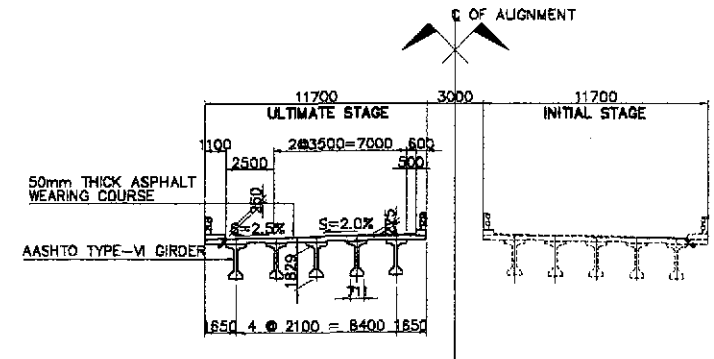
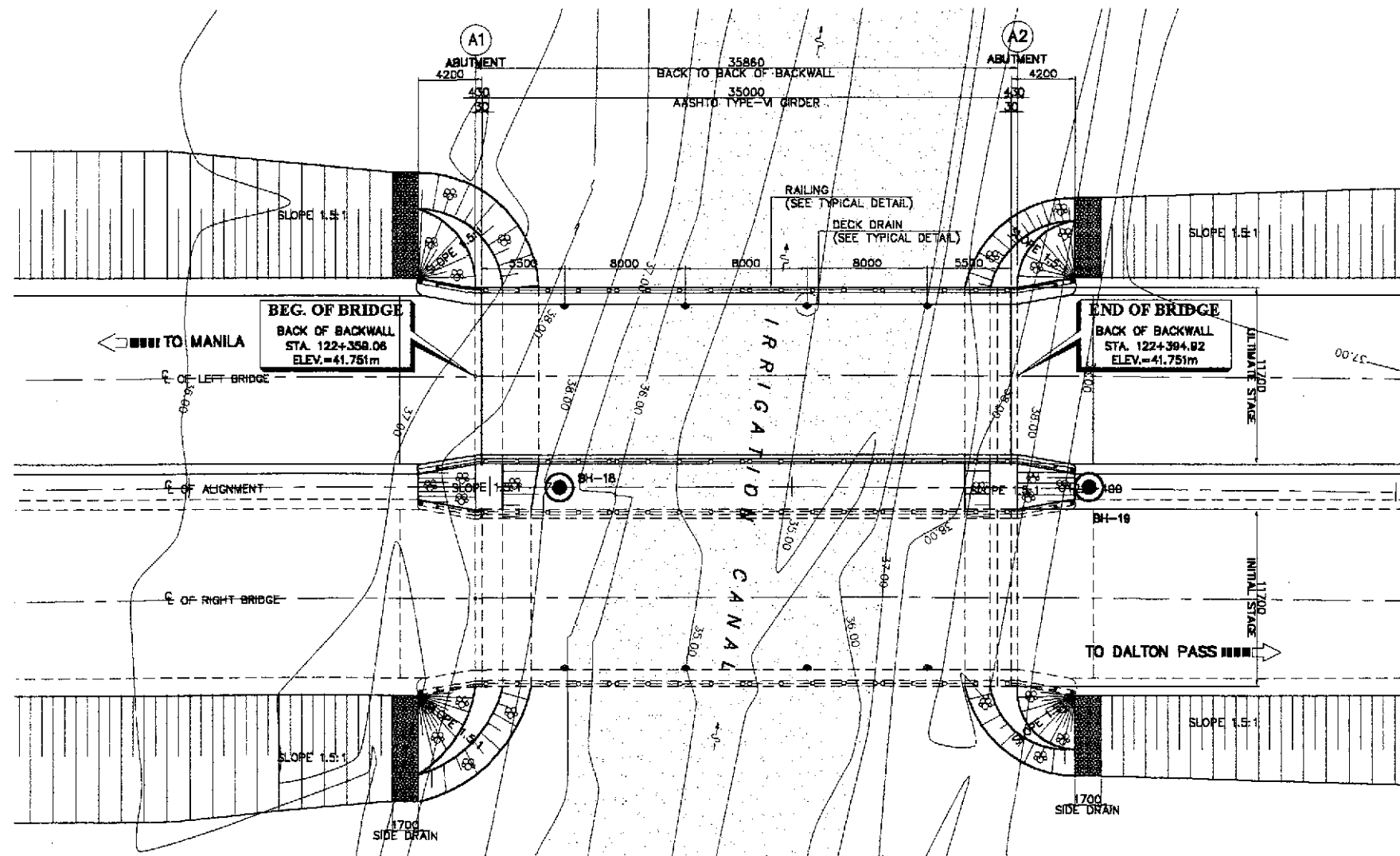


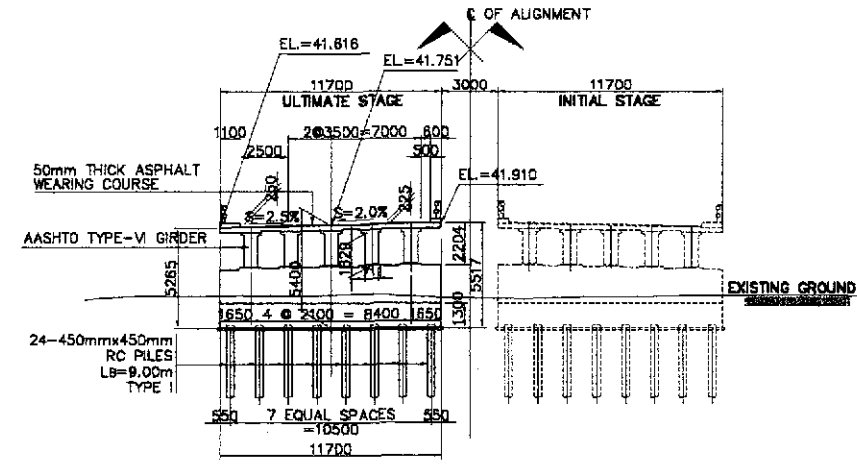
1 GENERAL ELEVATION  
SCALE 1:200



3 SECTION @ MIDSPAN  
SCALE 1:200



2 GENERAL PLAN  
SCALE 1:200



4 SECTION @ ABUTMENT A2  
SCALE 1:200

HYDRAULIC DESIGN DATA	
IRRIGATION CANAL	-

NOTE :  
PRIOR TO CONSTRUCTION SOIL INVESTIGATION AT ABUTMENT A1 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.11 (STA. 122+359.06)**  
SCALE AS SHOWN

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

**JICA**  
JAPAN INTERNATIONAL COOPERATION AGENCY

**KATAHIRA & ENGINEERS**  
INTERNATIONAL

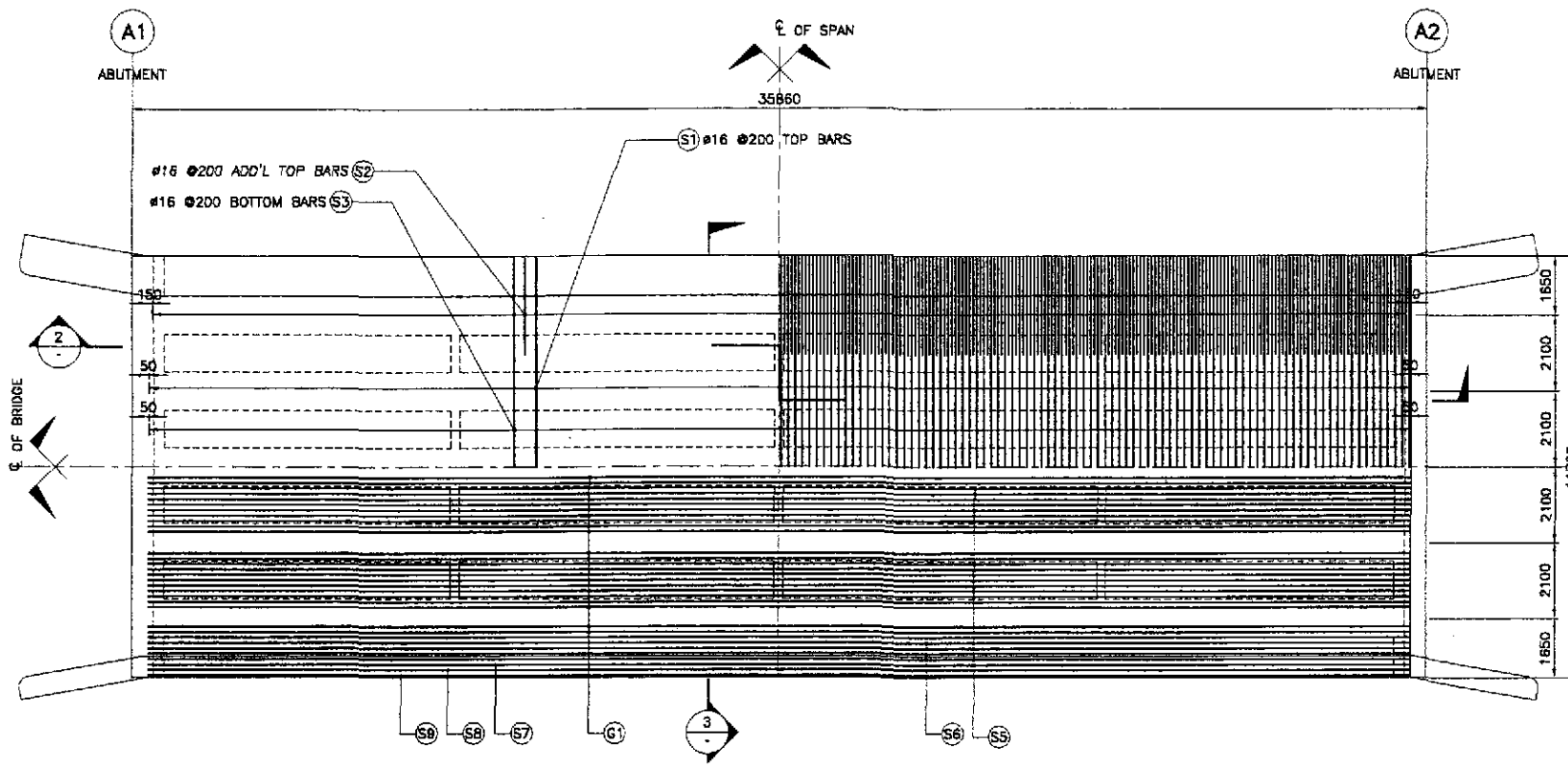
**YEO** YACHIYO ENGINEERING CO., LTD.

DESIGNED	CHECKED	SUBMITTED	DATE	SIGNATURE
10/17/02	10/19/02	10/21/02		A. F. GONZALES

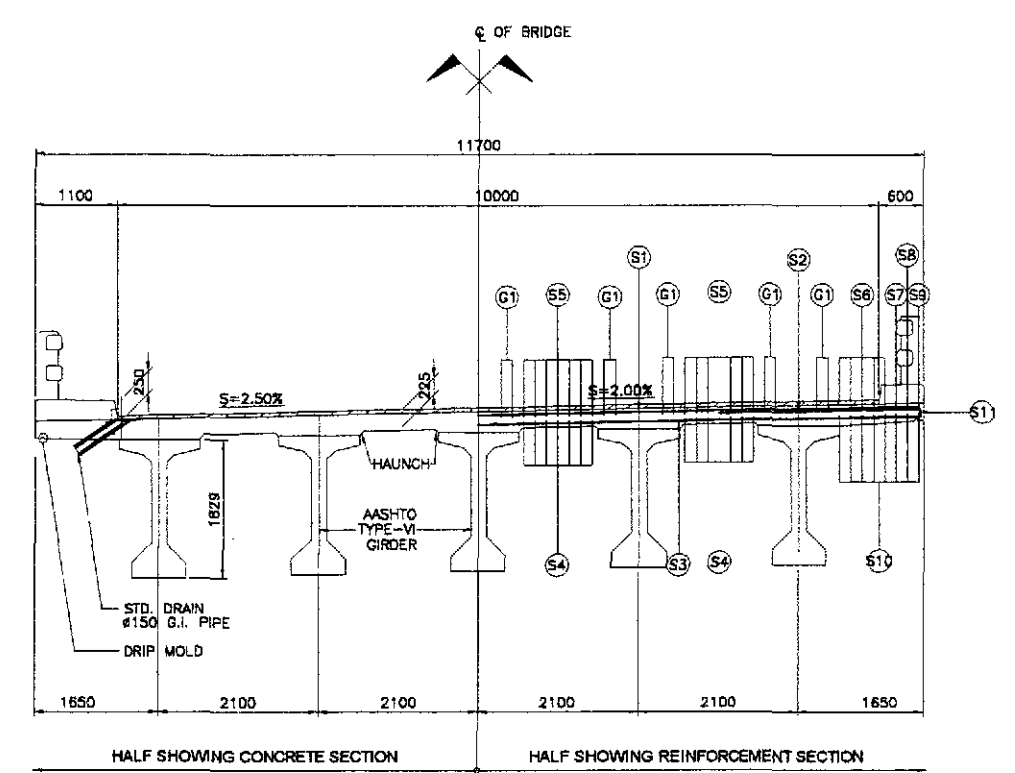
  

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				
BUREAU OF DESIGN		OFFICE OF THE SECRETARY		
Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:
DANILO C. TRAJANO Project Director	ADRIANO M. DOROS Chief, Bridges Division	GILBERTO S. REYES Director IV (CIC)	MANUEL M. BONGAN Undersecretary	SIMEDON A. DATUMANONG Secretary

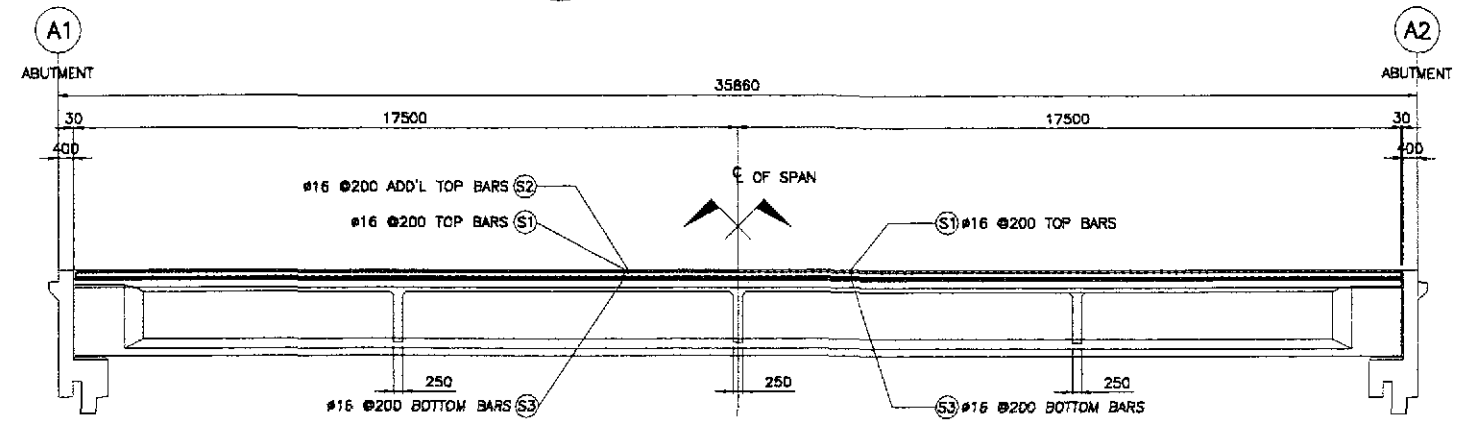
PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:200 FULL SIZE A1	BRIDGE NO. 11 GENERAL PLAN, ELEVATION AND SECTIONS (ULTIMATE STAGE)	B11-01



1 FRAMING PLAN  
SCALE 1:100

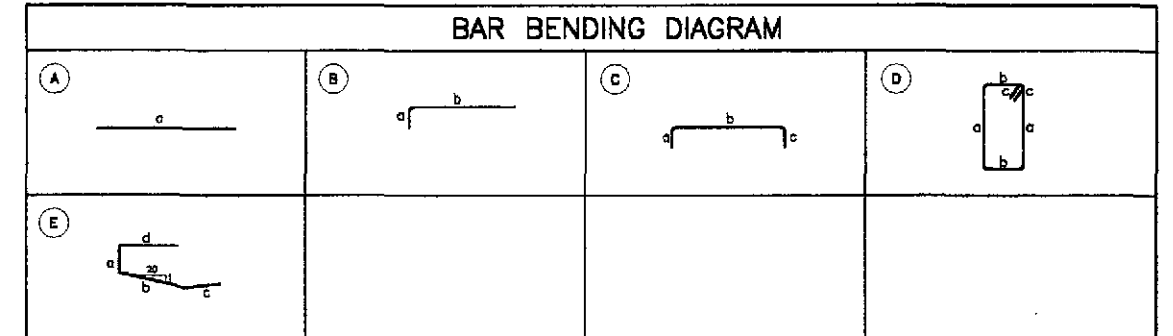


3 TYPICAL CROSS-SECTION  
SCALE 1:50



2 LONGITUDINAL SECTION  
SCALE 1:100

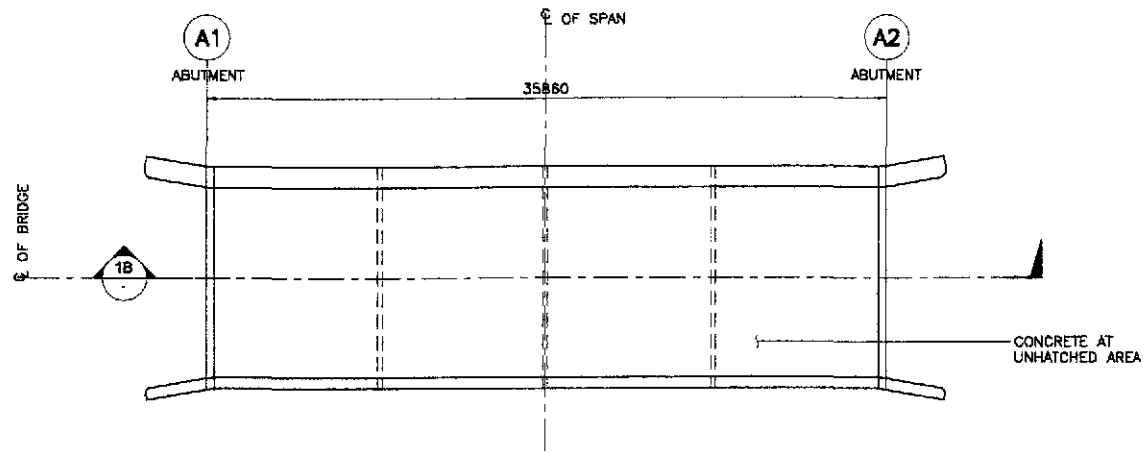
ESTIMATED QUANTITIES OF SUPERSTRUCTURE			
ITEM NO.	DESCRIPTION	UNIT	TOTAL
404(1)a	REINFORCING STEEL GRADE 40	kgs.	29222
	DECK SLAB	14503	
	DIAPHRAGM	442	
	GIRDER	9680	
	SIDEWALK, RAILING, & POST	3255	
	APPROACH SLAB	1342	
404(1)b	REINFORCING STEEL GRADE 60	kgs.	14855
	DECK SLAB	0	
	DIAPHRAGM	1546	
	GIRDER	8385	
	SIDEWALK, RAILING, & POST	708	
	APPROACH SLAB	4216	
405(1)	STRUCTURAL CONCRETE	cu. m.	309.00
	DECK SLAB	101.91	
	DIAPHRAGM	15.32	
	GIRDER	132.75	
	SIDEWALK, RAILING, & POST	23.18	
	APPROACH SLAB	35.36	



SCHEDULE OF REINFORCEMENT															
LOCATION	CONCRETE VOLUME (m³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT IN (kg)	REBAR RATIO (kg/m³)
							a	b	c	d					
DECK SLAB	101.91	G1	16	20	AS SHOWN	(A)	34900	-	-	-	34900	888.00	1.579	1103	142.31
		S1	16	178	200	(C)	145	11800	145	-	11890	2092.64	1.579	3305	
		S2	16	352	200	(B)	145	2650	-	-	2795	983.84	1.579	1554	
		S3	16	178	200	(C)	145	11800	145	-	11890	2092.64	1.579	3305	
		S4	16	28	150	(A)	34900	-	-	-	34900	977.20	1.579	1543	
		S5	16	28	150	(A)	34900	-	-	-	34900	977.20	1.579	1543	
		S6	16	10	AS SHOWN	(A)	34900	-	-	-	34900	349.00	1.579	552	
		S7	16	2	AS SHOWN	(A)	34900	-	-	-	34900	69.80	1.579	111	
		S8	16	2	AS SHOWN	(A)	34900	-	-	-	34900	69.80	1.579	111	
		S9	16	2	AS SHOWN	(A)	34900	-	-	-	34900	69.80	1.579	111	
		S10	16	16	AS SHOWN	(A)	34900	-	-	-	34900	558.40	1.579	882	
TOTAL	101.91						145	1100	900	300	2445	430.32	0.888	383	GRADE 40 = 14,503 kgs.

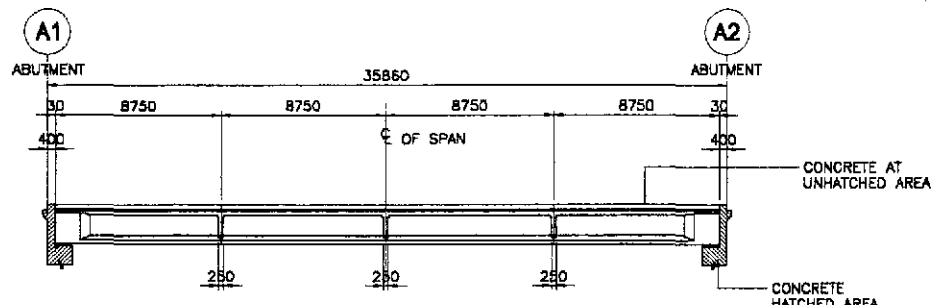
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) <b>CABANATUAN BYPASS - CONTRACT PACKAGE IV</b>	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : <b>BRIDGE NO. 11</b> <b>DECK FRAMING PLAN</b> <b>AND SECTIONS</b> (ULTIMATE STAGE)	SHEET NO. : <b>B11-02</b>
	CHECKED	10/19/02	<i>[Signature]</i>		Submitted By:	Reviewed By:	Recommended By:	Approved By:				
	SUBMITTED	10/21/02	<i>[Signature]</i>		DANILO C. TRAJANO Project Director	ADRIANO M. DORDY Chief, Bridges Division	GILBERTO S. REYES Director IV (GIC)	MANUEL M. BONGAN Undersecretary				





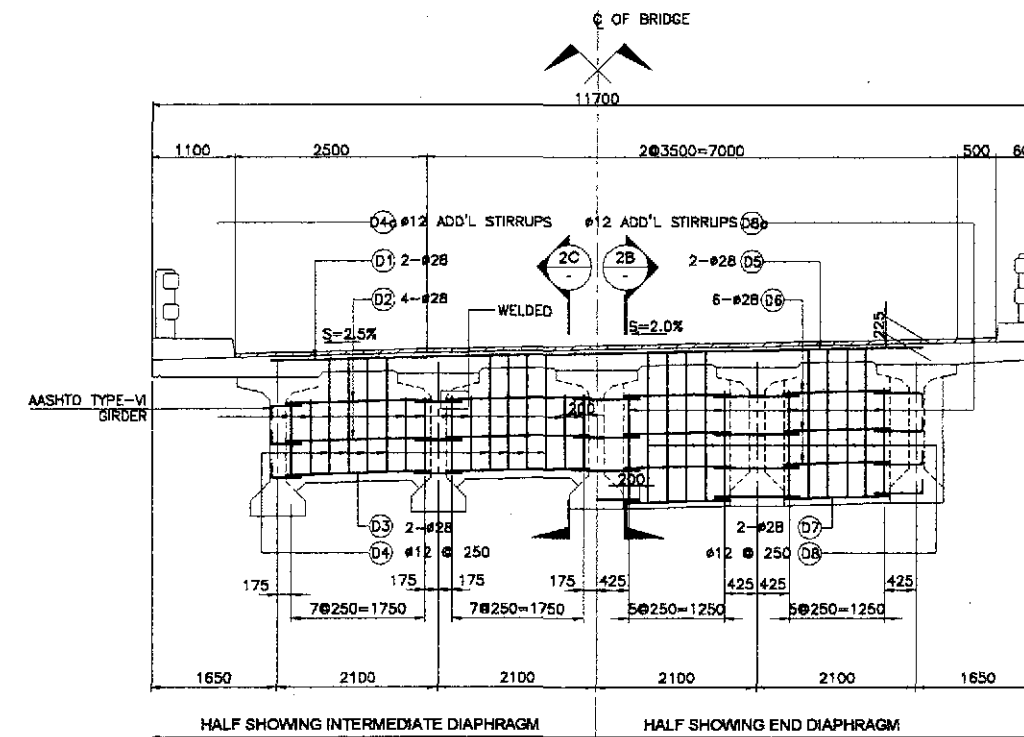
1A PLAN  
SCALE 1:200

- NOTES:
- CONCRETE AT HATCHED AREAS SHALL BE PLACED AT LEAST TWENTY ONE (21) DAYS AHEAD OF CONCRETE AT UNHATCHED AREAS.
  - SEE GIRDER DETAIL FOR SPACING OF #28 DOWELS.



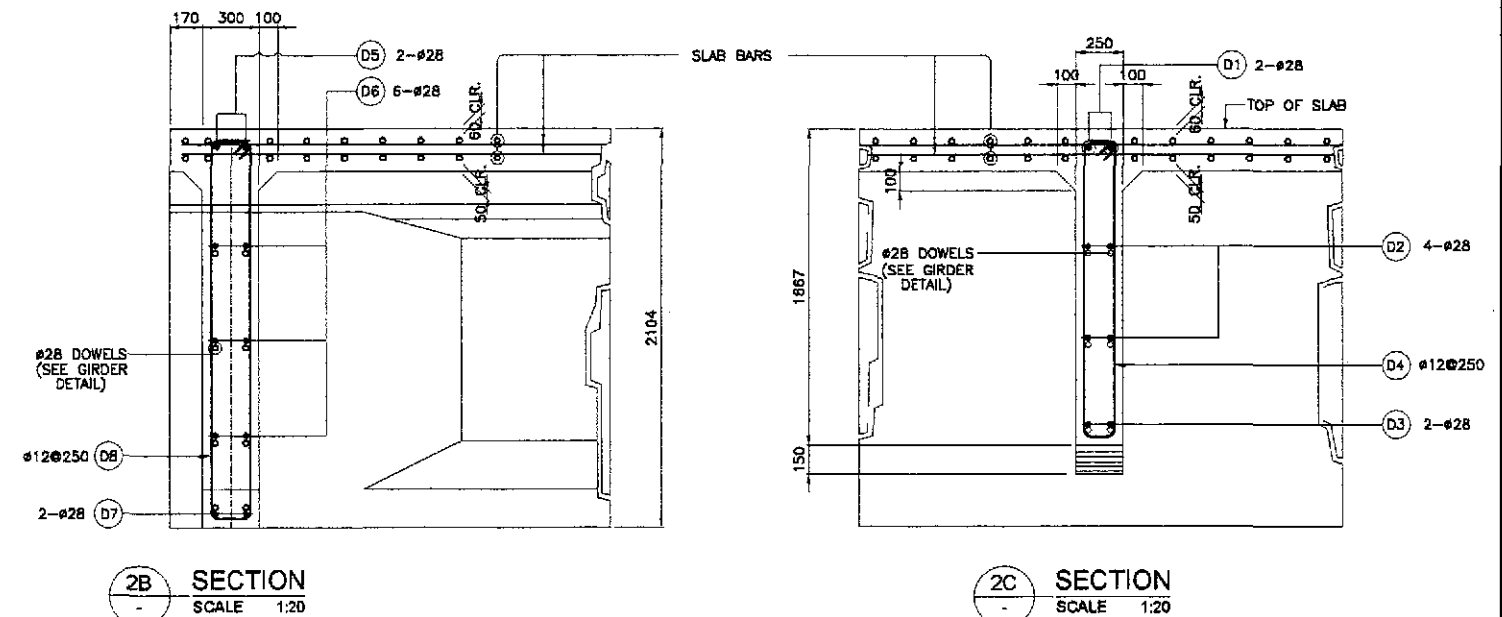
1B LONGITUDINAL SECTION  
SCALE 1:200

1 CONCRETE POURING SEQUENCE  
SCALE 1:200



2A ELEVATION  
SCALE 1:50

BAR BENDING DIAGRAM																
A		C														
SCHEDULE OF REINFORCEMENT																
STRUCTURE COMPONENT	LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	TOTAL WEIGHT IN (kg)	REBAR RATIO (kg/m <sup>3</sup> )
DIAPHRAGM	INTERMEDIATE DIAPHRAGM	9.06	D1	28	6	AS SHOWN	A	9400				9400	56.40	4.833	273	131.79
			D2	28	48	AS SHOWN	A	1895				1895	90.96	4.833	440	
			D3	28	24	AS SHOWN	A	1895				1895	45.48	4.833	220	
			D4	12	48	250	B	150	1500	150	3600	172.80	0.888	154		
	END DIAPHRAGM	6.26	D4a	12	48	AS SHOWN	B	150	950	150	2500	120.00	0.888	107		
			D5	28	4	AS SHOWN	A	9400				9400	37.60	4.833	182	
			D6	28	48	AS SHOWN	A	1390				1390	66.72	4.833	323	
			D7	28	16	AS SHOWN	A	1390				1390	22.24	4.833	108	
			D8	12	32	250	B	200	1950	150	4600	147.20	0.888	131		
			D8a	12	16	AS SHOWN	B	200	1400	150	3500	56.00	0.888	50		
TOTAL		15.32											GRADE 60 TOTAL = 1,546 kgs.	GRADE 40 TOTAL = 442 kgs.		

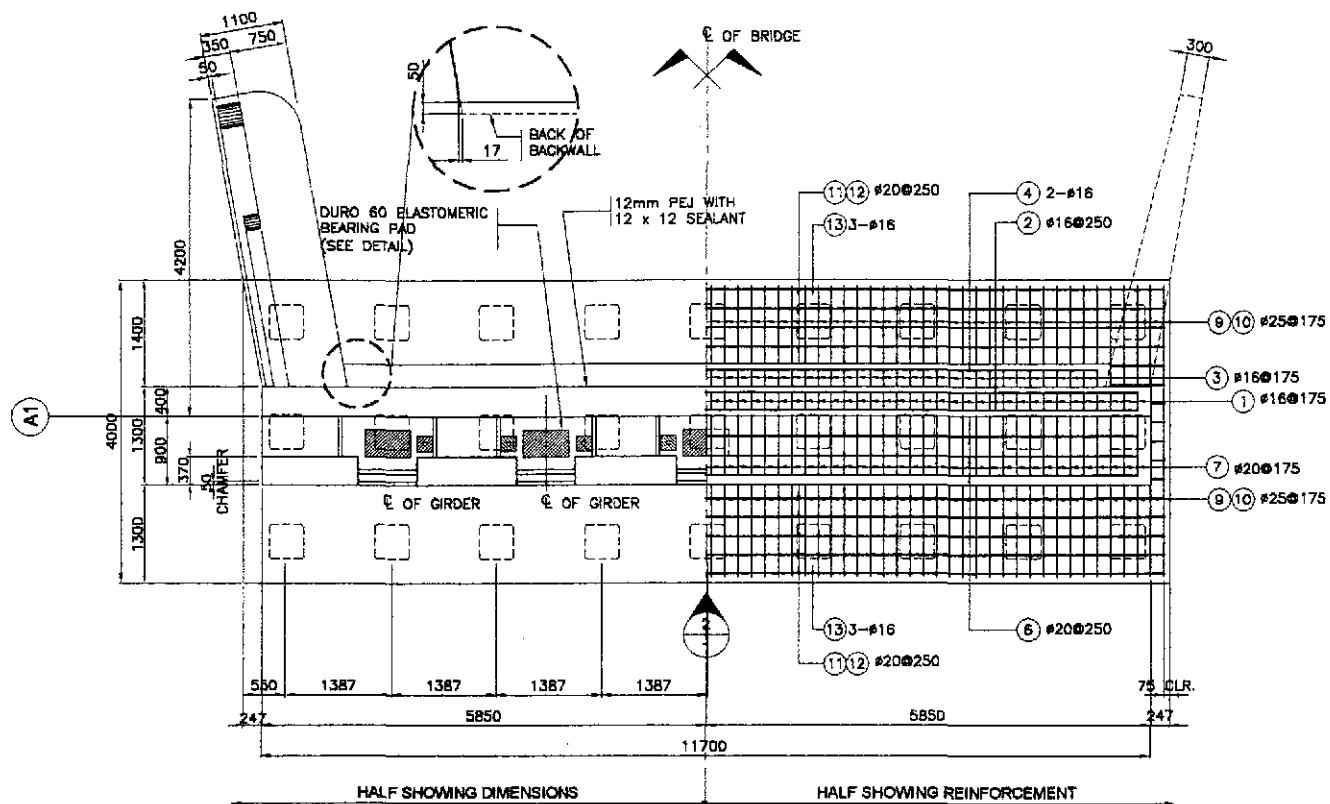


2B SECTION  
SCALE 1:20

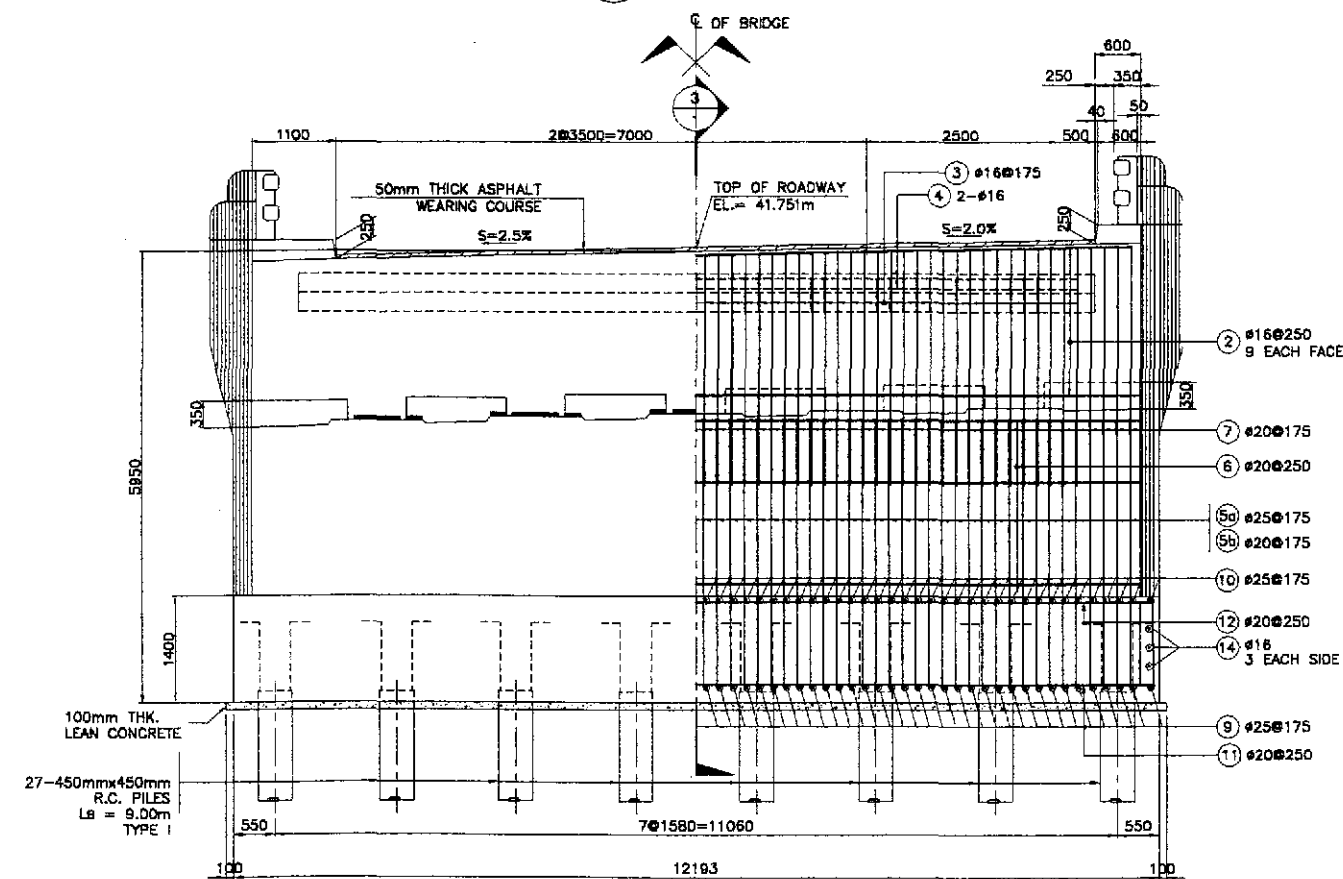
2C SECTION  
SCALE 1:20

2 DETAIL OF END & INTERMEDIATE DIAPHRAGM  
SCALE AS SHOWN

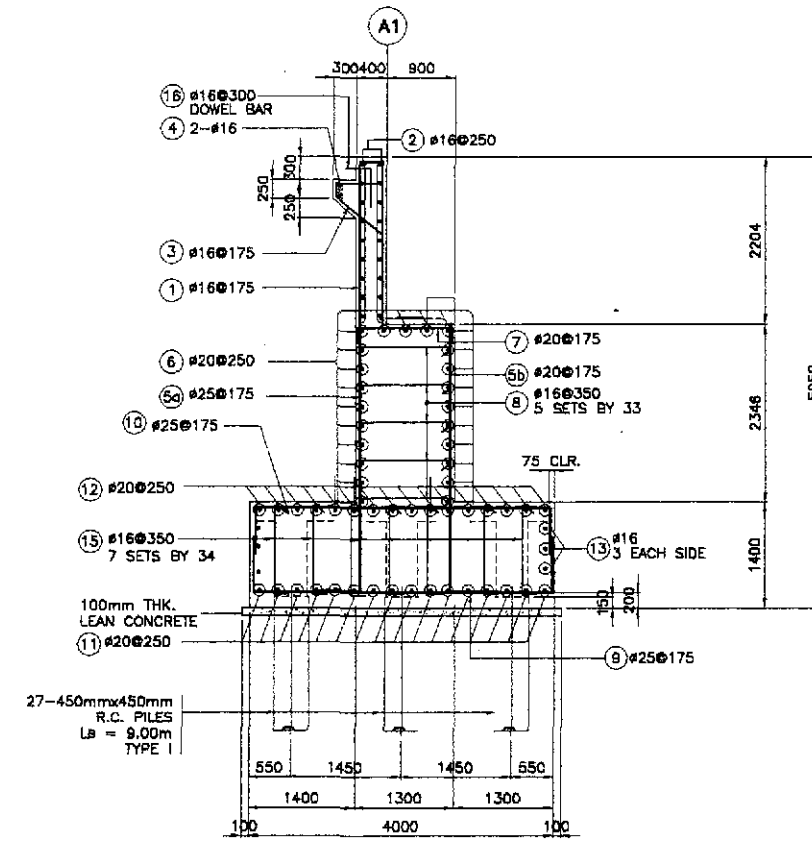
	DESIGNED	10/17/07	SIGNATURE	<i>[Signature]</i>		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/07	SIGNATURE	<i>[Signature]</i>		Submitted By:	Reviewed By:	Recommended By:	Recommended By:	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 11 CONCRETE POURING SEQUENCE AND DIAPHRAGM DETAILS (ULTIMATE STAGE)	B11-04
	SUBMITTED	10/21/07	SIGNATURE	<i>[Signature]</i>		DANIL C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (DC)	MANUEL M. BONOAN Undersecretary	CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		



