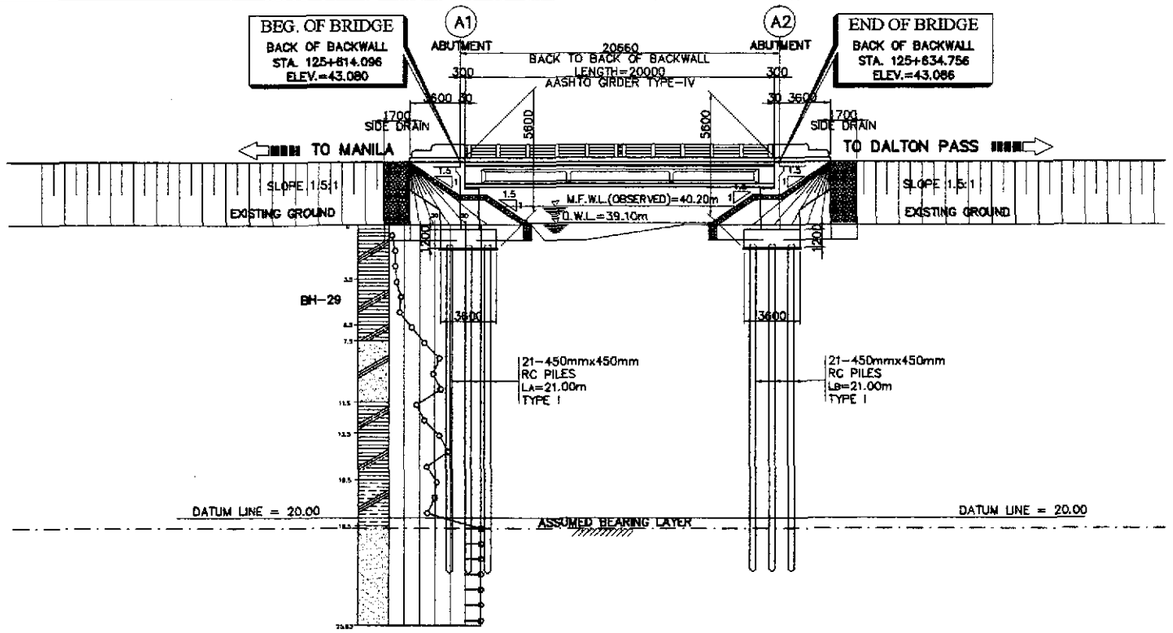
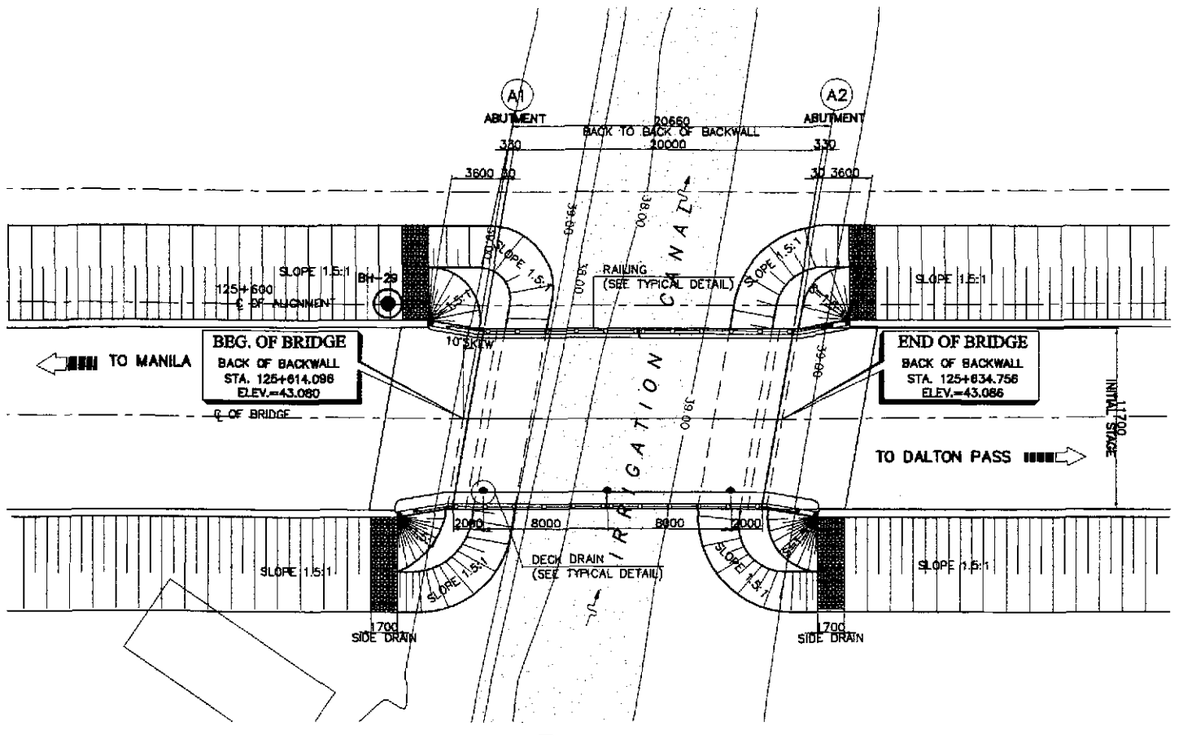
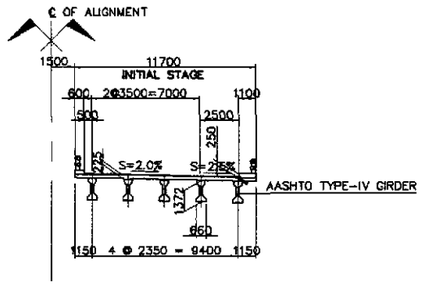


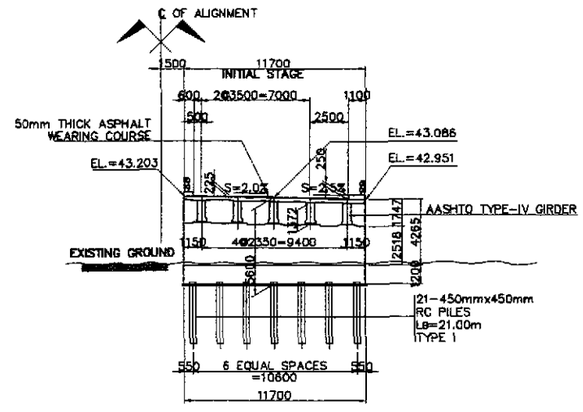
1 GENERAL ELEVATION
SCALE 1:200



2 GENERAL PLAN
SCALE 1:200



3 SECTION @ MIDSPAN
SCALE 1:200



4 SECTION @ ABUTMENT A2
SCALE 1:200

HYDRAULIC DESIGN DATA	
IRRIGATION CANAL	-

NOTE :

PRIOR TO CONSTRUCTION SOIL INVESTIGATION SHALL BE CONDUCTED FOR CONFIRMATION OF ASSUMED BEARING CAPACITY AND FOOTING ELEVATION.

THE PILE LENGTH RECOMMENDED ARE MINIMUM. SHOULD THE SOIL AT THE RECOMMENDED LENGTH BE INADEQUATE BEARING MATERIAL, LENGTH SHALL BE INCREASED. THE MINIMUM EMBEDMENT LENGTH INTO ADEQUATE SOIL FOR 400 x 400 R. C. PILE IS 1000mm WHILE FOR 450 x 450 R. C. PILE IS 1200mm.

A CABANATUAN BRIDGE NO.13 (STA.125+614.096)
SCALE AS SHOWN

PERFECTO L. ZAPLAN JR.
OIC Chief, Hydraulics Division, BOD

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/24/12	E. N. SALLAN
CHECKED	10/24/12	
SUBMITTED	10/24/12	M. KIUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

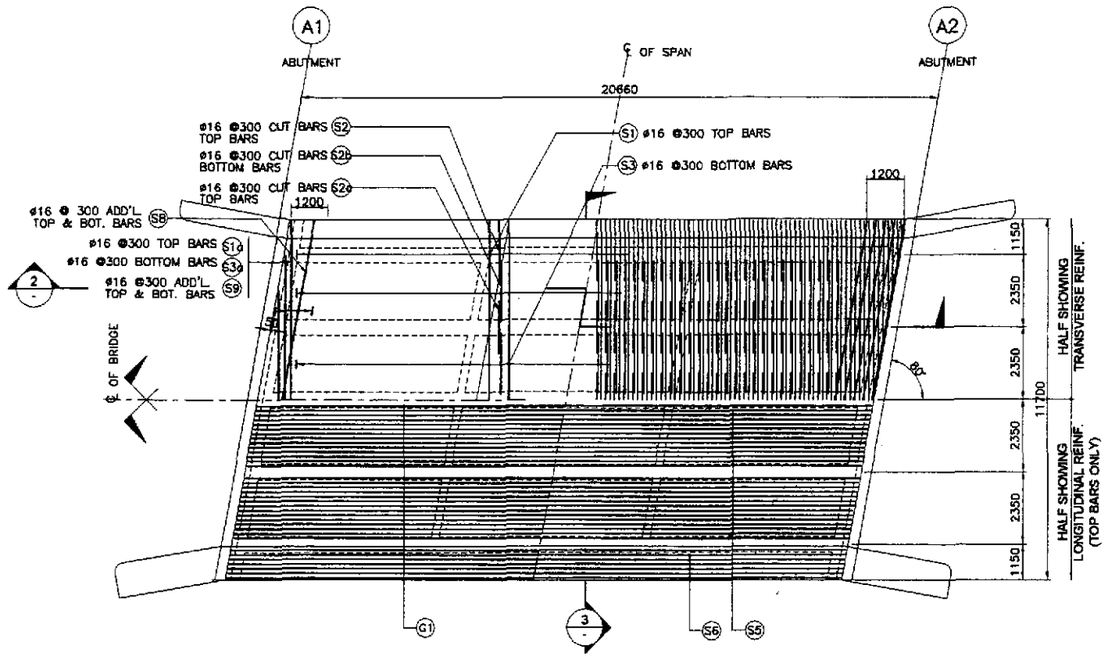
PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

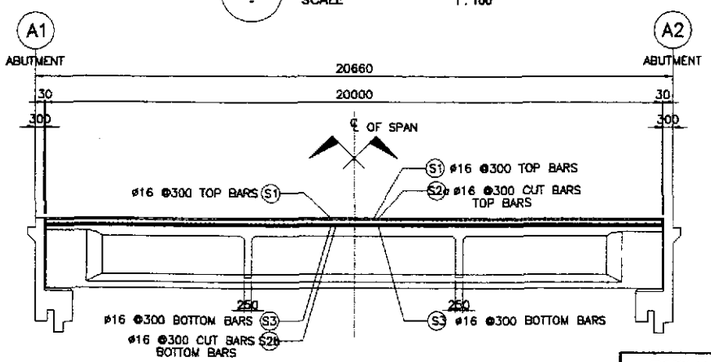
SCALE : 1 : 200 FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 13
GENERAL PLAN, ELEVATION AND SECTIONS (INITIAL STAGE)

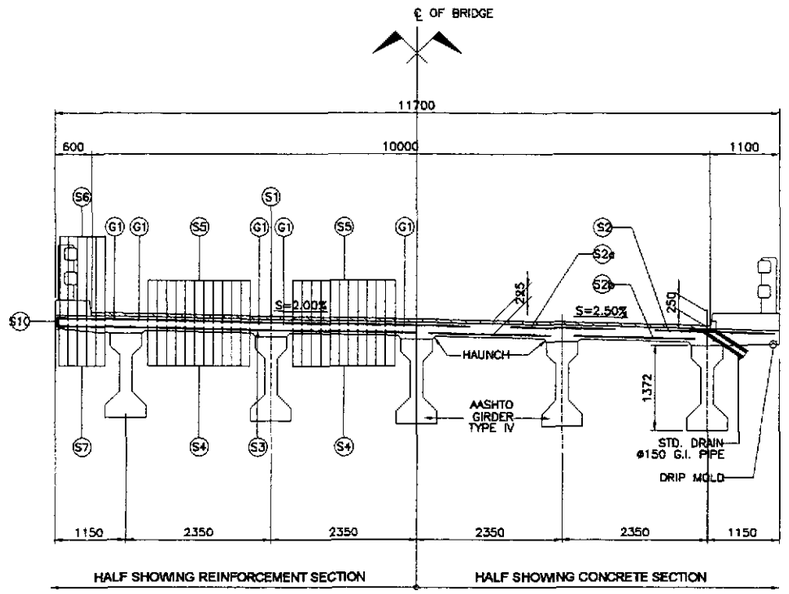
SHEET NO. : B13-01



1 / - FRAMING PLAN
SCALE 1 : 100



2 / - LONGITUDINAL SECTION
SCALE 1 : 100

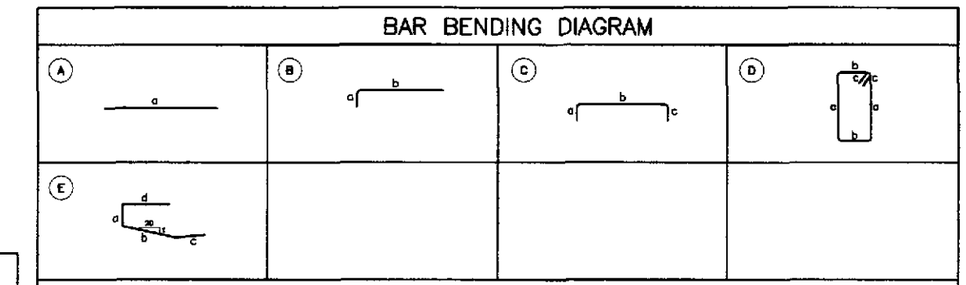


3 / - TYPICAL CROSS-SECTION
SCALE 1 : 50

ESTIMATED QUANTITIES OF SUPERSTRUCTURE

ITEM NO.	DESCRIPTION	UNIT	TOTAL
404(1)a	REINFORCING STEEL GRADE 40	kgs.	16748
	DECK SLAB	9131	
	DIAPHRAGM	362	
	GIRDER	4015	
	SIDEWALK, RAILING, & POST	1872	
	APPROACH SLAB	1368	
404(1)b	REINFORCING STEEL GRADE 60	kgs.	10462
	DECK SLAB	0	
	DIAPHRAGM	1124	
	GIRDER	4645	
	SIDEWALK, RAILING, & POST	443	
	APPROACH SLAB	4250	
405(1)	STRUCTURAL CONCRETE	cu. m.	168.42
	DECK SLAB	55.44	
	DIAPHRAGM	11.18	
	GIRDER	53.19	
	SIDEWALK, RAILING, & POST	13.39	
	APPROACH SLAB	35.22	

BAR BENDING DIAGRAM



SCHEDULE OF REINFORCEMENT

LOCATION	CONCRETE VOLUME (m^3)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT a	b	c	d	LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT IN (kg)	REBAR RATIO (kg/m^3)
DECK SLAB	55.44	G1	16	10	AS SHOWN	(A)	19900	–	–	–	19900	199.00	1.579	315	164.70
		S1	16	61	300	(C)	145	11600	145	–	11890	725.29	1.579	1146	
		S1a	16	14	300	(C)	145	6590	145	–	6880	96.32	1.579	153	
		S2	16	122	300	(B)	145	2000	–	–	2145	261.69	1.579	414	
		S2a	16	183	300	(A)	1700	–	–	–	1700	311.10	1.579	492	
		S2b	16	244	300	(A)	1950	–	–	–	1950	475.80	1.579	752	
		S3	16	61	300	(A)	11600	–	–	–	11600	707.60	1.579	1118	
		S3a	16	14	300	(A)	6590	–	–	–	6590	92.26	1.579	146	
		S4	16	48	150	(A)	19900	–	–	–	19900	955.20	1.579	1509	
		S5	16	48	150	(A)	19900	–	–	–	19900	955.20	1.579	1509	
		S6	16	12	AS SHOWN	(A)	19900	–	–	–	19900	238.80	1.579	378	
		S7	16	12	AS SHOWN	(A)	19900	–	–	–	19900	238.80	1.579	378	
		S8	16	20	AS SHOWN	(E)	11780	–	–	–	11780	235.60	1.579	373	
		S9	16	28	AS SHOWN	(A)	6590	–	–	–	6590	184.52	1.579	292	
		S10	12	90	450	(E)	145	900	600	300	1945	175.05	0.888	156	
TOTAL	55.44												GRADE 40 TOTAL =		9,131 kgs.

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEO YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	E. N. SALLAN
CHECKED	10/19/02	K. KOBAYASHI
SUBMITTED	10/21/02	K. KIUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

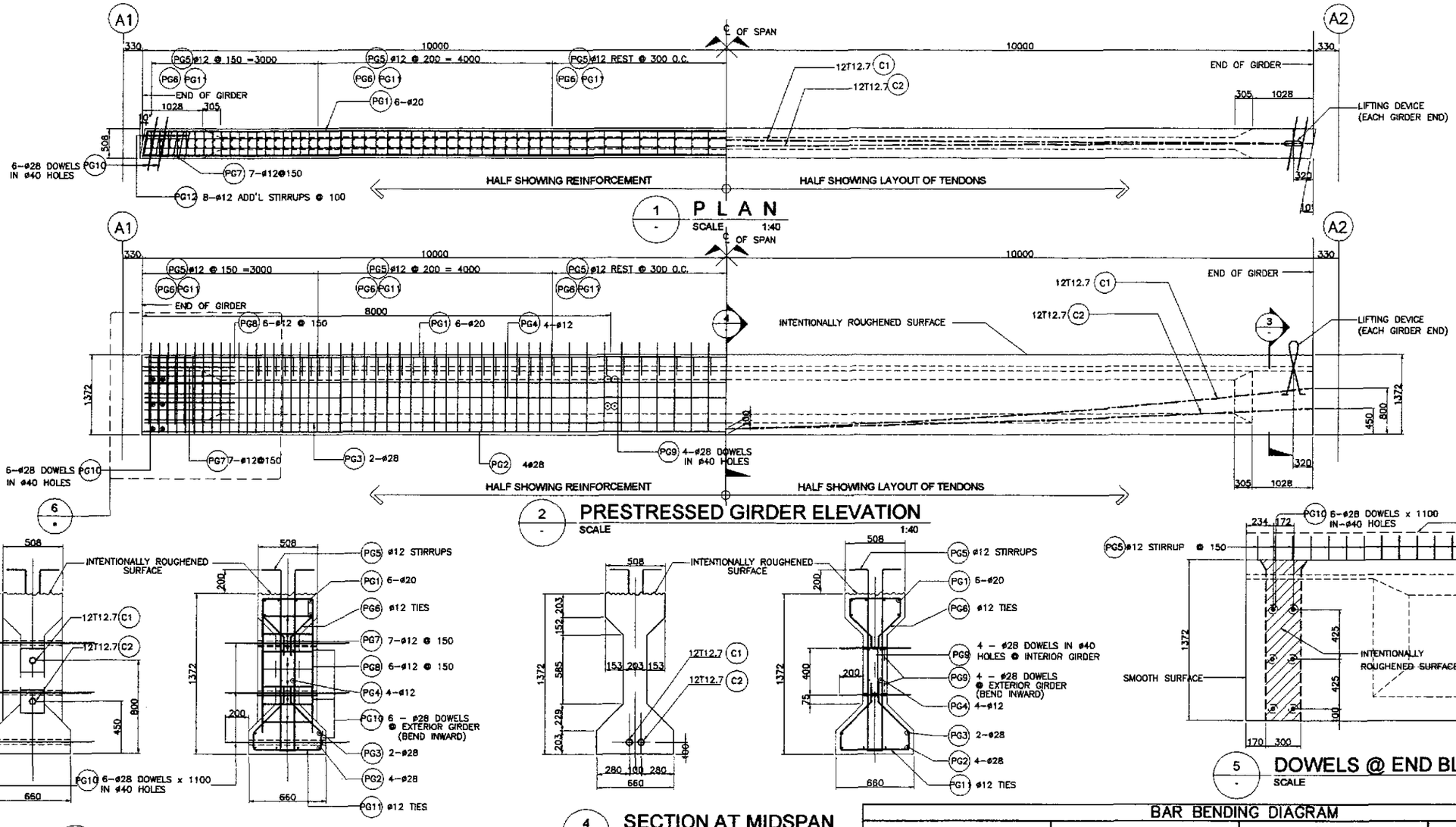
PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	ADRIANO M. DOROY	GILBERTO S. REYES	MANUEL M. BONDAN	SIMEON A. DATUMANONG
Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 13
DECK FRAMING PLAN AND SECTIONS (INITIAL STAGE)

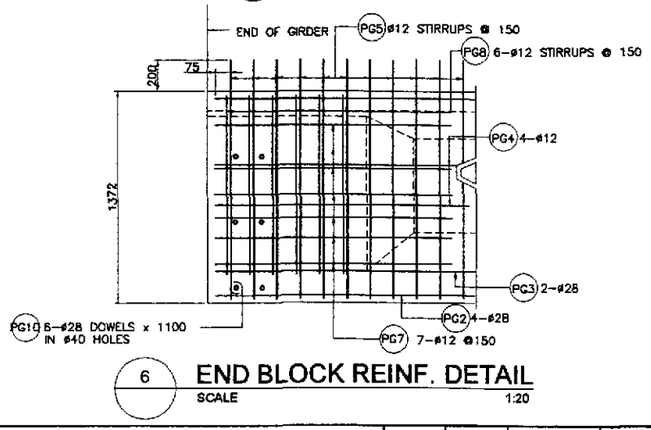
SHEET NO. :
B13-02



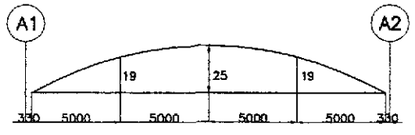
3 - SECTION AT END
SCALE 1:20

4 - SECTION AT MIDSPAN
SCALE 1:20

5 - DOWELS @ END BLOCK
SCALE 1:20



6 - END BLOCK REINF. DETAIL
SCALE 1:20



7 - CAMBER DIAGRAM
NOT TO SCALE

NOTES ;

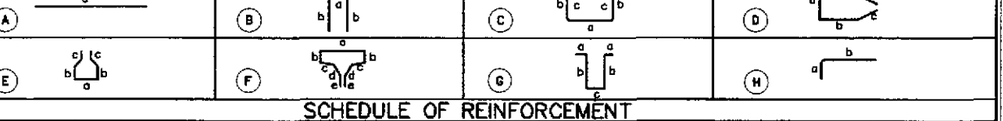
1.) SEE GENERAL NOTES, -2, FOR GIRDER DESIGN GUIDE.

2.) JACKING FORCE PER GIRDER, Pj = 3304 kN.

3.) JACKING WILL BE DONE AT BOTH ENDS.

4.) FINAL PRESTRESSING FORCE @ MIDSPAN,
F_{NET} = 2709 kN.

BAR BENDING DIAGRAM



SCHEDULE OF REINFORCEMENT

STRUCTURE COMPONENT	BAR MARK	SIZE (mm)	QTY.	SPACING	BAR SHAPE	DIMENSION(mm) a	b	c	d	e	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONC. VOLUME (cu.m)	REBAR RATIO (kg/cu.m)	REMARKS
GIRDER	PG1	20	6	AS SHOWN	A	19920	–	–	–	–	19920	119.52	2.466	295	10.64	162.80	QUANTITIES ARE FOR ONE (1) GIRDER ONLY
	PG2	28	4	AS SHOWN	A	19920	–	–	–	–	19920	79.68	4.833	386			
	PG3	28	2	AS SHOWN	A	19920	–	–	–	–	19920	39.84	4.833	193			
	PG4	12	4	AS SHOWN	A	19920	–	–	–	–	19920	79.68	0.888	71			
	PG5	12	100	150	G	100	1540	103	–	–	3383	338.30	0.888	301			
	PG6	12	100	150	E	430	160	150	260	–	1570	157.00	0.888	140			
	PG7	12	14	150	D	430	1000	550	–	–	3530	49.42	0.888	44			
	PG8	12	12	150	C	430	1230	150	–	–	3190	38.28	0.888	34			
	PG9	28	8	AS SHOWN	A	603	–	–	–	–	603	4.82	4.833	24			
	PG10	28	6	AS SHOWN	A	1060	–	–	–	–	1060	6.36	4.833	31			
	PG11	12	100	150	E	580	160	150	360	–	1920	192.00	0.888	171			
	PG12	12	16	100	B	430	1230	–	–	–	2890	46.24	0.888	42			

GRADE 40 TOTAL = 803 kgs.

GRADE 60 TOTAL = 929 kgs.

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	E. N. SALLAN
CHECKED	10/19/02	
SUBMITTED	10/21/02	M. KUCHI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

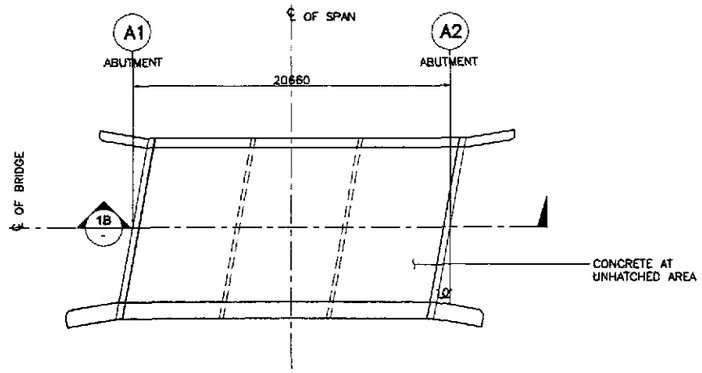
PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	ADRIANO M. DORCY, Chief, Bridges Division	GILBERTO S. REYES, Director IV (OIC)	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 13
AASHTO TYPE IV GIRDER
(INITIAL STAGE)

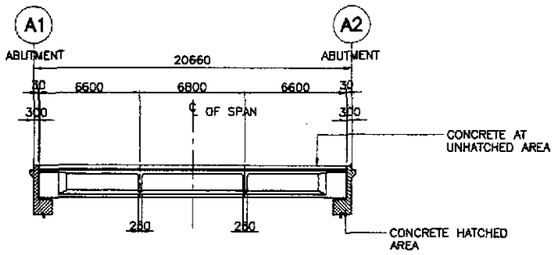
SHEET NO. :
B13-03



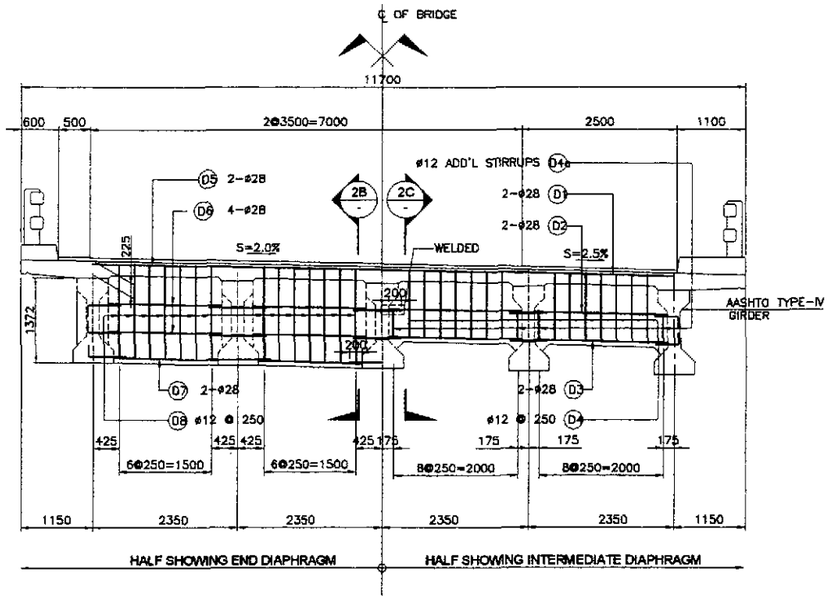
1A / - PLAN
SCALE 1:200

NOTES:

1. CONCRETE AT HATCHED AREAS SHALL BE PLACED AT LEAST TWENTY ONE (21) DAYS AHEAD OF CONCRETE AT UNHATCHED AREAS.
2. SEE GIRDER DETAILS FOR SPACING OF ø28 DOWELS.



1B / - LONGITUDINAL SECTION
SCALE 1:200

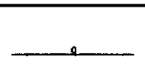


2A / - ELEVATION
SCALE 1:50

1 / - CONCRETE POURING SEQUENCE
SCALE 1:200

BAR BENDING DIAGRAM

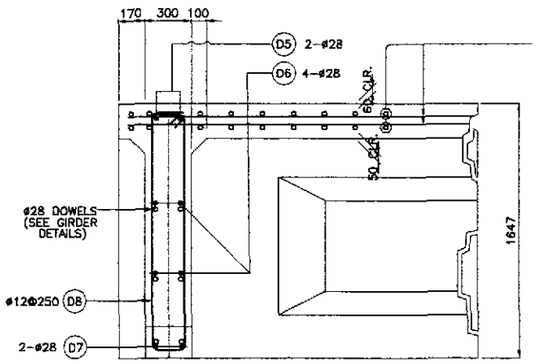
(A)



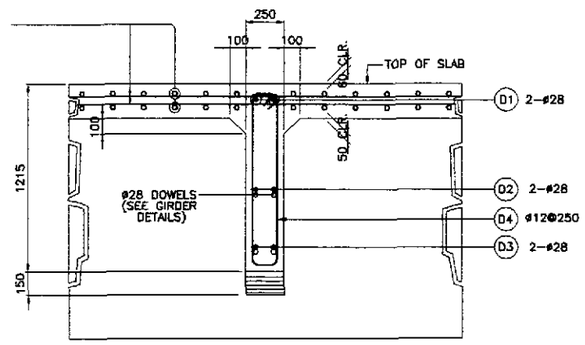
(B)

SCHEDULE OF REINFORCEMENT

STRUCTURE COMPONENT	LOCATION	CONCRETE VOLUME (m^3)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT a	b	c	d	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	TOTAL WEIGHT IN (kg)	REBAR RATIO (kg/m^3)
DIAPHRAGM	INTERMEDIATE DIAPHRAGM	4.90	D1	28	6	AS SHOWN	A	9400				9400	37.60	4.833	182	140.34
			D2	28	16	AS SHOWN	A	2145				2145	34.32	4.833	166	
			D3	28	16	AS SHOWN	A	2145				2145	34.32	4.833	166	
			D4	12	56	250	B	150	1200	150		3000	168.00	0.888	150	
			D4a	12	16	AS SHOWN	B	150	500	150		1600	25.60	0.888	23	
	END DIAPHRAGM	6.29	D5	28	4	AS SHOWN	A	9400				9400	37.60	4.833	182	127.10
			D6	28	32	AS SHOWN	A	1840				1840	58.88	4.833	285	
			D7	28	16	AS SHOWN	A	1840				1840	29.44	4.833	143	
			D8	12	56	250	B	200	1550	150		3800	212.80	0.888	189	
	TOTAL	11.18											GRADE 60 TOTAL = 1,124 kgs.			
													GRADE 40 TOTAL = 382 kgs.			



