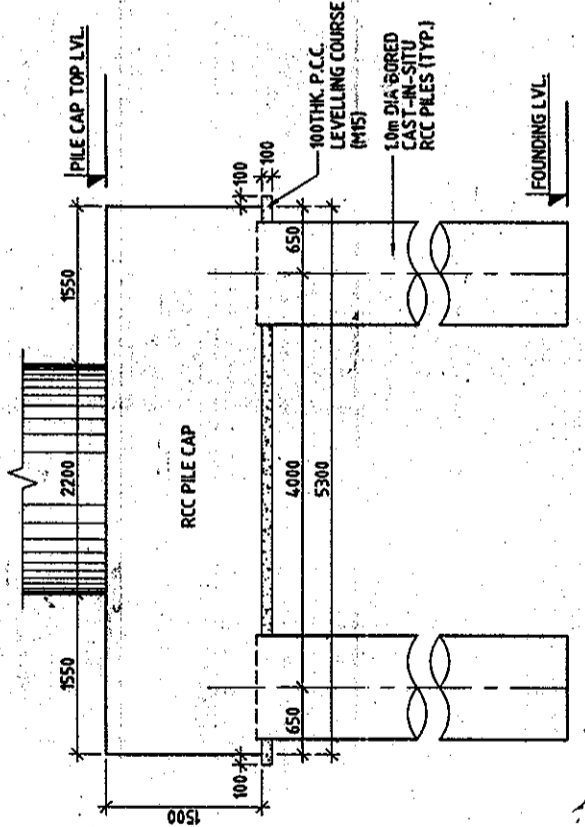
PIER DESIGNATION	BED LEVELS	TOP OF PILE CAP LEVELS	CUT OFF LEVELS	FOUNDING LEVELS
PL10	255.789	255.289	253.839	238.539
PR10	255.789	255.289	253.839	238.539



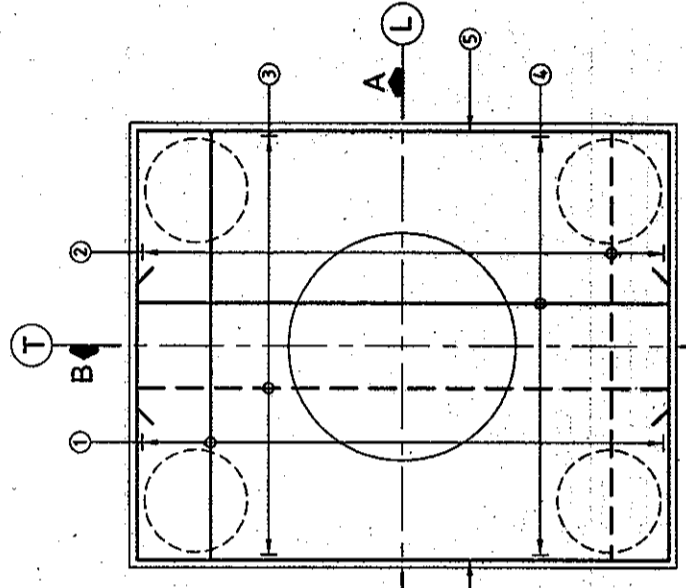
**SECTION A-A**  
(SCALE 1:50)



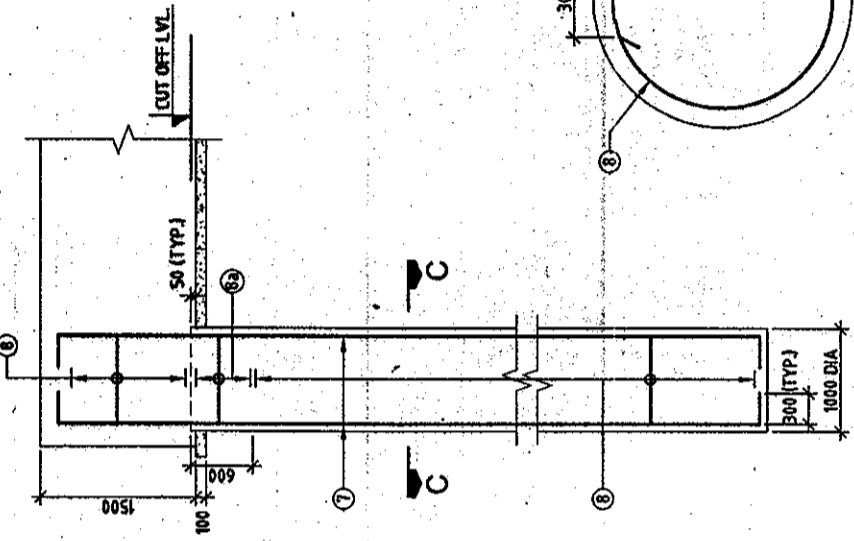
**SECTION B-B**  
(SCALE 1:50)



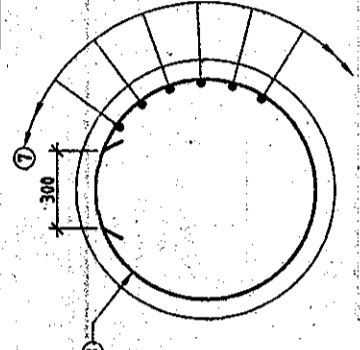
**ELEVATION ALONG T-T AXIS**  
(SCALE 1:50)



**PLAN**  
(SHOWING PILE CAP REINFORCEMENT)  
(SCALE 1:50)



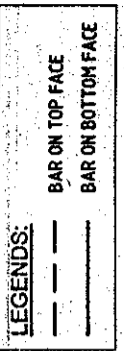
**R.C.C. DETAILS OF PILE**  
(SCALE 1:50)



**SECTION C-C**  
(SCALE 1:20)

**REINFORCEMENT DETAIL:**

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	25	17 Nos.	—
2	16	150	—
3	16	150	—
4	25	35 Nos.	—
5	16	8 Nos.	—
7	25	22 Nos.	—
8	10	200	○
8a	10	100	○
9	16	150	□ 4 LEGGED



- NOTES:**
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 35MPa FOR BORED CAST-IN-SITU PILE AND PILE CAP.
  - CLEAR COVER TO SHALL BE AS FOLLOWS:  
(i) FOR PILE --- 75mm  
(ii) FOR PILE CAP --- 75mm
  - TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
  - MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
  - MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BARLAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
  - LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
  - ACTUAL LOAD TEST SHALL BE CARRIED OUT ON A TEST PILE AS PER STANDARD SPECIFICATIONS TO DETERMINE VERTICAL AND LATERAL CAPACITY OF PILE. IT SHALL HOWEVER BE ENSURED THAT IT IS NOT LESS THAN DESIGN VALUES.

**REFERENCE DRAWINGS:-**

- 1) 1213/SMEC/LUDHIANA/2-025/G-01 (SHEET 1 OF 7 TO 7 OF 7)
- 2) 1213/SMEC/LUDHIANA/2-025/E-04 (SHEET 2 OF 3 & 3 OF 3)

**PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA**

**CONSULTANT:** SMEC (INDIA) PVT. LTD.  
D/F BUILDING NO. 1, C/ROWSE, 6TH FLOOR, HASTINA, INDIA-150001  
TEL: 0174-430002, 430100

**PROJECT TITLE:** PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA

REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION
R1	26/08/2009	MKS	VNM	VNM	S AHIRI	REVISED AS PER P.B. COMMENTS
R0	11/06/2009	MKS	VNM	VNM	S AHIRI	FIRST ISSUE

**SCALE:** AS SHOWN

**SHEET SIZE:** A2

**DRW:** DPR

**PROJECT REPORT DIMENSIONAL & REINFT. DETAILS OF PILE, PILE CAP, PIER & PIER CAP** (SHEET 1 OF 3)

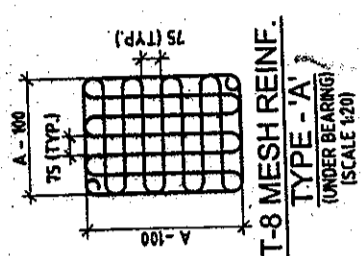
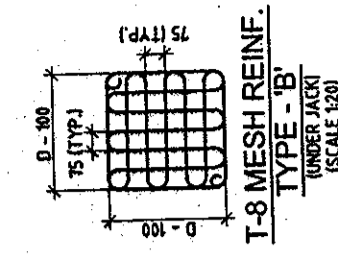
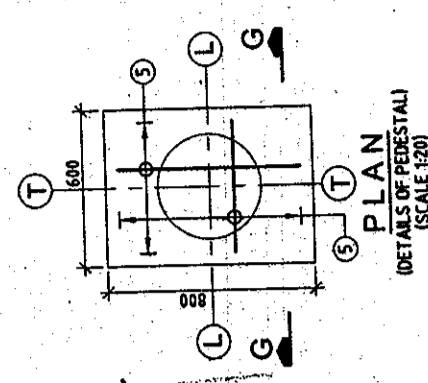
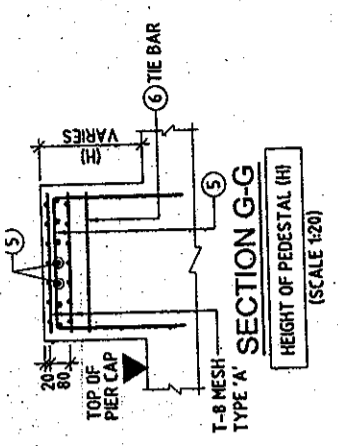
1213/SMEC/LUDHIANA/2-025/E-04 R1



**PIDB**  
PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

Ref: HA/Structure/1213/ENVN/DPR/Revised Drawings R2 (Feb 10)/Bridge CH. 2+025.UBRIDGE CH. 2+025 E-04.dwg





**APPROVED FOR EXECUTION**

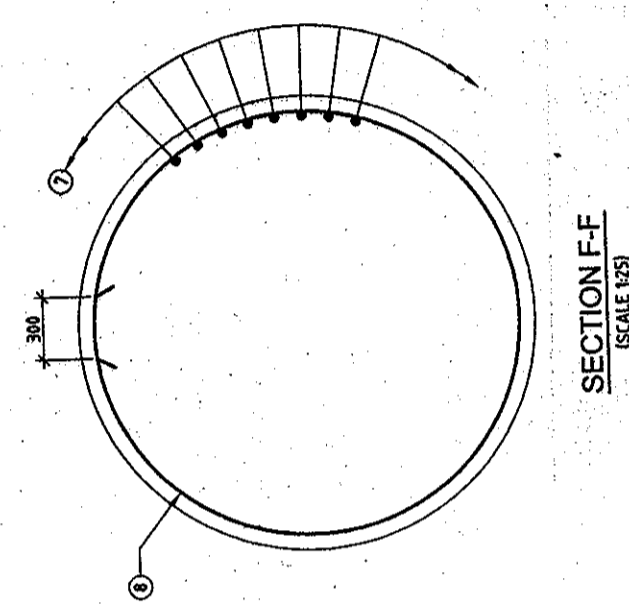
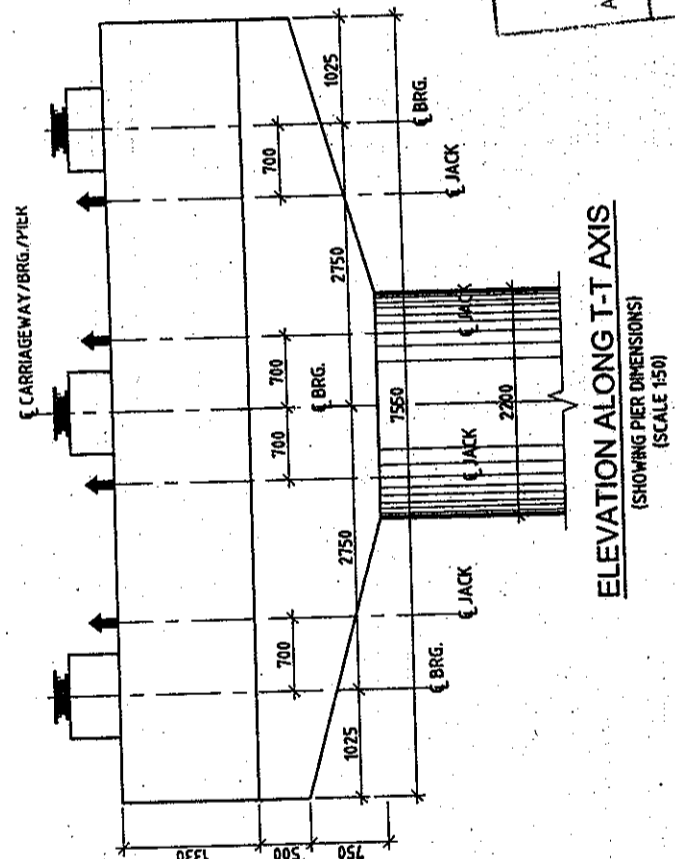
**ISSUED**

*[Signature]*  
Executive Engineer  
Design (S)

*[Signature]*  
Chief Engineer  
Design (H)

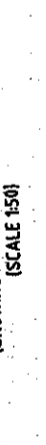
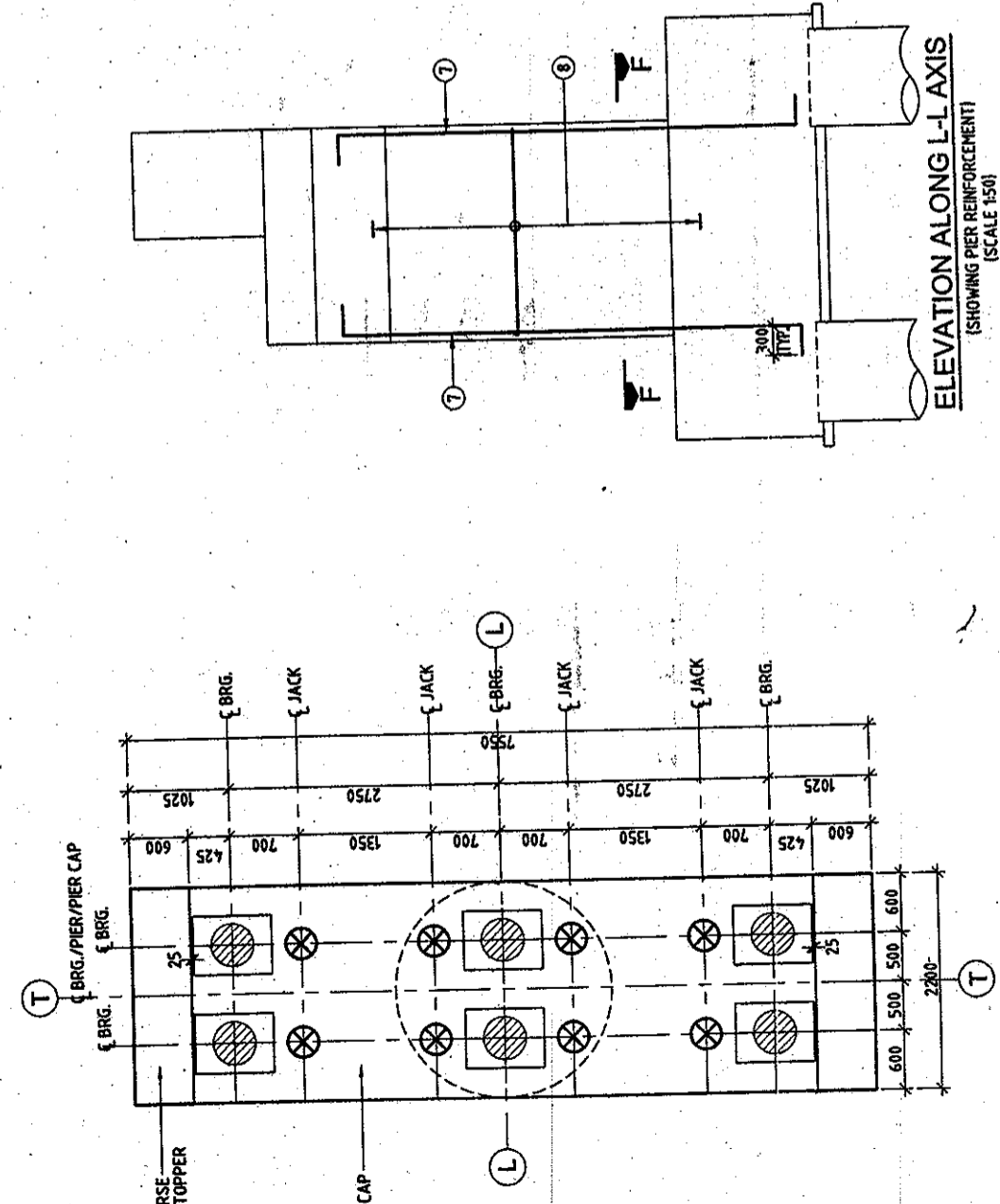
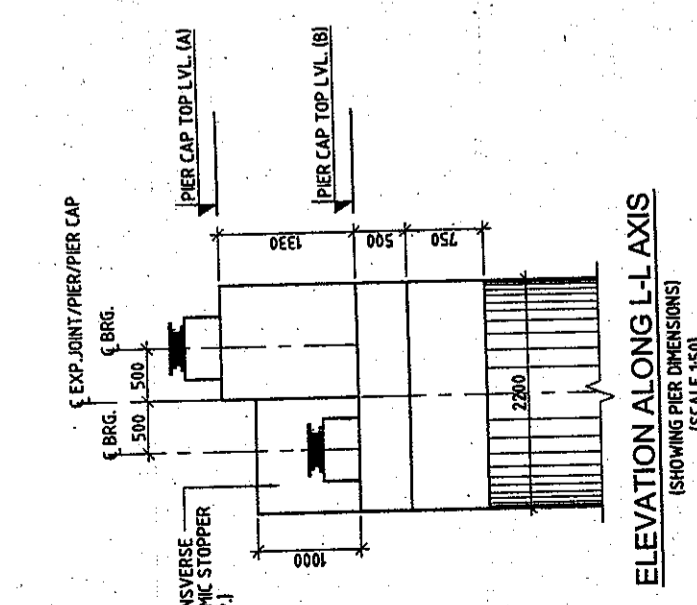
*[Signature]*  
Assistant Engineer  
Design (S)

*[Signature]*  
JAB P.W.D. (B & R)



LEVELS CHART FOR PIER - SUBJECT TO SITE CHECK

PIER DESIGNATION	FORMATION LEVELS	PIER CAP TOP LEVELS (A)	PIER CAP TOP LEVELS (B)	BED LEVELS
PL 10	262.400	260.985	259.655	255.789
PR 10	262.400	260.985	259.655	255.789



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**CLIENT:** PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

**CONSULTANT:** SMC&A PVT. LTD.  
SMEC (INDIA) PVT. LTD.  
D/F BUILDING, PHASE 1, GURGAON,  
GURGAON, HARYANA, INDIA - 122 002  
TEL: 0124-4399042, 4301100

**PROJECT TITLE:** PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

**SCALE:** AS SHOWN

**SHEET SIZE:** A2

REV	DATE	DRAWN	CHECKED	APPROVED	DETAILS OF REVISION
RO	11/06/2008	MKS	VNM	S.A.HIRI	FIRST ISSUE

**DETAILED PROJECT REPORT**

**DIMENSIONAL & REINFT. DETAILS OF PILE, PIER CAP, PIER & PIER CAP**

1213/SMC&A/LUDHIANA/2-025/E-04

R0

SHEET 2 OF 3

CAD File Ref: H:\Structure\1213\VF\IAL DPR\Updated Drawings R2 (Pile, W) Bridge Cl. 2-025-UBRIDGE Cl. 2-025 E-04.dwg

**NOTES:-**

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH 150mm CUBES AS FOLLOWS:-  
PIER ----- M35  
PIER CAP ----- M35
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.  
(i) FOR SUBSTRUCTURE ----- 50mm  
(ii) FOR FOUNDATION ----- 75mm
- TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
- MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
- MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
- IN PIER SHAFT T-10 OPEN LINKS (OR S LOOPS) WITH HOOK PLACED AROUND THE VERTICAL BARS ARE PLACED AT THE RATE OF 4 LINKS IN ONE SQUARE METER.
- LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
- A IS THE DIMENSIONS OF THE BEARINGS WHICH IS TO BE FURNISHED BY THE MANUFACTURER.
- D = DIA OF JACK.