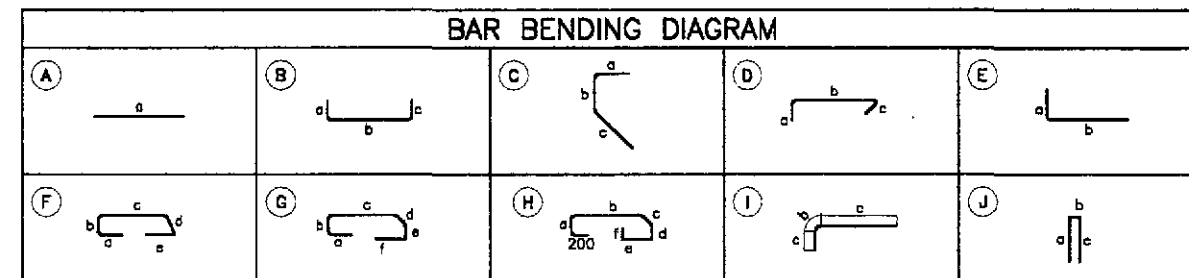
1 PLAN  
SCALE 1:50



2 ELEVATION  
SCALE 1:50

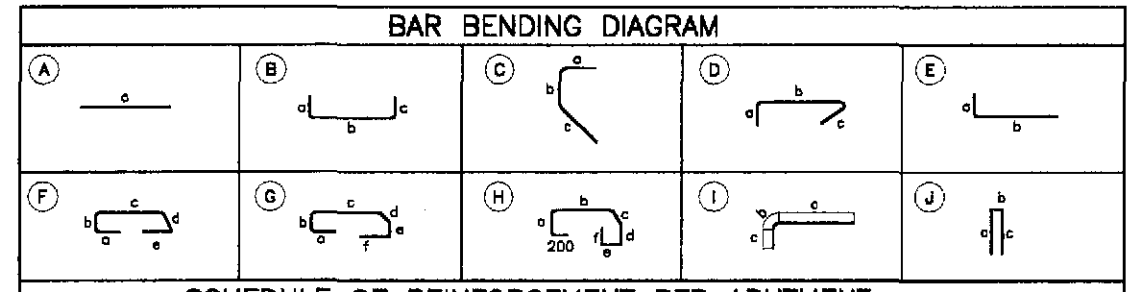
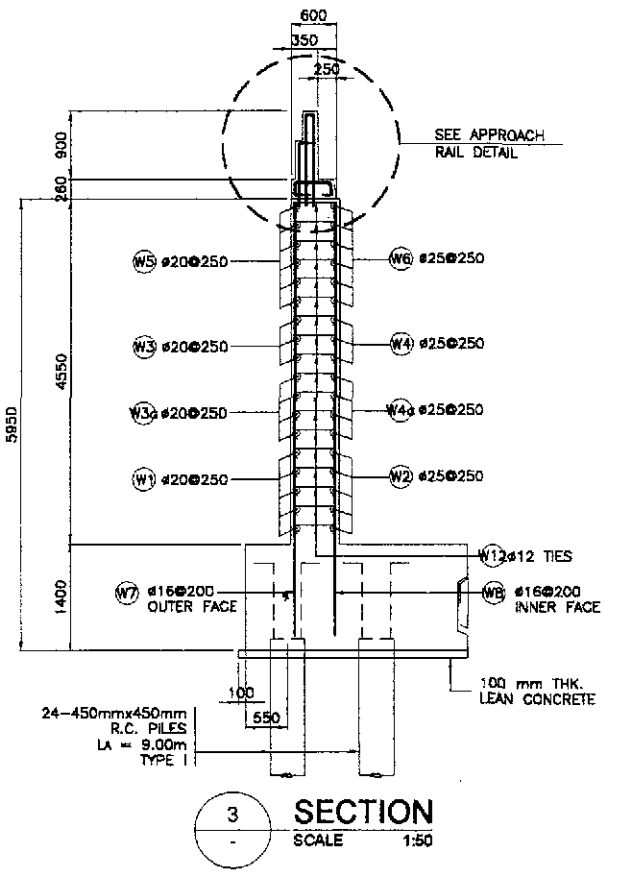
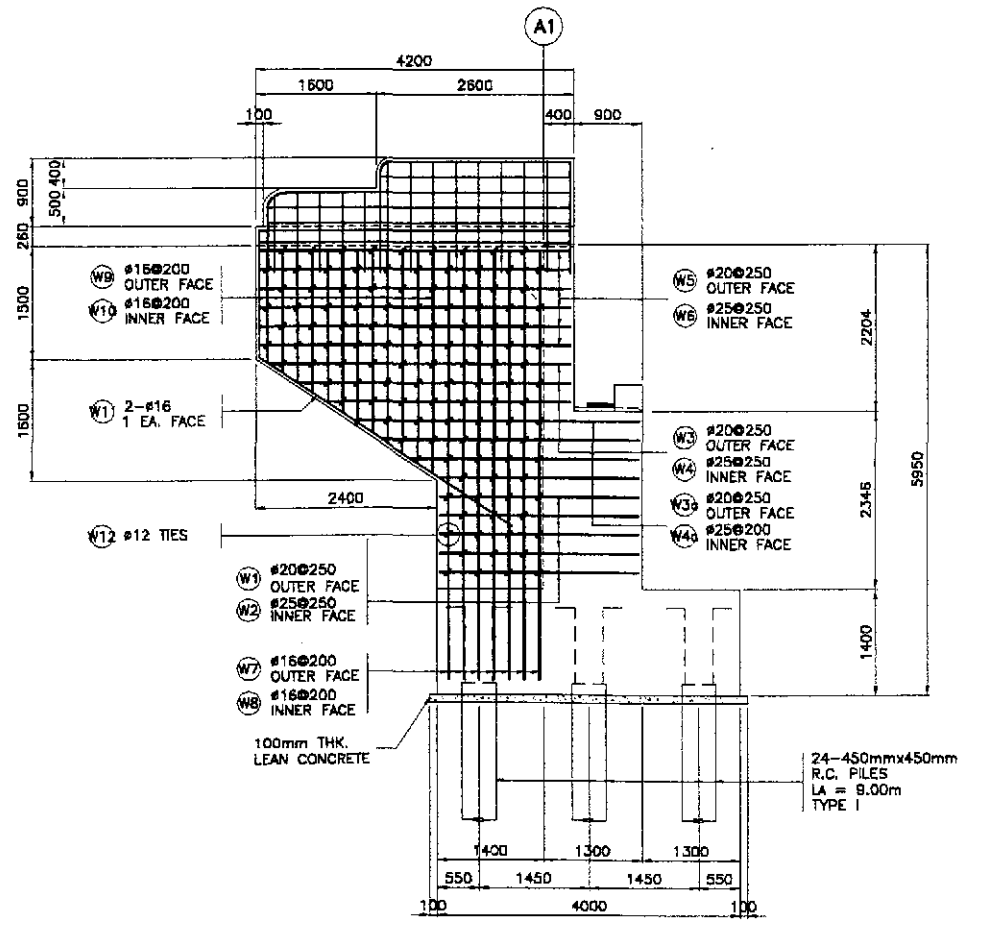
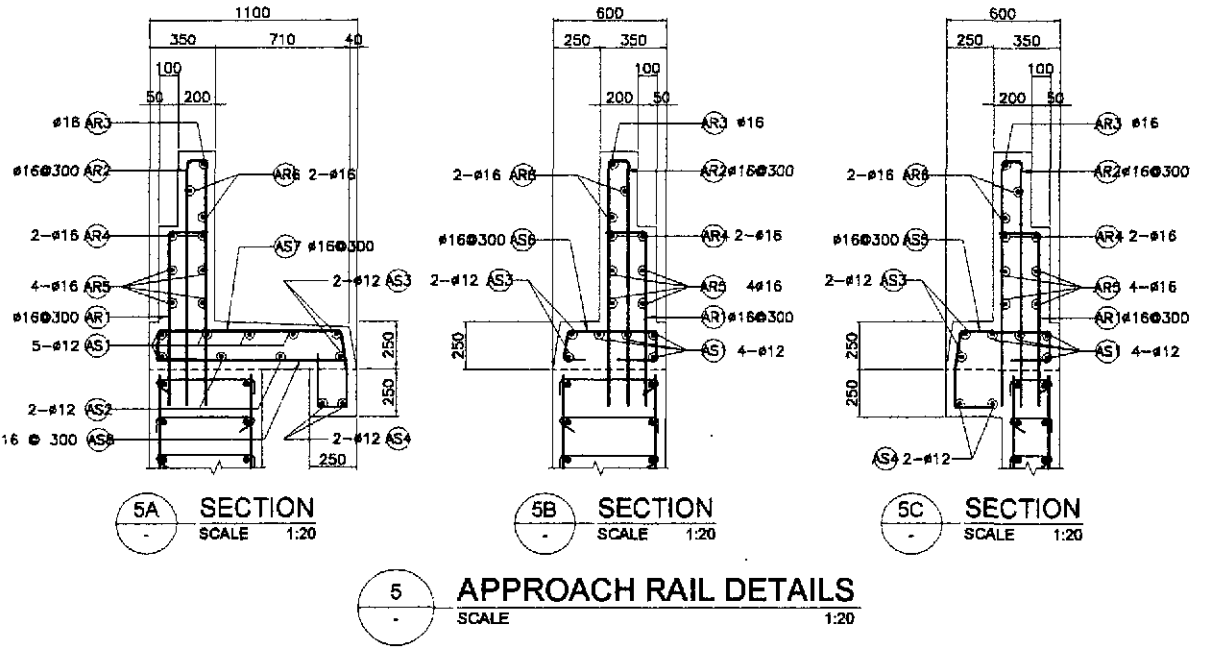
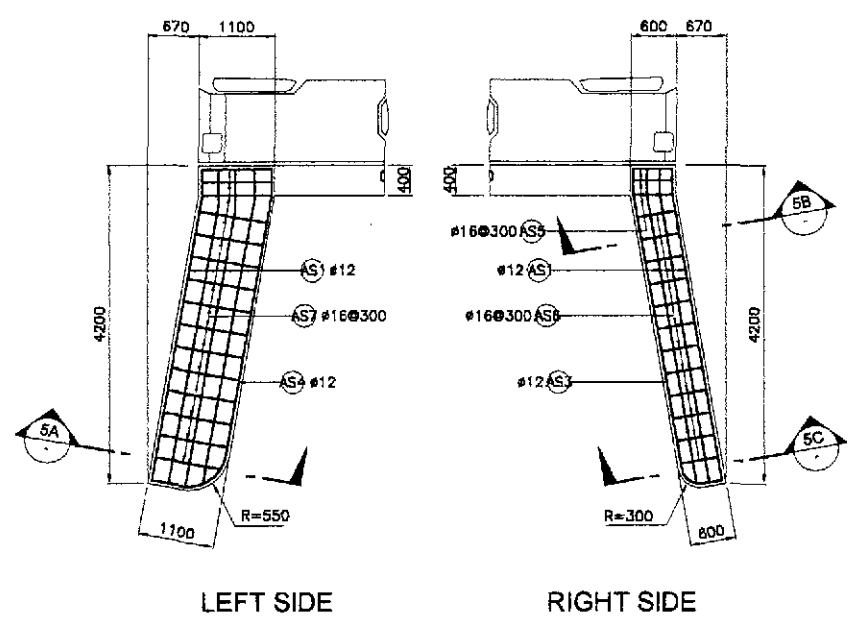
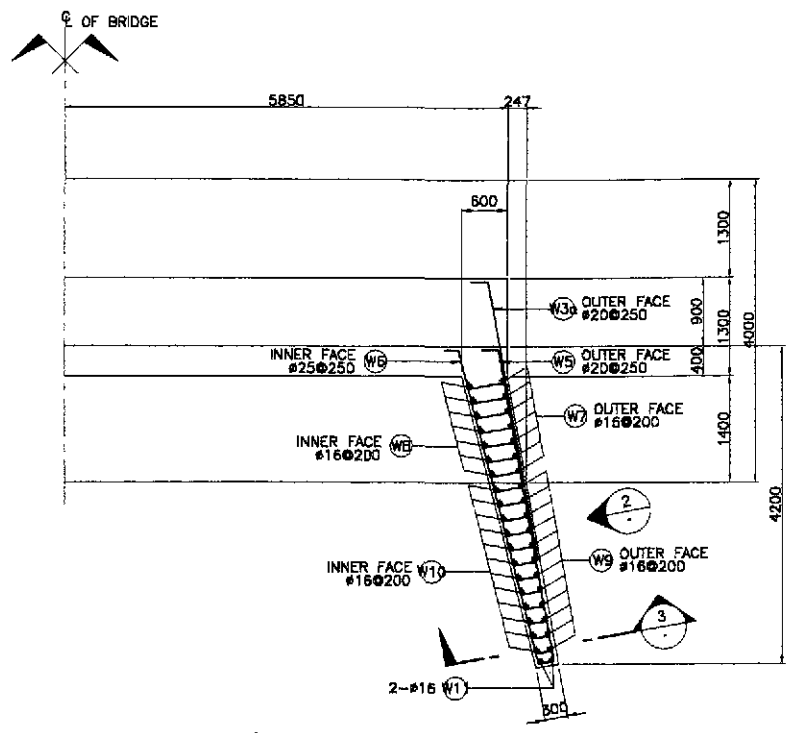


3 SECTION  
SCALE 1:50



SCHEDULE OF REINFORCEMENT PER ABUTMENT																	
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )	
							a	b	c	d	e						f
BACKWALL	11.44	1	16	67	175	B	2600	300	2600	-	-	-	5500	368.50	1.579	582	94.58
		2	16	18	250	A	11600	-	-	-	-	-	11600	208.80	1.579	330	
		3	16	58	175	C	600	150	750	-	-	-	1500	87.00	1.579	138	
		4	16	2	AS SHOWN	A	9900	-	-	-	-	-	9900	19.80	1.579	32	
MAINWALL	35.58	5a	25	67	175	E	400	3500	-	-	-	3900	261.30	3.854	1008	85.06	
		5b	20	67	175	E	400	3500	-	-	-	3900	261.30	2.466	645		
		6	20	23	250	A	11600	-	-	-	-	-	11600	266.80	2.466		658
		7	20	67	175	B	250	1200	250	-	-	-	1700	113.90	2.466		281
		8	18	165	350	D	250	1200	250	-	-	-	1700	280.50	1.579		443
		9	25	70	175	B	700	3850	700	-	-	-	5250	367.50	3.854		1417
FOOTING	66.29	10	25	70	175	B	700	3850	700	-	-	5250	367.50	3.854	1417	68.82	
		11	20	16	250	B	700	12050	700	-	-	-	13450	215.20	2.466		531
		12	20	16	250	B	700	12050	700	-	-	-	13450	215.20	2.466		531
		13	16	8	AS SHOWN	A	12050	-	-	-	-	-	12050	72.30	1.579		114
		14	16	6	AS SHOWN	A	3850	-	-	-	-	-	3850	23.10	1.579		37
DOWEL		15	16	238	350	D	250	1250	250	-	-	1750	418.50	1.579	658		
TOTAL	1151.41																GRADE 40 TOTAL = 2,387 kgs. GRADE 60 TOTAL = 8,488 kgs.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	A. GONZALES		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:50	BRIDGE NO. 11 ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS ULTIMATE STAGE)	B11-05
	SUBMITTED	10/21/02	M. RIVERA		OFFICE OF THE SECRETARY				CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		
Submitted By:		Reviewed By:		Recommended By:		Recommended By:		Approved By:				
DANILO C. TRAJANO Project Director		ADRIANO M. DORCY Chief, Bridge Division		GILBERTO S. REYES Director IV (OIC)		MANUEL M. BONDAN Undersecretary		SIMEON A. DATUMANONG Secretary				



SCHEDULE OF REINFORCEMENT PER ABUTMENT

LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm)				OUT TO OUT		LENGTH EA. BAR (m)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )
							a	b	c	d	e	f					
WINGWALL	10.70	W1	20	10	250	(B)	400	2600	150	-	-	-	3150	31.50	2.466	78	146.15
		W2	25	10	250	(B)	400	2600	150	-	-	-	3150	31.50	3.854	122	
		W3	20	6	250	(B)	400	3650	150	-	-	-	4200	25.20	2.466	63	
		W3a	20	8	250	(B)	400	3250	150	-	-	-	3800	30.40	2.466	75	
		W4	25	8	250	(B)	400	3850	150	-	-	-	4200	25.20	3.854	98	
		W4a	25	8	250	(B)	400	3250	150	-	-	-	3800	30.40	3.854	118	
		W5	20	12	250	(B)	400	4100	150	-	-	-	4650	55.80	2.466	138	
		W6	25	12	250	(B)	400	4100	150	-	-	-	4650	55.80	3.854	216	
		W7	16	14	200	(E)	250	5700	-	-	-	-	5950	83.30	1.579	132	
		W8	16	14	200	(E)	250	5700	-	-	-	-	5950	83.30	1.579	132	
		W9	16	24	200	(E)	250	2200	-	-	-	-	2450	58.80	1.579	93	
		W10	16	24	200	(E)	250	2200	-	-	-	-	2450	58.80	1.579	93	
W11	16	4	AS SHOWN	(C)	250	1500	4000	-	-	-	5750	23.00	1.579	37			
W12	12	240	AS SHOWN	(D)	170	450	170	-	-	-	790	189.60	0.888	169			
	10.70												GRADE 60 TOTAL = 908 kgs. GRADE 40 TOTAL = 656 kgs.				
APPROACH RAILING AND SIDEWALK	4.12	AS1	12	9	AS SHOWN	(A)	4100	-	-	-	-	-	4100	36.90	0.888	33	95.48
		AS2	12	2	AS SHOWN	(A)	4100	-	-	-	-	-	4100	8.20	0.888	8	
		AS3	12	4	AS SHOWN	(A)	4100	-	-	-	-	-	4100	16.40	0.888	15	
		AS4	12	4	AS SHOWN	(A)	4100	-	-	-	-	-	4100	16.40	0.888	15	
		AS5	16	3	300	(F)	200	170	480	200	200	-	1250	3.75	1.579	6	
		AS6	16	12	300	(G)	200	170	480	200	170	200	1420	17.04	1.579	27	
		AS7	16	15	300	(H)	200	170	980	200	170	200	2120	31.80	1.579	51	
		AS8	16	15	300	(E)	200	1020	-	-	-	-	1220	18.30	1.579	29	
		AR1	16	10	300	(E)	200	900	-	-	-	-	1100	11.00	1.579	18	
		AR2	16	18	300	(J)	1300	120	1300	-	-	-	2720	48.96	1.579	78	
		AR3	16	2	AS SHOWN	(I)	2500	236	1300	-	-	-	4036	8.07	1.579	13	
		AR4	16	4	AS SHOWN	(I)	4000	236	800	-	-	-	5136	20.54	1.579	33	
AR5	16	8	AS SHOWN	(A)	4000	-	-	-	-	-	4000	32.00	1.579	51			
AR6	16	4	AS SHOWN	(A)	2500	-	-	-	-	-	2500	10.00	1.579	16			
	4.12												GRADE 60 TOTAL = 908 kgs. GRADE 40 TOTAL = 1,048 kgs.				
TOTAL	14.38																

JICA 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

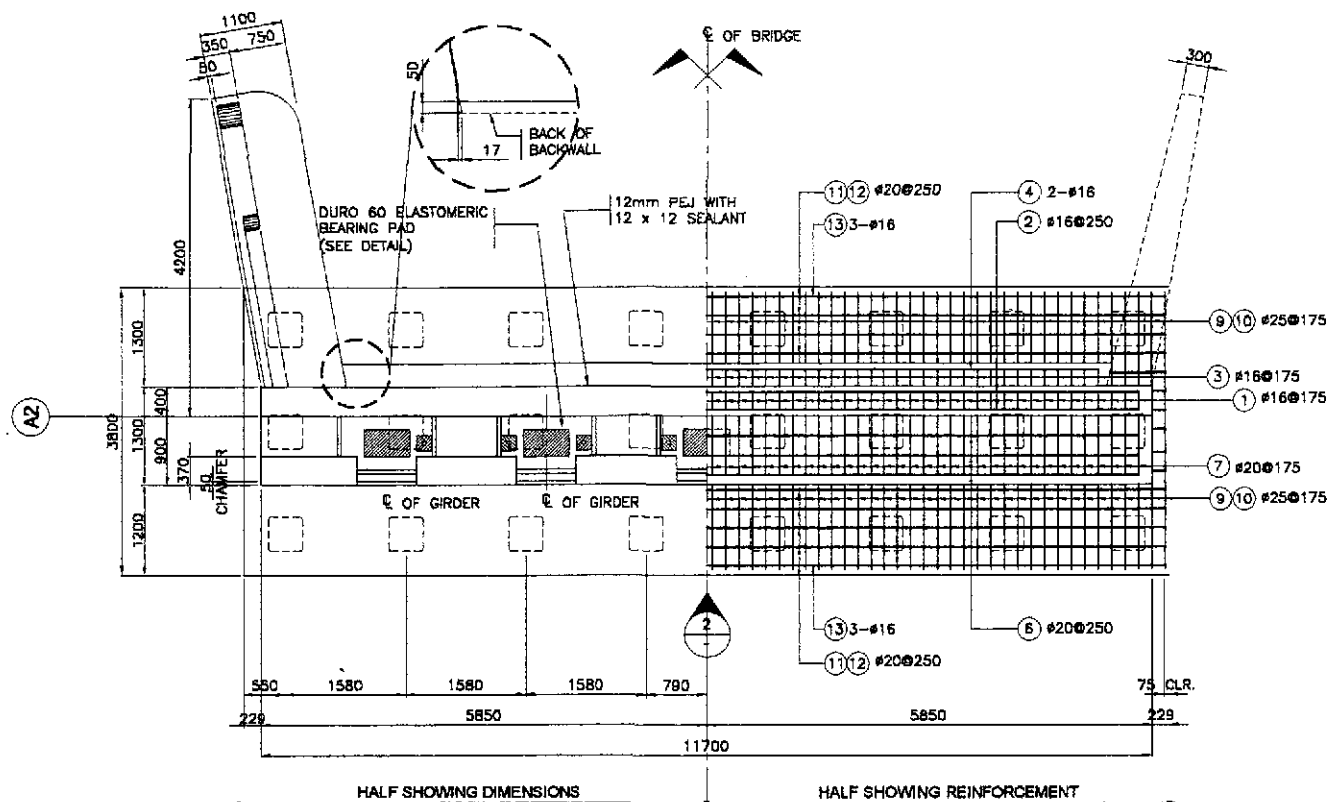
SHEET CONTENTS: BRIDGE NO. 11 ABUTMENT A1 WINGWALL REINFORCEMENT DETAILS (ULTIMATE STAGE)

SHEET NO.: B11-06

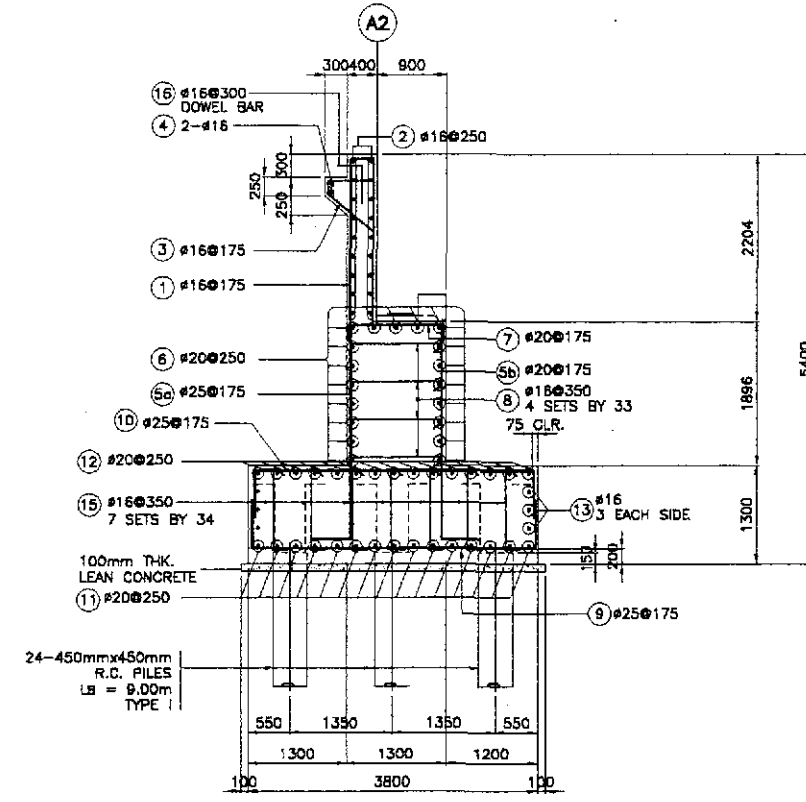
DESIGNED: 10/17/02 A. P. SONZALES  
 CHECKED: 10/19/02  
 SUBMITTED: 10/21/02

RUHL - PMO BUREAU OF DESIGN OFFICE OF THE SECRETARY

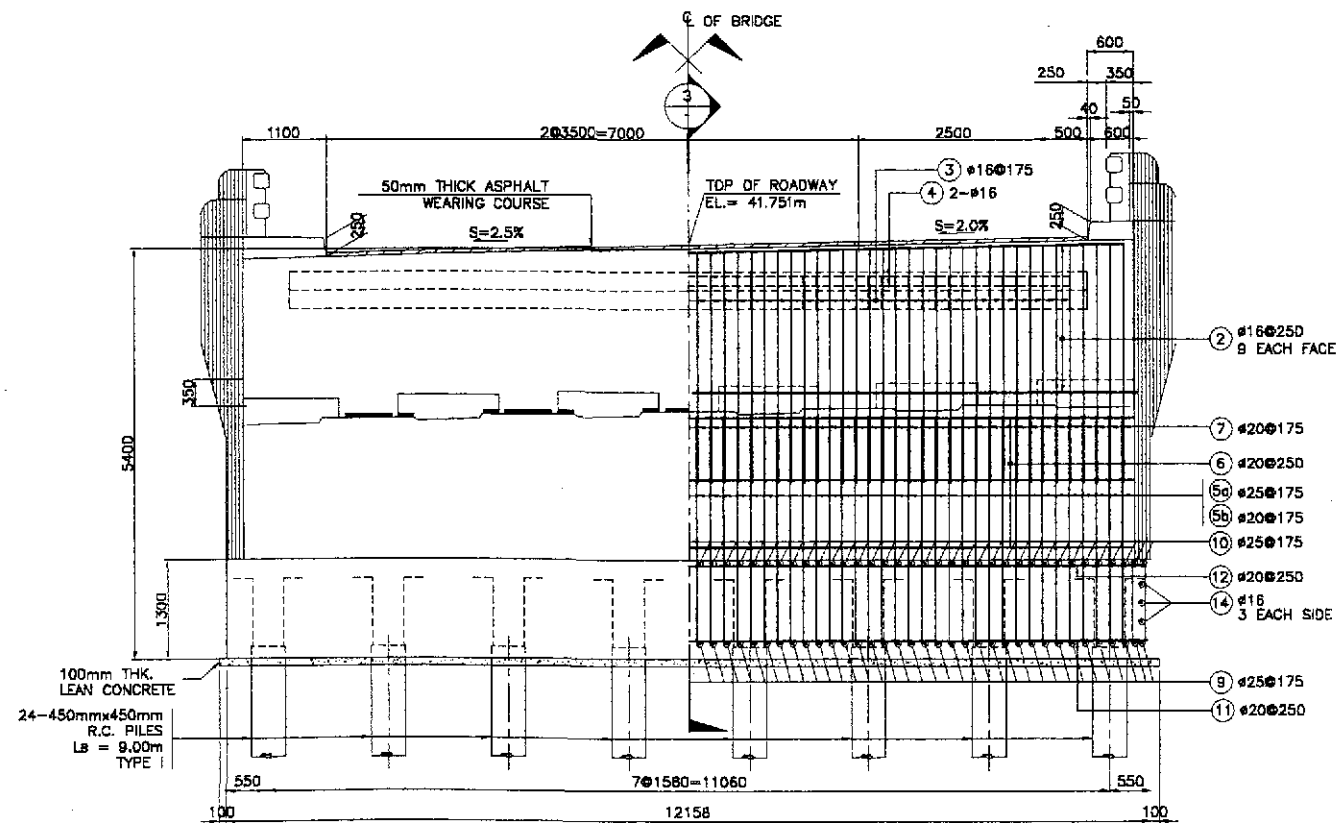
Submitted By: DANILD C. TRAJANO Project Director  
 Reviewed By: ADRIANO M. DORCY Chief, Bridges Division  
 Recommended By: GILBERTO S. REYES Director IV (CIC)  
 Approved By: MANUEL M. BONDAN Undersecretary  
 SIMEON A. DATUMANONG Secretary



1 PLAN  
SCALE 1:50



3 SECTION  
SCALE 1:50



2 ELEVATION  
SCALE 1:50

BAR BENDING DIAGRAM																	
A	B	C	D	E	F	G	H	I	J								
<b>SCHEDULE OF REINFORCEMENT PER ABUTMENT</b>																	
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )	
BACKWALL	11.44	1	16	87	175	B	2600	300	2600	-	-	-	5500	368.50	1.579	582	94.58
		2	16	18	250	A	11600	-	-	-	-	-	11600	208.80	1.579	330	
		3	16	58	175	C	600	150	750	-	-	-	1500	87.00	1.579	138	
		4	16	2	AS SHOWN	A	9800	-	-	-	-	-	9800	19.80	1.579	32	
MAINWALL	28.84	5a	25	67	175	E	400	2950	-	-	-	-	3350	224.45	3.854	866	90.16
		5b	20	67	175	E	400	2950	-	-	-	-	3350	224.45	2.466	554	
		6	20	19	250	A	11600	-	-	-	-	-	11600	220.40	2.466	544	
		7	20	67	175	B	250	1200	250	-	-	-	1700	113.90	2.466	281	
		8	16	132	350	D	250	1200	250	-	-	-	1700	224.40	1.579	355	
		9	25	70	175	B	700	3650	700	-	-	-	5050	353.50	3.854	1363	
FOOTING	60.06	10	25	70	175	B	700	3650	700	-	-	-	5050	353.50	3.854	1363	75.82
		11	20	16	250	B	700	12000	700	-	-	-	13400	214.40	2.466	529	
		12	20	16	250	B	700	12000	700	-	-	-	13400	214.40	2.466	529	
		13	16	6	AS SHOWN	A	12000	-	-	-	-	-	12000	72.00	1.579	114	
		14	16	6	AS SHOWN	A	3650	-	-	-	-	-	3650	21.90	1.579	35	
DOWEL		15	16	238	350	D	250	1150	250	-	-	-	1650	392.70	1.579	621	
		16	16	34	300	E	650	500	-	-	-	-	1150	39.10	1.579	62	
TOTAL	100.34												GRADE 40 TOTAL = 2,268 kgs. GRADE 60 TOTAL = 6,029 kgs.				

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

DESIGNED: 10/17/07  
CHECKED: 10/19/07  
SUBMITTED: 10/21/07

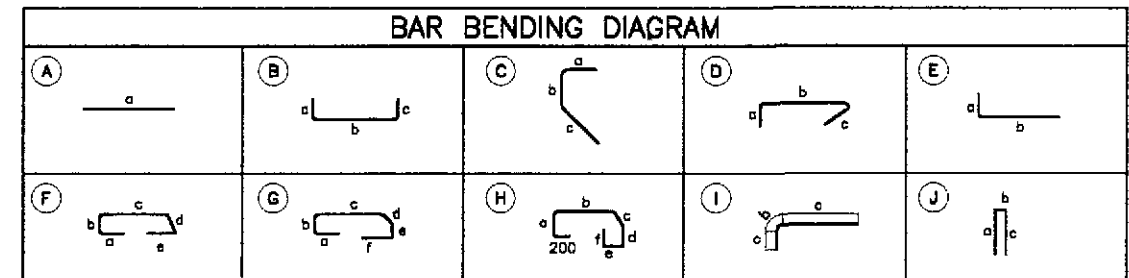
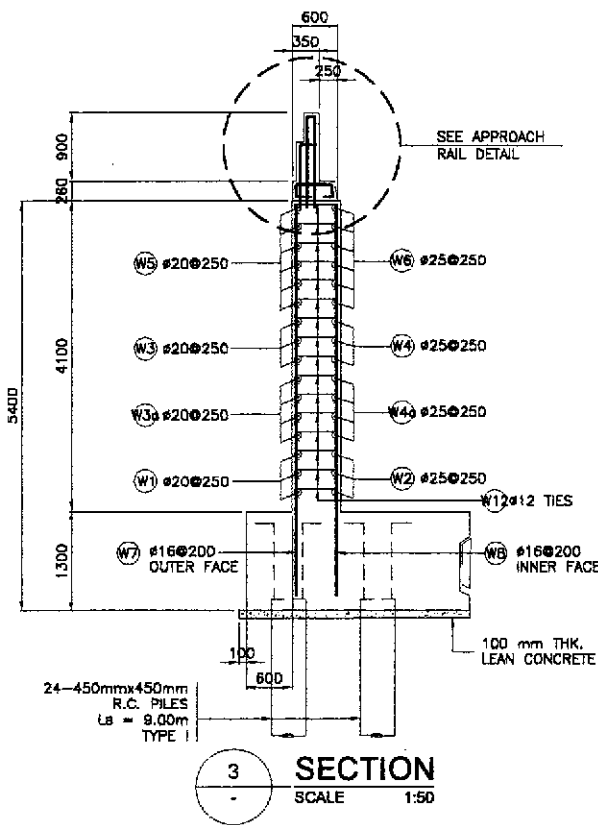
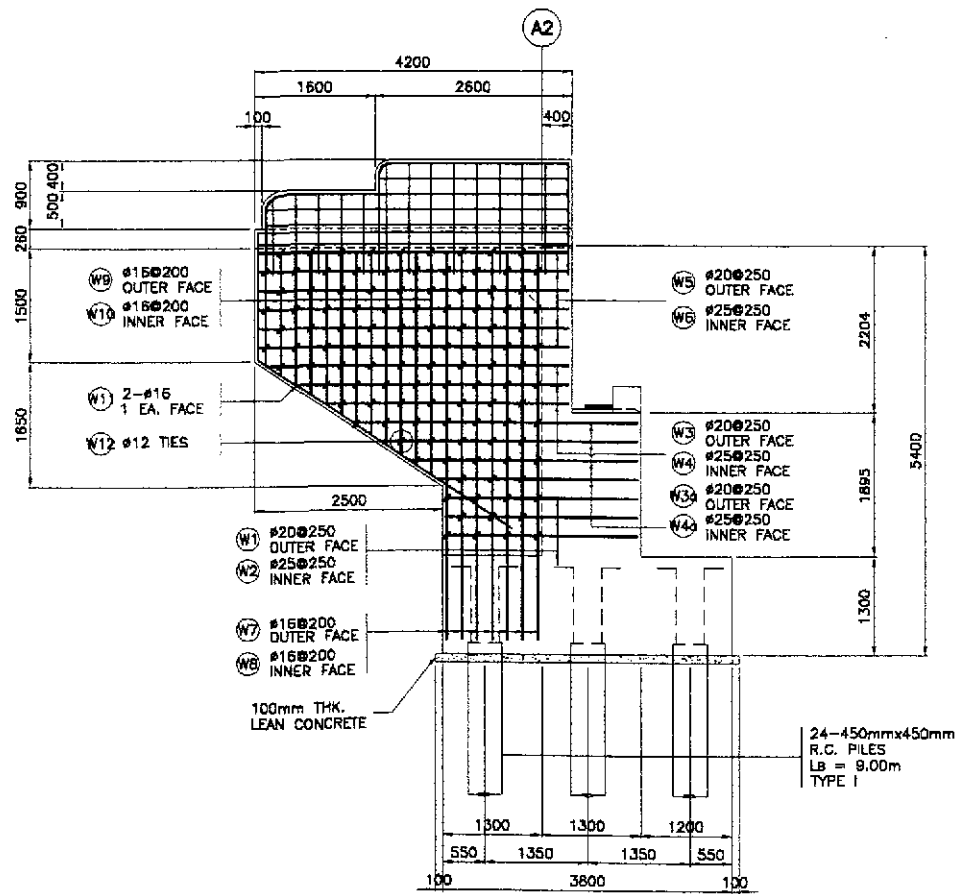
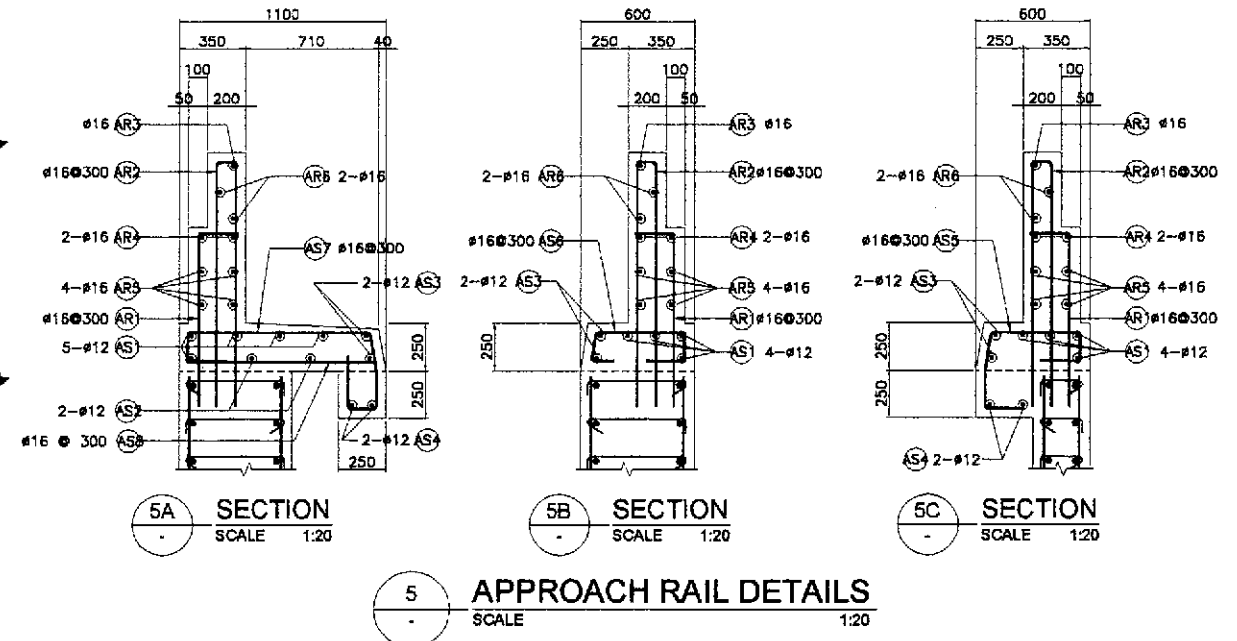
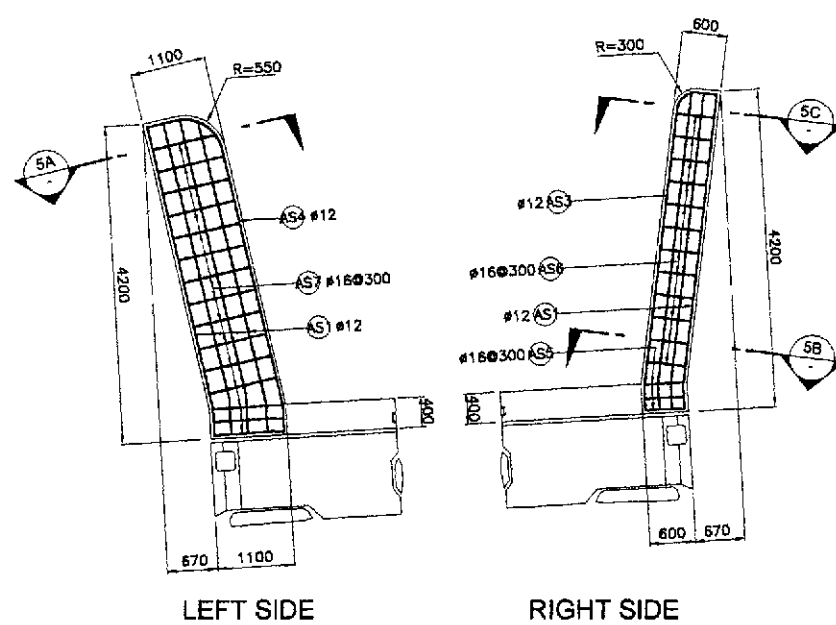
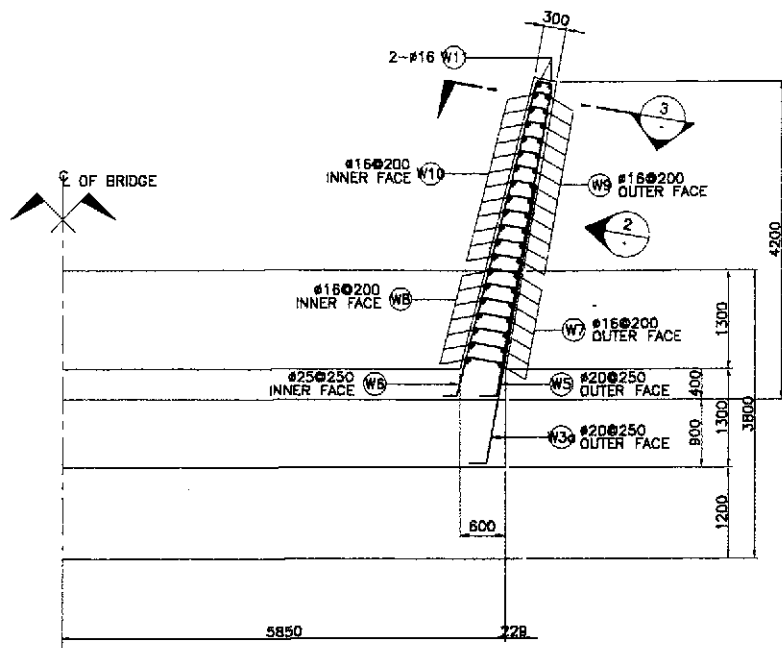
REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
BUREAU OF DESIGN  
OFFICE OF THE SECRETARY  
Submitted By: DANILO C. TRAJANO  
Reviewed By: ADRIANO M. DORJOY  
Recommended By: GILBERTO S. REYES  
Manuel M. Bondan  
Simeon A. Datumanang

