KAKINADA SMART CITY CORPORATION LIMITED

National Competitive Bidding

REQUEST FOR PROPOSAL (RFP)

RFP No. KSCCL/Pratap Nagar Bridge/2017/1

Country: INDIA

Name of the Work: Construction of Two Lane Road Bridge at Pratap Nagar, Kakinada

VOLUME - II/II

Dated: 24-05-2017

Email: smartcityofficekkd@gmail.com,
kakinadacorporation@gmail.com
Website: www.kakinada.cdma.ap.gov.in

Managing Director
KSCCL, Kakinada-533001

Schedule A: Drawings

Super Structure Drawings:

Sl.No.	Drawing Name	Reference Drawing No. as per IRC
	Standard Plans for Highway Bridges RCC T-Beam and Slab Super Structure of 14 m Effective Span	
1.	General Notes	SD/200
2.	Details of Railing	SD/202
3.	Miscellaneous Items	SD/205
4.	General Arrangement (with Foot Paths)	SD/251
5.	Details of Deck Slab (with Foot Paths)	SD/253
6.	Details of Longitudinal Girder (with Foot Paths)	SD/254
7.	Details of Cross Girder (with Foot Paths)	SD/255

Sl.No.	Drawing Name	Reference Drawing No.
1.	Plan of Bridge at Deck Slab Level & Pile Cap Plan at L.W.L	KSCCL-01-PNB-PS-2017-R0/A-001
2.	Numeration and G.A of Piles and Pile Cap for Abutments & Piers	KSCCL-01-PNB-PS-2017-R0/A-002
3.	Numeration and R.C.C Details of Cap, Dirt Wall, Shaft for Abutment & Peir	KSCCL-01-PNB-PS-2017-R0/A-003

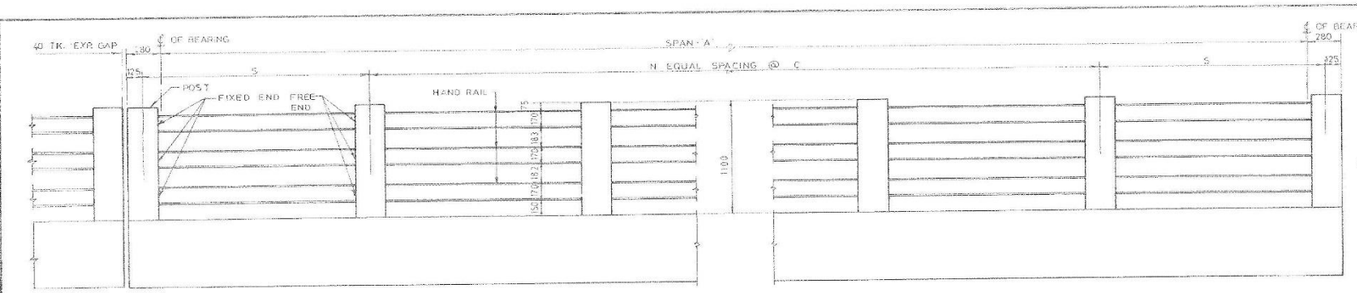
Sub-structure Drawings:

General Drawings:

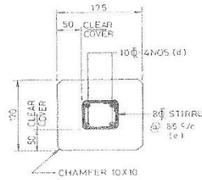
Sl.No.	Drawing Name	Reference Drawing No.
1.	Cross Bund - Diversion and Artificial Trench for Diversion of Drain Water	KSCCL-01-PNB-PS-2017-R0/A-004

Plate 2: Aerial view of proposed bridge site

DRG. NO. SD/202



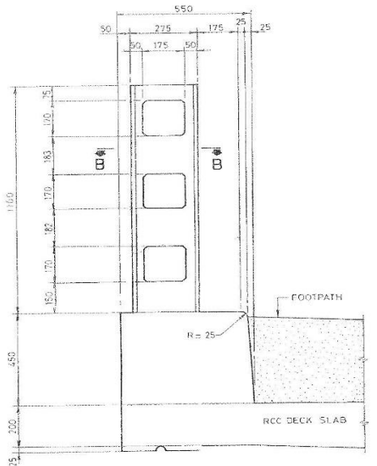
ELEVATION



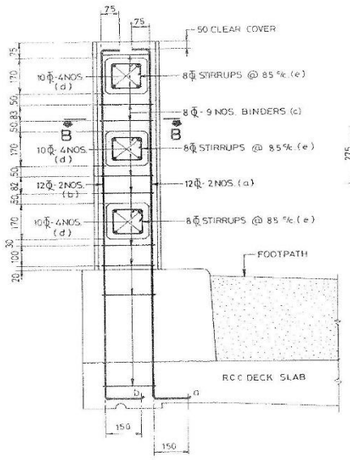
SECTION - A . A

NOTES

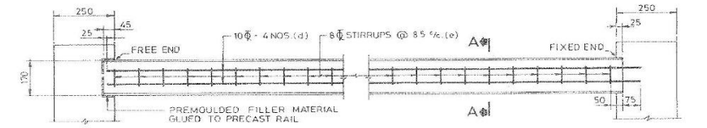
1. Centre to centre spacing between successive vertical posts shown in the elevation shall be adjusted to suit the length of bridge span for which the railing is used but in no case it shall exceed 1870 mm.
2. Reinforcement of railing post should be suitably anchored in deck slab.
3. Casting of post shall be done in single pour after accurately positioning the precast handrail.
4. Railing shall be constructed only after the structural concrete of superstructure has hardened and shuttering is released.
5. In case other type of railing is used the weight of same on each side shall not exceed 3 KN per metre.
6. Expansion gaps in railing shall be provided at the same locations as in the deck slab
7. This drawing is to be read in conjunction with following drawing.
   i) General notes ..., Drg. No SD/200



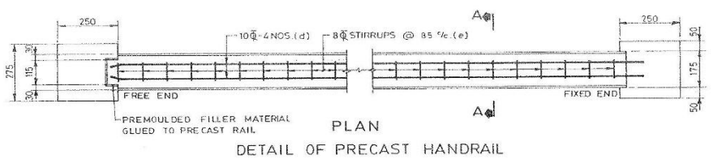
SECTION THROUGH POST
(DIMENSIONS ONLY)



SECTION THROUGH POST

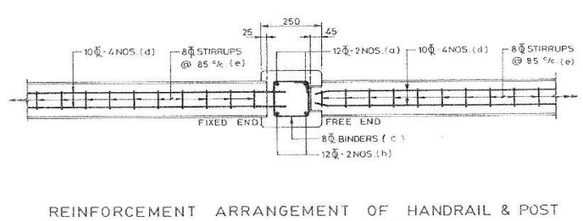


ELEVATION

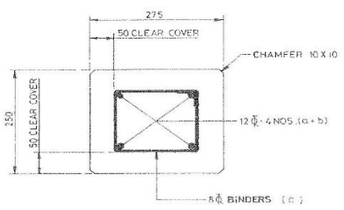


PLAN

DETAIL OF PRECAST HANDRAIL



REINFORCEMENT ARRANGEMENT OF HANDRAIL & POST



SECTION-B.B

* = FOR END SPAN
** = FOR CENTRAL SPAN
S = END SPAN
C = CENTRAL SPAN

BAR BENDING SCHEDULE FOR HANDRAIL AND POST FOR DIFFERENT SPANS

SPAN A (m)	SPACING OF POSTS (mm)	NO. OF POSTS	BAR MARK (a) 12ϕ - 2 NOS PER POST				BAR MARK (b) 12ϕ - 2 NOS PER POST				BAR MARK (c) 8ϕ BINDERS 9 NOS. PER POST				BAR MARK (d) 10ϕ - 4 NOS. PER RAIL L = LENGTH OF BAR − 153 mm.				BAR MARK (e) 8ϕ STIRRUPS @ 85 c/c PER RAIL				TOTAL WEIGHT (INCLUDING 5% FOR LAPS AND WASTAGE) (Kg)
			LENGTH OF BAR (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (Kg.)	LENGTH OF BAR (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (Kg.)	LENGTH OF BAR (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (Kg.)	LENGTH OF BAR (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (Kg.)	LENGTH OF BAR (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (Kg.)	
24	S = 1870 C = 1870	(12+2)2 = 28	1803	2X28 = 56	100·97	90·87	1803	56	100·97	90·87	746	9 X 28 = 252	187·99	75·20	1743	312	543·87	326·29	386	20 X 78 = 1560	602·16	240·86	865·29
21	S = 1780 C = 1775	(11+2)2 = 26	1803	2X26 = 52	93·76	84·38	1803	52	93·76	84·38	746	9 X 26 = 234	174·56	69·82	1653* 1648**	48 * 240**	474·86	284·92	386	19 X 72 = 1368	528·05	211·22	771·46
18	S = 1831 C = 1831	(9+2)2 = 22	1803	2X22 = 44	79·33	71·40	1803	44	79·33	@71·40	746	9 X 22 = 198	147·71	59·08	1704	240	408·96	245·38	386	20 X 60 = 1200	463·20	185·28	664·17
16	S = 1820 C = 1810	(8+2)2 = 20	1803	2X20 = 40	72·12	64·91	1803	40	72·12	64·91	746	9 X 20 = 180	134·28	53·71	1693* 1683**	48 * 168**	364·01	218·41	386	20 X 54 = 1080	416·88	166·75	597·12
14	S = 1800 C = 1785	(7+2)2 = 18	1803	2 X 18 = 36	64·91	58·42	1803	36	64·91	58·42	746	9 X 18 = 162	120·85	48·34	1673* 1658**	48 * 144**	319·06	191·44	386	20 X 48 = 960	370·56	148·22	530·08
12	S = 1760 C = 1758	(6+2)2 = 16	1803	2 X 16 = 32	57·70	51·93	1803	32	57·70	51·93	746	9 X 16 = 144	107·42	42·97	1633* 1631*	48 * 120**	274·10	164·46	386	19 X 42 = 798	308·03	123·21	456·23
10	S = 1719 C = 1718	(5+2)2 = 14	1803	2 X 14 = 28	50·48	45·43	1803	28	50·48	45·43	746	9 X 14 = 126	94·00	37·60	1592* 1591**	48 * 96**	229·15	137·49	386	19 X 36 = 684	264·02	105·61	390·14