**REFERENCE DRAWINGS:-**

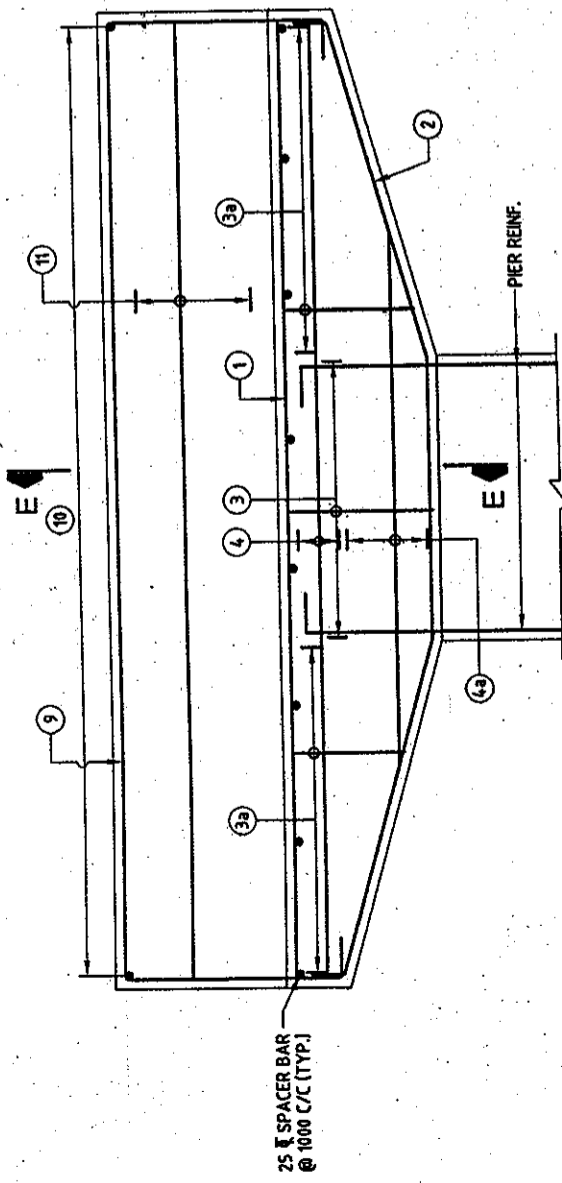
- 1213/SPEC/LUDHIANA/2-025/G-01 (SHEET 1 OF 7 TO 7 OF 7)
- 1213/SPEC/LUDHIANA/2-025/E-04 (SHEET 1 OF 3 & 2 OF 3)

**REINFORCEMENT DETAIL:**

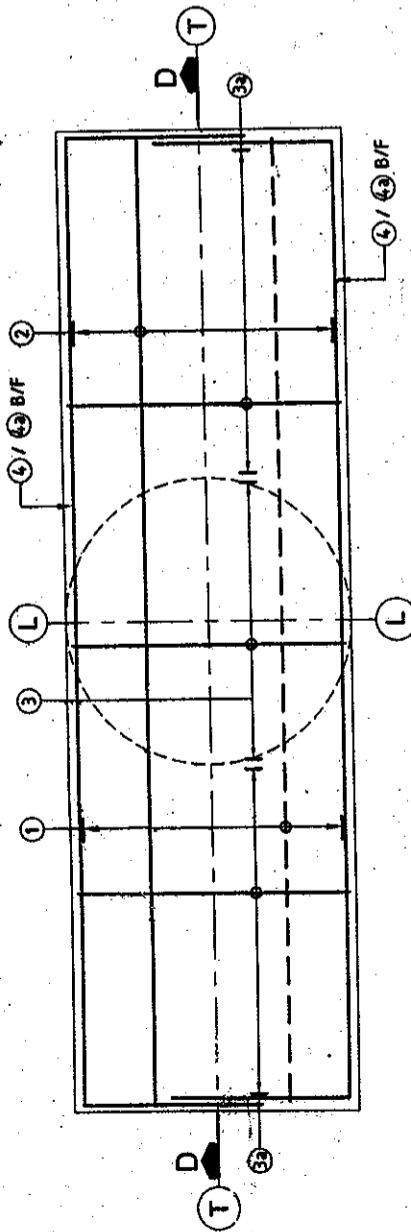
BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	32	26 Nos.	[Diagram]
2	16	26 Nos.	[Diagram]
3	16	150	[Diagram]
3a	16	100	[Diagram]
4	16	2Nos.	[Diagram]
4a	16	3Nos.	[Diagram]
5	12	75	[Diagram]
6	12	150	[Diagram]
7	32	35 Nos.	[Diagram]
8	12	125	[Diagram]
9	20	125	[Diagram]
10	16	125	[Diagram]
11	20	125	[Diagram]

**LEGENDS:**

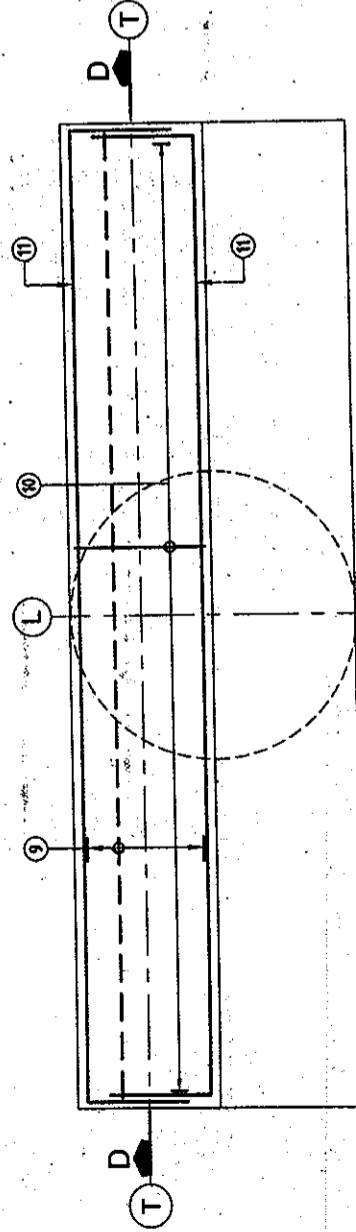
- BAR ON TOP FACE
- BAR ON BOTTOM FACE



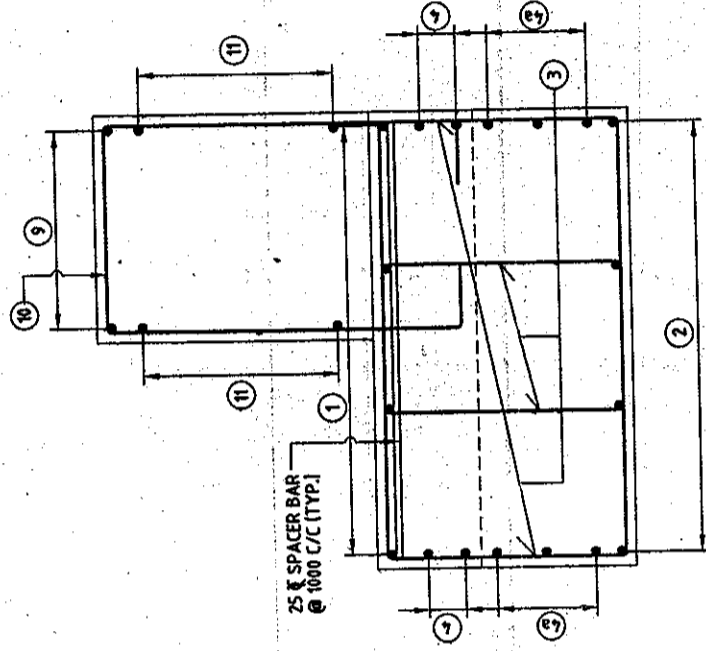
**SECTION D-D**  
(SCALE 1:40)



**PLAN SHOWING REINFORCEMENT IN PIER CAP**  
(SCALE 1:40)



**PLAN SHOWING REINFORCEMENT IN PIER CAP**  
(SCALE 1:40)



**SECTION E-E**  
(SCALE 1:25)

**APPROVED FOR EXECUTION**

ISSUED	18/12/10
DESIGN	18/12/10
EXECUTIVE ENGINEER	[Signature]
DESIGN (E)	[Signature]
CHIEF ENGINEER	[Signature]
DESIGN (B&R)	[Signature]
NUAB P.W.D. (B&R)	

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CLIENT: PWD

CONSULTANT: **SMC INDIA PVT. LTD.**  
SMEC INDIA PVT. LTD.  
D/F BUILDING No. 6, C TOWER, 5th FLOOR,  
CYBER CITY, PHASE-4, GURGAON,  
HARYANA, INDIA - 122 002  
Tel: 0124-430002, 430100

PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BAY-PASS LUDHIANA

REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION
R0	11/06/2009	MKS	VNH	VNH	[Signature]	FIRST ISSUE

SCALE: AS SHOWN  
SHEET SIZE: A2  
DRW: DPR

DETAILED PROJECT REPORT  
DIMENSIONAL & REINF. DETAILS OF  
PILE, PIER CAP, PIER & PIER CAP  
(SHEET 3 OF 3)

1213/SMEC/LUDHIANA/2-025/E-04

R0

DRW

26

NUAB P.W.D. (B&R)

PIWB INFRASTRUCTURE DEVELOPMENT BOARD

MS:Structure/1213/FINAL DPR/Revised Drawings R2 (Feb 10)/Bridg-04-2-025 E-04.dwg

- IS TO BE SCALED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 35MPa FOR BORED CAST-IN-SITU PILE AND PILE CAP.
- CLEAR COVER TO SHALL BE AS FOLLOWS.
  - (i) FOR PILE --- 75mm
  - (ii) FOR PILE CAP --- 75mm
- TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
- MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
- MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BARLAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
- L.L. REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND T.T REPRESENTS TRANSVERSE AXIS OF BRIDGE.
- ACTUAL LOAD TEST SHALL BE CARRIED OUT ON A TEST PILE AS PER STANDARD SPECIFICATIONS TO DETERMINE VERTICAL AND LATERAL CAPACITY OF PILE. IT SHALL HOWEVER BE ENSURED THAT IT IS NOT LESS THAN DESIGN VALUES.

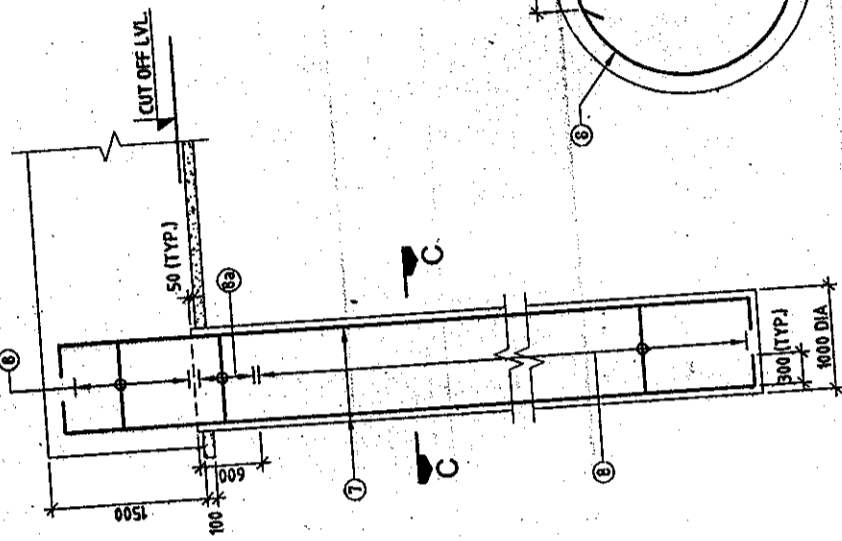
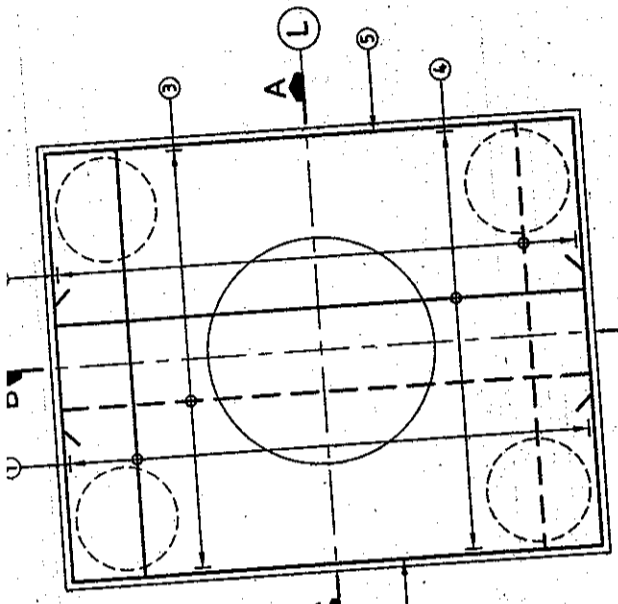
**REFERENCE DRAWINGS:-**

- 1) 1213/SMEC/LUDHIANA/2-025/G-01 (SHEET 1 OF 7 TO 7 OF 7)
- 2) 1213/SMEC/LUDHIANA/2-025/E-05 (SHEET 2 OF 3 & 3 OF 3)

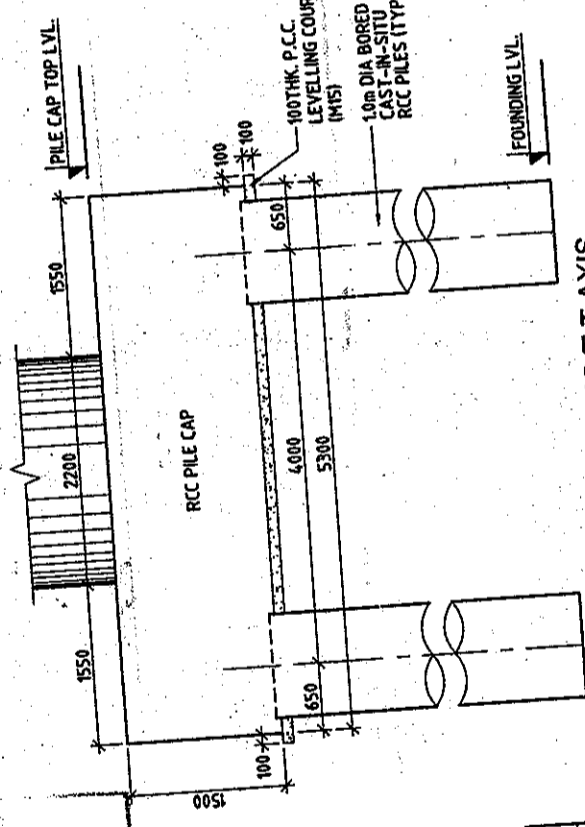
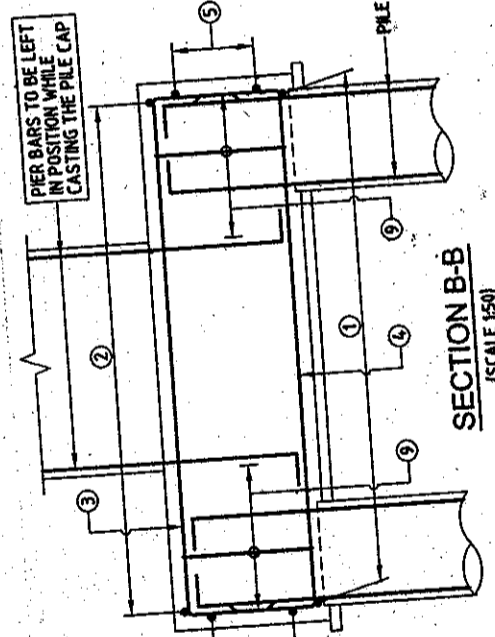
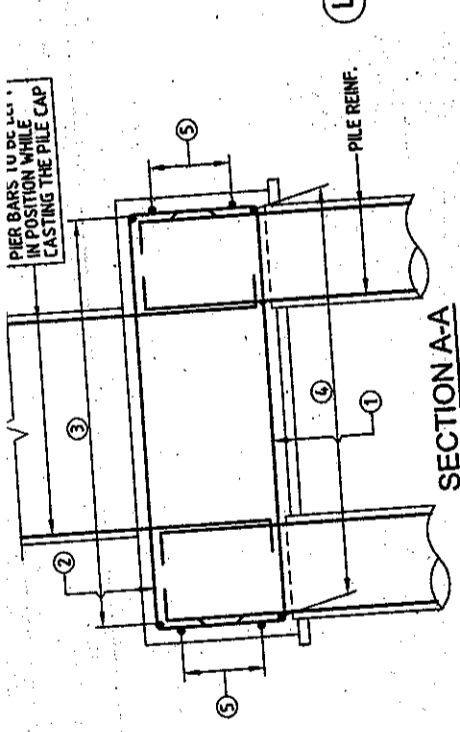
**REINFORCEMENT DETAIL:**

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	25	17 Nos.	[ ]
2	16	150	[ ]
3	16	150	[ ]
4	25	35 Nos.	[ ]
5	16	8 Nos.	[ ]
7	25	22 Nos.	[ ]
8	10	200	[ ]
8a	10	100	[ ]
9	16	150	[ ] 4 LEGGED

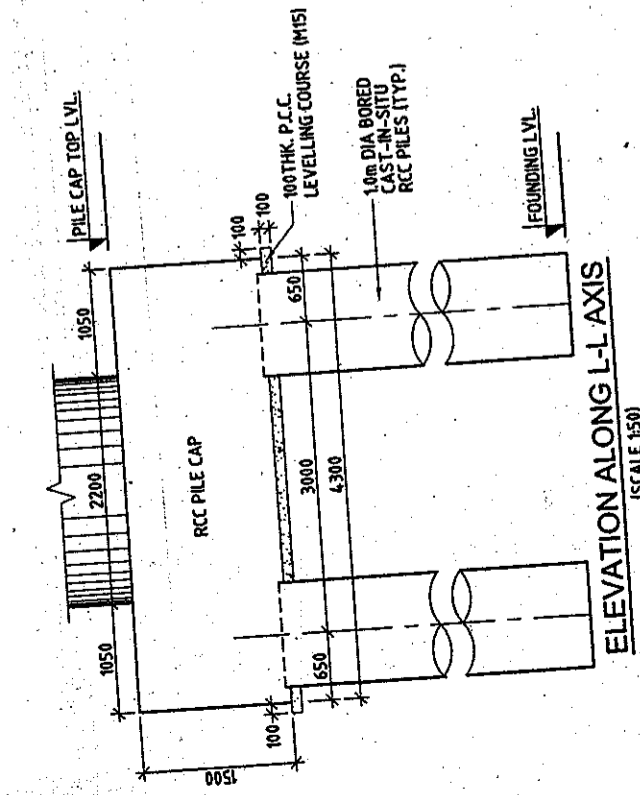
**LEGENDS:**  
 --- BAR ON TOP FACE  
 --- BAR ON BOTTOM FACE