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. 11  
ABUTMENT A2  
MAINWALL REINFORCEMENT DETAILS  
ULTIMATE STAGE)

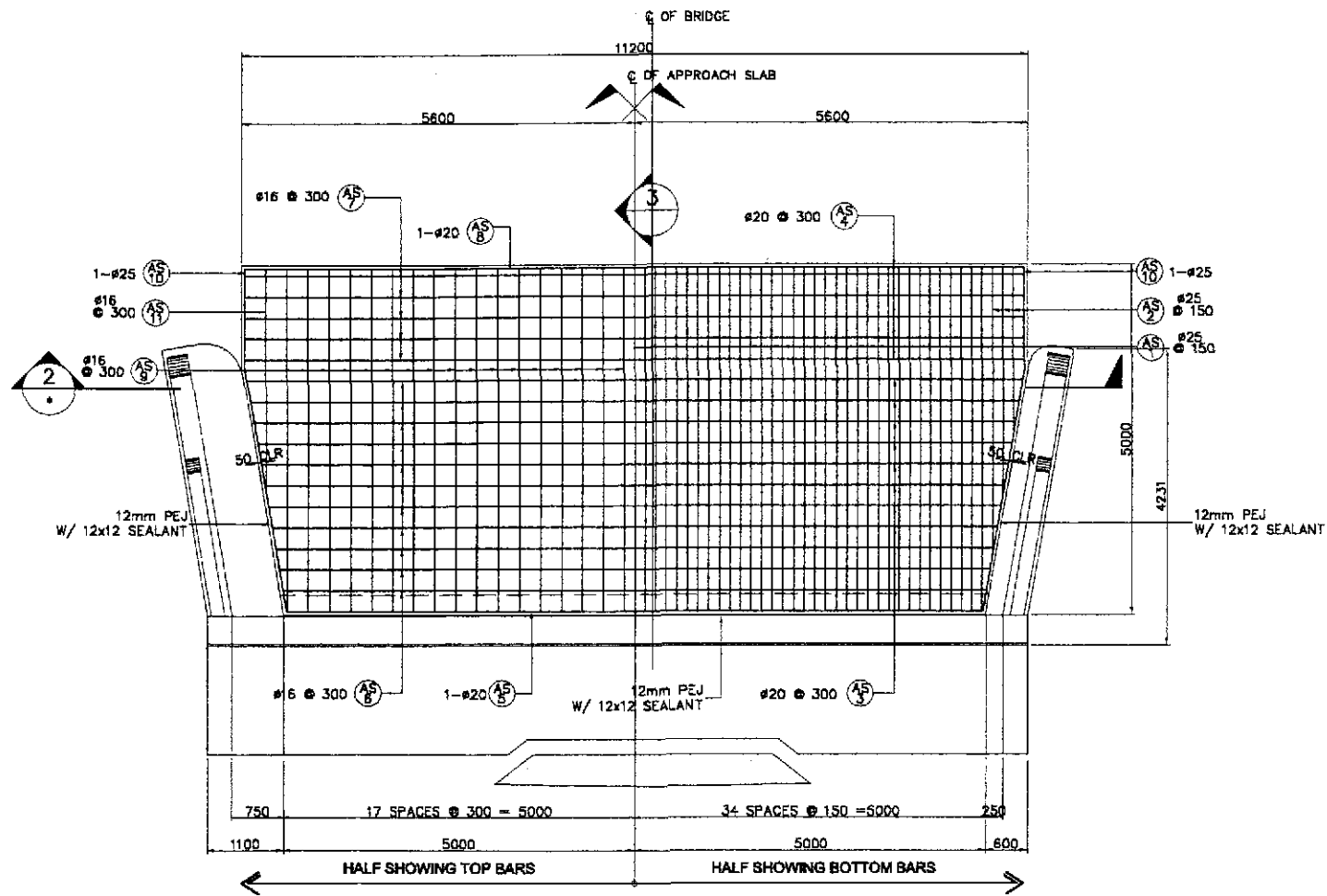
SHEET NO.:  
B11-07



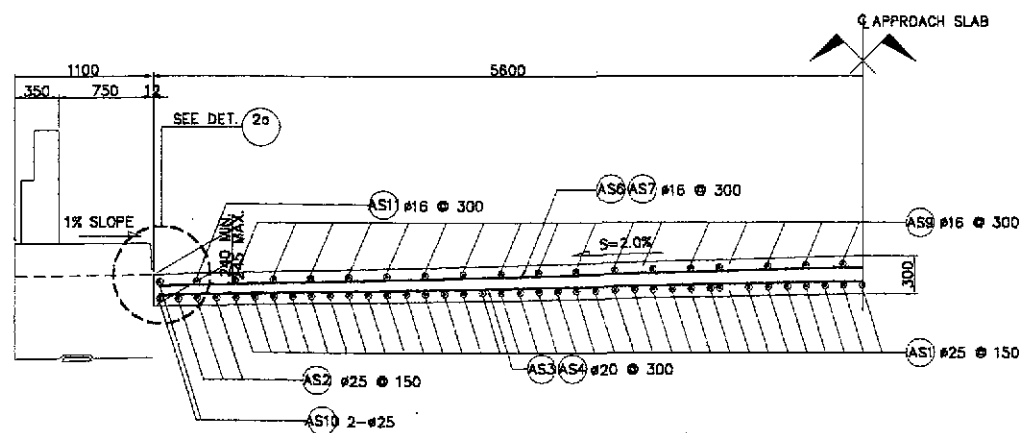
SCHEDULE OF REINFORCEMENT PER ABUTMENT

LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT						LENGTH EA. BAR (m)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )		
							a	b	c	d	e	f							
WINGWALL	10.03	W1	20	6	250	(B)	400	2500	150	-	-	-	3050	18.30	2.466	46	144.39		
		W2	25	8	250	(B)	400	2500	150	-	-	-	3050	18.30	3.854	71			
		W3	20	6	250	(B)	400	3650	150	-	-	-	4200	25.20	2.466	63			
		W3a	20	8	250	(B)	400	3200	150	-	-	-	3750	30.00	2.466	74			
		W4	25	6	250	(B)	400	3650	150	-	-	-	4200	25.20	3.854	98			
		W4a	25	8	250	(B)	400	3200	150	-	-	-	3750	30.00	3.854	116			
		W5	20	12	250	(B)	400	4100	150	-	-	-	4650	55.80	2.466	138			
		W6	25	12	250	(B)	400	4100	150	-	-	-	4650	55.80	3.854	216			
		W7	16	14	200	(E)	250	5150	-	-	-	-	5400	75.80	1.579	120			
		W8	16	14	200	(E)	250	5150	-	-	-	-	5400	75.80	1.579	120			
		W9	16	24	200	(E)	250	2250	-	-	-	-	2500	60.00	1.579	95			
		W10	16	24	200	(E)	250	2250	-	-	-	-	2500	60.00	1.579	95			
W11	16	4	AS SHOWN	(C)	250	1500	4000	-	-	-	5750	23.00	1.579	37					
W12	12	226	AS SHOWN	(D)	170	450	170	-	-	-	790	178.54	0.888	159					
													GRADE 60 TOTAL = 822 kgs.		GRADE 40 TOTAL = 626 kgs.				
APPROACH RAILING AND SIDEWALK	4.12	AS1	12	9	AS SHOWN	(A)	4100	-	-	-	-	4100	36.90	0.888	33	95.48			
		AS2	12	2	AS SHOWN	(A)	4100	-	-	-	-	4100	8.20	0.888	8				
		AS3	12	4	AS SHOWN	(A)	4100	-	-	-	-	4100	16.40	0.888	15				
		AS4	12	4	AS SHOWN	(A)	4100	-	-	-	-	4100	16.40	0.888	15				
		AS5	16	3	300	(F)	200	170	480	200	200	-	1250	3.75	1.579		6		
		AS6	16	12	300	(G)	200	170	480	200	170	200	1420	17.04	1.579		27		
		AS7	16	15	300	(H)	200	170	980	200	170	200	2120	31.80	1.579		51		
		AS8	16	15	300	(E)	200	1020	-	-	-	-	1220	18.30	1.579		29		
		AR1	16	10	300	(E)	200	900	-	-	-	-	1100	11.00	1.579		18		
		AR2	16	18	300	(J)	1300	120	1300	-	-	-	2720	48.96	1.579		78		
		AR3	16	2	AS SHOWN	(I)	2500	236	1300	-	-	-	4036	8.07	1.579		13		
		AR4	16	4	AS SHOWN	(I)	4000	236	900	-	-	-	5136	20.54	1.579		33		
AR5	16	8	AS SHOWN	(A)	4000	-	-	-	-	-	4000	32.00	1.579	51					
AR6	16	4	AS SHOWN	(A)	2500	-	-	-	-	-	2500	10.00	1.579	16					
													GRADE 40 TOTAL = 393 kgs.						
TOTAL	14.15														GRADE 60 TOTAL = 822 kgs.		GRADE 40 TOTAL = 1,018 kgs.		

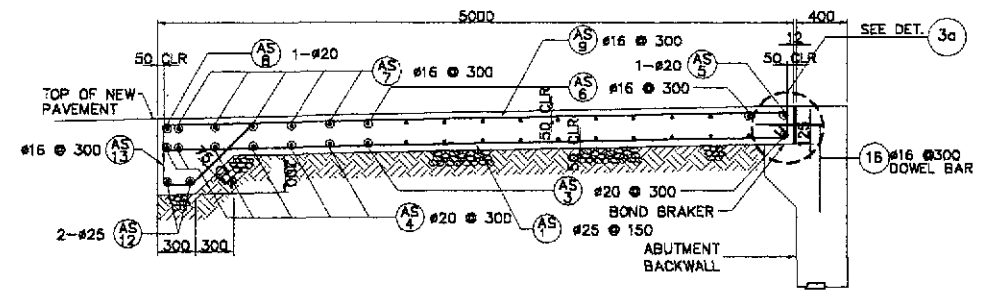




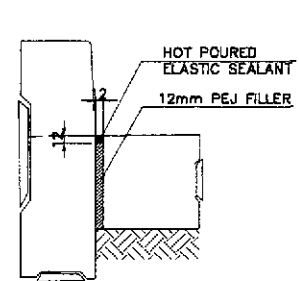
1 PLAN  
SCALE 1:50



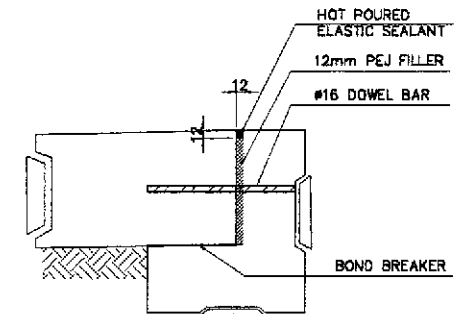
2 SECTION  
SCALE 1:30



3 SECTION  
SCALE 1:30



2a DETAIL  
SCALE 1:10



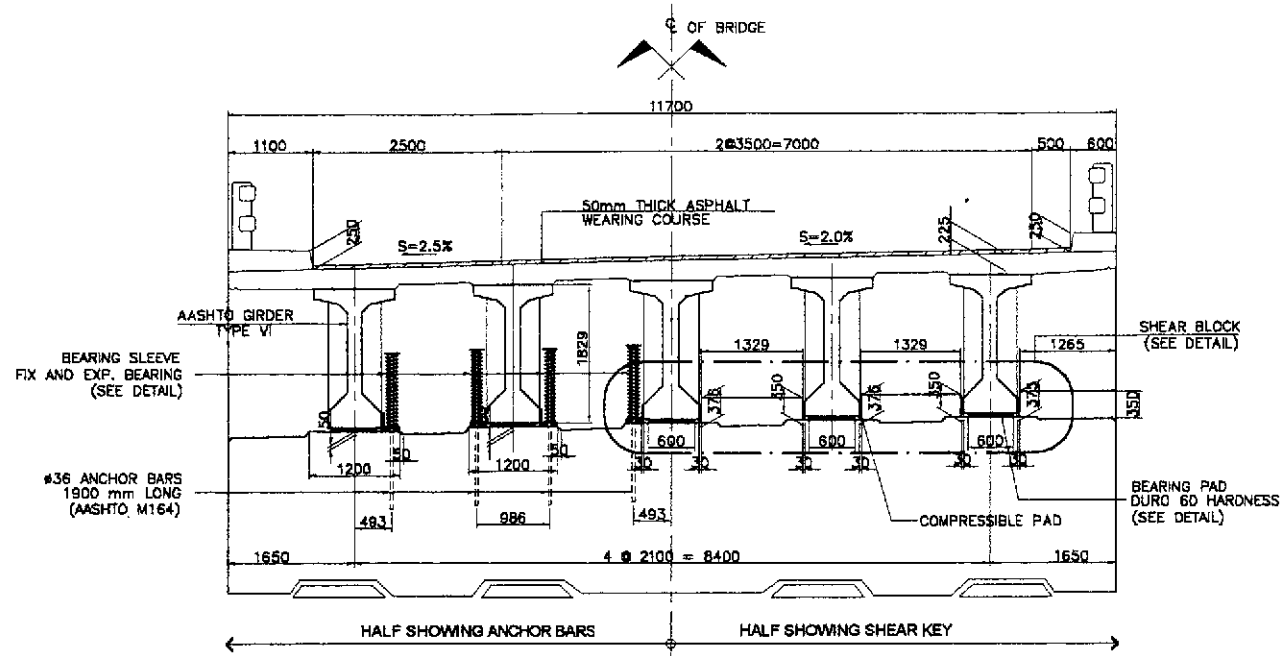
3a DETAIL  
SCALE 1:10

BAR BENDING DIAGRAM																	
A		B		C		D											
SCHEDULE OF REINFORCEMENT PER APPROACH SLAB																	
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)	
APPROACH SLAB	17.68	AS1	25	68	150	(B)	4900	200	-	-	-	-	5100	346.80	3.854	1337	157.17
		AS2	25	6	150	(B)	3200	200	-	-	-	-	3400	20.40	3.854	79	
		AS3	20	12	300	(A)	10500	-	-	-	-	-	10500	126.00	2.466	311	
		AS4	20	6	300	(A)	11100	-	-	-	-	-	11100	66.60	2.466	165	
		AS5	20	1	AS SHOWN	(A)	8900	-	-	-	-	-	8900	9.90	2.466	25	
		AS6	16	11	300	(A)	10550	-	-	-	-	-	10550	116.05	1.579	184	
		AS7	16	5	300	(A)	11100	-	-	-	-	-	11100	55.50	1.579	88	
		AS8	20	1	AS SHOWN	(A)	11100	-	-	-	-	-	11100	11.10	2.466	28	
		AS9	16	34	300	(B)	4900	200	-	-	-	-	5100	173.40	1.579	274	
		AS10	25	4	AS SHOWN	(C)	1450	3500	-	-	-	-	4950	19.80	3.854	77	
		AS11	16	4	300	(B)	2300	200	-	-	-	-	2500	10.00	1.579	16	
		AS12	25	2	AS SHOWN	(A)	11100	-	-	-	-	-	11100	22.20	3.854	86	
		AS13	16	38	300	(D)	400	500	200	700	-	-	1800	68.40	1.579	109	
TOTAL	17.68											GRADE 40 TOTAL = 671 kgs. GRADE 60 TOTAL = 2,108 kgs.					

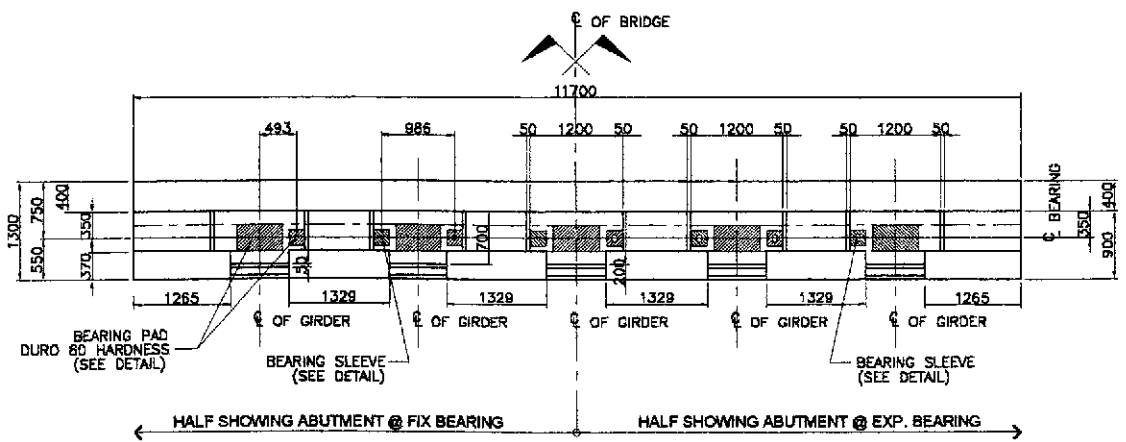
JICA  
JAPAN INTERNATIONAL COOPERATION AGENCY  
KATAHIRA & ENGINEERS  
INTERNATIONAL  
YEO YACHIYO ENGINEERING  
CO., LTD.

REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
BUREAU OF DESIGN  
OFFICE OF THE SECRETARY  
DESIGNED: 10/17/07  
CHECKED: 10/18/07  
SUBMITTED: 10/21/07  
DATE: 10/21/07  
SIGNATURE: E. R. SALLAN  
PROJECT DIRECTOR: DANILLO C. TRAJANO  
REVIEWED BY: ADRIANO M. DOROY  
RECOMMENDED BY: GILBERTO S. REYES  
RECOMMENDED BY: MANUEL M. BONDAN  
RECOMMENDED BY: SIMEDON A. DATUMANONG

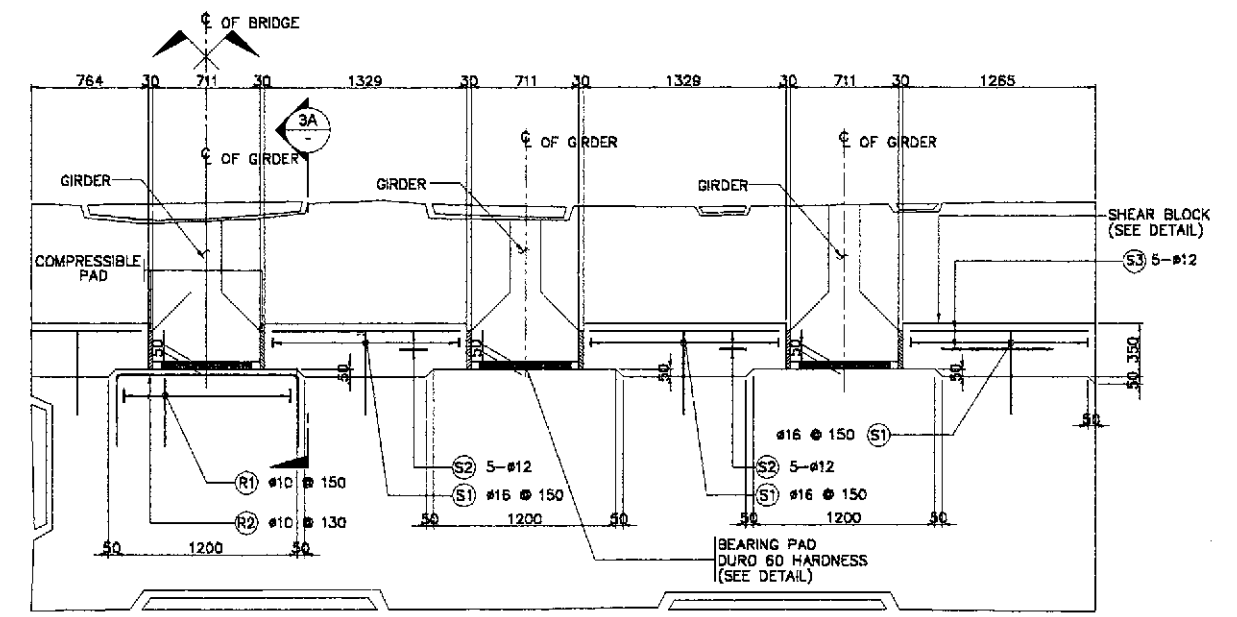
PROJECT AND LOCATION: THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)  
SCALE: AS SHOWN  
SHEET CONTENTS: BRIDGE NO. 11 APPROACH SLAB PLAN, SECTIONS & DETAIL (ULTIMATE STAGE)  
SHEET NO.: B11-09



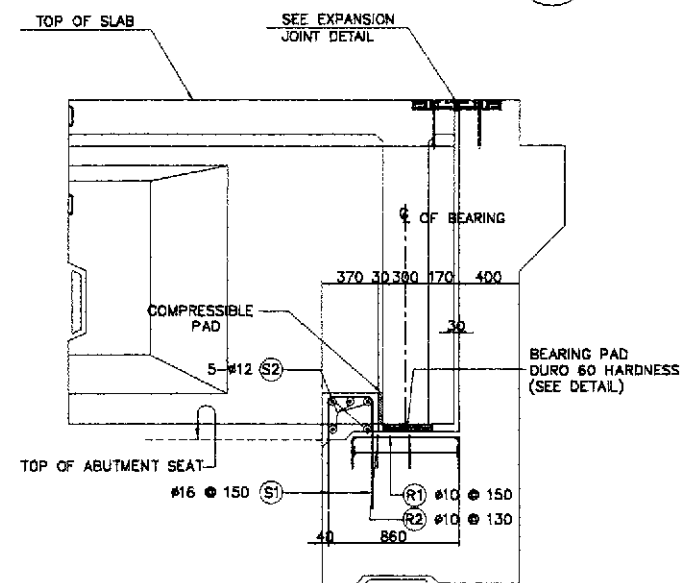
1 SECTION AT ABUTMENT SEAT  
SCALE 1:50



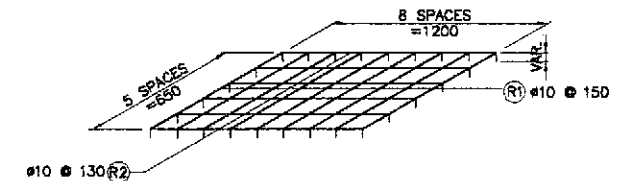
2 PLAN AT ABUTMENT SEAT  
SCALE 1:50



3 SHEAR BLOCK DETAIL  
SCALE 1:25



3A SECTION  
SCALE 1:25

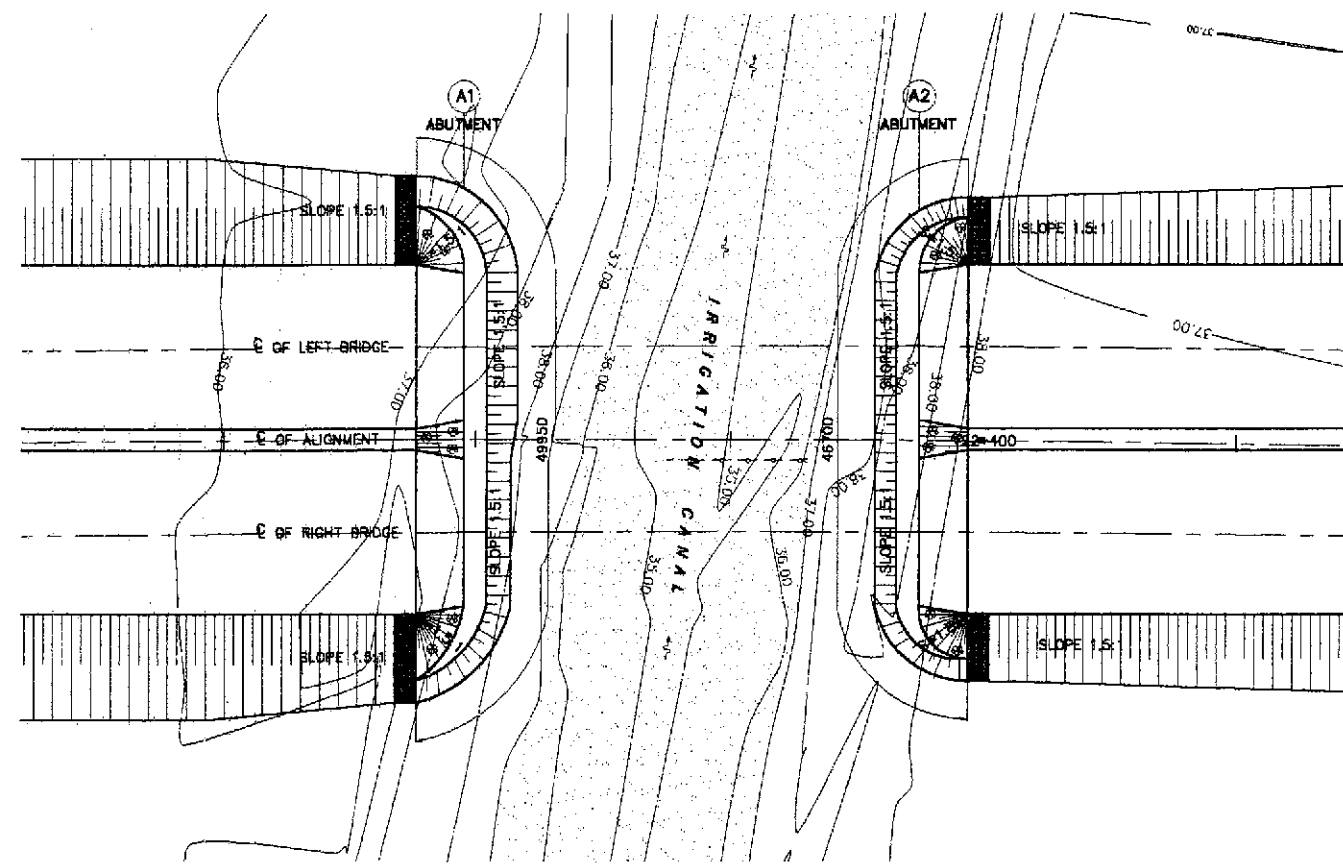


4 RISER REINFORCEMENT  
NOT TO SCALE

BAR BENDING DIAGRAM																
A							B									
a							b c									
SCHEDULE OF REINFORCEMENT																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION (mm) OUT TO OUT					LENGTH EACH BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>2</sup> )
							a	b	c	d	e					
SHEAR KEY & RISER	1.50	S1	16	58	150	(B)	560	290	560			1410	81.78	1.578	130	167.33
		S2	12	20	AS SHOWN	(A)	1250					1250	25.00	0.888	23	
		S3	12	10	AS SHOWN	(A)	1185					1185	11.85	0.888	11	
		R1	10	45	150	(B)	500	550	500			1650	74.25	0.615	46	
		R2	10	30	130	(B)	500	1200	500			2200	66.00	0.615	41	
TOTAL	1.50															GRADE 40 TOTAL = 251 Kgs.

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

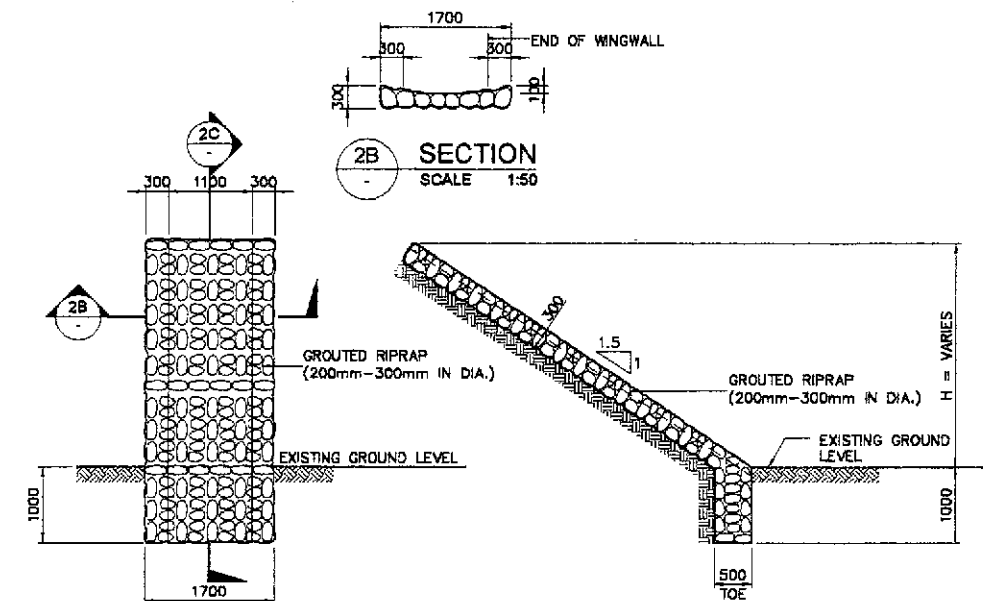
	DESIGNED	10/17/02	E.M. SALLAN		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	10/19/02	M. KASHI		PUHL - PMO Submitted By: DANILO C. TRAJANO Project Director	BUREAU OF DESIGN Reviewed By: ADRIANO M. DORON Chief, Bridges Division	OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES Director IV (CIC)	Recommended By: MANUEL M. BONDAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary	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. 11 SHEAR KEY AND RISER DETAILS AT ABUTMENT (ULTIMATE STAGE)	B11-10
	SUBMITTED	10/21/02	M. KASHI		M. KASHI TEAM LEADER	CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1						



1A PLAN  
SCALE 1:200

GENERAL NOTES:

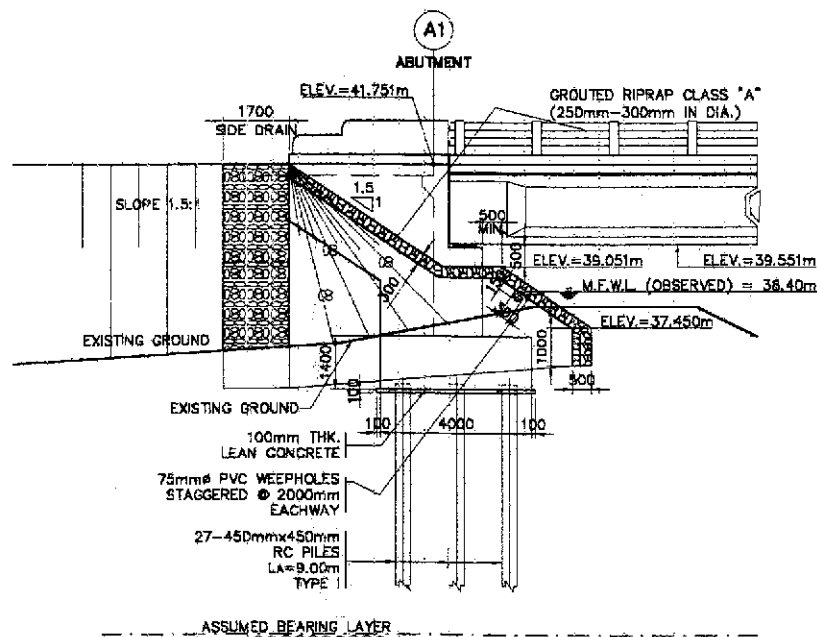
- GROUTED RIPRAP (250mm-300mm DIA.) SHALL BE USED FOR THE FACING AND SHALL BE CAREFULLY HANDLAID WITH THE LONGEST DIMENSIONS PERPENDICULAR TO THE SLOPE AND FIRMLY BEDDED INTO THE SLOPE AND ADJACENT TO THE ADJOINING BOULDERS SPACED BETWEEN THE BOULDERS. THE SPACE BETWEEN THE BOULDERS SHALL BE COMPLETELY FILLED WITH MORTAR. THE OUTSIDE SURFACE OF THE BOULDERS SHALL BE LEFT EXPOSED AND THE SURFACE OF THE MORTAR SHALL BE SWEEPED WITH A STIFF BROOM.
- GEOTEXTILE  
THE FOLLOWING SPECIFICATIONS ARE REQUIRED:
  - POLYESTER OR POLYPROPYLENE - 100%
  - MECHANICALLY BONDED/HEAT BONDED
  - NON-WOVEN
  - EFFECTIVE OPENING SIZE - 110 MICRONS (MAX.)
  - THICKNESS UNDER PRESSURE - 0.80mm (MIN.)
  - WEIGHT - 200g/sq. m. (MIN.)
  - CBR PUNCTURE STRENGTH - 400N (MIN.)
  - MULTI-DIRECTIONAL TENSILE STRENGTH - 13KN/m
- GRAVEL FILTER SHALL BE COARSE AGGREGATES MATERIALS WHICH SATISFY THE REQUIREMENTS FOR ITEM 405, STRUCTURAL CONCRETE, GRADING B OF TABLE 405.1 AS REVISED.
- NO CONCRETING UNDER WATER SHALL BE PERMITTED.
- PROVIDE 1.0 m BERM WHEN HEIGHT (H) IS > 4.0 m.



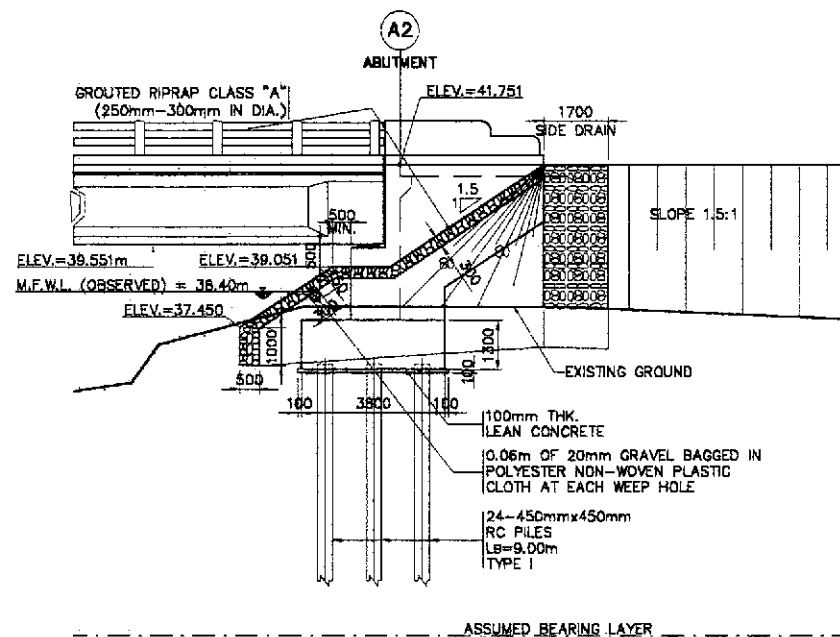
2A ELEVATION  
SCALE 1:50

2C SECTION  
SCALE 1:50

2 TYPICAL SIDE DRAIN DETAIL  
SCALE AS SHOWN



1B ELEVATION  
SCALE 1:60

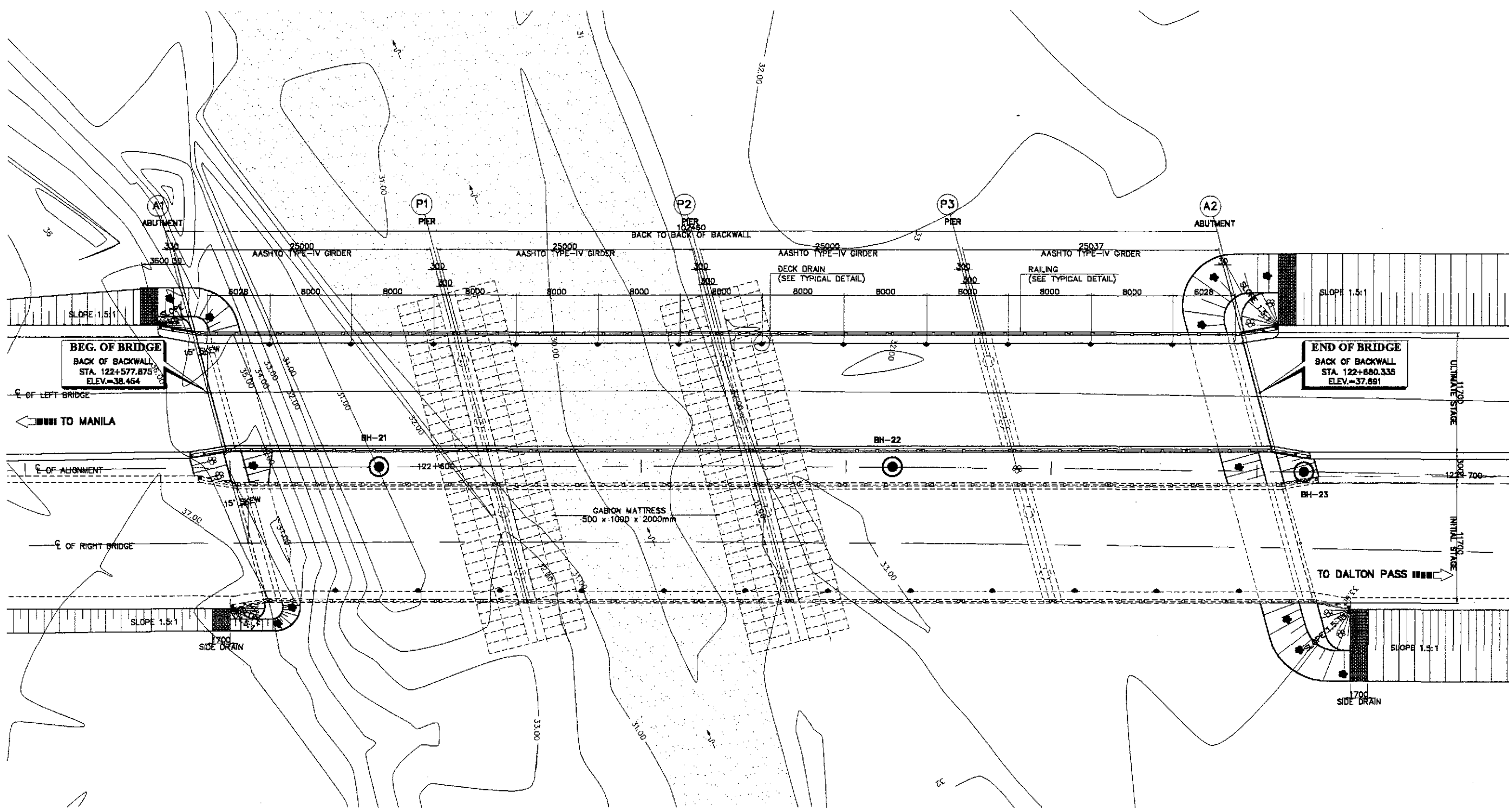


1 ABUTMENT SLOPE PROTECTION  
SCALE AS SHOWN

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	690	350
4.50	825	425
5.00	>900	590

