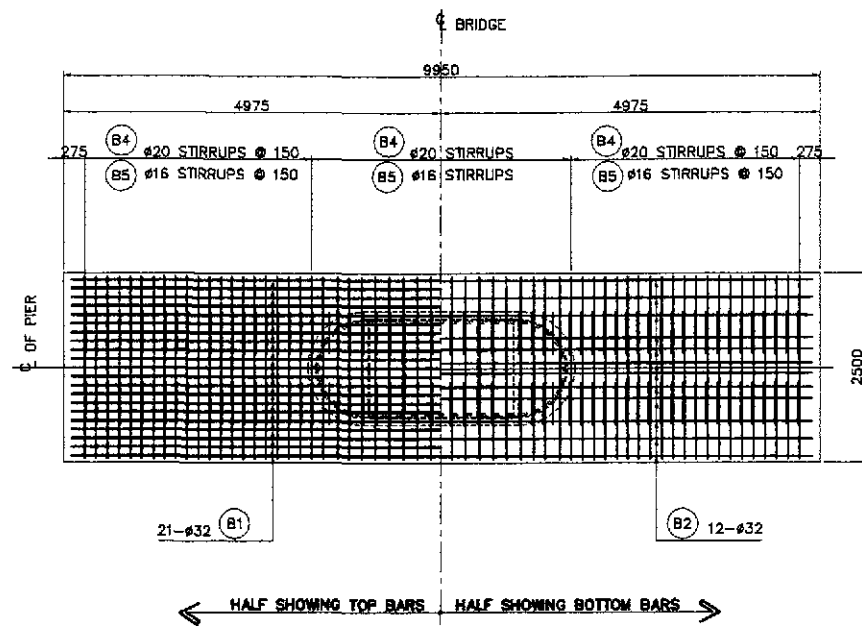
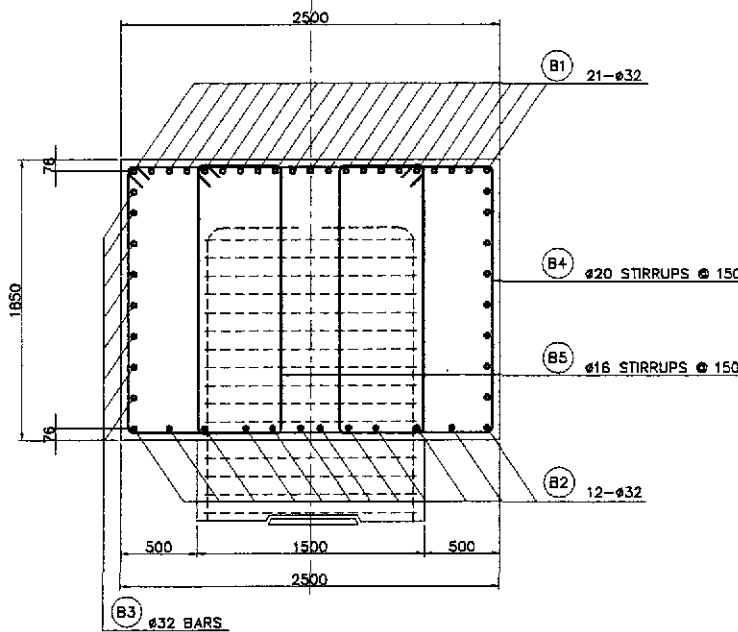