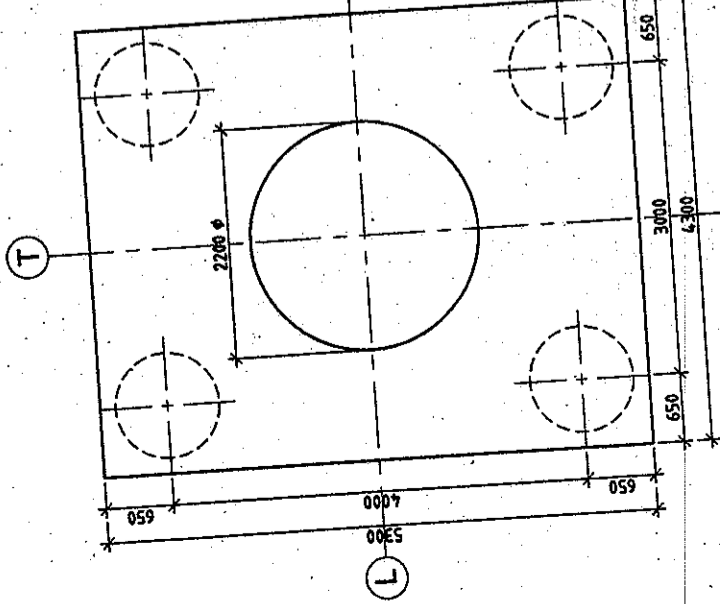
**R.C.C. DETAILS OF PILE**  
 SECTION C-C  
 (SCALE 1:20)



**ELEVATION ALONG T-T AXIS**  
 (SCALE 1:50)



**APPROVED FOR EXECUTION**  
 Chief Engineer  
 Executive Engineer  
 Design (EP)  
 Design (EP)  
 Design (EP)  
 Design (EP)  
 Design (EP)



**PLAN AT TOP OF PILE CAP**  
 (SHOWING DIMENSIONS)  
 (SCALE 1:50)

**LEVELS CHART FOR PILE CAP LAYOUT** \* SUBJECT TO SITE CHECK

PIER DESIGNATION	BED LEVELS	TOP OF PILE CAP LEVELS	CUT OFF LEVELS	FOUNDING LEVELS
PL11	255.845	255.345	253.895	238.895
PR11	255.845	255.345	253.895	238.895

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**CLIENT:** PIDB  
 PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD  
 H-15, Sector 17, Gurgaon, Haryana, India - 122002  
 Tel: 0122-480042, 480100

**CONSULTANT:** SMEC  
 SMC INDIA PVT. LTD.  
 D/F BUILDING TOWER 28 FLOOR,  
 CHANDLER ROAD, GURGAON,  
 HARYANA, INDIA - 122002  
 Tel: 0122-480042, 480100

**PROJECT TITLE:**  
 PREPARATION OF DETAILED PROJECT REPORT  
 FOR UPGRADATION OF SOUTHERN BYE-PASS  
 LUDHIANA

**REVISIONS**

REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	REVISIONS
R1	26/08/2009	MKS	VNM	VNM	S. SAHRI	REVISED AS PER PER PID COMMENTS
R0	11/08/2009	MKS	VNM	VNM	S. SAHRI	FIRST ISSUE

**DETAILS OF REVISION**

**DETAILED PROJECT REPORT**  
 DIMENSIONAL & REINFT. DETAILS OF  
 PILE, PILE CAP, PIER & PIER CAP  
 (SHEET 1 OF 3)

**SCALE:**  
 AS SHOWN

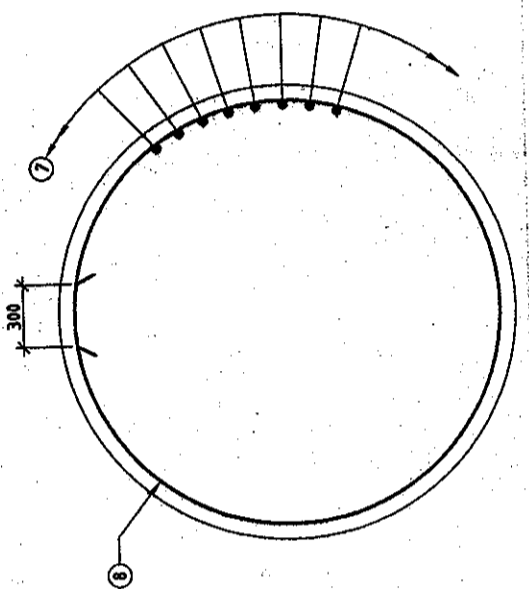
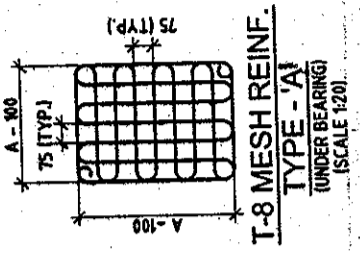
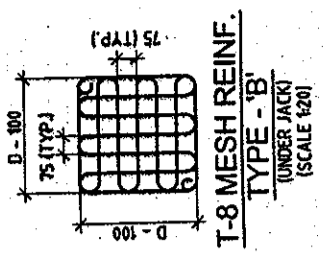
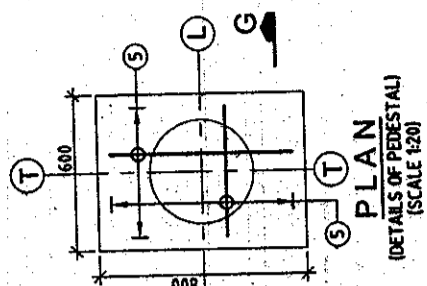
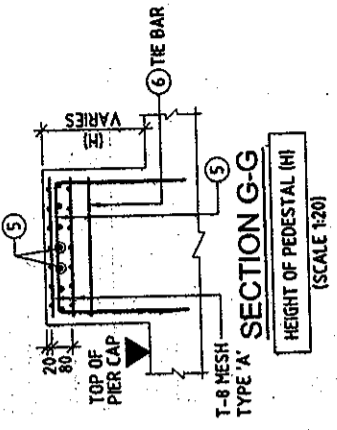
**SHEET SIZE:**  
 A2

**DRW**

**DPP**

**1213/SMEC/LUDHIANA/2-025/E-05**

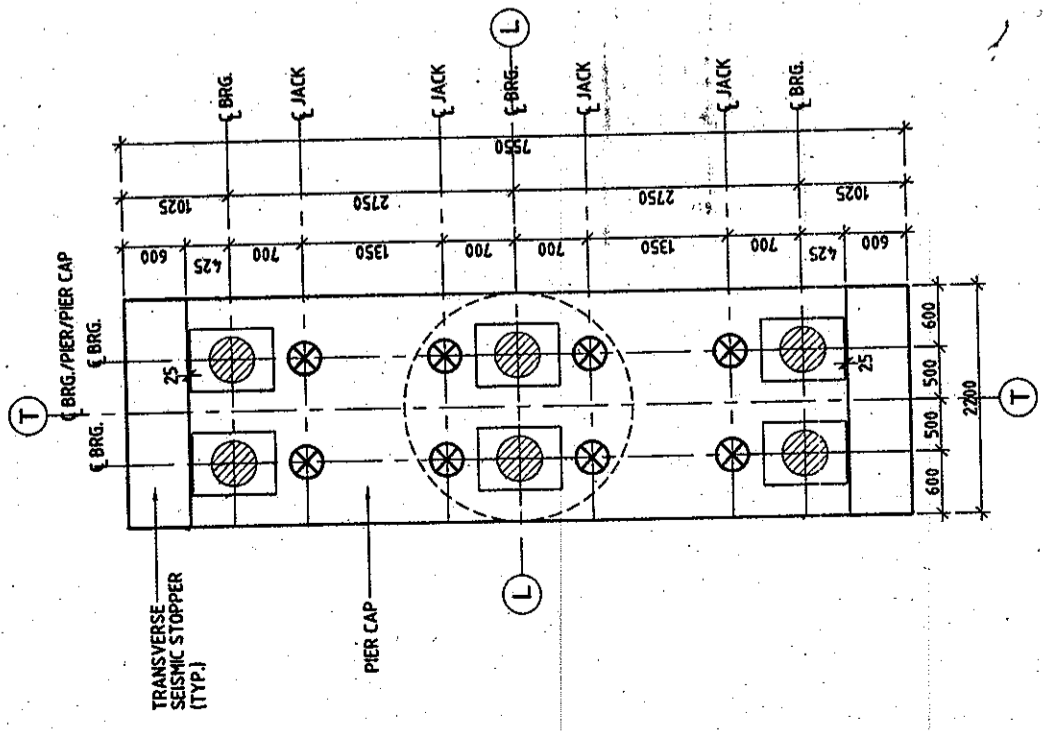
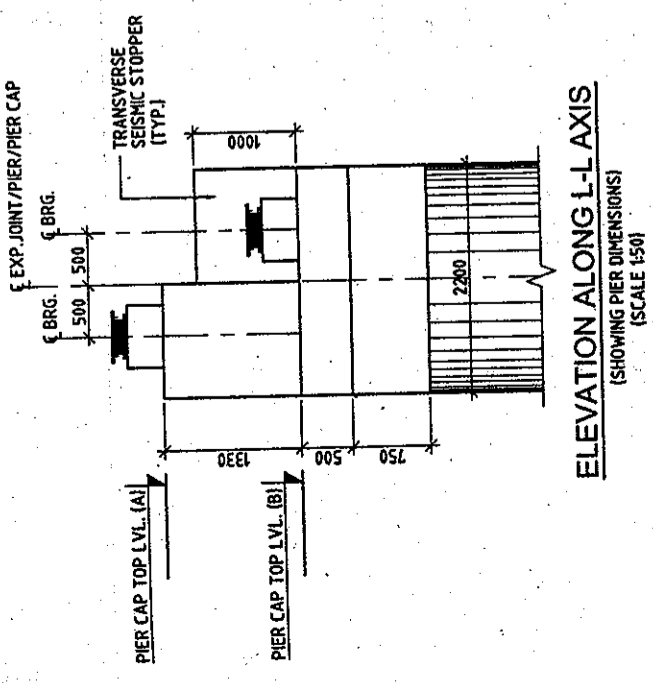
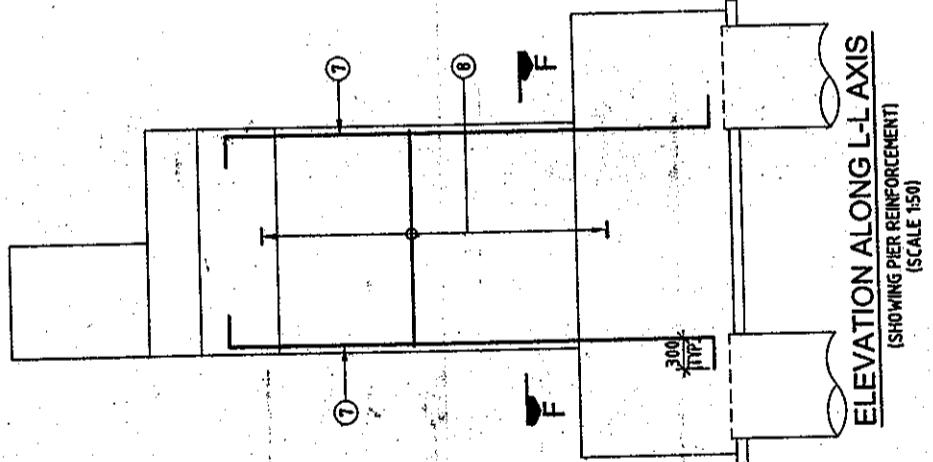
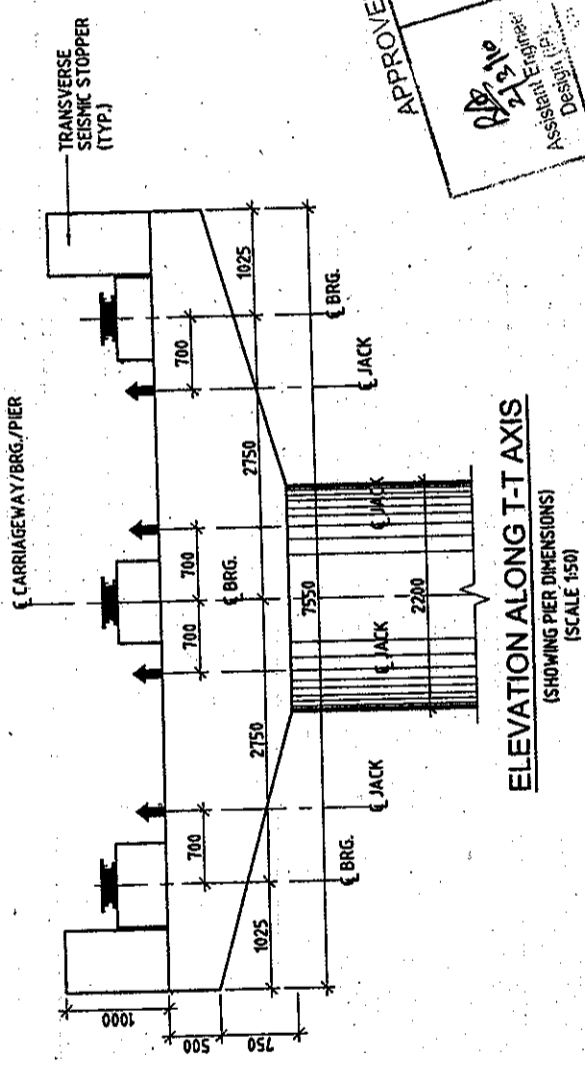
**R1**



LEVELS CHART FOR PIER \* SUBJECT TO SITE CHECK

PIER DESIGNATION	FORMATION LEVELS	PIER CAP TOP LEVELS (A)	PIER CAP TOP LEVELS (B)	BED LEVELS
PL11	262.400	260.985	259.655	255.845
PR11	262.400	260.985	259.655	255.845

APPROVED FOR EXECUTION  
 ISSUED  
 Checked: [Signature]  
 Design: [Signature]  
 Assistant Engineer  
 PUNJUB PWD  
 Ludhiana



PLAN AT PIER CAP TOP (SHOWING DIMENSIONS) (SCALE 1:50)

PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

CONSULTANT: **SMEC** PUNJUB INFRASTRUCTURE DEVELOPMENT BOARD

PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

CLIENT: PUNJUB INFRASTRUCTURE DEVELOPMENT BOARD

DESIGNER: YNM, S. SAHRI

CHECKED: YNM, S. SAHRI

APPROVED: YNM, S. SAHRI

DATE: 11/06/2009

REV: R0

SCALE: AS SHOWN

SHEET SIZE: A2

DPR: DRW.

PROJECT NO: 1219/SMEC/LUDHIANA/2+025/E-56

(SHEET 2 OF 3)

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CAD File Ref: H:\Structure\1219\FINAL DPR\Revised Drawings R2 (Feb 10)\V-Hdgs CH 2+025\BRIDGE CH 2+025 E-05.dwg

**NOTES:-**

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH 150mm CUBES AS FOLLOWS:-  
PIER -----M35  
PIER CAP -----M35
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.  
(i) FOR SUBSTRUCTURE ----- 50mm  
(ii) FOR FOUNDATION ----- 75mm
- TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
- MINIMUM BOND LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR.
- MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 50% OF OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF IN PIER SHAFT T-10 OPEN LINKS (OR S LOOPS) WITH HOOK PLACED AROUND THE VERTICAL BARS ARE PLACED AT THE RATE OF 4 LINKS IN ONE SQUARE METER.
- LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
- A IS THE DIMENSIONS OF THE BEARINGS WHICH IS TO BE FURNISHED BY THE MANUFACTURER.
- D = DIA OF JACK.

**REFERENCE DRAWINGS:-**

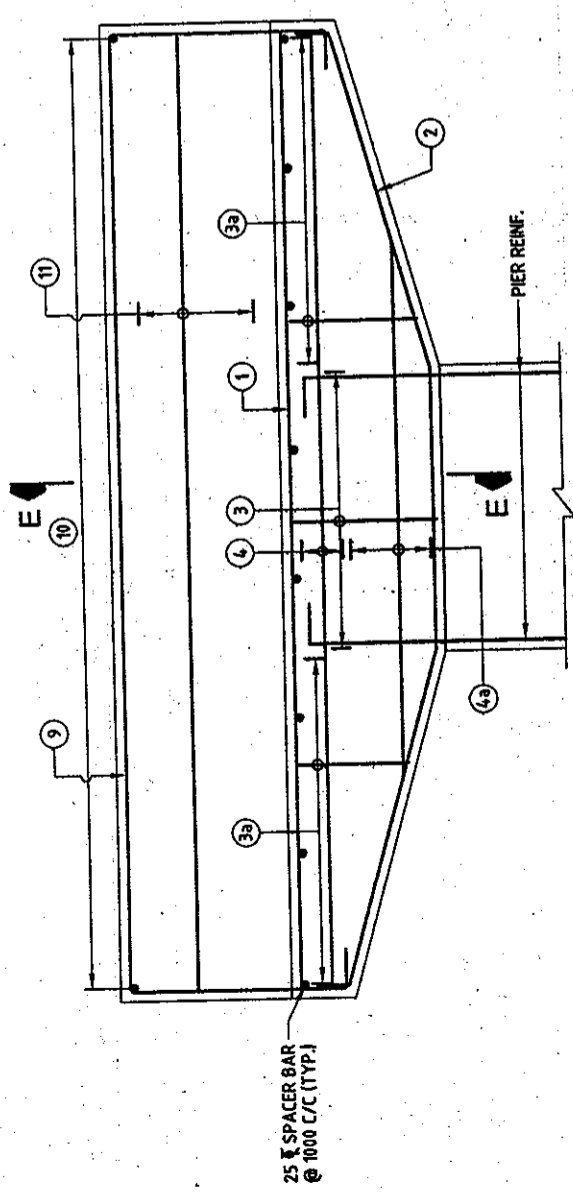
- 1213/SMEC/LUDHIANA/2-025/G-01 (SHEET 1 OF 7 TO 7 OF 7)
- 1213/SMEC/LUDHIANA/2-025/E-05 (SHEET 1 OF 3 & 2 OF 3)

**REINFORCEMENT DETAIL:-**

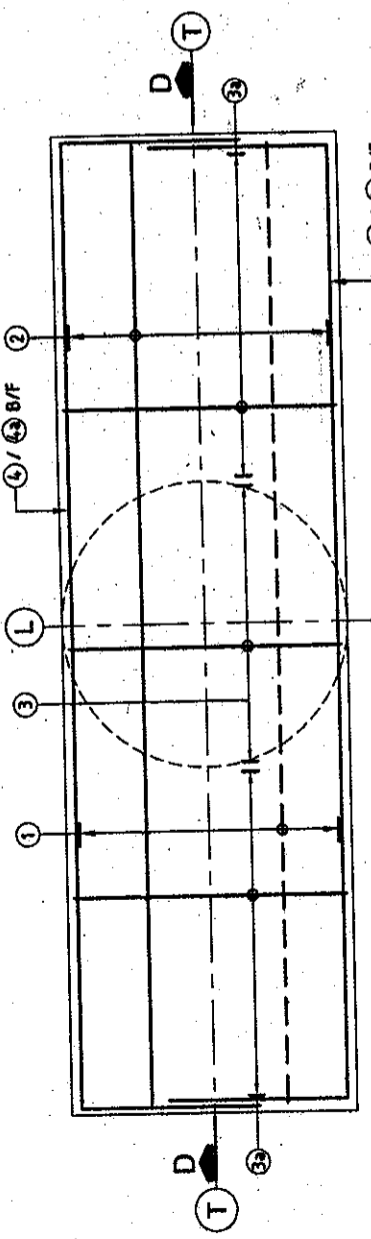
BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	32	26 Nos.	
2	16	26 Nos.	
3	16	150	
3a	16	100	
4	16	2Nos.	
4a	16	3Nos.	
5	12	75	
6	12	150	
7	32	35 Nos.	
8	12	125	
9	20	125	
10	16	125	
11	20	125	