MKD	DATE	DESCRIPTION	BY
		REVISION	

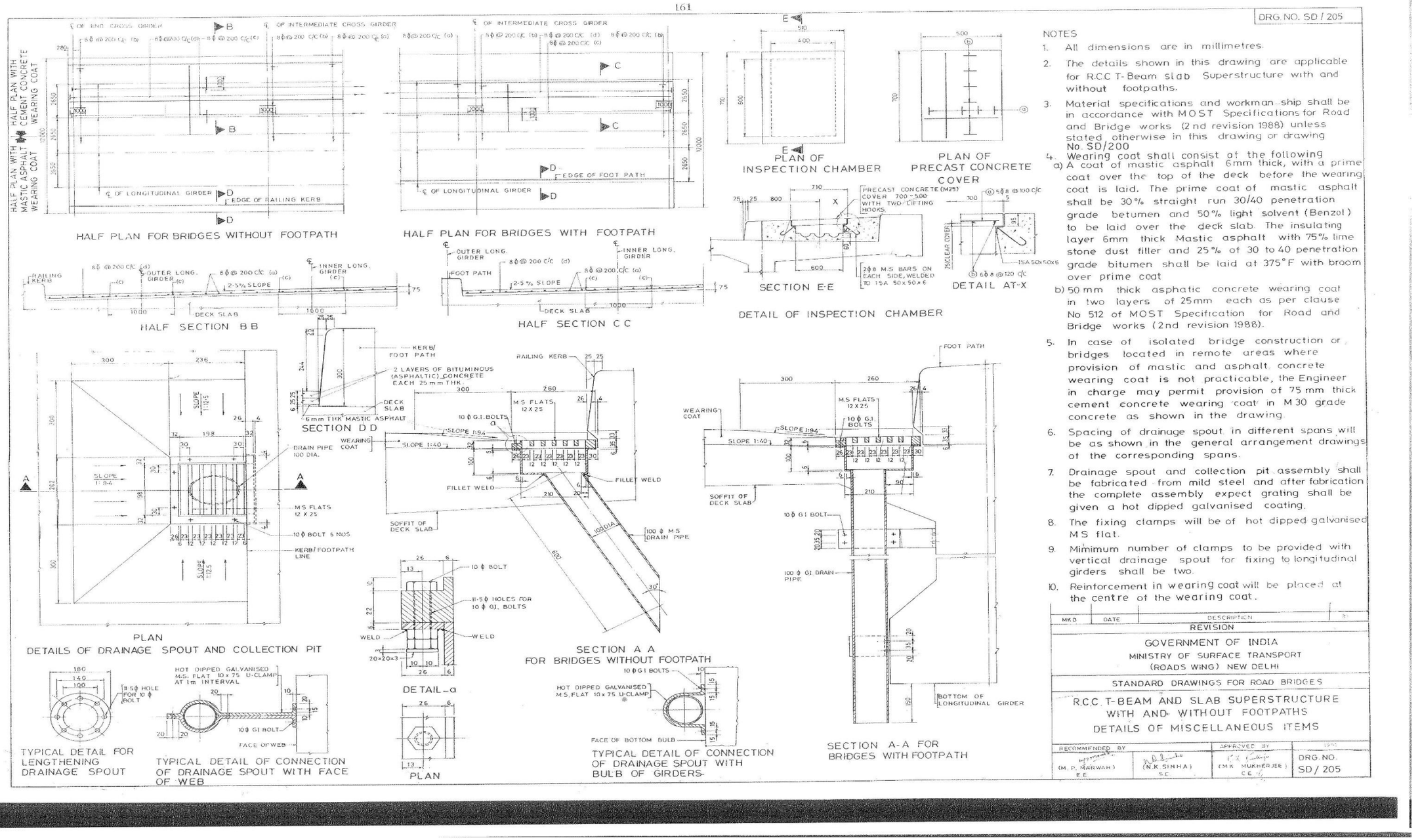
GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI.

STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. T-BEAM AND SLAB SUPERSTRUCTURE
DETAILS OF R.C.C. RAILINGS
FOR BRIDGES WITH FOOTPATHS.

RECOMMENDED BY :		APPROVED BY :	1991
(M. P. MARWAH) E.E.	(N. K. SINHA) S.E.	(M. K. MUKHERJEE) C.E.	DRG. NO. SD/ 202.

Figure 2: Details of Railing –Drawing No. SD/202



DRG. NO. SD / 205

NOTES

1. All dimensions are in millimetres.
2. The details shown in this drawing are applicable for R.C.C T-Beam slab Superstructure with and without footpaths.
3. Material specifications and workman-ship shall be in accordance with MOST Specifications for Road and Bridge works (2nd revision 1988) unless stated otherwise in this drawing or drawing No. SD/200
4. Wearing coat shall consist of the following
   a) A coat of mastic asphalt 6mm thick, with a prime coat over the top of the deck before the wearing coat is laid. The prime coat of mastic asphalt shall be 30% straight run 30/40 penetration grade betumen and 50% light solvent (Benzol) to be laid over the deck slab. The insulating layer 6mm thick Mastic asphalt with 75% lime stone dust filler and 25% of 30 to 40 penetration grade bitumen shall be laid at 375°F with broom over prime coat
   b) 50 mm thick asphatic concrete wearing coat in two layers of 25mm each as per clause No 512 of MOST Specification for Road and Bridge works (2nd revision 1988).
5. In case of isolated bridge construction or bridges located in remote areas where provision of mastic and asphalt concrete wearing coat is not practicable, the Engineer in charge may permit provision of 75 mm thick cement concrete wearing coat in M 30 grade concrete as shown in the drawing.
6. Spacing of drainage spout in different spans will be as shown in the general arrangement drawings of the corresponding spans.
7. Drainage spout and collection pit assembly shall be fabricated from mild steel and after fabrication the complete assembly expect grating shall be given a hot dipped galvanised coating.
8. The fixing clamps will be of hot dipped galvanised M.S flat.
9. Minimum number of clamps to be provided with vertical drainage spout for fixing to longitudinal girders shall be two.
10. Reinforcement in wearing coat will be placed at the centre of the wearing coat.

MK'D	DATE	DESCRIPTION	BY
		REVISION	

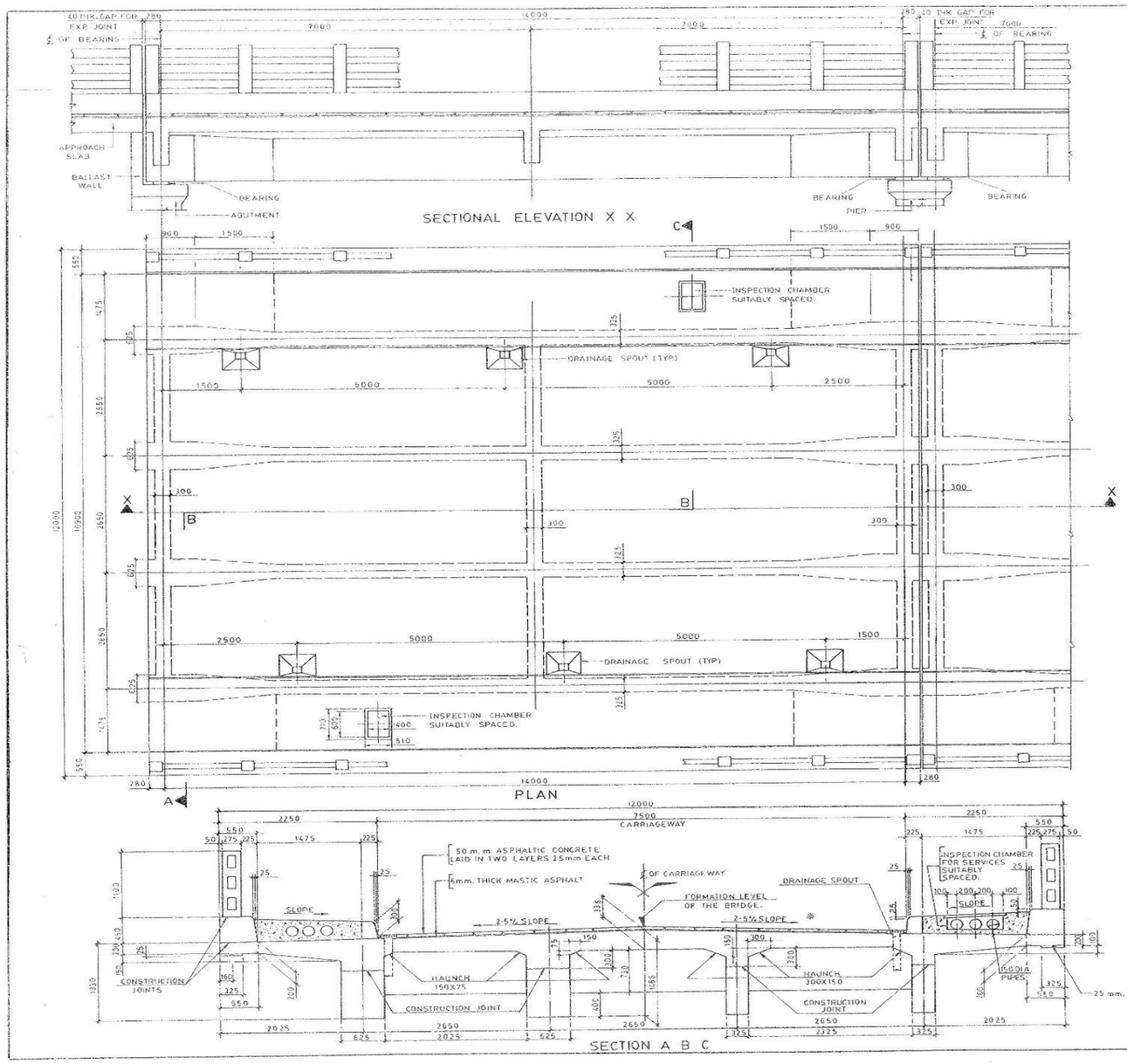
GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING) NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. T-BEAM AND SLAB SUPERSTRUCTURE WITH AND WITHOUT FOOTPATHS
DETAILS OF MISCELLANEOUS ITEMS