2B / - SECTION
SCALE 1:20



2C / - SECTION
SCALE 1:20

2 / - DETAIL OF END & INTERMEDIATE DIAPHRAGM
SCALE AS SHOWN

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JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/2/02	E. N. SALLAN
CHECKED	10/2/02	
SUBMITTED	10/2/02	TEAM LEADER

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Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

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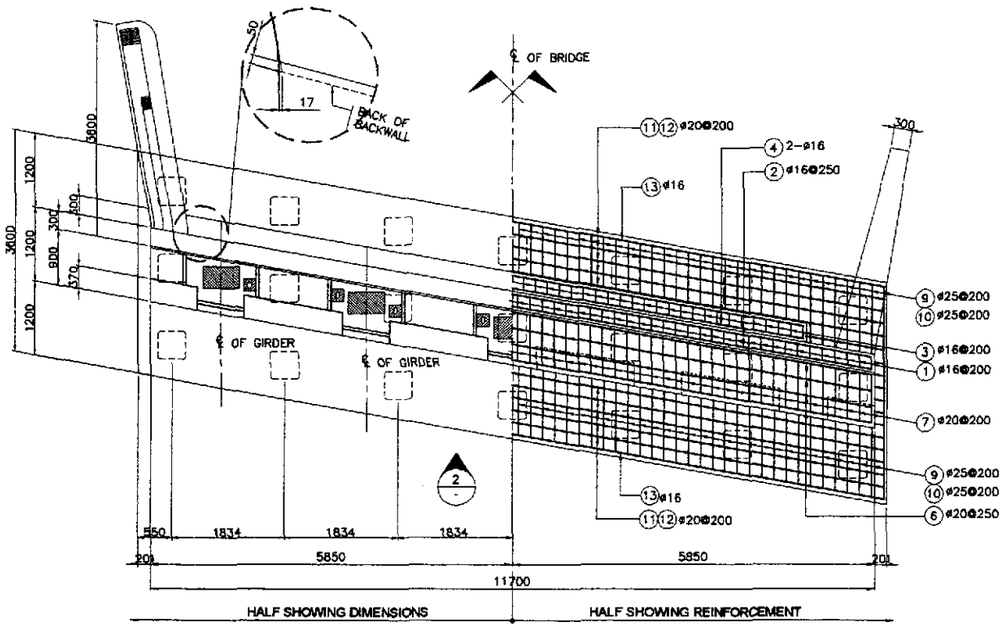
CABANATUAN BYPASS - CONTRACT PACKAGE IV

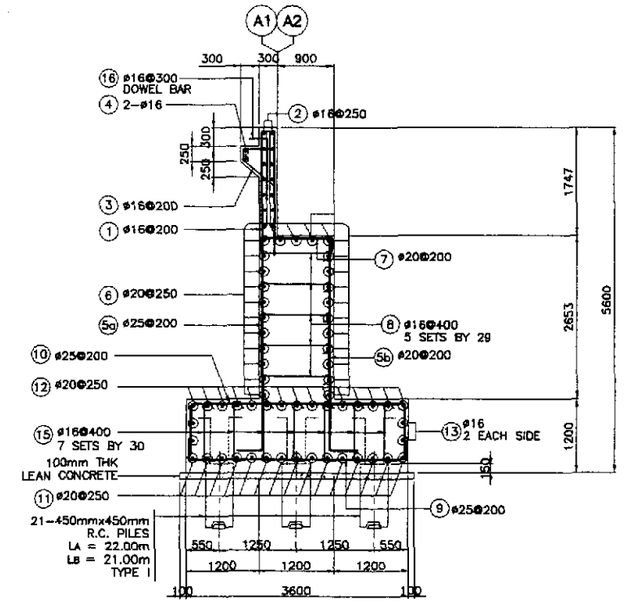
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.13
CONCRETE POURING SEQUENCE AND DIAPHRAGM DETAILS (INITIAL STAGE)

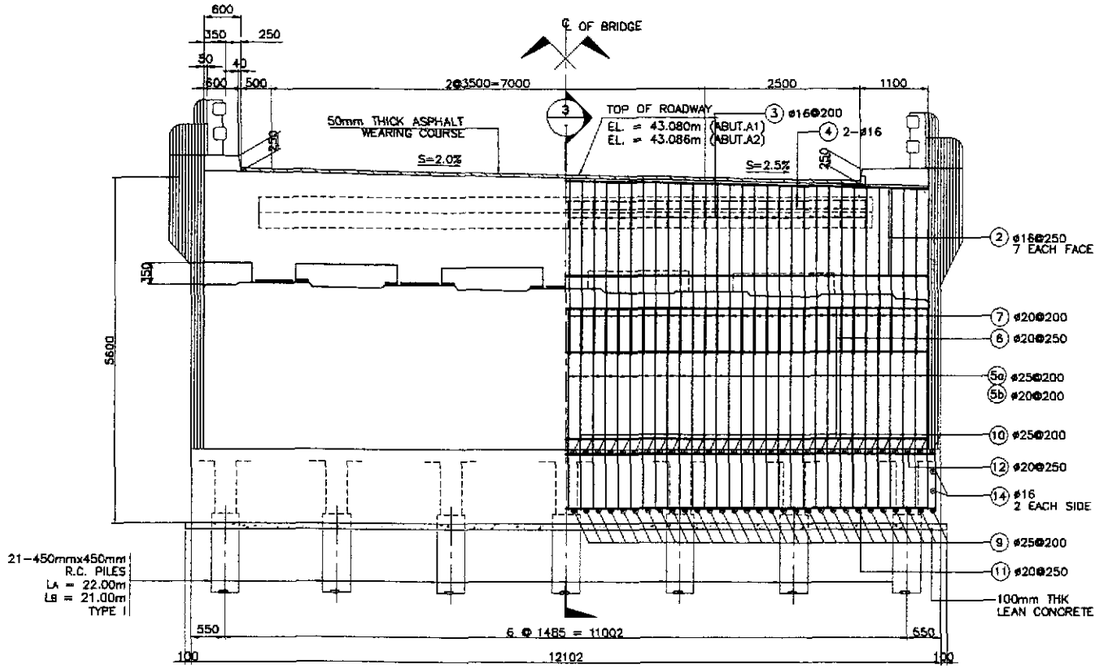
SHEET NO. : B13-04



1 / - **PLAN** SCALE 1:50

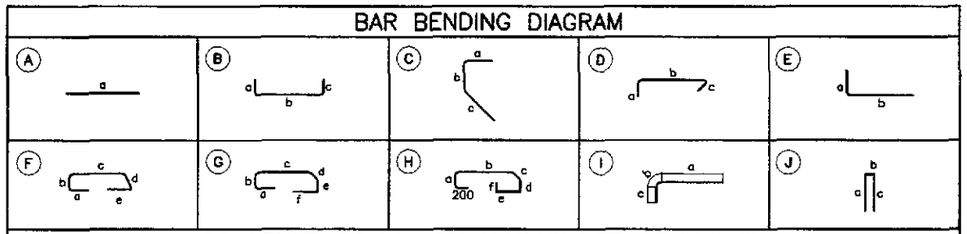


3 / - **SECTION** SCALE 1:50



2 / - **ELEVATION** SCALE 1:50

BAR BENDING DIAGRAM



SCHEDULE OF REINFORCEMENT PER ABUTMENT

LOCATION	CONCRETE VOLUME (m^3)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT a	b	c	d	e	f	LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m^3)
BACKWALL	7.26	①	16	59	200	Ⓑ	2000	200	2000	–	–	–	4200	247.80	1.579	392	111.07
		②	16	14	250	Ⓐ	11800	–	–	–	–	–	11800	165.20	1.579	261	
		③	16	51	200	Ⓒ	600	150	750	–	–	–	1500	76.50	1.579	121	
		④	16	2	AS SHOWN	Ⓐ	10050	–	–	–	–	–	10050	20.10	1.579	32	
MAINWALL	37.25	5a	25	59	200	Ⓔ	400	3600	–	–	–	–	4000	236.00	3.854	910	75.71
		5b	20	59	200	Ⓔ	400	3600	–	–	–	–	4000	236.00	2.466	582	
		⑥	20	25	250	Ⓐ	11800	–	–	–	–	–	11800	295.00	2.466	728	
		⑦	20	59	200	Ⓑ	250	1100	250	–	–	–	1600	94.40	2.466	233	
		⑧	16	145	400	Ⓓ	250	1100	250	–	–	–	1600	232.00	1.579	367	
FOOTING	52.28	⑨	25	61	200	Ⓑ	700	3450	700	–	–	–	4850	295.85	3.854	1141	74.67
		⑩	25	61	200	Ⓑ	700	3450	700	–	–	–	4850	295.85	3.854	1141	
		⑪	20	15	250	Ⓑ	700	12200	700	–	–	–	13600	204.00	2.466	504	
		⑫	20	15	250	Ⓑ	700	12200	700	–	–	–	13600	204.00	2.466	504	
		⑬	16	4	AS SHOWN	Ⓐ	12200	–	–	–	–	–	12200	48.80	1.579	78	
		⑭	16	4	AS SHOWN	Ⓐ	3450	–	–	–	–	–	3450	13.80	1.579	22	
		⑮	16	210	400	Ⓓ	250	1050	250				1550	325.50	1.579	514	
DOWEL		⑯	16	34	300	Ⓔ	650	500	–	–	–		1150	39.10	1.579	62	
TOTAL	96.79														GRADE 40 TOTAL = 1,842 kgs. GRADE 60 TOTAL = 5,743 kgs.		

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/12	A. P. GONZALES
CHECKED	10/12/12	
SUBMITTED	10/12/12	M. RIVERA TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

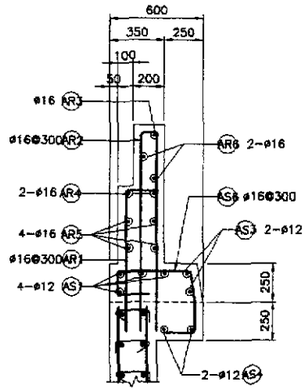
PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	ADRIANO M. BOROY	GILBERTO S. REYES	MANUEL M. BONGAN	SIMEON A. DATUMANONG
Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

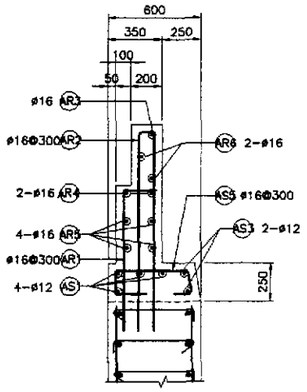
SCALE : 1 : 50 FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 13
ABUTMENT A1 & A2
MAINWALL REINFORCEMENT DETAILS
(INITIAL STAGE)

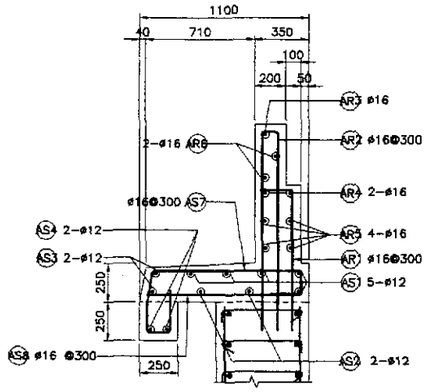
SHEET NO. : **B13-05**



5A SECTION
SCALE 1:20

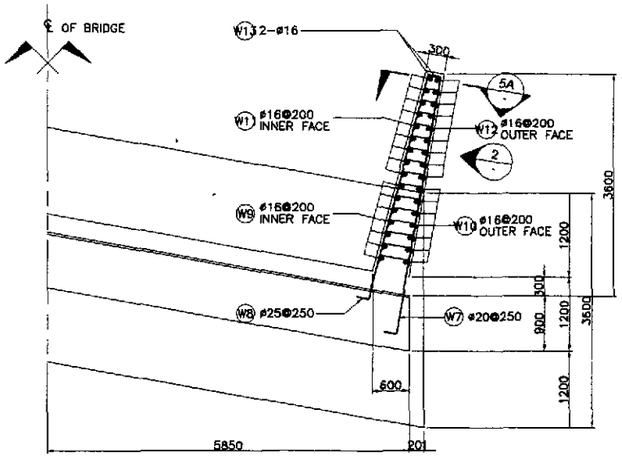


5B SECTION
SCALE 1:20

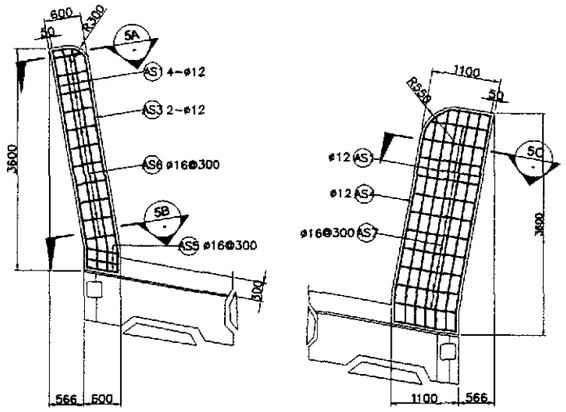


5C SECTION
SCALE 1:20

5 APPROACH RAIL DETAILS
SCALE 1:20

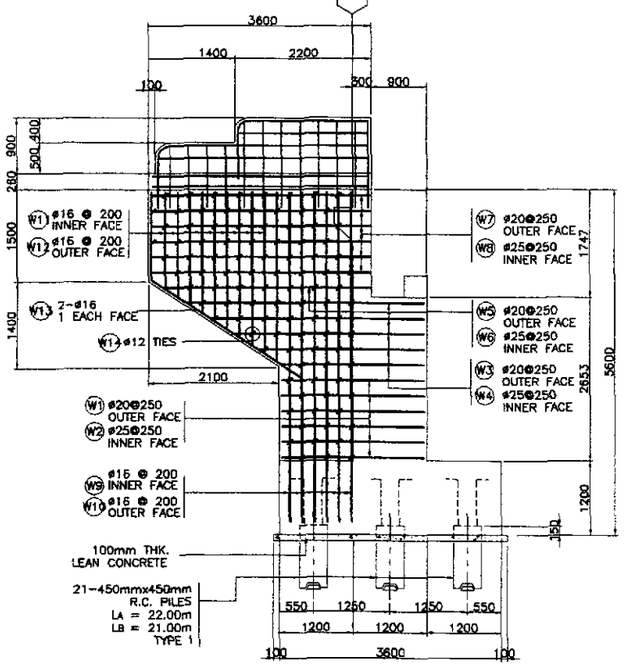


1 PLAN
SCALE 1:50

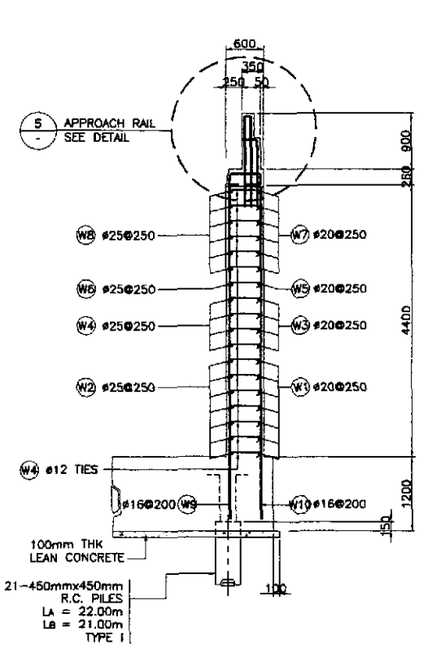


LEFT SIDE RIGHT SIDE

4 SIDEWALK DETAIL
SCALE 1:50

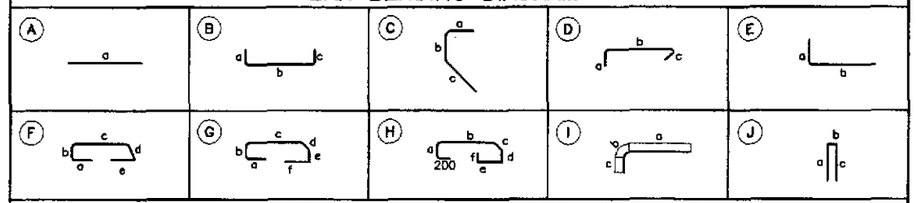


2 WINGWALL ELEVATION
SCALE 1:50



3 SECTION
SCALE 1:50

BAR BENDING DIAGRAM



SCHEDULE OF REINFORCEMENT PER ABUTMENT

LOCATION	CONCRETE VOLUME (m^3)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT a	b	c	d	e	f	LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m^3)
WINGWALL	8.89	W1	20	12	250	B	400	2300	150	–	–	–	2850	34.20	2.466	85	150.94
		W2	25	12	250	B	400	2300	150	–	–	–	2850	34.20	3.854	132	
		W3	20	10	250	B	400	3100	150	–	–	–	3650	36.50	2.466	91	
		W4	25	10	250	B	400	3100	150	–	–	–	3650	36.50	3.854	141	
		W5	20	2	250	B	400	3350	150	–	–	–	3900	7.80	2.466	20	
		W6	25	2	250	B	400	3350	150	–	–	–	3900	7.80	3.854	31	
		W7	20	12	250	B	400	3500	150	–	–	–	4050	48.60	2.466	120	
		W8	25	12	250	B	400	3500	150	–	–	–	4050	48.60	3.854	188	
		W9	16	12	250	E	250	5350	–	–	–	–	5600	67.20	1.579	107	
		W10	16	12	250	E	250	5350	–	–	–	–	5600	67.20	1.579	107	
		W11	16	20	250	E	250	2100	–	–	–	–	2350	47.00	1.579	75	
		W12	16	20	250	E	250	2100	–	–	–	–	2350	47.00	1.579	75	
		W13	16	4	AS SHOWN	C	250	1500	3000	–	–	–	4750	19.00	1.579	31	
		W14	12	198	AS SHOWN	D	170	450	170	–	–	–	790	156.42	0.888	139	
														GRADE 60 TOTAL = 808 kgs. GRADE 40 TOTAL = 534 kgs.			
APPROACH RAILING AND SIDEWALK	3.53	AS1	12	9	AS SHOWN	A	3500	–	–	–	–	–	3500	31.50	0.888	28	98.34
		AS2	12	2	AS SHOWN	A	3500	–	–	–	–	–	3500	7.00	0.888	7	
		AS3	12	4	AS SHOWN	A	3500	–	–	–	–	–	3500	14.00	0.888	13	
		AS4	12	4	AS SHOWN	A	3500	–	–	–	–	–	3500	14.00	0.888	13	
		AS5	16	3	300	F	200	170	480	200	200	–	1250	3.75	1.579	6	
		AS6	16	11	300	G	200	170	480	200	170	200	1420	15.62	1.579	25	
		AS7	16	14	300	H	200	170	980	200	170	200	2120	29.68	1.579	47	
		AS8	16	14	300	E	200	1020	–	–	–	–	1220	17.08	1.579	27	
		AR1	16	8	300	E	200	900	–	–	–	–	1100	8.80	1.579	14	
		AR2	16	16	300	J	1300	120	1300	–	–	–	2720	43.52	1.579	69	
		AR3	16	2	AS SHOWN	I	2100	236	1300	–	–	–	3636	7.27	1.579	12	
		AR4	16	4	AS SHOWN	I	3400	236	900	–	–	–	4536	18.14	1.579	29	
		AR5	16	8	AS SHOWN	A	3400	–	–	–	–	–	3400	27.20	1.579	43	
		AR6	16	4	AS SHOWN	A	2100	–	–	–	–	–	2100	8.40	1.579	14	
														GRADE 40 TOTAL = 347 kgs.			
TOTAL	12.42													GRADE 60 TOTAL = 808 kgs. GRADE 40 TOTAL = 881 kgs.			

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	K. P. GONZALES
CHECKED	10/19/02	
SUBMITTED	10/21/02	M. KUDA TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

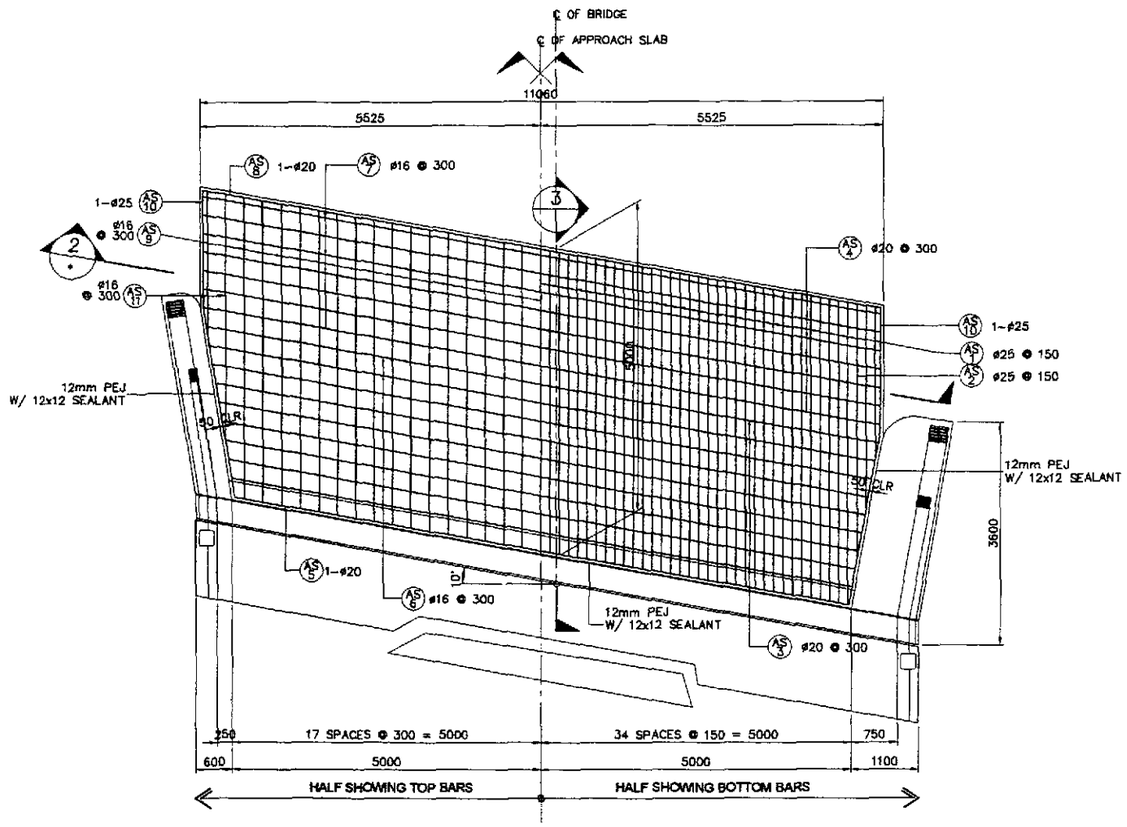
PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	ADRIANO M. DORDY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

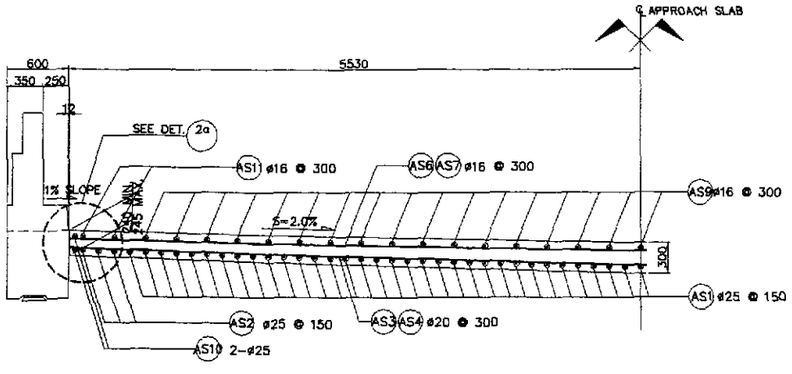
SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 13
ABUTMENT A1 & A2
WINGWALL REINFORCEMENT DETAILS
(INITIAL STAGE)

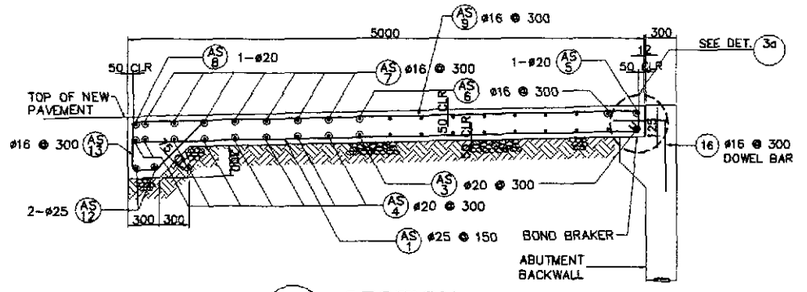
SHEET NO. :
B13-06



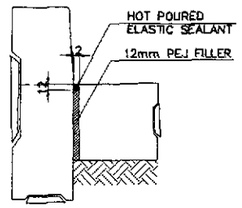
1 PLAN
SCALE 1:50



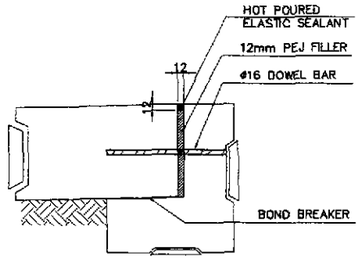
2 SECTION
SCALE 1:30



3 SECTION
SCALE 1:30



2a DETAIL
SCALE 1:10



3a DETAIL
SCALE 1:10

BAR BENDING DIAGRAM

(A) a

(B) a, b

(C) a, b

(D) a, b, c, d

SCHEDULE OF REINFORCEMENT PER APPROACH SLAB

LOCATION	CONCRETE VOLUME (m³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT a	b	c	d	e	f	LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)
APPROACH SLAB	17.61	AS1	25	68	150	B	4900	200	–	–	–	–	5100	346.80	3.854	1337	159.55
		AS2	25	6	150	B	3250	200	–	–	–	–	3450	20.70	3.854	80	
		AS3	20	10	300	A	10700	–	–	–	–	–	10700	107.00	2.466	264	
		AS4	20	8	300	A	11300	–	–	–	–	–	11300	90.40	2.466	223	
		AS5	20	1	AS SHOWN	A	10150	–	–	–	–	–	10150	10.15	2.466	26	
		AS6	16	9	300	A	10800	–	–	–	–	–	10800	97.20	1.579	154	
		AS7	16	7	300	A	11300	–	–	–	–	–	11300	79.10	1.579	125	
		AS8	20	1	AS SHOWN	A	11300	–	–	–	–	–	11300	11.30	2.466	28	
		AS9	16	34	300	B	4800	200	–	–	–	–	5100	173.40	1.579	274	
		AS10	25	4	AS SHOWN	C	2000	3100	–	–	–	–	5100	20.40	3.854	79	
		AS11	16	4	300	B	3150	200	–	–	–	–	3350	13.40	1.579	22	
		AS12	25	2	AS SHOWN	A	11300	–	–	–	–	–	11300	22.60	3.854	88	
		AS13	16	38	300	D	400	500	200	700	–	–	1800	68.40	1.579	109	
TOTAL	17.61														GRADE 40 TOTAL = 684 kgs. GRADE 60 TOTAL = 2,125 kgs.		

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	E.N. SALLAN
CHECKED	10/19/02	
SUBMITTED	12/2/02	N. KUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

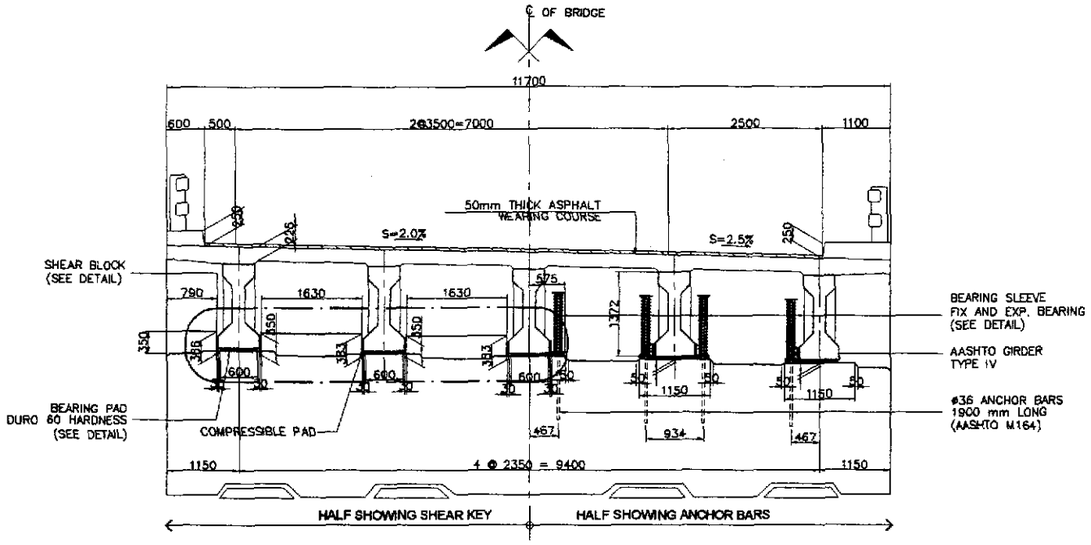
PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

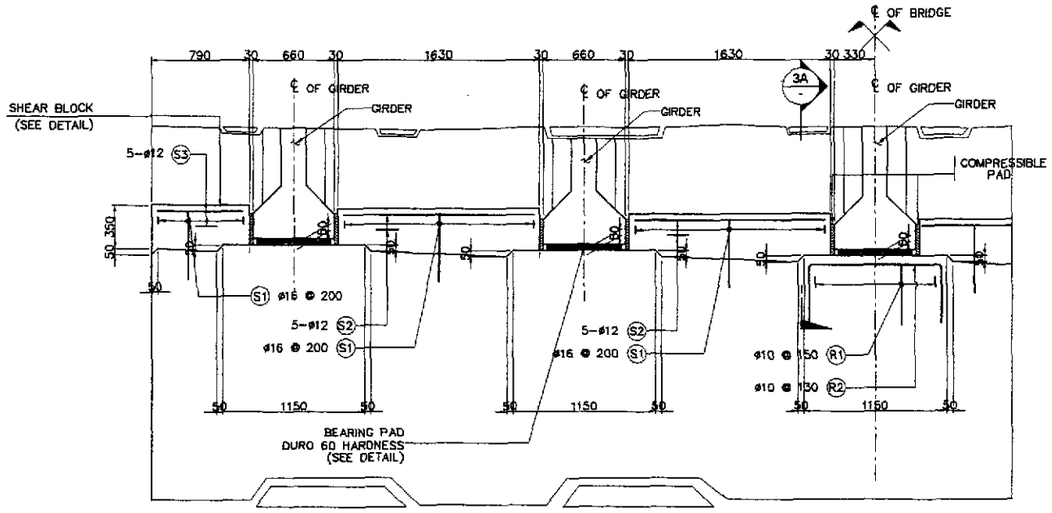
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 13
APPROACH SLAB PLAN, SECTIONS AND DETAILS (INITIAL STAGE)

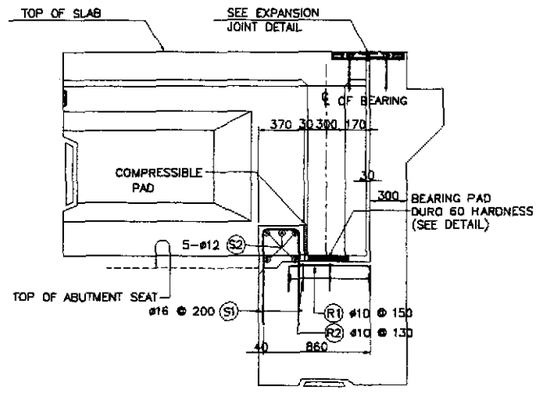
SHEET NO. : B13-07



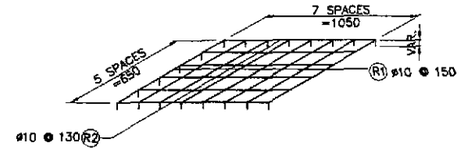
1 - SECTION AT ABUTMENT SEAT
SCALE 1:50



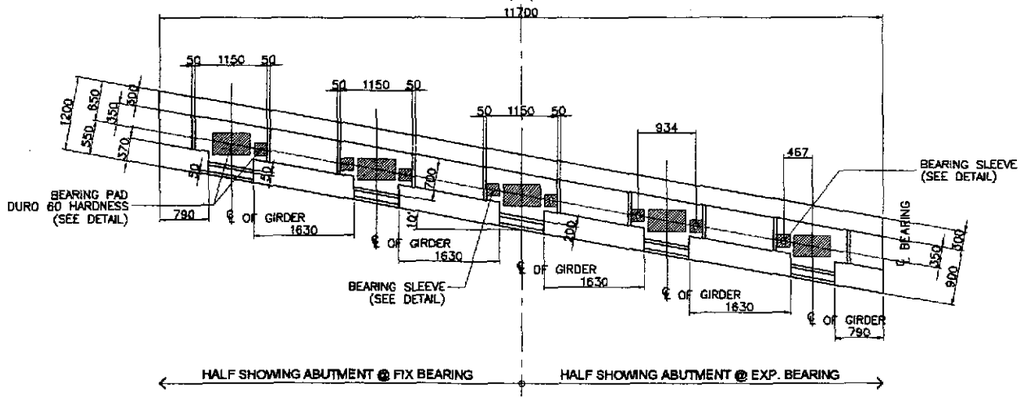
3 - SHEAR BLOCK DETAIL
SCALE 1:25



3A - SECTION
SCALE 1:25



4 - RISER REINFORCEMENT
NOT TO SCALE



2 - PLAN AT ABUTMENT SEAT
SCALE 1:50

BAR BENDING DIAGRAM

(A) a

(B) a b c

SCHEDULE OF REINFORCEMENT

LOCATION	CONCRETE VOLUME (m^3)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION(mm) OUT TO OUT a	b	c	d	e	LENGTH EACH BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m^3)
SHEAR KEY & RISER	1.55	S1	16	46	200	(B)	560	290	560			1410	6486	1.579	103	147.28
		S2	12	20	AS SHOWN	(A)	1575					1575	31.50	0.888	28	
		S3	12	10	AS SHOWN	(A)	720					720	7.20	0.888	7	
		R1	10	40	150	(B)	500	660	500			1660	66.40	0.616	41	
		R2	10	30	130	(B)	500	1070	500			2070	62.10	0.616	39	
TOTAL	1.55	GRADE 40 TOTAL = 218 kgs.														

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	E.A. SALLAN
CHECKED	10/19/02	
SUBMITTED	10/21/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

RUHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	ADRIANO M. DOROY	GILBERTO S. REYES	MANUEL M. BONDAN	SIMEON A. DATUMANONG
Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

PROJECT AND LOCATION :
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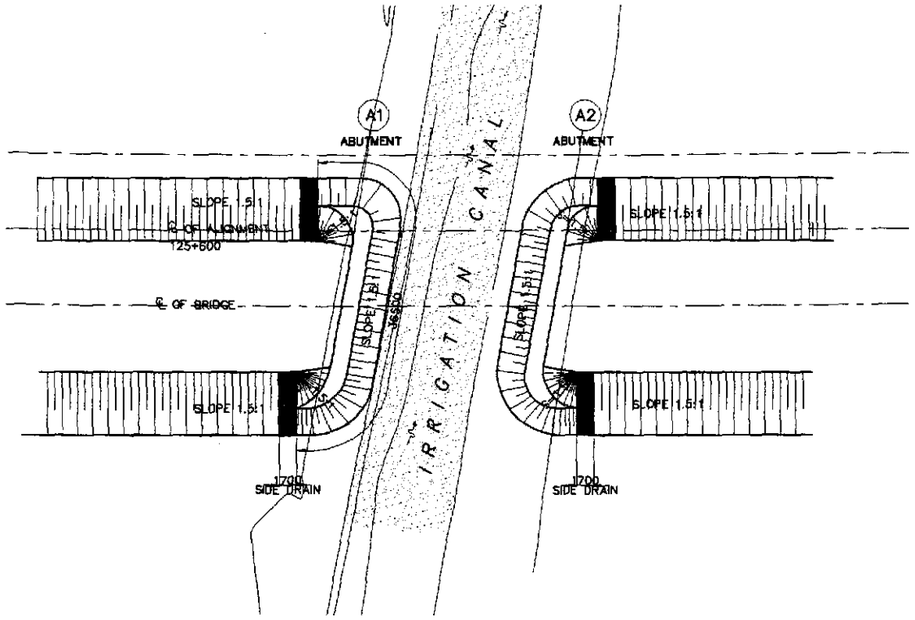
CABANATUAN BYPASS - CONTRACT PACKAGE IV

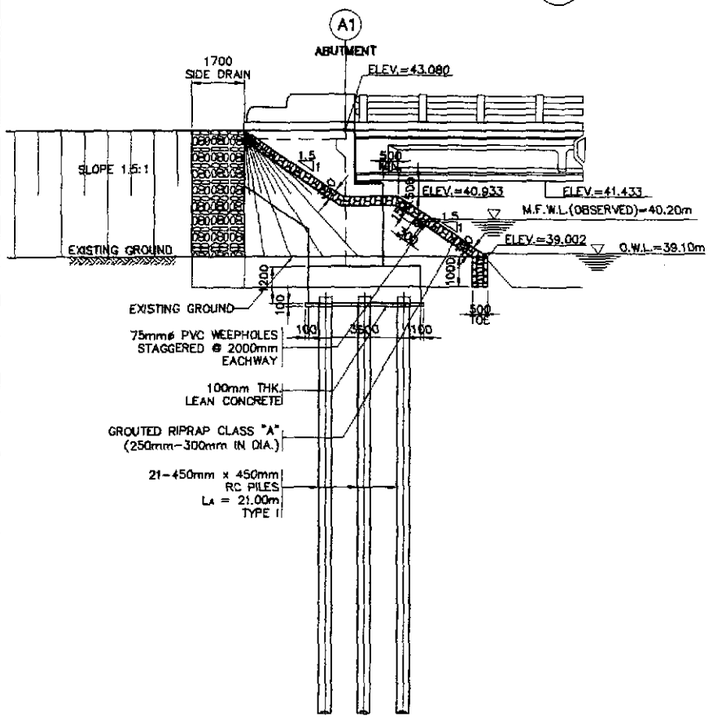
SCALE : AS SHOWN FULL SIZE A1

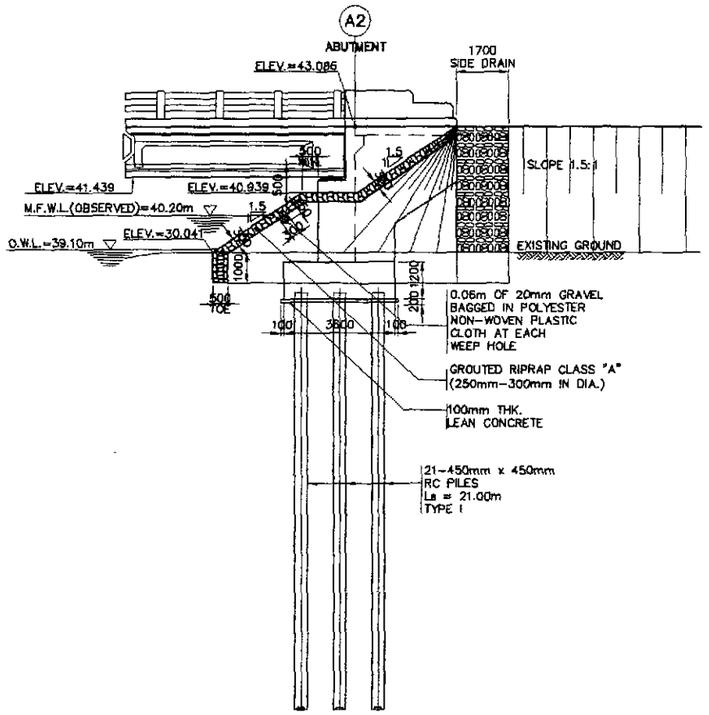
SHEET CONTENTS :
BRIDGE NO. 13
SHEAR KEY AND RISER DETAILS AT ABUTMENT (INITIAL STAGE)

SHEET NO. : B13-08



1A PLAN
SCALE 1:300





1B ELEVATION
SCALE 1:100

1 ABUTMENT SLOPE PROTECTION
SCALE AS SHOWN

GENERAL NOTES:

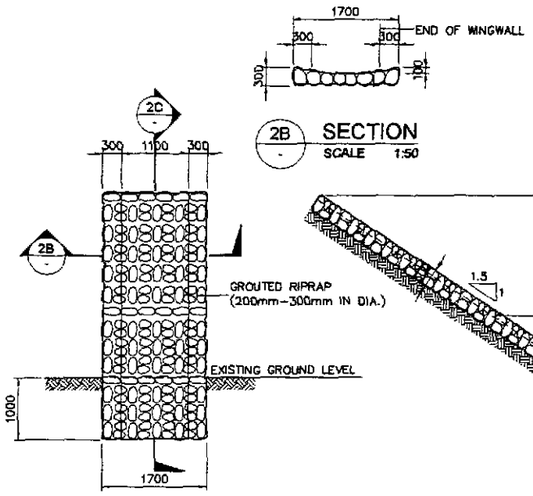
1. GROUTED RIPRAP (250mm-300mmDIA.) SHALL BE USED FOR THE FACING AND SHALL BE CAREFULLY HANDLAID WITH THE LONGEST DIMENSIONS PERPENDICULAR TO THE SLOPE AND FIRMLY BEDDED INTO THE SLOPE AND ADJACENT TO THE ADJOINING BOULDERS SPACED BETWEEN THE BOULDERS. THE SPACE BETWEEN THE BOULDERS SHALL BE COMPLETELY FILLED WITH MORTAR. THE OUTSIDE SURFACE OF THE BOULDERS SHALL BE LEFT EXPOSED AND THE SURFACE OF THE MORTAR SHALL BE SWEPT WITH A STIFF BROOM.