**LEGENDS:**

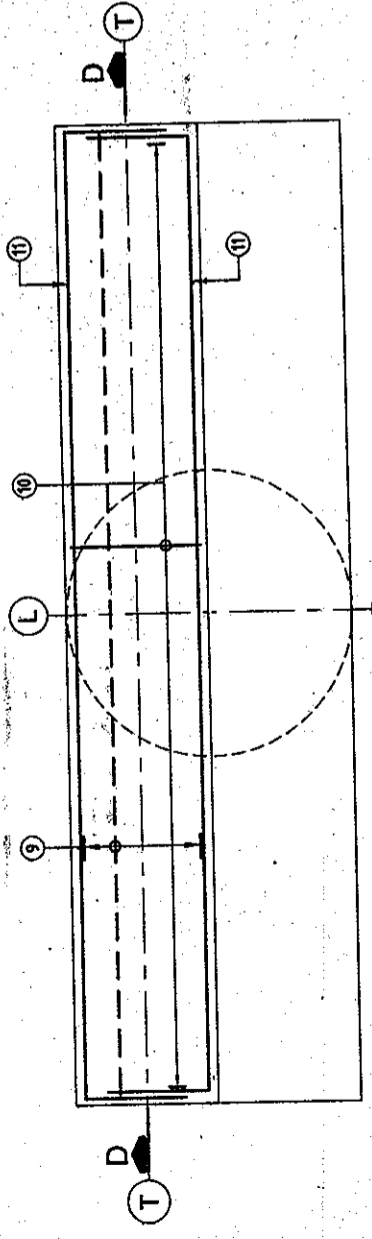
- BAR ON TOP FACE
- BAR ON BOTTOM FACE



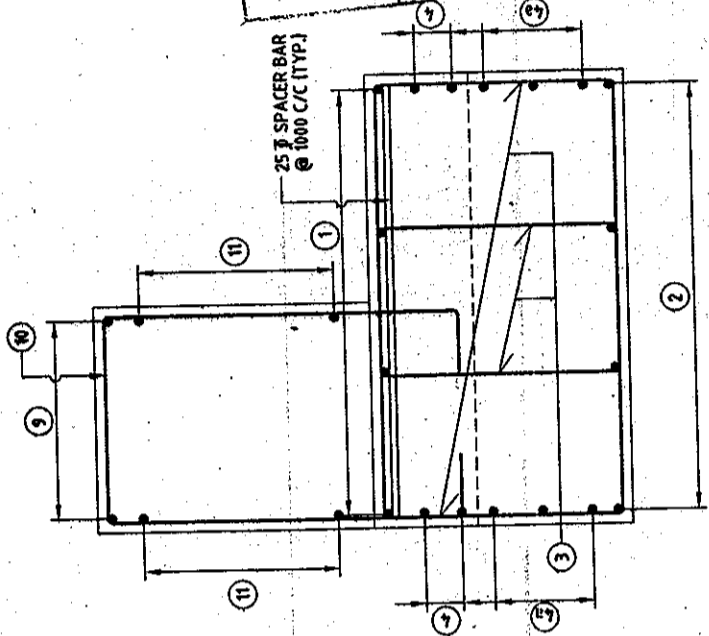
**SECTION D-D**  
(SCALE 1:40)



**PLAN SHOWING REINFORCEMENT IN PIER CAP**  
(SCALE 1:40)



**PLAN SHOWING REINFORCEMENT IN PIER CAP**  
(SCALE 1:40)



**SECTION E-E**  
(SCALE 1:25)

**APPROVED FOR EXECUTION**

Assistant Engineer (IP)	Executive Engineer (Design IP)	Chief Engineer (IP)

MAJAB F.W.D. (B & R)

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<b>CLIENT:</b> <b>PIDB</b> PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD H-13 Structure, 1213 VERNAL, DPR Revised Drawings R2 (Feb. 01) Bridge Ch. 2+025 BRIDGE CH. 2+025 E-05.dwg	<b>CONSULTANT:</b> <b>SMEC</b> SMEC (INDIA) PVT. LTD. D/F BUILDING 16 & C TOWER, 5th FLOOR, CYBER CITY, PHASE-1 GURGAON, HARYANA, INDIA - 122002 Tel: 0124-430042, 430100	<b>PROJECT TITLE:</b> PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN B-YE-PASS LUDHIANA		SHEET SIZE: A2	SCALE: AS SHOWN	DETAILED PROJECT REPORT DIMENSIONAL & REINFT. DETAILS OF PILE, PILE CAP, PIER & PIER CAP (SHEET 3 OF 3)
		REV DATE DRAWN DESIGN CHECKED APPROVED	RO 11/06/2009 MRS VNM VNM SVAHRI	FIRST ISSUE DETAILS OF REVISION	DPR DRAW	1213/SMEC/LUDHIANA/2+025/E-05 RO

**NOTES:-**

1. ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
2. CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 35Mpa FOR BORED CAST-IN-SITU PILE AND PILE CAP.
3. CLEAR COVER TO SHALL BE AS FOLLOWS.  
 (i) FOR PILE --- 75mm  
 (ii) FOR PILE CAP --- 75mm
4. TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
5. MINIMUM BOND LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR.
6. MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
7. LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
8. ACTUAL LOAD TEST SHALL BE CARRIED OUT ON A TEST PILE AS PER STANDARD SPECIFICATIONS TO DETERMINE VERTICAL AND LATERAL CAPACITY OF PILE. IT SHALL HOWEVER BE ENSURED THAT IT IS NOT LESS THAN DESIGN VALUES.

**REFERENCE DRAWINGS:-**

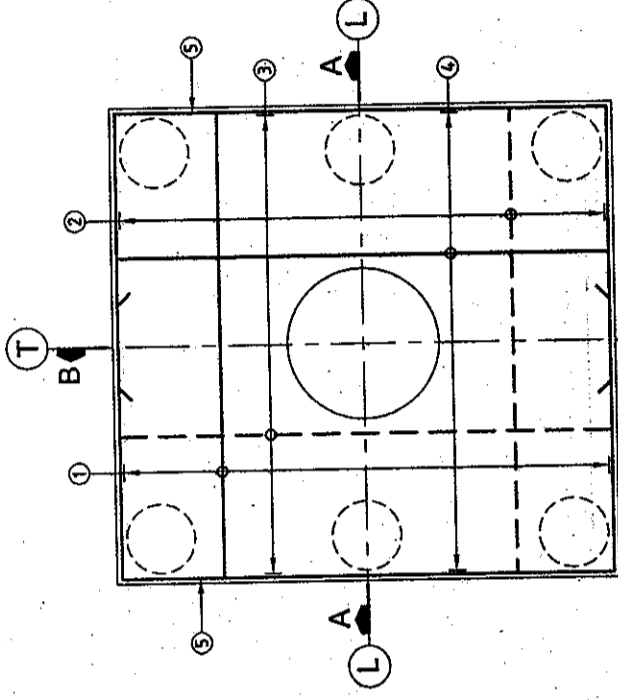
- i) 12/3/SMCC/LUDHIANA/2-025/E-01 (SHEET 1 OF 7 TO 7 OF 7)
- ii) 12/3/SMCC/LUDHIANA/2-025/E-06 (SHEET 2 OF 2)

**REINFORCEMENT DETAIL:-**

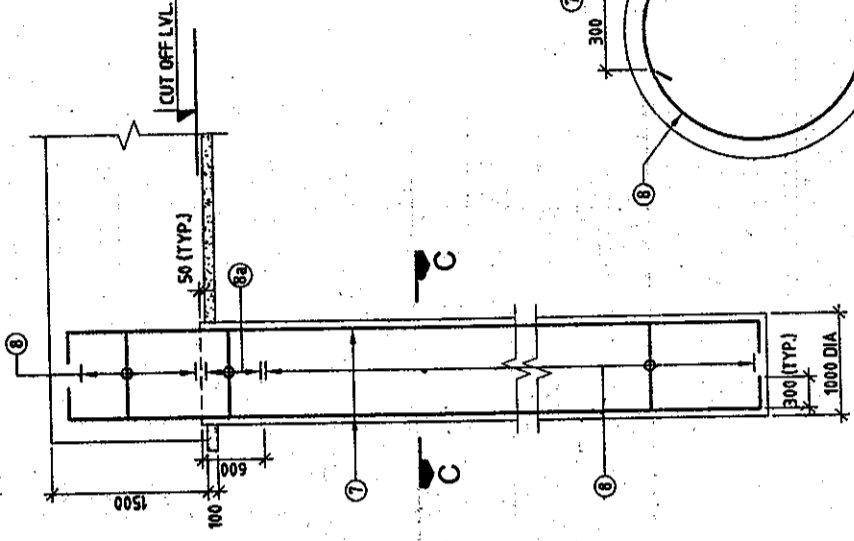
BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	25	67 Nos.	[Symbol]
2	16	150	[Symbol]
3	16	150	[Symbol]
4	25	50 Nos.	[Symbol]
5	16	8 Nos.	[Symbol]
7	25	25 Nos.	[Symbol]
8	10	200	[Symbol]
8a	10	100	[Symbol]
9	16	150	[Symbol] 6 LEGGED
10	16	150	[Symbol] 6 LEGGED

**LEGENDS:-**

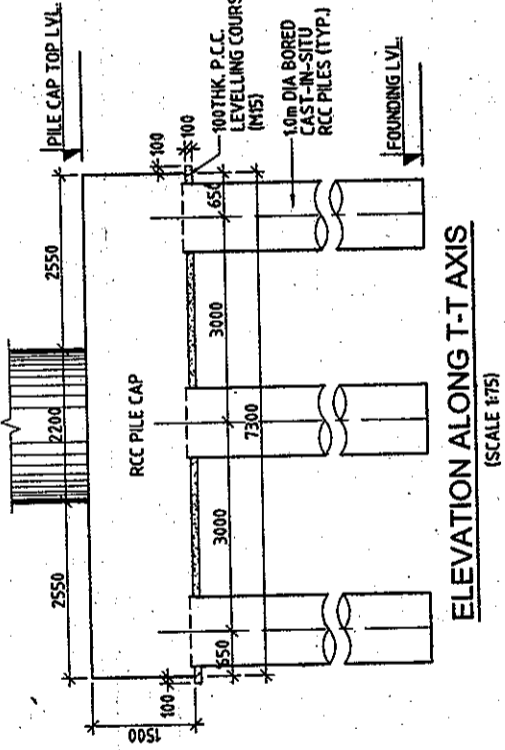
- BAR ON TOP FACE
- BAR ON BOTTOM FACE



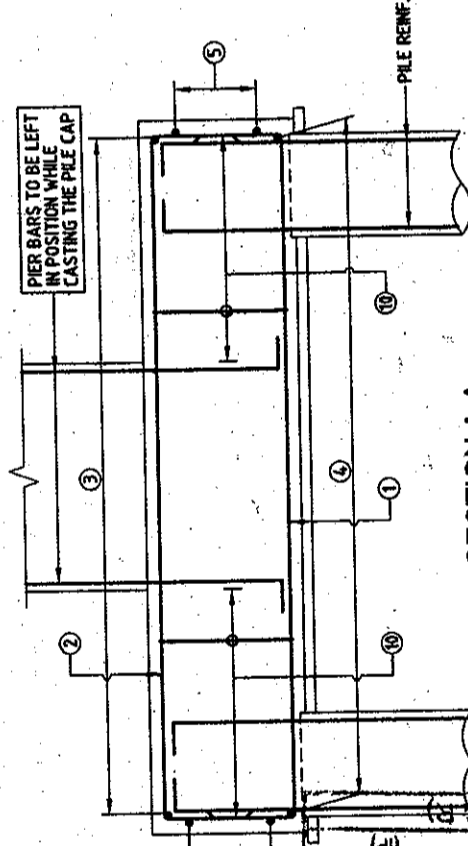
**PLAN**  
(SHOWING PILE CAP REINFORCEMENT)  
(SCALE 1/75)



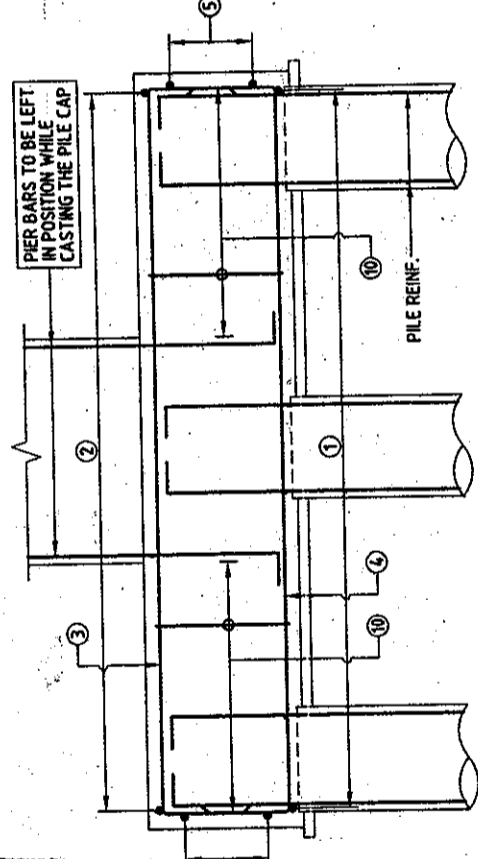
**SECTION C-C**  
(SCALE 1/20)



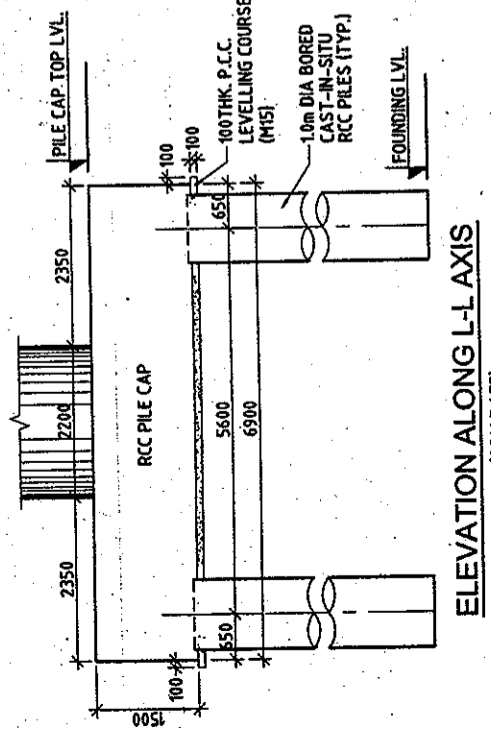
**ELEVATION ALONG T-T AXIS**  
(SCALE 1/75)



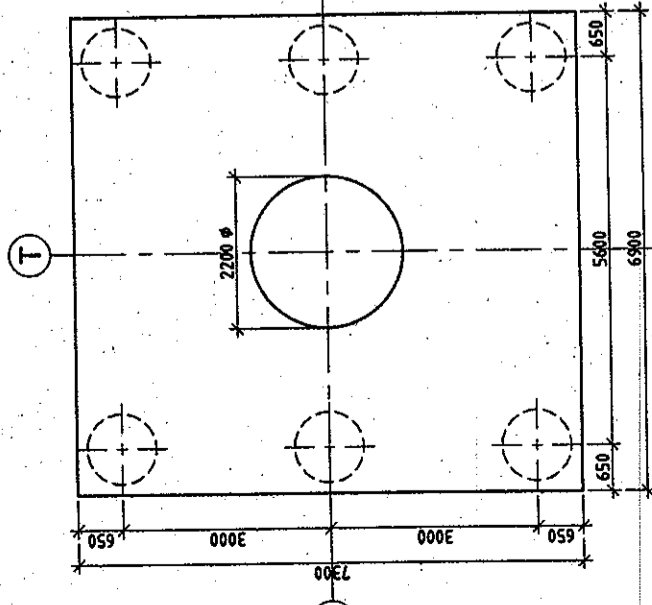
**SECTION A-A**  
(SCALE 1/50)



**SECTION B-B**  
(SCALE 1/50)



**ELEVATION ALONG L-L AXIS**  
(SCALE 1/75)



**PLAN AT TOP OF PILE CAP**  
(SHOWING DIMENSIONS)  
(SCALE 1/75)

**LEVELS CHART FOR PILE CAP LAYOUT \* SUBJECT TO SITE CHECK**

PIER DESIGNATION	BED LEVELS	TOP OF PILE CAP LEVELS	CUT OFF LEVELS	FOUNDING LEVELS
PL14	255.085	254.585	253.135	238.135
PL17	254.679	254.179	252.729	237.729
PL20	254.364	253.864	252.414	237.414
PR14	255.085	254.585	253.135	238.135
PR17	254.679	254.179	252.729	237.729
PR20	254.364	253.864	252.414	237.414

**APPROVED FOR EXECUTION**

ISSUED

Chief Engineer (P)

Executive Engineer (P)

Assistant Engineer (P)

JAB PWD (B&P)

Design: [Signature]

Des. no. P

Exec. no. P

**PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN B-YE-PASS LUDHIANA**

PROJECT TITLE:

CONSULTANT: **SMCC**

CLIENT: **PIDB** (PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD)

REVISIONS:

REV	DATE	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION
R1	26/08/2009	MKS	VNM	VNM	REVISED AS PER P.L.P.WD COMMENTS
R0	12/06/2009	MKS	VNM	S LAHIRI	FIRST ISSUE

SCALE: AS SHOWN

SHEET SIZE: A2

DRW: DPR

PROJECT NO: 12/3/SMCC/LUDHIANA/2-025/E-06

SHEET 1 OF 2

DATE: 24/07/2009

CAD File Ref: HA:Structure\12\3\FINAL DPR\Revised Drawings R2 (Feb 09)\08Page CH. 2-025 E-06.dwg

**NOTES:-**

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH 150mm CUBES AS FOLLOWS:-  
PIER ----- M35  
PIER CAP ----- M35  
CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.  
(i) FOR SUBSTRUCTURE ----- 50mm  
(ii) FOR FOUNDATION ----- 75mm
- TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
- MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
- MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF IN PIER SHAFT T-10 OPEN LINKS (OR S LOOPS) WITH HOOK PLACED AROUND THE VERTICAL BARS ARE PLACED AT THE RATE OF 4 LINKS IN ONE SQUARE METER.
- LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.
- A IS THE DIMENSIONS OF THE BEARINGS WHICH IS TO BE FURNISHED BY THE MANUFACTURER.
- D = DIA OF JACK.