RECOMMENDED BY		APPROVED BY	DRG. NO.
(M. P. MARWAH) E.E.	(N.K. SINHA) S.E.	(M.K. MUKHERJEE) C.E.	SD / 205

Figure 3: Miscellaneous Items–Drawing No. SD/205



DRG. NO. SD/251

NOTES:

This drawing shall be read in conjunction with following drawings.

i) General notes...Drg. No. SD/200.
ii) Details of R.C.C. railings Drg. No. SD/202.
iii) Details of rocker and roller bearings...Drg. No. SD/204.
iv) Details of miscellaneous items...Drg. No. SD/205.
v) Details of deck slab (for bridges with foot paths) Drg. No. SD/253.
vi) Details of longitudinal girders...Drg. No. SD/254.
vii) Details of cross girders...Drg. No. SD/255.
viii) Schedule of reinforcement...Drg. No. SD/257, Sh.-1 & Sh.-2.

MKD.	DATE	DESCRIPTION	BY
		REVISION	

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

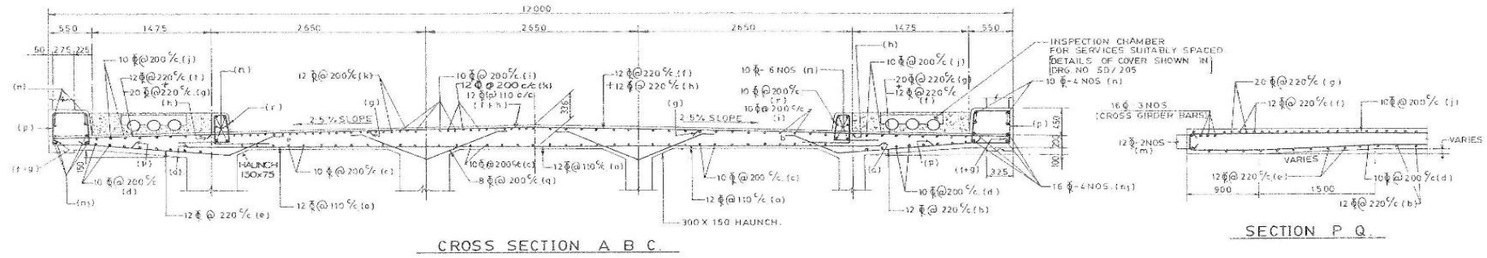
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. T-BEAM AND SLAB SUPERSTRUCTURE
14·0 M. SPAN WITH FOOTPATHS
GENERAL ARRANGEMENT.

RECOMMENDED BY		APPROVED BY	1991
( ) E.E.	(R.N. GHOSHAL) S.E.	(M.K. MUKHERJEE) C.E.	DRG. NO. SD/251

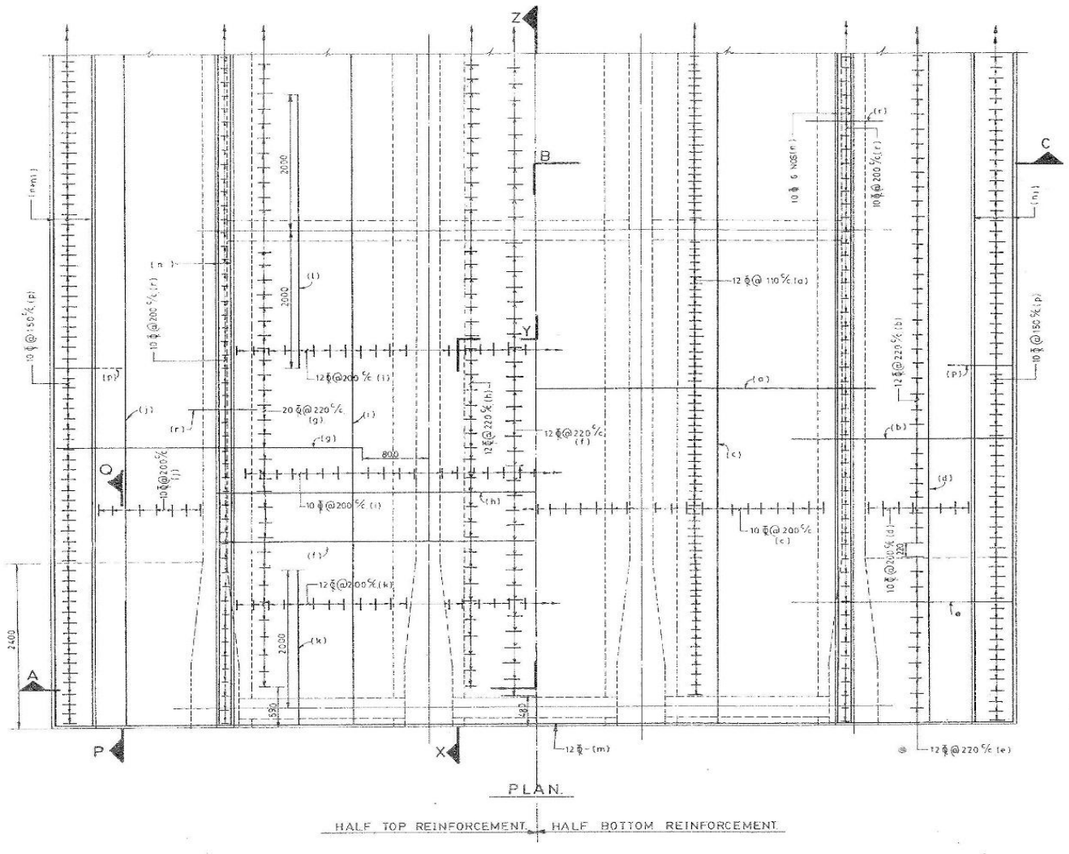
Figure 4: General Arrangement (with Foot Paths)–Drawing No. SD/251

DRG. NO. SD/253.

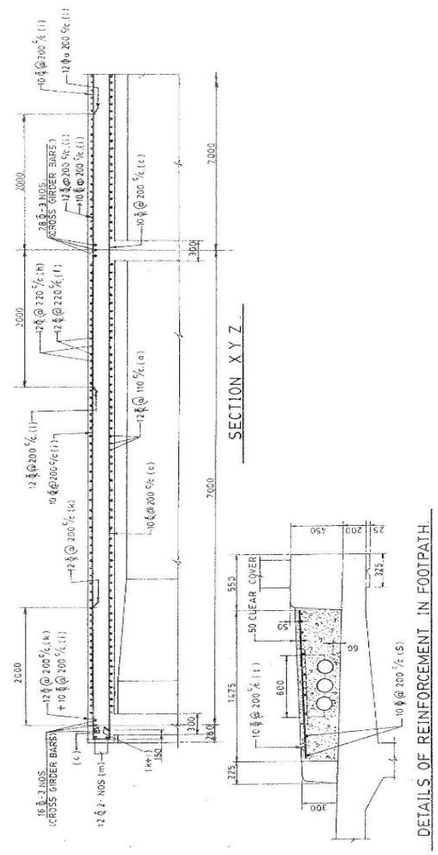


CROSS SECTION A B C.

SECTION P Q.



HALF TOP REINFORCEMENT. HALF BOTTOM REINFORCEMENT.



DETAILS OF REINFORCEMENT IN FOOTPATH.