2. GEOTEXTILE
   THE FOLLOWING SPECIFICATIONS ARE REQUIRED:
   1. POLYESTER OR POLYPROPELINE - 100%
   2. MECHANICALLY BONDED/HEAT BONDED
   3. NON-WOVEN
   4. EFFECTIVE OPENING SIZE - 110 MICRONS (MAX.)
   5. THICKNESS UNDER PRESSURE - 0.80mm (MIN.)
   6. WEIGHT - 200g/sq. m. (MIN.)
   7. CBR PUNCTURE STRENGTH - 400N (MIN.)
   8. MULTI-DIRECTIONAL TENSILE STRENGTH - 13KN/m

3. GRAVEL FILTER SHALL BE COARSE AGGREGATES MATERIALS WHICH SATISFY THE REQUIREMENTS FOR ITEM 405, STRUCTURAL CONCRETE, GRADING B OF TABLE 405.1 AS REVISED.

4. NO CONCRETING UNDER WATER SHALL BE PERMITTED.

5. PROVIDE 1.0 m BERM WHEN HEIGHT (H) IS > 4.0 m.



2A ELEVATION
SCALE 1:50

2C SECTION
SCALE 1:50

2 TYPICAL SIDE DRAIN DETAIL
SCALE AS SHOWN

VELOCITY (m/sec)	ROCK SIZE (mm)	
	VERY TURBULENT FLOW	SMOOTH FLOW
1.00	40	-
1.50	135	-
2.00	170	-
2.50	255	137
3.00	370	197
3.50	515	270
4.00	680	350
4.50	825	425
5.00	>900	580

PER ABUTMENT

LOCATION	SIZES	QUANTITY	
		ABUT. A1	ABUT. A2
SIDE DRAIN	200mm-300mm IN DIA.	9.06 cu. m.	9.06 cu. m.
GROUTED RIPRAP	250mm-300mm IN DIA.	60.28 cu. m.	60.28 cu. m.

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KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	R. P. GONZALES
CHECKED	10/12/02	
SUBMITTED	10/12/02	M. KUSUI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

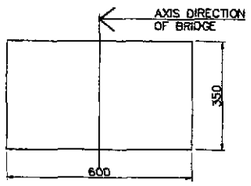
PUHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	PERFECTO L. ZAPLAN JR., Chief, Hydraulics Division (OIC)	GILBERTO S. REYES, Director IV (OIC)	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

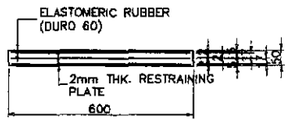
SCALE : AS SHOWN, FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 13
ABUTMENT PROTECTION
AND SIDE DRAIN DETAILS
(INITIAL STAGE)

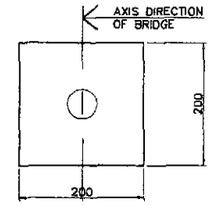
SHEET NO. : B13-09



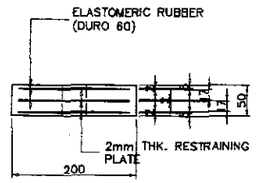
1A PLAN
SCALE 1:10



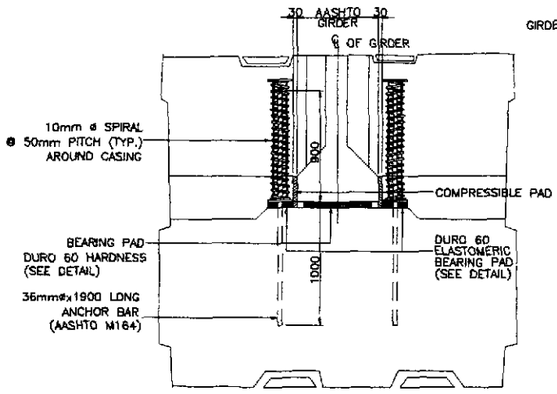
1B ELEVATION
SCALE 1:10



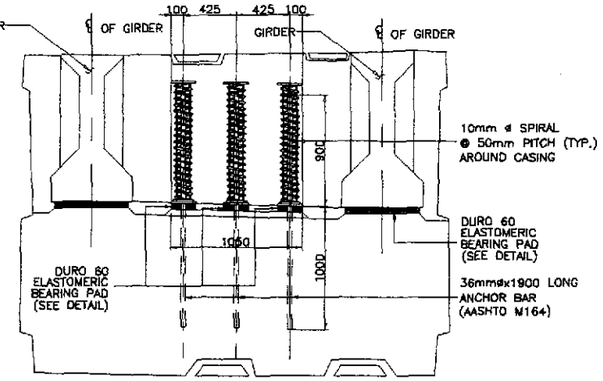
1D PLAN
SCALE 1:5



1E ELEVATION
SCALE 1:5

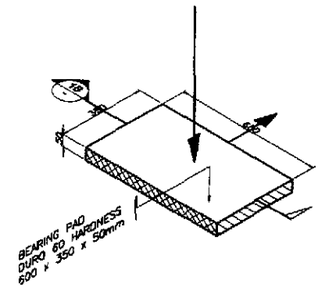


AT ABUTMENT



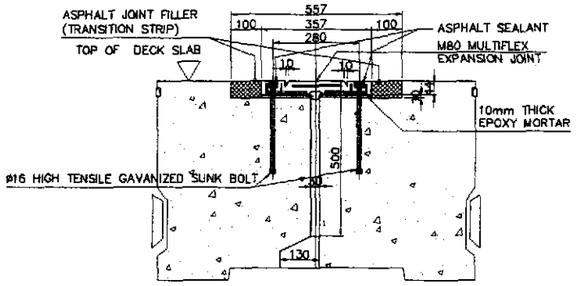
AT PIER

3A ANCHOR BAR
SCALE 1:25

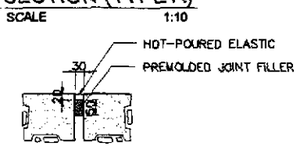


1C ISOMETRIC VIEW
N T S

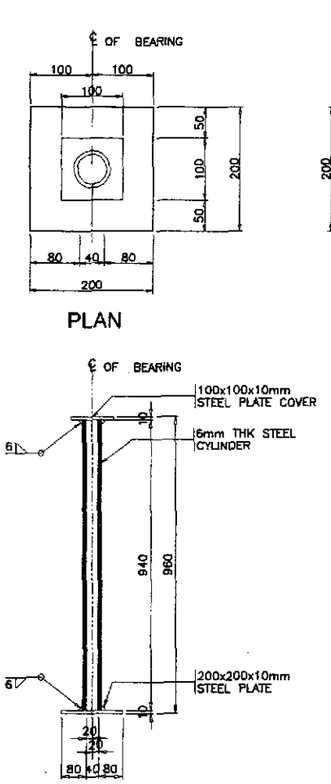
1 BEARING PAD DETAIL
SCALE AS SHOWN



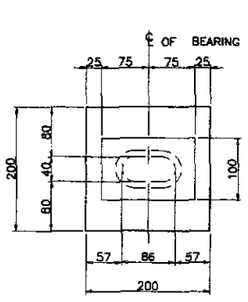
2B SECTION (TYPE A)
SCALE 1:10



2C SECTION (TYPE B)
SCALE 1:10

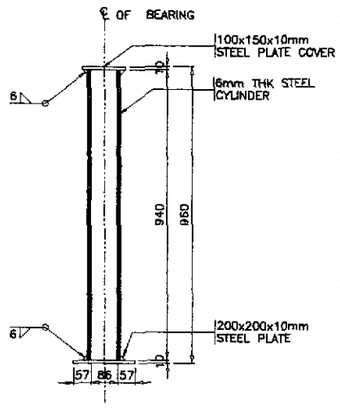


PLAN

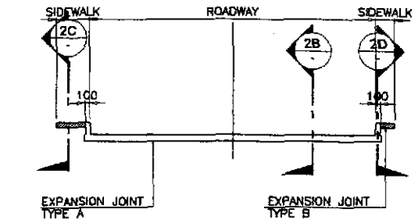


PLAN

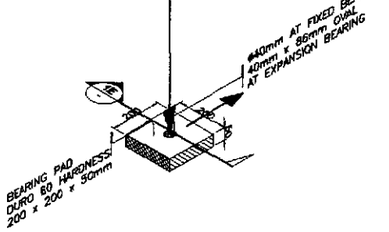
ELEVATION



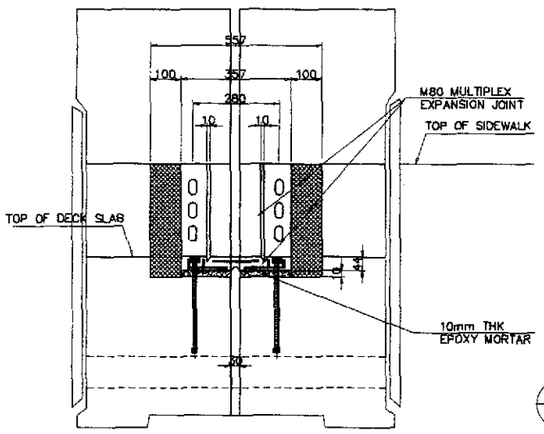
ELEVATION



2A ELEVATION
N T S



1F ISOMETRIC VIEW
N T S



2D SECTION (TYPE A)
SCALE 1:10

3B FIXED BEARING
SCALE 1:10

3C EXPANSION BEARING
SCALE 1:10

2 EXPANSION JOINT DETAIL
SCALE AS SHOWN

3 BEARING SLEEVE AND ANCHOR BAR DETAIL
SCALE AS SHOWN

A.) QUALITY TESTING OF RUBBER COMPOUND

PROPERTIES	SPECIFICATION
HARDNESS (SHORE A)	50 ± 5
TENSILE STRENGTH (MPa)	13 MIN
ELONGATION AT BREAK (%)	400 MIN
COMPRESSION SET (AFTER 22h AT 70°C)	20% MAX
OZONE RESISTANCE (AFTER 72h AT 40°C, 20% STRAIN 100 pphm	NO CRACK
OIL RESISTANCE IN ASTM NO. 3 OIL (168h AT 25°C VOLUME CHANGE)	15% MAX

B.) DIMENSION CHECK ON METAL PLATES

DIMENSION	SPECIFICATION
LENGTH	± 1
WIDTH	0 TO −1.5 MIN
THICKNESS	±0.5 MIN

C.) QUALITY CHECK

PROPERTY	SPECIFICATION
DIMENSION	ACCORDING TO PRODUCT DRAWING
SURFACE APPEARANCE	NO VISIBLE CRACK
RUBBER COVER HARDNESS (SHORE A)	50 ± 5

INSTALLATION MATERIALS

1. EPOXY BEDDING
2. EPOXY NOSING
3. BOLT/NUTS
4. SEALANT

LOCATION	EXPANSION JOINT TYPE	MOVEMENT (mm)	LENGTH (m)
BRIDGE 11	MULTIFLEX 80	30	26
BRIDGE 12	MULTIFLEX 80	30	26
BRIDGE 13	MULTIFLEX 80	30	26

LOCATION	ELASTOMERIC BEARING PAD SIZE	QUANTITY
BRIDGE 11	600x350x50	10 PCS.
	200x200x50	16 PCS.
BRIDGE 12	600x350x50	30 PCS.
	200x200x50	52 PCS.
BRIDGE 13	600x350x50	10 PCS.
	200x200x50	16 PCS.

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JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	E/N SALLAN
CHECKED	10/19/02	
SUBMITTED	10/21/02	T. KOCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

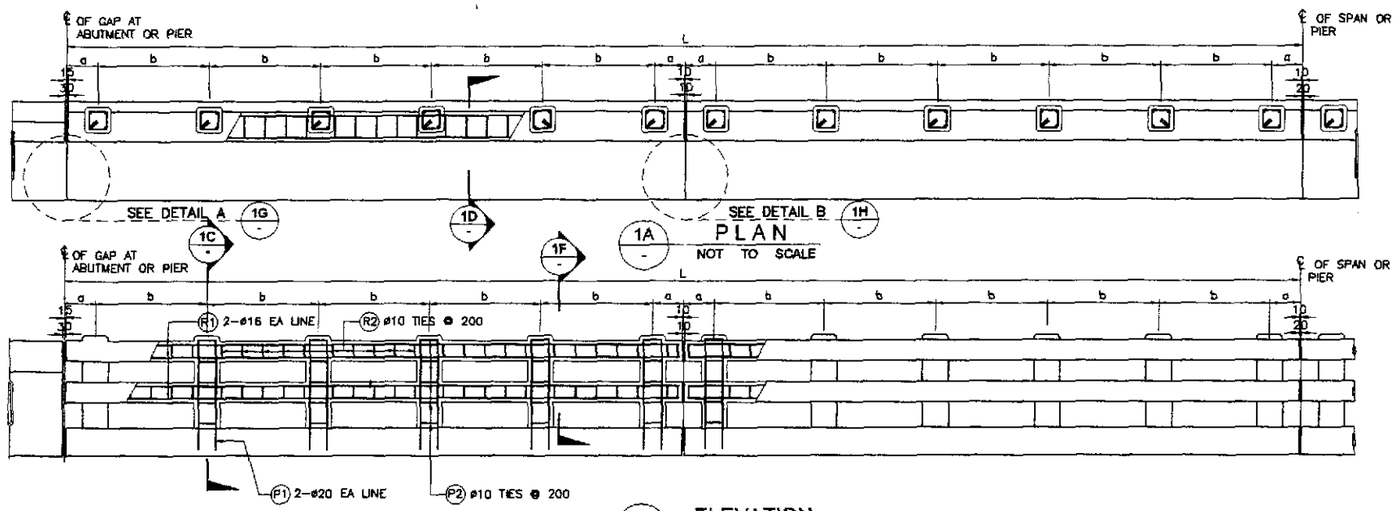
FPJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)	MANUEL M. BONGAN Undersecretary	SIMEON A. DATUMANONG Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

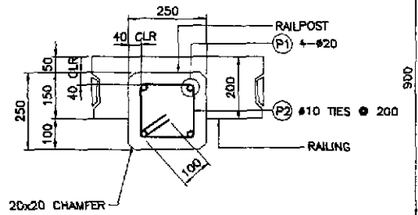
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 11, 12, & 13
TYP. BEARING PAD, EXPANSION JOINT, BEARING SLEEVE & ANCHOR BAR DET. (INITIAL STAGE)

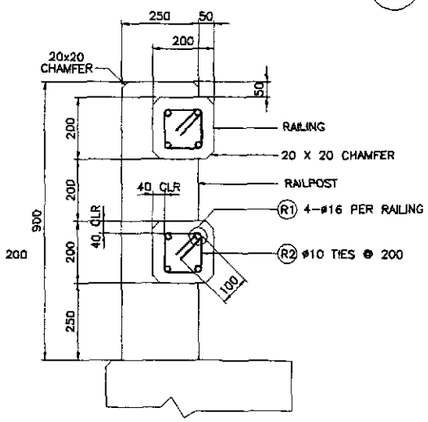
SHEET NO. :
BS-01



1B ELEVATION
NOT TO SCALE



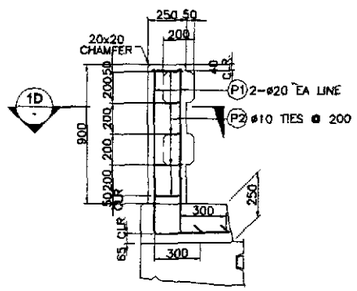
1E DETAIL
SCALE 1:10



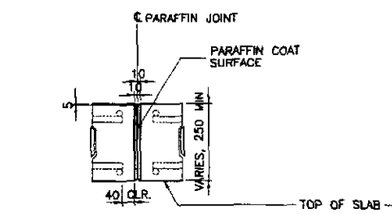
1F SECTION
SCALE 1:10

NOTE :
FOR LOCATION OF JOINTS SEE GENERAL PLAN OF BRIDGE.

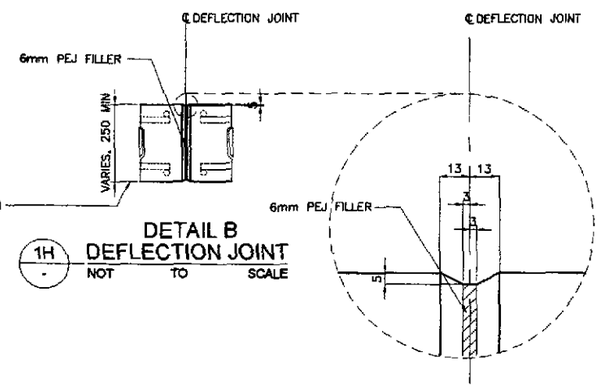
NOTE :
SIDEWALK SHALL BE PLACED AFTER THE SHORING UNDER THE SUPERSTRUCTURE HAS BEEN RELEASED SUFFICIENTLY TO PERMIT THE SPANS TO ATTAIN FULL DEAD LOAD DEFLECTION.



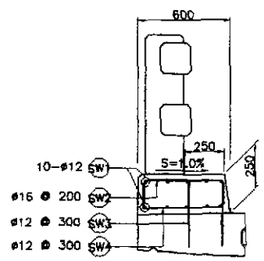
1C SECTION
SCALE 1:20



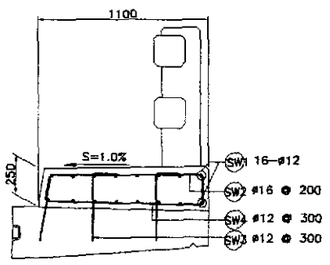
1G DETAIL A
PARAFFIN JOINT
NOT TO SCALE



1H DETAIL B
DEFLECTION JOINT
NOT TO SCALE



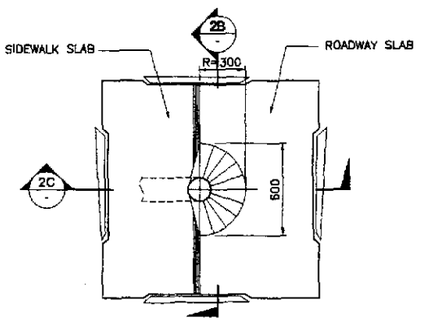
@ LEFT SIDE



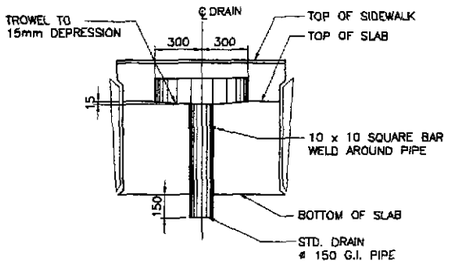
@ RIGHT SIDE

1D SIDEWALK DETAIL
SCALE 1:20

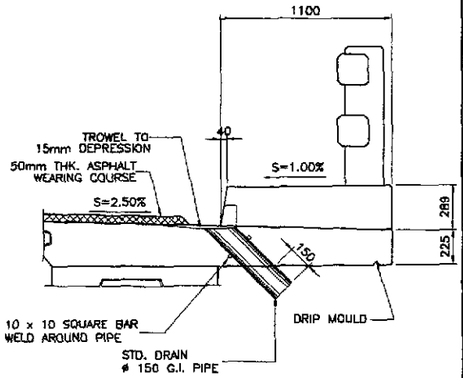
1 TYPICAL RAILING AND SIDEWALK DETAILS
SCALE AS SHOWN



2A PLAN



2B SECTION



2C SECTION

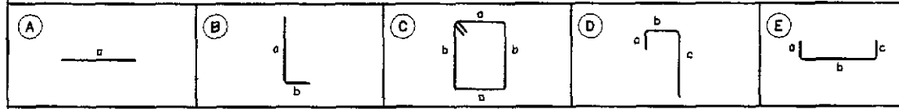
2 TYPICAL DRAIN DETAILS
SCALE 1:20

JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIYO ENGINEERING CO., LTD.		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE IV	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE 11, 12, & 13 TYPICAL SIDEWALK, RAILING AND DRAIN DETAILS (INITIAL STAGE)	SHEET NO. : BS-02

	DATE	SIGNATURE
DESIGNED	10/12/02	E. H. SALLAN
CHECKED	10/19/02	
SUBMITTED	10/21/02	TEAM LEADER

FUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary

BAR BENDING DIAGRAM

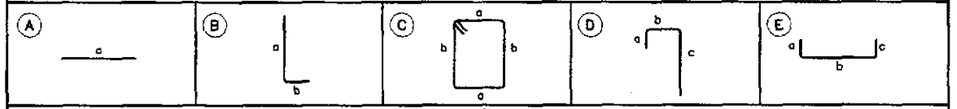


SCHEDULE OF REINFORCEMENT (POST, RAILING AND SIDEWALK)

	LOCATION	CONCRETE VOLUME (m^3)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT a	b	c	d	e	LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m)
BRIDGE 11	POST	2.70	P1	20	192	AS SHOWN	B	1045	450	–	–	–	1495	287.04	2.466	708	310.74
			P2	10	240	200	C	170	170	100			880	211.20	0.616	131	
	RAILING	5.60	R1	16	16	AS SHOWN	A	35000	–	–	–	–	35000	560.00	1.579	885	206.07
			R2	10	640	200	C	120	120 (ave.)	100	–	–	680	435.20	0.616	269	
	SIDEWALK	14.88	SW1	12	26	AS SHOWN	A	35000	–	–	–	–	35000	910.00	0.888	809	132.24
			SW2	16	176	200	D	170	980	400	–	–	1550	272.80	1.579	431	
			SW2a	16	176	200	D	170	480	400	–	–	1050	184.80	1.579	292	
			SW3	12	353	300	B	400	250	–	–	–	650	229.45	0.888	204	
			SW4	12	118	300	E	170	1020	170	–	–	1360	160.48	0.888	143	
			SW4a	12	118	300	E	170	520	170	–	–	860	101.48	0.888	91	
	TOTAL	23.18															

GRADE 40 GRAND TOTAL = 3,255 kgs.
GRADE 60 GRAND TOTAL = 708 kgs.

BAR BENDING DIAGRAM

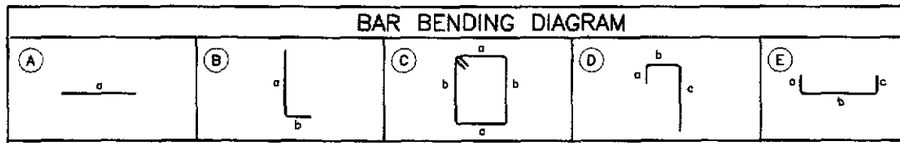


SCHEDULE OF REINFORCEMENT (POST, RAILING AND SIDEWALK)

	LOCATION	CONCRETE VOLUME (m^3)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT a	b	c	d	e	LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m)
BRIDGE 12	POST	8.10	P1	20	576	AS SHOWN	B	1045	450	–	–	–	1495	861.12	2.466	2124	310.52
			P2	10	720	200	C	170	170	100			880	633.60	0.616	391	
	RAILING	16.00	R1	16	16	AS SHOWN	A	101800	–	–	–	–	101800	1628.80	1.579	2572	210.31
			R2	10	1892	200	C	120	120	100	–	–	680	1286.56	0.616	793	
	SIDEWALK	43.27	SW1	12	26	AS SHOWN	A	101800	–	–	–	–	101800	2646.80	0.888	2351	131.88
			SW2	16	510	200	D	170	980	400	–	–	1550	790.50	1.579	1249	
			SW2a	16	510	200	D	170	480	400	–	–	1050	535.50	1.579	846	
			SW3	12	1020	300	B	400	250	–	–	–	650	663.10	0.888	589	
			SW4	12	340	300	E	170	1020	170	–	–	1360	462.40	0.888	411	
			SW4a	12	340	300	E	170	520	170	–	–	860	292.40	0.888	260	
	TOTAL	67.37															

GRADE 40 GRAND TOTAL = 9,462 kgs.
GRADE 60 GRAND TOTAL = 2,124 kgs.

BAR BENDING DIAGRAM



SCHEDULE OF REINFORCEMENT (POST, RAILING AND SIDEWALK)

	LOCATION	CONCRETE VOLUME (m^3)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT a	b	c	d	e	LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m)
BRIDGE 13	POST	1.69	P1	20	120	AS SHOWN	B	1045	450	–	–	–	1495	179.40	2.466	443	311.11
			P2	10	150	200	C	170	170	100			880	132.00	0.616	82	
	RAILING	3.20	R1	16	16	AS SHOWN	A	20000	–	–	–	–	20000	320.00	1.579	506	205.94
			R2	10	384	200	C	120	120	100	–	–	680	247.52	0.616	153	
	SIDEWALK	8.50	SW1	12	26	AS SHOWN	A	20000	–	–	–	–	20000	520.00	0.888	462	133.06
			SW2	16	101	200	D	170	980	400	–	–	1550	156.55	1.579	248	
			SW2a	16	101	200	D	170	480	400	–	–	1050	106.05	1.579	168	
			SW3	12	203	300	B	400	250	–	–	–	650	131.95	0.888	118	
			SW4	12	68	300	E	170	1020	170	–	–	1360	92.48	0.888	83	
			SW4a	12	68	300	E	170	520	170	–	–	860	58.48	0.888	52	
	TOTAL	13.39															

GRADE 40 GRAND TOTAL = 1,872 kgs.
GRADE 60 GRAND TOTAL = 443 kgs.

RAILING FOR BRIDGES

BRIDGE NO.	SPAN LENGTH (m)	NO. OF EXP. JT. INSIDE SPAN	NO. OF POST W/IN EXP. JT.	NO. OF RAIL POST PER SPAN	L (mm)	a (mm)	b (mm)
BR. 11	35.00	3	6	48	17515	250	1652
BR. 12	25.00	2	6	36	12665	250	1589
	25.00	2	6	36	25300	250	1587
BR. 13	20.00	2	5	30	10015	250	1545

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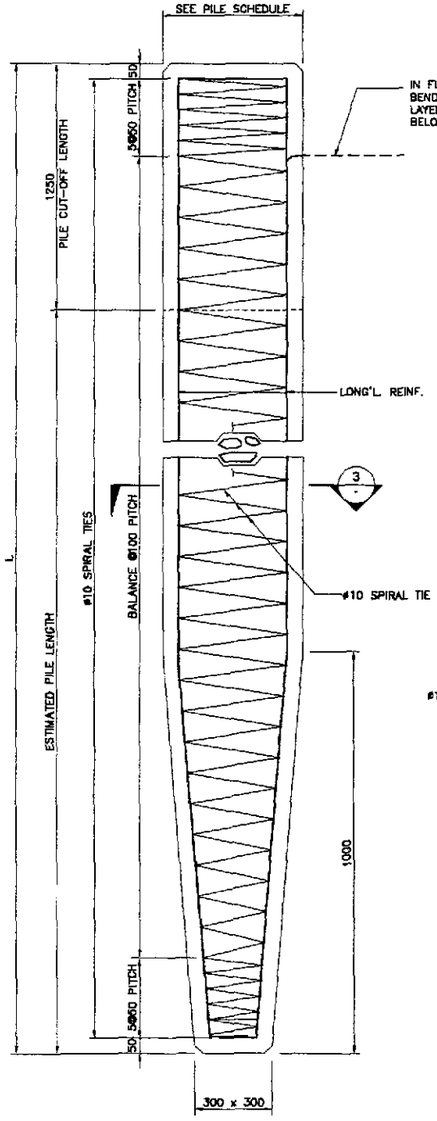
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	12/12/01	E. N. SALIAN
CHECKED	10/19/02	
SUBMITTED	10/21/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

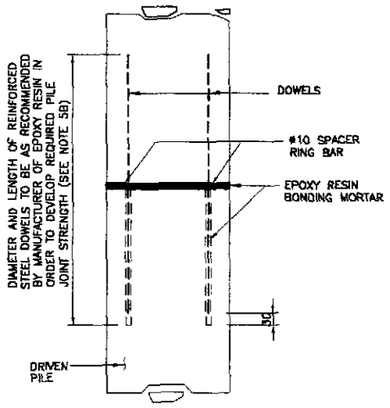
PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	ADRIANO M. DOROY	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE 11, 12, & 13 SCHEDULE OF REINFORCEMENT (POST, RAILING AND SIDEWALK) (INITIAL STAGE)	BS-02a
CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		

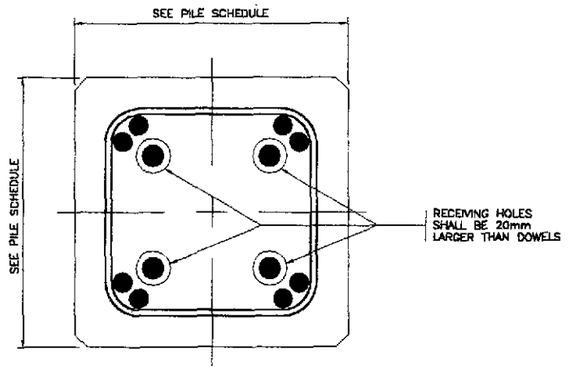


1 PILE ELEVATION
NOT TO SCALE

PILE SCHEDULE				
TYPE	SIZE (mm)	LONGITUDINAL REINF.		ALLOWABLE BEARING CAPACITY (kN)
		QTY.	BAR SIZE	
I	450 x 450	8	28	680
II	450 x 450	8	32	680
III	400 x 400	8	28	490

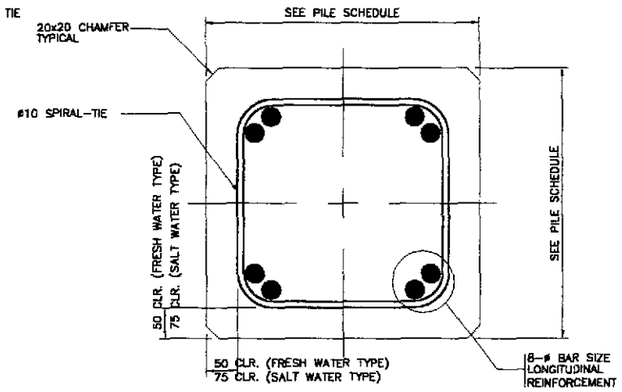


2A ELEVATION
N T S

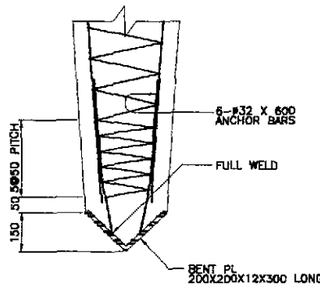


2B SECTION
N T S

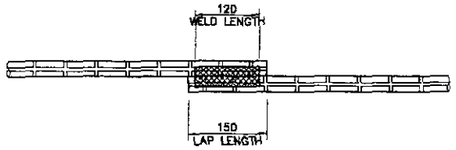
2 PILE SPLICE DETAIL
NOT TO SCALE



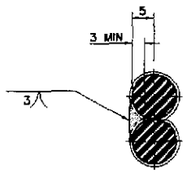
3 SECTION
NOT TO SCALE



4 PILE TIP FOR HARD DRIVING
NOT TO SCALE



5A ELEVATION
N T S



5B SECTION
N T S

5 WELDED SPIRAL TIE SPLICE DETAIL
NOT TO SCALE

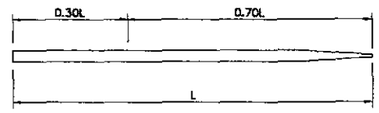
NOTES

1. CONCRETE :
   CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF CLASS AA CONCRETE, WITH 28 MPa CYLINDER STRENGTH AND 19.0mm MAXIMUM AGGREGATE SIZE.
2. REINFORCENMENT :
   A. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASSHTO M31 (ASTM A615) GRADE 40 AND 60.
   B. SPLICES OF ADJACENT LONGITUDINAL STEEL SHALL BE STAGGERRED 100 BAR DIAMETERS APART. LENGTH OF SPLICES SHALL BE 1000mm FOR #25 AND 1300mm FOR #28 AND 1700mm FOR #32.
   C. SPIRAL-TIES SHALL BE WELDED AT SPLICES.
3. DRIVING :
   A. PILE HEADS SHALL BE PROTECTED FROM DIRECT IMPACT OF THE HAMMER BY CUSHION BLOCKS CONSISTING OF SEVERAL BLOCKS OF WOOD OR OF OTHER APPROVED MATERIALS.
   B. PILES SHALL BE DRIVEN TO A DEPTH THAT WILL PRODUCE THE REQUIRED ALLOWABLE BEARING CAPACITY.
4. PILE FOUNDATION DESIGN:
   A. IN PILE-BENT PIERS, PILE LENGTHS SHALL BE DETERMINED BY THE ENGINEER/CONSULTANT BASED ON THE ALLOWABLE PILE BEARING CAPACITY SPECIFIED BELOW.
   B. IN COLUMN-BENT PIERS, THE NUMBER, LOCATION AND LENGTH OF PILES SHALL BE DETERMINED BY THE ENGINEER/CONSULTANT BASED ON THE LOADING INFORMATION GIVEN IN THE PIER DETAILS.
5. PILE SPLICE :
   A. PILES MAY BE SPLICED ONLY IF STRICTLY NECESSARY AND APPROVED BY THE ENGINEER/CONSULTANT. PILE SPLICES SHALL BE LOCATED AT LEAST 10m BELOW THE EXISTING GROUND LEVEL.
   B. PILE SPLICE SHALL DEVELOP 100% AXIAL AND 50% BENDING OF THE CAPACITY OF THE PILE SECTION WHERE THE SPLICE IS LOCATED.
6. ALLOWABLE PILE BEARING CAPACITY : (SEE PILE SCHEDULE)
7. MINIMUM HAMMER ENERGY RATING = 55 kN-m
8. BASIS FOR COMPUTING ALLOWABLE PILE BEARING CAPACITY:

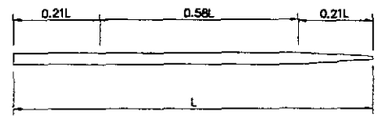
$$Pall = \left(\frac{167\ eh\ Eh}{S + 2.54}\right)\left(\frac{Wr + 0.16\ Wp}{Wr + Wp}\right)$$

WHERE:
Pall = ALLOWABLE PILE BEARING CAPACITY (kN)
eh = HAMMER EFFICIENCY
Eh = HAMMER ENERGY RATING (kN-m)
Wr = WEIGHT OF RAM (kN)
Wp = WEIGHT OF PILE AND OTHER DRIVEN WEIGHTS (kN)
S = AVERAGE PENETRATION PER BLOW FOR THE LAST 150mm OF DRIVING (mm)

9. TEST PILES
   TEST PILES SHALL BE DRIVEN WITH THE SAME HAMMER USED FOR DRIVING REGULAR PILES AND MAY BE PART OF FOUNDATION IF APPROVED BY THE ENGINEER/CONSULTANT.
10. PICK-UP POINTS :
    PICK-UP POINTS SHALL BE MARKED ON ALL PILES AND ALL LIFTING SHALL BE DONE AT THESE POINTS.