**REFERENCE DRAWINGS:-**

- 1213/SMEC/LUDHIANA/2-025/G-01(SHEET 1 OF 7 TO 7 OF 7)
- 1213/SMEC/LUDHIANA/2-025/E-06 (SHEET 1 OF 2)

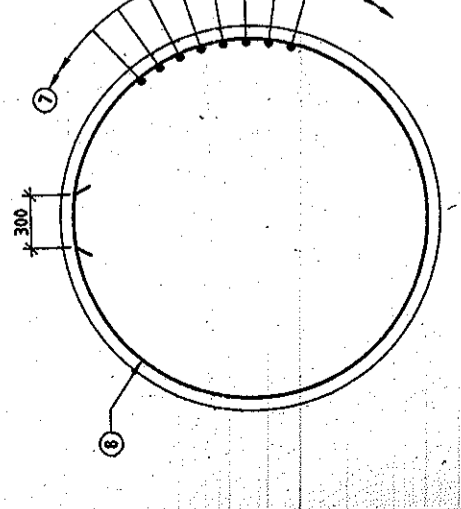
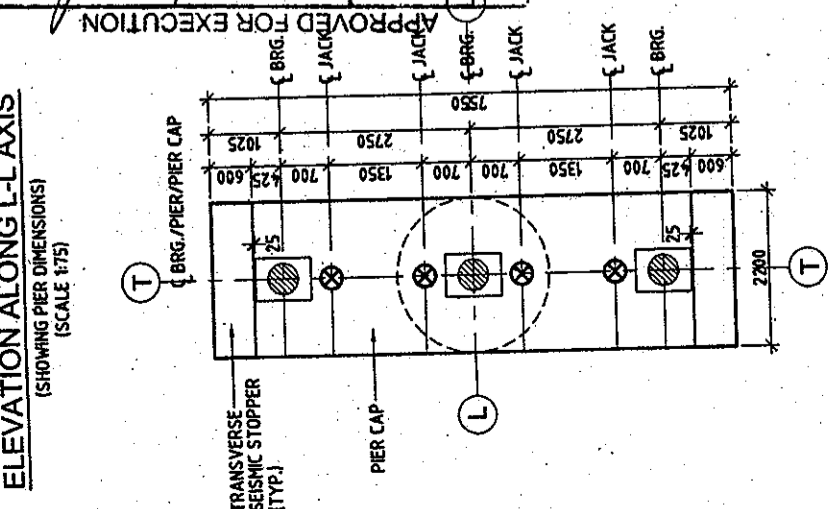
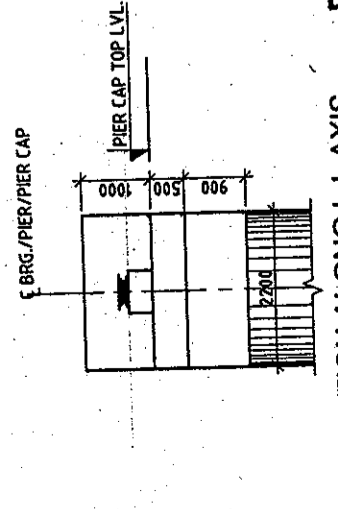
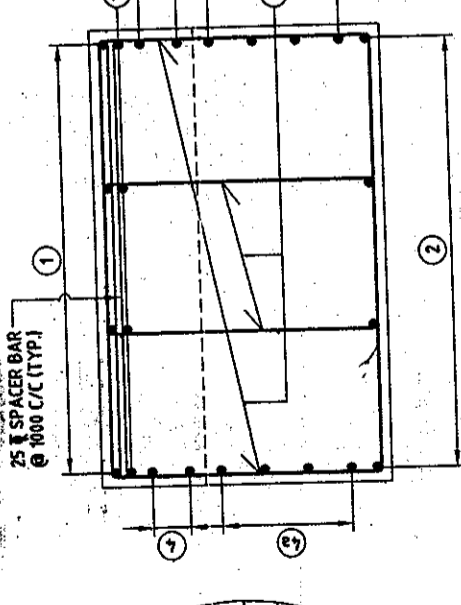
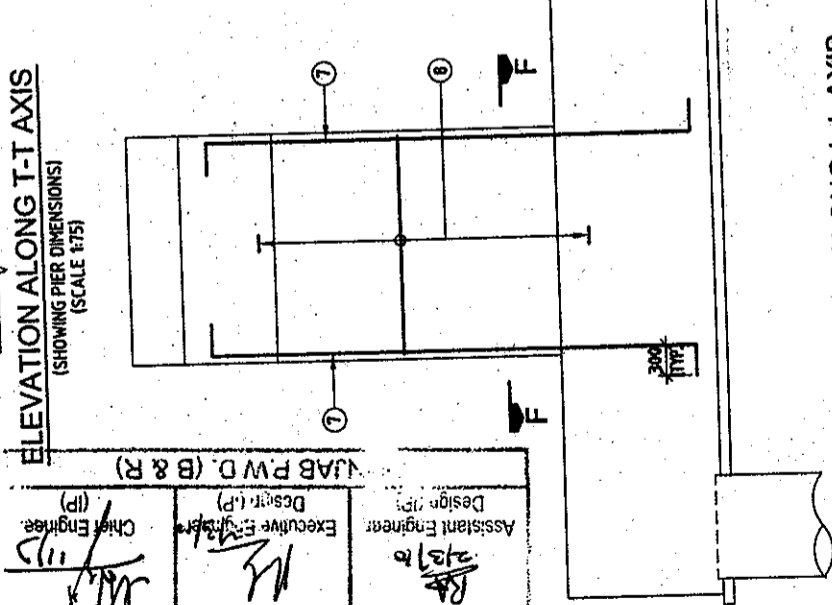
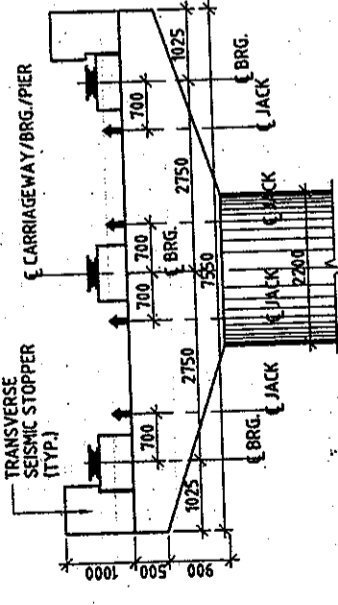
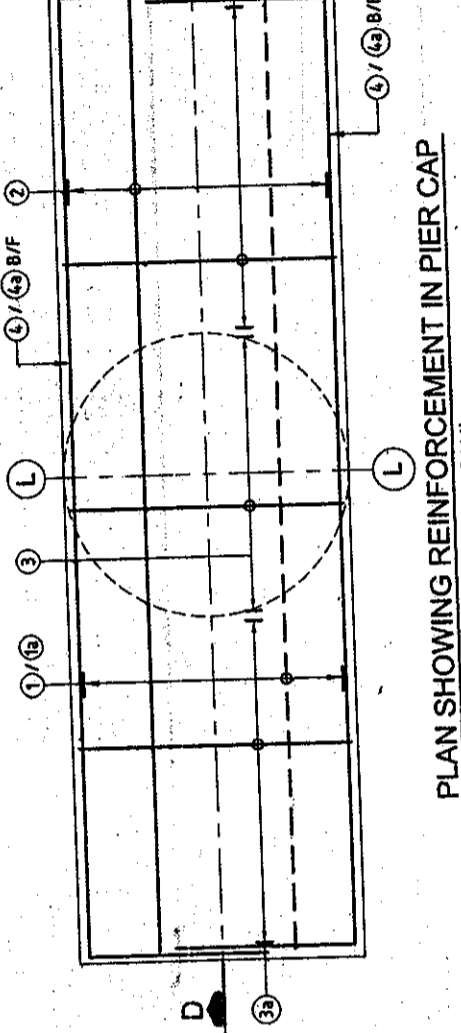
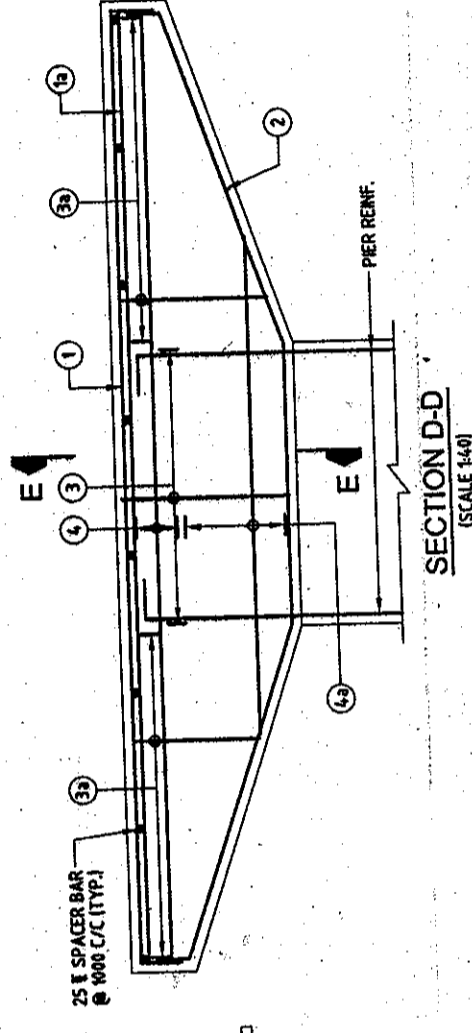
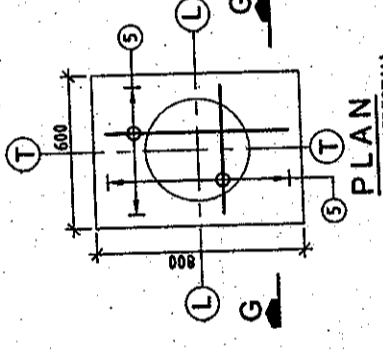
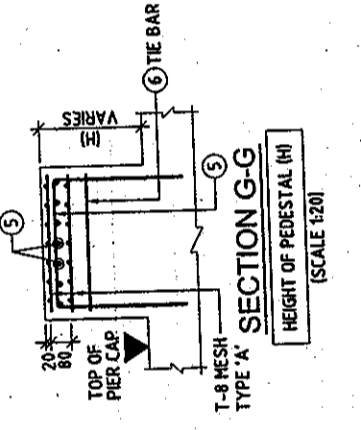
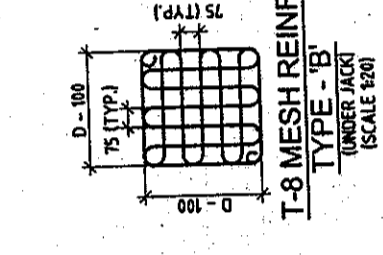
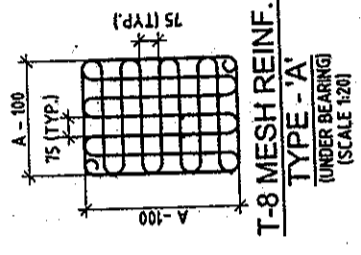
**REINFORCEMENT DETAIL:-**

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	32	17 Nos.	[Diagram]
1a	32	17 Nos.	[Diagram]
2	16	33 Nos.	[Diagram]
3	16	150	[Diagram]
3a	16	150	[Diagram]
4	20	2Nos.	[Diagram]
4a	20	4Nos.	[Diagram]
5	16	75	[Diagram]
6	16	150	[Diagram]
7	32	70 Nos.	[Diagram]
8	12	125	[Diagram]

**LEGENDS:**  
 BAR ON TOP FACE  
 BAR ON BOTTOM FACE

**LEVELS CHART FOR PIER \* SUBJECT TO SITE CHECK**

PIER DESIGNATION	FORMATION LEVELS	PIER CAP TOP LEVELS	BED LEVELS
PL14	262.160	259.745	255.085
PL17	261.427	259.012	254.679
PL20	260.199	257.784	254.364
PR14	262.160	259.745	255.085
PR17	261.427	259.012	254.679
PR20	260.199	257.784	254.364



**PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA**

**CLIENT:** PIDB  
**CONSULTANT:** SMEC  
**PROJECT TITLE:** PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

**APPROVED FOR EXECUTION:** [Signature]  
**ISSUED:** [Signature]  
**UJAB PWD (B & R)**

**REVISIONS:**

REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION
R1	26/08/2009	MKS	VNM	VNM	S/AHRI	REVISED AS PER P.B. PWD COMMENTS FIRST ISSUE
R0	12/06/2009	MKS	VNM	VNM	S/AHRI	FIRST ISSUE

**SCALE:** AS SHOWN  
**SHEET SIZE:** A2  
**DRW:** DPR  
**DRW:** R1

**DETAILED PROJECT REPORT DIMENSIONAL & REINF. DETAILS OF PILE, PILE CAP, PIER & PIER CAP**  
 (SHEET 2 OF 2)  
 1213/SMEC/LUDHIANA/2-025/E-06

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**CAO File Ref:** H&S/Structure/1213/FINAL DPR/Revised Drawings R2 (for W/AB) Rds Cl. 2-425 (BRIDGE Cl. 2-425 E-06).dwg

**NOTES:-**

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- PROPOSED BRIDGE IS DESIGNED FOR ONE LANE OF IRC CLASS 70R OR 2 LANE OF CLASS 'A' LOADING WHICHEVER GOVERNS.
- CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 30mpa FOR RCC FOUNDATION, SUBSTRUCTURE & SUPERSTRUCTURE.
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.  
(i) FOR SUPERSTRUCTURE ----- 40mm  
(ii) FOR SUBSTRUCTURE ----- 50mm  
(iii) FOR FOUNDATION ----- 75mm  
TMT HIGH YIELD STRENGTH DEFORMED BARS OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
- BACK FILLING BEHIND ABUTMENTS & RETURN WALLS SHALL CONSIST OF GRANULAR MATERIAL.
- WEEP HOLES, SPACED AT 1000 c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN ABUTMENT & RETURN WALLS FROM LWL TO H.F.L.
- ASPHALTIC PLUG EXPANSION JOINTS OF PROVEN QUALITY SHALL BE PROVIDED AS PER SPECIFICATION AND RELEVANT CLAUSE OF SECTION 2600.
- FOUNDATION TYPE AND SIZE SHOWN IN THE DRAWING IS TENTATIVE AND SHALL BE FINALIZED AFTER GEOTECHNICAL INVESTIGATIONS ARE CARRIED OUT
- NET SAFE BEARING CAPACITY ASSUMED AT FOUNDING LEVEL IS 30T/M<sup>2</sup>.
- EXCAVATED SOIL AROUND FOOTING UP TO ROCK LEVEL IS FILLED BY M-15 GRADE OF PLAIN CEMENT CONCRETE.
- CROSS SECTION / SLOPE AT THE STRUCTURE LOCATION SHALL BE PROVIDED AS PER RELEVANT HIGHWAY CROSS SECTION.
- DESIGN DATA  
(a) DISCHARGE - 50.4 CU/SEC  
(b) BED LEVEL - 247.888 M  
(c) F.S.L. - 249.888 M

**NOTE:-**  
DATA IS SUBJECT TO SITE CHECK.

**REFERENCE DRAWINGS:-**

- 1213/SMEC/LUDHIANA/9-353/G-01 (SHEET 2 OF 2)
- 1213/SMEC/LUDHIANA/9-353/E-01 (SHEET 1 OF 2 & 2 OF 2)
- 1213/SMEC/LUDHIANA/9-353/E-02 (SHEET 1 OF 2 & 2 OF 2)
- 1213/SMEC/LUDHIANA/SUP-75
- 1213/SMEC/LUDHIANA/MISC-01

**APPROVED FOR EXECUTION**

ISSUED

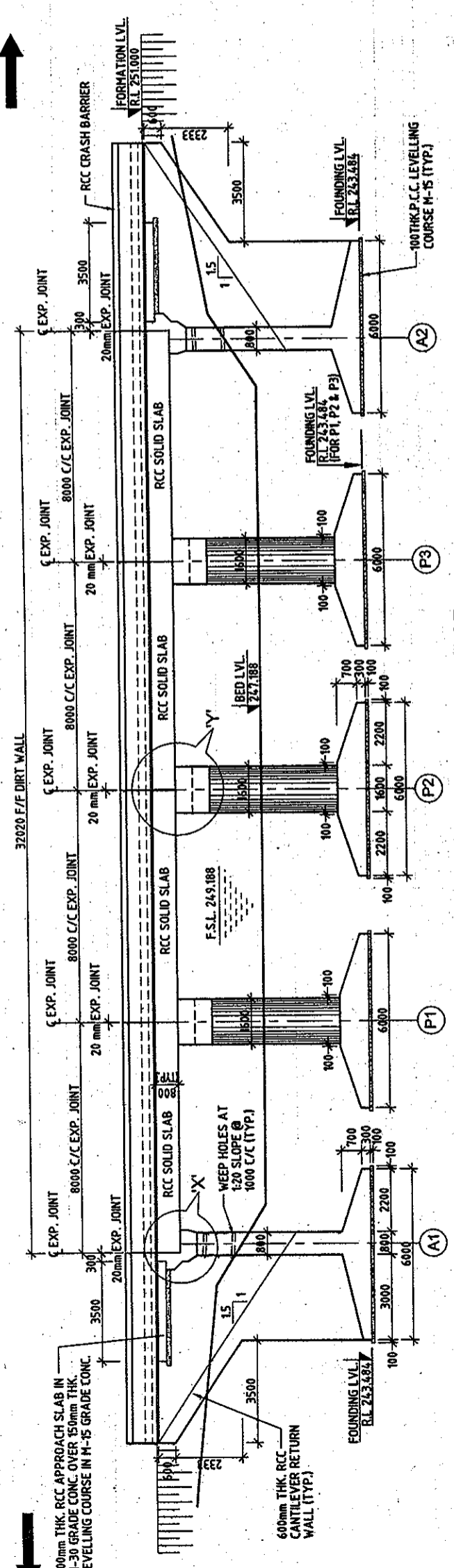
Assistant Engineer  
Desig: A.P.

Executive Engineer  
Desig: S.P.

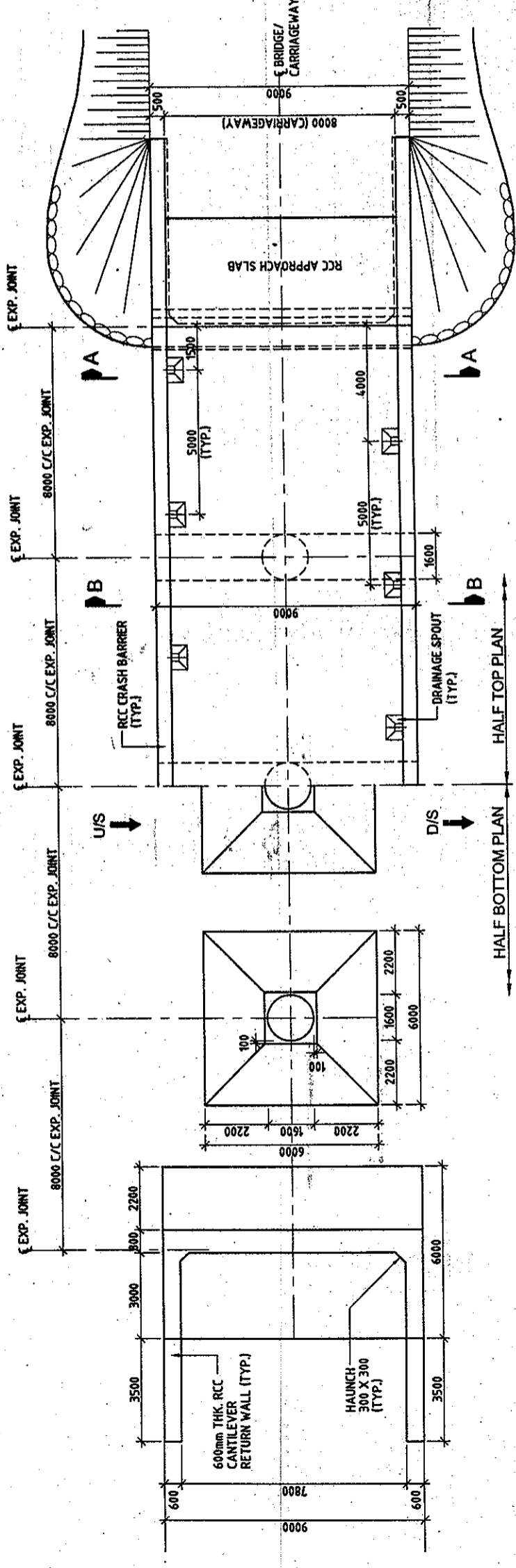
Chief Engineer  
(IP)

3/2/10

1213/SMEC/LUDHIANA/9-353/G-01 (B & R)



**SECTIONAL ELEVATION OF BRIDGE**  
(SCALE 1:25)



**PLAN**  
(SCALE 1:25)

**CLIENT:** PWD INFRASTRUCTURE DEVELOPMENT BOARD

**CONSULTANT:** SMEC

**PROJECT TITLE:** PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYE-PASS LUDHIANA

**SCALE:** AS SHOWN

**SHEET SIZE:** A2

**REVISED AS PER P.P.M.D. COMMENTS:**

REV	DATE	BY	CHECKED	APPROVED	DETAILS OF REVISION
R1	03/09/2009	VMK	VMK	VMK	REVISION AS PER P.P.M.D. COMMENTS
R2	08/10/2009	RAWAT	PCK	LKT	FIRST ISSUE