NOTES

1. The reinforcement for railing post should be properly anchored in the deck slab before casting the slab.
2. This drawing shall be read in conjunction with following drgs.
   - i) General notes... Drg. No. SD/200.
   - ii) Details of R.C.C. railing... Drg. No. SD/202.
   - iii) Details of rocker and roller bearings... Drg. No. SD/204.
   - iv) Details of miscellaneous items... Drg. No. SD/205.
   - v) General arrangement. (for bridges with footpaths)... Drg. No. SD/251.
   - vi) Details of longitudinal girders... Drg. No. SD/254.
   - vii) Details of cross girders... Drg. No. SD/255.
   - viii) Schedule of reinforcement... Drg. No. SD/257, Sh-1 & Sh-2.

MKD.	DATE.	DESCRIPTION	BY
REVISION.			

GOVERNMENT OF INDIA.
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI.

STANDARD DRAWINGS FOR ROAD BRIDGES.

R.C.C. T-BEAM AND SLAB SUPERSTRUCTURE
14·0 M. SPAN WITH FOOTPATHS.
DETAILS OF DECK SLAB.

RECOMMENDED BY:		APPROVED BY:	1951.
E.E.	(R.N. GHOSHAL) S.E.	(M.K. MUKHERJEE) C.E.	DRG. NO. SD/253.

Figure 5: Details of Deck Slab (with Foot Paths)–Drawing No. SD/253

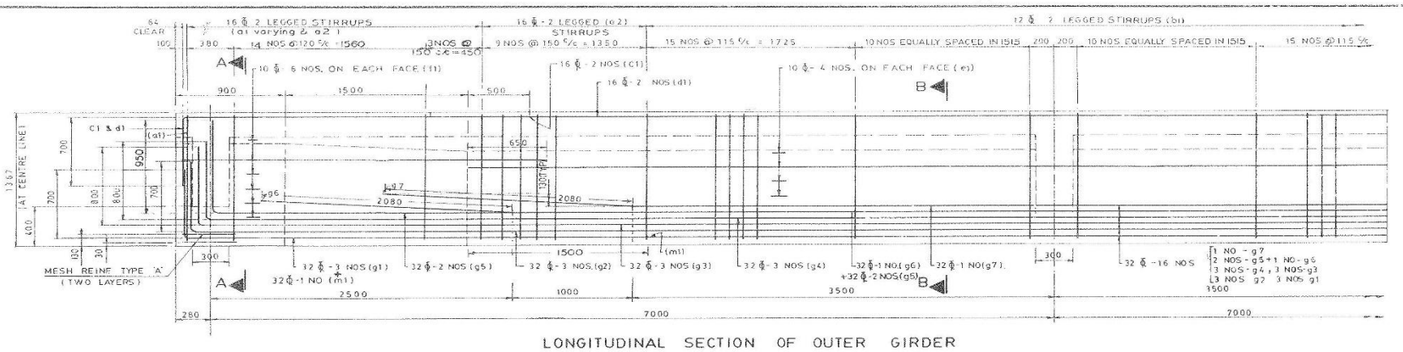
DRG. NO. SD/254

NOTES

1. Longitudinal girders shall be given upward camber on account of dead load deflection as given in the table -I
2. 32 ϕ spacer bars shall be provided @ 1 m c/c between two tiers of longitudinal bars of girders.
3. This drawing shall be read in conjunction with following drgs.

i) General notes...Drg. No. SD/200.

ii) Details of rocker and roller bearing..Drg.No. SD/204.
iii) General arrangement (for bridges without footpaths)... Drg. No. SD/250.
iv) General arrangement (for bridges with footpaths)Drg.No.SD/251
v) Details of deck slab (for bridges without footpaths)... Drg. No. SD/252.
vi) Details of deck slab (for bridges with footpaths)..Drg.No. SD/253
vii) Details of cross girders...Drg.No. SD/255
viii) Scheduie of reinforcement (for bridges without footpaths) ...Drg. No. SD/256. Sh.-1 & Sh.-2.
ix) Schedule of reinforcement (for bridges with footpaths) Drg. No. SD/257 Sh-1 & Sh.-2.



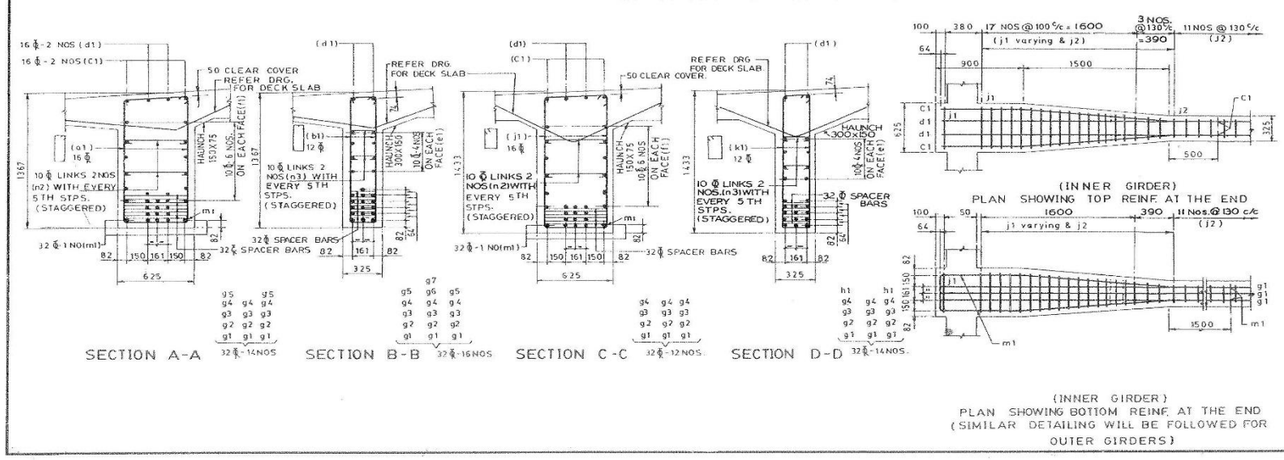
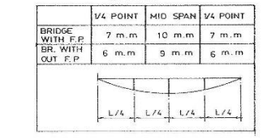
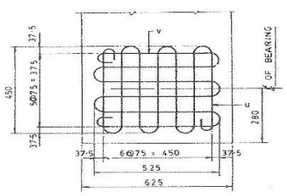


TABLE -I

	1/4 POINT	MID SPAN	1/4 POINT
BRIDGE WITH F.P.	7 m.m	10 m.m	7 m.m
BR. WITH OUT F.P.	6 m.m	9 m.m	6 m.m



DEAD LOAD DEFLECTION DIAGRAM



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GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

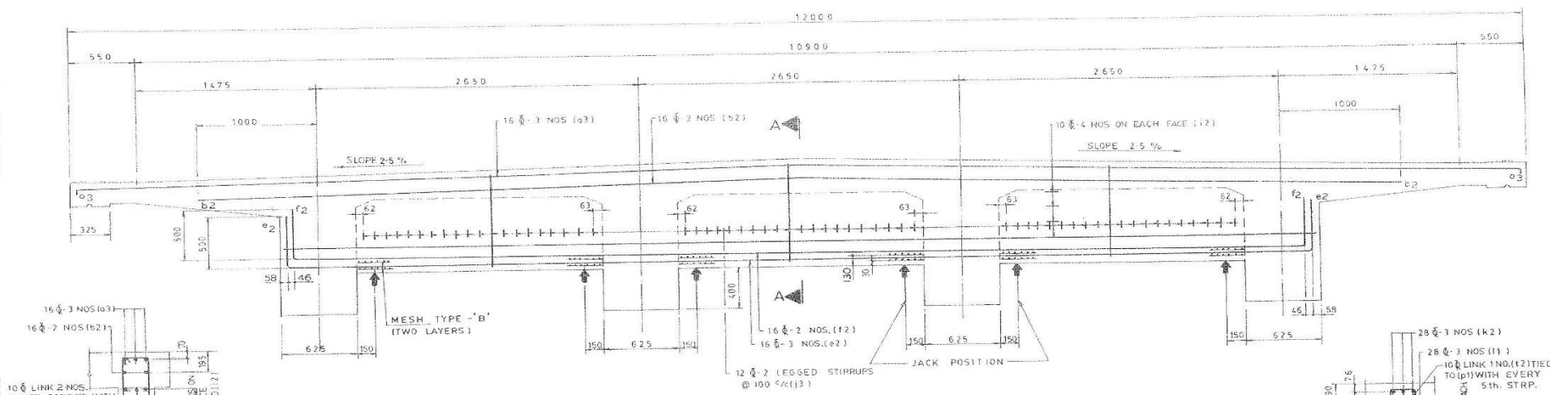
STANDARD DRAWINGS FOR ROAD BRIDGES.

R.C.C. T-BEAM AND SLAB SUPERSTRUCTURE
14·0 M. SPAN WITH & WITHOUT FOOTPATHS.
DETAILS OF LONGITUDINAL GIRDERS.

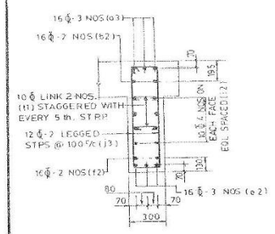
RECOMMENDED BY :-		APPROVED BY:-	1991
E.E.	(R.N. GHOSAL). S.E.	(M.K. MUKHERJEE) C.E.	DRG. NO. SD/254.