LOCATION	SIZES	QUANTITY	
		ABUT. A1	ABUT. A2
SIDE DRAIN	200mm-300mm IN DIA.	5.14 cu. m.	4.04 cu. m.
GROUTED RIPRAP	250mm-300mm IN DIA.	52.29 cu. m.	43.91 cu. m.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES		PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) <b>CABANATUAN BYPASS - CONTRACT PACKAGE IV</b>	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : <b>BRIDGE NO. 11</b> <b>ABUTMENT PROTECTION</b> <b>AND SIDE DRAIN DETAILS</b> (ULTIMATE STAGE)	SHEET NO. : <b>B11-11</b>
	CHECKED	10/19/07	[Signature]		DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					
	SUBMITTED	10/21/07	[Signature]		BUREAU OF DESIGN					
					Submitted By:	Reviewed By:	Recommended By:	Approved By:		
					DANILO C. TRAJANO	PERFECTO L. ZAPLAN JR.	GILBERTO S. REYES	MANUEL M. BONDAN	SIMEDON A. DATUMANONG	
					Project Director	Chief, Hydraulics Division (CIC)	Director IV (CIC)	Undersecretary	Secretary	



1 GENERAL PLAN  
SCALE 1:200

A CABANATUAN BYPASS BRIDGE NO. 12 (STA. 122+577.875)  
SCALE AS SHOWN

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

**JICA**  
JAPAN INTERNATIONAL COOPERATION AGENCY

**KATAHIRA & ENGINEERS**  
INTERNATIONAL

**YEO** YACHIYO ENGINEERING CO., LTD.

DATE	SIGNATURE
DESIGNED 10/17/02	<i>[Signature]</i>
CHECKED 10/24/02	<i>[Signature]</i>
SUBMITTED 10/24/02	<i>[Signature]</i>

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				
BUREAU OF DESIGN		OFFICE OF THE SECRETARY		
Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:
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

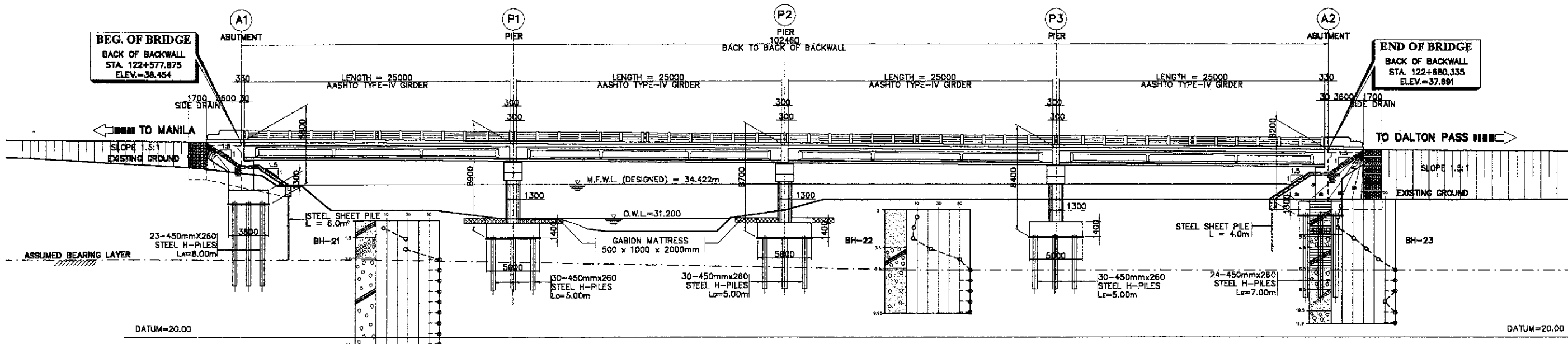
PROJECT AND LOCATION :  
THE DETAILED DESIGN STUDY ON  
UPGRADING INTER-URBAN HIGHWAY SYSTEM  
ALONG THE PAN-PHILIPPINE HIGHWAY  
(Plaridel, Cabanatuan and San Jose Bypasses)

CABANATUAN BYPASS - CONTRACT PACKAGE IV

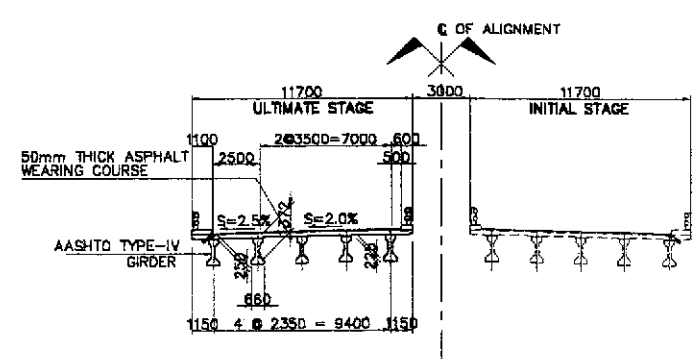
SCALE :  
1:200  
FULL SIZE A1

SHEET CONTENTS :  
BRIDGE NO. 12  
GENERAL PLAN  
(ULTIMATE STAGE)

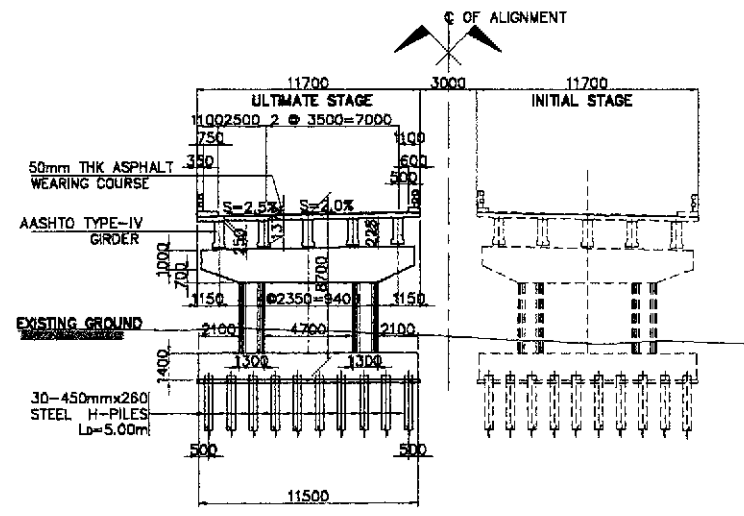
SHEET NO. :  
B12-01



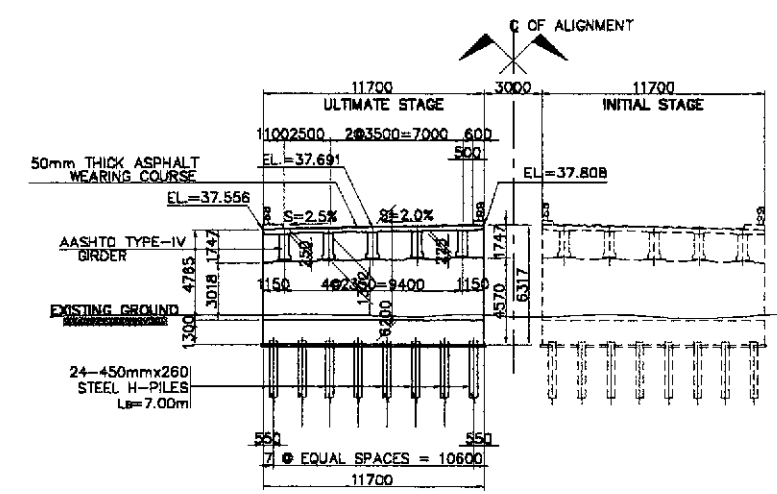
1 GENERAL ELEVATION  
SCALE 1:200



2 SECTION @ MIDSPAN  
SCALE 1:200



3 SECTION @ PIER P2  
SCALE 1:200



4 SECTION @ ABUTMENT A2  
SCALE 1:200

HYDRAULIC DESIGN DATA	
VELOCITY @ 50 YEARS, $V_{50}$	3.200 m/sec
DISCHARGE @ 50 YEARS, $Q_{50}$	735.500 cu.m/sec
CATCHMENT AREA, CA	129.925 sq. km

**NOTE :**  
PRIOR TO CONSTRUCTION SOIL INVESTIGATION AT PIER P1 AND P2 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. 12 (STA. 122+577.875)  
SCALE AS SHOWN

PERFECTO L. ZAPLAN JR.  
D/C Chief, Hydraulics Division, 800

JICA  
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS  
YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					
DESIGNED	10/17/01	SIGNATURE			
CHECKED	10/19/02	SIGNATURE			
SUBMITTED	10/21/02	SIGNATURE			
Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:	
DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (D/C)	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary	

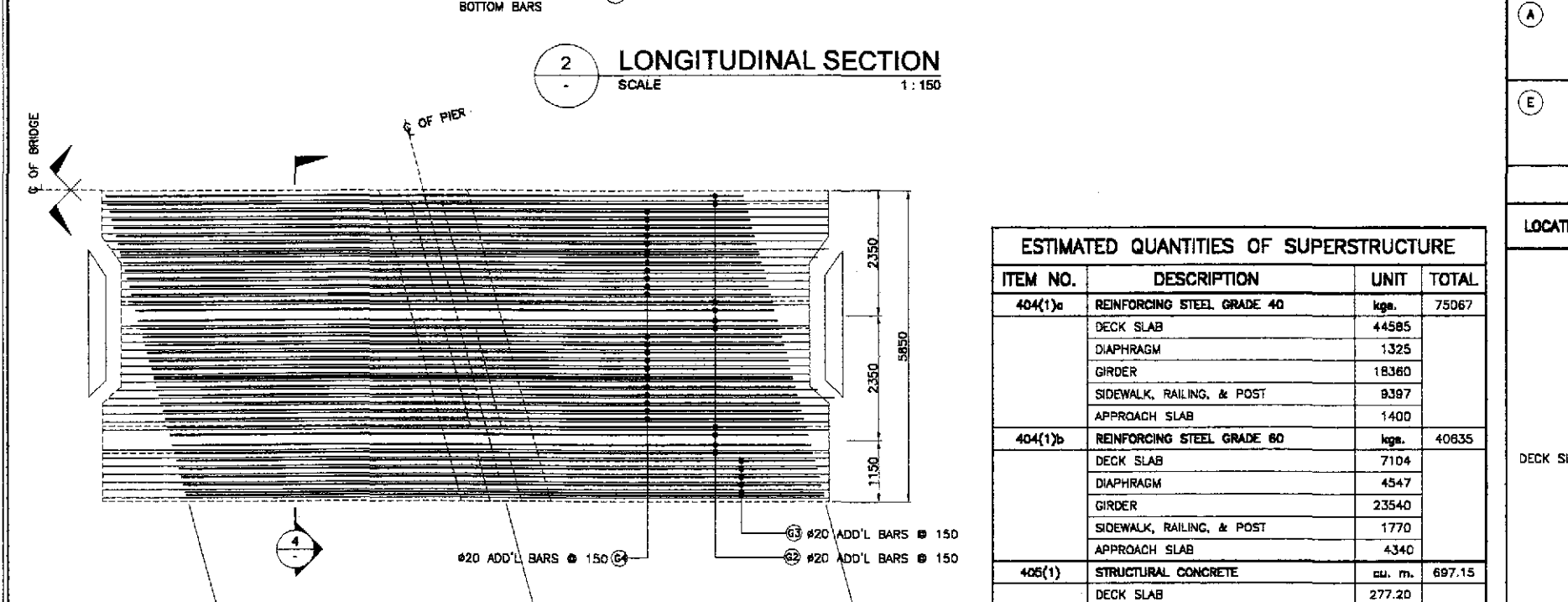
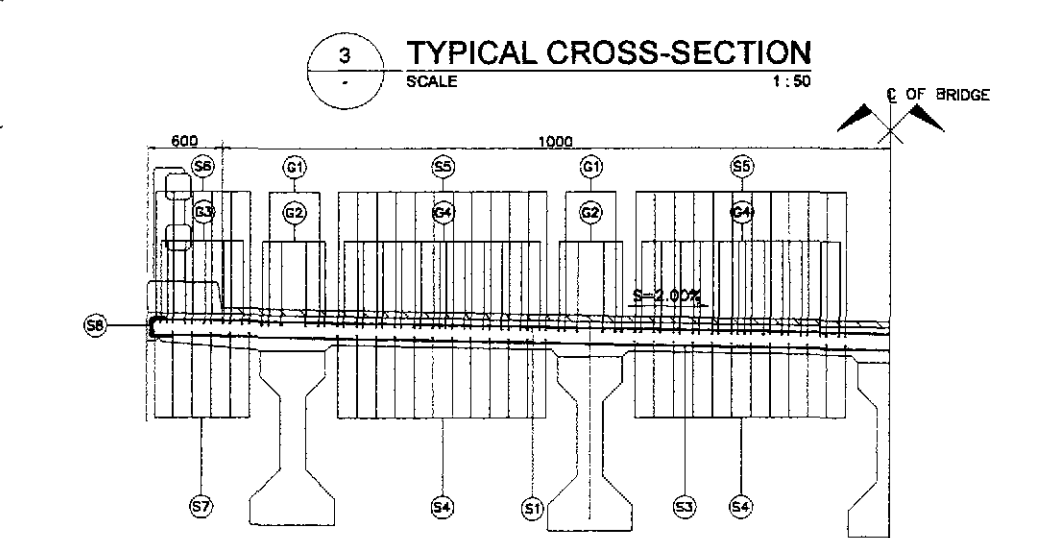
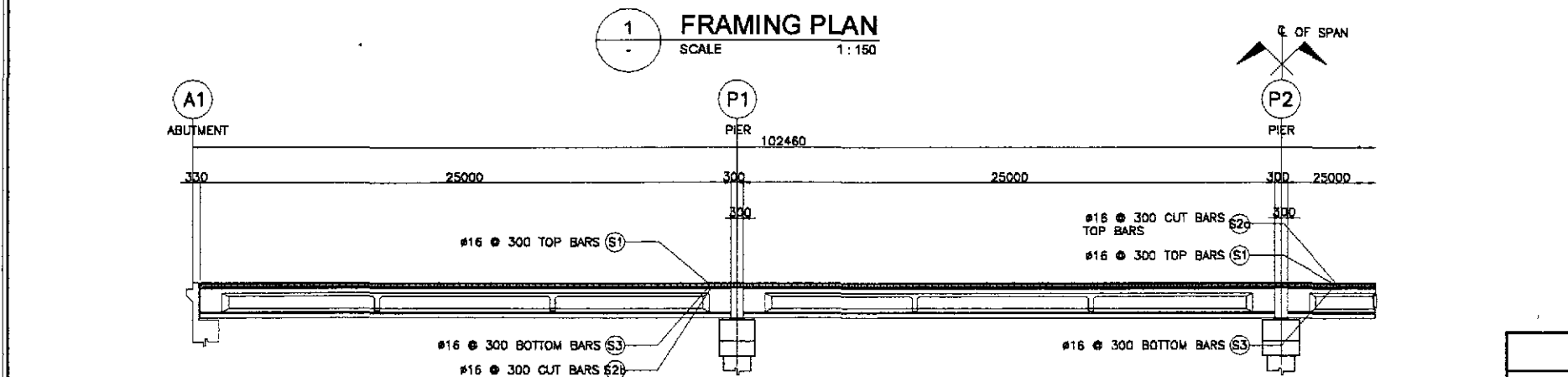
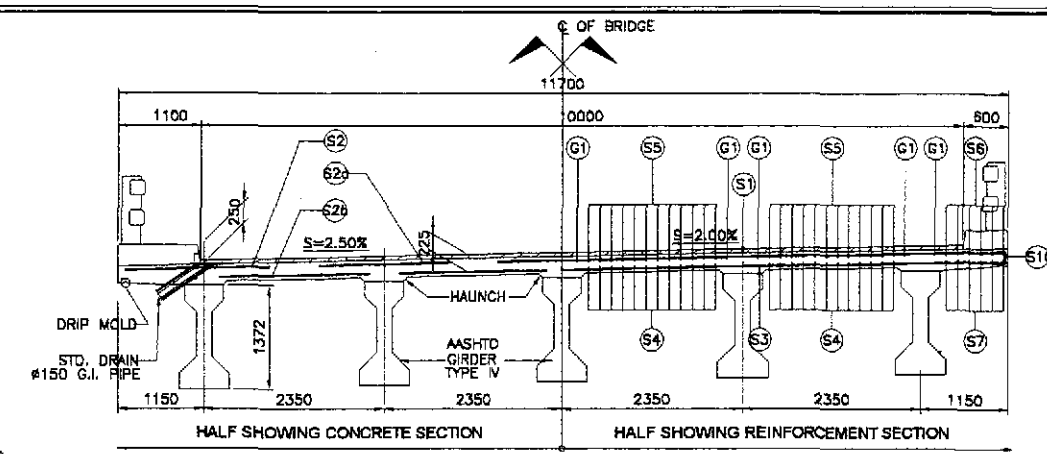
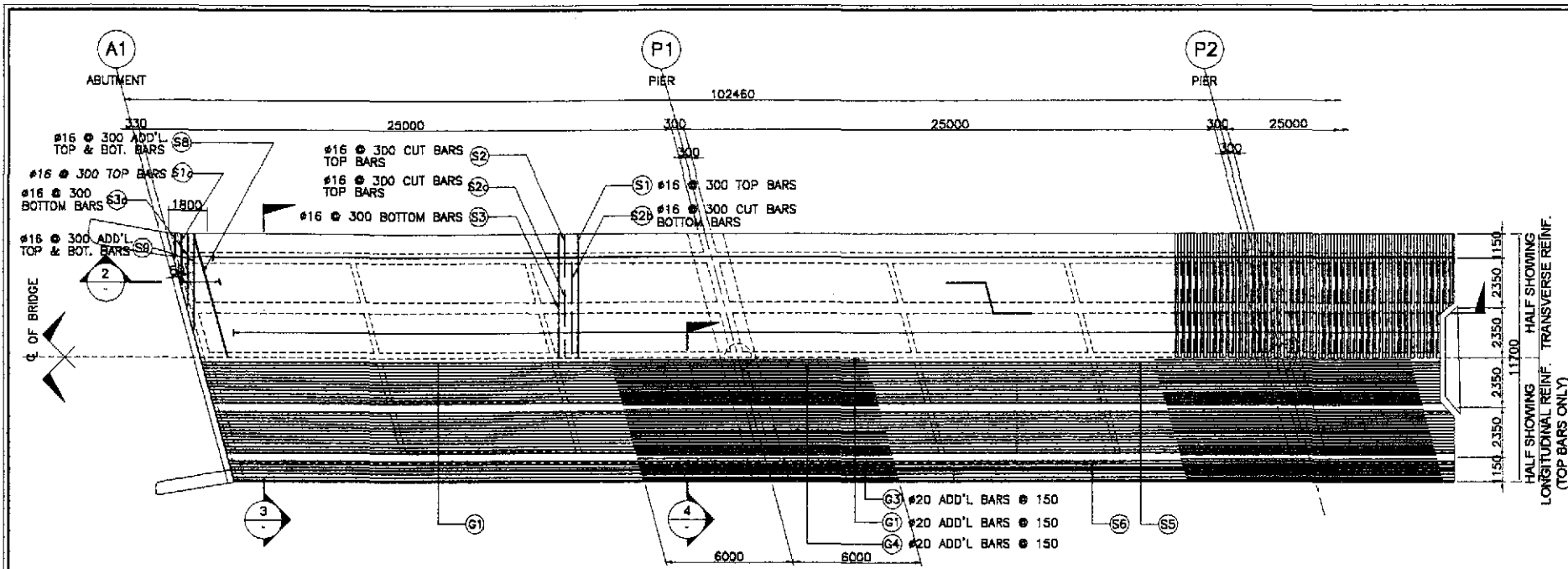
PROJECT AND LOCATION :  
THE DETAILED DESIGN STUDY ON  
UPGRADING INTER-URBAN HIGHWAY SYSTEM  
ALONG THE PAN-PHILIPPINE HIGHWAY  
(Plaridel, Cabanatuan and San Jose Bypasses)

CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE :  
1:200  
FULL SIZE A1

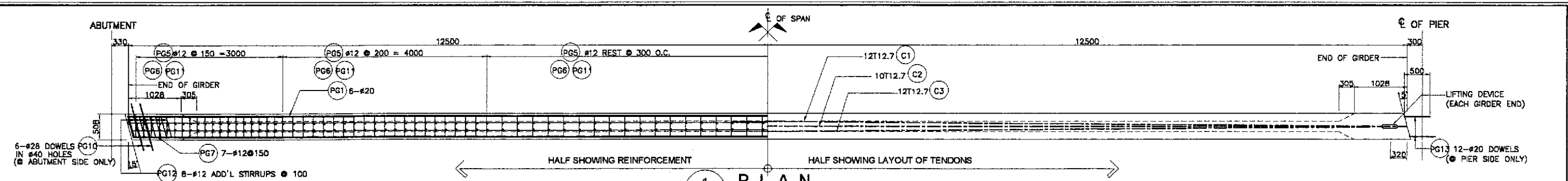
SHEET CONTENTS :  
BRIDGE NO. 12  
GENERAL ELEVATION  
AND SECTIONS  
(ULTIMATE STAGE)

SHEET NO. :  
B12-02

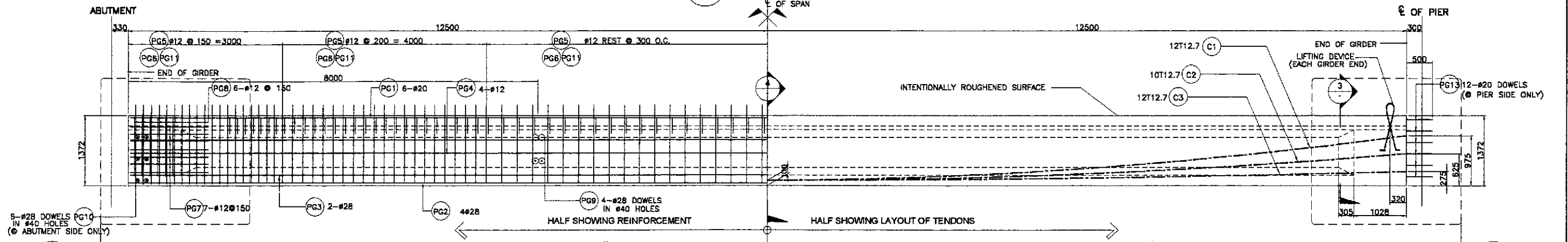


ESTIMATED QUANTITIES OF SUPERSTRUCTURE			
ITEM NO.	DESCRIPTION	UNIT	TOTAL
404(1)a	REINFORCING STEEL GRADE 40	kg.	75067
	DECK SLAB	44585	
	DIAPHRAGM	1325	
	GIRDER	18360	
	SIDEWALK, RAILING, & POST	9397	
	APPROACH SLAB	1400	
404(1)b	REINFORCING STEEL GRADE 60	kg.	40835
	DECK SLAB	7104	
	DIAPHRAGM	4547	
	GIRDER	23540	
	SIDEWALK, RAILING, & POST	1770	
	APPROACH SLAB	4340	
405(1)	STRUCTURAL CONCRETE	cu. m.	697.15
	DECK SLAB	277.20	
	DIAPHRAGM	55.24	
	GIRDER	263.24	
	SIDEWALK, RAILING, & POST	66.02	
	APPROACH SLAB	35.45	

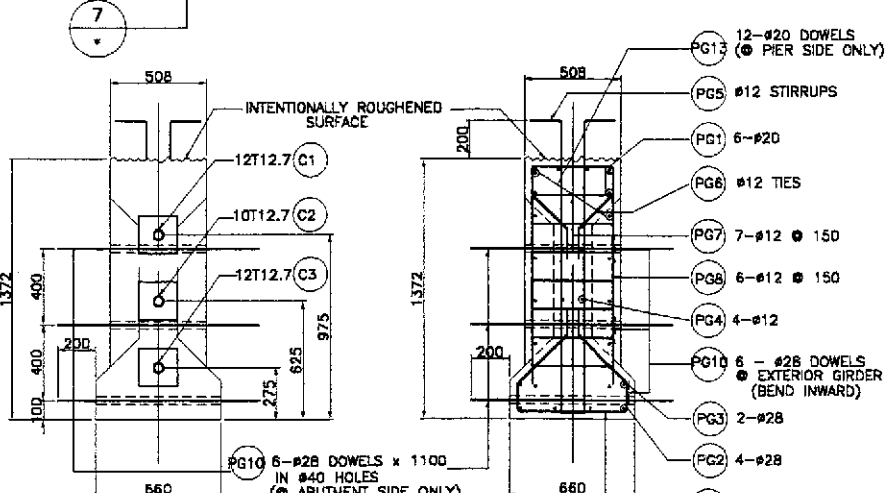
SCHEDULE OF REINFORCEMENT															
LOCATION	CONCRETE VOLUME (m³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) CUT TO CUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT IN (kg)	REBAR RATE (kg/m³)
							a	b	c	d					
DECK SLAB	277.20	G1	16	10	AS SHOWN	(A)	101700	-	-	-	101700	1017.00	1.579	1606	186.47
		G2	20	60	150	(A)	12000	-	-	-	12000	720.00	2.466	1776	
		G3	20	36	150	(A)	12000	-	-	-	12000	432.00	2.466	1066	
		G4	20	144	150	(A)	12000	-	-	-	12000	1728.00	2.466	4262	
		S1	16	336	300	(C)	145	11600	145	-	11890	3995.04	1.579	6309	
		S1a	16	22	300	(C)	145	6590	145	-	6880	151.36	1.579	239	
		S2	16	664	300	(B)	1700	2000	-	-	2145	1424.28	1.579	2249	
		S2a	16	996	300	(A)	1950	-	-	-	1700	1683.20	1.579	2674	
		S2b	16	1328	300	(A)	11600	-	-	-	1950	2589.60	1.579	4089	
		S3	16	336	300	(A)	11600	-	-	-	11600	3897.60	1.579	6155	
		S3a	16	22	300	(A)	6590	-	-	-	6590	144.98	1.579	229	
		S4	16	48	150	(A)	101700	-	-	-	101700	4881.60	1.579	7709	
		S5	16	48	150	(A)	101700	-	-	-	101700	4881.60	1.579	7709	
		S6	16	12	AS SHOWN	(A)	101700	-	-	-	101700	1220.40	1.579	1928	
		S7	16	12	AS SHOWN	(A)	101700	-	-	-	101700	1220.40	1.579	1928	
		S8	16	28	AS SHOWN	(A)	12015	-	-	-	12015	336.42	1.579	532	
		S9	16	44	AS SHOWN	(A)	6590	-	-	-	6590	289.96	1.579	458	
S10	12	446	450	(E)	145	900	600	300	1945	867.47	0.888	771			
TOTAL	277.20														



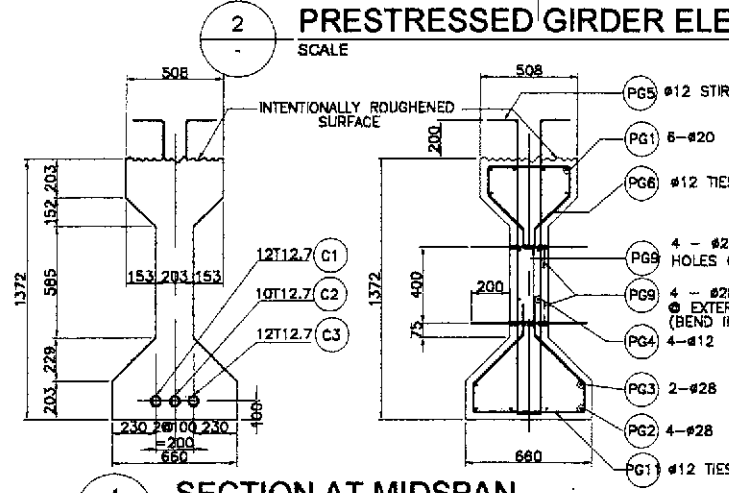
1 PLAN  
SCALE 1:40



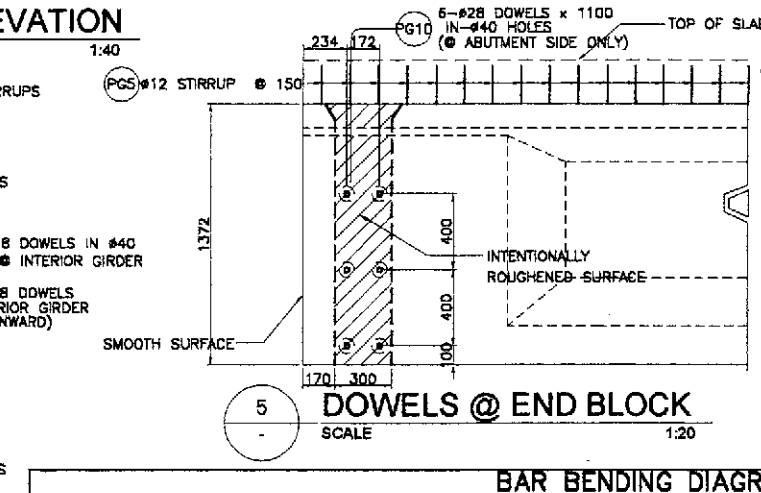
2 PRESTRESSED GIRDER ELEVATION  
SCALE 1:40



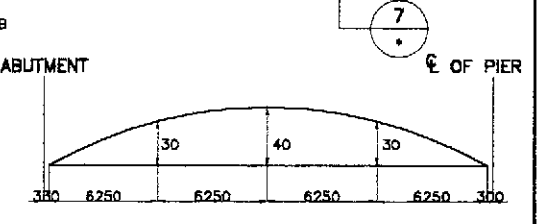
3 SECTION AT END  
SCALE 1:20



4 SECTION AT MIDSPAN  
SCALE 1:20

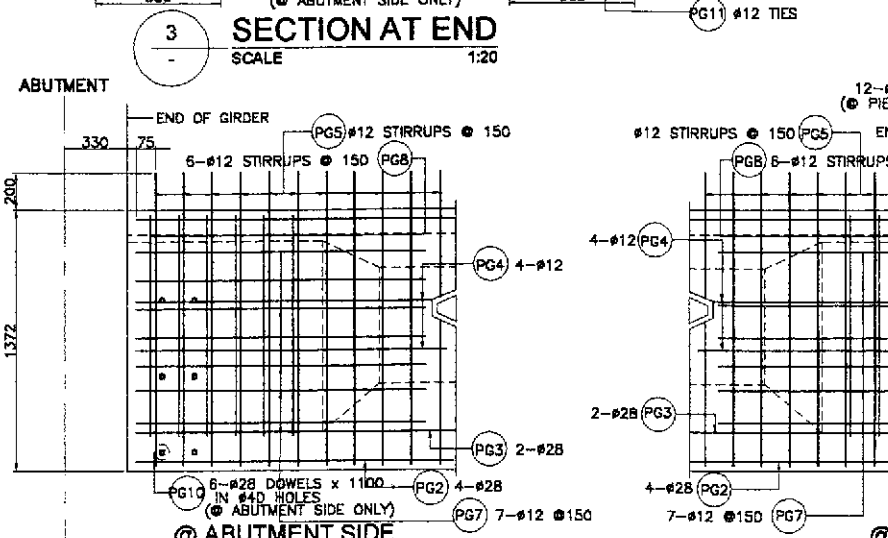


5 DOWELS @ END BLOCK  
SCALE 1:20

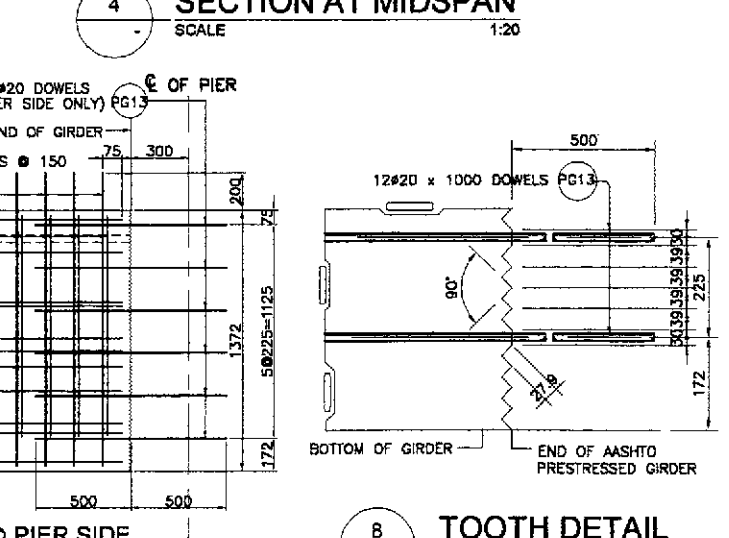


6 CAMBER DIAGRAM  
NOT TO SCALE

- NOTES:
- SEE GENERAL NOTES, -2, FOR GIRDER DESIGN GUIDE.
  - JACKING FORCE PER GIRDER,  $P_j = 4681 \text{ kN}$ .
  - JACKING WILL BE DONE AT BOTH ENDS.
  - FINAL PRESTRESSING FORCE @ MIDSPAN,  $P_{1ET} = 3346 \text{ kN}$ .



7 END BLOCK REINF. DETAIL @ ABUTMENT SIDE  
SCALE 1:20



7 END BLOCK REINF. DETAIL @ PIER SIDE  
SCALE 1:20



8 TOOTH DETAIL  
SCALE N.T.S.

BAR BENDING DIAGRAM

A	B	C	D
E	F	G	H

SCHEDULE OF REINFORCEMENT

STRUCTURE COMPONENT	BAR MARK	SIZE (mm)	QTY.	SPACING	BAR SHAPE	DIMENSION (mm)					LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONC. VOLUME (cu.m)	REBAR RATIO (kg/cu.m)	REMARKS
						a	b	c	d	e							
GIRDER	PG1	20	6	AS SHOWN	(A)	24920	-	-	-	-	24920	149.52	2.466	369	13.18	158.93	QUANTITIES ARE FOR ONE (1) GIRDER ONLY
	PG2	28	4	AS SHOWN	(A)	24920	-	-	-	-	24920	89.68	4.833	482			
	PG3	28	2	AS SHOWN	(A)	24920	-	-	-	-	24920	49.84	4.833	241			
	PG4	12	4	AS SHOWN	(A)	24920	-	-	-	-	24920	89.68	0.888	89			
	PG5	12	116	150	(C)	100	1540	103	-	-	3383	392.43	0.888	349			
	PG6	12	116	150	(E)	430	160	150	260	-	1570	182.12	0.888	162			
	PG7	12	14	150	(D)	430	1000	550	-	-	3530	49.42	0.888	44			
	PG8	12	12	150	(C)	430	1230	150	-	-	3190	38.26	0.888	34			
	PG9	28	8	AS SHOWN	(A)	803	-	-	-	-	803	4.82	4.833	24			
	PG10	28	6	AS SHOWN	(A)	1060	-	-	-	-	1060	6.36	4.833	31			
	PG11	12	116	150	(E)	580	160	150	380	-	1920	222.72	0.888	198			
	PG12	12	16	100	(B)	430	1230	-	-	-	2890	46.24	0.888	42			
	PG13	20	12	AS SHOWN	(A)	1000	-	-	-	-	1000	12.00	2.466	30			

GRADE 40 TOTAL = 918 kgs.  
GRADE 60 TOTAL = 1,177 kgs.