1-POINT PICK-UP



2-POINT PICK-UP

THE USE OF SPECIAL EMBEDDED OR ATTACHED LIFTING DEVICES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER/CONSULTANT.

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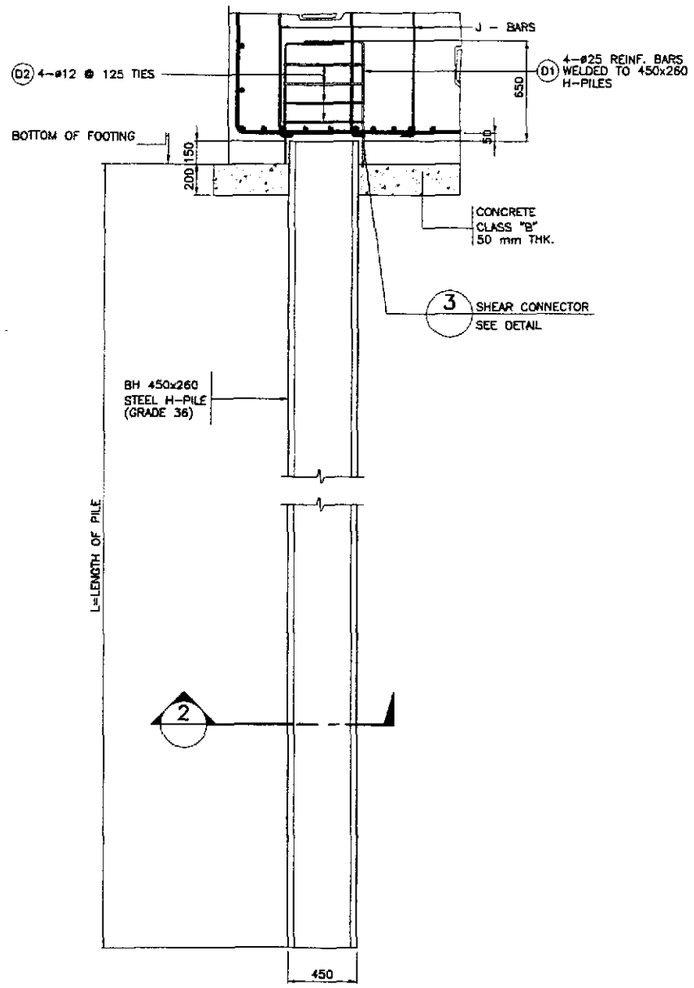
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	E. M. SALLAN
CHECKED	10/19/02	
SUBMITTED	10/21/02	D. KUCHI TEAM LEADER

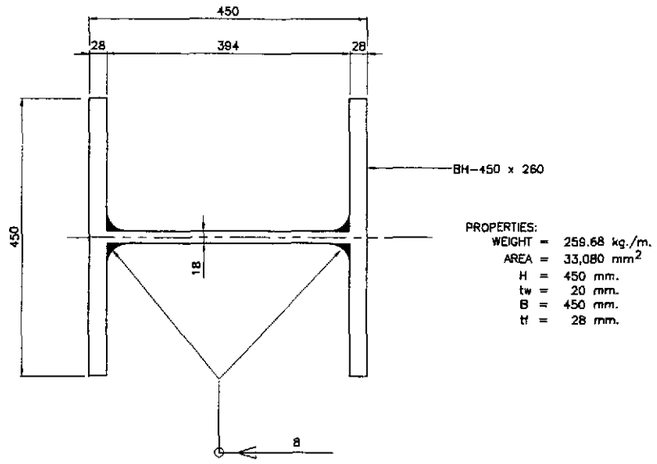
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	ADRIANO M. DORCY, Chief, Bridges Division	GILBERTO S. REYES, Director IV (OIC)	MANUEL M. BONDAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

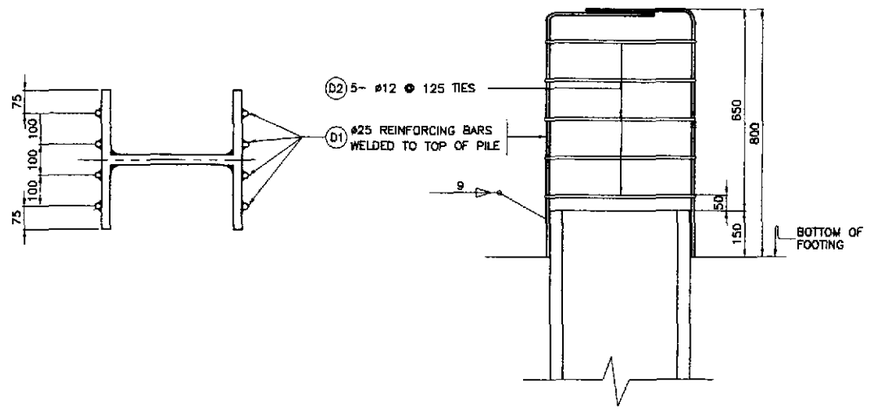
PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE IV	AS SHOWN FULL SIZE A1	BRIDGE NO. 11 & 13 TYPICAL PRECAST CONCRETE PILE DETAILS (INITIAL STAGE)	BS-03



1 / - ELEVATION OF STEEL H-PILES
SCALE 1:20



2 / - SECTION
SCALE 1:5



3 / - SHEAR CONNECTOR
SCALE 1:10

BAR BENDING DIAGRAM

(A) a, b

(B) a, b, c, d

SCHEDULE OF REINFORCEMENT(PER PILE)

STRUCTURE COMPONENT	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) a	b	c	d	LENGTH EA. BAR	TOTAL LENGTH	UNIT WT. (KG/M)	WEIGHT IN (KG)	REMARKS
H–PILE HEAD	(D1)	25	8	AS SHOWN	(A)	375	800	–	–	1175	9.40	3.854	37	
	(D2)	12	5	125	(B)	500	350	100	100	1900	9.50	0.888	9	
GRAND TOTAL = 46 kgs.														

NOTES

1 GENERAL

1.1 FOR GENERAL NOTES REFER TO SHEET B-02.

2 STRUCTURAL STEEL

2.1 STRUCTURAL STEEL SHALL CONFORM TO AASHTO M183 (ASTM A36).

2.2 WELDS SHALL CONFORM TO AWS D1.1 – 183, E70 XX SERIES.

2.3 DESIGNATION OF SECTION IN ACCORDANCE WITH ASEP STEEL HANDBOOK 1994.

3 PILE BEARING

3.1 ALLOWABLE PILE BEARING CAPACITY SHALL BE 600kN.

3.2 PILES SHALL BE DRIVEN TO A DEPTH OF NOT LESS THAN 1800mm PENETRATION OR TO REFUSAL, INTO THE BEARING STRATUM. THE BEARING STRATUM SHALL BE ROCK, SAND AND GRAVELS OR EQUIVALENT COHESIONLESS MATERIAL.

4 PILE DRIVING

4.1 MINIMUM HAMMER ENERGY RATING SHALL BE 55kN–m.

4.2 THE PILE BEARING CAPACITY SHALL BE DERIVED AS FOLLOWS:

$$Pall = \left[\frac{167\ eh\ Eh}{S + 2.54}\right]\left[\frac{Wr + 0.16\ Wp}{Wr + Wp}\right]$$

WHERE:

Pall = ALLOWABLE PILE BEARING CAPACITY (kN)
eh = HAMMER EFFICIENCY
Eh = HAMMER ENERGY RATING (kN–m)
Wr = WEIGHT OF RAM (kN)
Wp = WEIGHT OF PILE AND OTHER DRIVEN WEIGHTS (kN)
S = AVERAGE PENETRATION PER BLOW FOR THE LAST 150mm OF DRIVING (mm)

4.3 PILE HEADS SHALL BE PROTECTED FROM DIRECT IMPACT OF THE HAMMER BY CUSHION BLOCKS CONSISTING OF SEVERAL BLOCKS OF WOOD OR OTHER APPROVED MATERIALS.

4.4 PILES SHALL BE DRIVEN TO A DEPTH THAT WILL PRODUCE THE REQUIRED ALLOWABLE BEARING CAPACITY.

5 PILE SPLICE

5.1 PILES SHALL BE SPLICED ONLY IF STRICTLY NECESSARY AND WHEN APPROVED BY THE ENGINEER/CONSULTANT PILE SPLICES SHALL BE LOCATED AT LEAST 10m BELOW THE EXISTING GROUND LEVEL.

5.2 PILE SPLICES SHALL DEVELOP AT LEAST 100% OF THE AXIAL CAPACITY AND 50% OF THE BENDING CAPACITY OF THE PILE SECTION WHERE THE SPLICE IS LOCATED.

6 TEST PILES

6.1 ONE TEST PILE SHALL BE DRIVEN AT EACH BRIDGE FOUNDATION. THE LOCATION OF THE TEST PILE SHALL BE AS DIRECTED BY THE ENGINEER/CONSULTANT.

6.2 TEST PILES SHALL BE DRIVEN WITH THE SAME HAMMER USED FOR DRIVING REGULAR PILES AND MAY BECOME PART OF THE FOUNDATION IF APPROVED BY THE ENGINEER/CONSULTANT.

6.3 TEST PILES SHALL BE LOADED TO 150% OF THE ALLOWABLE BEARING CAPACITY OF THE PILE. THE TEST PILE ACCEPTANCE CRITERIA SHALL BE:

TEST LOAD	MAXIMUM SETTLEMENT
A. 100% OF ALLOWABLE PILE BEARING CAPACITY	10mm
B. 150% OF ALLOWABLE PILE BEARING CAPACITY	15mm
C. ON UNLOADING	10mm (RESIDUAL)

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	A.E. GONZALES
CHECKED	10/19/02	
SUBMITTED	10/21/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	ADRIANO M. DOROY	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 12
TYPICAL STEEL H-PILES DETAILS (INITIAL STAGE)

SHEET NO. : BS-04

GENERAL

GENERAL NOTES FOR BRIDGES - 1

A. DESIGN CRITERIA

1. DESIGN SPECIFICATION

   A. DPWH DESIGN GUIDELINES CRITERIA AND STANDARDS FOR PUBLIC WORKS AND HIGHWAYS, VOL.II .

   B. NATIONAL STRUCTURAL CODE OF THE PHILIPPINES, VOL. II, 2nd ED. 1997

   C. THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES 16TH EDITION, 1996.

   D. JAPAN ROAD ASSOCIATION SPECIFICATIONS FOR HIGHWAY BRIDGES

2. DESIGN METHODOLOGY

   ALLOWABLE STRESS DESIGN (ASD) &
   LOAD FACTOR DESIGN (ULTIMATE STRENGTH DESIGN)

3. LOADING

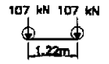
   3.1 DEAD LOADS

	WEIGHT
A. CONCRETE	24.50 kN/m^3
B. STEEL	77.00 kN/m^3
C. EARTH	19.00 kN/m^3
D. WEARING SURFACE (50mm THK.)	1.10 kN/m^2

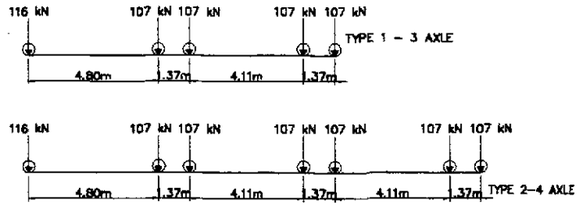
   3.2 LIVE LOADS

   A. AASHTO MS18 (HS20) TRUCK AND EQUIVALENT LANE LOADING.
   B. SIDEWALK LOAD
   SPAN ≤ 30.5m ; 4.07 kN/m^2
   SPAN > 30.5m ; $\left(1.437 + \frac{43.798}{L}\right)\left(\frac{16.76-W}{15.24}\right)$ $kN/m^2 < 2.874$ kN/m^2
   L : LOADED LENGTH W : SIDEWALK WIDTH

   C. ALTERNATE MILITARY LOADING.



   D. PERMIT DESIGN LOAD (SPECIAL PERMIT REQUIRED BEFORE PASSING BRIDGE)



   3.3 IMPACT

   IN ACCORDANCE WITH DIVISION 1 OF AASHTO STANDARD SPECIFICATIONS,1996.

   3.4 SEISMIC LOAD

   IN ACCORDANCE WITH DIVISION 1A OF THE 1996 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES USING ACCELERATIONS COEFFICIENT OF 0.40 AND SEISMIC PERFORMANCE CATEGORY D.

   3.5 HYDRAULIC DESIGN DATA

   50–YEAR DESIGN DISCHARGE, Q_{50} = 1,570 m^3/sec.
   DESIGN FLOW VELOCITY, V_{50} = 2.08 m/sec.
   DESIGN FLOOD WATER LEVEL, DFWL = EL + 43.25 m
   CATCHMENT AREA, CA = 463 km^2

   3.6 TEMPERATURE RANGES

   ASSUMED BASE TEMPERATURE : +28C°
   MINIMUM AMBIENT AIR TEMPERATURE : +18C°
   MAXIMUM AMBIENT AIR TEMPERATURE : +38C°
   TEMPERATURE DIFFERENCE BETWEEN TOP OF SLAB AND OTHER PARTS OF STRUCTURE : +10C°

   3.7 CONSTRUCTION LOADS

   CONSTRUCTION LOADS SHALL BE AS STIPULATED IN THE AASHTO GUIDE SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THESE LOADS ARE NOT EXCEEDED AND THAT THE MEMBER STRESSES ARE WITHIN ALLOWABLE DURING CONSTRUCTION.

   3.8 OTHER LOADS

   IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS, 1996.

   3.9 LOAD COMBINATION (LOAD FACTOR DESIGN)
   A. GROUP 1 = 1.3 [1.0 D + 1.67(L+1)n + 1.0 SF]
   B. GROUP 1B = 1.3 [1.0 D + 1.0(L+1)p + 1.0 SF]
   C. GROUP VII = 1.3 [1.0 D + 1.0 SF + EQ]
   D. OTHER LOAD COMBINATIONS SHALL BE IN ACCORDANCE WITH AASHTO GUIDE SPECIFICATIONS.

B. MATERIALS

1. CONCRETE

   UNLESS INDICATED OTHERWISE ON PLANS, THE CONCRETE CLASS AND STRENGTH SHALL BE AS FOLLOWS:

STRUCTURAL MEMBER	CLASS	28 – DAY CYLINDER STRENGTH		MAX. SIZE OF COARSE AGGREGATE mm (in.)	REMARKS
		MPa	PSI		
CAST – IN PLACE GIRDERS, SLABS, DIAPHRAGMS, WINGWALLS BACKWALLS, ABUTMENT COPINGS, COLUMNS, SLABS, SHEAR KEYS	AA2	28	4060	20	
FOOTINGS, PILE CAP, BORED PILES, APPROACH SLAB	AA1	28	4060	25	*SEE NOTE BELOW
THIN REINFORCED SECTIONS, PARAPET, RAILINGS & RAILPOST CURB AND SIDEWALK	C	21	3000	12	
PRESTRESSED CONCRETE MEMBERS : AASHTO GIRDERS	PP	35 41	5075 5946	20 20	⊕ TRANSFER ⊕ SERVICE
STEEL SHEET PILE CAP	A	21	3000	38	
RUBBLE CONC./CONC. BLOCKS FOR SLOPE PROTECTION	B	16.5	2400	50	
LEAN CONCRETE	–	17	1450	38	

   * NOTE :
   THE CEMENT CONTENT OF THE DESIGN MIX SHALL BE ADJUSTED IN ACCORDANCE WITH THE AASHTO PROVISIONS WHEN CONCRETING UNDER WATER TO COMPENSATE FOR THE LOSS OF STRENGTH DUE TO WATER INFILTRATION.

2. REINFORCING STEEL
   (a) REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADES 40 & 60 DEFORMED WITH MINIMUM YIELD STRENGTH AS DESCRIBED BELOW.

REBAR GRADE	YIELD STRENGTH fy (MPa)	SIZE (mm)
40	276 (40 ksi)	16mmø & BELOW, UNLESS OTHERWISE NOTED
60	415 (60 ksi)	20mmø & ABOVE

   (b) REINFORCING STEEL SHALL BE FREE OF MILL SCALES, OIL OR ANY SUBSTANCES WHICH WILL WEAKEN THE BOND WITH CONCRETE.
   (c) REINFORCING STEEL SHALL BE WELDABLE TYPE. WELDING REINFORCING STEEL SHALL CONFORM TO ANSI/AWS D1.4.

3. PRESTRESSING STEEL

   PRESTRESSING STEEL SHALL BE SEVEN–WIRE UNCOATED STRESS–RELIEVED STRANDS AND SHALL CONFORM TO AASHTO M203 (ASTM A416) WITH MINIMUM ULTIMATE STRENGTH OF Fy = 1860 MPa (270,000psi).

   PC STRESS BARS SHALL BE HIGH TENSILE COLD WORKED STRESS BAR CONFORMING TO ASTM–A722/ISO 6934 (SBPR 930/1180) WITH NOMINAL TENSILE STRENGTH OF 1176 MPa.

4. STRUCTURAL STEEL, BOLTS AND WELDS

MATERIALS	YIELD STRENGTH fy (MPa)	REFERENCE SPECIFICATIONS
STRUCTURAL STEEL	250 (GRADE 36)	AASHTO M270, (ASTM A709)
HIGH STRENGTH BOLTS		AASHTO M253, ASTM A490M
WELDS		LATEST ANSI /AASHTO/AWS D1.5 BRIDGE WELDING CODE

5. ELASTOMERIC BEARING PADS

   ELASTOMERIC BEARING PADS SHALL BE 100% VIRGIN CHLOROPRENE (NEOPRENE) PADS WITH DUROMETER HARDNESS 60 AND SHALL BE LAMINATED WITH NON–CORROSIVE MILD STEEL SHEETS (ASTM A570). ELASTOMERIC PADS SHALL CONFORM TO THE REQUIREMENTS AS PRESCRIBED IN DPWH D.O. NO. 25 SERIES OF 1997 "REVISED DPWH STANDARD SPECIFICATION FOR ELASTOMERIC BEARING PAD."

SPECIFICATIONS	
DURO HARDNESS, SHORE A (ASTM D–2240)–––60 ±5	
TENSILE STRENGTH ASTM	D 412–175 Kg/cm^2 (min)
ULTIMATE ELONGATION %	350 % (min)
MATERIAL	NEOPRENE

C. CONSTRUCTION

THESE NOTES ARE PROVIDED FOR QUICK REFERENCE ONLY AND SHALL BE READ IN CONJUNCTION WITH THE TECHNICAL SPECIFICATIONS FOR THE PROJECT.

THE DESIGN OF BRIDGES IS BASED ON THE CONSTRUCTION SEQUENCE SHOWN IN THE DRAWINGS. ANY VARIATION FROM THE SEQUENCE MUST BE APPROVED BY THE ENGINEER.

CONSTRUCTION SHALL COMPLY WITH 1995 DPWH STANDARD SPECIFICATION FOR HIGHWAYS, BRIDGES AND AIRPORTS OR MODIFIED BY SPECIAL PROVISIONS.

1. DIMENSIONS

   1.1 SECTION, DIMENSIONS AND DISTANCES SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES. THE INDICATED DIMENSION SHALL GOVERN UNLESS OTHERWISE SPECIFIED.

   1.2 ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

   1.3 ALL STATIONING ARE IN KILOMETER PLUS METER AND ELEVATION IN METER.

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	DATE	SIGNATURE
DESIGNED	10/12/02	F. P. DE JESUS
CHECKED	10/19/02	J. P. SANTOS
SUBMITTED	10/21/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

FUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	ADRIANO M. DOROY, Chief, Bridges Division	GILBERTO S. REYES, Director IV (OIC)	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE IV	AS SHOWN FULL SIZE A1	BRIDGE NO.14 TALAVERA RIVER BRIDGE GENERAL NOTES 1 OF 3 (INITIAL STAGE)	B14G-01

GENERAL NOTES FOR BRIDGES - 2

2. SETTING OUT

THE SETTING OUT AND THE ELEVATIONS OF THE DIFFERENT COMPONENTS OF THE STRUCTURE SHALL BE APPROVED BY THE ENGINEER PRIOR TO THE START OF ANY CONSTRUCTION WORK.

3. REINFORCED CONCRETE

3.1 CAST IN PLACE CONCRETE SHALL BE CLASS "AA1" OR "AA2" EXCEPT RAILINGS WHICH SHALL BE CLASS "C". UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED EDGES SHALL BE CHAMFERED 25mm EXCEPT RAILINGS AND RE-ENTRANT ANGLES WHICH SHALL BE CHAMFERED AND FILLETED 13mm RESPECTIVELY.

3.2 CONCRETE MIX AND PLACING

(1) DESIGN OF CONCRETE MIX SHALL MEET THE DESIGN CONCRETE STRENGTH GIVEN UNDER ITEM 1 OF MATERIALS.

(2) CONCRETE SHALL BE DEPOSITED, VIBRATED AND CURED IN ACCORDANCE WITH THE SPECIFICATION.

(3) FOR CONCRETE DEPOSITED AGAINST THE GROUND, LEAN CONCRETE WITH A MINIMUM THICKNESS OF 100mm SHALL BE LAID FIRST BEFORE INSTALLING THE REINFORCEMENT. THIS LEAN CONCRETE SHALL NOT BE CONSIDERED IN MEASURING THE STRUCTURAL DEPTH OF CONCRETE SECTION.

(4) THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL PLACING SEQUENCES FOR ALL CONCRETING WORK.

3.3 BAR BENDING, SPLICING AND PLACING

(1) THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FOR APPROVAL, SHOP DRAWINGS INDICATING THE BENDING, CUTTING, SPLICING AND INSTALLATION OF ALL REINFORCING BARS.

(2) BARS SHALL BE BENT COLD. BARS PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT UNLESS PERMITTED BY THE ENGINEER.

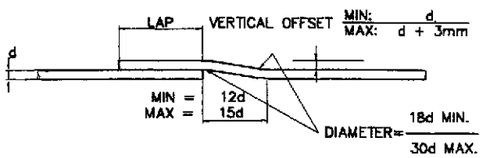
(3) BAR SPLICING NOT INDICATED ON DRAWINGS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

(4) WELDED SPLICES, IF APPROVED BY THE ENGINEER, SHALL DEVELOP IN TENSION AT LEAST 125% OF THE SPECIFIED YIELD STRENGTH OF THE BARS.

(5) NOT MORE THAN 50% OF THE BARS AT ANY ONE SECTION SHALL BE SPLICED.

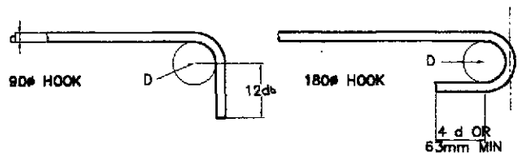
(6) UNLESS OTHERWISE SHOWN ON DRAWINGS, THE CLEAR DISTANCE BETWEEN PARALLEL BARS IN A LAYER SHALL NOT BE LESS THAN 1.5 TIMES THE NOMINAL DIAMETER OF THE BAR NOR LESS THAN 1.5 TIMES THE MAXIMUM SIZE OF COARSE AGGREGATE. THE CLEAR DISTANCE BETWEEN LAYERS SHALL NOT BE LESS THAN 25mm NOR ONE BAR DIAMETER. THE BARS IN THE UPPER LAYER SHALL BE PLACED DIRECTLY ABOVE THOSE IN THE BOTTOM LAYER.

(7) CRANKED SPLICES



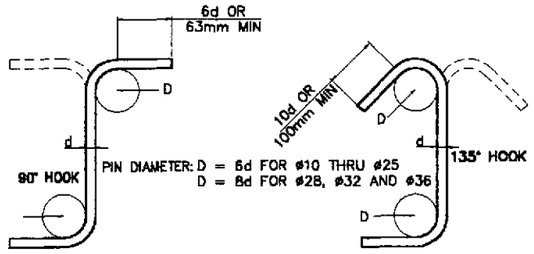
(8) HOOKS AND BENDS

DIMENSIONS OF 90-DEGREE AND 180-DEGREE HOOKS



PIN DIAMETER: D = 6d FOR ø10 THRU ø25
D = 8d FOR ø28, ø32 AND ø36

DIMENSIONS FOR STIRRUPS AND TIE HOOKS



3.4 CONCRETE COVER TO REINFORCEMENT

UNLESS OTHERWISE NOTED, ALL BAR DIMENSIONS ARE REFERRED TO THE CENTER OF BARS AND THE MINIMUM COVERING MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY BAR SHALL BE 40mm. FOR SUBSTRUCTURE PERMANENTLY EXPOSED TO EARTH, COVERING SHALL BE 75mm.

3.5 CONSTRUCTION JOINT

(1) THE POSITION AND FORM OF ANY CONSTRUCTION JOINT SHALL BE AS SHOWN ON DRAWINGS OR AS AGREED WITH THE ENGINEER.

(2) THE INTERFACE BETWEEN THE FIRST AND SECOND POUR CONCRETE SHALL BE ROUGHENED WITH AN AMPLITUDE OF 6MM MINIMUM.

3.6 FALSEWORK

ALL FALSEWORK SHALL BE DESINED BY THE CONTRACTOR SUBJECT TO THE APPROVAL BY THE ENGINEER. FALSEWORKS SHOWN IN THE DRAWINGS SHALL SERVE AS REFERENCE ONLY.

3.7 FORMWORK

FORMWORKS SHALL BE CONSTRUCTED SUCH THAT IT WILL NOT YIELD UNDER THE LOAD AND SHALL BE SUCH AS TO AVOID THE FORMATION OF FINE. ALL CORNERS OF CONCRETE MEMBERS SHALL BE CHAMFERED TO 25mm UNLESS NOTED OTHERWISE ON DRAWINGS. STRIPPING OF FORMS AND SHORES SHALL BE AS DESIGNATED BY THE ENGINEER. THE FOLLOWING MAYBE USED AS A GUIDE.

	MIN. TIME
SHORING UNDER GIRDERS, BEAMS, FRAMES. . . .	14 DAYS
DECK SLABS	14 DAYS
WALLS.	7 DAYS
COLUMNS.	7 DAYS
SIDES OF BEAMS AND ALL OTHER VERTICAL SURFACES	2 DAYS

3.8 PROTECTION AND CURING OF CONCRETE

CONCRETE SURFACES SHALL BE PROTECTED FROM HARMFUL EFFECTS OF SUN, WIND AND RUNNING WATER AND SHALL BE KEPT DAMP FOR AT LEAST 7 DAYS.

4. EMBANKMENT CONSTRUCTION SEQUENCE

APPROACH EMBANKMENT SHALL BE CONSTRUCTED PRIOR TO CONSTRUCTION OF ABUTMENT PILES.

5. REINFORCED CONCRETE CAST-IN-PLACE BORED PILES

5.1 THE REQUIRED ALLOWABLE BEARING CAPACITY FOR EACH PILE DIAMETER IS AS FOLLOWS:

PILE DIA.	NORMAL (KN)		ULTIMATE (KN)	
	COMPRESSION	TENSION	COMPRESSION	TENSION
ø1000	3000	1200	9000	7200
ø1500	6000	2100	18000	13000

5.2 BOTTOM OF BORED PILES SHALL BE EMBEDDED AT LEAST TWO TIMES PILE DIAMETER (2D) INTO HARD STRATA CAPABLE OF DEVELOPING ALLOWABLE BEARING CAPACITY AS SPECIFIED. IF THE ABOVE CONDITION IS NOT MET DURING CONSTRUCTION. THE PILE SHALL BE INCREASED AND THE DESIGNER/CONSULTANT SHALL BE NOTIFIED FOR CONFIRMATION. AN ON-SITE SUBSURFACE INVESTIGATION SHALL ALSO BE UNDERTAKEN DURING CONSTRUCTION FOR CONFIRMATION/VERIFICATION OF DATA USED IN THE DESIGN.

5.3 PILE LENGTHS SHOWN ARE ESTIMATED LENGTHS DURING DESIGN. DETERMINATION OF REQUIRED PILE LENGTHS SHALL BE DETERMINED BY THE CONTRACTOR BASED ON THE RESULTS OF FIELD INVESTIGATIONS CARRIED OUT BY THE CONTRACTOR. SEE THE SPECIAL PROVISIONS OF THE TECHNICAL SPECIFICATIONS.

5.4 ULTRASONIC INTEGRITY TESTING (AS PER SPECIFICATIONS) SHALL BE CONDUCTED FOR ALL PILES TO VERIFY/CHECK THE CONCRETE HOMOGENEITY AND TO LOCATE/EVALUATE ANY POSSIBLE IRREGULARITY IN THE COMPLETED BORED PILES AS DESCRIBED IN THE SPECIAL PROVISIONS.

5.5 STATIC LOAD TEST AND HIGH STRAIN DYNAMIC LOAD TEST SHALL BE CONDUCTED AS INDICATED IN THE SCHEDULE OF PILE LOAD TEST OF THE COMPLETED BORED PILES. THE RESULT SHALL BE SUBMITTED FOR EVALUATION AND REFERENCE.

6. ADDITIONAL SOIL INVESTIGATION

ADDITIONAL SUBSURFACE INVESTIGATION (BORE HOLES) SHALL BE CONDUCTED FOR EACH PIER AND ABUTMENT LOCATION TO CONFIRM/VERIFY THE DESIGN SOIL PROFILE AND CAPACITIES. IF THE RESULTS OF THE SOIL INVESTIGATION DIFFERS FROM THE SOIL DATA USED IN DESIGN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER/ CONSULTANT TO MAKE THE NECESSARY ADJUSTMENTS IN THE FOUNDATION.

7. CAMBER

7.1 PRECAST PRESTRESSED CONCRETE GIRDERS SHALL BE CONSTRUCTED WITH CAMBER INDICATED IN THE DRAWINGS.

7.2 AFTER ERECTION IS COMPLETE, THE FLANGE ELEVATION OF THE GIRDERS SHALL BE SURVEYED. BASED ON THIS INFORMATION, THE CONTRACTOR SHALL DETERMINE THE HAUNCH HEIGHTS REQUIRED ALONG THE STRUCTURE IN ORDER THAT THE FINISHED GRADE SHOWN IN THE DRAWINGS WILL BE ACHIEVED, TAKING DUE ACCOUNT OF FURTHER DEFLECTIONS TO BE INCURRED WHEN THE DECK AND SIDEWALKS ARE ADDED AND THE ORDER IN ERECTION OF DECK PANEL IS TO TAKE PLACE.

7.3 THE CONTRACTOR SHOULD PREPARE & SUBMIT A GEOMETRY CONTROL REPORT TO THE ENGINEER INDICATING THE ASSUMPTIONS AND CALCULATION PROCEDURES THAT HAVE BEEN FOLLOWED IN DETERMINING HAUNCH HEIGHTS. THE CONTRACTOR SHOULD MONITOR AND UPDATE THIS REPORT AS NECESSARY AS ERECTION PROCEEDS.

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Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

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CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS : BRIDGE NO.14 TALAVERA RIVER BRIDGE
GENERAL NOTES 2 OF 3
(INITIAL STAGE)

SHEET NO. : B14G-02

GENERAL NOTES FOR BRIDGES - 3

8. STRUCTURAL STEEL

THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS FOR ALL STRUCTURAL STEEL WORK. THESE SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER BEFORE ANY FABRICATION COMMENCES.

9. SHORING

9.1 CAMBER FOR REINFOCED CONCRETE SUPERSTRUCTURES WERE DETERMINED BASED ON THE USE OF SHORINGS DURING CONSTRUCTION.

9.2 CAMBER FOR COMPOSITE SUPERSTRUCTURES WITH PRECAST PRESTRESSED GIRDERS WERE DETERMINED BASED ON UNSHORED CONDITIONS.

10. EXCAVATION

EXCAVATION FOR STRUCTURES SHALL BE TO THE NEAT LINES OF FOOTING OR AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

11. WATER ELEVATION

WATER ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY ANY VARIATION FOUND DURING CONSTRUCTION SHALL NOT BE CONSIDERED AS A BASIS FOR EXTRA COMPENSATION.

12. DETOUR

THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN DETOUR BRIDGES, AND/OR ROADS DURING CONSTRUCTION TO ALLOW CONTINUOUS FLOW OF TRAFFIC. THEY SHALL BE CONSTRUCTED ON LOCATION AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER. NO ADDITIONAL COST SHALL BE ALLOWED FOR ANY RELOCATION OF DETOUR.