Figure 6: Details of Longitudinal Girder (with Foot Paths)–Drawing No. SD/254

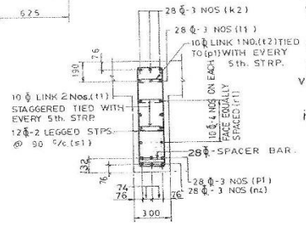
DRG. NO. SD/ 255



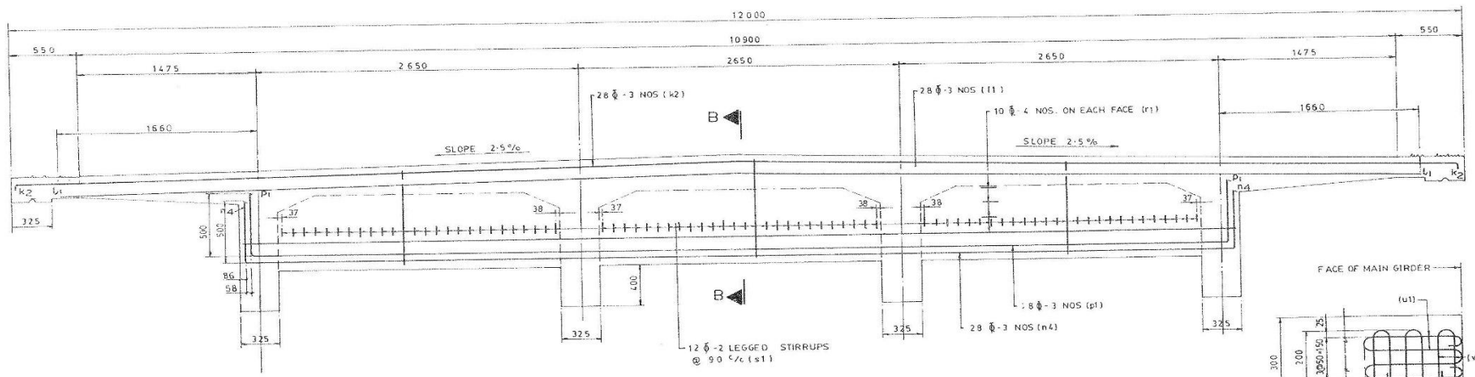
LONGITUDINAL SECTION
OF END CROSS GIRDER



SECTION A-A



SECTION B- B



LONGITUDINAL SECTION
OF INTERMEDIATE CROSS GIRDER

8 ϕ MESH REINFORCEMENT
TYPE -'B'

NOTES

1. The location of jacks for lifting of the superstructure to replace bearings etc. is shown thus ↟ This shall be distinctly etched for easy identification on the end cross girder and pier/abutment caps.
2. During the lifting operation all the six jacks placed under the end cross-girder in line with the bearings shall be operated simultaneously using single operating console, grouping the pump and control system, so as to ensure that the reactions on all the six jacks are equal at all times
3. Capacity of each jack shall be not less than 25T.
4. This drawing shall be read in conjunction with the following drawings.

i) General notes...Drg. No. SD/200.
ii) Details of rocker & roller bearings...Drg. No. SD/204.
iii) General arrangement (for bridges without footpaths)... Drg. No. SD/250.
iv) General arrangement (for bridges with footpaths)..Drg.No.SD/251.
v) Details of deck slab.(for bridges without footpaths)... Drg. No. SD/252.
vi) Details of deck slab.(for bridges with footpaths)Drg.No.SD/253.
vii) Details of longitudinal girders...Drg. No. SD/254.
viii) Schedule of reinforcement .(for bridges without footpaths)..Drg. No. SD/256 Sh-1 & Sh-2.
ix) Schedule of reinforcement (for bridges with footpaths) Drg. No. SD/257 Sh-1 & Sh-2

MKD.	DATE	DESCRIPTION	BY
REVISION			

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

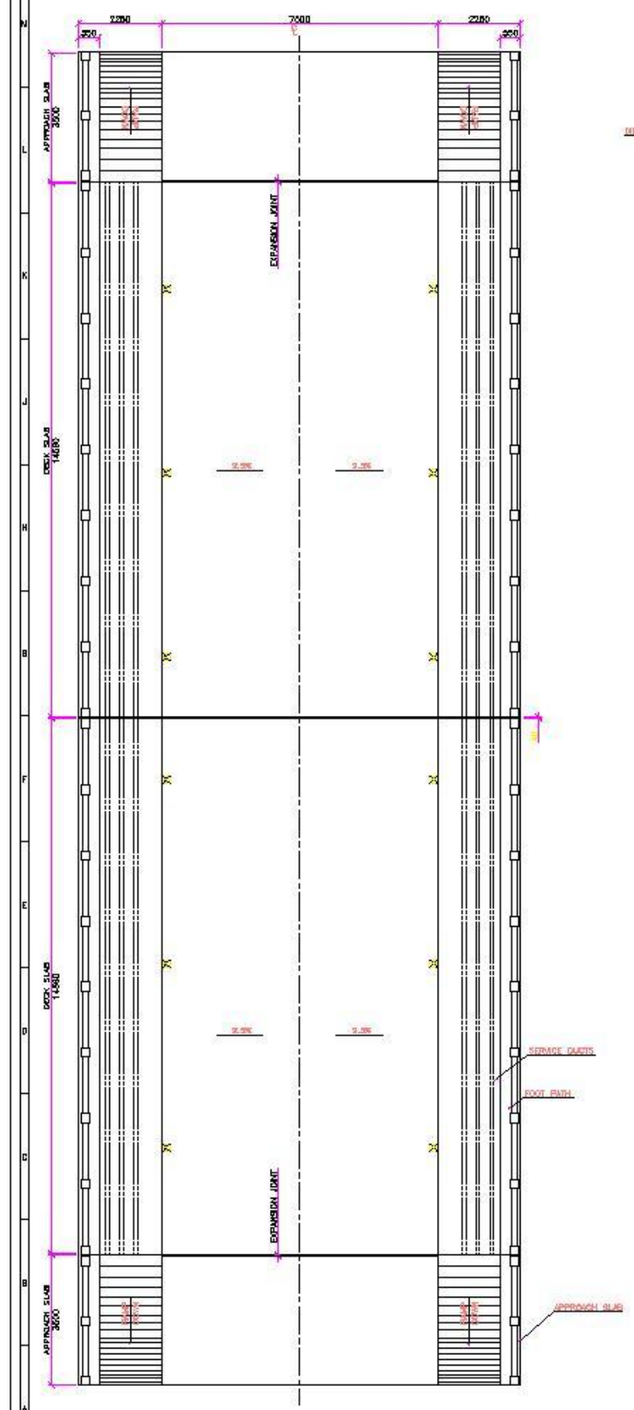
STANDARD DRAWINGS FOR ROAD BRIDGES.

R.C.C. T-BEAM AND SLAB SUPERSTRUCTURE
14·0 M. SPAN WITH AND WITHOUT FOOTPATHS
DETAILS OF CROSS GIRDERS

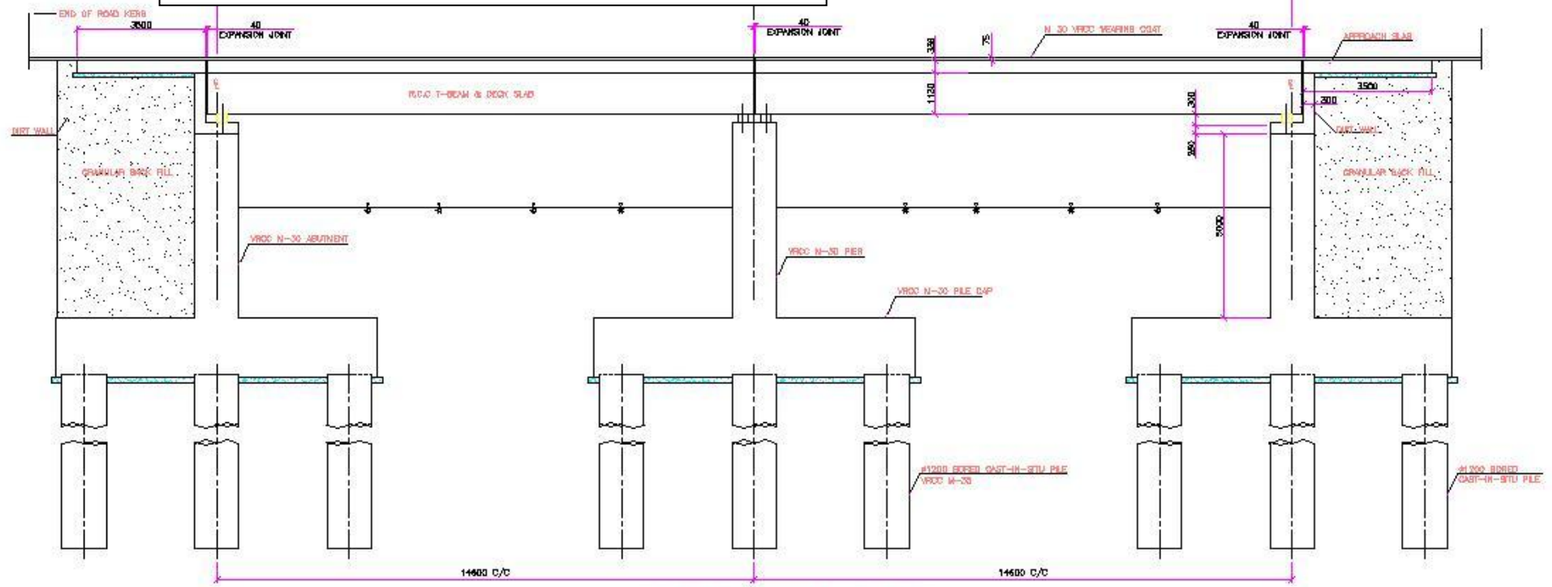
RECOMMENDED BY:		APPROVED BY:	1991
E.E	(R.N. GHOSHAL) S.E	(M.K. MUKHERJEE) C.E	DRG. NO. SD/ 255