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS YEO YACHIO 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)

SCALE: AS SHOWN SHEET CONTENTS: BRIDGE NO. 12 AASHTO TYPE IV GIRDER (EXTERIOR SPAN) (ULTIMATE STAGE)

SHEET NO.: B12-04

DESIGNED: 10/17/02 SIGNATURE: [Signature] DATE: 10/17/02

CHECKED: 10/19/02 SIGNATURE: [Signature] DATE: 10/19/02

SUBMITTED: 10/21/02 SIGNATURE: [Signature] DATE: 10/21/02

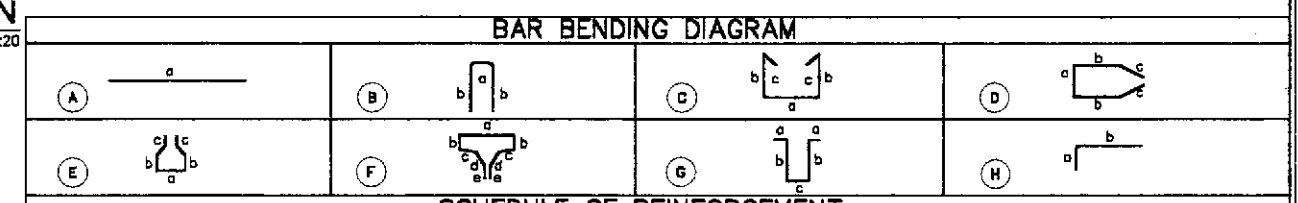
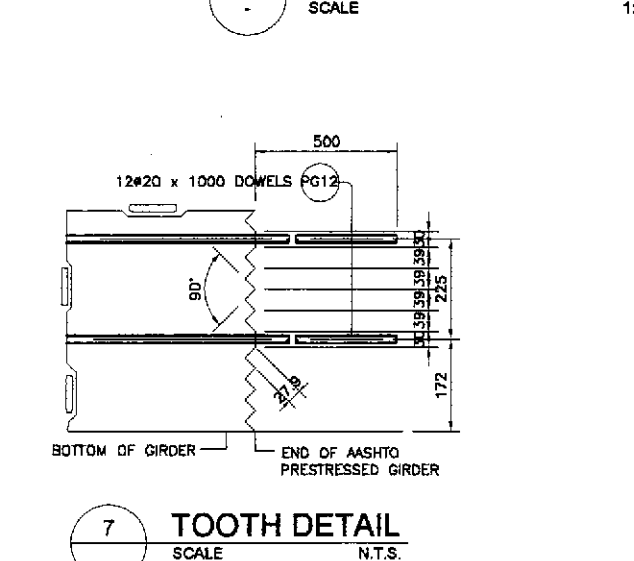
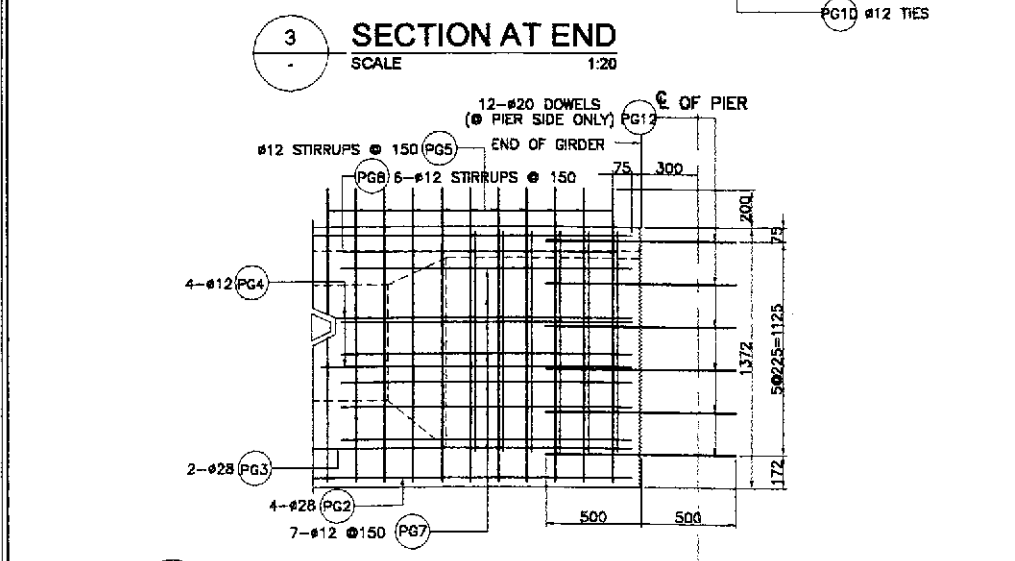
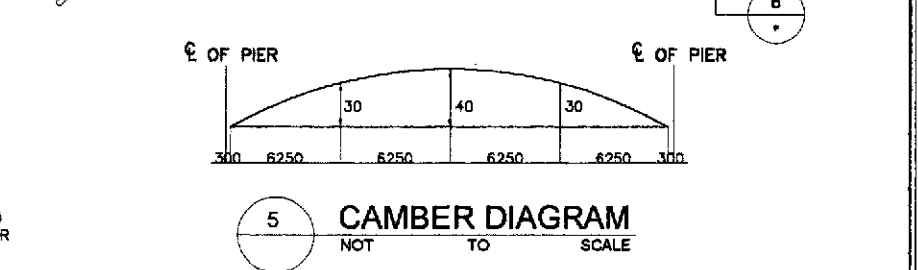
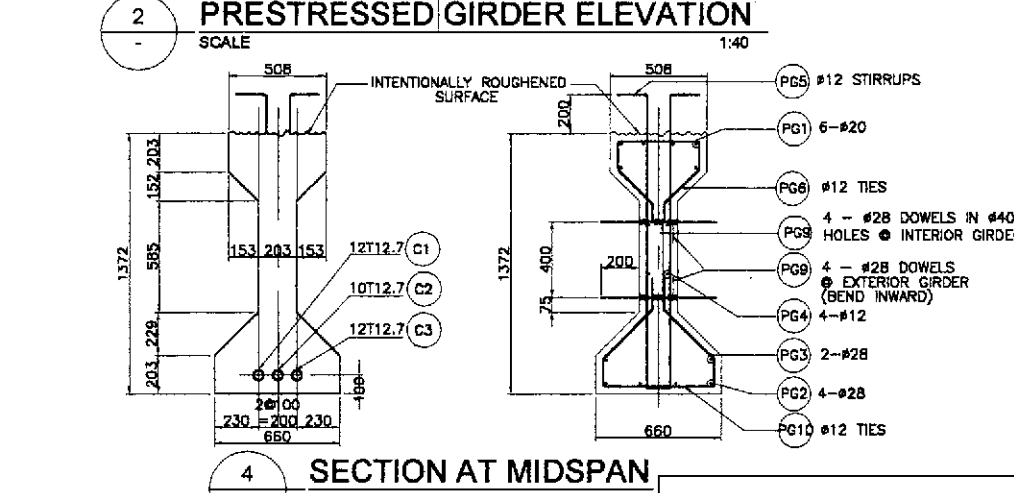
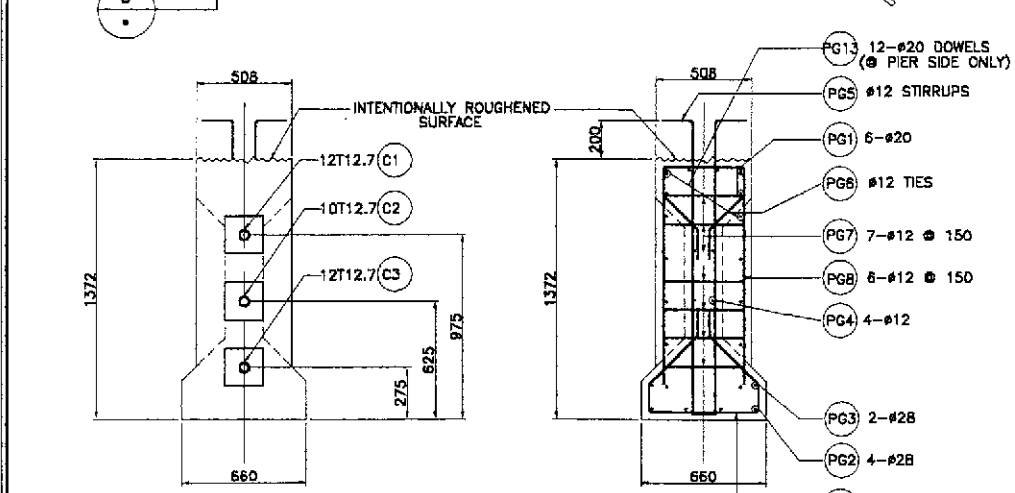
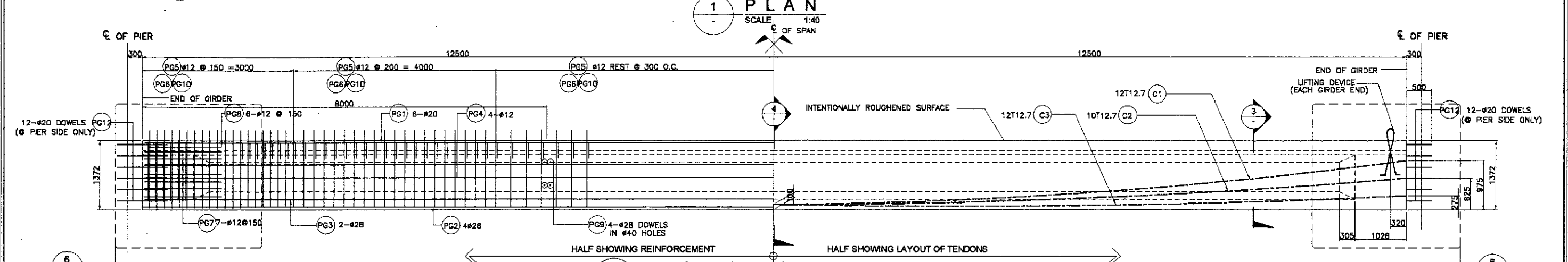
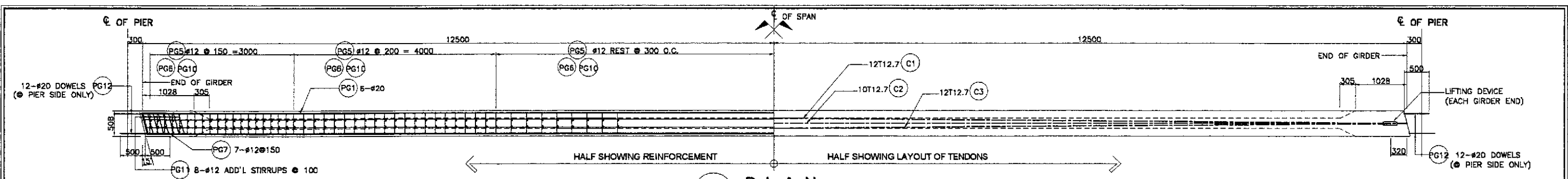
Submitted By: DANILLO C. TRAJANO Project Director

Reviewed By: ADRIANO M. DORAY Chief, Bridge Division

Recommended By: GILBERTO S. REYES Director IV (GIC)

Recommended By: MANUEL M. BONGAN Undersecretary

Approved By: SIMON A. DATUMANONG Secretary



STRUCTURE COMPONENT	BAR MARK	SIZE (mm)	QTY.	SPACING	BAR SHAPE	DIMENSION (mm)				LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONC. VOLUME (cu.m)	REBAR RATIO (kg/cu.m)	REMARKS
						a	b	c	d							
GIRDER	PG1	20	6	AS SHOWN	(A)	24920	-	-	-	24920	149.52	2.466	368	13.18	156.58	QUANTITIES ARE FOR ONE (1) GIRDER ONLY
	PG2	28	4	AS SHOWN	(A)	24920	-	-	-	24920	99.68	4.833	482			
	PG3	28	2	AS SHOWN	(A)	24920	-	-	-	24920	49.84	4.833	241			
	PG4	12	4	AS SHOWN	(A)	24920	-	-	-	24920	99.68	0.888	88			
	PG5	12	116	150	(C)	100	1540	103	-	3383	392.43	0.888	349			
	PG6	12	116	150	(E)	430	160	150	260	1570	182.12	0.888	162			
	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			
	PG8	28	8	AS SHOWN	(A)	803	-	-	-	803	4.82	4.833	24			
	PG10	12	116	150	(E)	580	160	150	360	1920	222.72	0.888	198			
	PG11	12	16	100	(B)	430	1230	-	-	2890	46.24	0.888	42			
	PG12	20	24	AS SHOWN	(A)	1000	-	-	-	1000	24.00	2.466	60			

REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN

Submitted By: DANILLO C. TRAJANO, Project Director

Reviewed By: ADRIANO M. DORDY, Chief, Bridges Division

Recommended By: GILBERTO S. REYES, Director IV (D/C)

Approved By: MANUEL M. BONDAN, Undersecretary

Approved By: 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

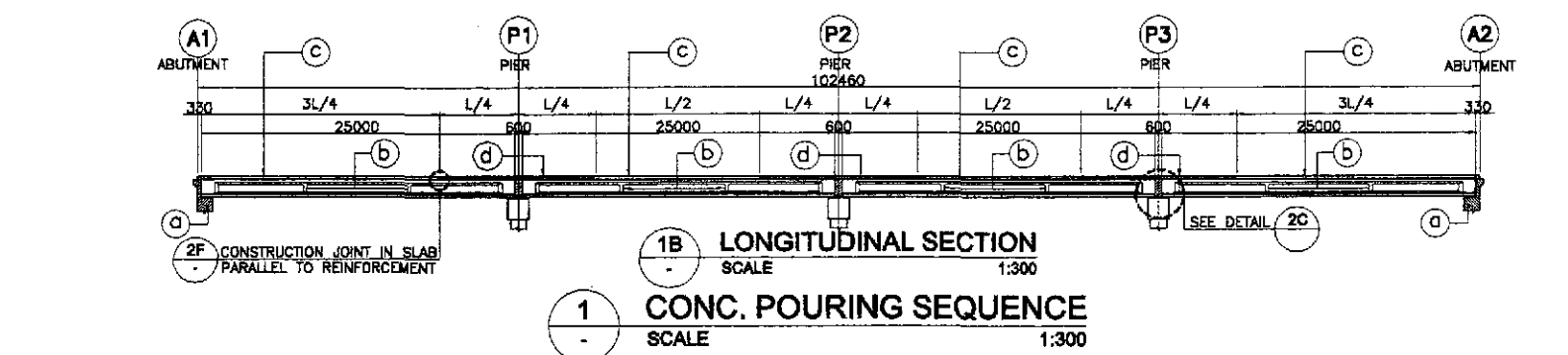
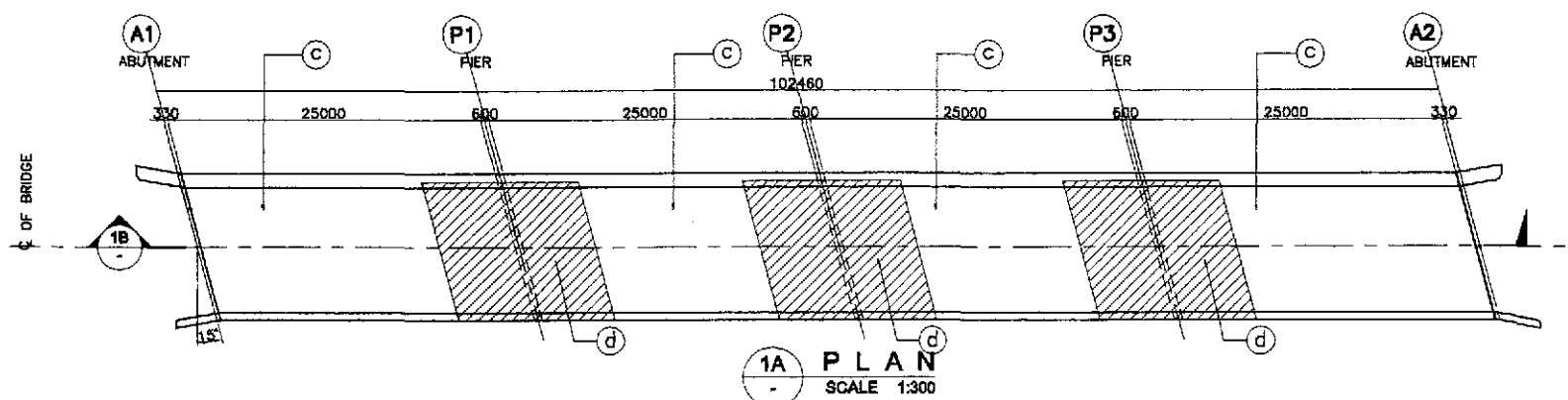
FULL SIZE A1

SHEET CONTENTS: BRIDGE NO. 12 AASHTO TYPE IV GIRDER (INTERIOR SPAN) (ULTIMATE STAGE)

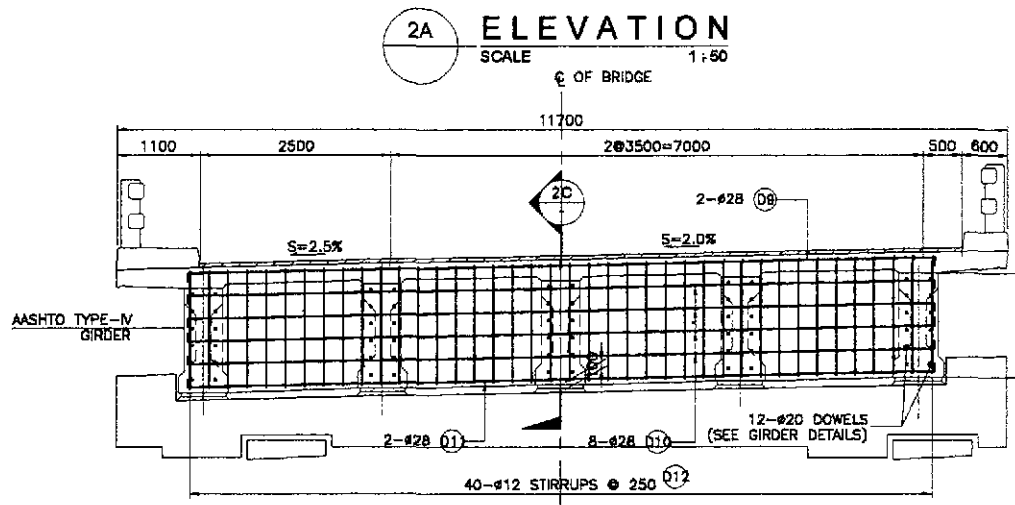
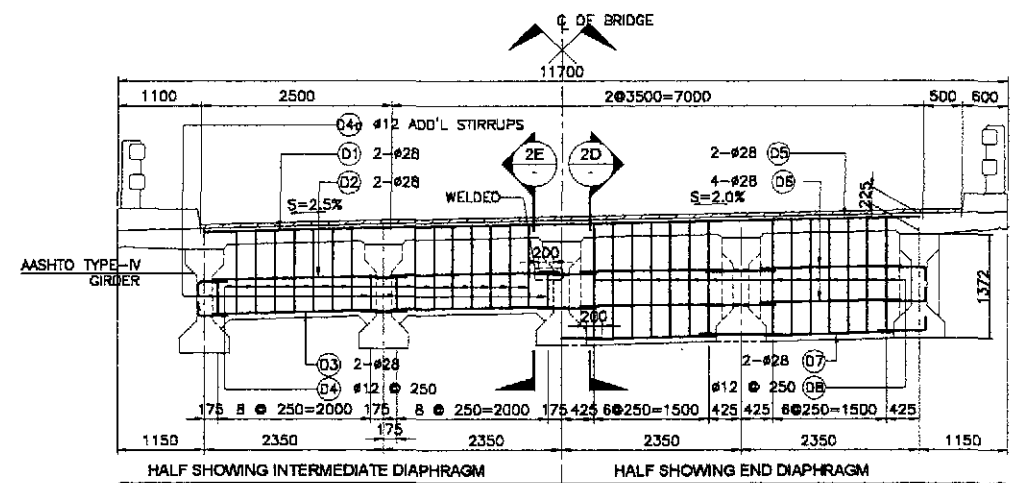
SHEET NO.: B12-05

GRADE 40 TOTAL = 918 kgs.  
GRADE 60 TOTAL = 1,148 kgs.

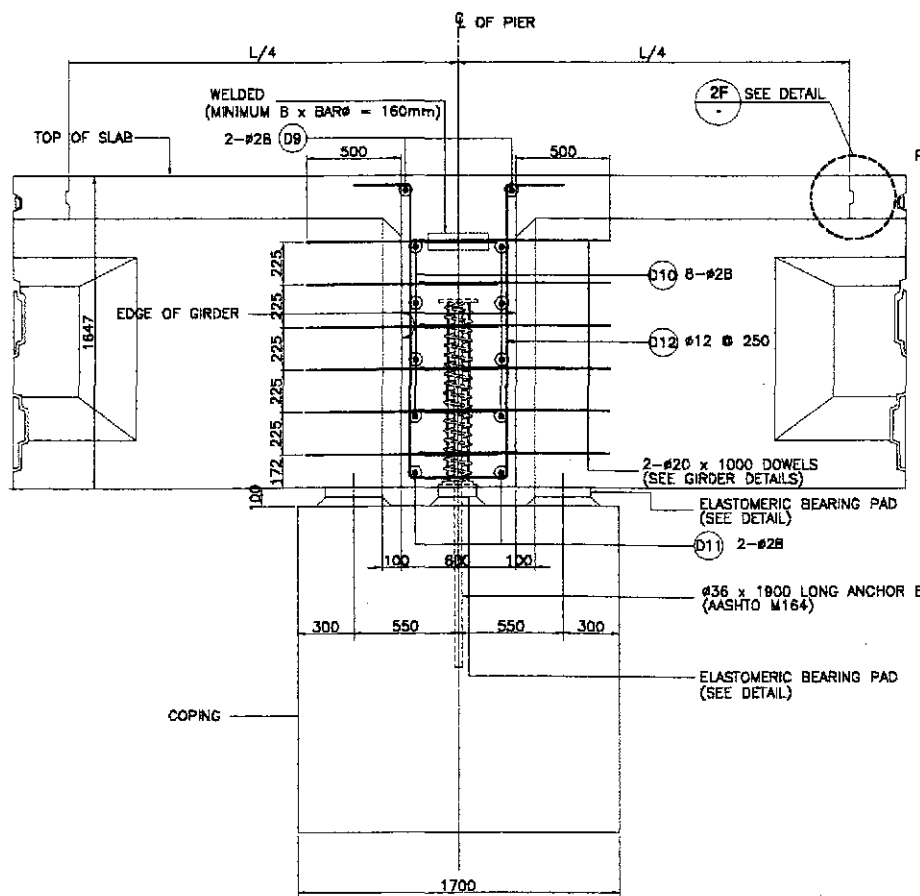




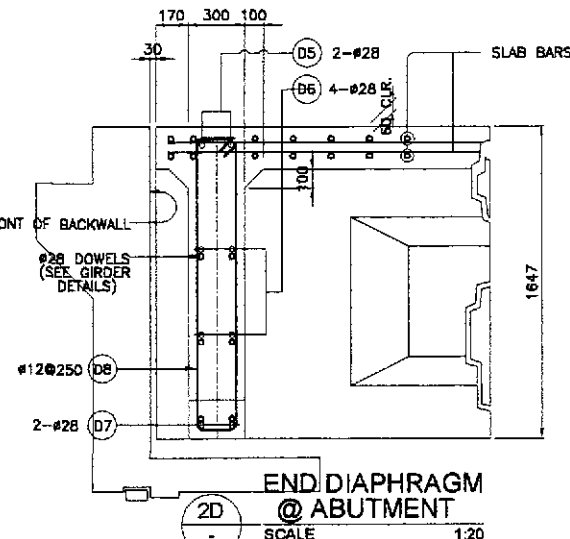
1 CONCRETE POURING SEQUENCE SCALE 1:300



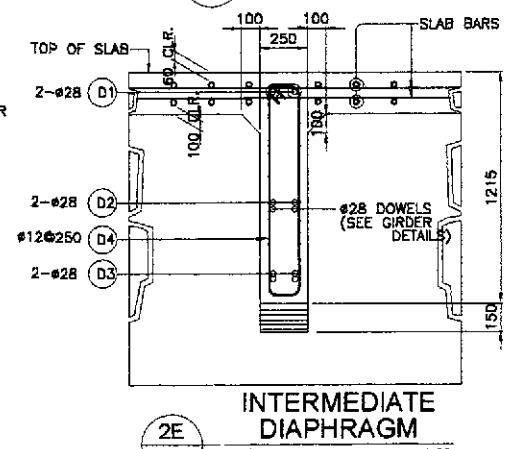
2B ELEVATION SHOWING DIAPHRAGM REINFORCEMENT @ PIER SCALE 1:50



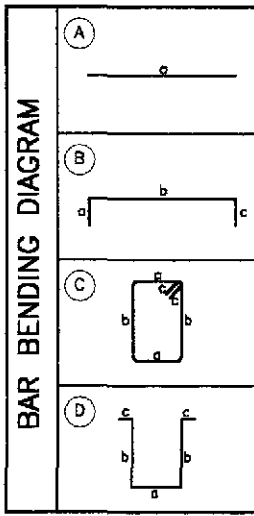
2C DIAPHRAGM @ PIER SCALE 1:20



2D END DIAPHRAGM @ ABUTMENT SCALE 1:20



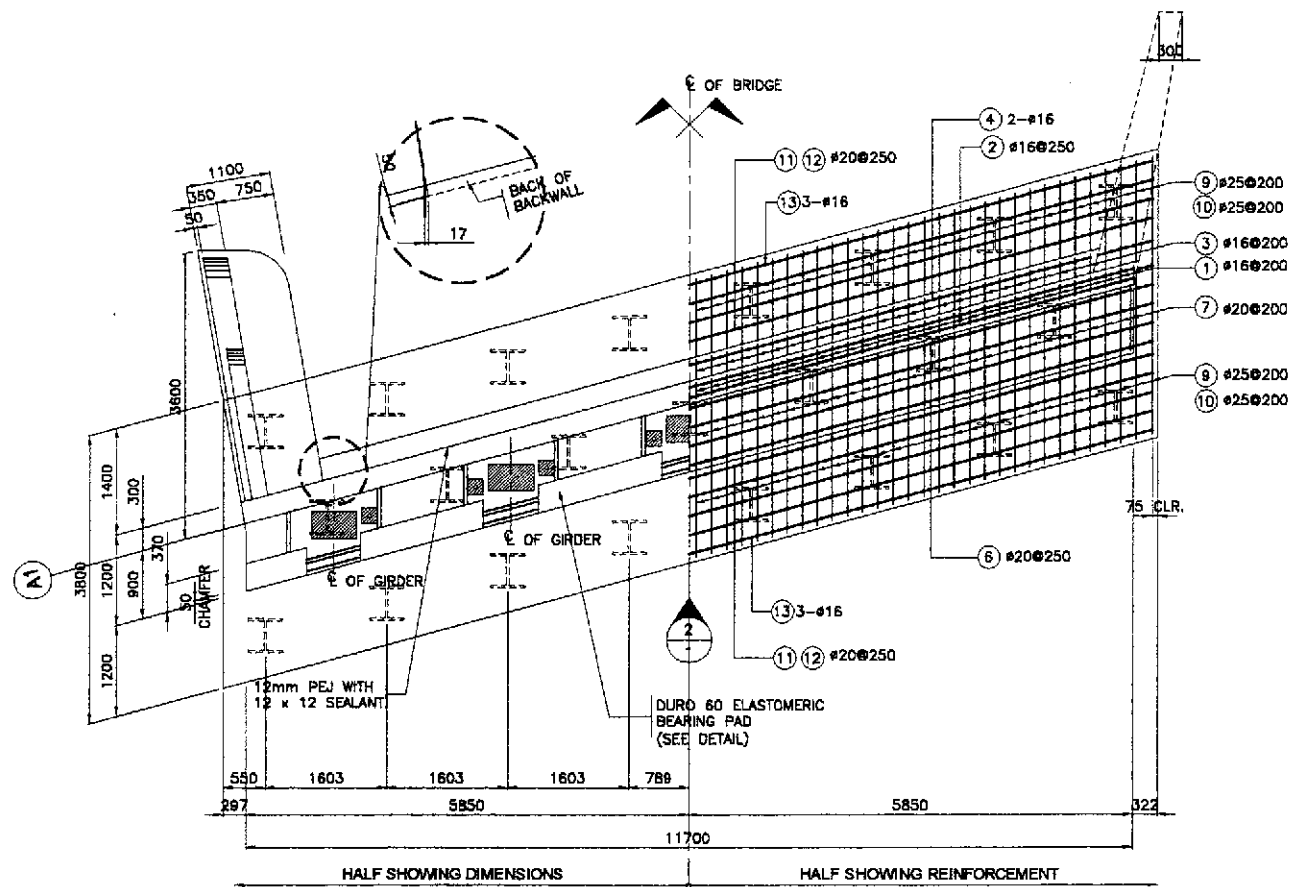
2E INTERMEDIATE DIAPHRAGM SCALE 1:20



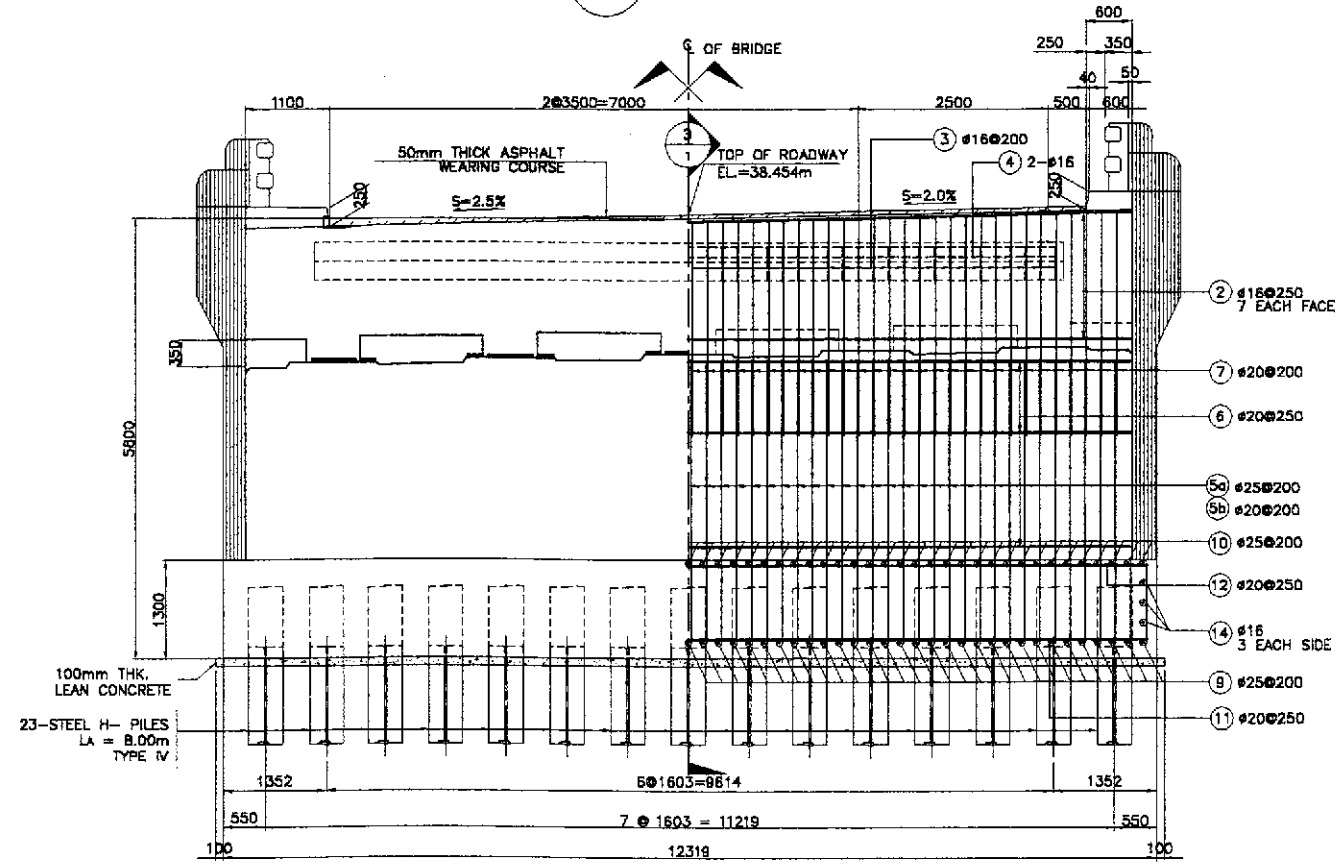
SCHEDULE OF REINFORCEMENT																
STRUCTURE COMPONENT	LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR DIMENSIONS (mm) OUT TO OUT				LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	TOTAL WEIGHT IN (kg)	REBAR RATIO (kg/m <sup>3</sup> )	
							a	b	c	d						
DIAPHRAGM	INTERMEDIATE DIAPHRAGM	19.58	D1	28	18	AS SHOWN	A	9400				9400	150.40	4,833	727	140.09
			D2	28	64	AS SHOWN	A	2145				2145	137.28	4,833	664	
			D3	28	64	AS SHOWN	A	2145				2145	137.28	4,833	664	
			D4	12	224	250	C	150	1200	150	3000	672.00	0.888	597		
DIAPHRAGM	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	C	200	1500	150	3800	212.80	0.888	189		
DIAPHRAGM	AT PIER	25.36	D9	28	6	AS SHOWN	B	500	9810	500	10810	64.86	4,833	314	91.88	
			D10	28	24	AS SHOWN	B	500	9810	500	10810	259.44	4,833	1254		
			D11	28	6	AS SHOWN	B	500	9810	500	10810	64.86	4,833	314		
			D12	12	120	250	D	500	1550	300	4200	504.00	0.888	448		
TOTAL		51.23														GRADE 60 TOTAL = 4,547 kgs. GRADE 40 TOTAL = 1,325 kgs.

- NOTES:
- CONCRETE AT (A) AREAS SHALL BE PLACED AT LEAST 21 DAYS AHEAD OF CONCRETE AT (B) AREAS.
  - CONCRETE AT (C) AREAS SHALL BE PLACED AT LEAST ONE DAY AHEAD OF CONCRETE AT (A) AREAS. POUR (C) AREAS LAST.
  - REINFORCEMENT SHALL BE CONTINUOUS AT CONSTRUCTION JOINTS.
  - SEE GIRDER DETAILS FOR SPACING OF #28 DOWELS.

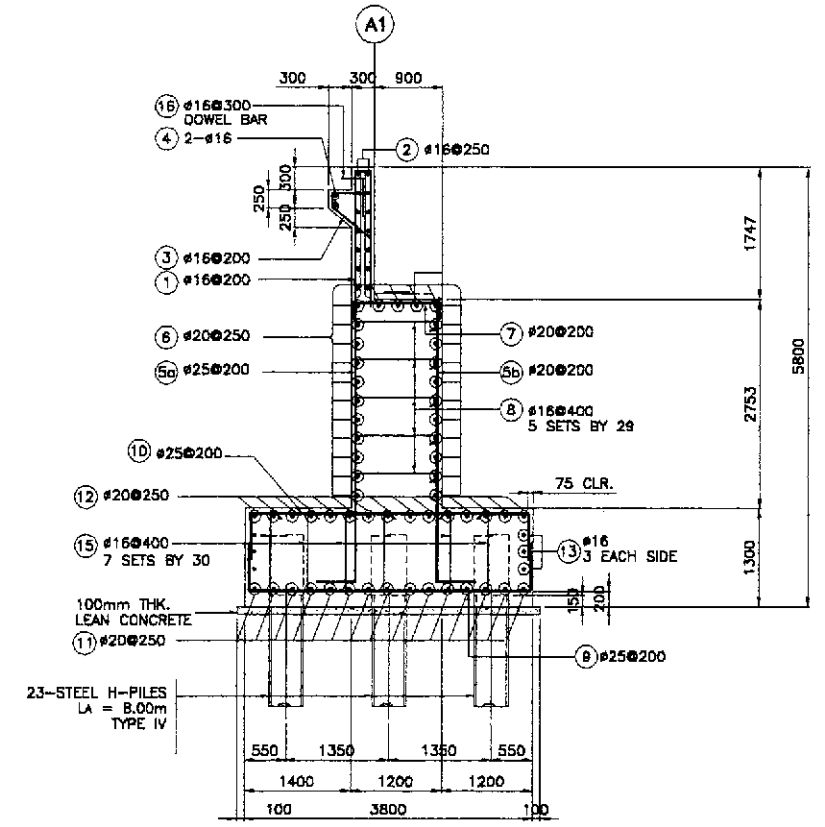
JICA JAPAN INTERNATIONAL COOPERATION AGENCY  
 KATAHIRA & ENGINEERS YACHIYO ENGINEERING CO., LTD.  
 DATE: 10/17/02  
 DESIGNED: E. N. SALLAN  
 CHECKED: 10/19/02  
 SUBMITTED: 10/21/02  
 SIGNATURE: [Signatures]  
 TEAM LEADER  
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
 BUREAU OF DESIGN  
 OFFICE OF THE 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)  
 SCALE: AS SHOWN  
 SHEET CONTENTS: BRIDGE NO. 12 CONCRETE POURING SEQUENCE AND DIAPHRAGM DETAILS (ULTIMATE STAGE)  
 SHEET NO.: B12-06



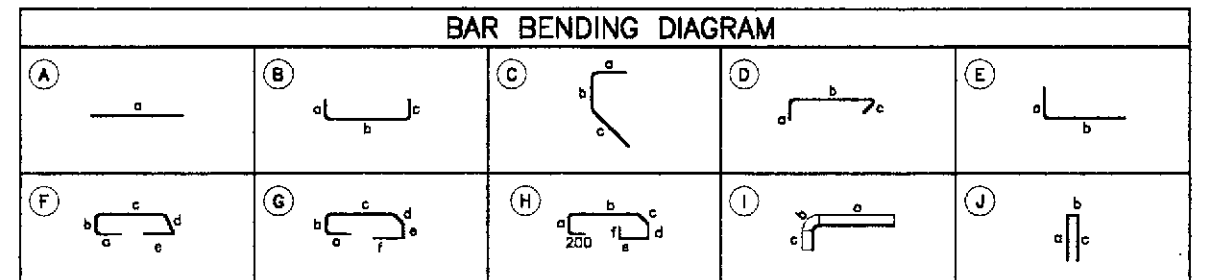
1 PLAN  
SCALE 1:50



2 ELEVATION  
SCALE 1:50

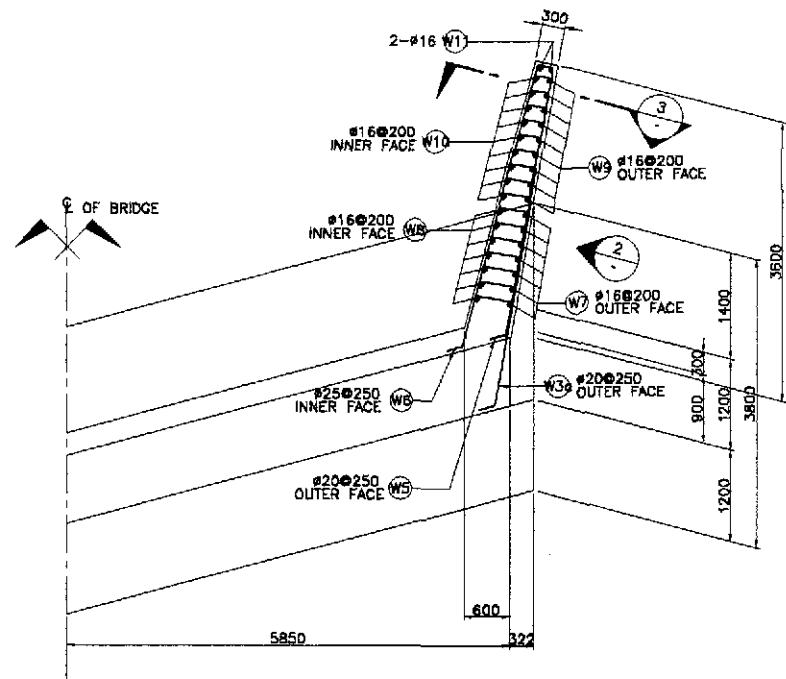


3 SECTION  
SCALE 1:50

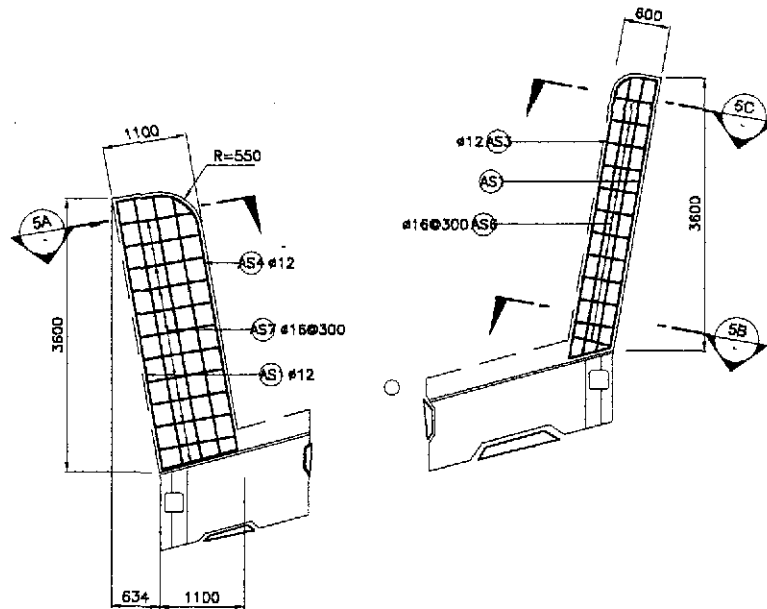


SCHEDULE OF REINFORCEMENT PER ABUTMENT																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )
							a	b	c	d	e					
BACKWALL	7.26	1	16	59	200	(B)	2000	200	2000	-	-	4200	247.80	1.579	392	117.13
		2	16	16	250	(A)	12000	-	-	-	-	12000	192.00	1.579	304	
		3	16	51	200	(C)	600	150	750	-	-	1500	76.50	1.579	121	
		4	16	2	AS SHOWN	(A)	10250	-	-	-	-	10250	20.50	1.579	33	
MAINWALL	38.65	5a	25	59	200	(E)	400	3800	-	-	-	4200	247.80	3.854	956	75.24
		5b	20	59	200	(E)	400	3800	-	-	-	4200	247.80	2.466	612	
		6	20	25	250	(A)	12000	-	-	-	-	12000	300.00	2.466	740	
		7	20	59	200	(B)	250	1100	250	-	-	1600	94.40	2.466	233	
		8	16	145	400	(D)	250	1100	250	-	-	1600	232.00	1.579	367	
		9	25	62	200	(B)	700	3650	700	-	-	5050	313.10	3.854	1207	
FOOTING	60.86	10	25	62	200	(B)	700	3650	700	-	-	5050	313.10	3.854	1207	69.38
		11	20	16	250	(B)	700	12600	700	-	-	14000	224.00	2.466	553	
		12	20	16	250	(B)	700	12600	700	-	-	14000	224.00	2.466	553	
		13	16	6	AS SHOWN	(A)	12600	-	-	-	-	12600	75.60	1.579	120	
		14	16	6	AS SHOWN	(A)	3650	-	-	-	-	3650	21.90	1.579	35	
DOWEL		15	16	210	400	(D)	250	1150	250	-	-	1650	346.50	1.579	548	
TOTAL	106.76															GRADE 40 TOTAL = 1,882 kgs. GRADE 60 TOTAL = 6,061 kgs.