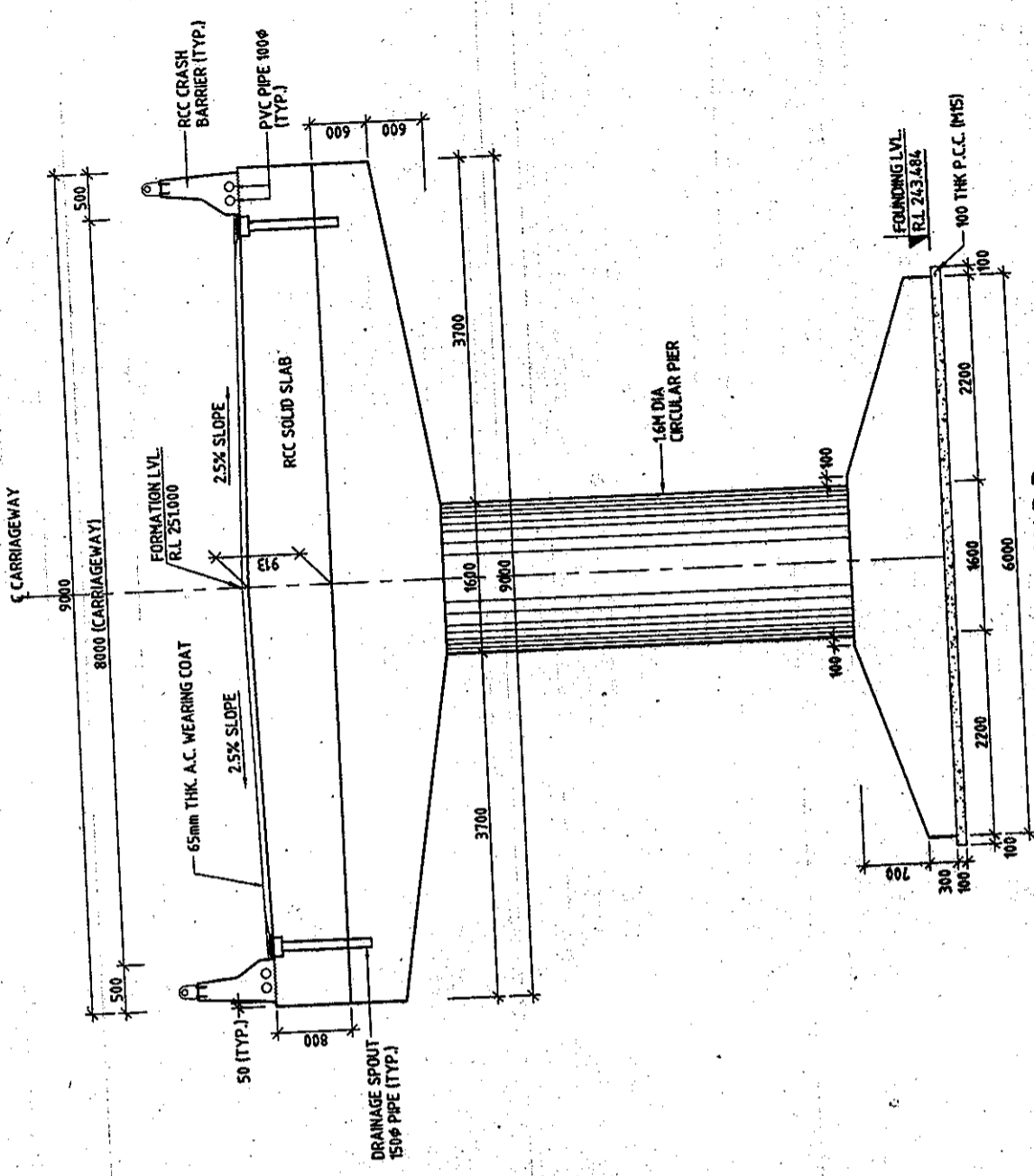
**SCALE:** AS SHOWN

**SHEET NO.:** A2

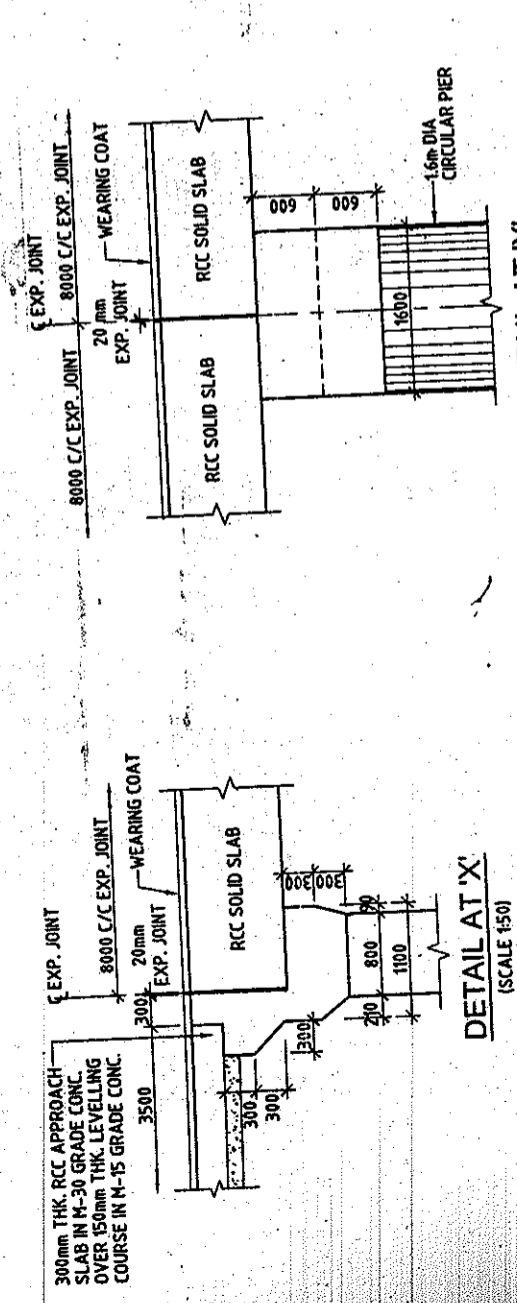
**PROJECT NO.:** 1213/SMEC/LUDHIANA/9-353/G-01

**DATE:** 3/2/10

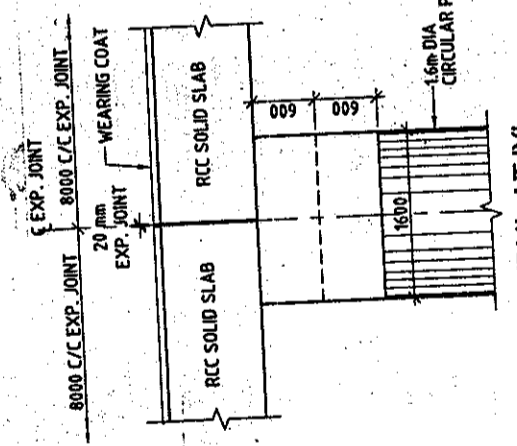




SECTION A-A  
(SCALE 1:50)



DETAIL AT X'  
(SCALE 1:50)



DETAIL AT Y'  
(SCALE 1:50)

SECTION B-B  
(SCALE 1:50)

APPROVED FOR EXECUTION

ISSUED

23/10

Assistant Engineer Design (P)

23/10

Executive Engineer Design (P)

Chief Engineer (H)

JAB P.W.D. (B & R)

DETAILED PROJECT REPORT  
GENERAL ARRANGEMENT DRAWING  
FOR CROSS ROAD BRIDGE  
AT (PROP. CH. 9+353)  
(SHEET 2 OF 2)

SCALE: AS SHOWN

SHEET SIZE: A2

DRW: R1

REVISED AS PER PB PWD COMMENTS

FIRST ISSUE

DETAILS OF REVISION:

REV	DATE	DRAWN	CHECKED	DESIGN	APPROVED	REVISION
R1	03/09/2009	RAWAT	LAT	VNM	S LAKHRI	REVISED AS PER PB PWD COMMENTS
R0	09/01/2009	RAWAT	LAT	VNM	S LAKHRI	FIRST ISSUE

PREPARATION OF DETAILED PROJECT REPORT  
FOR UPGRADATION OF SOUTHERN BYPASS  
LUDHIANA

PROJECT TITLE:

CONSULTANT:

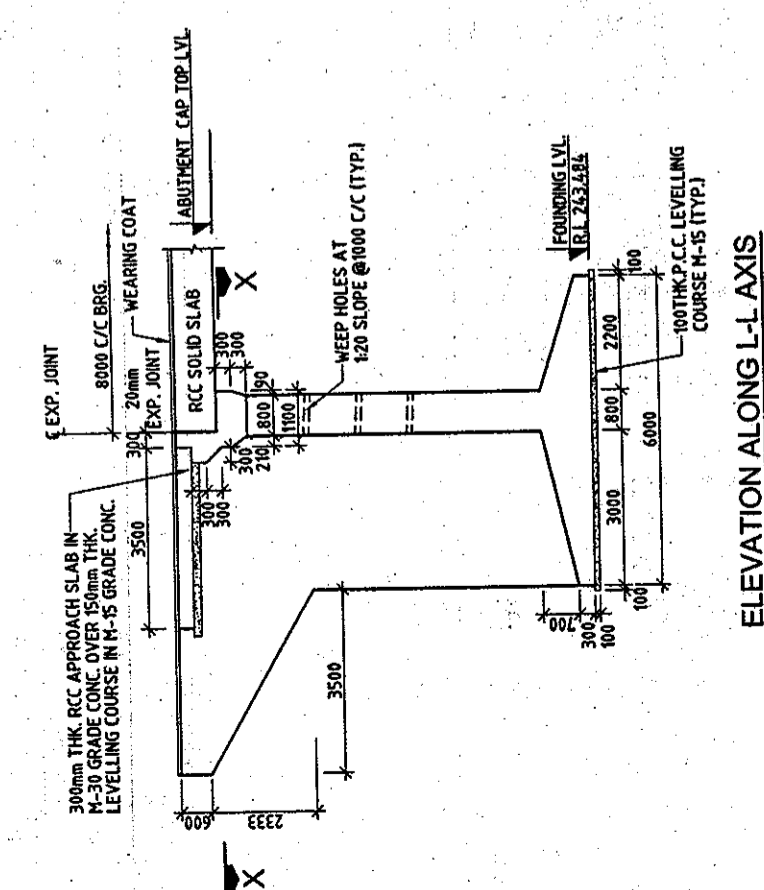
SMEC

SMC CONSULTANTS PVT. LTD.  
D/F BUILDING, 10TH FLOOR,  
CITY CENTER, PHASE II, ROZAN,  
HARYANA, INDIA - 122 002  
TEL: 0124-230041, 430100

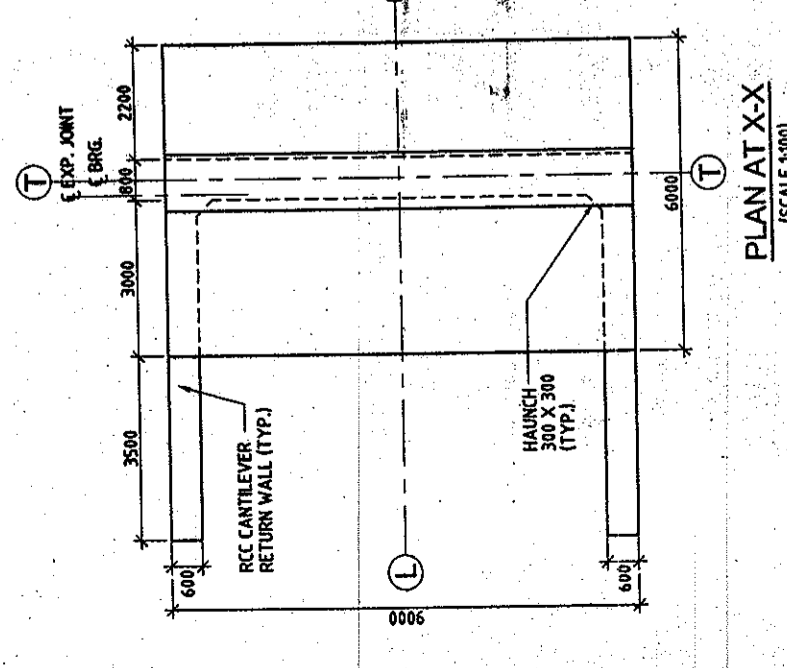
CLIENT:

PIIDB

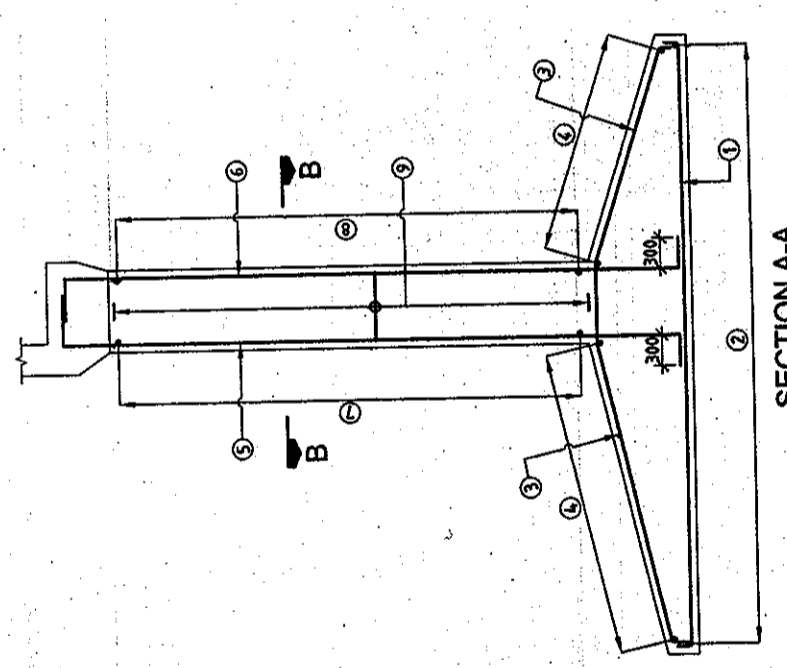
PIUDS INFRASTRUCTURE DEVELOPMENT BOARD  
HY-Structures (GENERAL) DPR (Revised) Drawings R2 (Feb '01) Page CL 9-353/CL9-353-601/401



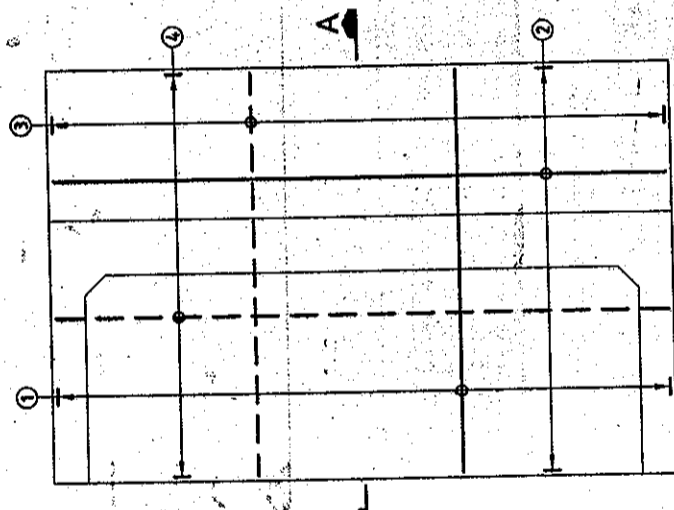
ELEVATION ALONG L-L AXIS  
(SCALE 1:800)



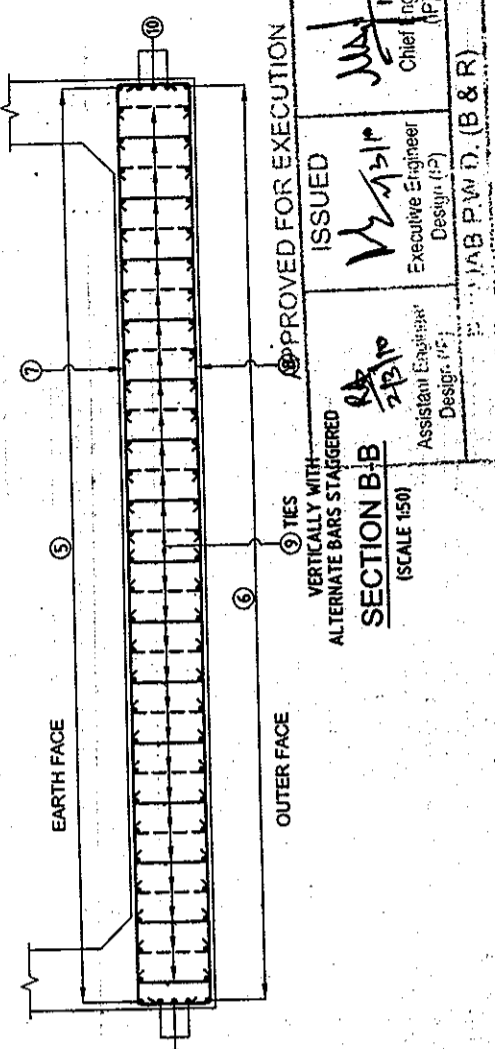
PLAN AT X-X  
(SCALE 1:800)



SECTION A-A  
(SCALE 1:50)



PLAN  
(SHOWING FOOTING REINFORCEMENT)  
(SCALE 1:75)

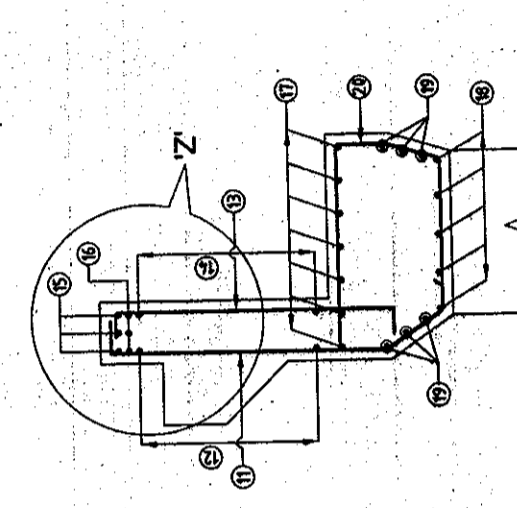


SECTION B-B  
(SCALE 1:50)

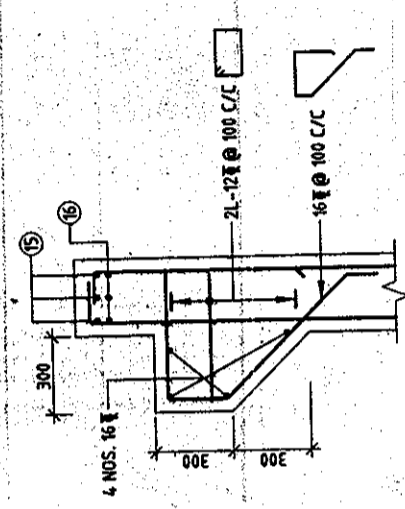
REINFORCEMENT DETAILS

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	20	110	[U]
2	12	100	[U]
3	20	125	[U]
4	12	100	[U]
5	25	110	[U]
6	16	110	[U]
7	12	100	[U]
8	12	100	[U]
9	10	200	[U]
10	16	3 Nos.	[U]
11	12	150	[U]
12	10	150	[U]
13	12	150	[U]
14	10	150	[U]
15	12	3 Nos.	[U]
16	12	3 Nos.	[U]
17	12	7 Nos.	[U]
18	12	5 Nos.	[U]
19	12	6 Nos.	[U]
20	16	125	[U]