Figure 7: Details of Cross Girder (with Foot Paths)–Drawing No. SD/255

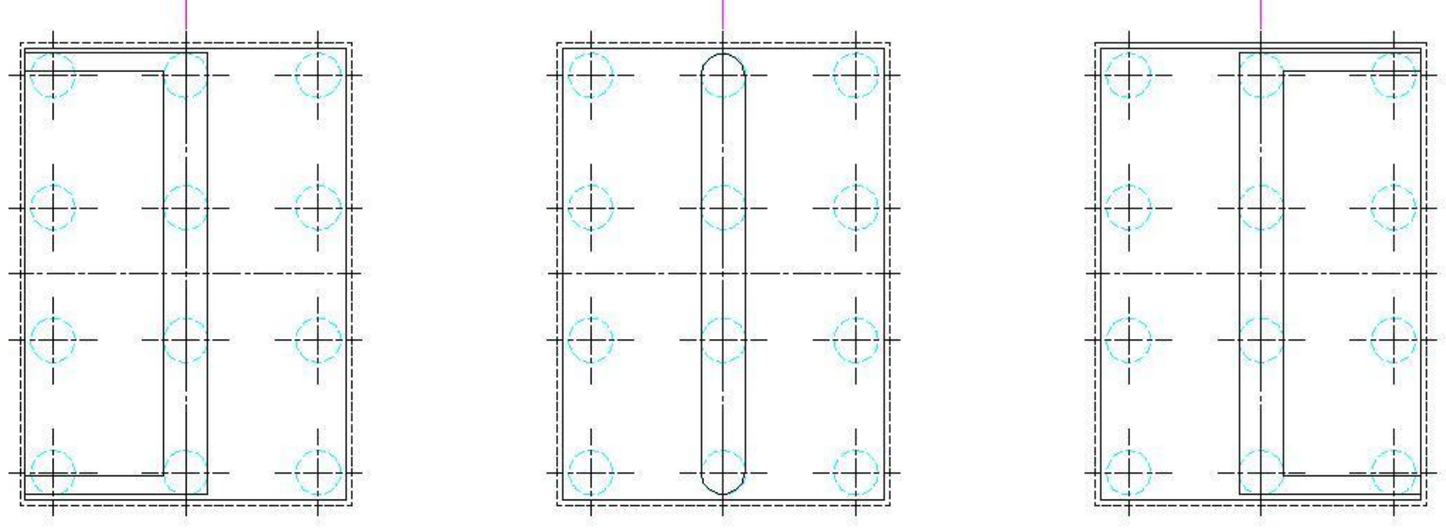
Fig.8 Drawing No. KSCCL-01-PNB-PS-2017-R0/A-001



PLAN OF BRIDGE



ELEVATION OF BRIDGE STRUCTURE



PILE CAP PLAN L.W.L

PMC CONSULTANT: EPTISA ENGINEERING
PMC CONSULTANTS FOR KAKINADA SMART CITY CORPORATION LIMITED
KAKINADA-533 005

PROJECT: CONSTRUCTION OF TWO LANE ROAD BRIDGE, ATTHATAP NAGAR, KAKINADA

DEPARTMENT: KAKINADA SMART CITY CORPORATION LIMITED KAKINADA

	NAME	SIGN	DATE
DSGN			
DRWN			
CHKD			

JOB No:

SCALE: NTS

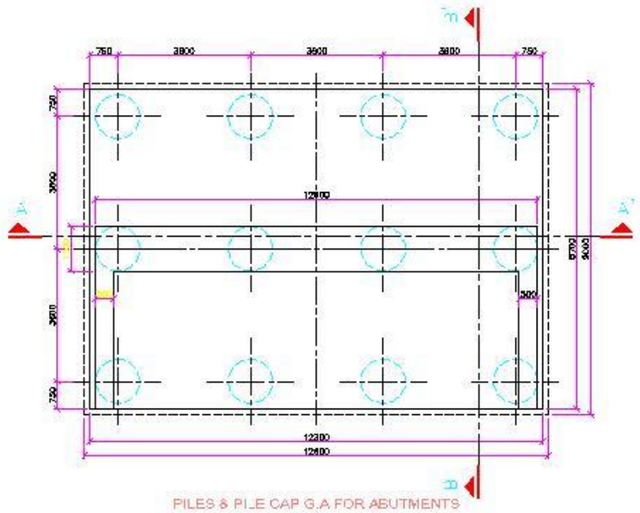
TITLE:

DRG No:

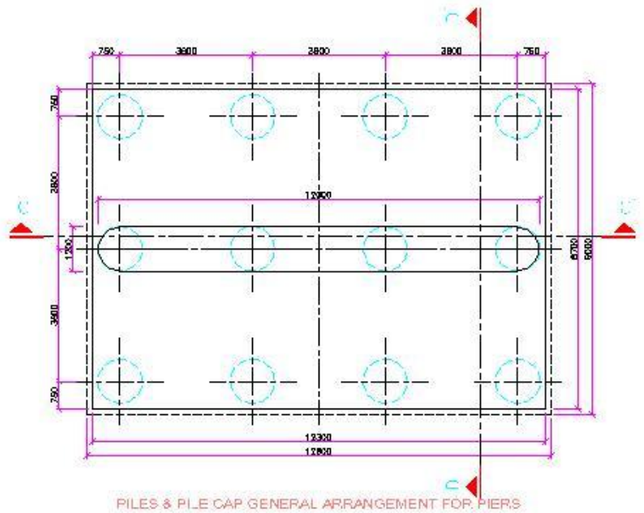
SHEET: 01

REV: 01

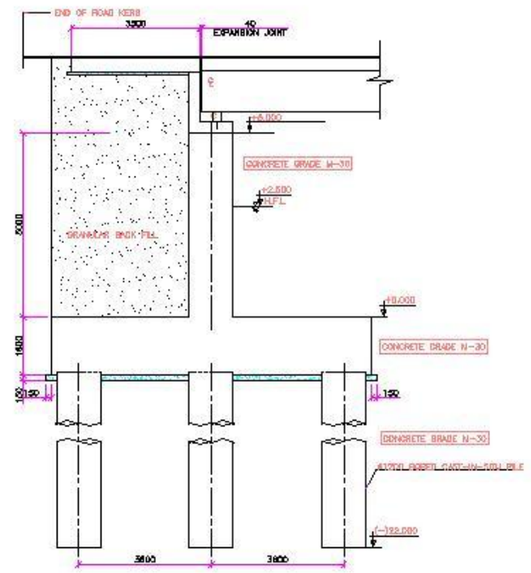
Fig.9 Drawing No. KSCCL-01-PNB-PS-2017-R0/A-002



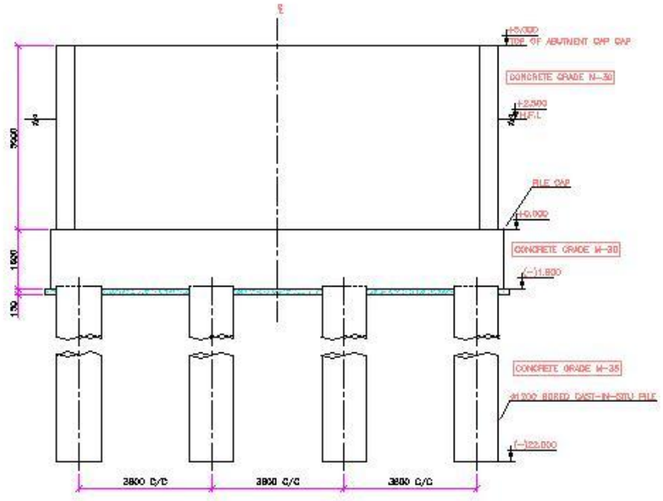
PILES & PILE CAP G.A FOR ABUTMENTS



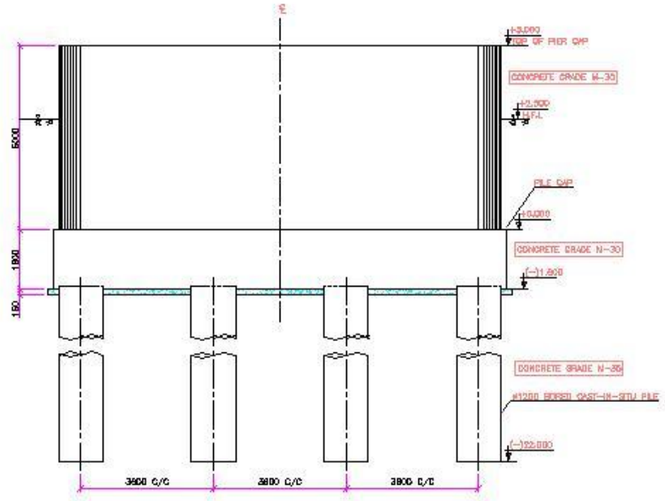
PILES & PILE CAP GENERAL ARRANGEMENT FOR PIERS