13. PRESTRESSED CONCRETE

GIRDER DESIGN GUIDE

13.1 POST-TENSIONING ; THE PROPOSED TYPE OF TENDONS WHICH WILL BE USED IN THE POST-TENSIONED DESIGNS AND ALL NECESSARY ADDITIONAL DETAILS INCLUDING THOSE FOR END ANCHORAGES, METHODS TO BE EMPLOYED AND PROCEDURES TO BE FOLLOWED, SHALL BE AS APPROVED BY THE ENGINEER. PORTION OF THE TENDONS SHALL BE DRAPED LONGITUDINAL IN PARABOLIC PORTIONS. ALL TENDONS SHALL BE PLACED SO THAT THEIR CENTER OF GRAVITY WILL BE AT THE POSITION SHOWN ON PLANS. THE TOTAL POST-TENSION FORCE AFTER LOSSES REQUIRED AT MIDSPAN SHALL BE PROVIDED AS CALLED FOR IN THE VARIOUS DESIGNS. THE REQUIRED FORCES AFTER LOSSES SHALL BE OBTAINED BY APPLYING INITIAL TENSILE FORCES OF SUFFICIENT MAGNITUDE TO ALLOW FOR ALL SUBSEQUENT LOSSES, INCLUDING THOSE FOR ELASTIC SHORTENING, SHRINKAGE, CREEP, RELAXATION, FRICTION, AND EFFICIENCY OF END ANCHORAGES. AFTER SECURING THE END ANCHORAGES ALL TENDONS SHALL BE PRESSURE GROUTED IN THEIR CONDUITS IN ACCORDANCE WITH THE "SPECIFICATIONS".

13.2 CONCRETE FOR GIRDERS SHALL BE A MINIMUM STRENGTH OF 41 N/mm^2 (5,945 PSI) AT THE AGE OF 28 DAYS.

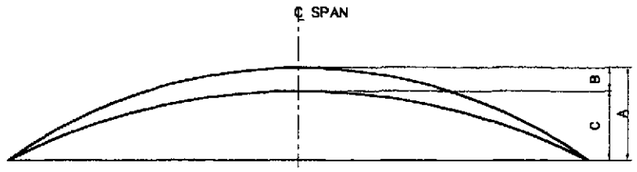
13.3 CONCRETE FOR CAST-IN-PLACE SLAB HAVE A MINIMUM STRENGTH OF 28 N/mm2 (4,060 PSI) AT THE AGE OF 28 DAYS.

13.4 THE CONTRACTOR MAY PROPOSE ANY ALTERNATIVE TENDON SIZE AND LAYOUT WHICH SHALL MEET THE APPROVAL OF THE ENGINEER.

13.5 THE REQUIRED STRENGTH OF CONCRETE AT TIME OF TENSIONING SHALL BE 35 MPa (5,075 PSI). A GRID CONSISTING OF #12 BARS AT 100 CENTERS IN BOTH DIRECTIONS SHALL BE PLACED NEAR EACH ANCHORAGE OF THE POST-TENSIONING SYSTEM.

13.6 HANDLING PRESTRESSED CONCRETE BEAMS : THE BEAMS SHALL BE MAINTAINED IN AN UPRIGHT POSITION AND SHALL BE LIFTED BY SUITABLE DEVICES PROVIDED AT THE ENDS OF THE BEAMS. ATTENTION IS DIRECTED TO THE INCREASED DIFFICULTY OF LIFTING BEAMS WITHOUT END BLOCKS. THE CONTRACTOR'S PROPOSED LIFTING DETAILS SHOULD BE GIVEN CAREFUL CONSIDERATION BEFORE BEING SUBMITTED ON SHOP DRAWING FOR APPROVAL. THE USE OF HOLES FOR LIFTING PURPOSES WILL NOT BE PERMITTED.

13.7 CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE ENGINEER THE CALCULATED ELONGATION OF THE PRESTRESSING TENDONS CORRESPONDING TO THE REQUIRED JACKING FORCES.



DEAD LOAD CAMBER DIAGRAM

A = INITIAL CAMBER – ESTIMATED PRESTRESS CAMBER LESS DEFLECTION DUE TO GIRDER DEAD LOAD

B = DEFLECTION DUE TO SLAB, DIAPHRAGM, SIDEWALKS, RAILING AND RAILPOST

C = FINAL CAMBER

NOTE; A AND B ARE THEORETICAL VALUES AND MAY VARY WITH ACTUAL (AGE) CONCRETE STRENGTH, VARIOUS PRESTRESSING CONDITIONS, CREEP FACTOR, AND PRESTRESS LOSSES. CONTRACTOR SHALL SURVEY TOP OF GIRDERS TO OBTAIN ACTUAL VALUE OF A AND ADJUST PROFILE ACCORDINGLY.

13.8 PRECAST GIRDERS AND DECK PANELS SHALL MEET THE TOLERANCES SPECIFIED IN THE AASHTO GUIDE SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF SEGMENTAL CONCRETE BRIDGES.

13.9 TRANSVERSE DEFLECTION OF PRECAST GIRDERS SHALL NOT EXCEED $1/500_{TH}$ OF THE GIRDER LENGTH. WHERE DEFLECTION EXCEED THIS VALUE, PROCEDURES FOR CORRECTION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW, IF CORRECTION BY APPROVED PROCEDURE IS NOT POSSIBLE, THE GIRDER SHALL BE REJECTED.

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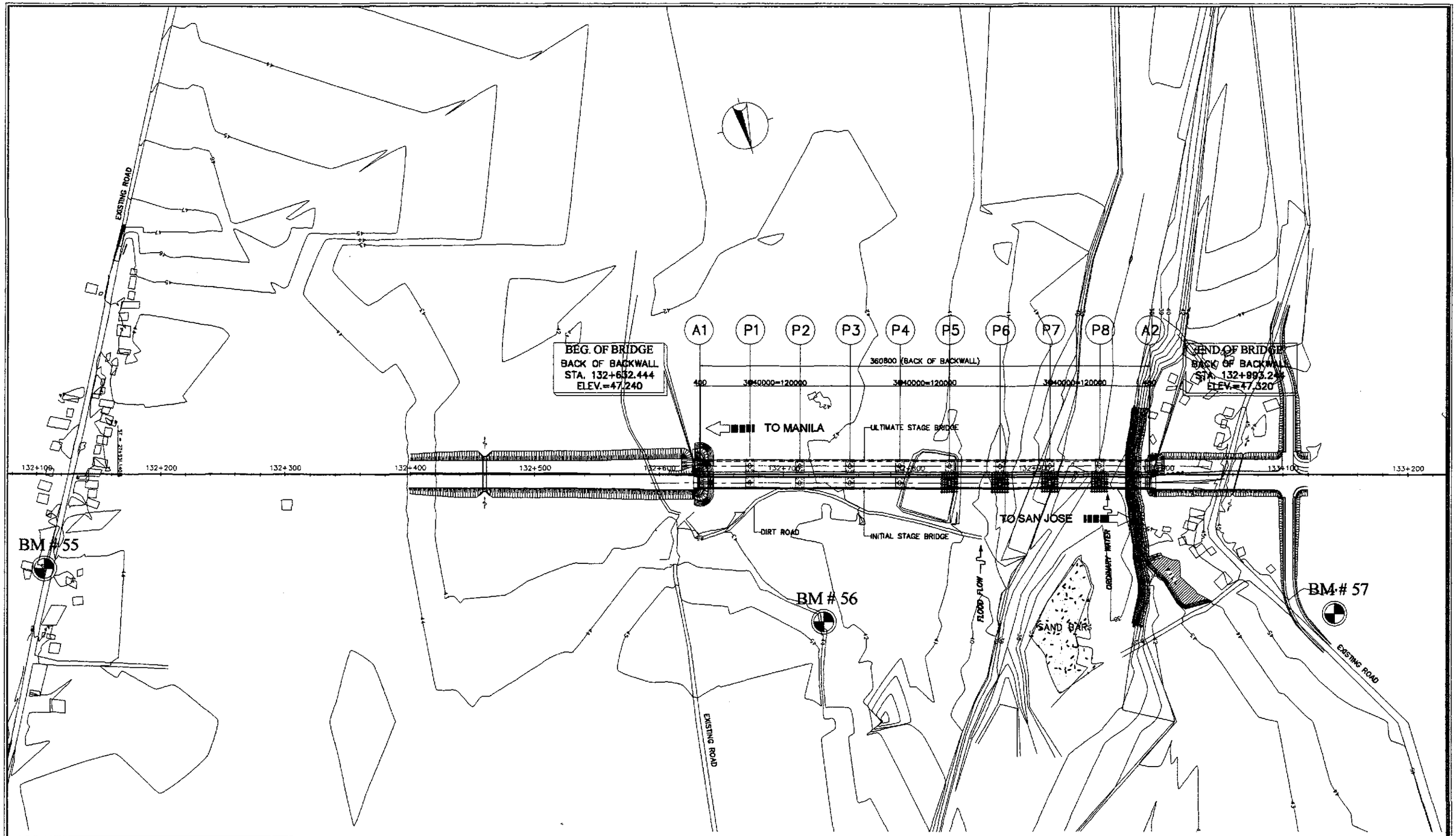
CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
GENERAL NOTES 3 OF 3
(INITIAL STAGE)

SHEET NO. : B14G-03



B.M. NO.	COORDINATES		DESCRIPTION
	NORTHING	EASTING	
55	1,727,251.355	492,153.048	IT IS LOCATED ON THE RIGHT SIDE OF THE ALIGNMENT NEAR THE CORNER OF CONC. WALL/FENCE. IT IS 3 M AWAY FROM THE CL OF AN EXISTING ROAD 5 M WIDE AT BRGY. CAMPOS, TALAVERA.
56	1,727,456.793	491,560.117	IT IS LOCATED ON THE LEFT SIDE OF THE ALIGNMENT 70 M AWAY UNDERNEATH A MANGO TREE IN BRGY. CAMPOS, TALAVERA.
57	1,727,557.279	491,163.464	IT IS LOCATED ON THE RIGHT SIDE OF THE ALIGN. PLACED ON THE TOE OF A RICEFIELD NEAR THE SIDE OF A ROAD UNDER A COCONUT TREE IN BRGY. LOMBOY, TALAVERA.

NOTE :
SEE HIGHWAY PLANS FOR REFERENCE OF ALIGNMENT

A
HORIZONTAL AND VERTICAL CONTROL MONUMENTS
SCALE 1 : 1500

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KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

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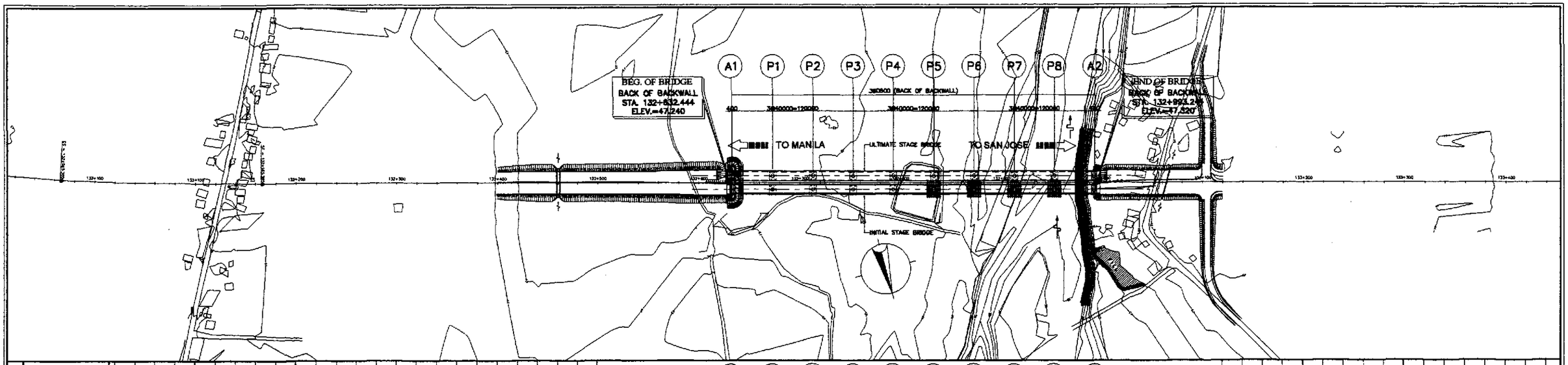
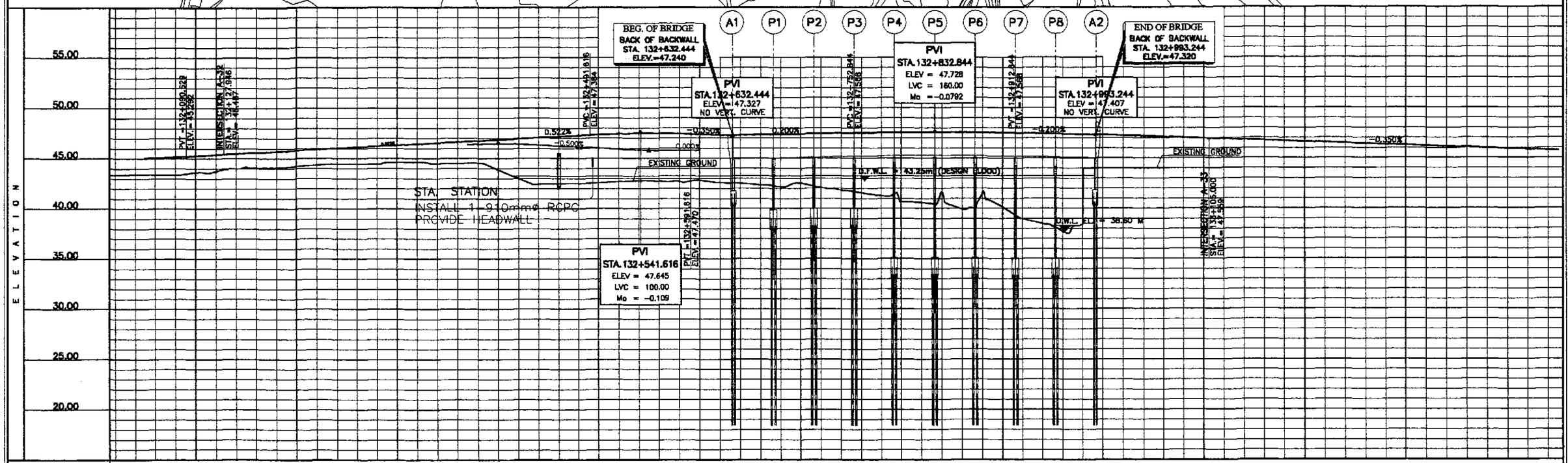
CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		





STATION	+100	+200	+300	+400	132+500	+600	+700	+800	+900	133+000	+100	+200	+300	+400
FINISHED GRADE @ BYPASS ALIGNMENT						47.279 47.319	47.359 47.399 47.439 47.479 47.519 47.559 47.596 47.624 47.641 47.648 47.646 47.633 47.620 47.578 47.538 47.498 47.458 47.418 47.378 47.338 47.298 47.258 47.218 47.178							
FINISHED GRADE @ BRIDGE CENTERLINE						47.191 47.231	47.271 47.311 47.351 47.391 47.431 47.471 47.508 47.536 47.553 47.580 47.558 47.545 47.523 47.490 47.450 47.410 47.370 47.330 47.290 47.250 47.210 47.170 47.130 47.090							
FINISHED ELEV./STATION @ BRIDGE PIER CENTERLINE							+633.444 47.240	+672.844 47.321	+712.844 47.401	+752.844 47.481	+792.844 47.561	+832.844 47.641	+872.844 47.561	+912.844 47.481	+952.844 47.401	+993.244 47.320							
ORIGINAL GROUND ELEVATION						42.515	42.355	42.816	42.542	42.084	41.539	41.581	41.269	20.863	40.808	41.828	39.941	41.817	39.371	37.519	37.214	37.730	43.858	44.721	44.552	44.809	44.325	44.354	44.377							
HORIZONTAL CURVATURE	A=600				132+165.384																									R=∞							
VERTICAL CURVATURE							g=+0.505%		g=+0.506%				g=+0.200%			L =160 Mo = -0.080				g=-0.200% NO VERTICAL CURVE					g=-0.500%						g=-0.500%					
SUPERELEVATION					27+842.251																									NC							

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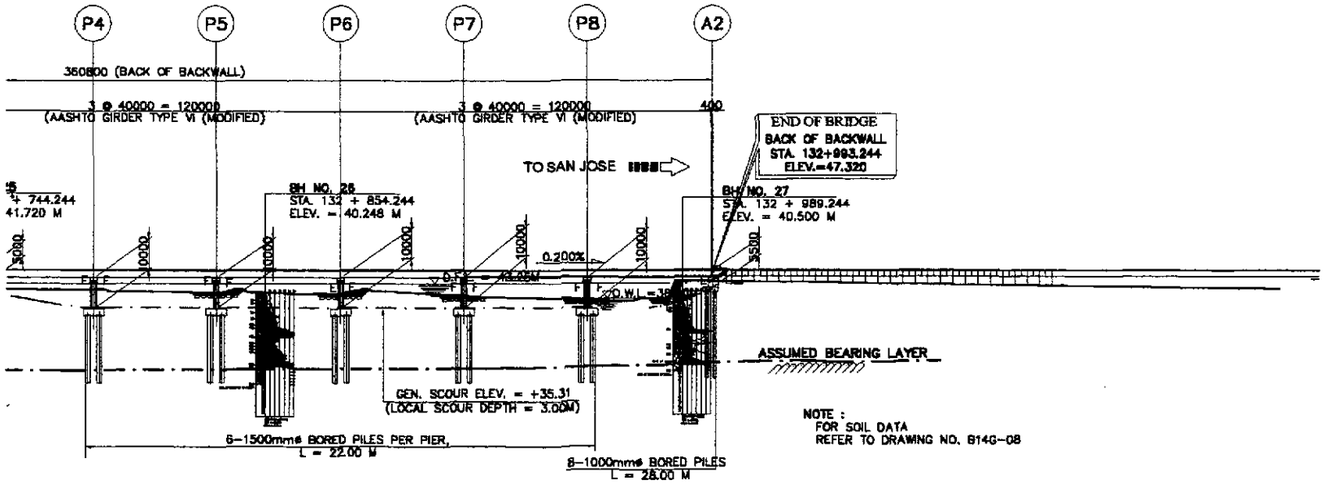
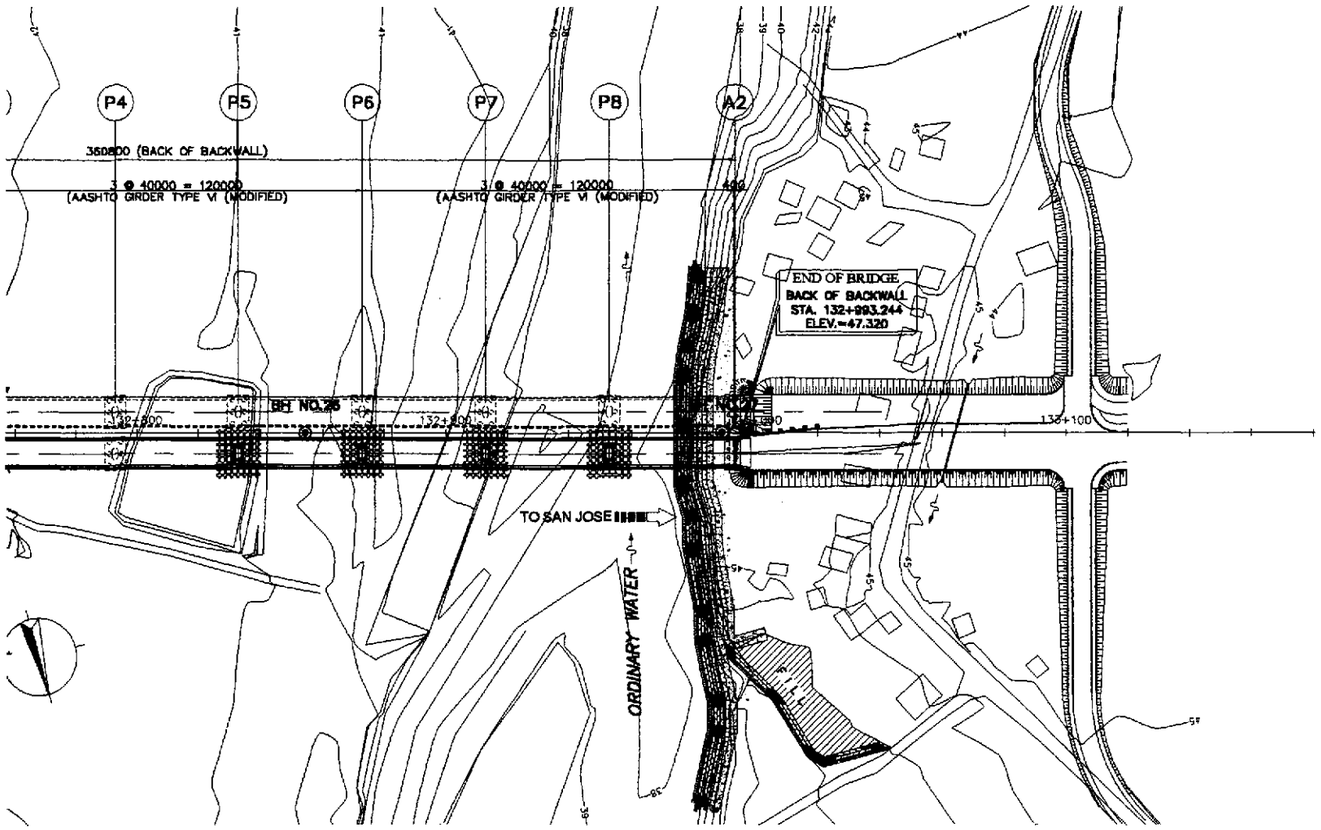
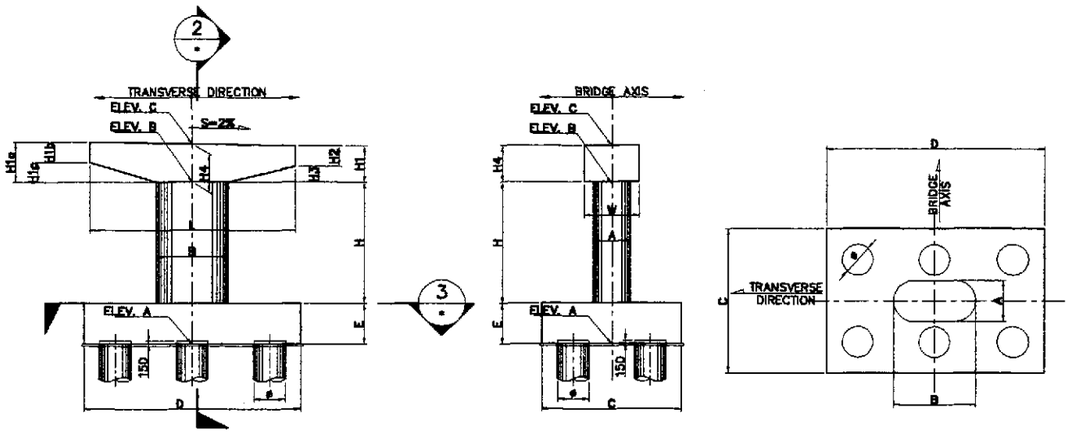
CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		



A - GENERAL ELEVATION
SCALE 1:1000



B - GENERAL PLAN
SCALE 1:1000



1 - FRONT ELEVATION
SCALE 1 : 150

2 - SECTION
SCALE 1 : 150

3 - SECTION
SCALE 1 : 150

1 - GENERAL PLAN, ELEVATION AND SECTIONS (TALAVERA RIVER BRIDGE CROSSING)
SCALE AS SHOWN

TABLE OF COORDINATES

PIER NO.	STATION	INITIAL STAGE				ULTIMATE STAGE			
		COLUMN		PILE CAP		COLUMN		PILE CAP	
		NORTHINGS	EASTINGS	NORTHINGS	EASTINGS	NORTHINGS	EASTINGS	NORTHINGS	EASTINGS
ABUT. 1	132 + 632.444	1727322.526	491627.227	1727322.526	491627.227	1727309.498	491623.689	1727309.498	491623.689
PIER 1	132 + 672.844	1727333.114	491588.239	1727333.114	491588.239	1727320.086	491584.701	1727320.086	491584.701
PIER 2	132 + 712.844	1727343.598	491549.637	1727343.598	491549.637	1727330.570	491546.099	1727330.570	491546.099
PIER 3	132 + 752.844	1727354.081	491511.036	1727354.081	491511.036	1727341.053	491507.497	1727341.053	491507.497
PIER 4	132 + 792.844	1727364.564	491472.434	1727364.564	491472.434	1727351.536	491468.896	1727351.536	491468.896
PIER 5	132 + 832.844	1727375.047	491433.832	1727375.047	491433.832	1727362.019	491430.294	1727362.019	491430.294
PIER 6	132 + 872.844	1727385.531	491395.230	1727385.531	491395.230	1727372.502	491391.692	1727372.502	491391.692
PIER 7	132 + 912.844	1727396.014	491356.628	1727396.014	491356.628	1727382.986	491353.090	1727382.986	491353.090
PIER 8	132 + 952.844	1727406.497	491318.026	1727406.497	491318.026	1727393.469	491314.488	1727393.469	491314.488
ABUT. 2	132 + 993.244	1727417.085	491279.038	1727417.085	491279.038	1727404.057	491275.500	1727404.057	491275.500

NOTE : * ABUTMENT COORDINATES ARE BASED ON COORDINATES OF BACK OF BACKWALL AT BRIDGE CENTERLINE.

TABLE OF DIMENSIONS FOR INITIAL STAGE

PIER NO.	COLUMN				PILE CAP				COPING									PILES		
	A (mm)	B (mm)	H (mm)	ELEV.B (mm)	C (mm)	D (mm)	E (mm)	ELEV.A (mm)	L (mm)	W (mm)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	H1a (mm)	H1b (mm)	H1c (mm)	ELEV.C (mm)	DIA. (mm)	LENGTH (mm)	NUMBER (pcs)
ABUT. 1	–	–	–	–	5000	10750	1500	40.24	–	–	–	–	–	–	–	–	–	44.814	1000	28000	8
PIER 1	1800	3500	3250	43.045	6750	10500	2000	37.795	9950	2700	1750	1000	750	1850	1849	1000	949	44.895	1500	27500	6
PIER 2	1800	3500	3250	43.125	6750	10500	2000	37.875	9950	2700	1750	1000	750	1850	1949	1000	949	44.975	1500	27500	6
PIER 3	1800	3500	3250	43.205	6750	10500	2000	37.955	9950	2700	1750	1000	750	1850	1949	1000	949	45.055	1500	27500	6
PIER 4	1800	3500	8250	43.265	6750	10500	2000	33.015	9950	2700	1750	1000	750	1850	1949	1000	949	45.115	1500	22000	6
PIER 5	1800	3500	8250	43.285	6750	10500	2000	33.035	9950	2700	1750	1000	750	1850	1949	1000	949	45.135	1500	22000	6
PIER 6	1800	3500	8250	43.265	6750	10500	2000	33.015	9950	2700	1750	1000	750	1850	1949	1000	949	45.115	1500	22000	6
PIER 7	1800	3500	8250	43.205	6750	10500	2000	32.955	9950	2700	1750	1000	750	1850	1949	1000	949	45.055	1500	22000	6
PIER 8	1800	3500	8250	43.125	6750	10500	2000	32.875	9950	2700	1750	1000	750	1850	1949	1000	949	44.975	1500	22000	6
ABUT. 2	–	–	–	–	5000	10750	1500	40.32	–	–	–	–	–	–	–	–	–	44.894	1000	28000	8

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/01	F. P. DE JESUS
CHECKED	10/12/01	J. C. SANTOS
SUBMITTED	10/12/02	M. KUCHIKI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

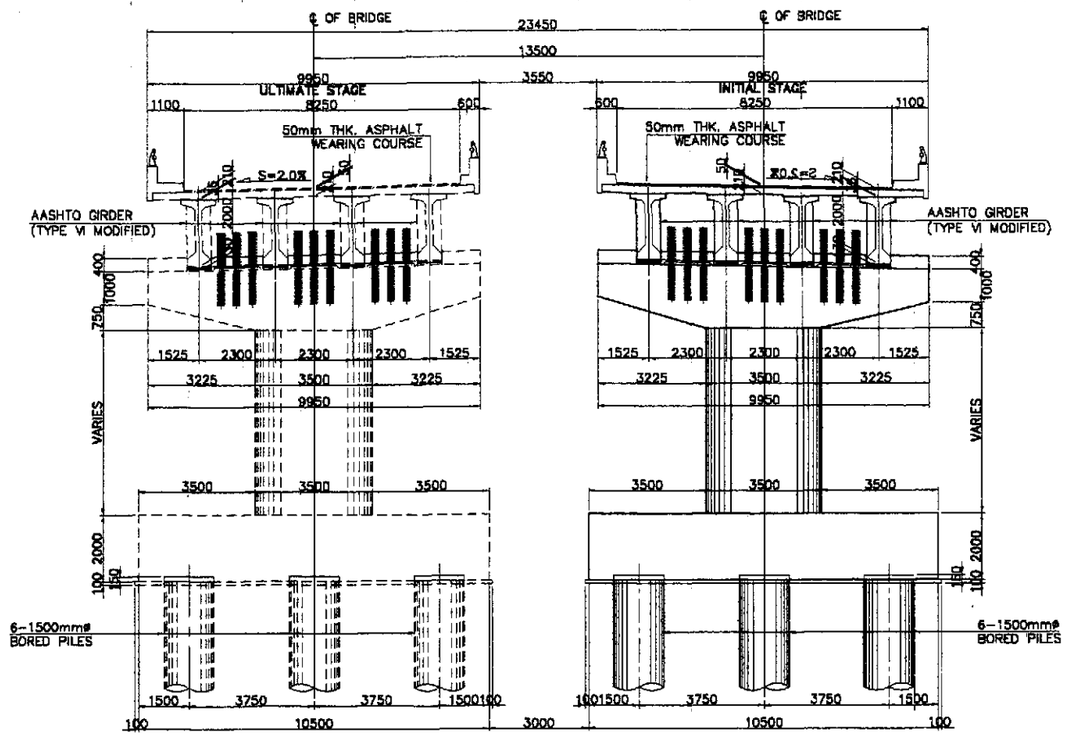
PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	ADRIANO M. DOROY, Chief, Bridges Division	GILBERTO S. REYES, Director IV (OIC)	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

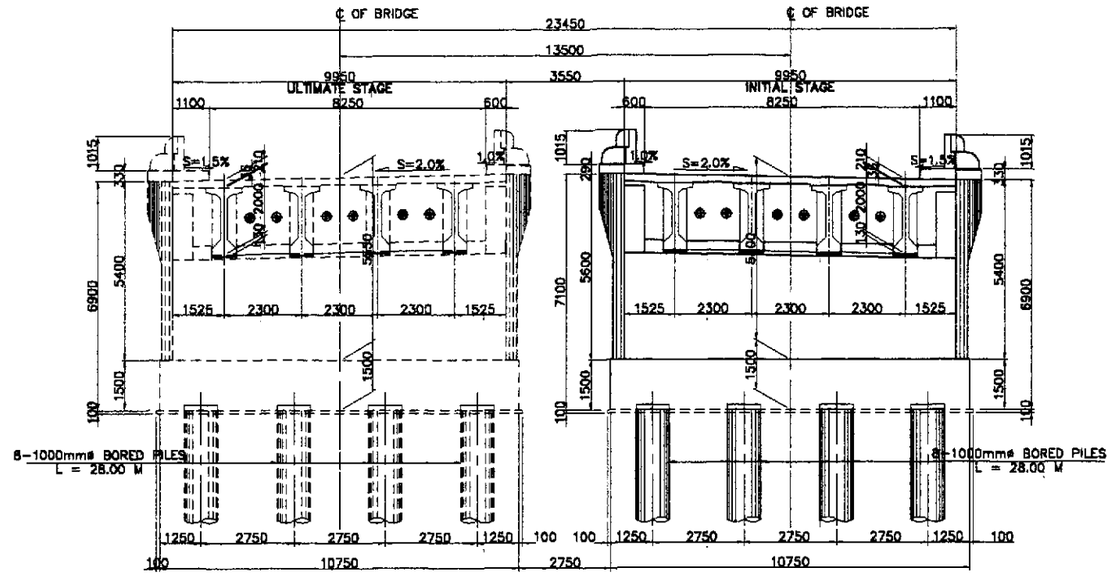
SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 14 TALAVERA RIVER BRIDGE
GENERAL PLAN, ELEVATION AND SECTIONS - 1 OF 2
(INITIAL STAGE)

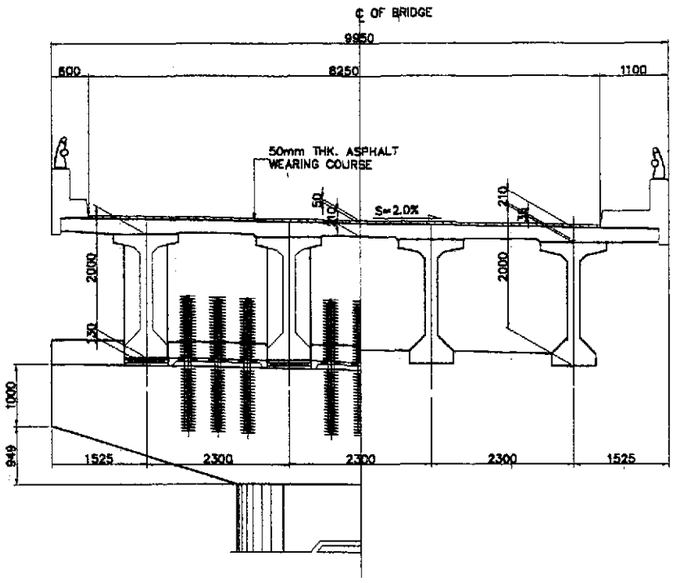
SHEET NO. : B14G-06



A SECTION @ PIER (FIX-FIX)
SCALE 1 : 100

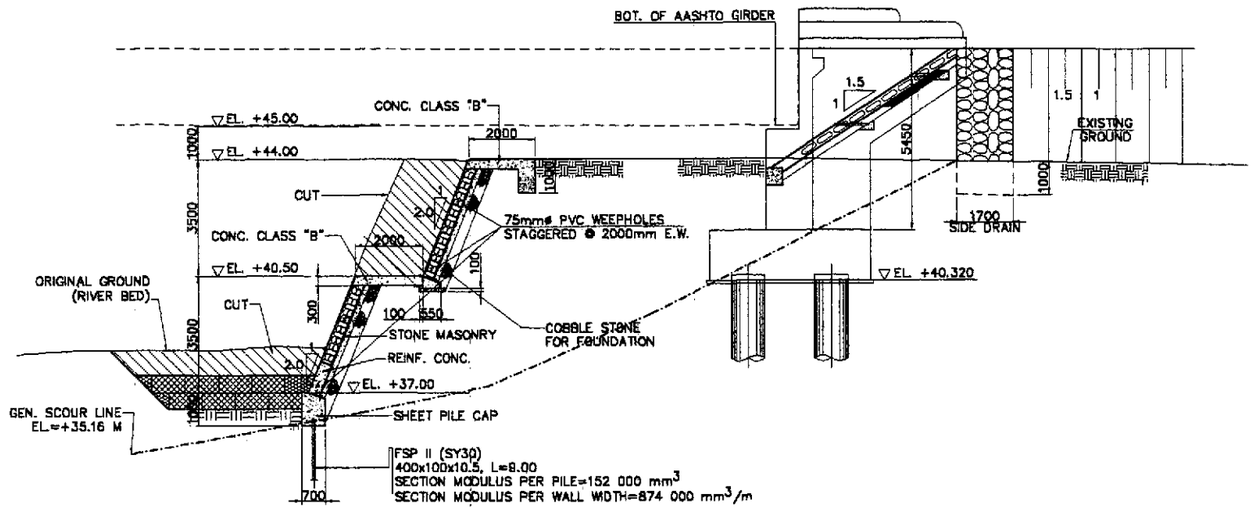


B SECTION @ ABUTMENT
SCALE 1 : 100



C SECTION @ SUPPORT
SCALE 1 : 50

D SECTION @ MID SPAN
SCALE 1 : 50



E ABUTMENT SLOPE PROTECTION DETAILS
SCALE 1 : 100

JICA
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YACHIYO ENGINEERING CO., LTD.