LEGENDS:  
 --- BAR ON TOP FACE REINFORCEMENT  
 - - - BAR ON BOTTOM FACE REINFORCEMENT  
 R/F



R/F DETAILS OF  
DIRT WALL & ABUTMENT CAP  
(SCALE 1:25)



DETAIL AT Z'  
(SCALE 1:20)

APPROVED FOR EXECUTION  
 ISSUED  
 V. S. J. P.  
 Executive Engineer  
 Design (P)  
 JAB P.W.D. (B & R)  
 M. J. D.  
 Chief Engineer (P)

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PROJECT TITLE: PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA

CLIENT: PWD INFRASTRUCTURE DEVELOPMENT BOARD  
 H-1 Structure 1213/VEFINAL DPR Revised Drawings R2 (F-dt 10) Bridge Cl. 9-3531GL13-353-Ed1.dwg

CONSULTANT: SMEC INDIA PVT. LTD.  
 SMEC India Pvt. Ltd.  
 6/F BUILDING 10 & C TOWER 28/FLOOR,  
 CHINA CITY, N. MOA, 422000, CN.  
 TEL: 0754-339042, 430100

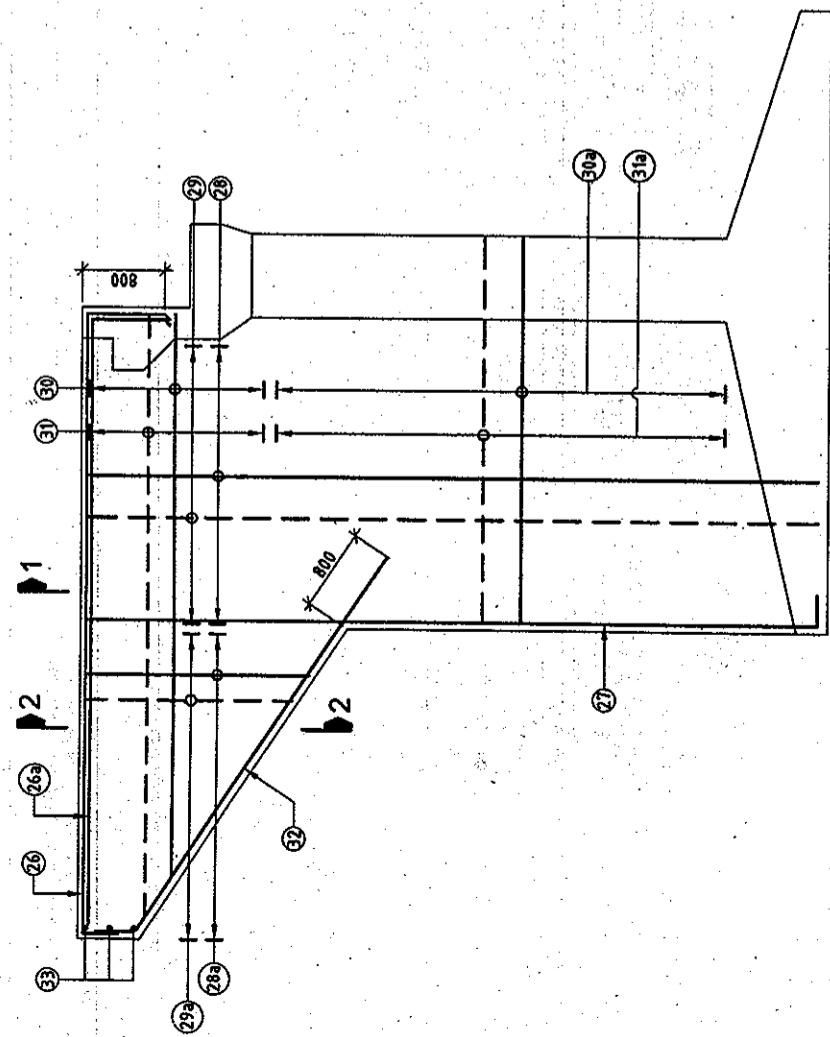
REV	DATE	DRAWN	CHECKED	APPROVED	DETAILS OF REVISION
R1	03/09/2009	RAJAT	VNM	SAHIRI	REVISED AS PER PR PWD COMMENTS
R0	17/06/2009	RAJAT	POK	VNM	FIRST ISSUE

SCALE: AS SHOWN  
 SHEET SIZE: A2  
 DIMENSIONAL AND REINFORCING DETAILS OF ABUTMENT SHAFT, DIRT WALL, ABUTMENT CAP & RETURN WALL (SHEET 1 OF 2)

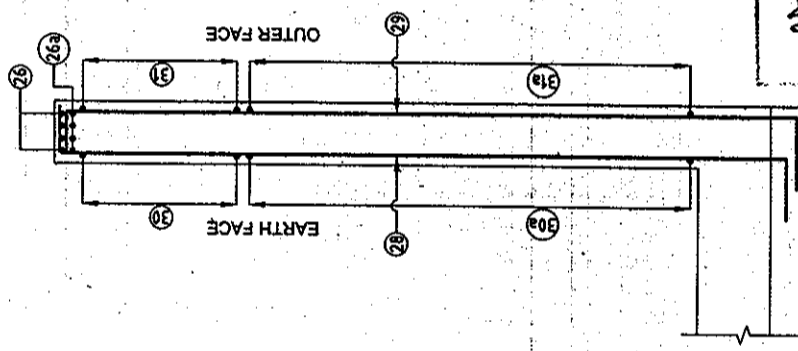
DETAILED PROJECT REPORT

DRW: R1  
 DPR: 1213/SMEC/LUDHIANA/9+353/E-01

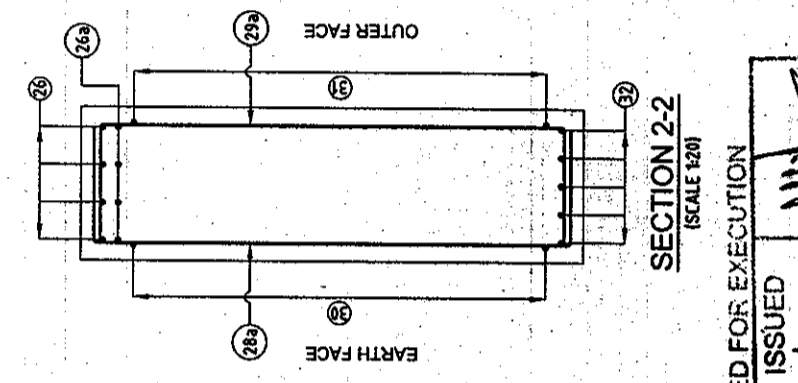
CAD File Ref: H-1 Structure 1213/VEFINAL DPR Revised Drawings R2 (F-dt 10) Bridge Cl. 9-3531GL13-353-Ed1.dwg



R/F DETAILS OF RETURN WALL  
(SCALE 1:50)



SECTION 1-1  
(SCALE 1:50)



SECTION 2-2  
(SCALE 1:20)

REINFORCEMENT DETAIL:

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
26	20	4 Nos.	[Shape]
26a	20	4 Nos.	[Shape]
27	20	4 Nos.	[Shape]
28	16	150	[Shape]
28a	16	150	[Shape]
29	12	150	[Shape]
29a	12	150	[Shape]
30	16	100	[Shape]
30a	16	100	[Shape]
31	12	150	[Shape]
31a	12	150	[Shape]
32	12	5 Nos.	[Shape]
33	12	3 Nos.	[Shape]
34	12	4 Nos.	[Shape]
35	12	150	[Shape]
36	12	150	[Shape]

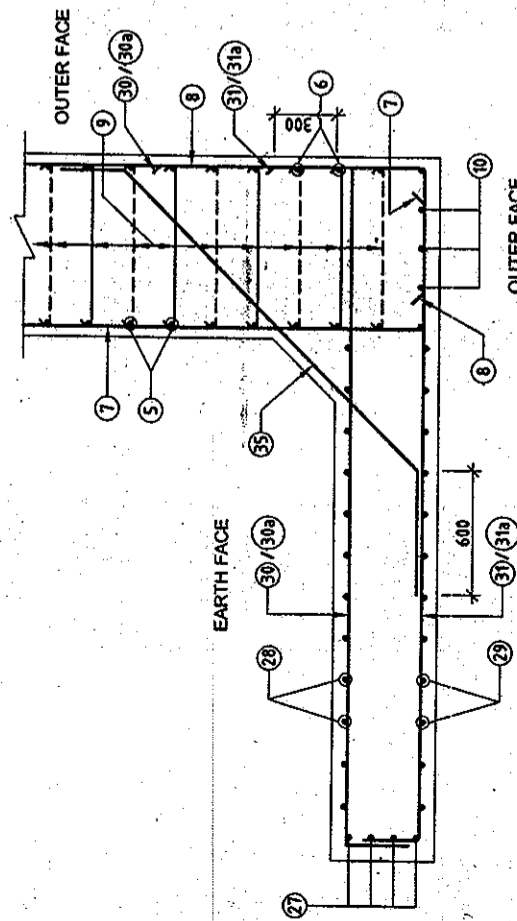
LEGENDS:

---	BAR ON TOP FACE/
---	BAR ON OUTER FACE
---	BAR ON BOTTOM FACE/
---	BAR ON EARTH FACE
---	REINFORCEMENT
R/F	

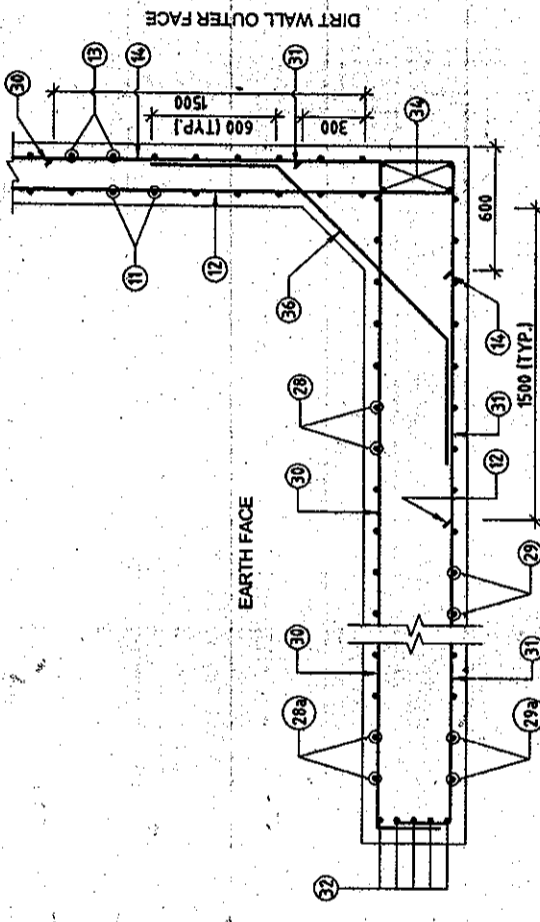
APPROVED FOR EXECUTION

ISSUED	Chief Engineer (P)
Executive Engineer Design (P)	
Assistant Engineer Design (P)	

UJAE P.W. (B & R)



JUNCTION DETAILS OF RCC ABUTMENT AND SOLID RETURN WALL  
(SCALE 1:25)



JUNCTION DETAILS OF RCC SOLID RETURN WALL AND DIRT WALL  
(SCALE 1:25)

- NOTES:-
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 30MPa FOR SUBSTRUCTURE AND FOUNDATIONS.
  - CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS:  
(i) FOR SUBSTRUCTURE ----- 50mm  
(ii) FOR FOUNDATION ----- 75mm
  - TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
  - MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
  - MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
  - LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.

- REFERENCE DRAWINGS:-
- 1213/SMEC/LUDHIANA/9-353/G-01 (SH 1 OF 2 & 2 OF 2)
  - 1213/SMEC/LUDHIANA/9-353/E-01 (SH 1 OF 2)

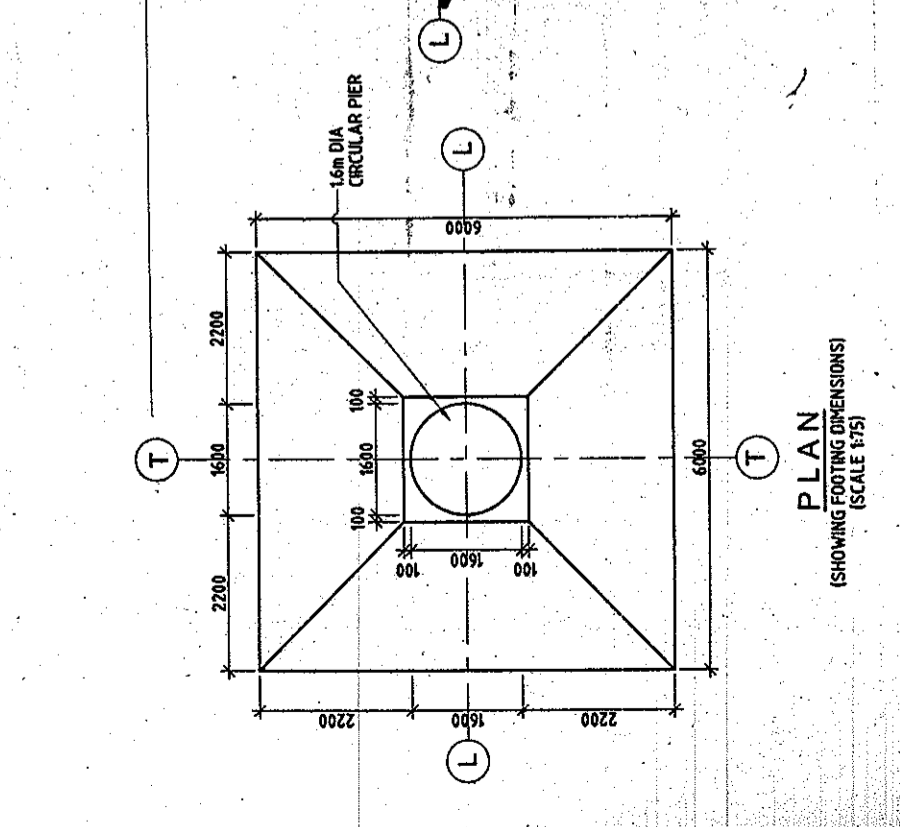
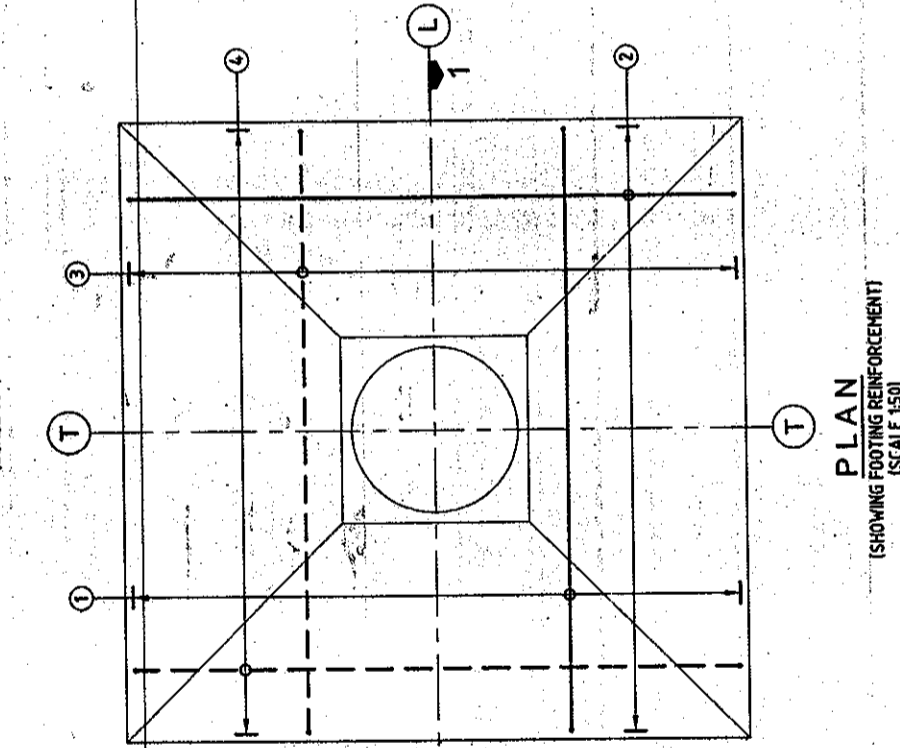
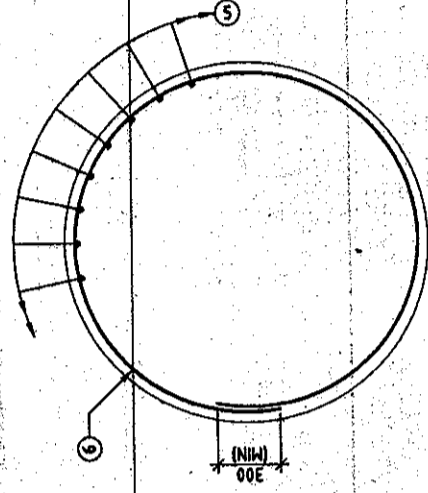
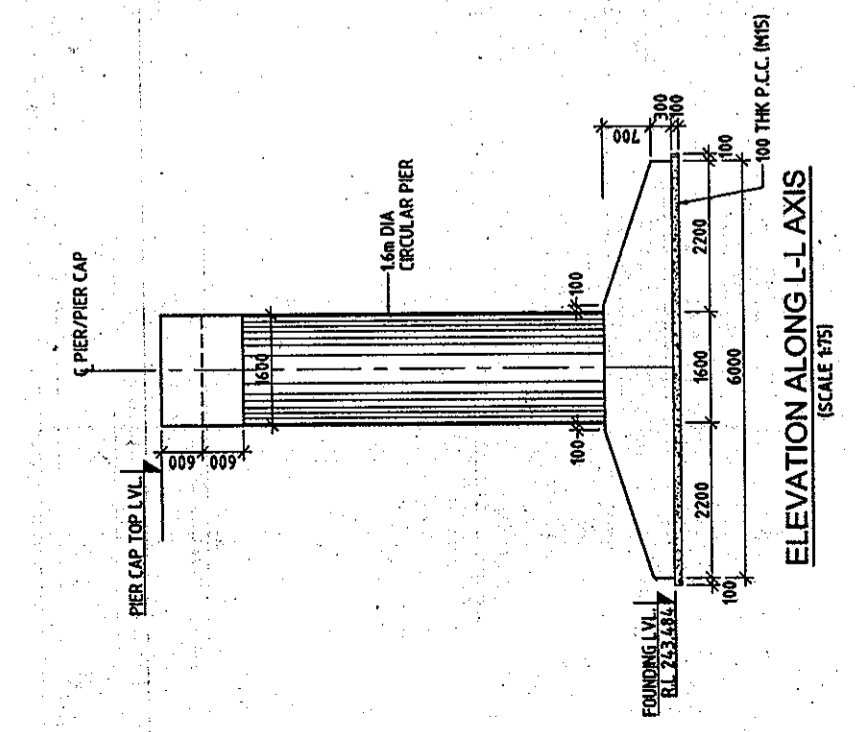
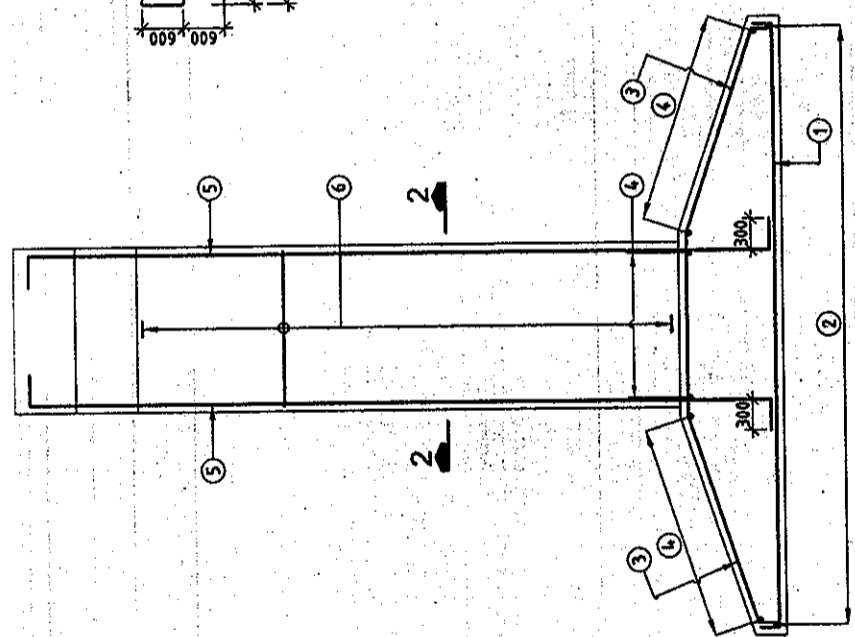
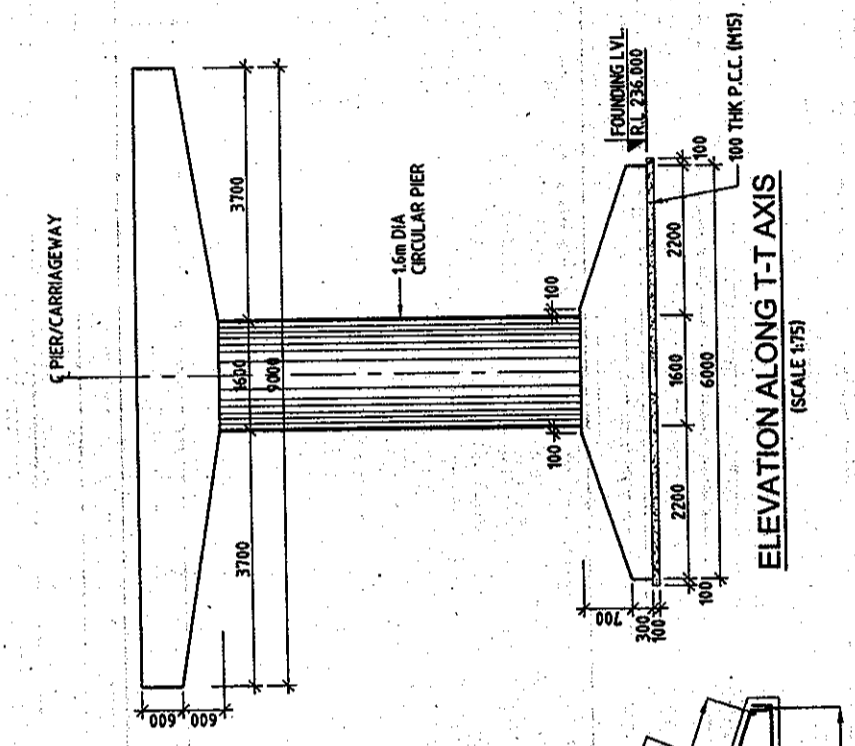
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CLIENT:	PIDB PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD	CONSULTANT:	SMC INDIA PVT. LTD. SMC (INDIA) PVT. LTD. OFF BUILDING No. 8, C TOWER, 2ND FLOOR, CHERU CITY, PHASE-4 GURGAON, INDIA, DELHI-122002 IN 1220020002, INDIA	PROJECT TITLE:	PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA	SCALE:	AS SHOWN	DETAILED PROJECT REPORT
CAD File Ref.:	HA/Structure/1213/FINAL_CPR/Revised Drawings R2 (Feb 14) Bridge CL 9-353/CL/9-353-E-01.dwg	REV	DATE	DRAWN	CHECKED	APPROVED	SHEET SIZE:	DIMENSIONAL AND REINF. DETAILS OF ABUTMENT SHAFT, DIRT WALL, ABUTMENT CAP & RETURN WALL (SHEET 2 OF 2)
		R0	17/06/2009	RAWAT	VINI	SLAHRI	A2	
							DPB	DRW
								1213/SMEC/LUDHIANA/9-353/E-01
								R0