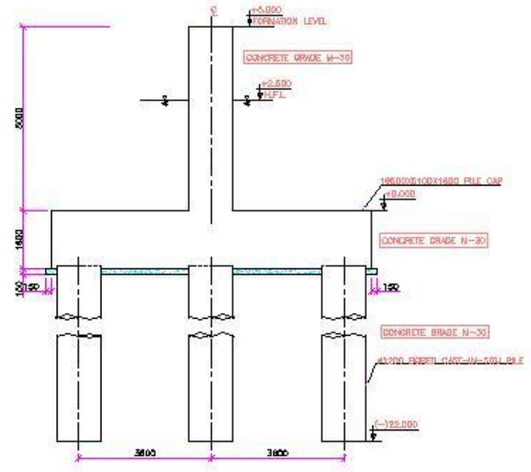
SECTION D-D' FOR PIER



SECTION A-A' FOR ABUTMENT



SECTION C-C' FOR PIER



SECTION B-B' FOR ABUTMENT

PMC CONSULTANT:
EPTISA ENGINEERING
PMC CONSULTANTS FOR KARNADA SMART CITY CORPORATION LIMITED
KARNATAKA-573 201

PROJECT:
CONSTRUCTION OF TWO LANE ROAD BRIDGE AT PRATAP NAGAR, KARWADA

DEPARTMENT:
KARWADA SMART CITY CORPORATION LIMITED
KARWADA

	NAME	SIGN	DATE
DSGN			
DRWN			
CHKD			
APPD			

JOB No:

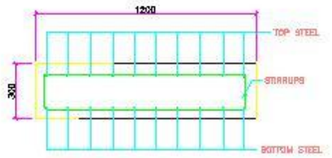
SCALE: 1:50

TITLE:

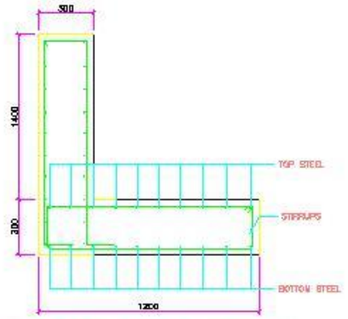
DWG No:

Sheet No: 01

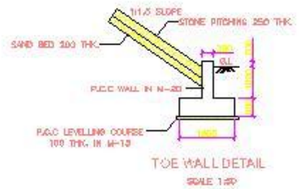
Fig.10 Drawing No. KSCCL-01-PNB-PS-2017-R0/A-



REINF. DETAILS OF PIER CAP
SCALE 1:10



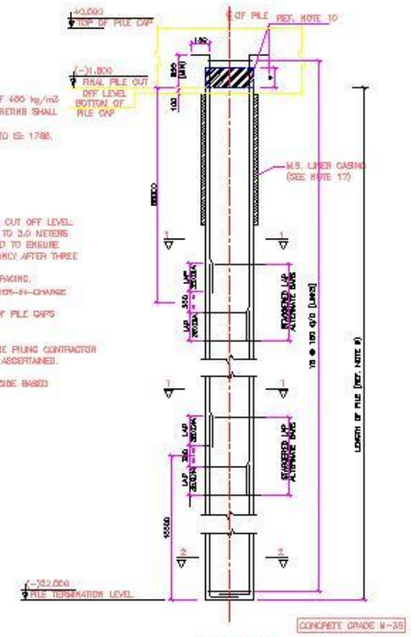
REINF. DETAILS OF ABUTMENT CAP & DIRT WALL
SCALE N.T.S



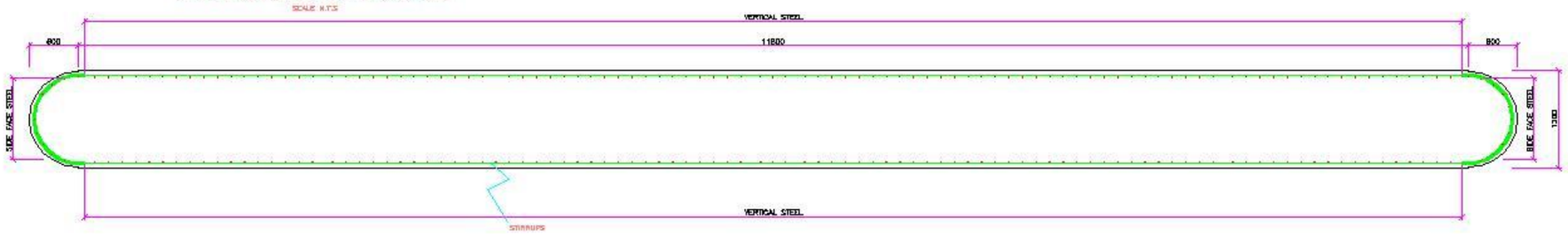
TOE WALL DETAIL
SCALE 1:20

NOTES:

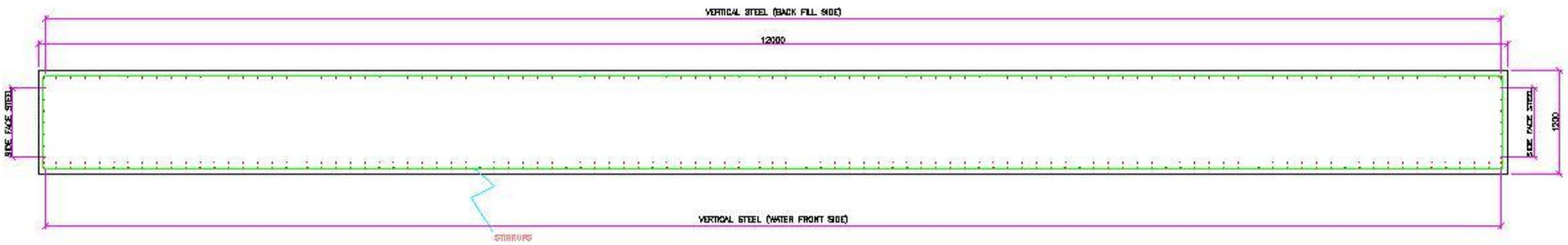
1. ALL DIMENSIONS ARE IN MILLIMETERS & LEVELS ARE IN METERS.
2. ALL PILES SHALL BE BORED CAST-IN-SITU CONCRETE PILES & CONSTRUCTION/WORKMANSHIP CONFORMING TO IS: 2911.
3. DRAWING SHALL NOT BE SCALLED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
4. CONCRETE GRADE FOR PILING WORK SHALL BE M-35 CONTROLLED CONCRETE WITH A MINIMUM CEMENT CONTENT OF 400 kg/m3 (OR 10% MORE THAN REQUIRED BY MIX DESIGN) WHICHEVER IS HIGHER & W/C RATIO OF 0.45 ONLY TREMIE CONCRETING SHALL BE PERMITTED.
5. REINFORCEMENT STEEL SHALL BE CORROSION RESISTANT STEEL (CRS) OF GRADE Fe-415 TOR STEEL CONFORMING TO IS: 1786.
6. CEMENT FOR PILING WORK SHALL BE GRADE 43 PORTALAND POZZOLANA CEMENT CONFORMING TO IS: 1489.
7. CLEAR COVER TO MAIN REINFORCEMENT (INCLUDING LINKS) FOR PILES SHALL BE 75 mm.
8. ROUTINE VERTICAL COMPRESSION & LATERAL TEST SHALL BE CONDUCTED ON ONE NO.
9. PILES FOR TESTS SHALL BE RANDOMLY SELECTED BY ENGINEER-IN-CHARGE.
10. LENGTH OF PILE SHALL BE ON SPT 'N' VALUE & CONTRACTOR SHALL GUARANTEE THE DESIGN CAPACITIES FOR THE PROPOSED LENGTH SUBJECT TO ENGINEER'S APPROVAL. HOWEVER, MINIMUM LENGTH OF PILE SHALL BE 22 M FOR 1200ø PILES.
11. CONCRETE PILED SHALL BE CAST MINIMUM 300 mm. ABOVE FINAL PILE CUT OFF LEVEL IN CASE OF PILES HAVING CUT OFF LEVEL 1.00 METERS BELOW FGL. & 600 MM. ABOVE FINAL PILES CUT OFF LEVEL FOR PILES HAVING CUT OFF LEVEL UP TO 3.0 METERS BELOW FGL. THIS SHALL BE DONE TO PERMIT REMOVAL OF ALL LOOSE AND WEAK CONCRETE BEFORE CAPPING AND TO ENSURE GOOD CONCRETE AT CUT OFF LEVEL. DURING CHIPPING OFF THE PILE TOP, MANUAL CHIPPING SHALL BE DONE ONLY AFTER THREE DAYS OF PILE CASTING. PNEMATIC TOOL SHALL NOT BE USED FOR CHIPPING CONCRETE.
12. LINKS SHALL BE TACK WELDED WITH MAIN REINFORCEMENT AT SUITABLE LOCATIONS TO MAINTAIN ITS SHAPE AND SPACING.
13. THE INSTALLATION SEQUENCE OF PILE SHALL BE DECIDED BY THE CONTRACTOR & SHALL BE APPROVED BY ENGINEER-IN-CHARGE BEFORE COMMENCING THE WORK.
14. PILE EXCENTRICITY MORE THAN 75 MM. SHALL BE REPORTED TO AKRS DESIGN OFFICE FOR REVISION IN DETAILS OF PILE CAPS OR GRADE BEAMS.
15. PILE CUT-OFF LEVEL SHALL BE OBTAINED FROM RELEVANT PILE LAY-OUT DRAWING.
16. NDT TEST SHALL BE CARRIED OUT ON FOR ALL PILES AFTER THEY HAVE ATTAINED MINIMUM 14 DAYS STRENGTH. THE PILING CONTRACTOR SHALL WITNESS THESE TESTS BEING CARRIED OUT BY THIRD PARTY AND ACCEPTANCE OF PILES TO BE MUTUALLY ASCERTAINED.
17. PILE CAPACITIES SHALL BE ASCERTAINED BASED ON ROUTINE TEST RESULTS.
18. M.S. LINER CASING TO BE PROVIDED IN CASE OF UNSTABILITY OF BORE BEFORE CONCRETING. CONTRACTOR TO DECIDE BASED ON SITE CONDITION.