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DESIGNED	10/12/01	F. P. DE JESUS
CHECKED	10/19/01	
SUBMITTED	10/21/01	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
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Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

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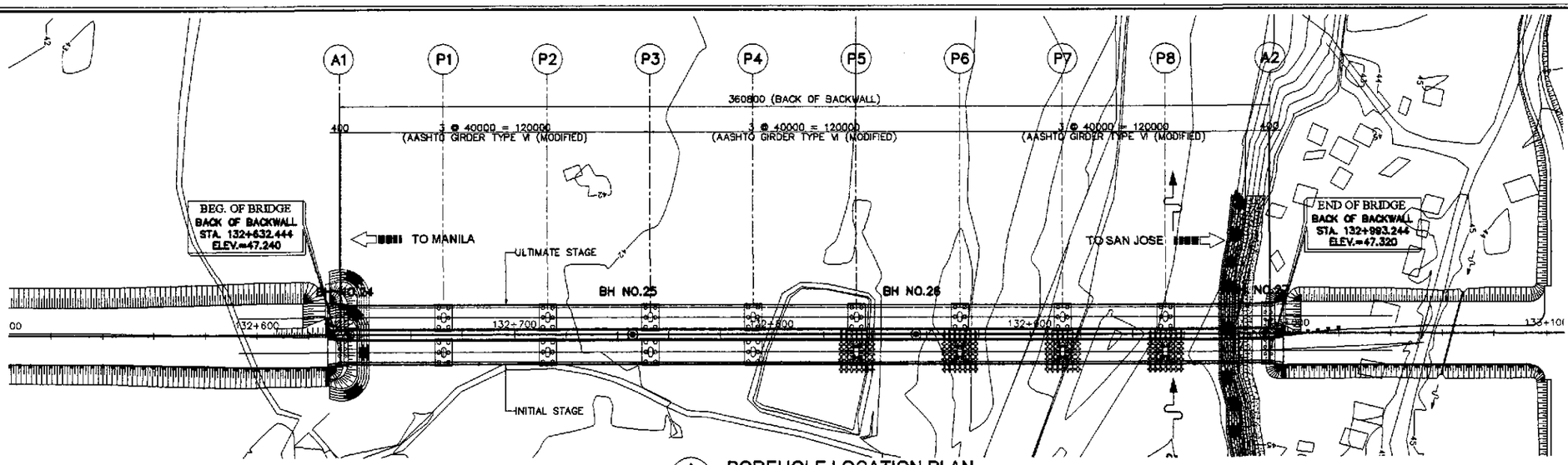
(Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

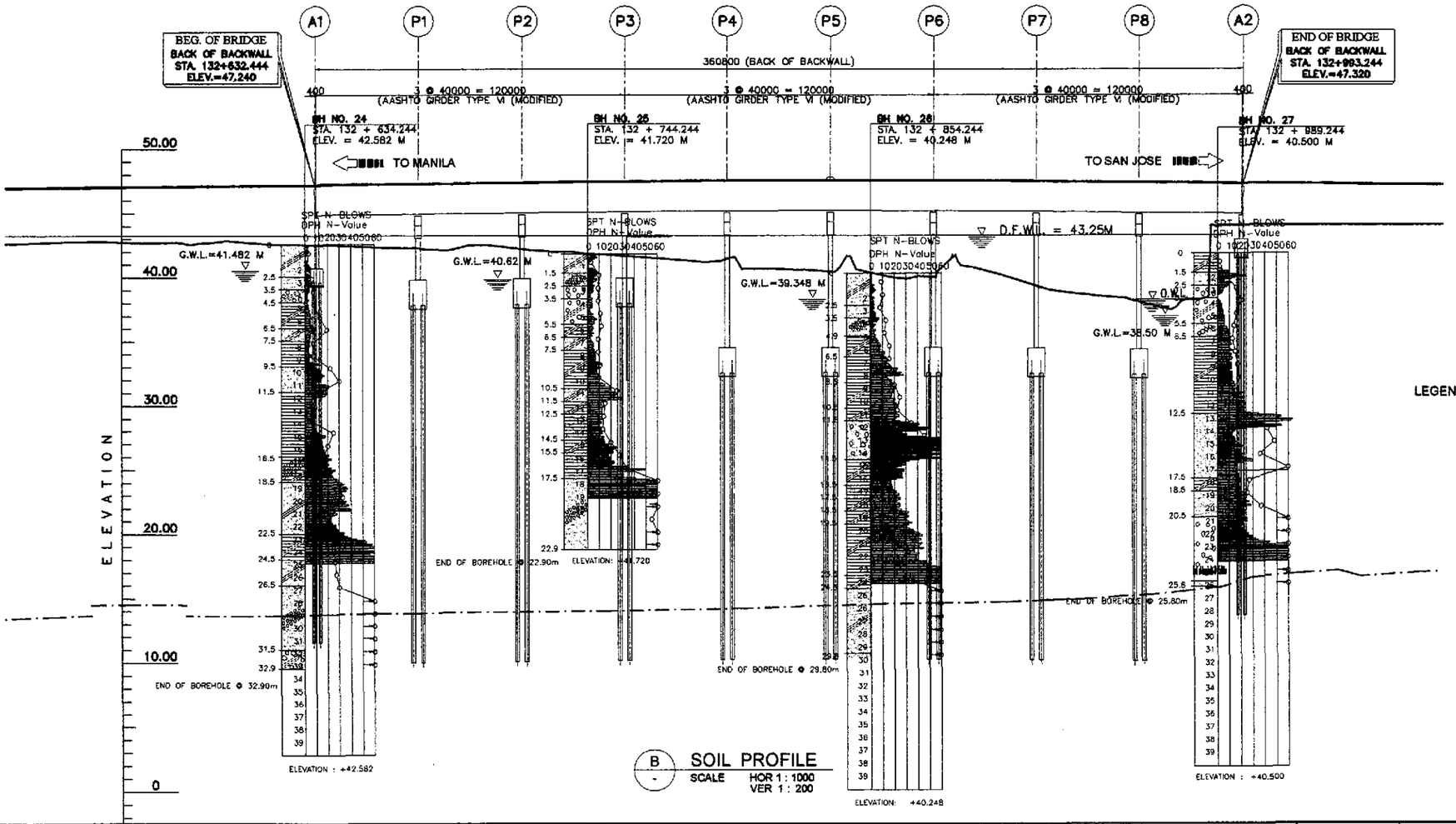
SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 14 TALAVERA RIVER BRIDGE
GENERAL PLAN, ELEVATION AND SECTIONS - 2 OF 2
(INITIAL STAGE)

SHEET NO. : B14G-07



A - SCALE 1 : 1000 **BOREHOLE LOCATION PLAN**



B - SCALE HOR 1 : 1000, VER 1 : 200 **SOIL PROFILE**

LEGEND :

- SAND
- GRAVEL
- CLAYEY SAND
- SILT
- CLAY
- SANDY SILT
- SANDY GRAVEL
- SILTY SAND
- GRAVEL & SAND
- SAND AND CLAY
- SILTY CLAY
- GRAVELLY SAND
- DPH N-VALUE
- SPT N-BLOWS

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL — YEO YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	J. P. DE JESUS
CHECKED	10/19/02	E. C. SANTOS
SUBMITTED	10/21/02	K. J. KUSUDA TEAM LEADER

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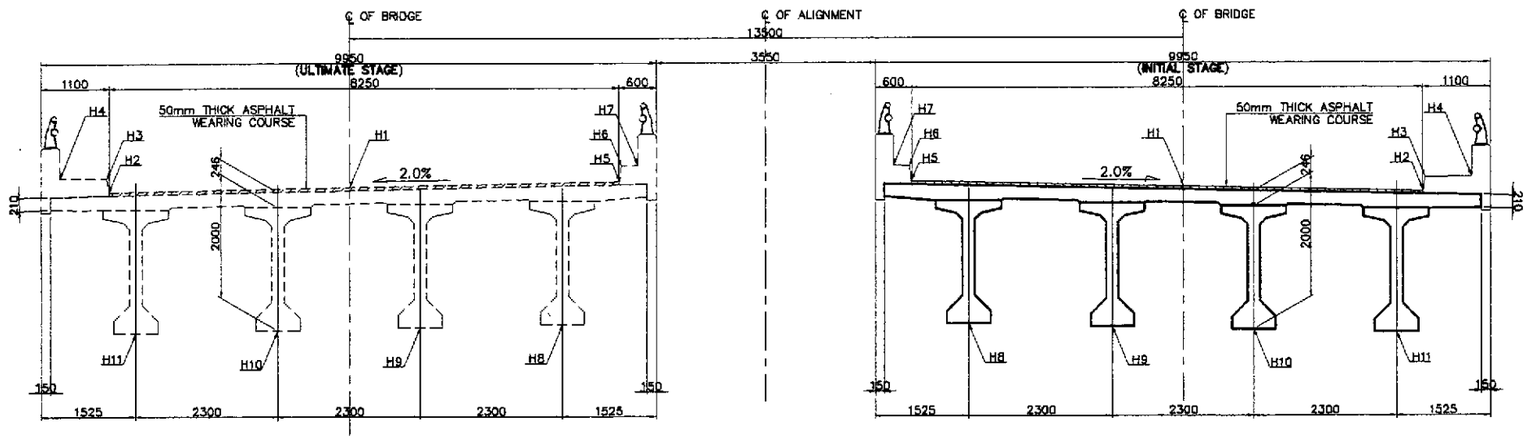
SCALE : AS SHOWN — FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
BOREHOLE LOCATION PLAN AND SOIL PROFILE
(INITIAL STAGE)

SHEET NO. : B14G-08



A — TYPICAL BRIDGE SECTION

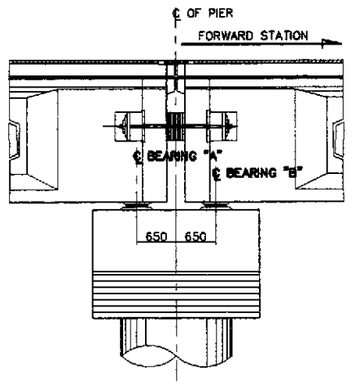
SCALE 1 : 50

TABLE OF ELEVATIONS

STATION	H1	H2	H3	H4	H5	H6	H7
132+640.000	47.934	47.852	48.102	48.110	48.017	48.267	48.270
132+660.000	47.311	47.229	47.479	47.487	47.394	47.644	47.647
132+680.000	47.351	47.269	47.519	47.527	47.434	47.684	47.687
132+700.000	47.391	47.309	47.559	47.567	47.474	47.724	47.727
132+720.000	47.431	47.349	47.599	47.607	47.514	47.764	47.767
132+740.000	47.471	47.389	47.639	47.647	47.554	47.804	47.807
132+760.000	47.508	47.426	47.676	47.684	47.591	47.841	47.844
132+780.000	47.536	47.454	47.704	47.712	47.619	47.869	47.872
132+800.000	47.553	47.471	47.721	47.729	47.636	47.886	47.889
132+820.000	47.560	47.478	47.728	47.736	47.643	47.893	47.896
132+840.000	47.558	47.476	47.726	47.734	47.641	47.891	47.894
132+860.000	47.545	47.463	47.713	47.721	47.628	47.878	47.881
132+880.000	47.523	47.441	47.691	47.699	47.606	47.856	47.859
132+900.000	47.490	47.408	47.658	47.666	47.573	47.823	47.826
132+920.000	47.450	47.368	47.618	47.626	47.533	47.783	47.786
132+940.000	47.410	47.328	47.578	47.586	47.493	47.743	47.746
132+960.000	47.370	47.288	47.538	47.546	47.453	47.703	47.706
132+980.000	47.330	47.248	47.498	47.506	47.413	47.663	47.666

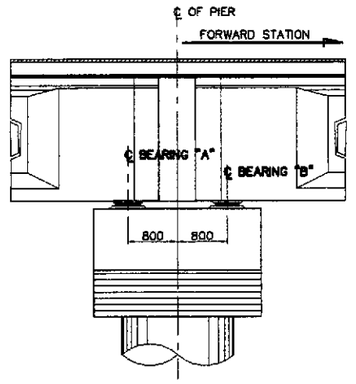
TABLE OF ELEVATIONS

LOCATION	BEARING SIDE	STATION	H8	H9	H10	H11
ABUT. A1	B	132+633.494	45.015	44.970	44.924	44.878
PIER 1	A	132+672.044	45.082	45.047	45.001	44.955
	B	132+673.644	45.096	45.050	45.004	44.958
PIER 2	A	132+712.044	45.172	45.127	45.081	45.035
	B	132+713.644	45.176	45.130	45.084	45.038
PIER 3	A	132+752.199	45.253	45.207	45.161	45.115
	B	132+753.489	45.255	45.210	45.164	45.118
PIER 4	A	132+792.044	45.312	45.267	45.221	45.175
	B	132+793.644	45.316	45.270	45.224	45.178
PIER 5	A	132+832.044	45.334	45.288	45.242	45.196
	B	132+833.644	45.334	45.288	45.242	45.196
PIER 6	A	132+872.199	45.315	45.270	45.224	45.178
	B	132+873.489	45.313	45.267	45.221	45.175
PIER 7	A	132+912.044	45.256	45.210	45.164	45.118
	B	132+913.644	45.252	45.207	45.161	45.115
PIER 8	A	132+952.044	45.176	45.130	45.084	45.038
	B	132+953.644	45.172	45.127	45.081	45.035
ABUT. A2	A	132+992.194	45.095	45.050	45.004	44.958



1 — AT EXPANSION

SCALE 1 : 50



2 — AT FIXED

SCALE 1 : 50

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	DATE	SIGNATURE
DESIGNED	10/12/02	F. P. DE JESUS
CHECKED	10/19/02	J. C. SANTOS
SUBMITTED	10/21/02	M. KUDO, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
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PROJECT AND LOCATION :
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UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE : AS SHOWN — FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
TABLE OF ELEVATIONS
(INITIAL STAGE)

SHEET NO. : B14G-09

SUMMARY OF QUANTITIES
TALAVERA RIVER BRIDGE CROSSING (BRIDGE NO. 14)

ITEM NO.	D E S C R I P T I O N	U N I T	QUANTITIES	REMARKS
PART F	BRIDGE CONSTRUCTION			
I	**SUPERSTRUCTURE**			
310(2)	Asphalt Mixture Wearing Course (t=50mm) incl. Tack Coat	m^2	2,970.00	
401(2)a	Steel Railing Type A for (Angat, Talavera and approach of Pampanga Bridge)	m	720.00	
SPL 401(3)c	Bridge Name Plate, 1000 x 600 for Talavera Bridge	ea.	2	
404(1)	Reinforcing Steel (Grade 40)	kg.	212,163.00	
404(2)	Reinforcing Steel (Grade 60)	kg.	91,653.00	
405(1)f	Structural Concrete Class AA2 (f'c=28 Mpa, max. aggregate 20mm) for Long Bridge Superstructures	m^3	978.69	
405(3)	Structural Concrete Class C (f'c=21 MPa, max. aggregate 12mm) for Thin Reinforced Members	m^3	315.36	
406(1)l	Precast Prestressed Structural Concrete Member (AASHTO Girder Type VI Modified L=39.40m)	ea.	12	
406(1)m	Precast Prestressed Structural Concrete Member (AASHTO Girder Type VI Modified L=39.55m)	ea.	24	
407(1)e	Elastomeric Bearing Pad (600x400x50mm)	ea.	72	
407(2)b	Expansion Joint, Multiflex M100 (Elastomeric) ±50mm movement	m	40.80	
SPL 407(3)a	Restraining Bar Ø32mm x 1495mm	ea.	12	
SPL 407(3)b	Restraining Bar Ø32mm x 1900mm	ea.	12	
407(4)	G.I Drain Pipe Ø150mm for Bridge Drainage	m	154.99	
II	**SUBSTRUCTURE**			
103(2)a	Bridge Excavation above OWL (Common Soil)	m^3	2,126.43	
103(2)c	Bridge Excavation below OWL (Common Soil)	m^3	2,507.46	
104(4)	Embankment from Borrow (Selected Granular Material) for Bridge	m^3	681.40	
200(1)	Aggregate Subbase Course	m^3	30.34	
400(16)a	Cast-in-place Concrete Bored Piles Ø 1000mm		448.00	
400(16)c	Cast-in-place Concrete Bored Piles Ø 1500mm	m	1,155.00	
400(21)	Static Pile Load Test for Ø1500mm Bored Piles	ea.	2	
404(1)	Reinforcing Steel (Grade 40)	kg.	18,334.00	
404(2)	Reinforcing Steel (Grade 60)	kg.	489,578.00	
405(1)e	Structural Concrete Class AA1 (f'c=28 Mpa, max. aggregate 20mm) for Long Bridge Substructures	m^3	2,160.28	
405(6)	Lean Concrete (f'c=17 MPa max. aggregate 38mm)	m^3	70.87	
SPL 311(2)	PCC Pavement (Reinforced) t=300mm Approach Slab	m^2	91.24	
SPL 400(23)a	High Strain Dynamic Pile Test for Ø1000mm Bored Piles	ea.	1	
SPL 400(24)	Pile Integrity Test for Bored Piles of Various Diameter	ea.	22	
SPL 900(3)	Provisional Sum for Geotechnical Investigation	l.s.	1	
III	**REVETMENT (RIVERBANK PROTECTION)**			
103(1)	Structure Excavation	m^3	3,489.00	
104(3)	Embankment from borrow pit	m^3	682.64	
405(1)a	Structural Concrete Class A (f'c=21 Mpa, max. aggregate 38mm) for Heavily Reinf. Structures	m^3	149.73	
405(2)	Structural Concrete Class B (f'c=17 MPa, max. aggregate 50mm) for Plain or Lightly Reinf. Structures	m^3	173.19	
504(5)	Grouted Riprap Class A	m^3	14.05	
505(1)	Stone Masonry	m^3	464.39	
506(1)	Hand Laid Rock Apron (Loose Boulder Apron)	m^3	138.00	
507(2)b	Steel Sheet Piles (400mmx85mm), furnish & driven	m	5,040.00	
509(1)	Gabions, (2.0 x 1.0 x 0.50)	m^3	1,213.50	
510(1)	Rubble Concrete Slope Protection	m^3	124.42	
SPL 407(5)c	Pier Protection Concrete Blocks for Talavera Bridge	m^2	896.00	
IV	**TEMPORARY WORKS**			
SPL 420(4)c	Temporary Craneway for Talavera Bridge Construction	m	80.00	
SPL 420(5)c	Temporary Access Road (Causeway) for Talavera Bridge Construction	m	300.00	
SPL 420(6)d	Temporary Cofferdam for Pier Construction (Talavera Bridge)	ea.	3	
V	**ELECTRICAL WORKS**			
SPL 620(4)c	Bridge Lighting Poles (Single Lamp)	ea.	12	
SPL 620(4)d	Street Lighting Service Pole with Panel	ea.	1	

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL — YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/2/02	M. S. NAVAL
CHECKED	10/19/02	J. C. SANTOS
SUBMITTED	10/21/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
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Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

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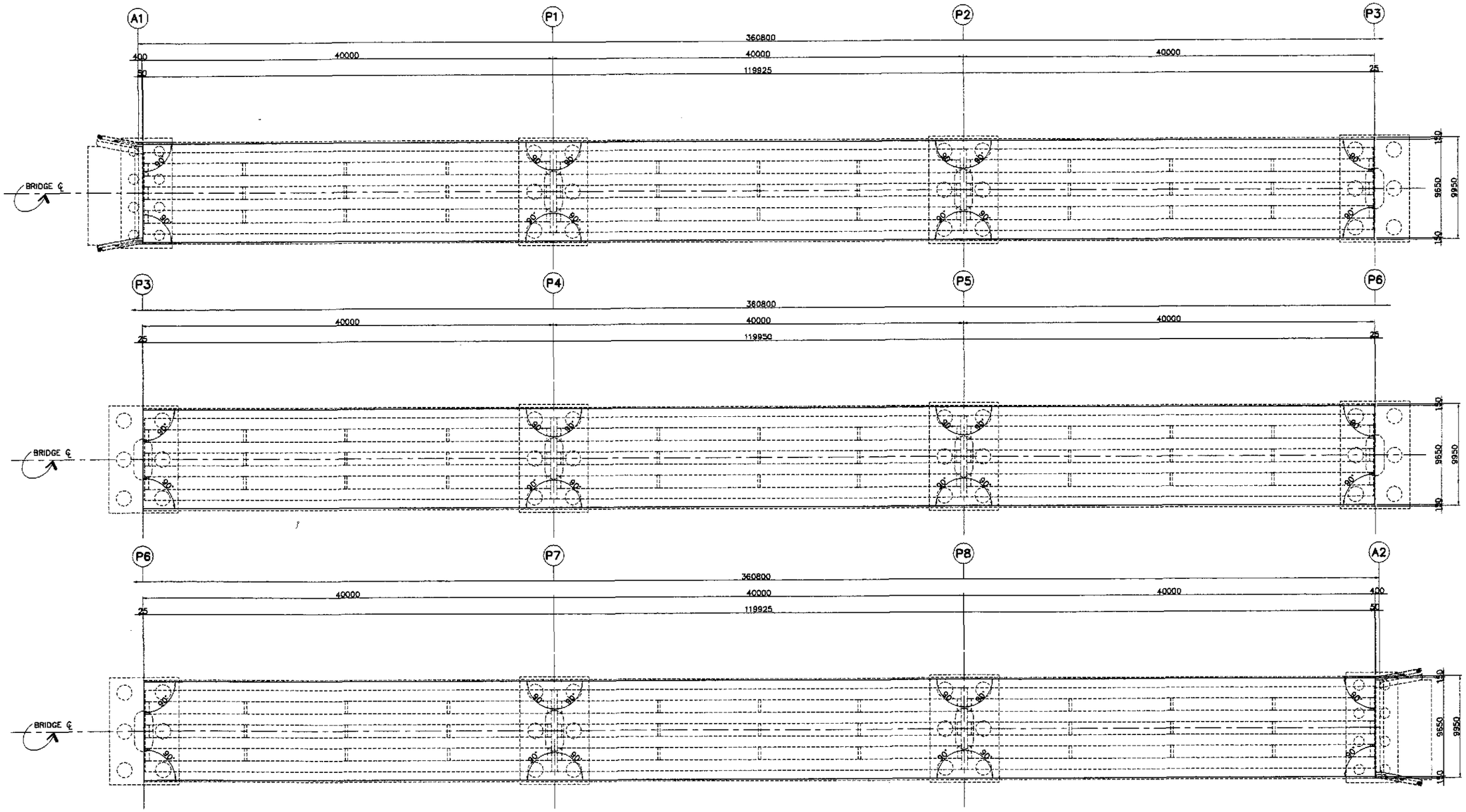
SCALE : AS SHOWN — FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
SUMMARY OF QUANTITIES
(INITIAL STAGE)

SHEET NO. : B14G-10

LAYOUT AND DIMENSIONS



A - DECK SLAB LAYOUT PLAN (ABUT. 1 TO ABUT.2)

SCALE 1 : 200

JAPAN INTERNATIONAL COOPERATION AGENCY

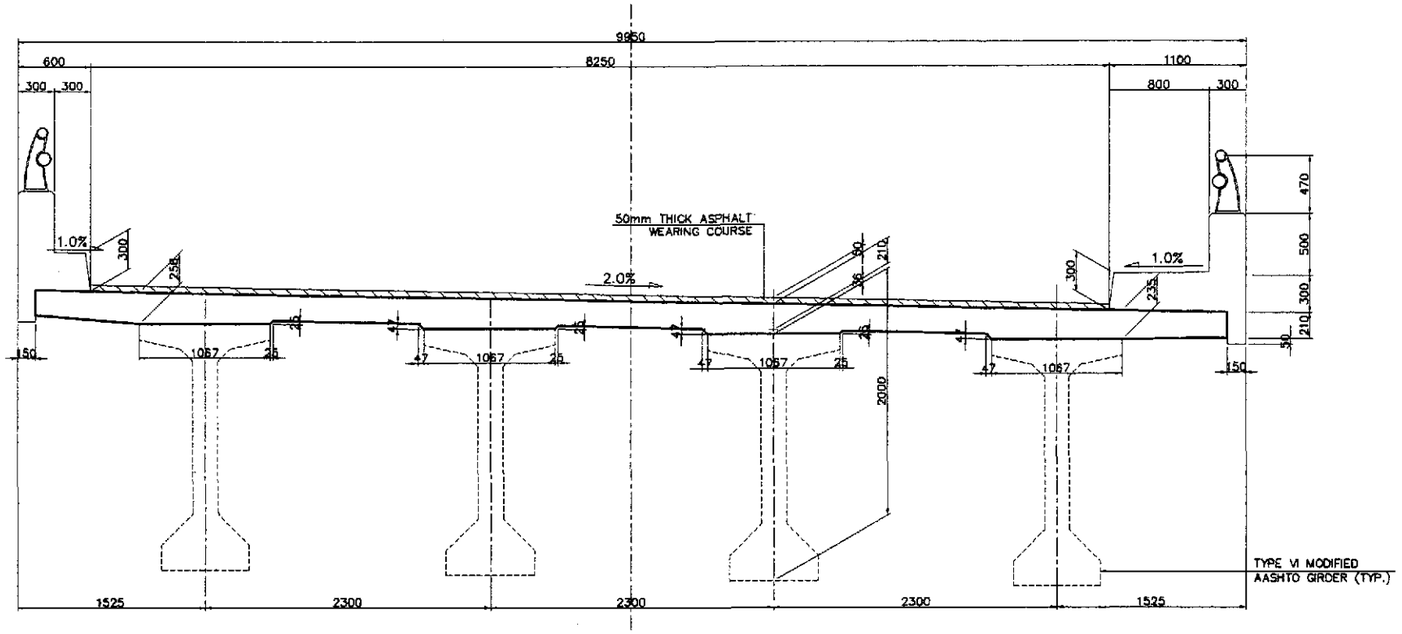
KATAHIRA & ENGINEERS INTERNATIONAL — YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	F. P. DE JESUS
CHECKED	10/19/02	J. C. SANTOS
SUBMITTED	10/21/02	TEAM LEADER

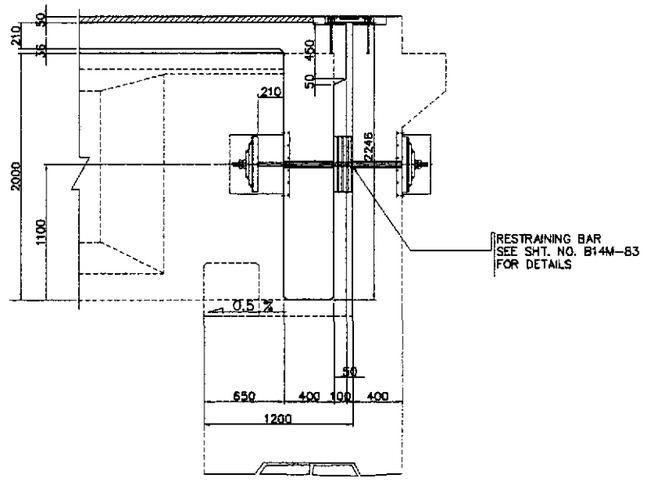
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	ADRIANO M. DOROY	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

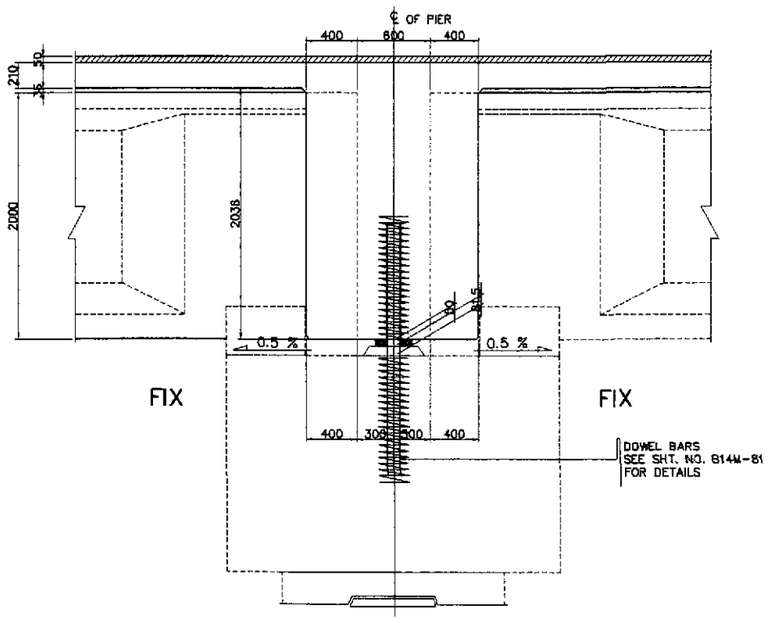
PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO.14 TALAVERA RIVER BRIDGE DECK SLAB LAYOUT PLAN (ABUT. 1 - ABUT. 2) - 1 (INITIAL STAGE)	B14L-21
CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		



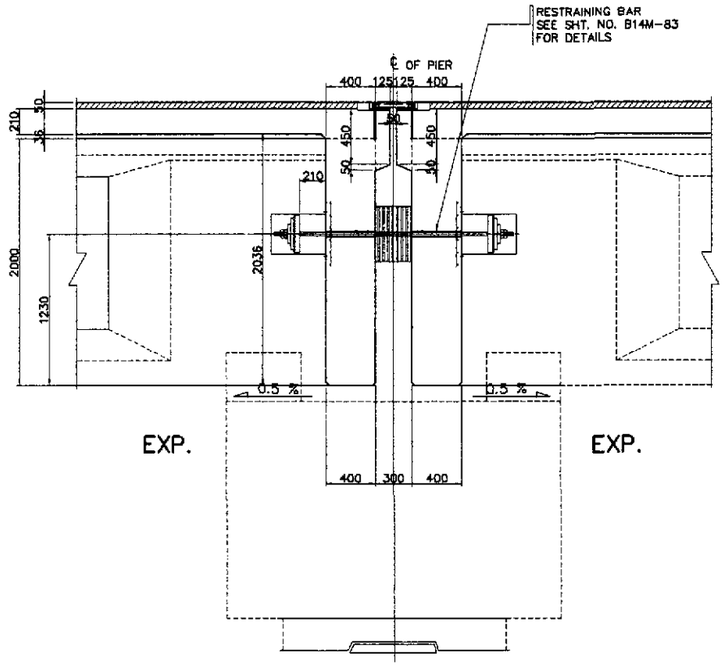
A — TYPICAL SECTION
SCALE 1:25



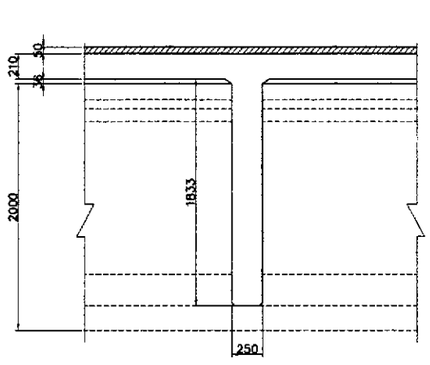
D — SECTION @ END DIAPHRAGM (ABUTMENT)
SCALE 1:25



B — SECTION @ END DIAPHRAGM (FIX-FIX PIERS)
SCALE 1:25



C — SECTION @ END DIAPHRAGM (EXP.-EXP. PIERS)
SCALE 1:25



E — SECTION @ INTERMEDIATE DIAPHRAGM
SCALE 1:25

1 — TYPICAL SLAB DIMENSIONS
SCALE AS SHOWN

JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/12	F. P. DE JESUS
CHECKED	10/19/12	J. E. SANTOS
SUBMITTED	10/21/12	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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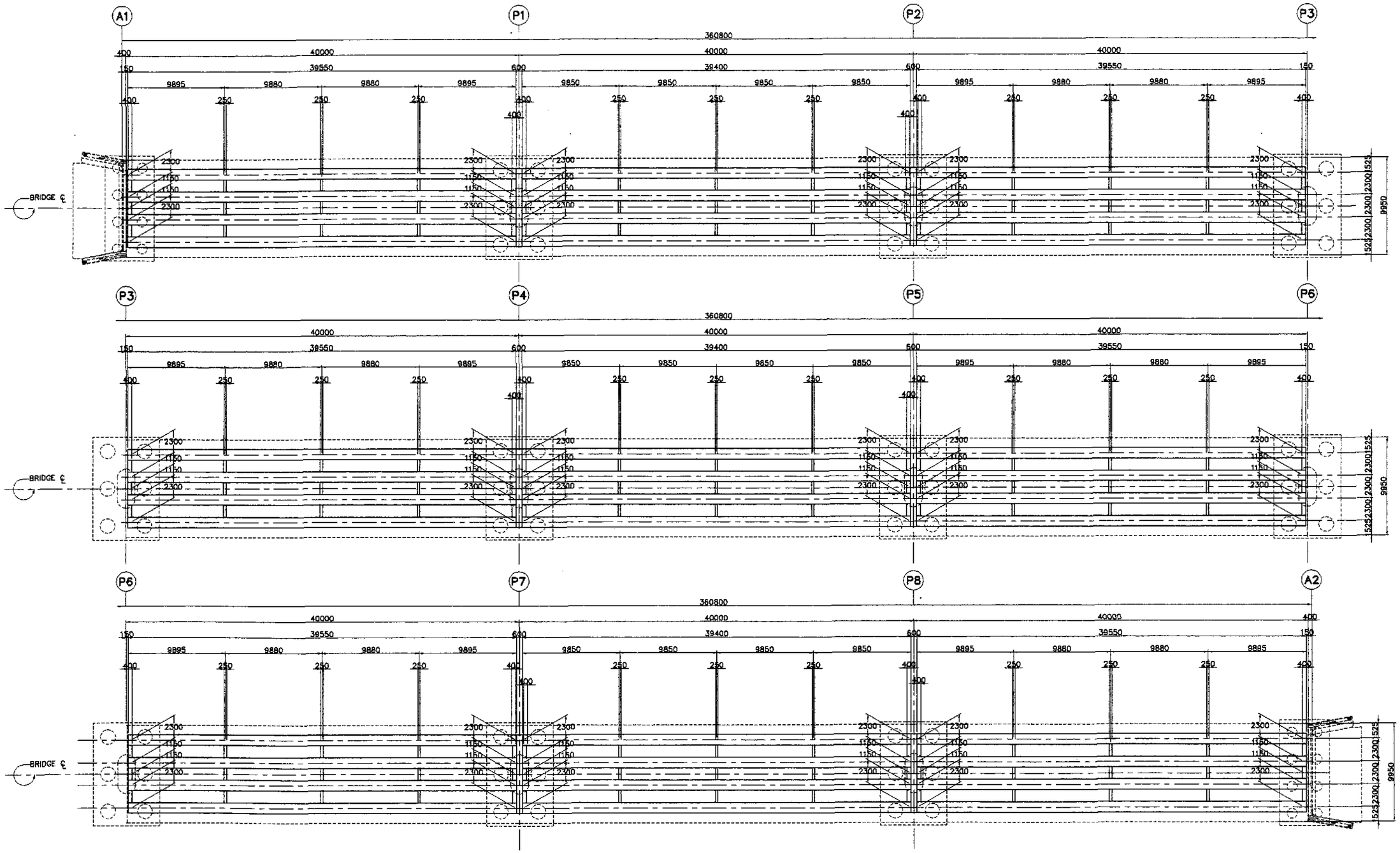
Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
TYPICAL SLAB DIMENSIONS
(INITIAL STAGE)