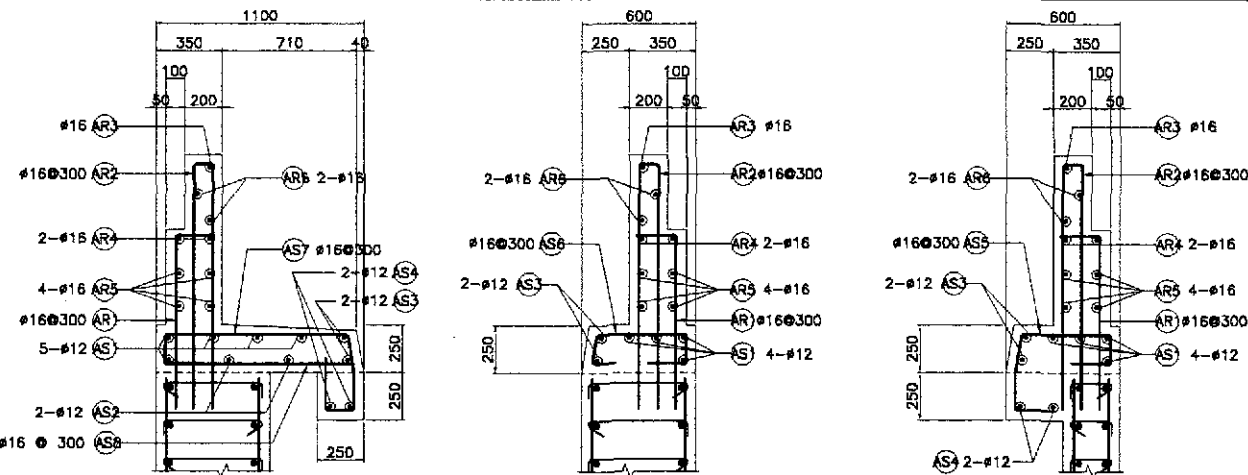
	DESIGNED	10/17/02	P. GONZALES		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	M. KAWASHI		Submitted By:	Reviewed By:	Recommended By:	Approved By:	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:50	BRIDGE NO. 12 ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS (ULTIMATE STAGE)	B12-07
	SUBMITTED	10/21/02	M. KAWASHI		DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (CIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary	FULL SIZE A1		



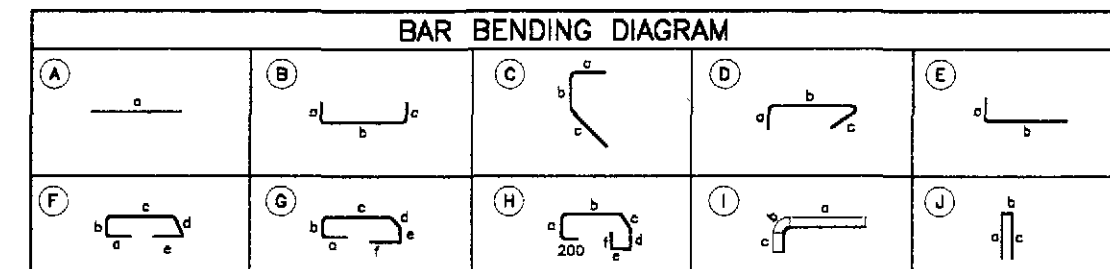
1 PLAN SCALE 1:50



4 SIDEWALK DETAIL SCALE 1:50

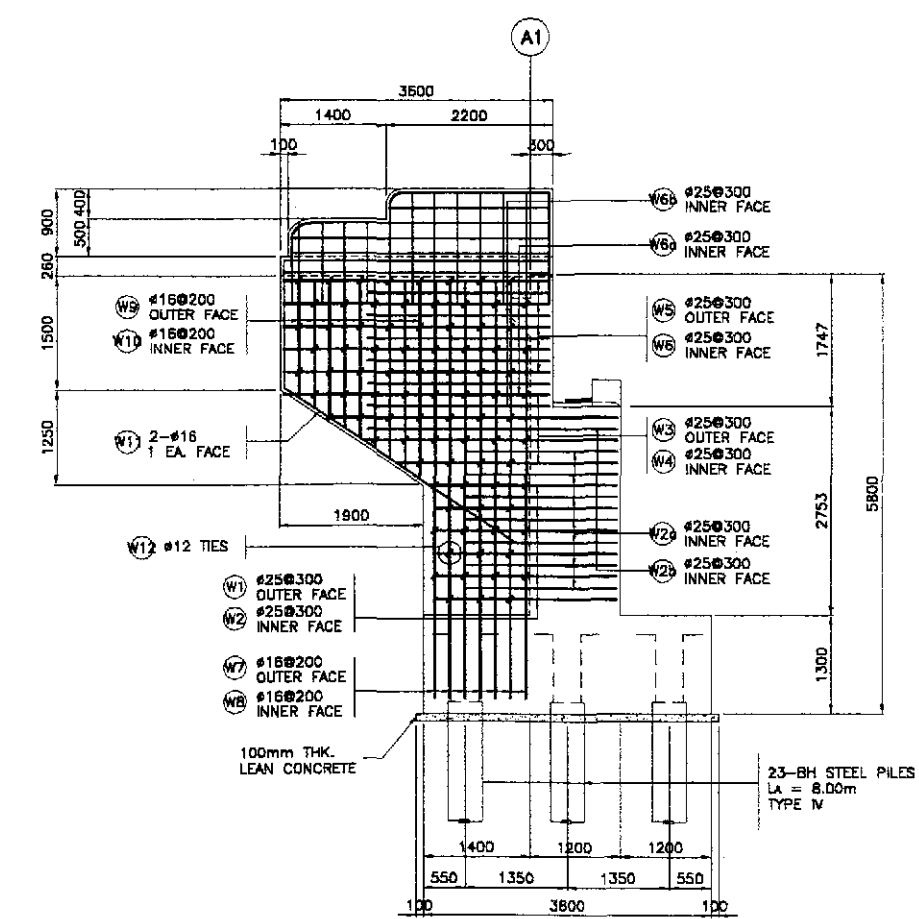


5A SECTION SCALE 1:20  
5B SECTION SCALE 1:20  
5C SECTION SCALE 1:20  
5 APPROACH RAIL DETAILS SCALE 1:20

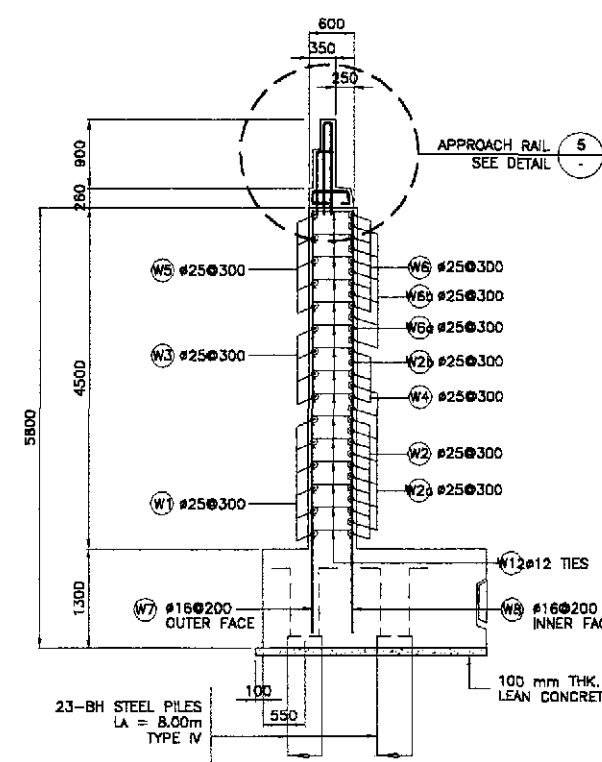


SCHEDULE OF REINFORCEMENT PER ABUTMENT

LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EA. BAR (m)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )		
							a	b	c	d							
WINGWALL	9.30	W1	25	12	300	B	400	2500	150	-	-	3050	36.60	3.854	142	177.46	
		W2	25	12	300	B	400	2500	150	-	-	3050	36.60	3.854	142		
		W2a	25	14	300	E	400	2150	-	-	-	2550	35.70	3.854	138		
		W2b	25	2	300	E	400	3250	-	-	-	3650	7.30	3.854	29		
		W3	25	6	300	B	400	3350	150	-	-	3900	23.40	3.584	91		
		W4	25	8	300	B	400	3350	150	-	-	3900	23.40	3.854	91		
		W5	25	10	300	B	400	3500	150	-	-	4050	40.50	3.584	157		
		W6	25	10	300	B	400	3500	150	-	-	4050	40.50	3.854	157		
		W6a	25	2	300	B	400	3400	150	-	-	3950	7.90	3.854	31		
		W6b	25	12	300	E	400	2400	-	-	-	2800	33.60	3.854	130		
		W7	18	14	200	E	250	5500	-	-	-	5750	80.50	1.578	128		
		W8	16	14	200	E	250	5500	-	-	-	5750	80.50	1.578	128		
W9	16	18	200	E	250	2050	-	-	-	2300	41.40	1.578	66				
W10	16	18	200	E	250	2050	-	-	-	2300	41.40	4.579	66				
W11	16	4	AS SHOWN	C	250	1500	3500	-	-	-	5250	21.00	1.578	34			
W12	12	172	AS SHOWN	D	170	450	170	-	-	-	790	135.88	0.888	121			
											GRADE 60 TOTAL = 1,108 kgs.						
											GRADE 40 TOTAL = 543 kgs.						
APPROACH RAILING AND SIDEWALK	3.53	AS1	12	9	AS SHOWN	A	3500	-	-	-	-	3500	31.50	0.888	28	88.34	
		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	-	-	-	-	1250	14.00	0.888	13		
		AS5	16	3	300	F	200	170	480	200	200	-	1420	3.75	1.579		6
		AS6	16	11	300	G	200	170	480	200	170	200	3500	15.62	1.579		25
		AS7	16	14	300	H	200	170	980	200	200	200	1250	29.68	1.579		47
		AS8	16	14	300	E	200	1020	-	-	-	-	1420	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	-	-	-	3638	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	-	-	-	-	-	3500	27.20	1.579	43			
AR6	16	4	AS SHOWN	A	2100	-	-	-	-	-	2100	8.40	1.579	14			
											GRADE 40 TOTAL = 347 kgs.						
											GRADE 60 TOTAL = 1,108 kgs.						
											GRADE 40 TOTAL = 880 kgs.						
TOTAL	12.83																



2 WINGWALL ELEVATION SCALE 1:50



3 SECTION SCALE 1:50

JICA JAPAN INTERNATIONAL COOPERATION AGENCY  
 KATAHIRA & ENGINEERS YEO YACHIO ENGINEERING CO., LTD.  
 REI INTERNATIONAL

DESIGNED: 10/17/02 A. J. GONZALES  
 CHECKED: 10/19/02 [Signature]  
 SUBMITTED: 10/21/02 [Signature]

DATE: 10/17/02  
 SIGNATURE: [Signature]

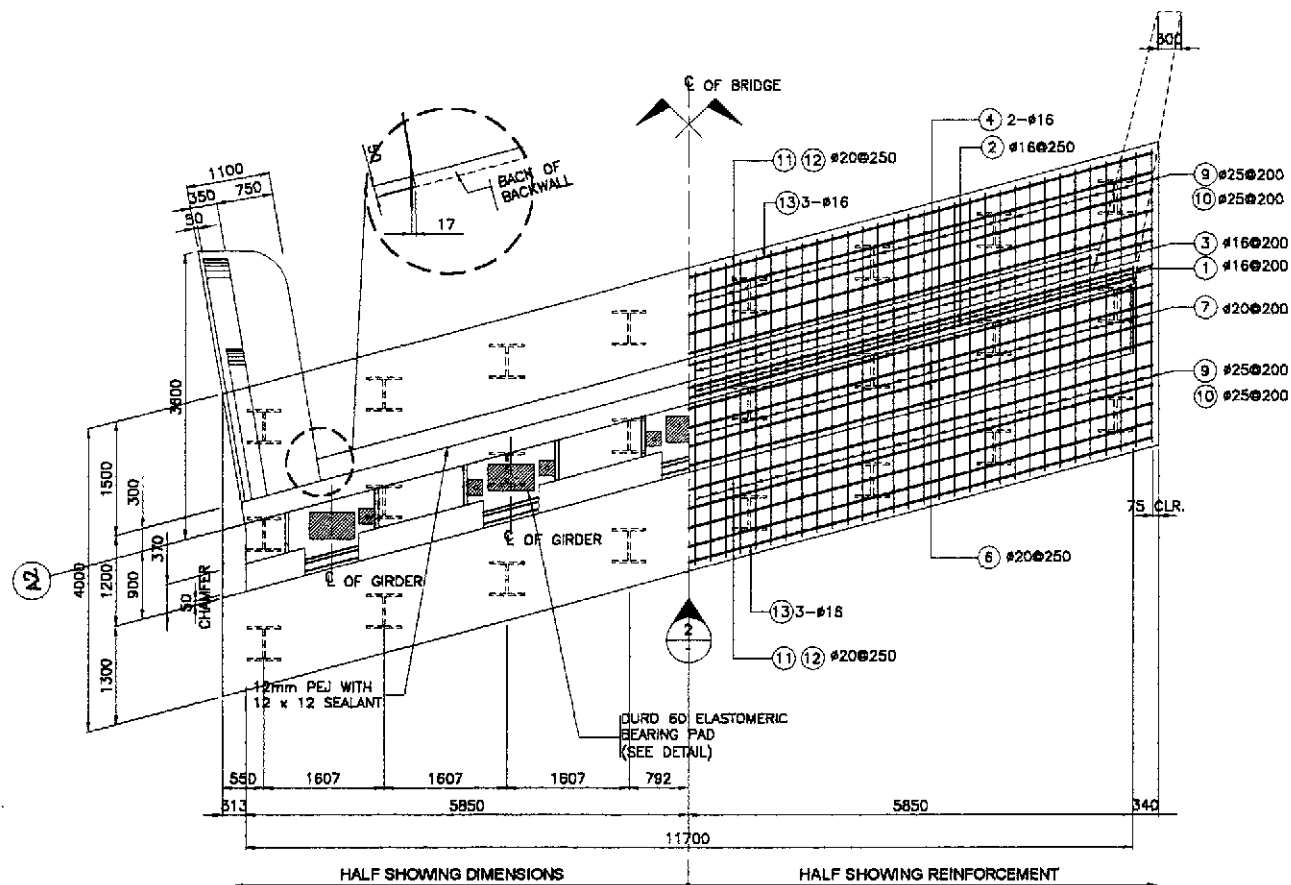
REPUBLIC OF THE PHILIPPINES  
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
 BUREAU OF DESIGN  
 OFFICE OF THE SECRETARY

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

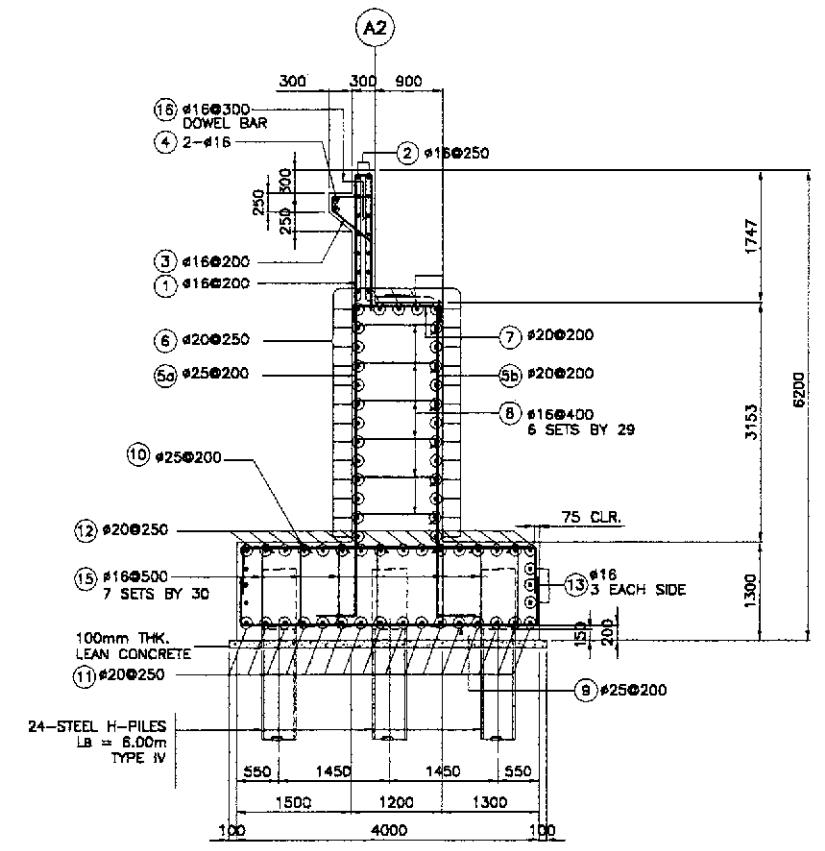
SCALE: AS SHOWN  
 FULL SIZE A1

SHEET CONTENTS: BRIDGE NO. 12 ABUTMENT A1 WINGWALL REINFORCEMENT DETAILS (ULTIMATE STAGE)

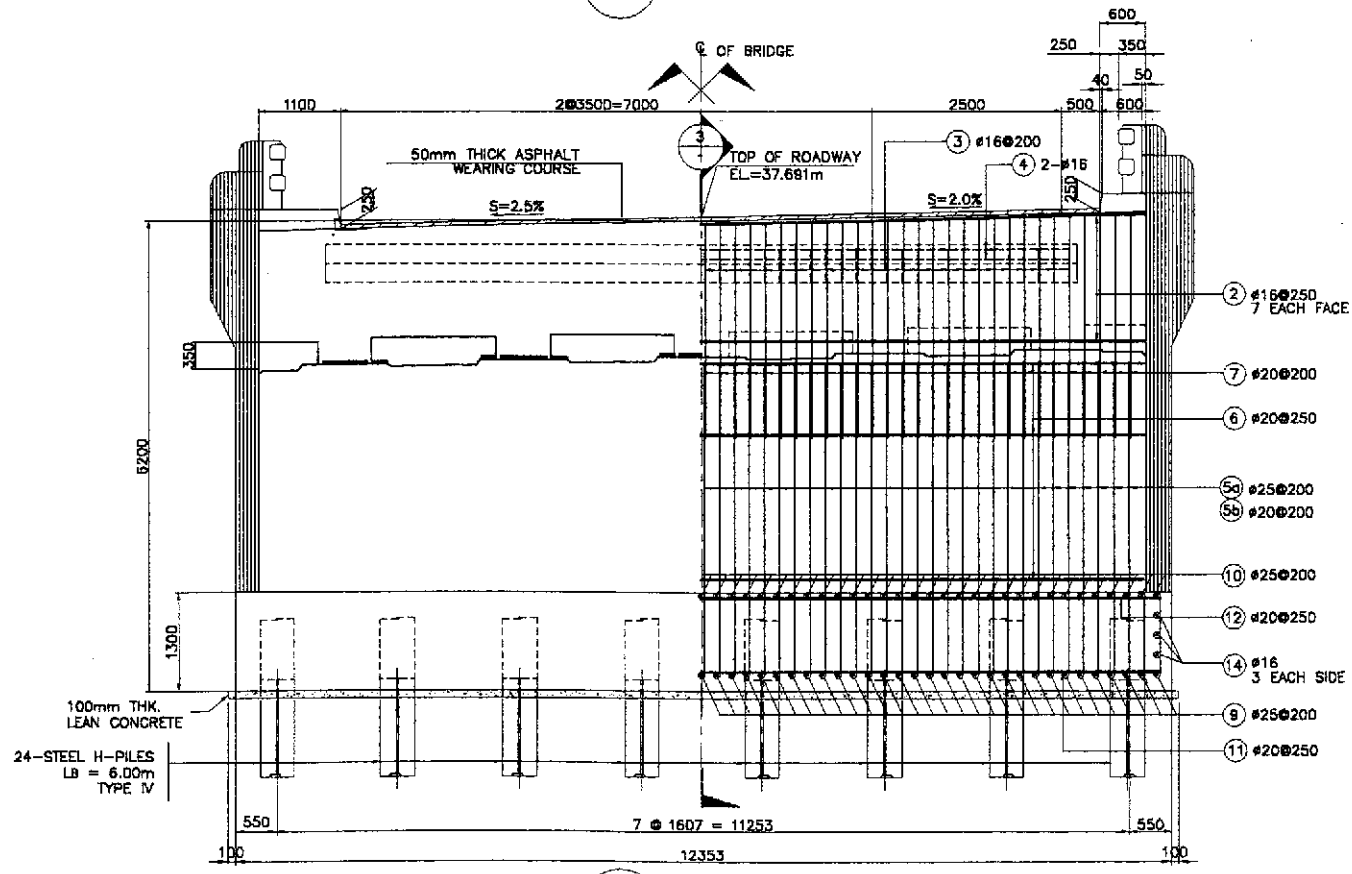
SHEET NO.: B12-08



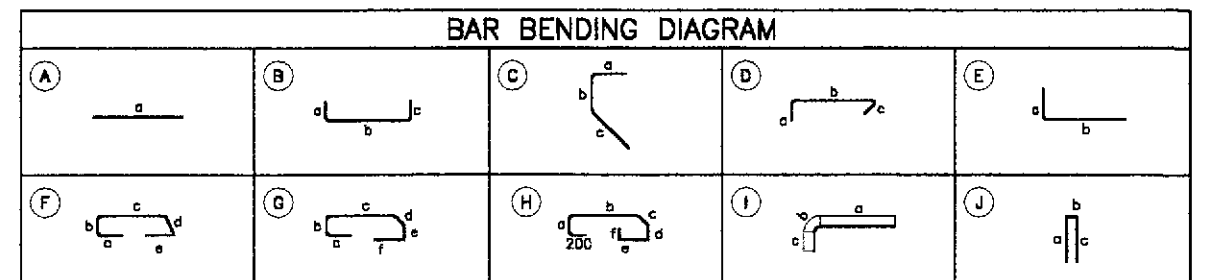
1 PLAN  
SCALE 1:50



3 SECTION  
SCALE 1:50

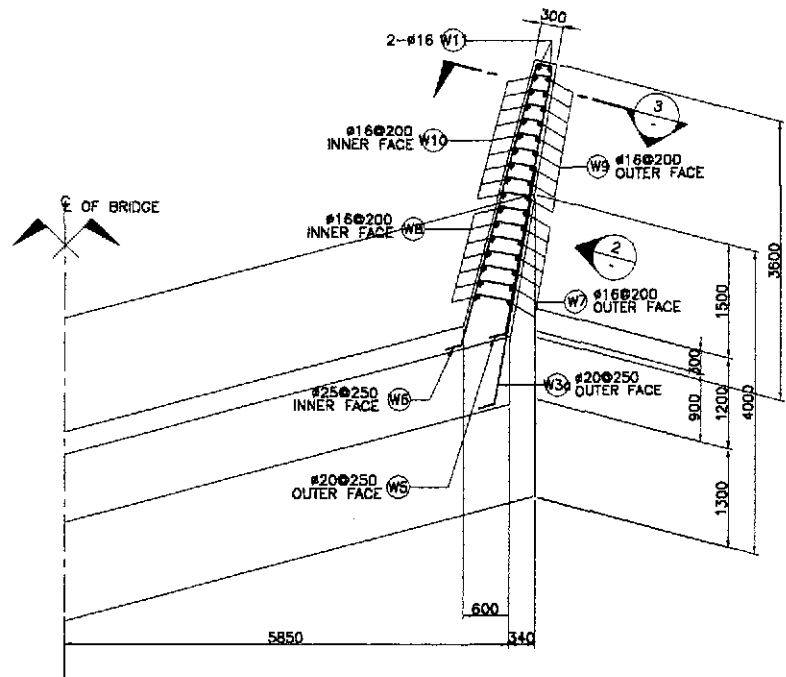


2 ELEVATION  
SCALE 1:50

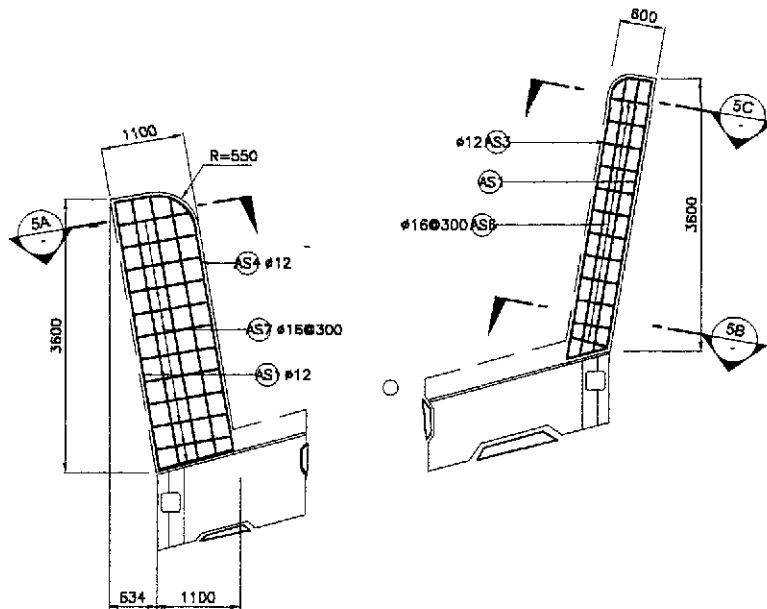


SCHEDULE OF REINFORCEMENT PER ABUTMENT																	
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT						LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )
							a	b	c	d	e	f					
BACKWALL	7.26	1	16	59	200	(B)	2000	200	2000	-	-	-	4200	247.80	1.579	392	117.13
		2	16	16	250	(A)	12000	-	-	-	-	-	12000	192.00	1.579	304	
		3	16	51	200	(C)	600	150	750	-	-	-	1450	73.95	1.579	117	
		4	16	2	AS SHOWN	(A)	10250	-	-	-	-	-	10250	20.50	1.579	33	
MAINWALL	44.27	5a	25	59	200	(E)	400	4200	-	-	-	-	4600	271.40	3.854	1046	73.37
		5b	20	59	200	(E)	400	4200	-	-	-	-	4600	271.40	2.466	670	
		6	20	29	250	(A)	12000	-	-	-	-	-	12000	348.00	2.466	859	
		7	20	59	200	(B)	250	1100	250	-	-	-	1600	94.40	2.466	233	
		8	16	174	400	(D)	250	1100	250	-	-	-	1600	278.40	1.579	440	
		9	16	62	200	(B)	700	3850	700	-	-	-	5250	325.50	3.854	1255	
FOOTING	64.24	10	25	62	200	(B)	700	3850	700	-	-	-	5250	325.50	3.854	1255	67.33
		11	20	16	250	(B)	700	12650	700	-	-	-	14050	224.80	2.466	555	
		12	20	16	250	(B)	700	12650	700	-	-	-	14050	224.80	2.466	555	
		13	16	6	AS SHOWN	(A)	12650	-	-	-	-	-	12650	75.90	1.579	120	
		14	16	6	AS SHOWN	(A)	3850	-	-	-	-	-	3850	23.10	1.579	37	
DOWEL		15	16	210	400	(D)	250	1150	250	-	-	-	1650	346.50	1.579	548	
TOTAL	115.76																GRADE 40 TOTAL = 2,057 kgs. GRADE 60 TOTAL = 6,428 kgs.

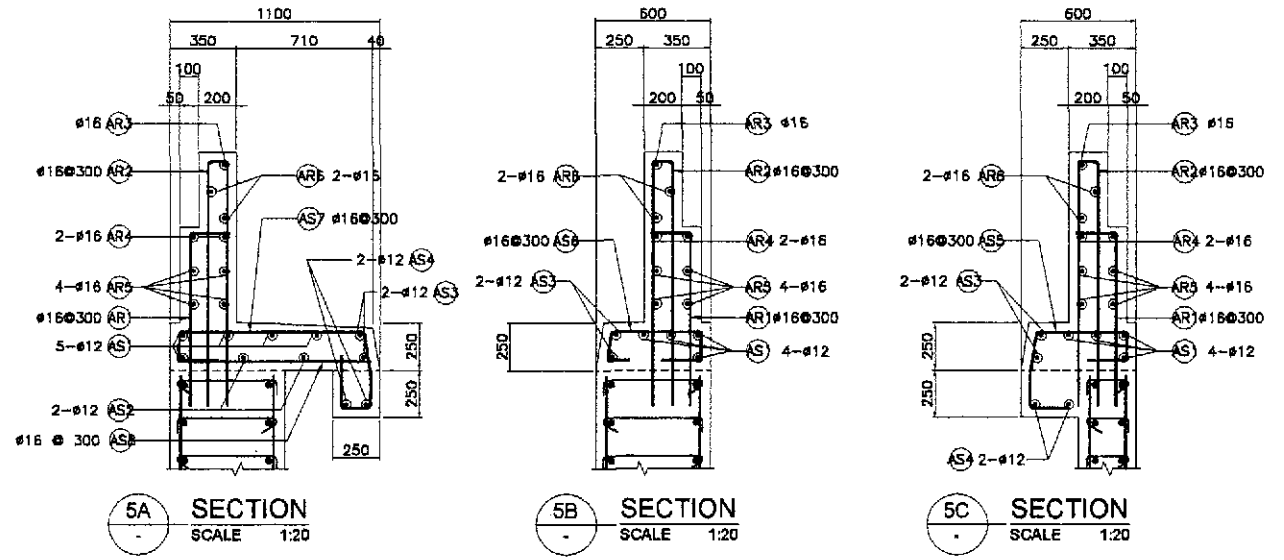
	DESIGNED	10/17/02	A. P. GONZALES		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	M. K. MASHI		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:50	BRIDGE NO. 12 ABUTMENT A2 MAINWALL REINFORCEMENT DETAILS (ULTIMATE STAGE)	B12-09
	SUBMITTED	10/21/02	M. K. MASHI		Submitted By:	Reviewed By:	Recommended By:	Approved By:	CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		
			DANILLO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (D/C)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary					



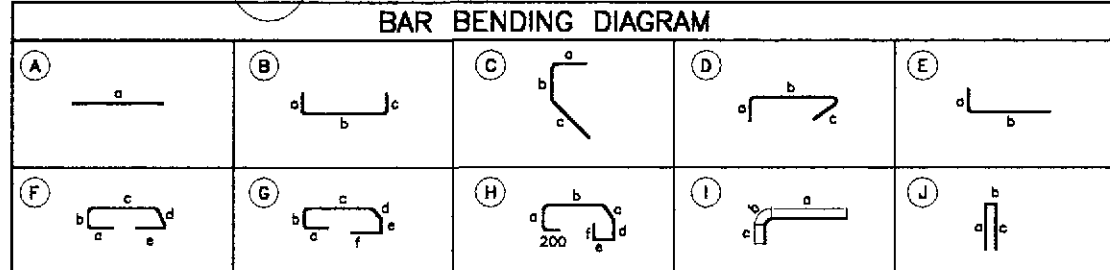
1 PLAN SCALE 1:50



4 SIDEWALK DETAIL SCALE 1:50

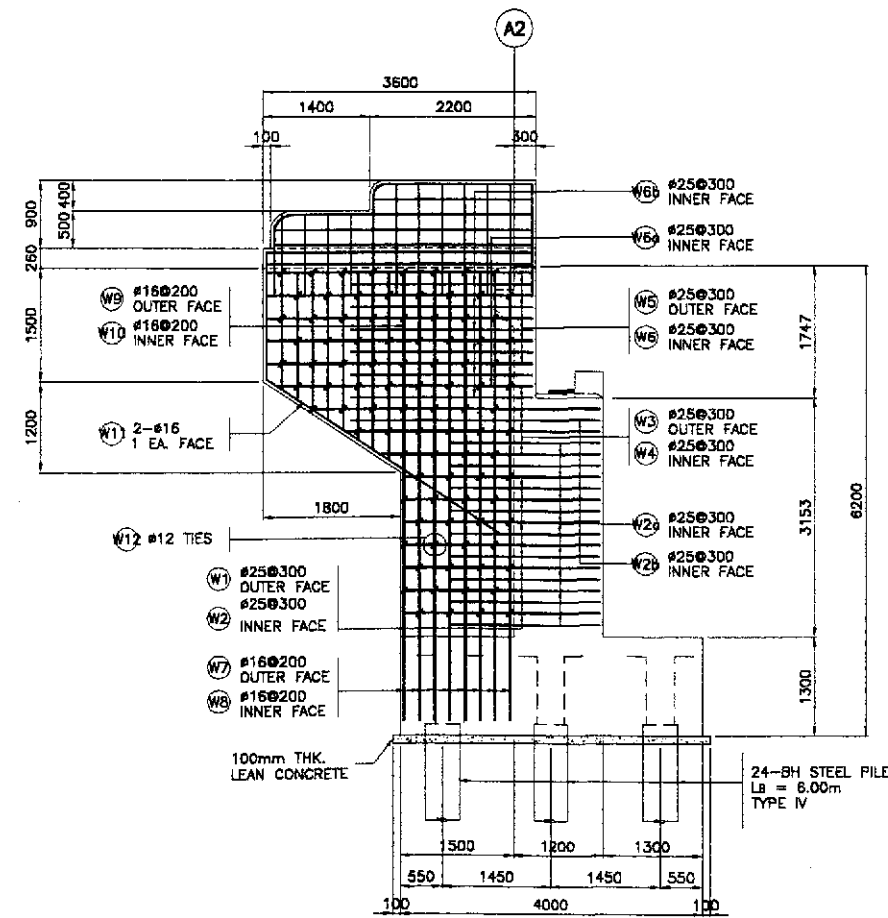


5 APPROACH RAIL DETAILS SCALE 1:20

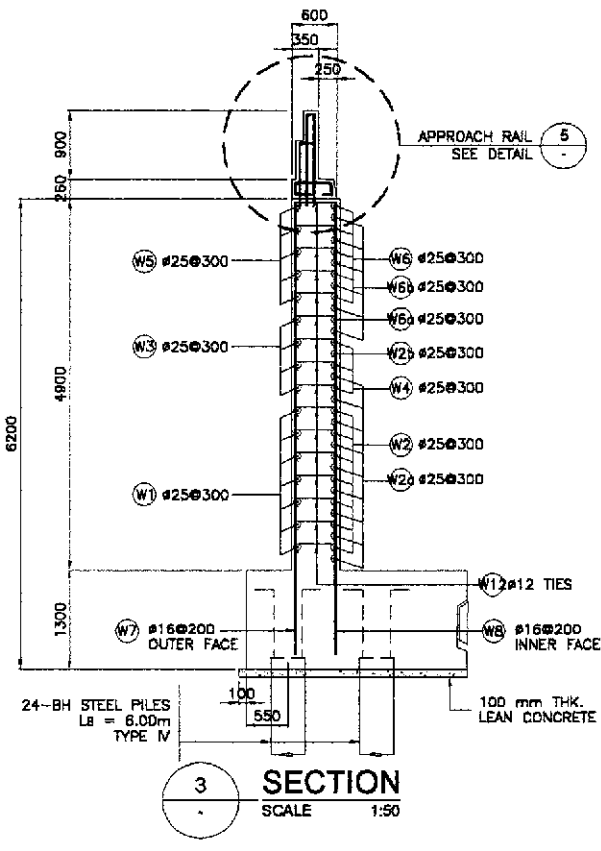


SCHEDULE OF REINFORCEMENT PER ABUTMENT

LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )		
							a	b	c	d							
WINGWALL	10.02	W1	25	14	300	B	400	2600	150	-	-	3150	44.10	3.854	170	180.29	
		W2	25	14	300	B	400	2600	150	-	-	3150	44.10	3.854	170		
		W2a	25	18	300	E	400	2200	-	-	-	2600	46.80	3.854	181		
		W2b	25	2	300	E	400	3250	-	-	-	3650	7.30	3.854	28		
		W3	25	6	300	B	400	3400	150	-	-	3950	23.70	3.584	92		
		W4	25	6	300	B	400	3400	150	-	-	3950	23.70	3.854	92		
		W5	25	10	300	B	400	3500	150	-	-	4050	40.50	3.584	157		
		W6	25	10	300	B	400	3500	150	-	-	4050	40.50	3.854	157		
		W6a	25	2	300	B	400	3400	150	-	-	3950	7.90	3.854	31		
		W6b	25	12	300	E	400	2400	-	-	-	2800	33.80	3.854	130		
		W7	16	16	200	E	250	5950	-	-	-	6200	99.20	1.579	157		
		W8	16	16	200	E	250	5950	-	-	-	6200	99.20	1.579	157		
W9	16	16	200	E	250	2050	-	-	-	2300	36.80	1.579	59				
W10	16	16	200	E	250	2050	-	-	-	2300	36.80	4.579	59				
W11	16	4	AS SHOWN	C	250	1500	3500	-	-	-	5250	21.00	1.579	34			
W12	12	186	AS SHOWN	D	170	450	170	-	-	-	790	146.94	0.886	131			
											GRADE 60 TOTAL = 1,209 kgs.		GRADE 40 TOTAL = 597 kgs.				
APPROACH RAILING AND SIDEWALK	3.53	AS	12	9	AS SHOWN	A	3500	-	-	-	-	3500	31.50	0.886	28	98.34	
		AS2	12	2	AS SHOWN	A	3500	-	-	-	-	3500	7.00	0.886	7		
		AS3	12	4	AS SHOWN	A	3500	-	-	-	-	3500	14.00	0.886	13		
		AS4	12	4	AS SHOWN	A	3500	-	-	-	-	3500	14.00	0.886	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	200	200	2120	26.68	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	13.55												GRADE 60 TOTAL = 1,209 kgs.		GRADE 40 TOTAL = 944 kgs.		