- NOTES:-**
1. ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
  2. CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 30MPa FOR SUBSTRUCTURE AND FOUNDATIONS.
  3. CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.  
(i) FOR SUBSTRUCTURE ----- 50mm  
(ii) FOR FOUNDATION ----- 75mm
  4. TTT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
  5. MINIMUM BOND LENGTH SHALL BE 42 x DIA OF BAR.
  6. MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR. LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
  7. L.L. REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.

**REFERENCE DRAWINGS:-**

- i) 1213/SMEC/LUDHIANA/9-353/G-01 (SH 1 OF 2 & 2 OF 2)
- ii) 1213/SMEC/LUDHIANA/9-353/E-02 (SH 2 OF 2)



**REINFORCEMENT DETAIL:-**

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	20	50	[Diagram]
2	20	150	[Diagram]
3	16	150	[Diagram]
4	16	150	[Diagram]
5	25	30 Nos.	[Diagram]
6	10	100	[Diagram]

**LEGENDS:**

- BAR ON TOP FACE
- BAR ON BOTTOM FACE

**APPROVED FOR EXECUTION**

**ISSUED**

Assistant Engineer Design (IP)  
Executive Engineer Design (IP)  
Chief Engineer (IP)

D. N. JAB P.W.D. (B & R)

**CLIENT:** PUIDB  
PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

**CONSULTANT:** SMEC  
SMEC (INDIA) PVT. LTD.  
D/F BUILDING NO. 8, C TOWER, 8th FLOOR,  
CYBER CITY, PHASE-II, Gurgaon,  
HARYANA, INDIA - 122 002  
Tel: 0124-430052, 430100

**PROJECT TITLE:** PREPARATION OF DETAILED PROJECT REPORT FOR UPGRADATION OF SOUTHERN BYPASS LUDHIANA

**SCALE:** AS SHOWN

**SHEET SIZE:** A2

**REVISIONS:**

REV	DATE	DRAWN	CHECKED	DESIGN	APPROVED	DETAILS OF REVISION
R1	03/09/2009	MKS	VNM	VNM	S. SAHRI	REVISED AS PER P.B. PWD COMMENTS
R0	17/08/2009	RAJAT	PCK	VNM	S. SAHRI	FIRST ISSUE

**DETAILED PROJECT REPORT**

**DIMENSIONAL AND REINF. DETAILS OF PIER AND PIER CAP**

(SHEET 1 OF 2)

1213/SMEC/LUDHIANA/9-353/E-02

DRW

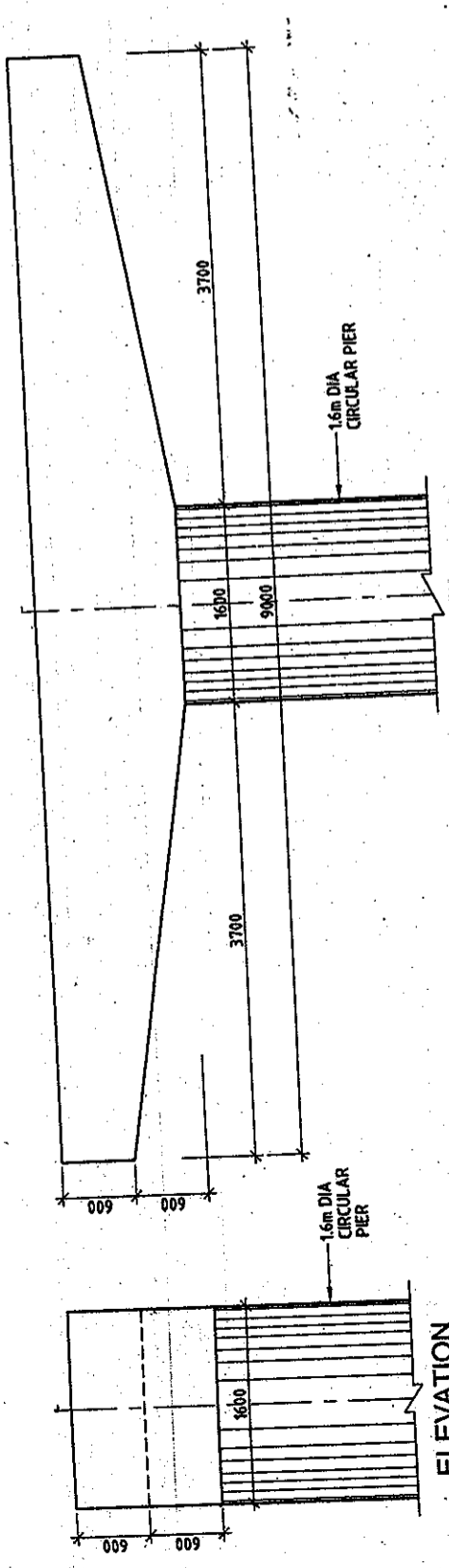
R1

**REINFORCEMENT DETAIL:**

BAR MKD.	DIA (mm)	SPACING/Nos.	SHAPE
1	25	15 Nos.	[Symbol]
2	25	15 Nos.	[Symbol]
3	16	150	[Symbol]
3a	16	100	[Symbol]
4	12	3Nos.	[Symbol]
4a	12	3Nos.	[Symbol]

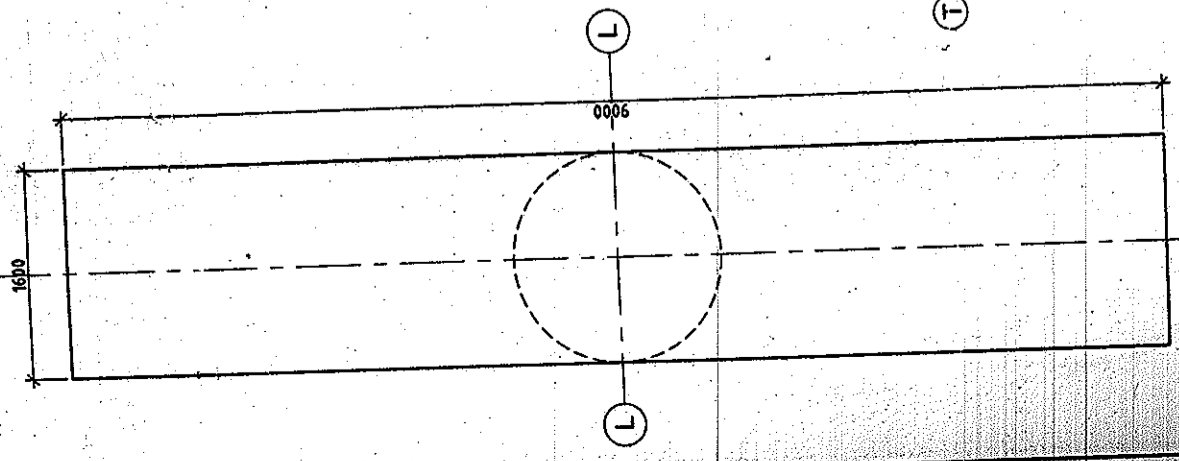
**LEGENDS:**

---	BAR ON TOP FACE
---	BAR ON BOTTOM FACE
---	BAR ON BOTH FACE
B/F	

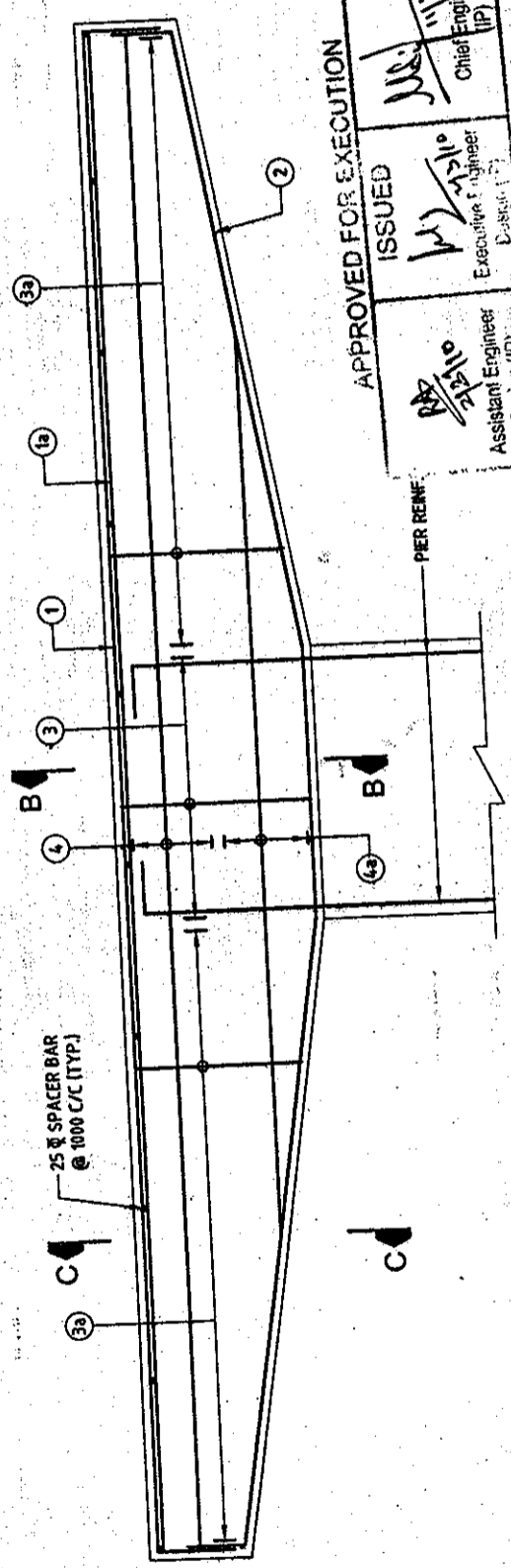


**ELEVATION ALONG T-T AXIS**  
(SCALE 1:40)

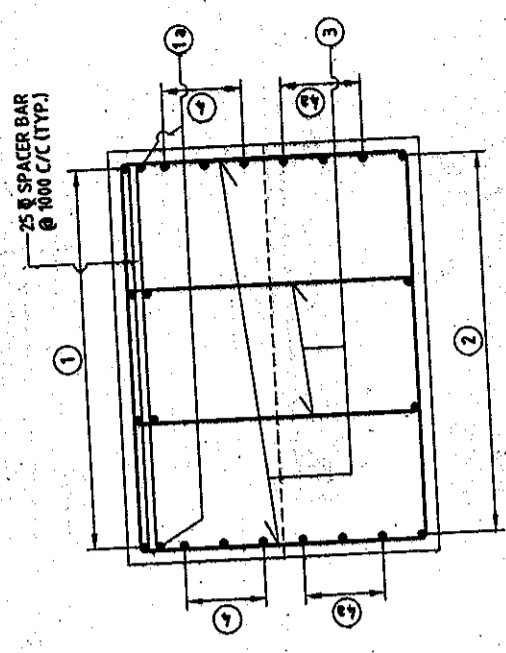
**ELEVATION ALONG L-L AXIS**  
(SCALE 1:40)



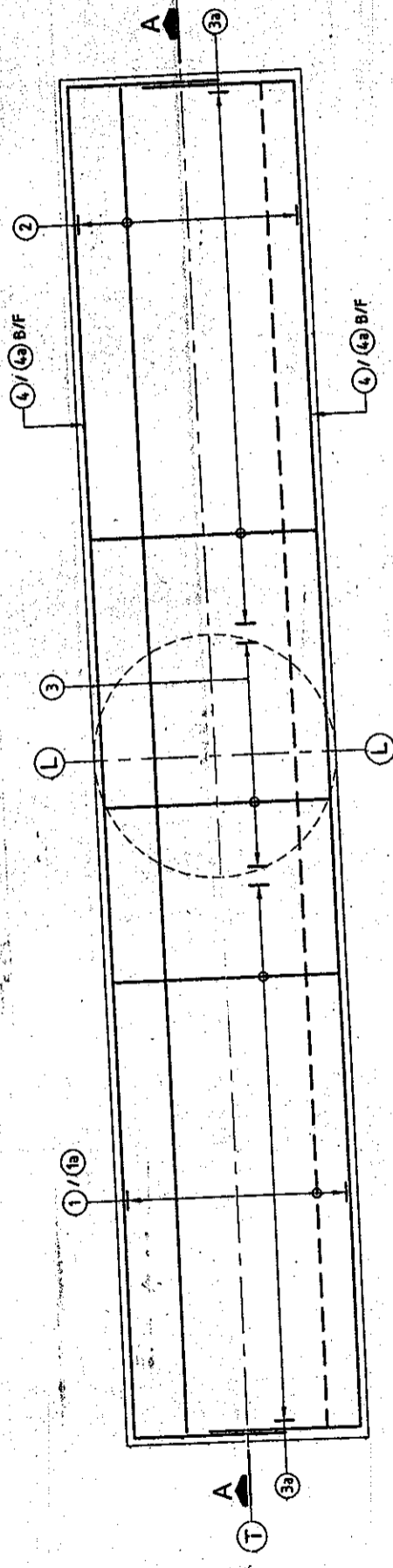
**PLAN AT PIER CAP TOP**  
(SCALE 1:40)



**SECTION A-A**  
(SCALE 1:30)



**SECTION B-B**  
(SCALE 1:20)



**SECTION C-C**  
(SCALE 1:20)

**PLAN SHOWING REINFORCEMENT IN PIER CAP**  
(SCALE 1:30)

- NOTES:-**
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
  - CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 30mpa FOR SUBSTRUCTURE AND FOUNDATIONS.
  - CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS.  
(i) FOR SUBSTRUCTURE ----- 50mm  
(ii) FOR FOUNDATION ----- 75mm
  - TMT HIGH YIELD STRENGTH DEFORMED BARS SHALL BE OF GRADE DESIGNATION Fe-415 CONFORMING TO IS:1786 SHALL ONLY BE USED.
  - MINIMUM BOND LENGTH FOR REINFORCEMENT BAR SHALL BE 72 x DIA OF BAR.
  - MINIMUM LAP LENGTH FOR REINFORCEMENT BAR SHALL BE 50% OF BARS SHALL BE LAPPED AT ANY ONE SECTION.
  - LL REPRESENTS LONGITUDINAL AXIS OF BRIDGE AND TT REPRESENTS TRANSVERSE AXIS OF BRIDGE.

**REFERENCE DRAWINGS:-**

- 1213/SMEC/LUDHIANA/9-353/G-01 (SK 1 OF 2 & 2 OF 2)
- 1213/SMEC/LUDHIANA/9-353/E-02 (SH 1 OF 2)

**APPROVED FOR EXECUTION**

**ISSUED**

Assistant Engineer Design (IP)

Executive Engineer District (IP)

Chief Engineer (IP)

MJAB P.W.D. (B & R)

**PIDB**  
PUNJAB INFRASTRUCTURE DEVELOPMENT BOARD

**SMEC**  
SMEC (INDIA) PVT. LTD.  
SMEC BUILDING NO. 8, C TOWER, 2ND FLOOR,  
CHANDLER SQUARE, PHASE-II, GURGAON,  
HARYANA, INDIA - 122002  
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**PROJECT TITLE:**  
PREPARATION OF DETAILED PROJECT REPORT  
FOR UPGRADATION OF SOUTHERN BYPASS  
LUDHIANA

REV	DATE	DRAWN	DESIGN	CHECKED	APPROVED	DETAILS OF REVISION
R0	17/06/2009	RAWAT	PCK	YNIH	S/LAHIRI	FIRST ISSUE

**DETAILED PROJECT REPORT**  
**DIMENSIONAL AND REINF. DETAILS**  
**OF PIER AND PIER CAP**  
(SHEET 2 OF 2)

SCALE: AS SHOWN  
SHEET SIZE: A2  
DPR  
DRAW

1213/SMEC/LUDHIANA/9-353/E-02  
R0