SHEET NO. : B14L-22



A — GIRDER LAYOUT PLAN (ABUT. 1 TO ABUT.2)

SCALE 1 : 200

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL — YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	F. P. DE JESUS
CHECKED	10/19/02	C. SANTOS
SUBMITTED	10/21/02	N. SOLEDAD, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PUHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
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PROJECT AND LOCATION :
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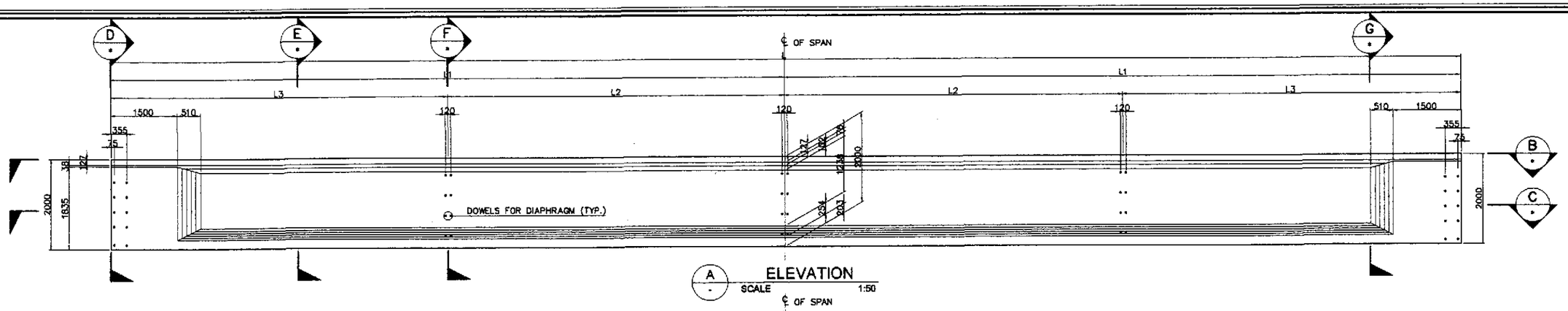
(Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

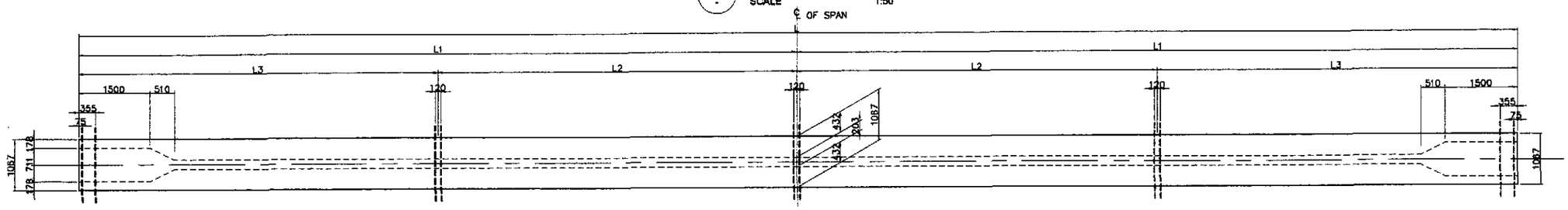
SCALE : AS SHOWN — FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
GIRDER LAYOUT PLAN
(A1 TO A2)
(INITIAL STAGE)

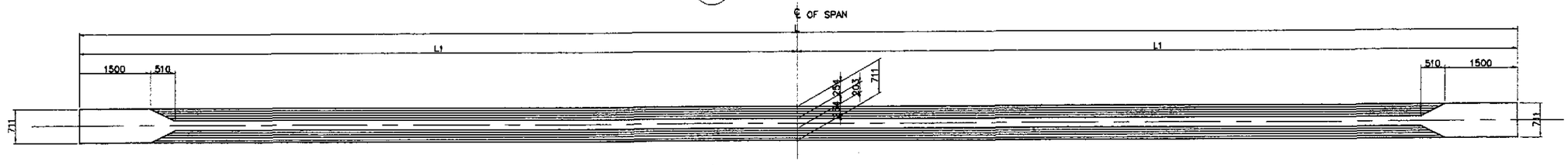
SHEET NO. : B14L-23



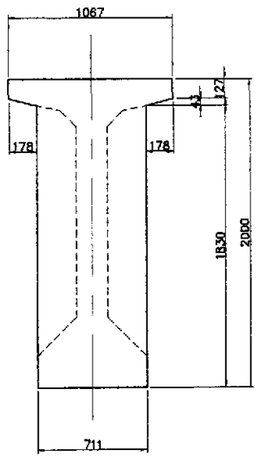
A — ELEVATION
SCALE 1:50



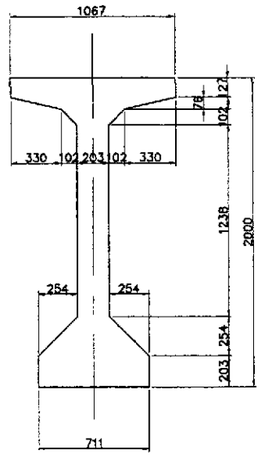
B — SECTION
SCALE 1:50



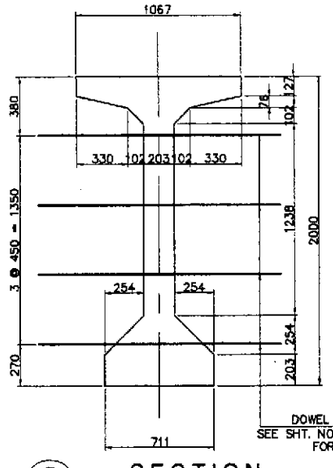
C — SECTION
SCALE 1:50



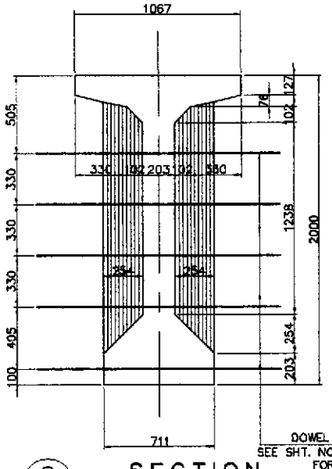
D — SECTION
SCALE 1:20



E — SECTION
SCALE 1:20



F — SECTION
SCALE 1:20



G — SECTION
SCALE 1:20

SCHEDULE OF DIMENSIONS

LOCATION	L	L1	L2	L3
ABUT. 1 to PIER 1	39550	19775	9880	9895
PIER 1 to PIER 2	39400	19700	9850	9850
PIER 2 to PIER 3	39550	19775	9880	9895
PIER 3 to PIER 4	39550	19775	9880	9895
PIER 4 to PIER 5	39400	19700	9850	9850
PIER 5 to PIER 6	39550	19775	9880	9895
PIER 6 to PIER 7	39550	19775	9880	9895
PIER 7 to PIER 8	39400	19700	9850	9850
PIER 8 to ABUT. 2	39550	19775	9880	9895

NOTE : DOWEL BARS FOR DIAPHRAGM SHALL BE EMBEDDED ON THE GIRDER DURING CASTING. NO HOLES WILL BE PERMITTED ON THE GIRDER FOR THESE DOWEL BARS.

1 — LAYOUT AND DIMENSION (AASHTO GIRDER TYPE - VI MODIFIED)
SCALE AS SHOWN

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	for F. P. DE JESUS
CHECKED	10/19/02	V. C. SANTOS
SUBMITTED	10/21/02	C. KUBOTA TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

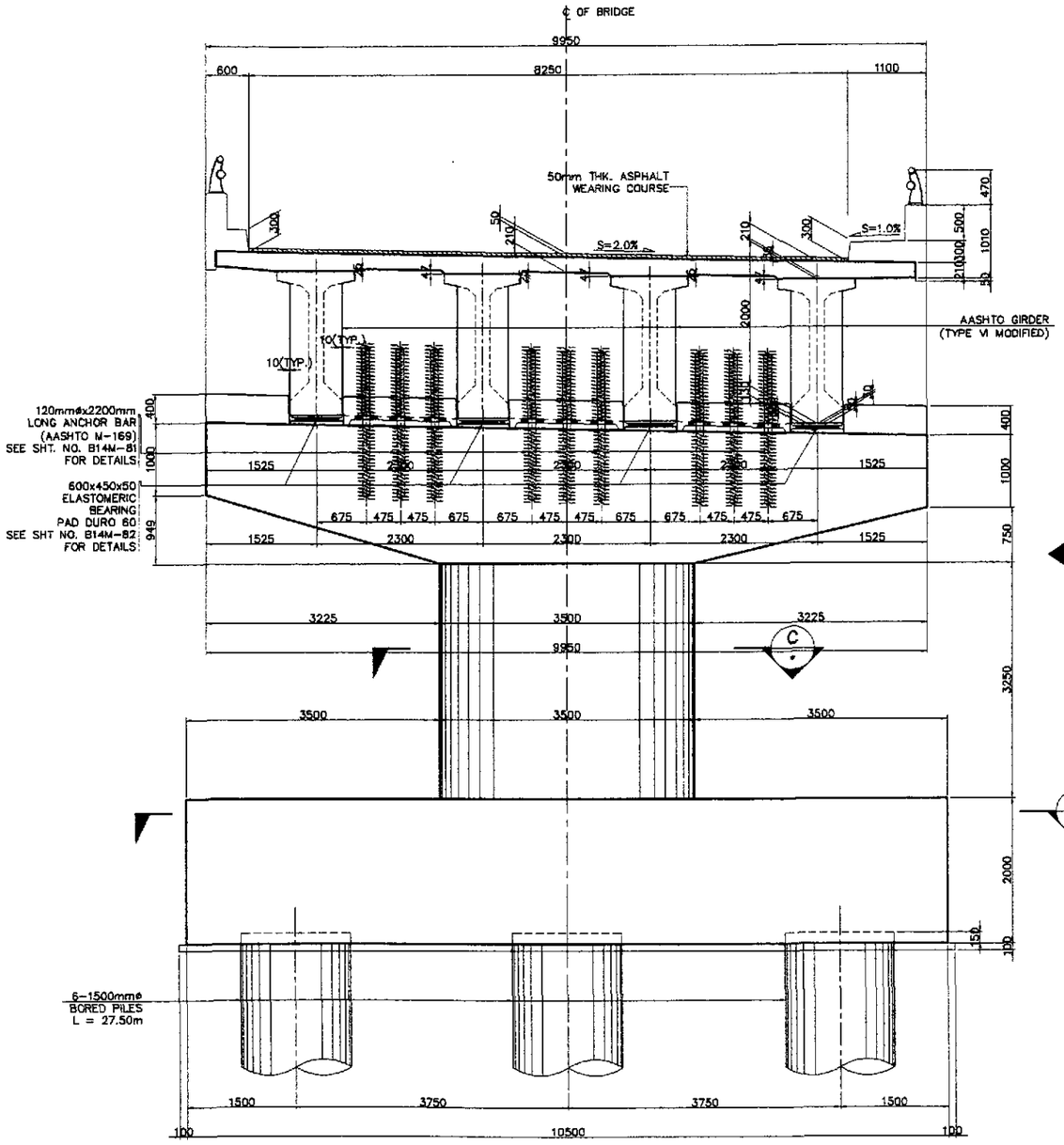
PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	ADRIANO M. DOROY	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

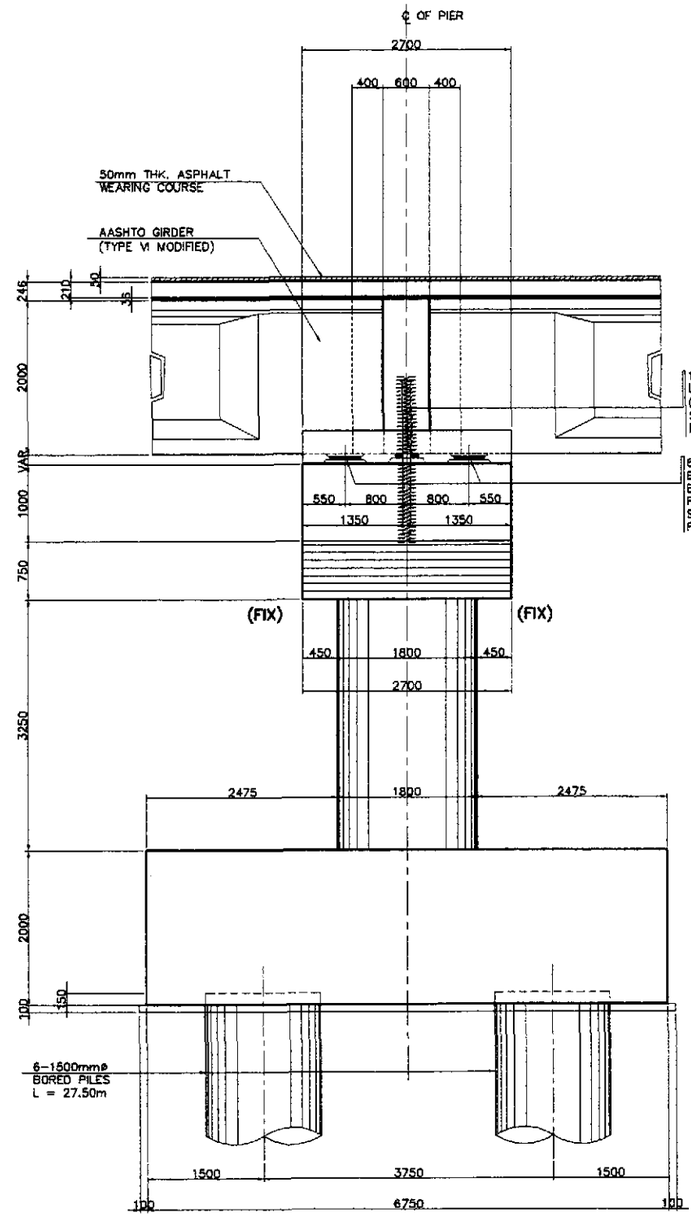
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
LAYOUT & DIMENSIONS (AASHTO GIRDER TYPE VI MODIFIED)
(INITIAL STAGE)

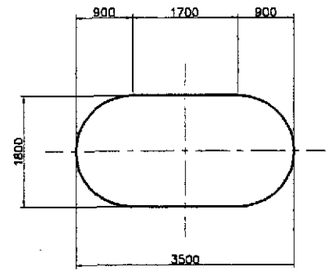
SHEET NO. : B14 L-24



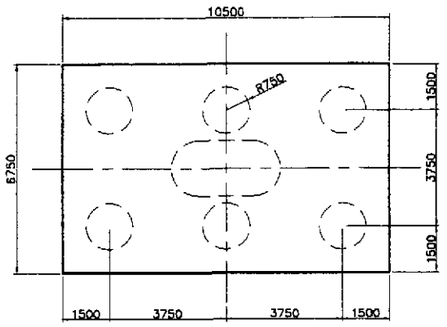
A — ELEVATION
SCALE 1:40



B — SIDE ELEVATION
SCALE 1:40



C — SECTION
SCALE 1:50



D — SECTION
SCALE 1:100

1 — PIER LAYOUT & DIMENSIONS (PIER 1 & PIER 2)
SCALE AS SHOWN

JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	F. P. DE JESUS
CHECKED	10/19/02	J. C. SANTOS
SUBMITTED	10/21/02	M. KOUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

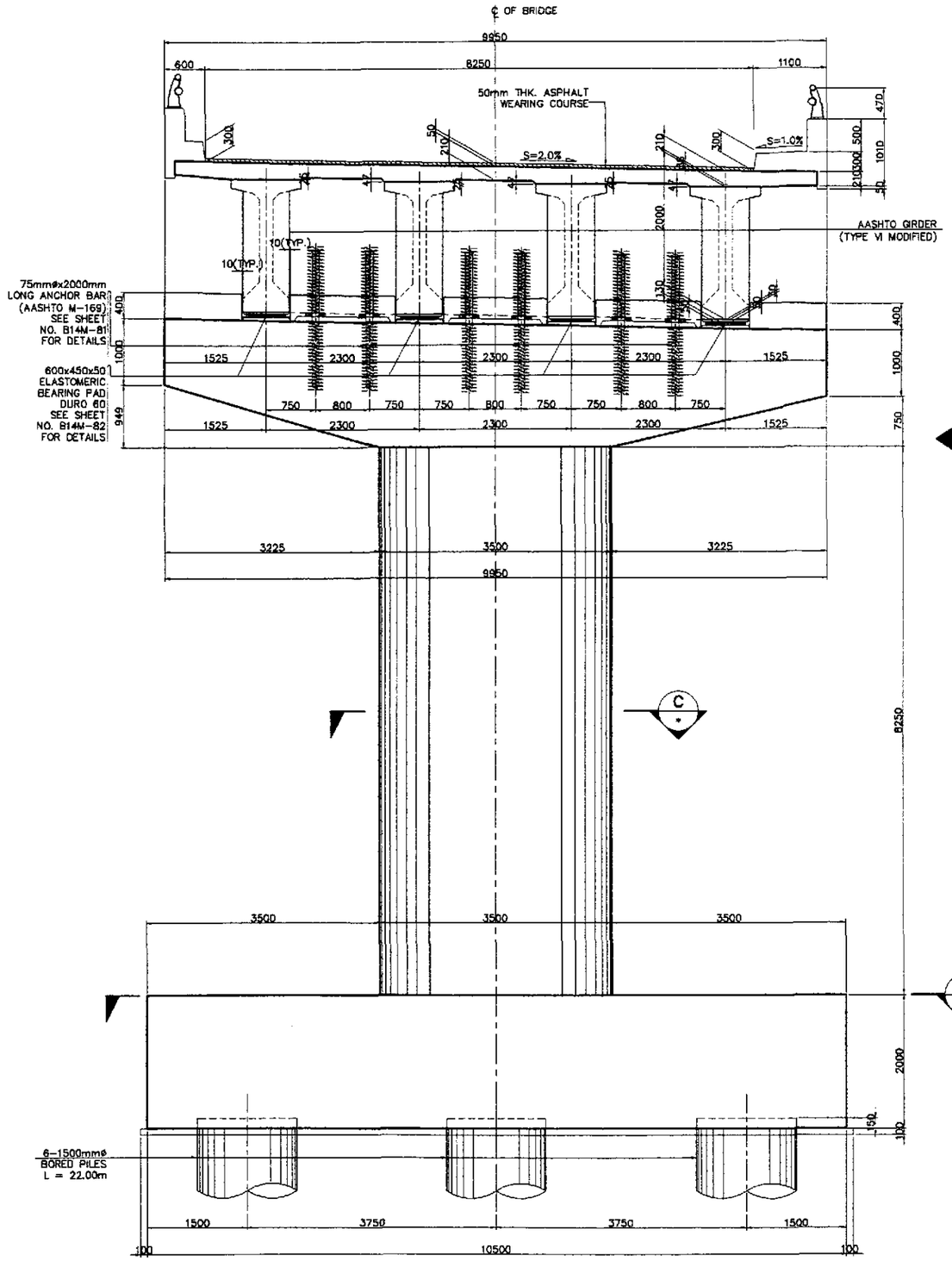
PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	ADRIANO M. DORGY	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

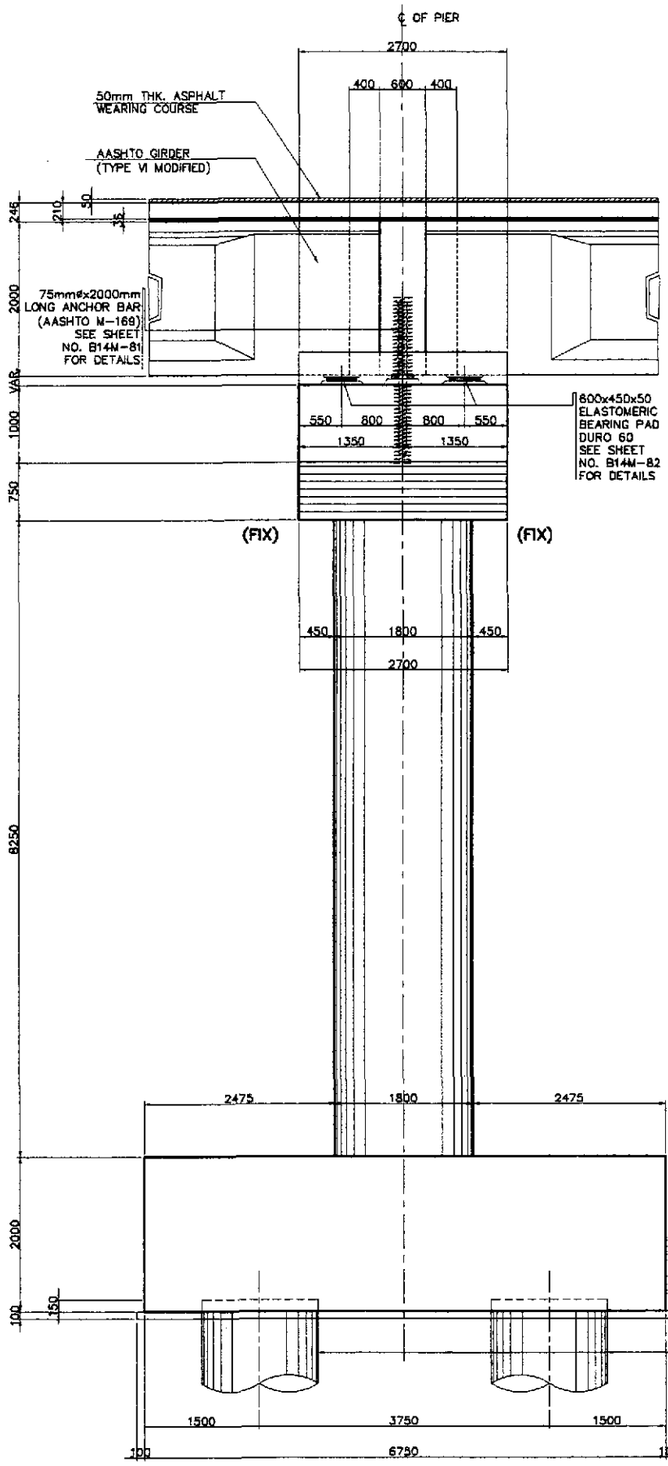
SCALE : AS SHOWN — FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
PIER LAYOUT & DIMENSIONS (PIER 1 & PIER 2) (INITIAL STAGE)

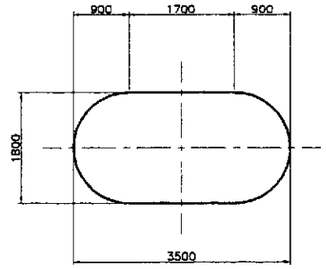
SHEET NO. : B14L-25



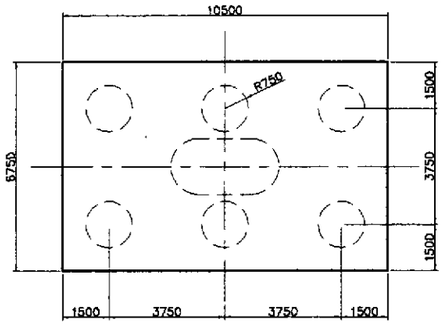
A ELEVATION
SCALE 1:40



B SIDE ELEVATION
SCALE 1:40



C SECTION
SCALE 1:50



D SECTION
SCALE 1:100

1 PIER LAYOUT & DIMENSIONS (P4, P5, P7 & P8)
SCALE AS SHOWN

JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	F. P. DESJESUS
CHECKED	10/19/02	J. C. SANTOS
SUBMITTED	10/21/02	M. KUDO, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

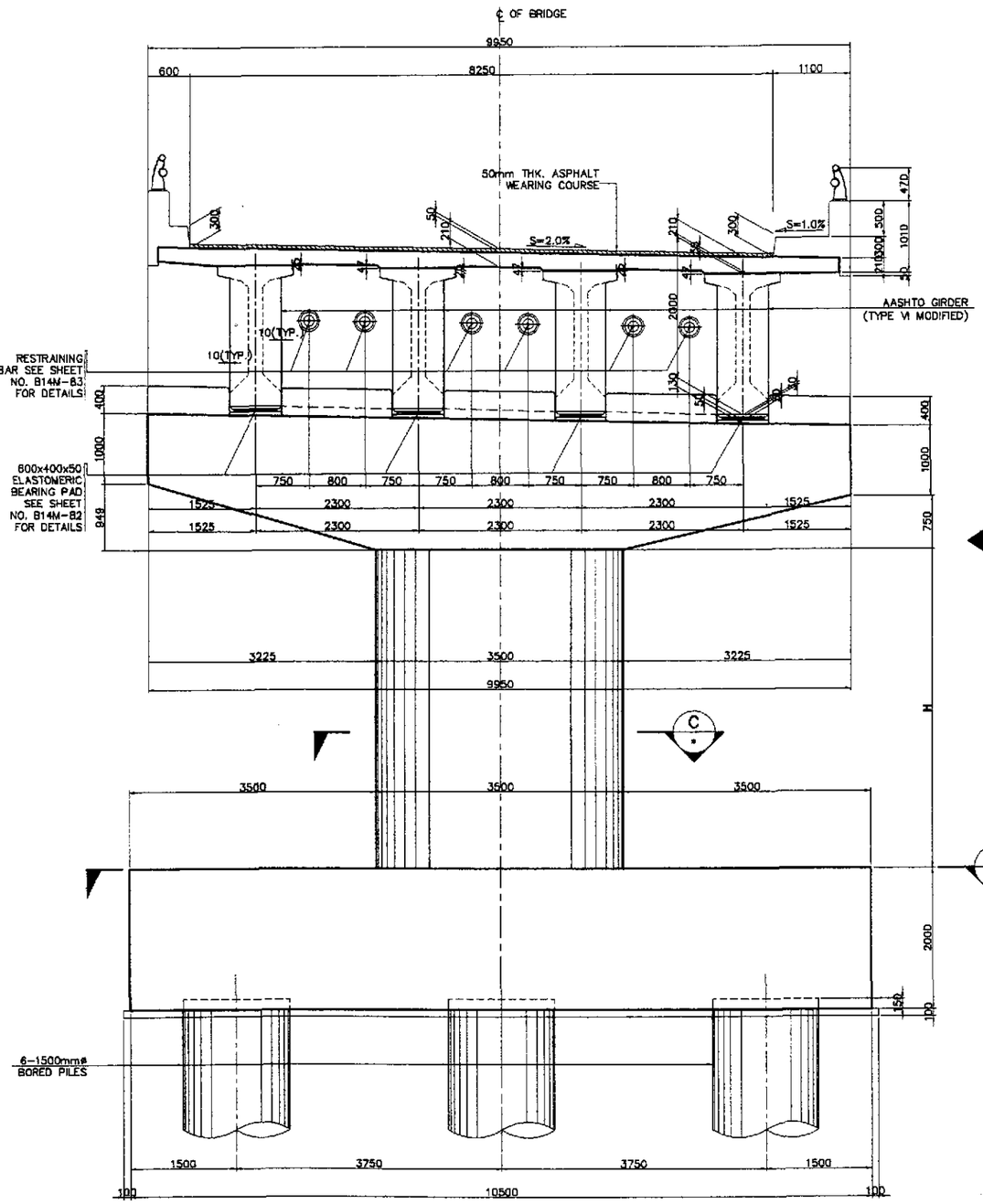
FUHL – PWO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By: DANILO C. TRAJANO, Project Director	Reviewed By: ADRIANO M. DOROY, Chief, Bridges Division	Recommended By: GILBERTO S. REYES, Director IV (OIC)	Recommended By: (See cover sheet for Signature) MANUEL M. BONOAN, Undersecretary	Approved By: (See cover sheet for Signature/Approval) SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

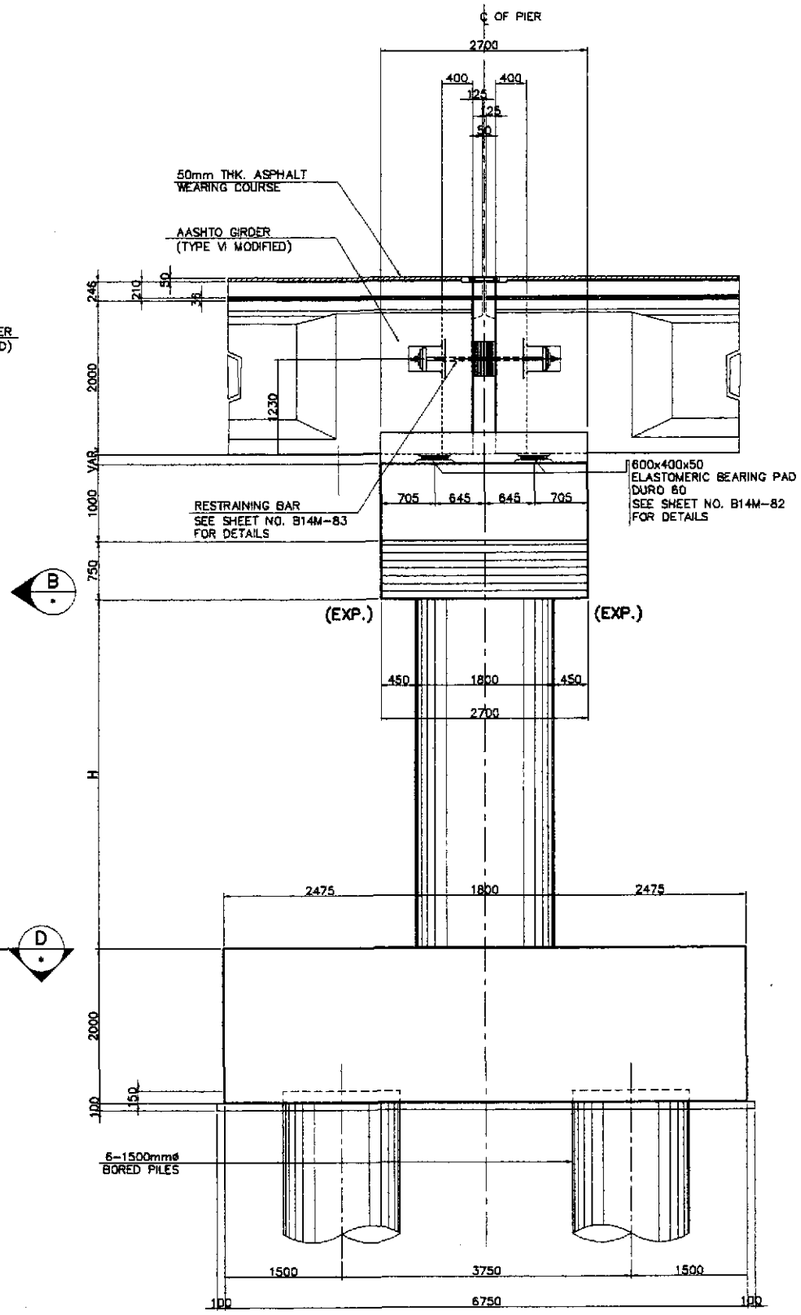
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
PIER LAYOUT & DIMENSIONS (P4, P5, P7 & P8)
(INITIAL STAGE)

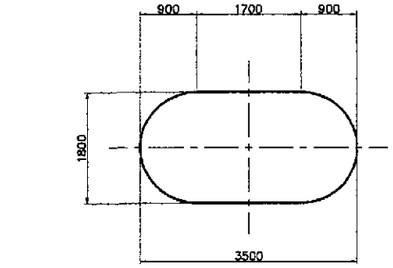
SHEET NO. : B14L-26



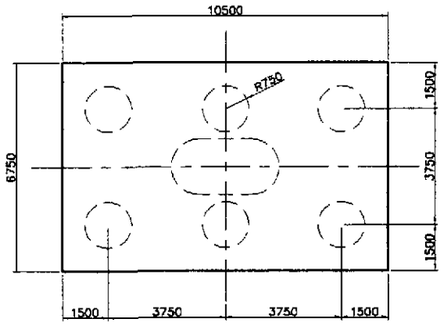
A ELEVATION
SCALE 1:40



B SIDE ELEVATION
SCALE 1:40



C SECTION
SCALE 1:50



D SECTION
SCALE 1:100

SCHEDULE OF DIMENSIONS		
LOCATION	H	PILE LENGTH (m)
PIER 3	3250	27.50
PIER 6	8250	22.00

1 PIER LAYOUT & DIMENSIONS (P3 & P6)
SCALE AS SHOWN

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	J. P. DE JESUS
CHECKED	10/19/02	C. SANTOS
SUBMITTED	10/21/02	R. KUSUDA TEAM LEADER

REPUBLIC OF THE PHILIPPINES
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Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