2 WINGWALL ELEVATION SCALE 1:50



3 SECTION SCALE 1:50

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

DESIGNED: 10/17/02  
CHECKED: 10/19/02  
SUBMITTED: 10/21/02

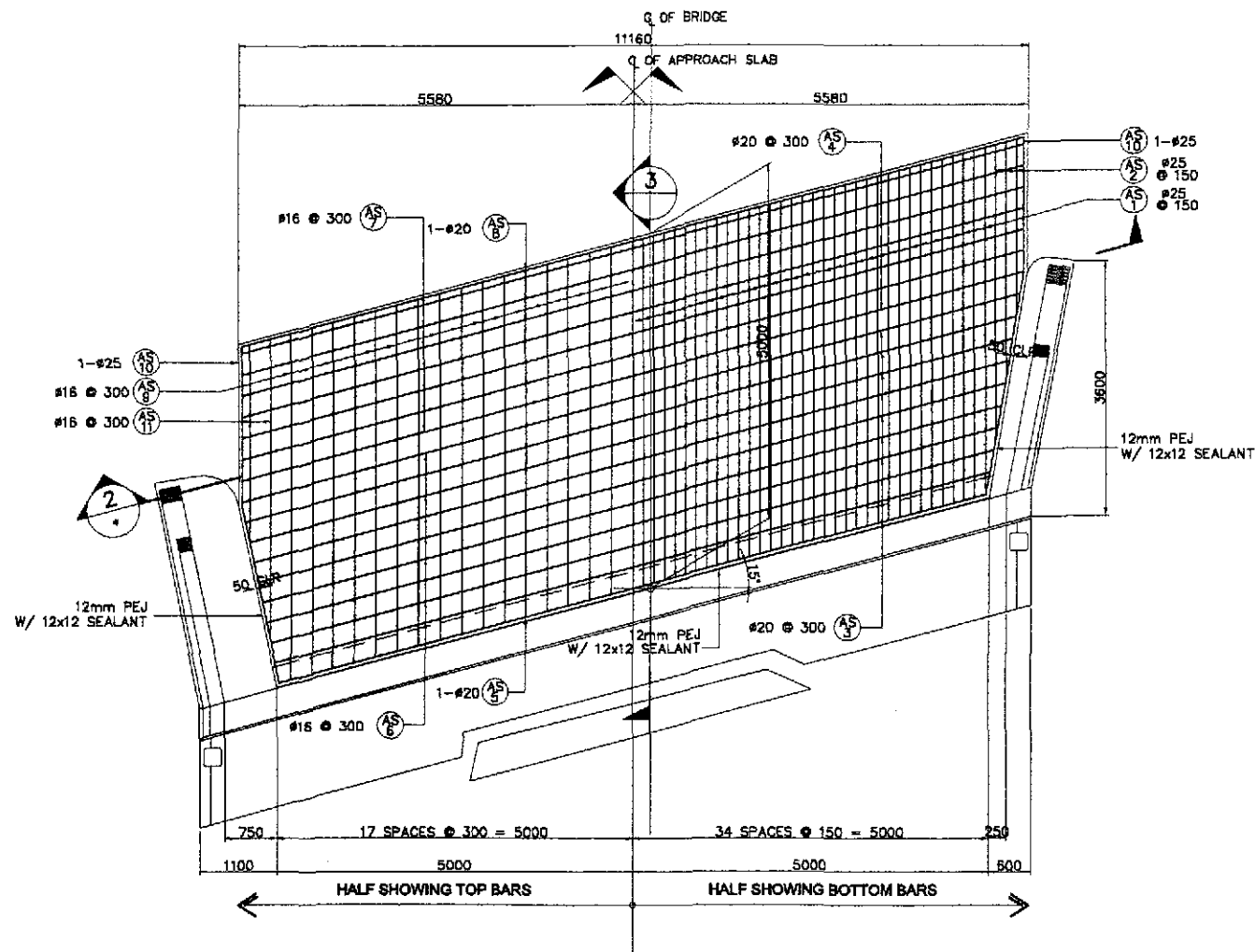
REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
BUREAU OF DESIGN  
OFFICE OF THE SECRETARY

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

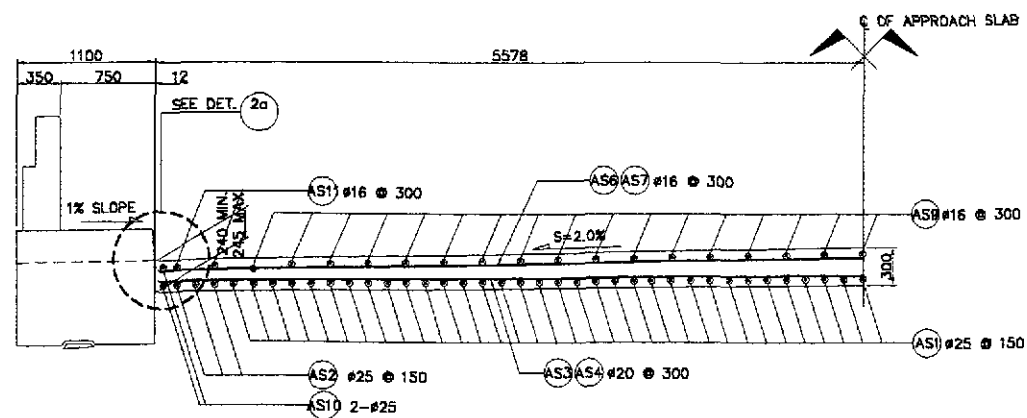
SCALE:  
AS SHOWN  
FULL SIZE A1

SHEET CONTENTS:  
BRIDGE NO. 12  
ABUTMENT A2  
WINGWALL REINFORCEMENT DETAILS  
(ULTIMATE STAGE)

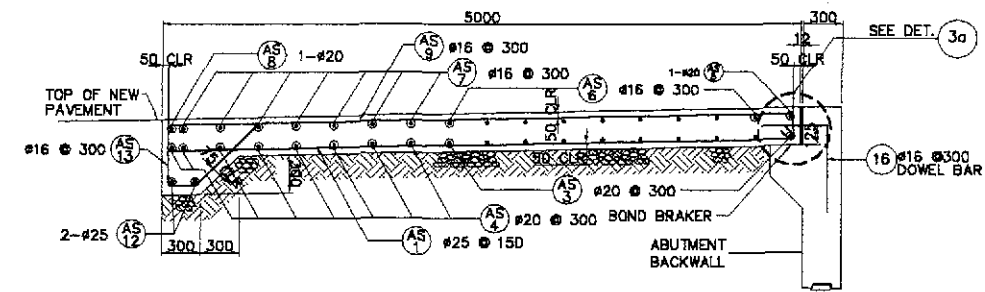
SHEET NO.:  
B12-10



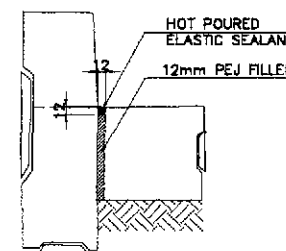
1 PLAN  
SCALE 1:50



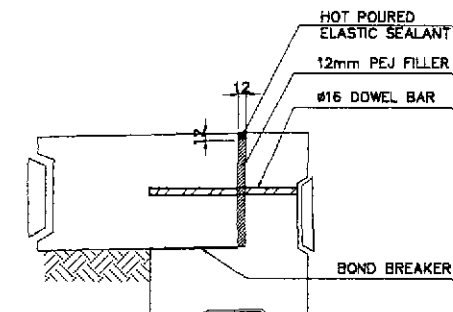
2 SECTION  
SCALE 1:30



3 SECTION  
SCALE 1:30



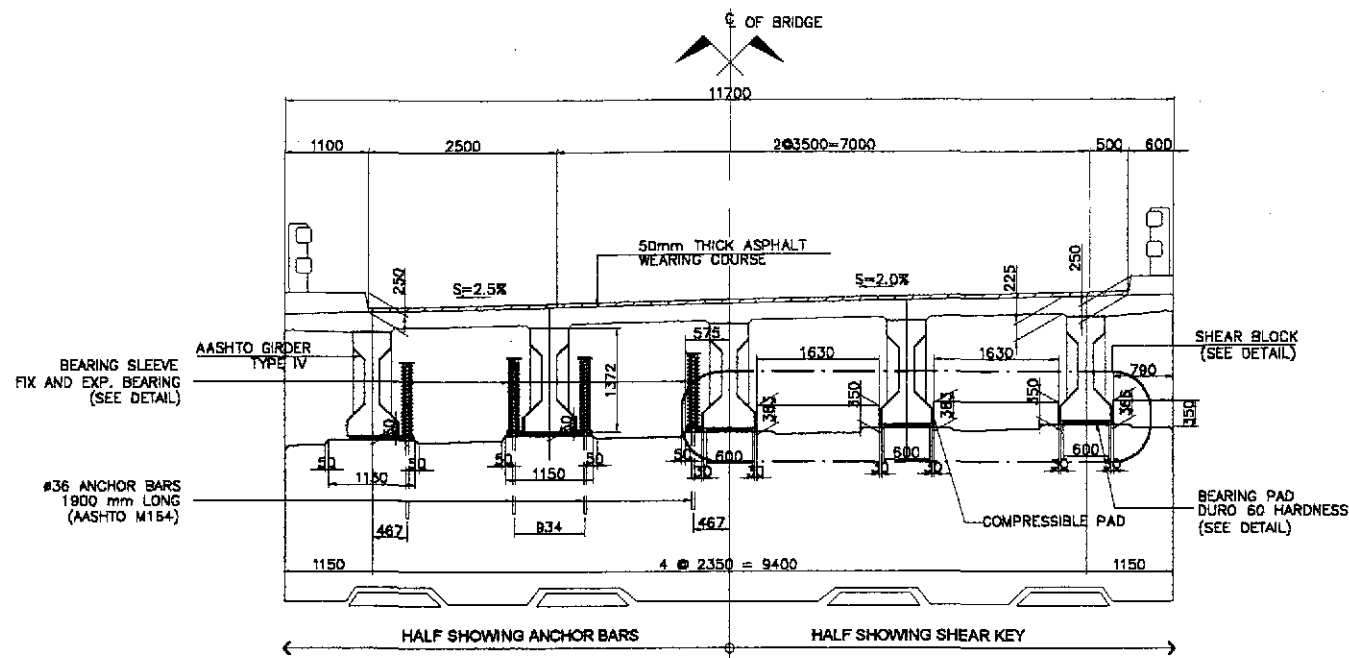
2a DETAIL  
SCALE 1:10



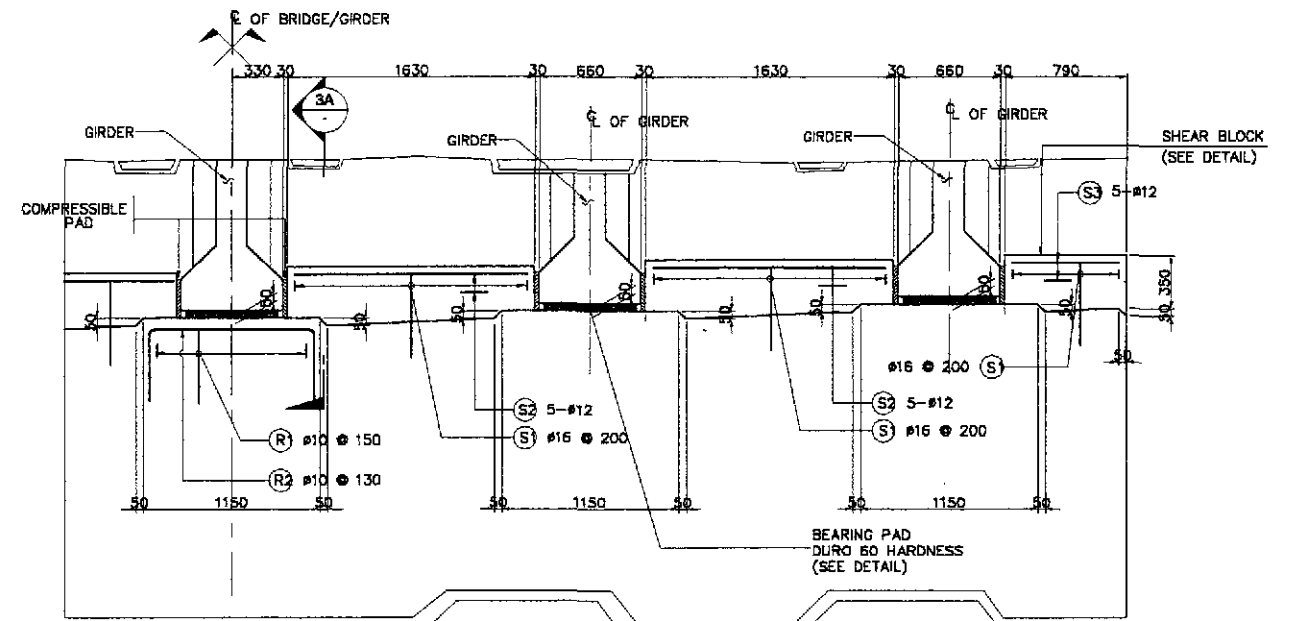
3a DETAIL  
SCALE 1:10

BAR BENDING DIAGRAM																
		A		B		C		D								
		a		a		b		b		a, b, c, d						
SCHEDULE OF REINFORCEMENT PER APPROACH SLAB																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)	
							a	b	c	d						
APPROACH SLAB	17.72	AS1	25	68	150	(B)	4900	200	-	-	-	5100	346.80	3.854	1337	161.92
		AS2	25	8	150	(B)	3650	200	-	-	-	3850	23.10	3.854	80	
		AS3	20	10	300	(A)	11250	-	-	-	-	11250	12.50	2.466	278	
		AS4	20	8	300	(A)	11950	-	-	-	-	11950	95.60	2.466	236	
		AS5	20	1	AS SHOWN	(A)	10700	-	-	-	-	10700	10.70	2.466	27	
		AS6	16	9	300	(A)	11300	-	-	-	-	11300	101.70	1.579	161	
		AS7	16	7	300	(A)	11950	-	-	-	-	11950	83.65	1.579	133	
		AS8	20	1	AS SHOWN	(A)	11950	-	-	-	-	11950	11.95	2.466	30	
		AS9	16	34	300	(B)	4900	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)	3300	200	-	-	-	3500	14.00	1.579	23	
		AS12	25	2	AS SHOWN	(A)	11850	-	-	-	-	11850	23.90	3.854	93	
		AS13	16	38	300	(D)	400	500	200	700	-	1800	68.40	1.579	109	
TOTAL	17.72											GRADE 40 TOTAL = 700 kgs.		GRADE 60 TOTAL = 2,170 kgs.		

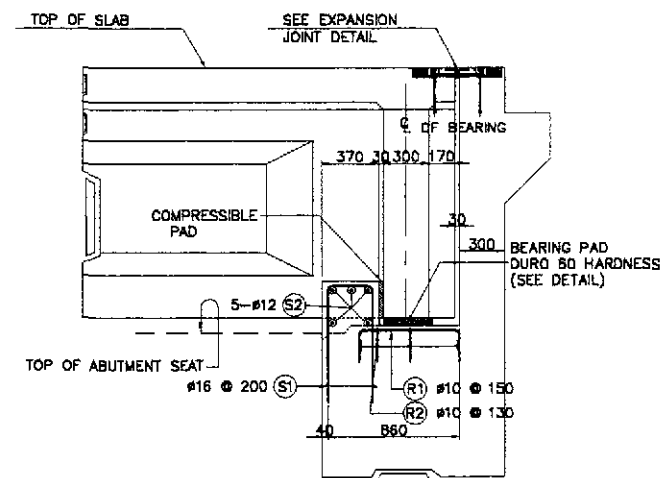
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	<i>[Signature]</i>		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 12 APPROACH SLAB PLAN, SECTIONS & DETAIL (ULTIMATE STAGE)	B12-11
	SUBMITTED	10/21/02	<i>[Signature]</i>		OFFICE OF THE SECRETARY				FULL SIZE A1			
					Submitted By:	Reviewed By:	Recommended By:	Approved By:				
			DANILO C. TRAJANO Project Director	ADRIANO M. DORAY Chief, Bridges Division	GILBERTO S. REYES Director IV (DIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary					



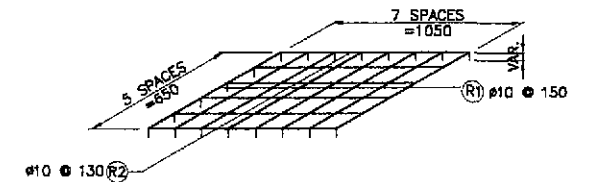
1 SECTION AT ABUTMENT SEAT  
SCALE 1:50



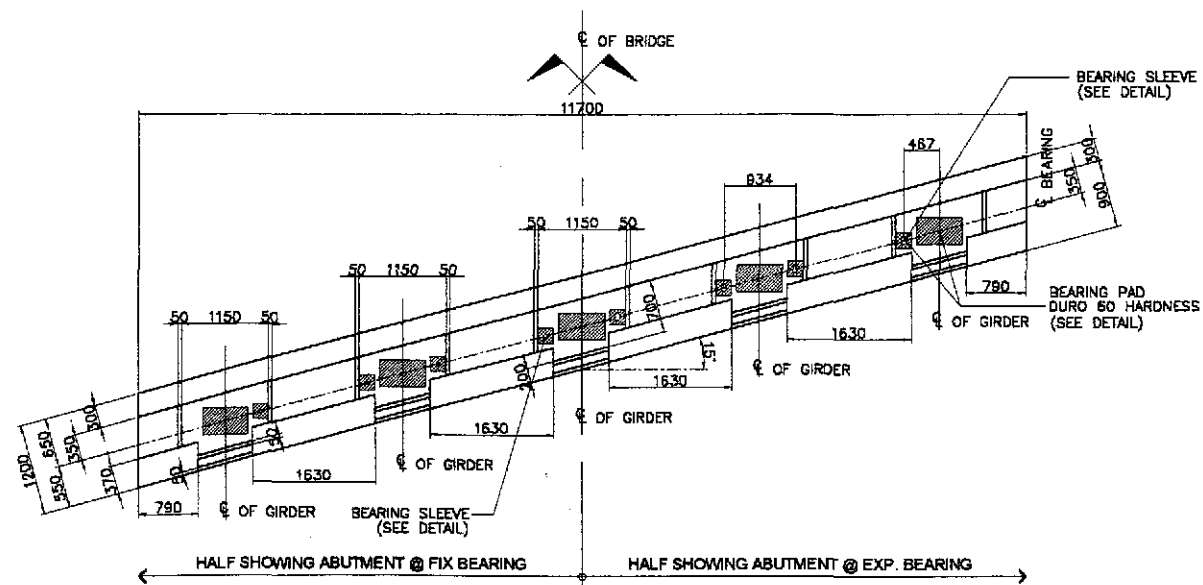
3 SHEAR BLOCK DETAIL  
SCALE 1:25



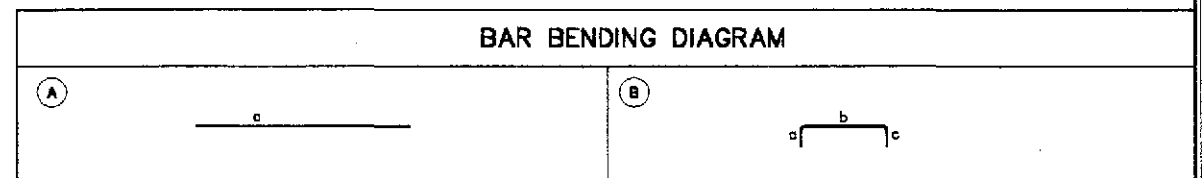
3A SECTION  
SCALE 1:25



4 RISER REINFORCEMENT  
SCALE NOT TO SCALE



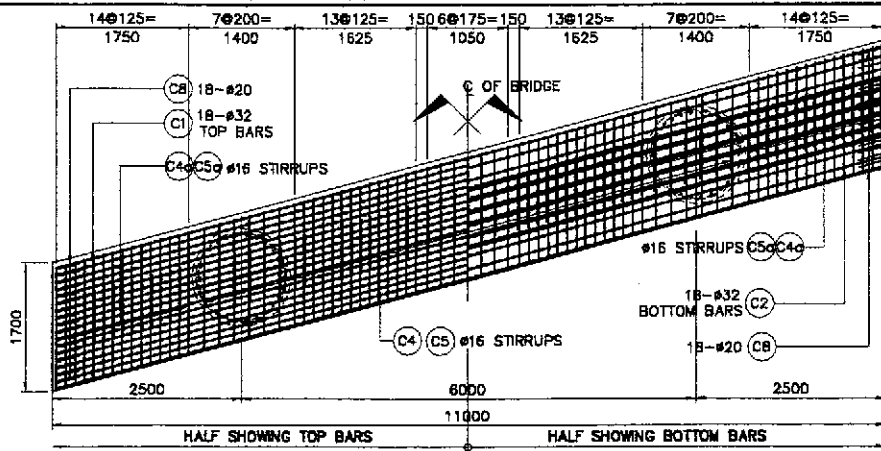
2 PLAN AT ABUTMENT SEAT  
SCALE 1:50



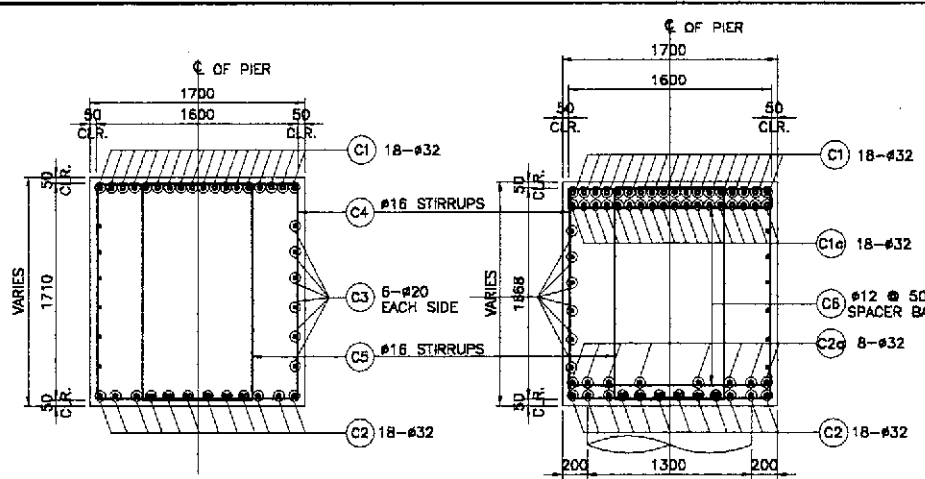
SCHEDULE OF REINFORCEMENT															
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION(mm) OUT TO OUT				LENGTH EACH BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )
							a	b	c	d					
SHEAR KEY & RISER	1.55	S1	16	46	200	(B)	560	290	560		1410	64.86	1.579	103	148.63
		S2	12	20	AS SHOWN	(A)	1610				1610	32.20	0.888	29	
		S3	12	10	AS SHOWN	(A)	735				735	7.35	0.888	7	
		R1	10	40	150	(B)	500	670	500		1670	66.80	0.616	42	
		R2	10	30	130	(B)	500	1080	500		2080	62.70	0.616	39	
TOTAL	1.55														GRADE 40 TOTAL = 220 kg.

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

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/17/02	<i>E. M. SALLAN</i>		BUREAU OF DESIGN					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. 12 SHEAR KEY AND RISER DETAILS AT ABUTMENT (ULTIMATE STAGE)	B12-12
	SUBMITTED	10/21/02	<i>M. K. P. J.</i>		OFFICE OF THE SECRETARY					CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		
					Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:				
			DANILO C. TRAJANO Project Director	ADRIANO M. DORDOY Chief, Bridges Division	GILBERTO S. REYES Director IV (D/C)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary						

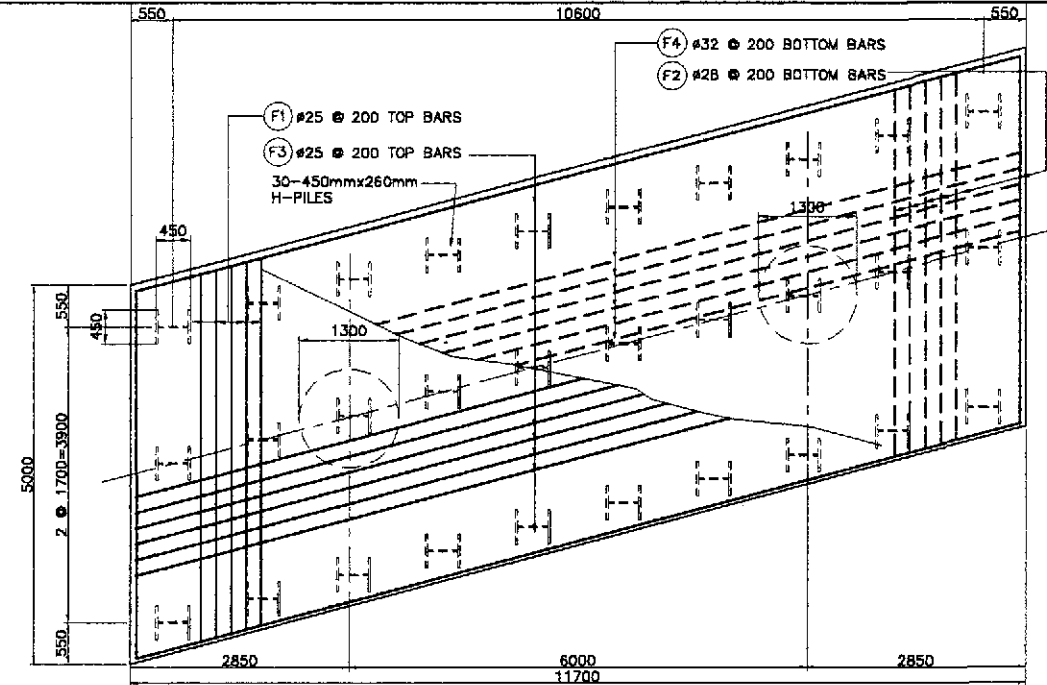


1 COPING PLAN  
SCALE 1:50

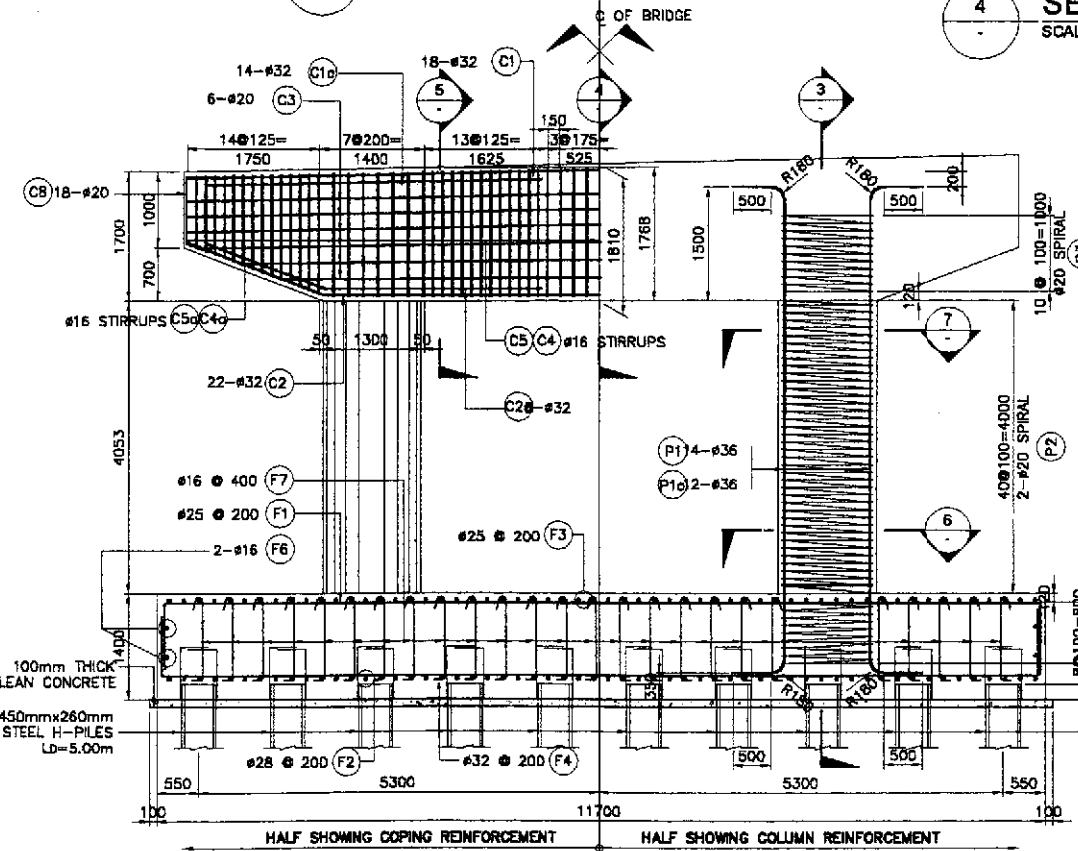


4 SECTION  
SCALE 1:30

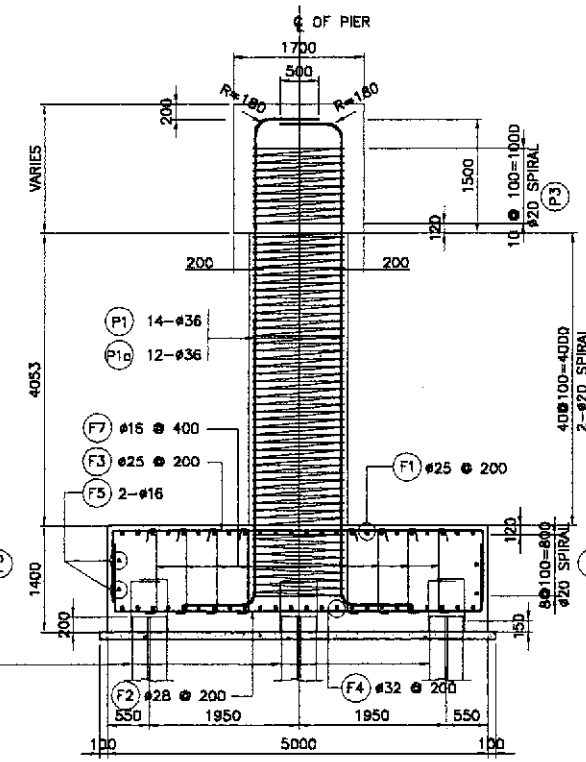
5 SECTION  
SCALE 1:30



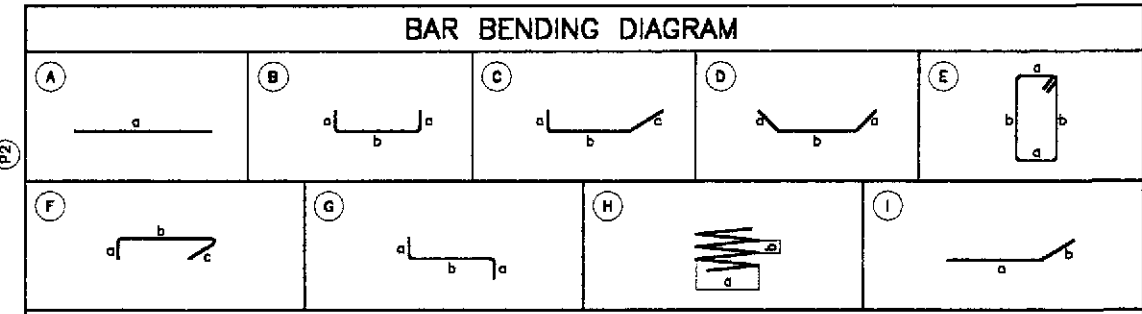
9 FOOTING PLAN  
SCALE 1:50



2 ELEVATION  
SCALE 1:50

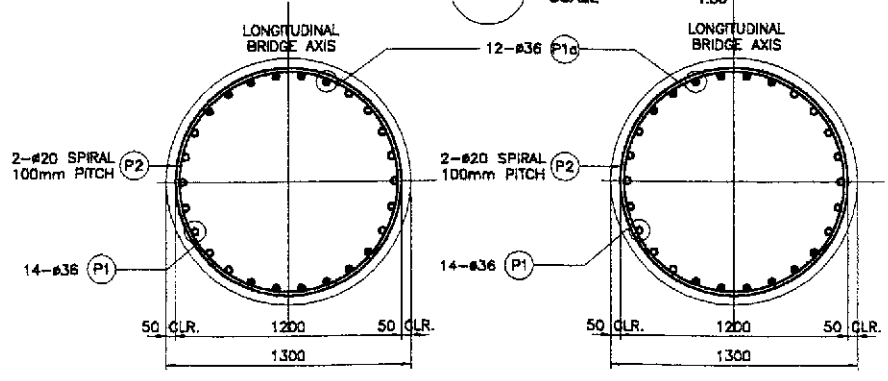


3 SECTION  
SCALE 1:50



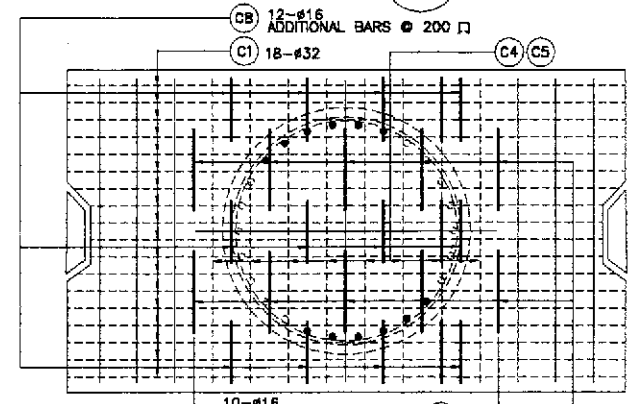
SCHEDULE OF REINFORCEMENT FOR ONE PIER

LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	TOTAL WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )	
							a	b	c	d						
COPING	31.30	C1	32	18	AS SHOWN	(A)	11300	-	-	-	11300	203.40	6.313	1285	203.36	
		C1a	32	36	AS SHOWN	(A)	4650	-	-	-	4650	167.40	6.313	1057		
		C2	32	18	AS SHOWN	(D)	2075	7550	-	-	11700	201.60	6.313	1330		
		C2a	32	16	AS SHOWN	(D)	1875	3325	-	-	5200	83.20	6.313	526		
		C3	20	6	AS SHOWN	(A)	11300	-	-	-	11300	67.80	2.466	168		
		C3a	20	6	AS SHOWN	(A)	9850	-	-	-	9850	58.10	2.466	146		
		C4	16	49	125	AS SHOWN	(E)	1600	1725	150	-	6950	340.55	1.579		538
		C4a	16	28	125	AS SHOWN	(E)	1600	1425	150	-	6350	177.80	1.579		281
		C5	16	49	125	AS SHOWN	(E)	900	1725	150	-	5550	271.95	1.579		430
		C5a	16	28	125	AS SHOWN	(E)	900	1425	150	-	4950	138.60	1.579		219
		C6	12	40	500	AS SHOWN	(B)	150	1600	-	-	1900	76.00	0.888		68
		C7	20	36	AS SHOWN	(C)	350	900	350	-	1600	57.60	2.466	143		
		C8a	16	24	400	AS SHOWN	(B)	330	1700	-	-	2360	56.64	1.579		90
		C8b	16	20	400	AS SHOWN	(B)	430	1700	-	-	2560	51.20	1.579		81
COLUMN	10.76	P1	36	28	AS SHOWN	(B)	600	6650	-	-	7850	219.80	7.991	1757	472.71	
		P1a	36	24	AS SHOWN	(G)	600	6650	-	-	7850	188.40	7.991	1506		
		P2	20	160	100	AS SHOWN	(H)	1200	100	-	-	3770	603.19	2.466		1488
		P3	20	36	100	AS SHOWN	(H)	1200	100	-	-	3770	135.72	2.466		335
FOOTING	81.90	F1	25	59	200	AS SHOWN	(B)	925	4850	925	-	6700	395.30	3.854	1524	98.39
		F2	28	59	200	AS SHOWN	(B)	925	4850	925	-	6700	395.30	4.833	1911	
		F3	25	25	200	AS SHOWN	(B)	925	11950	925	-	13800	345.00	3.854	1330	
		F4	32	25	200	AS SHOWN	(B)	925	11950	925	-	13800	345.00	6.313	2178	
		F5	16	2	AS SHOWN	(A)	11950	-	-	-	11950	23.90	1.579	38		
		F6	16	2	AS SHOWN	(A)	4850	-	-	-	4850	9.70	1.579	16		
		F7	16	390	400	AS SHOWN	(F)	200	1250	150	-	1600	824.00	1.579	986	
TOTAL	123.98														GRADE 40 TOTAL = 2,747 kgs. GRADE 60 TOTAL = 16,684 kgs.	



6 SECTION  
SCALE 1:20

7 SECTION  
SCALE 1:20



8 DETAIL OF ADDITIONAL REINFORCEMENT @ PIER  
SCALE 1:20

**JICA** JAPAN INTERNATIONAL COOPERATION AGENCY

**KATAHIRA & ENGINEERS** **YEO** YACHIO ENGINEERING CO., LTD.

DESIGNED: 10/17/02 A. P. GONZALES  
CHECKED: 10/19/02 M. KOBAYASHI  
SUBMITTED: 10/21/02 M. KOBAYASHI

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

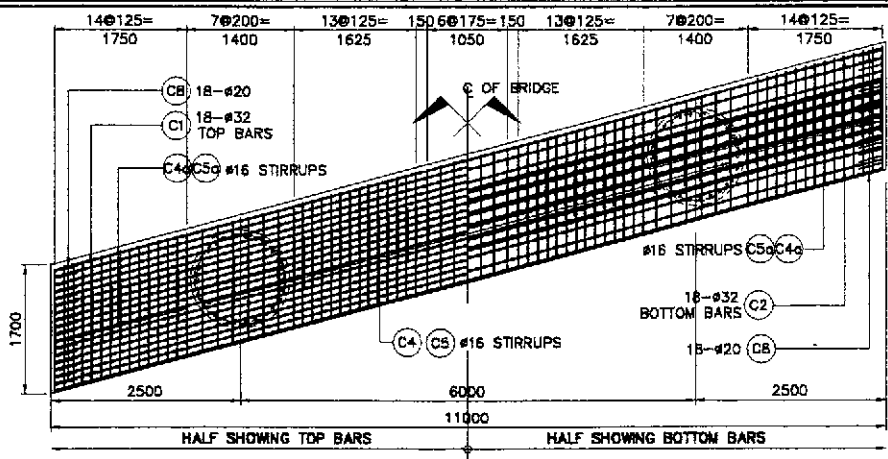
SCALE: AS SHOWN  
FULL SIZE A1

SHEET CONTENTS: BRIDGE NO. 12 PIER P1 BAR ARRANGEMENT (ULTIMATE STAGE)

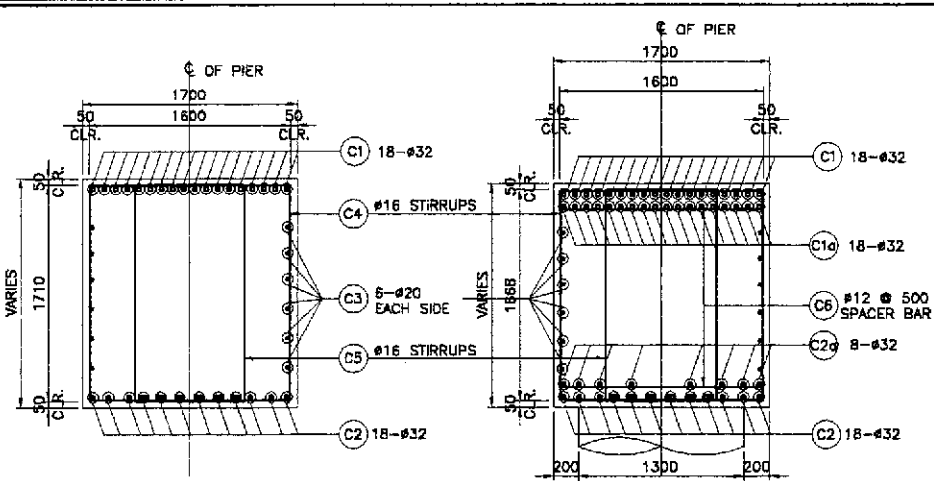
SHEET NO.: B12-13

APPROVED BY: DANILLO C. TRAJAND (Project Director), ADRIANO M. DOROS (Chief, Bridges Division), GILBERTO S. REYES (Director IV (DC)), MANUEL M. BONONAN (Undersecretary), SIMEON A. DATUMANONG (Secretary)