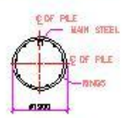
ELEVATION
DETAILS OF Ø1200 PILE



REINF. DETAILS OF PIER SHAFT



REINF. DETAILS OF ABUTMENT SHAFT



SECTION 1-1

SECTION 2-2

NOTES:

1. ALL DIMENSIONS ARE IN MM & LEVELS IN M UNLESS NOTED OTHERWISE.
2. CONCRETE SHALL BE M-35 AS PER IS: 456 FOR PILES & PILE CAP.
3. CONCRETE SHALL BE M-30 AS PER IS: 456 FOR ABUTMENT SHAFT & CAP.
4. R/F SHALL BE T.M.T. BARS OF GRADE Fe-415 AS PER IS: 1786.
5. CLEAR COVER TO R/F SHALL BE AS FOLLOWS:
   PILES: 75 MM PILE CAP: 125 MM ABUTMENT: 40 MM
6. CONCRETE SHALL BE MECHANICALLY MIXED & VIBRATED.
7. SPLICING OF BARS SHALL NOT BE MORE THAN 50% AT ANY LOCATION.
8. PROPER CURING OF CONCRETE SHALL BE DONE.
9. BENDING OF BARS SHALL BE AS PER IS: 2502.

PMC CONSULTANT

EPTISA ENGINEERING
PMC CONSULTANTS FOR KAKINADA SMART CITY CORPORATION LIMITED
KAKINADA-533 005

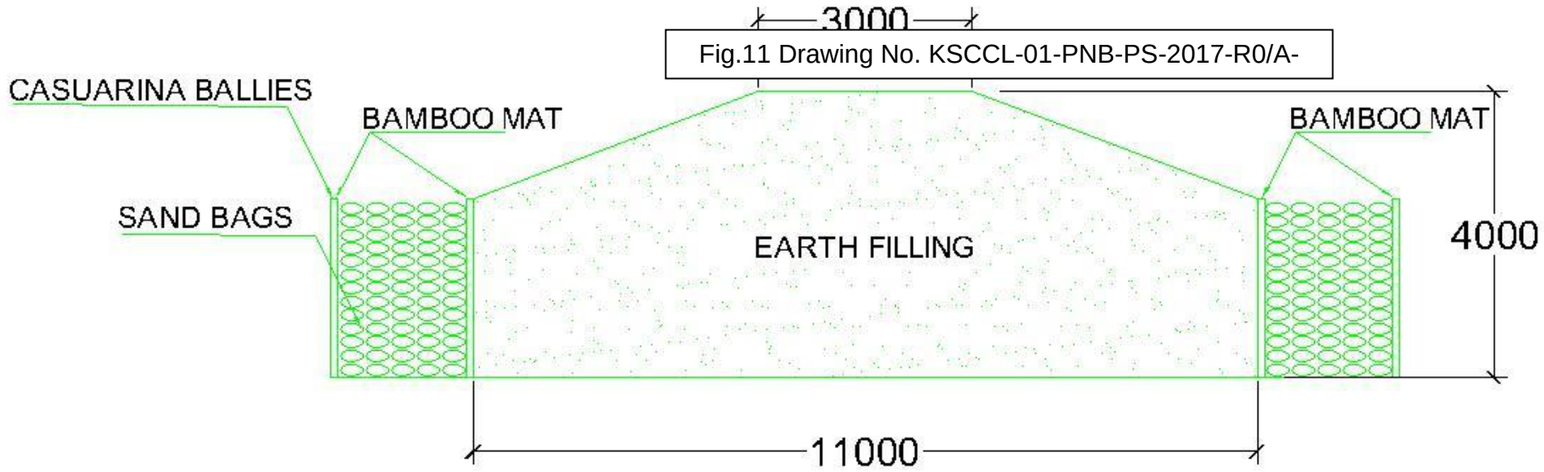
PROJECTS:
CONSTRUCTION OF TWO LANE ROAD BRIDGE AT PRATAP NAGAR, KAKINADA

DEPARTMENT:
KAKINADA SMART CITY CORPORATION LIMITED
KAKINADA

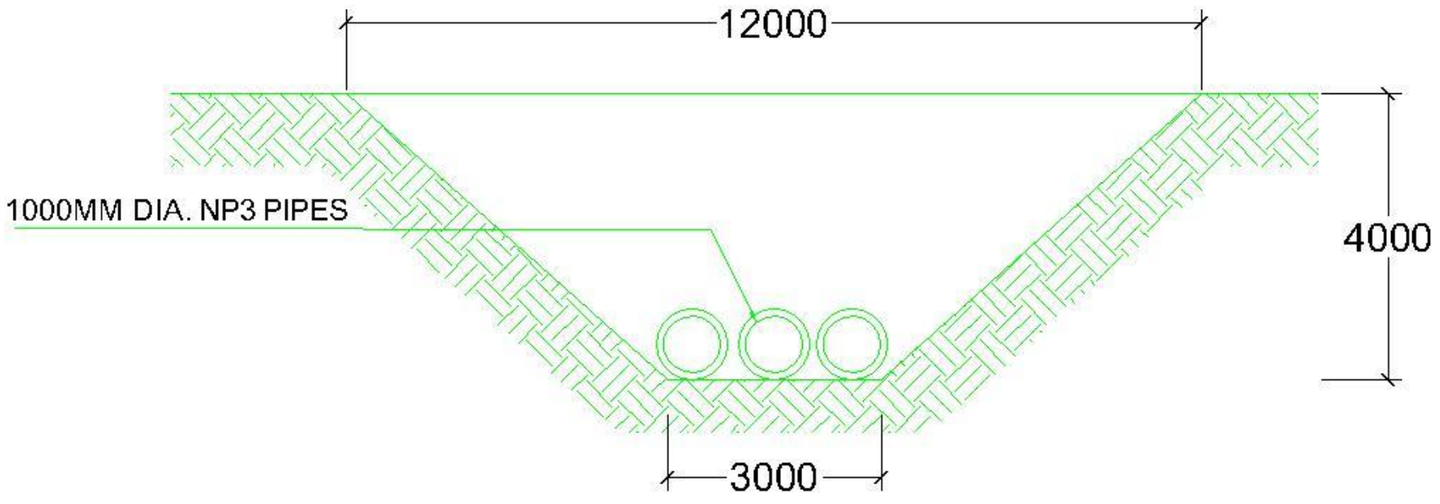
	NAME	SIGN	DATE
DSGN			
DRWN			
CHKD			
APPD			

JOB No:
SCALE:
DRG No: KSCCL-01-PNB-PS-2017-R0/A
Sheet 01
Rev 01

Fig.11 Drawing No. KSCCL-01-PNB-PS-2017-R0/A-



TYPICAL CROSS SECTION CROSS BUND



TYPICAL CROSS SECTION OF ARTIFICIAL TRENCH TO DIVERT DRAIN WATER

Smart City

KEY PLAN

REV.	DESCRIPTION	BY	DATE

CLIENT: KAKINADA SMART CITY CORPORATION LTD
Pithapuram Municipal Corporation
Pithapuram, Andhra Pradesh

PMC: EPTISA SERVICIOS DE INGENIERIA S.L.
epTisa

PROJECT TITLE: SMART CITY PROJECT
Pithapuram, Andhra Pradesh

DRAWING TITLE: CONSTRUCTION OF TWO LANE ROAD BRIDGE AT PRATHAPNAGAR, KAKINADA

NORTH

DRAWING NO: KSCCL-01-PNB-PS-2017-R0/A-004

ARCHITECT:	REV: 001
APPROVED BY:	SCALE:
CHECKED BY:	
DRAWN BY:	

Schedule B: Photographs

Plate 2: Western side available site for proposed approach road

Plate 4: Existing single lane bridge to be dismantled during proposed bridge construction

Plate 5: Drain flow and existing old bridge under normal flow con**d**itions – need to have vacuum dewatering system for foundation concrete laying

Plate 6: View of Kakinada-Samalkot Road - entry of traffic flow into proposed bridge

Plate 7: Site available for cross bund formation for temporary diversion of traffic and drain water