PROJECT AND LOCATION :
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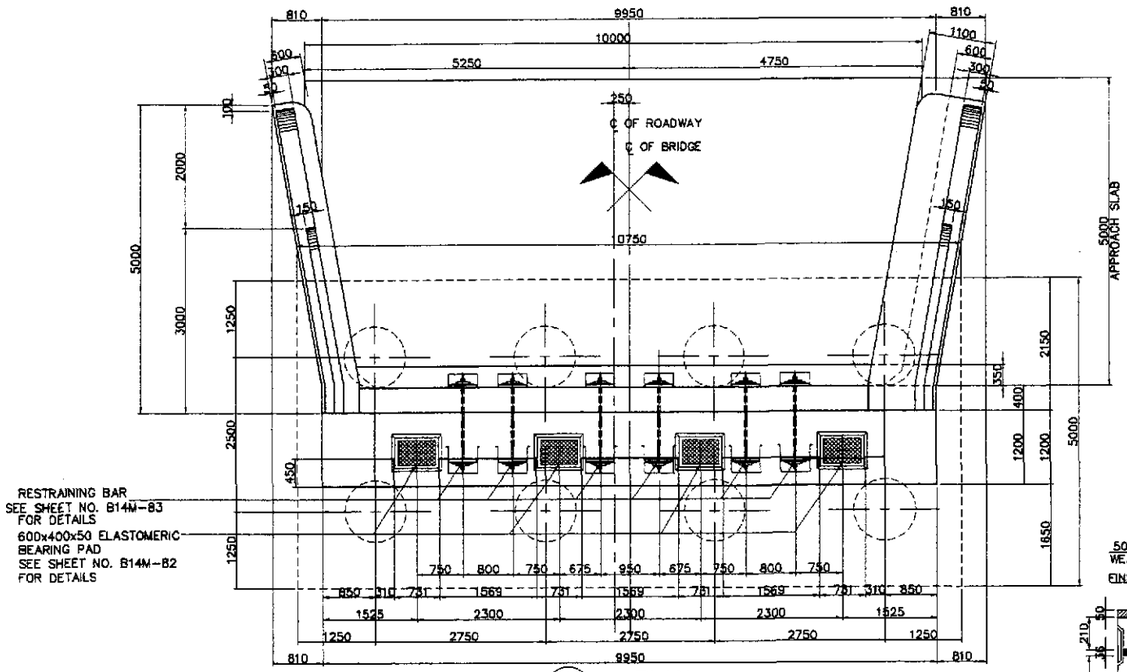
CABANATUAN BYPASS - CONTRACT PACKAGE IV

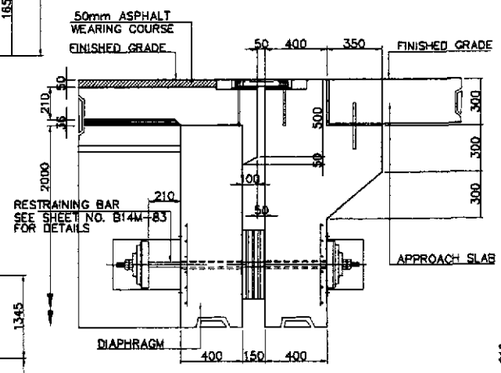
SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
PIER LAYOUT & DIMENSIONS (P3 & P6)
(INITIAL STAGE)

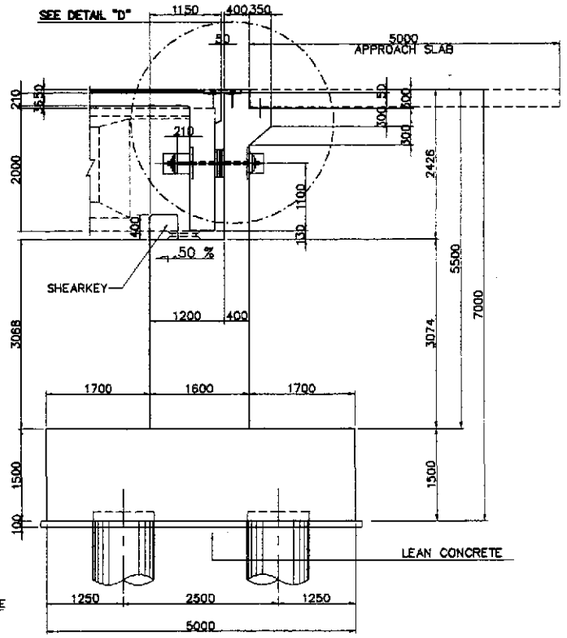
SHEET NO. : B14L-27



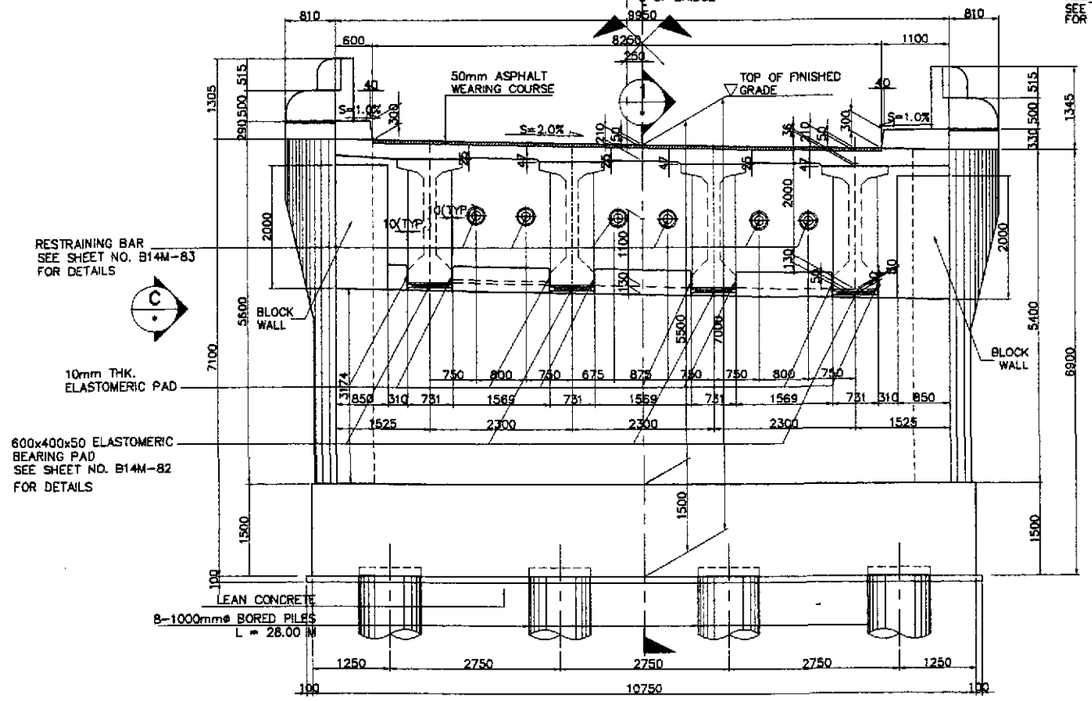
A PLAN
SCALE 1:50



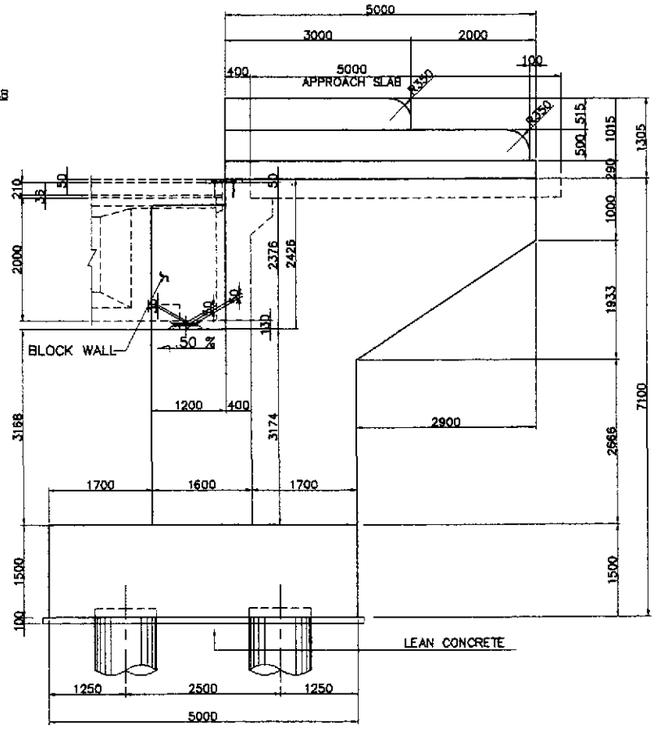
D DETAIL
SCALE 1:20



1 SECTION
SCALE 1:50



B ELEVATION
SCALE 1:50



C SIDE ELEVATION
SCALE 1:50

A LAYOUT & DIMENSIONS (ABUTMENT A1 & A2)
SCALE AS SHOWN

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEO YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/12/02	F. P. DE JESUS
CHECKED	10/12/02	J. S. SANTOS
SUBMITTED	10/12/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

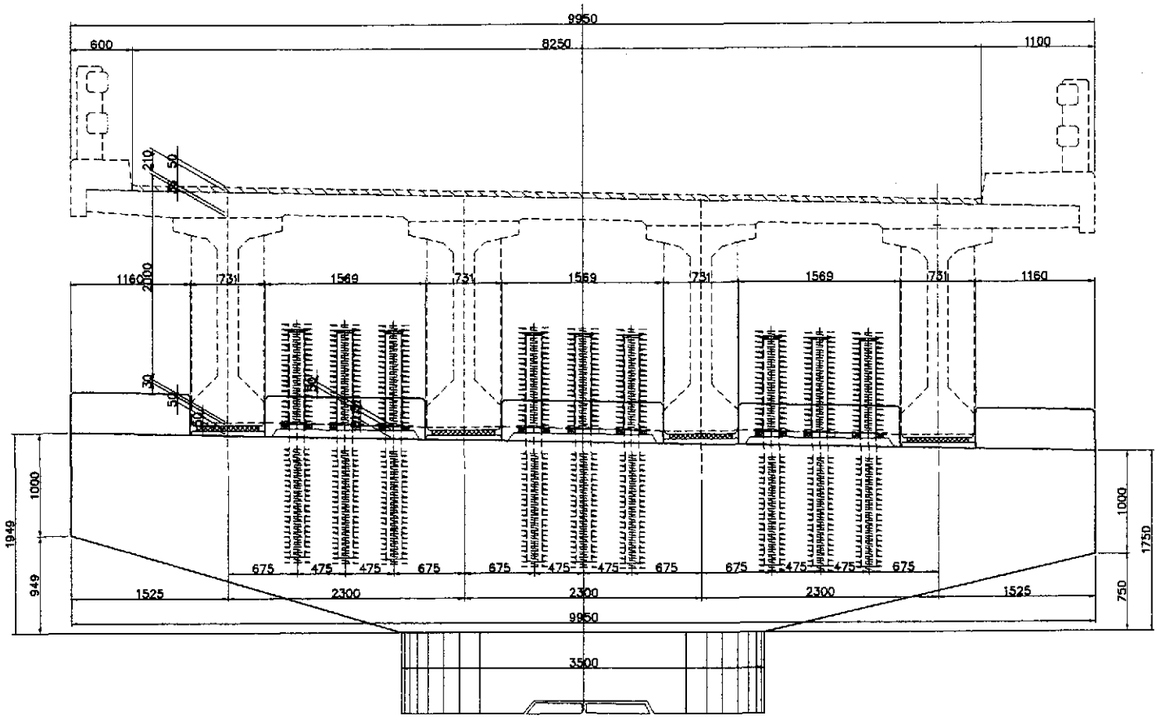
PMHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	ADRIANO M. DORCY	GILBERTO S. REYES	MANUEL M. BONGAN	SIMEON A. DATUMANONG
Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

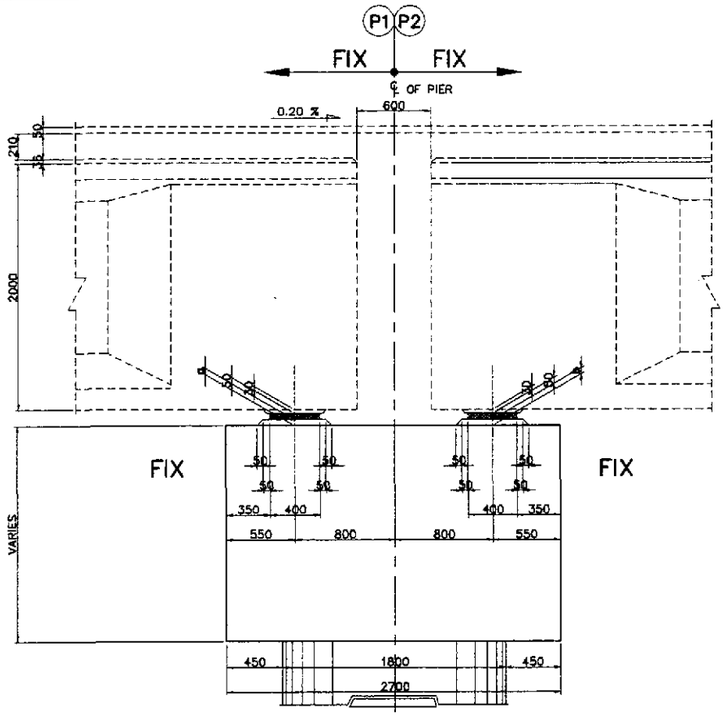
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
ABUTMENT LAYOUT & DIMENSIONS
(ABUTMENT A1 & A2)
(INITIAL STAGE)

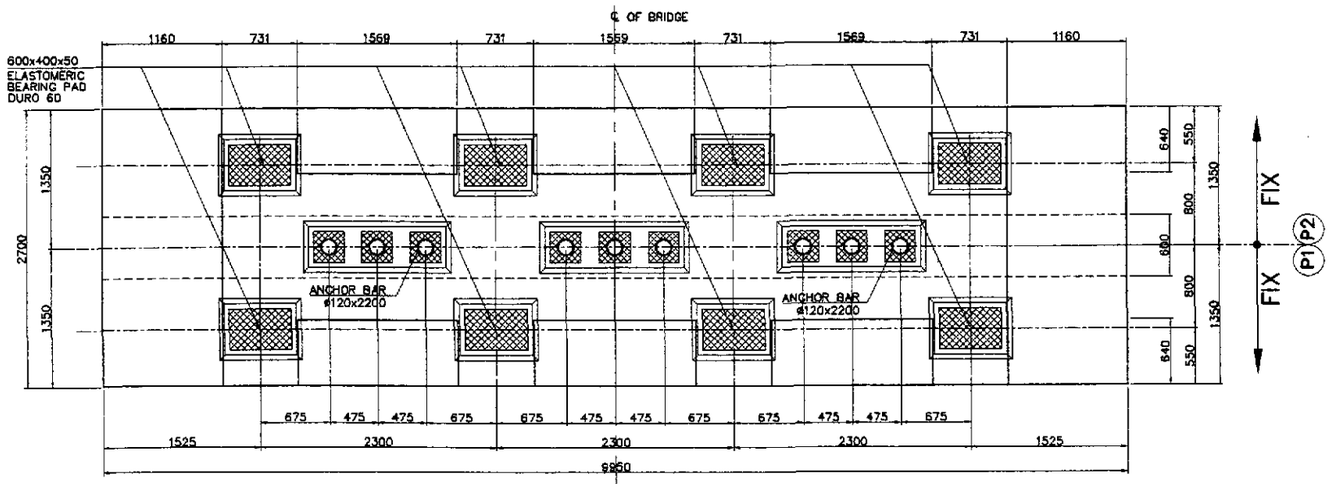
SHEET NO. :
B14L-28



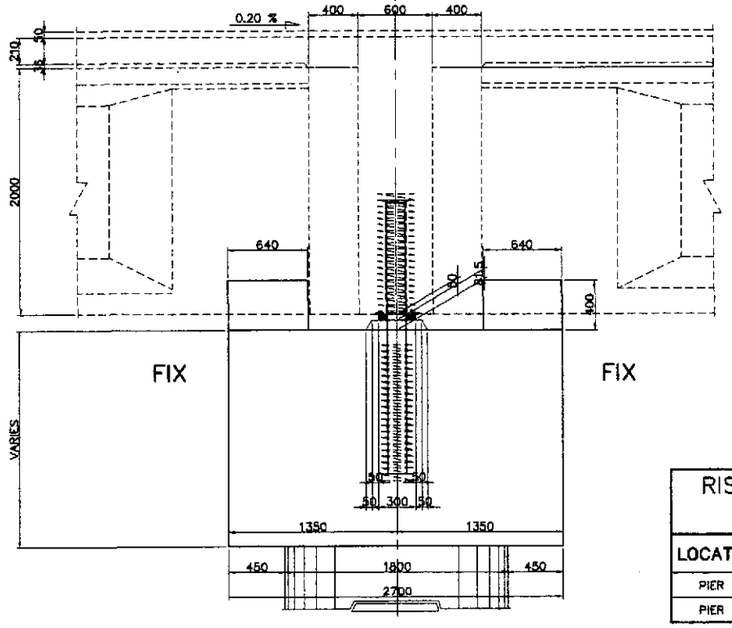
A — ELEVATION
SCALE 1 : 30



C — SECTION @ BEARING PAD
SCALE 1 : 25



B — P L A N
SCALE 1 : 30



D — SECTION @ ANCHOR BAR
SCALE 1 : 25

RISER SCHEDULE (BEARING)		
LOCATION	a	b
PIER 1	50	53
PIER 2	50	53

1 — COPING LAYOUT AND DIMENSIONS (FIXED PIERS-PIERS P1 & P2)
SCALE AS SHOWN

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	10/21/02	F. P. DE JESUS
CHECKED	10/19/02	J. C. SANTOS
SUBMITTED	10/21/02	M. KUCHIKI TEAM LEADER

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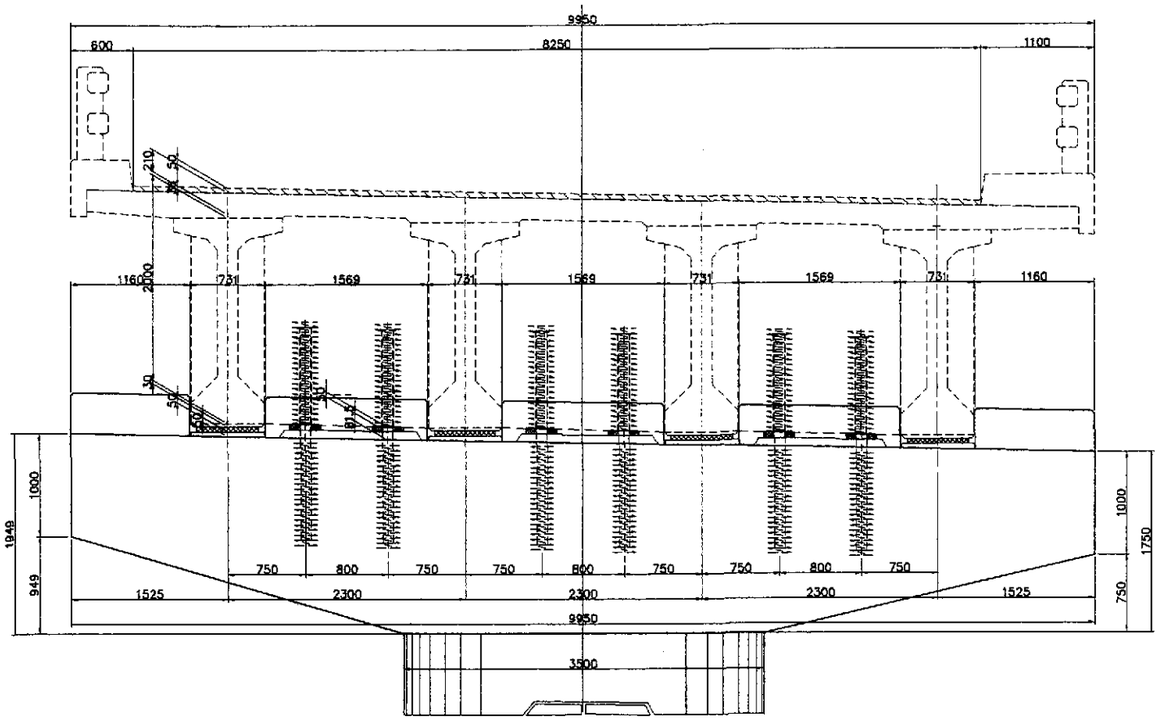
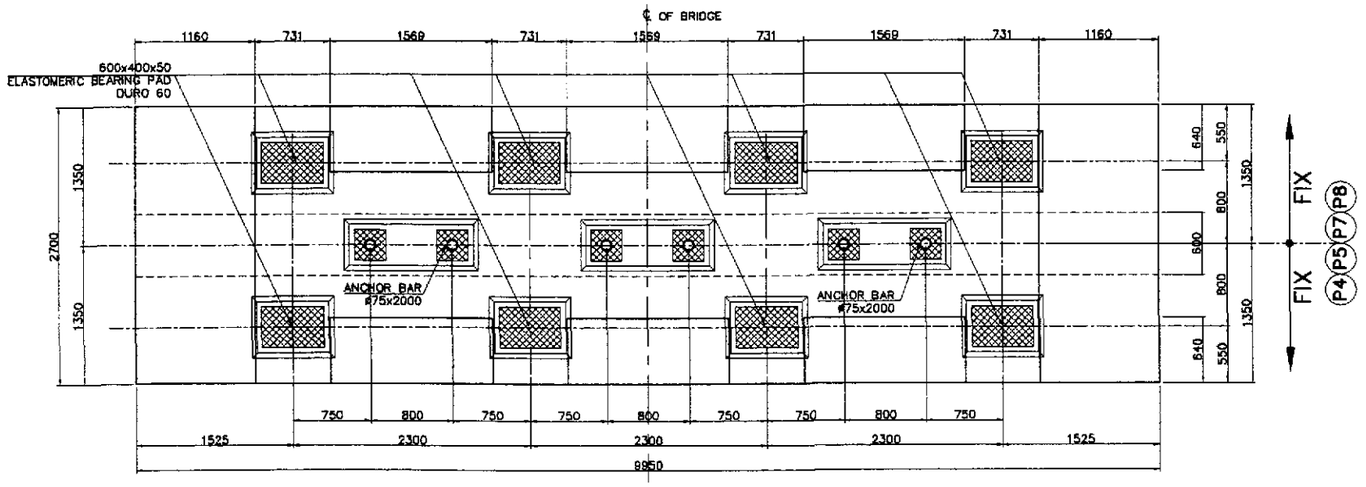
SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
COPING LAYOUT & DIMENSIONS
(PIERS P1 & P2, FIX-FIX)
(INITIAL STAGE)

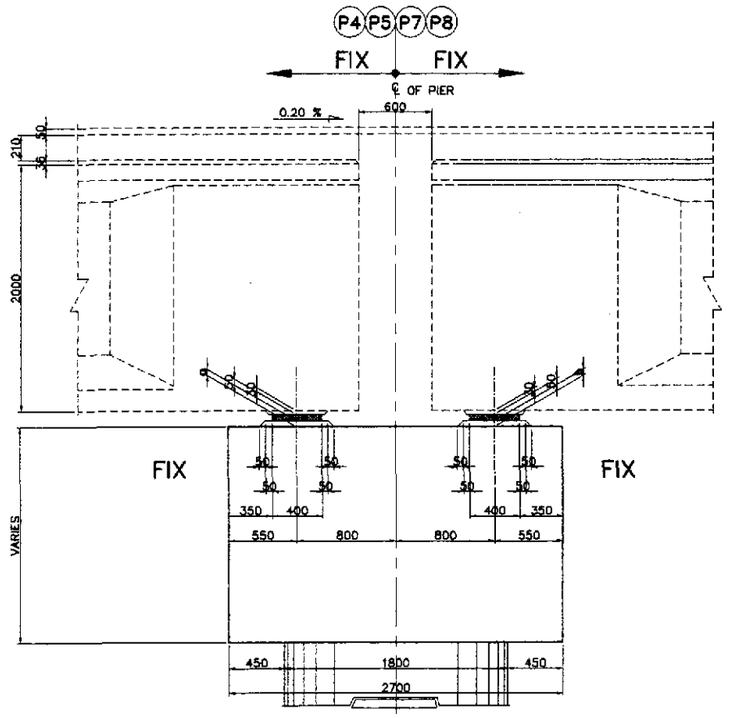
SHEET NO. :
B14L-29



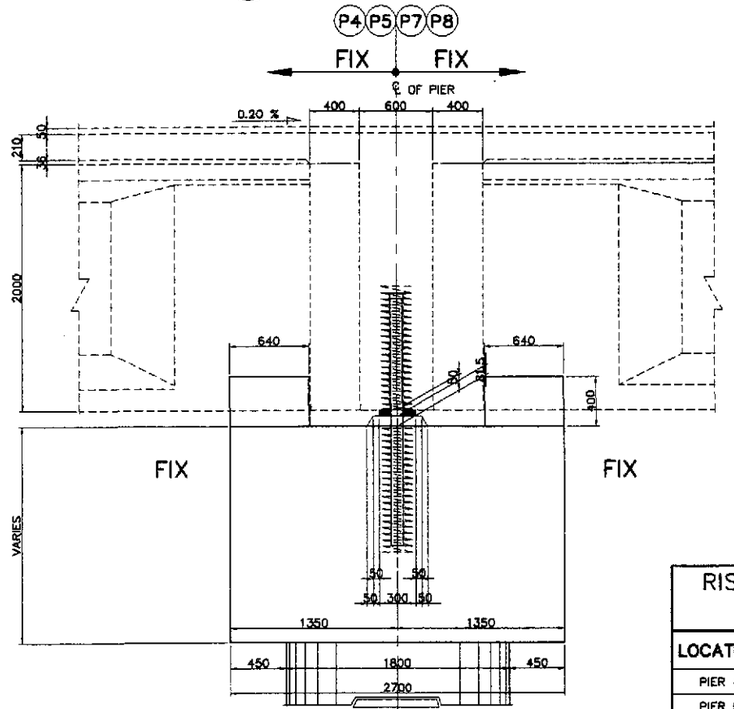
A - SCALE 1:30 — ELEVATION



B - SCALE 1:30 — P L A N



C - SCALE 1:25 — SECTION @ BEARING PAD



D - SCALE 1:25 — SECTION @ ANCHOR BAR

1 - SCALE AS SHOWN — COPING LAYOUT AND DIMENSIONS (FIXED PIERS-PIERS P4, P5, P7 & P8)

RISER SCHEDULE (BEARING)

LOCATION	a	b
PIER 4	50	53
PIER 5	50	50
PIER 7	53	50
PIER 8	53	50

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL — YACHIYO ENGINEERING CO., LTD.

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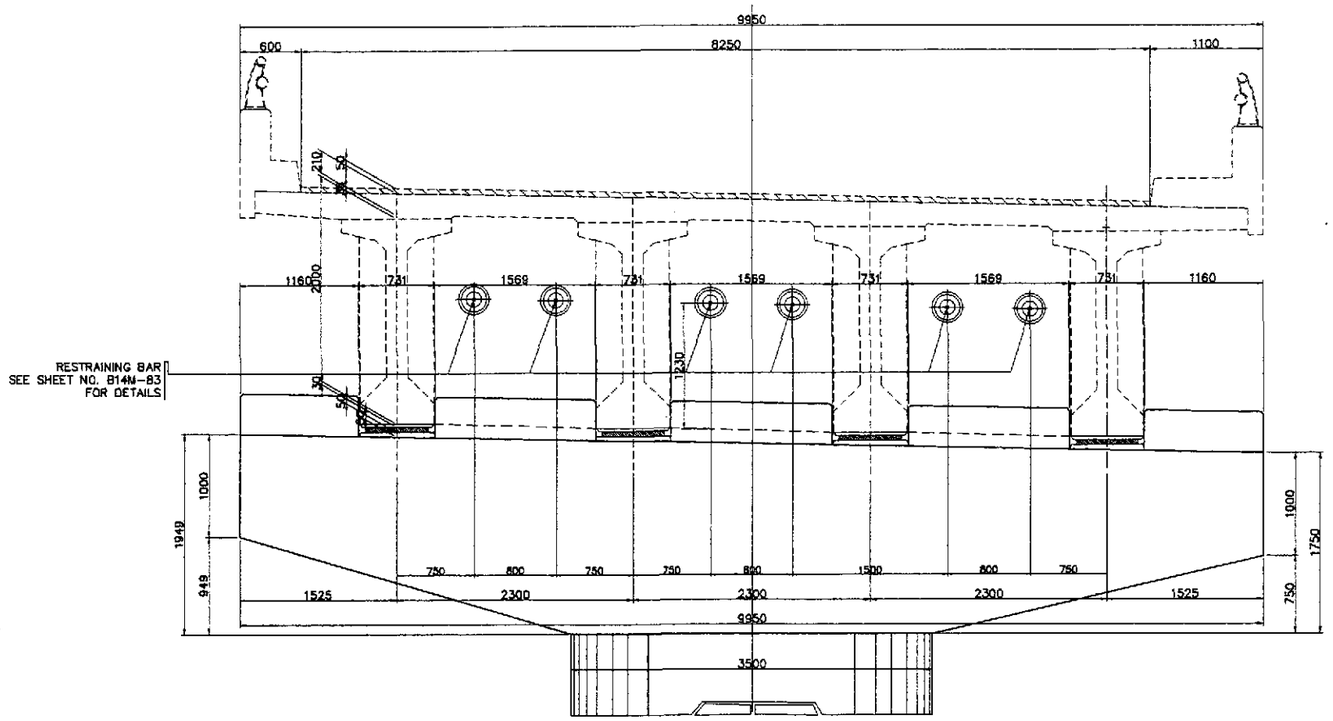
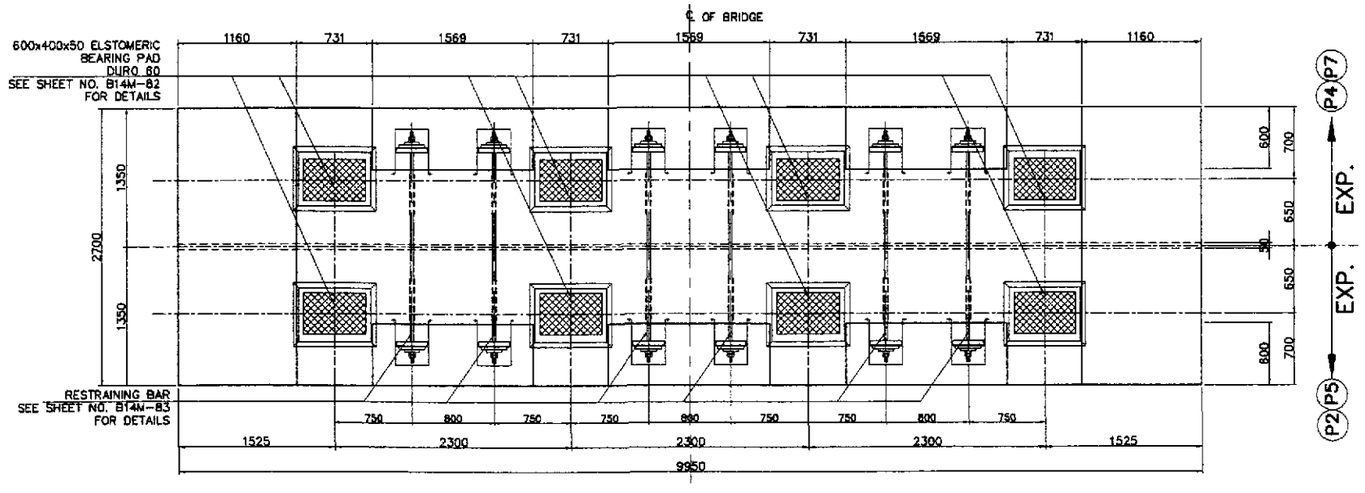
SCALE : AS SHOWN — FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
COPING LAYOUT & DIMENSIONS
(PIERS P4, P5, P7 & P8, FIX-FIX)
(INITIAL STAGE)

SHEET NO. : B14L-30

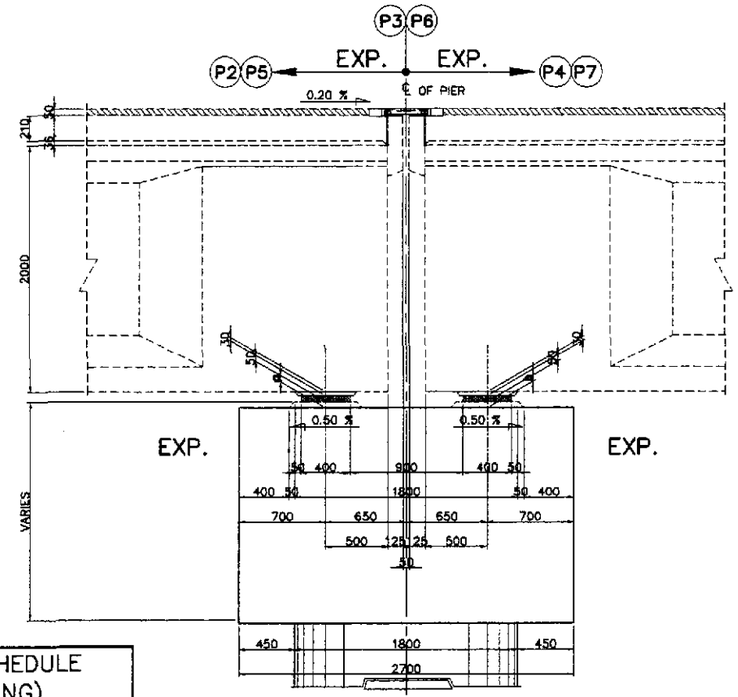


A — ELEVATION
SCALE 1:30

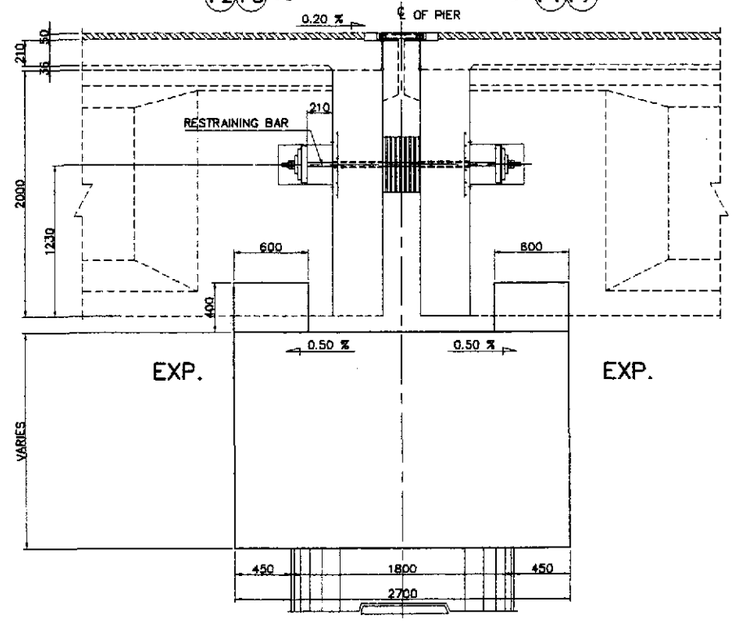


B — P L A N
SCALE 1:30

RISER SCHEDULE (BEARING)		
LOCATION	a	b
PIER 3	50	53
PIER 6	53	50



C — SECTION @ BEARING PAD
SCALE 1:25



D — SECTION @ ANCHOR BAR
SCALE 1:25

1 — COPING LAYOUT AND DIMENSIONS (PIER P3 & P6, EXP. PIERS)
SCALE AS SHOWN

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JAPAN INTERNATIONAL COOPERATION AGENCY

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SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO.14 TALAVERA RIVER BRIDGE
COPING LAYOUT & DIMENSIONS
(PIER P3 & P6, EXP. PIERS)
(INITIAL STAGE)

SHEET NO. : B14L-31