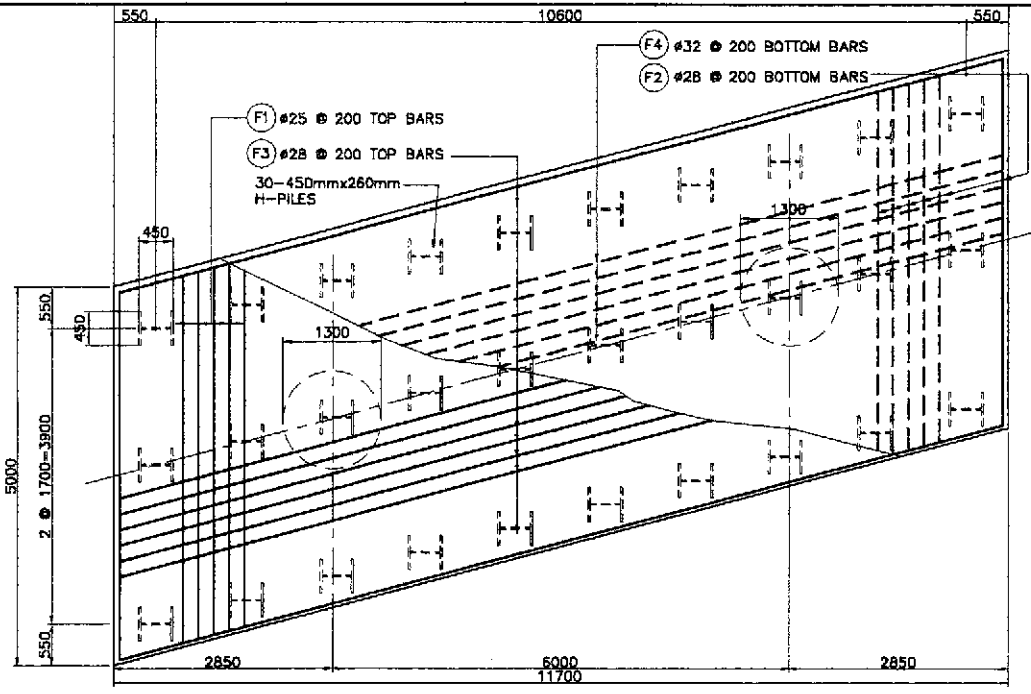


1 COPING PLAN  
SCALE 1:50

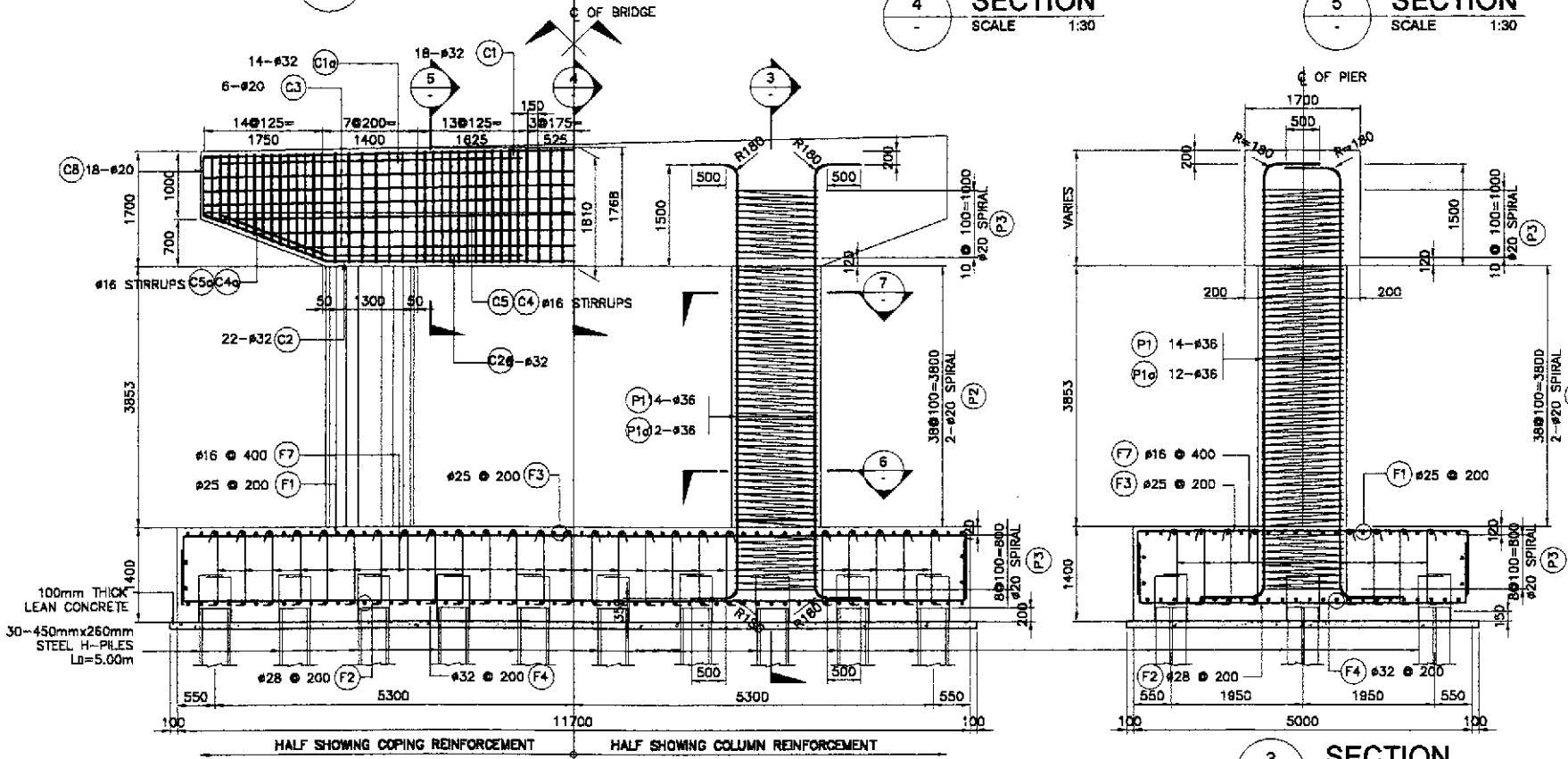


4 SECTION  
SCALE 1:30

5 SECTION  
SCALE 1:30

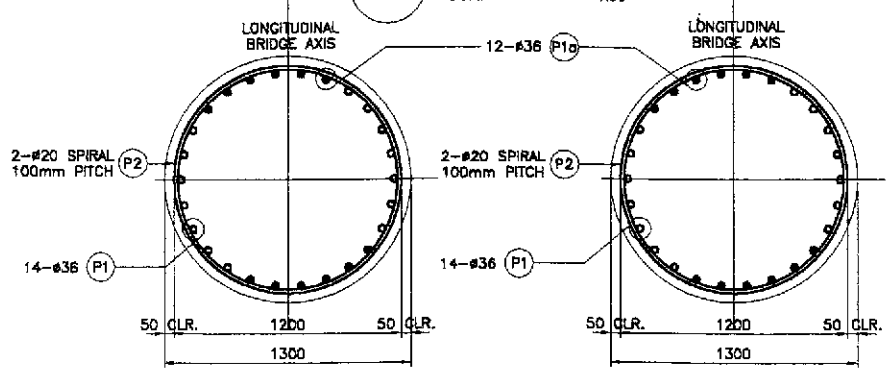


9 FOOTING PLAN  
SCALE 1:50



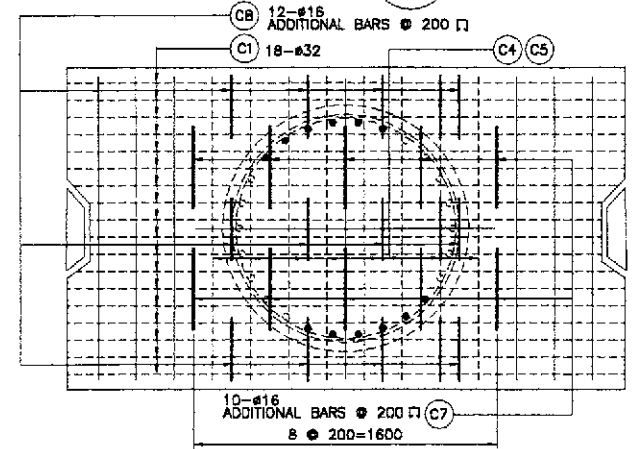
2 ELEVATION  
SCALE 1:50

3 SECTION  
SCALE 1:50

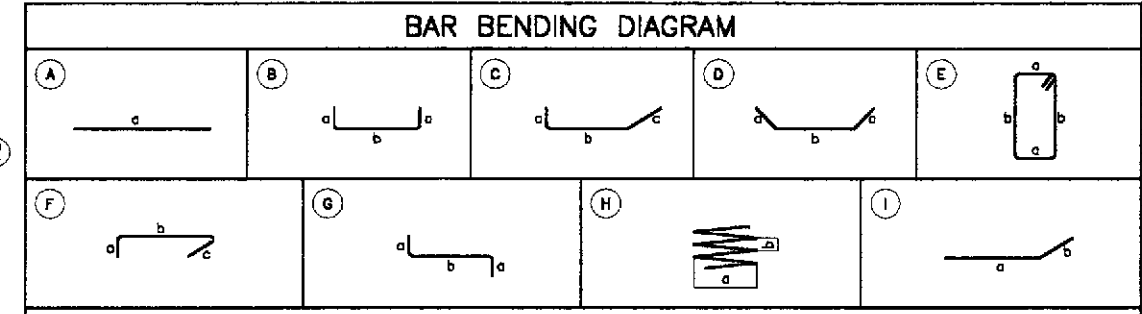


6 SECTION  
SCALE 1:20

7 SECTION  
SCALE 1:20

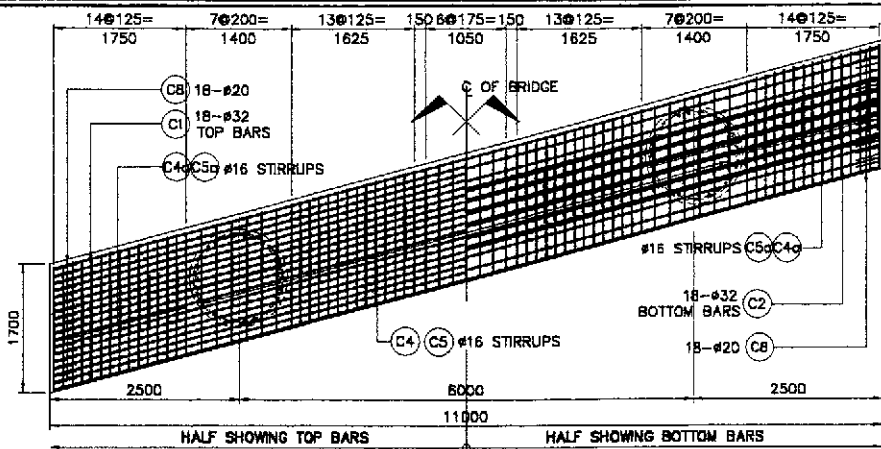


8 DETAIL OF ADDITIONAL REINFORCEMENT @ PIER  
SCALE 1:20

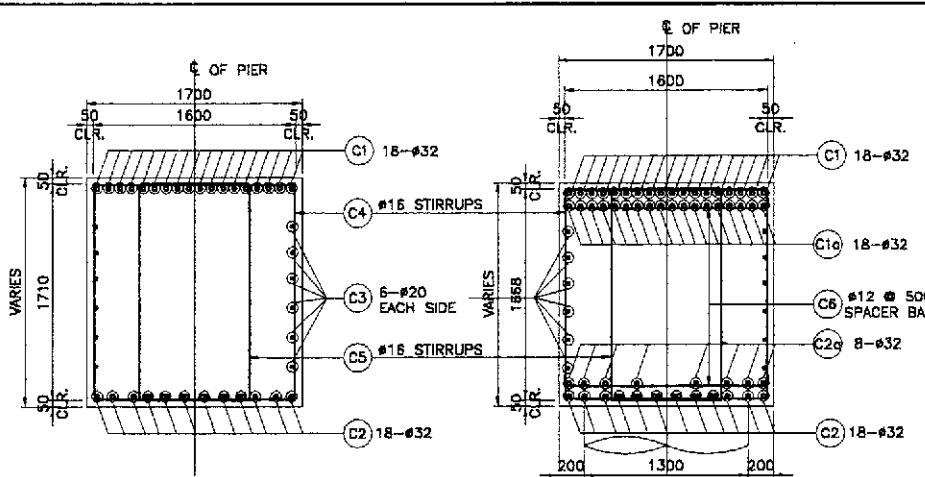


SCHEDULE OF REINFORCEMENT FOR ONE PIER															
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT (kg/m)	TOTAL WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )
							a	b	c	d					
COPING	31.30	C1	32	18	AS SHOWN	(A)	11300	-	-	-	11300	203.40	6.313	1285	203.26
		C1a	32	36	AS SHOWN	(A)	4650	-	-	-	4650	167.40	6.313	1057	
		C2	32	18	AS SHOWN	(D)	2075	7550	-	-	11700	201.50	6.313	1330	
		C2a	32	16	AS SHOWN	(I)	1875	3325	-	-	5200	83.20	6.313	526	
		C3	20	6	AS SHOWN	(A)	11300	-	-	-	11300	67.80	2.466	168	
		C3a	20	6	AS SHOWN	(A)	9850	-	-	-	9850	59.10	2.466	146	
		C4	16	49	125	(E)	1600	1725	150	-	6950	340.55	1.579	538	
		C4a	16	28	125	(E)	1600	1425	150	-	6350	177.80	1.579	281	
		C5	16	49	125	(E)	900	1725	150	-	5550	271.95	1.579	430	
		C5a	16	28	125	(E)	900	1425	150	-	4950	138.60	1.579	219	
COLUMN	10.23	C6	12	40	500	(B)	150	1600	-	-	1900	76.00	0.888	68	481.90
		C7	20	36	AS SHOWN	(C)	350	900	350	-	1600	57.60	2.466	143	
		C8a	16	24	400	(B)	330	1700	-	-	2360	56.64	1.579	90	
		C8b	16	20	400	(B)	430	1700	-	-	2560	51.20	1.579	81	
		P1	36	28	AS SHOWN	(B)	600	6450	-	-	7650	214.20	7.991	1712	
		P1a	36	24	AS SHOWN	(C)	600	6450	-	-	7650	183.60	7.991	1468	
		P2	20	152	100	(H)	1200	100	-	-	3770	573.03	2.466	1414	
		P3	20	36	100	(H)	1200	100	-	-	3770	135.72	2.466	335	
FOOTING	81.90	F1	25	59	200	(B)	925	4850	925	-	6700	395.30	3.854	1524	102.2
		F2	28	59	200	(B)	925	4850	925	-	6700	395.30	4.833	1911	
		F3	25	25	200	(B)	925	11950	925	-	13800	345.00	3.854	1330	
		F4	25	25	200	(B)	925	11950	925	-	13800	345.00	3.854	1330	
		F5	16	2	AS SHOWN	(A)	11950	-	-	-	11950	23.90	1.579	38	
		F6	16	2	AS SHOWN	(A)	4850	-	-	-	4850	9.70	1.579	16	
		F7	16	390	400	(F)	200	1250	150	-	1600	624.00	1.579	966	
TOTAL	123.43														GRADE 40 TOTAL = 2,747 kgs. GRADE 60 TOTAL = 16,189 kgs.

	DESIGNED	10/17/02	A. M. GONZALES		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	M. SORIANO		Submitted By:	Reviewed By:	Recommended By:	Approved By:	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pinarid, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 12 PIER P2 BAR ARRANGEMENT (ULTIMATE STAGE)	B12-14
	SUBMITTED	10/21/02	M. SORIANO		DANILO C. TRAJAND Project Director	ADRIANO M. DORAY Chief, Bridges Division	GILBERTO S. REYES Director IV (DD)	MANUEL M. BONGAN Undersecretary	SIMEON A. DATUMANONG Secretary	FULL SIZE A1		

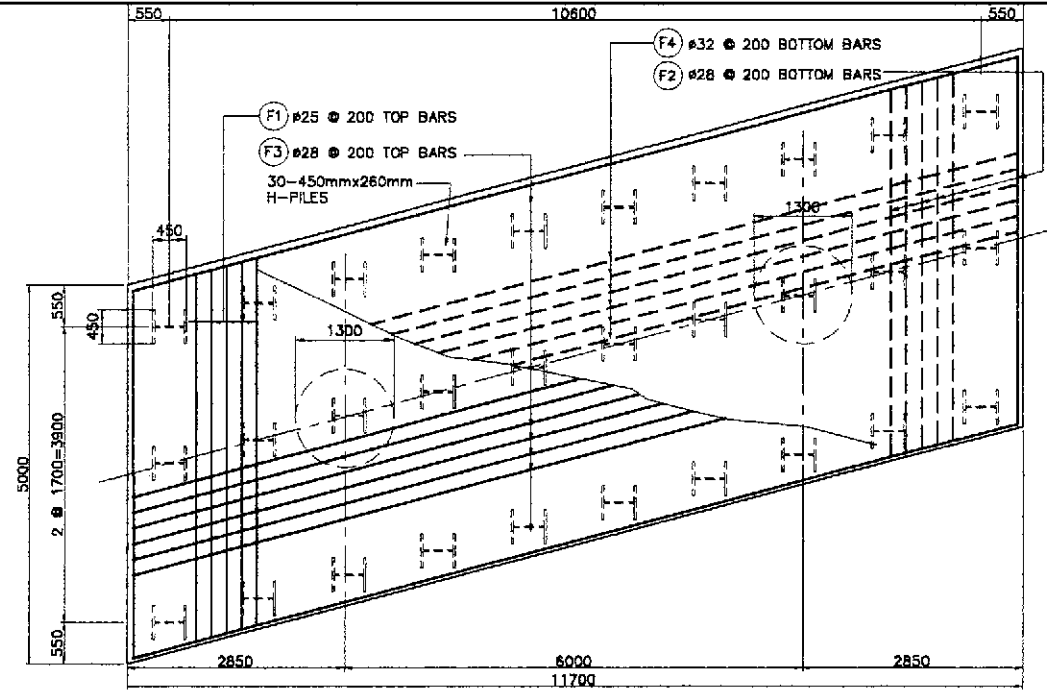


1 COPING PLAN  
SCALE 1:50

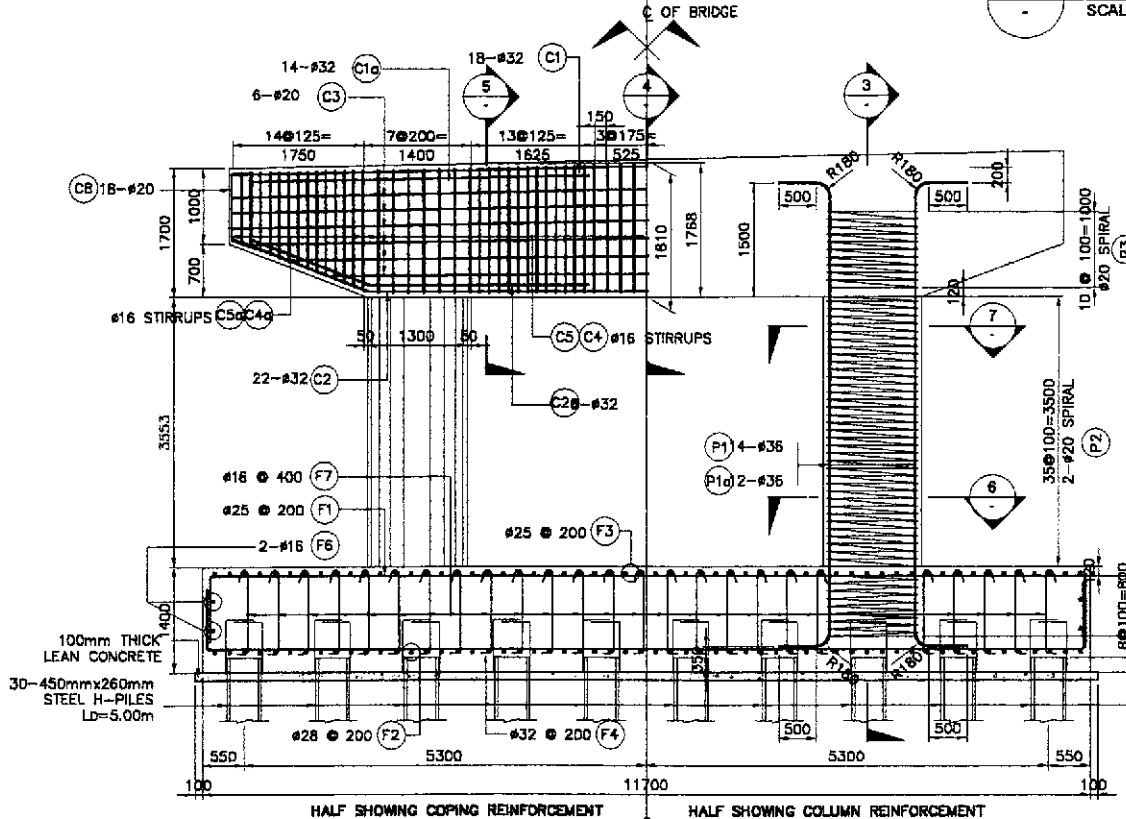


4 SECTION  
SCALE 1:30

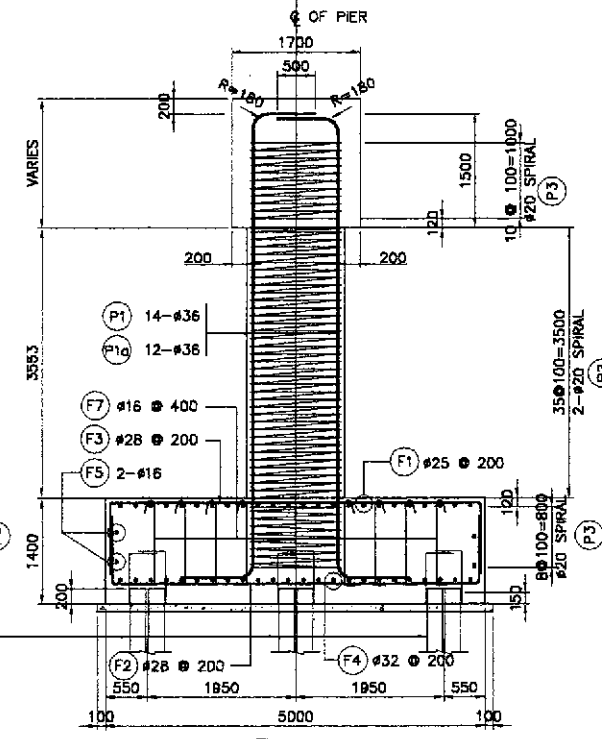
5 SECTION  
SCALE 1:30



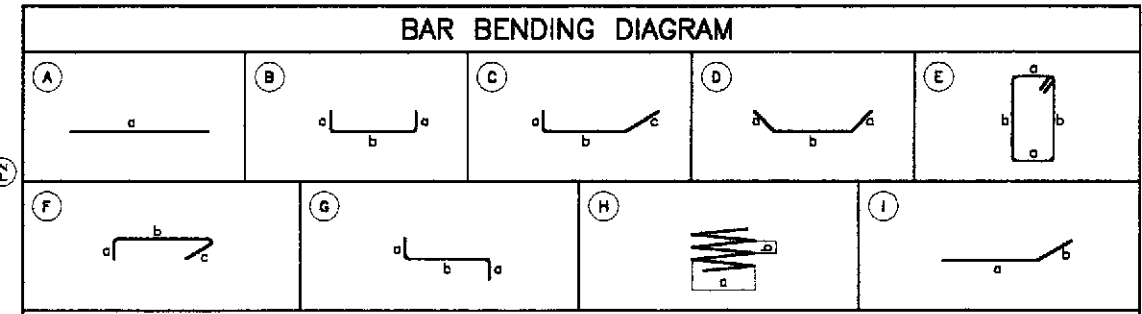
9 FOOTING PLAN  
SCALE 1:50



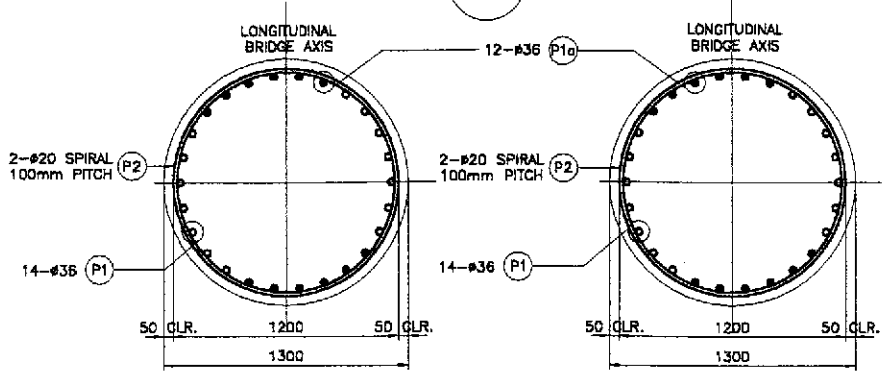
2 ELEVATION  
SCALE 1:50



3 SECTION  
SCALE 1:50

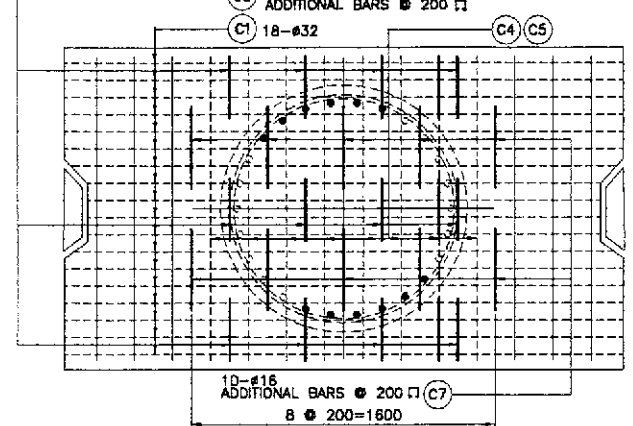


BAR BENDING DIAGRAM



6 SECTION  
SCALE 1:20

7 SECTION  
SCALE 1:20



8 DETAIL OF ADDITIONAL REINFORCEMENT @ PIER  
SCALE 1:20

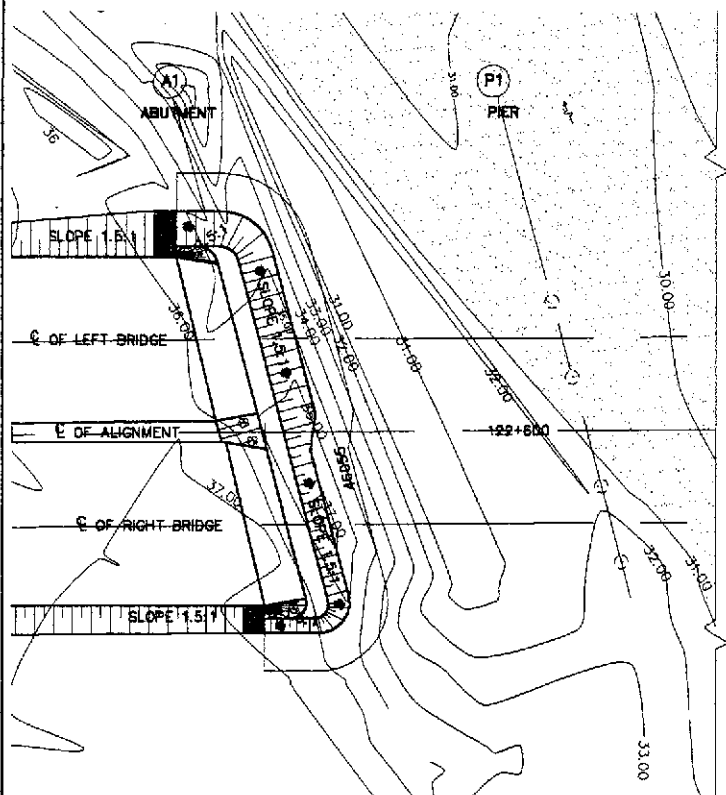
SCHEDULE OF REINFORCEMENT FOR ONE PIER															
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (m)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	TOTAL WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )
							a	b	c	d					
COPING	31.30	C1	32	18	AS SHOWN	(A)	11300	-	-	-	11300	203.40	6.313	1285	203.28
		C1a	32	36	AS SHOWN	(A)	4650	-	-	-	4650	167.40	6.313	1057	
		C2	32	18	AS SHOWN	(D)	2075	7550	-	-	11700	201.60	6.313	1330	
		C2a	32	16	AS SHOWN	(L)	1875	3325	-	-	5200	83.20	6.313	526	
		C3	20	6	AS SHOWN	(A)	11300	-	-	-	11300	67.80	2.466	168	
		C3a	20	6	AS SHOWN	(A)	9850	-	-	-	9850	59.10	2.466	146	
		C4	16	49	125	(E)	1600	1725	150	-	8950	340.55	1.579	538	
		C4a	16	28	125	(E)	1600	1425	150	-	6350	177.80	1.579	281	
		C5	16	49	125	(E)	900	1725	150	-	5550	271.95	1.579	430	
		C5a	16	28	125	(E)	900	1425	150	-	4950	138.60	1.579	219	
COLUMN	9.43	C6	12	40	500	(B)	150	1800	-	-	1800	76.00	0.888	68	497.46
		C7	20	36	AS SHOWN	(C)	350	900	350	-	1600	57.60	2.466	143	
		C8a	16	24	400	(B)	330	1700	-	-	2360	56.64	1.579	90	
		C8b	16	20	400	(B)	430	1700	-	-	2560	51.20	1.579	81	
		P1	36	28	AS SHOWN	(B)	600	6150	-	-	7350	205.80	7.991	1645	
		P1a	36	24	AS SHOWN	(G)	600	6150	-	-	7350	176.40	7.991	1410	
FOOTING	81.90	P2	20	140	100	(H)	1200	100	-	-	3770	527.78	2.466	1302	102.2
		P3	20	36	200	(H)	1200	100	-	-	3770	135.72	2.466	335	
		F1	25	59	200	(B)	925	4850	925	-	6700	395.30	3.854	1524	
		F2	28	59	200	(B)	925	4850	925	-	6700	395.30	4.833	1911	
		F3	25	25	200	(B)	925	11850	925	-	13800	345.00	3.854	1330	
		F4	32	25	200	(B)	925	11850	925	-	13800	345.00	6.313	2178	
		F5	16	2	AS SHOWN	(A)	11950	-	-	-	11950	23.90	1.579	38	
F6	15	2	AS SHOWN	(A)	4850	-	-	-	4850	9.70	1.579	16			
F7	16	390	400	(F)	200	1250	150	-	1600	824.00	1.579	986			
TOTAL	122.63														GRADE 40 TOTAL = 2,747 kgs. GRADE 80 TOTAL = 16,280 kgs.

	DESIGNED	10/17/02	A. F. GONZALES		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	M. K. KASHI		BUREAU OF DESIGN				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. 12 PIER P3 BAR ARRANGEMENT (ULTIMATE STAGE)	B12-15
	SUBMITTED	10/21/02	M. K. KASHI		OFFICE OF THE SECRETARY				CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		
				Submitted By: DANILLO C. TRAJANO, Project Director Reviewed By: ADRIANO M. DORCOY, Chief, Bridges Division Recommended By: GILBERTO S. REYES, Director IV (OIC) Recommended By: MANUEL M. BONGNON, Undersecretary Approved By: SIMEON A. DATUMANONG, Secretary								

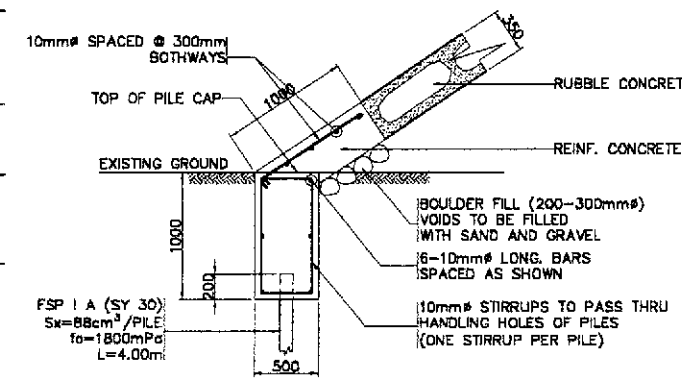
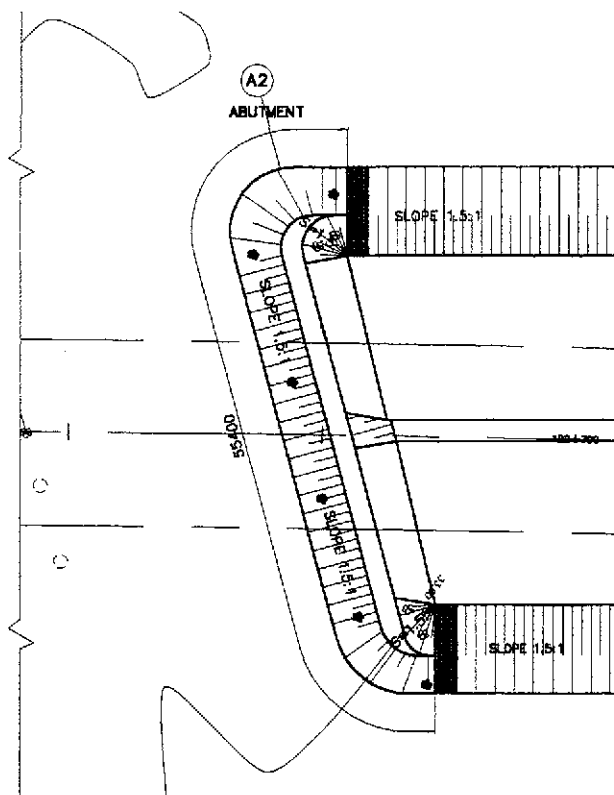


**GENERAL NOTES:**

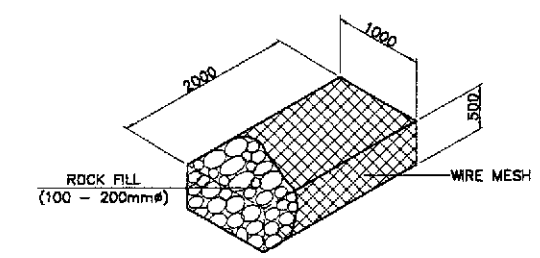
1. GROUTED RIPRAP (250mm-300mm DIA.) SHALL BE USED FOR THE FACING AND SHALL BE CAREFULLY HANDLAID WITH THE LONGEST DIMENSIONS PERPENDICULAR TO THE SLOPE AND FIRMLY BEDDED INTO THE SLOPE AND ADJACENT TO THE ADJOINING BOULDERS SPACED BETWEEN THE BOULDERS. THE SPACE BETWEEN THE BOULDERS SHALL BE COMPLETELY FILLED WITH MORTAR. THE OUTSIDE SURFACE OF THE BOULDERS SHALL BE LEFT EXPOSED AND THE SURFACE OF THE MORTAR SHALL BE SWEEPED WITH A STIFF BRUSH.
2. WIRE MESH GABIONS/MATRESS
  - A. WIRE-MESH SHALL BE MADE OF GALVANIZED STEEL HAVING A MINIMUM SIZE OF 3.40mm DIAMETER (U.S. WIRE GAUGE NO.11) THE TENSILE STRENGTH OF THE WIRE SHALL BE IN THE RANGE OF 413.70 TO 586.10 MPa. (60,000 TO 85,000 Psi) THE MINIMUM ZINC COATING OF THE WIRE SHALL BE 22.70 GRAMS PER 0.0929m<sup>2</sup> OF UNCOATED WIRE SURFACES AS DETERMINED BY TEST CONDUCTED IN ACCORDANCE WITH AASHTO T85.
  - B. ROCK FILL - ROCK USED IN THE GABIONS SHALL CONSIST OF HARD, DURABLE ROCK PIECES THAT WILL NOT DETERIORATE WHEN SUBMERGED IN WATER OR EXPOSED TO SEVERE WEATHER CONDITIONS. ROCK PIECES SHALL BE GENERALLY UNIFORMLY GRADED IN SIZES RANGING FROM 100mm TO 200mm. FILLED GABIONS SHALL HAVE A MINIMUM DENSITY OF 1,400kg./m<sup>3</sup>. VOIDS SHALL BE EVENLY DISTRIBUTED. THE ROCKS SHALL MEET THE REQUIREMENTS OF AASHTO M63 EXCEPT THAT THE SODIUM SULFATE SOUNDNESS LOSS SHALL NOT EXCEED 9% AFTER 5 CYCLES.
3. GEOTEXTILE THE FOLLOWING SPECIFICATIONS ARE REQUIRED:
  1. POLYESTER OR POLYPROPYLENE - 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
4. GRAVEL FILTER SHALL BE COARSE AGGREGATES MATERIALS WHICH SATISFY THE REQUIREMENTS FOR ITEM 405, STRUCTURAL CONCRETE, GRADING B OF TABLE 405.1 AS REVISED.
5. RUBBLE CONCRETE SHALL BE CLASS "B" (1:2.5:5) MIX CONCRETE WITH BOULDERS EMBEDDED THEREIN. BOULDERS 250-300mm SHALL BE CAREFULLY HAND-LAID WITHIN THE CONCRETE SECTION. THE BOULDERS SHALL BE THOROUGHLY INCORPORATED INTO THE CONCRETE MASS WITH A COVER OF 30mm AND NOT LESS THAN 30mm APART. THE RUBBLE CONCRETE SHALL BE COMPOSED OF 40% CLASS "B" CONCRETE AND 60% BOULDERS.
6. NO CONCRETING UNDER WATER SHALL BE PERMITTED.
7. PROVIDE 1.0 m. BERM WHEN HEIGHT (H) IS > 4.0 m.



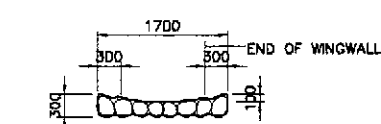
**1A PLAN**  
SCALE 1:300



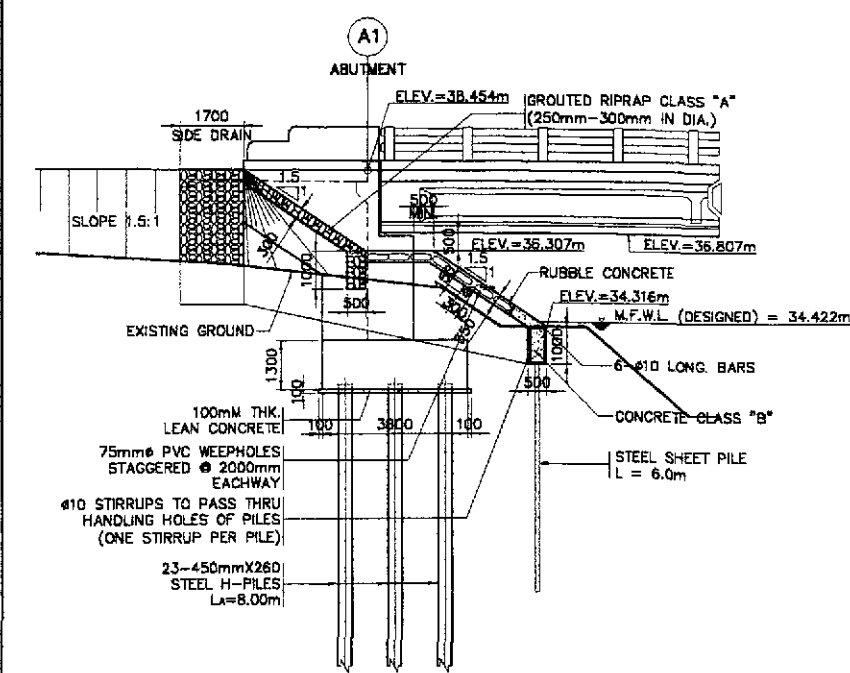
**4 CAPPING AND SHEET PILE CONNECTION**  
SCALE 1:30



**3 GABION DETAIL**  
SCALE 1:50

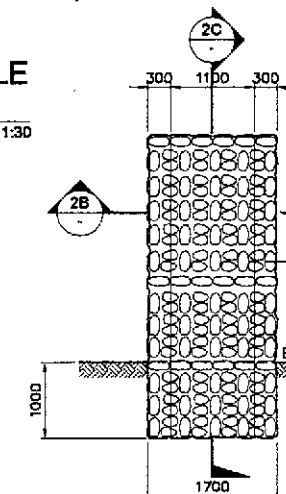
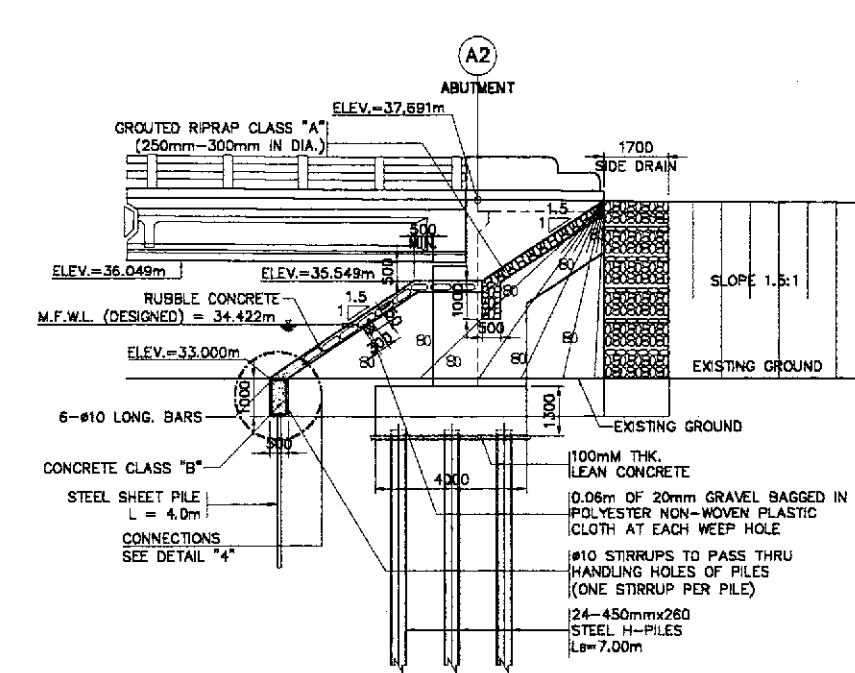


**2B SECTION**  
SCALE 1:50

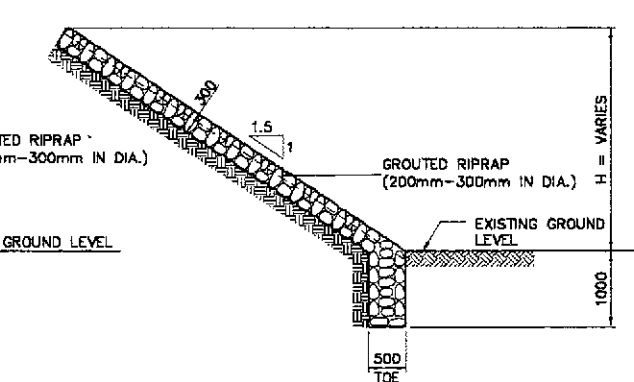


**1B ELEVATION**  
SCALE 1:60

**1 ABUTMENT SLOPE PROTECTION**  
SCALE AS SHOWN



**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	690	350
4.50	825	425
5.00	>900	580

LOCATION	SIZES	PER ABUTMENT QUANTITY	
		ABUT. A1	ABUT. A2
CONC. CLASS "B"	1000 x 500 x LENGTH	11.91 cu. m.	13.03 cu. m.
RUBBLE CONCRETE	250mm-300mm IN DIA.	27.56 cu. m.	42.86 cu. m.
SHEET PILE	85 x 400 x 8mm THK.	52.00 pos.	60.00 pos.
SIDE DRAIN	200mm-300mm IN DIA.	3.06 cu. m.	5.14 cu. m.
GROUTED RIPRAP	250mm-300mm IN DIA.	7.70 cu. m.	10.96 cu. m.

		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 (Pinarid, Cabanatuan and San Jose Bypasses)		SCALE :	SHEET CONTENTS :		SHEET NO. :
DESIGNED	DATE	SIGNATURE	SUBMITTED BY:		REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:	AS SHOWN	BRIDGE NO. 12 ABUTMENT PROTECTION AND SIDE DRAIN DETAILS (ULTIMATE STAGE)		B12-17
CHECKED	10/19/02	[Signature]	DANILO C. TRAJANO Project Director		PERFECTO L. ZAPLAN JR. Chief, Hydraulics Division (OIC)	GILBERTO S. REYES Director IV (OIC)	MANUEL M. BONDAN Undersecretary	FULL SIZE A1			