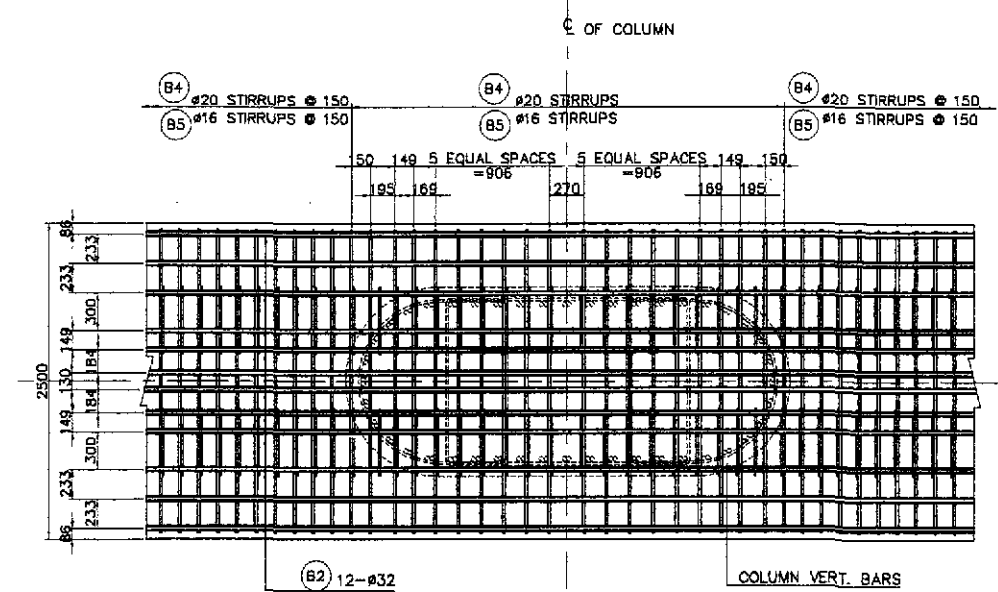
SUBSTRUCTURE



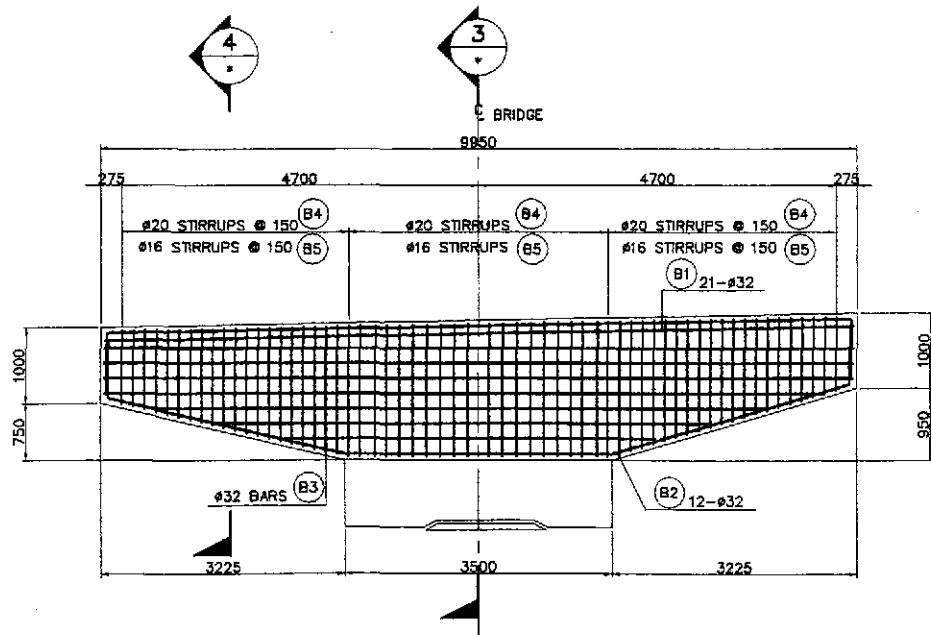
1 PLAN
SCALE 1:50



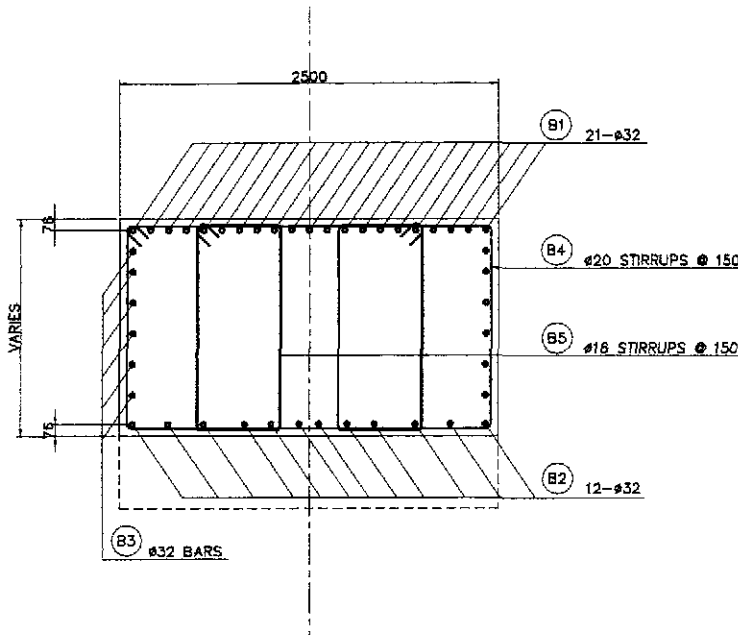
3 SECTION
SCALE 1:25



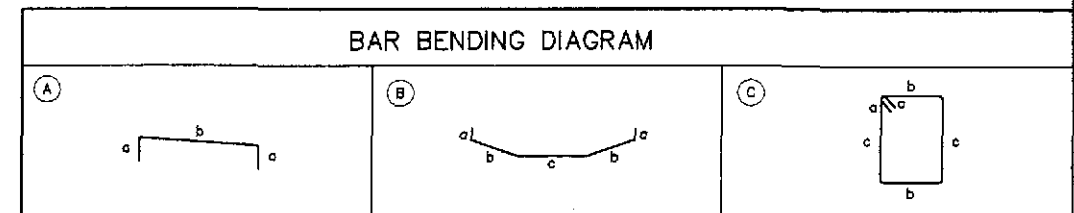
5 DETAIL
SCALE 1:30



2 ELEVATION
SCALE 1:50



4 SECTION
SCALE 1:25



LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	
				a	b	c	d	e	f				GRADE 40	GRADE 60
P5, P10 & P26	B1	32	A	900	9850					11650	21	6.313		1544.48
	B2	32	B	900	3200	3400				11600	12	6.313		878.77
	B3	32	A	675	8350(ave.)					9700	14	6.313		857.31
	B4	20	C	260	2400	1445(ave.)				8210	65	2.466		1315.98
	B5	16	C	280	550	1445(ave.)				4510	130	1.578	925.18	
TOTAL WEIGHT PER COPING =												925.18	4588.53	
TOTAL WEIGHT FOR (3) PIERS =												2775.54	13789.59	

A COPING REINFORCEMENT DETAILS(P5, P10 & P26)
SCALE AS SHOWN

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

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

DESIGNED: 9/25/02
CHECKED: 9/27/02
SUBMITTED: 9/30/02
DATE: 9/25/02
SIGNATURE: [Signature]
SANTOS
TEAM LEADER

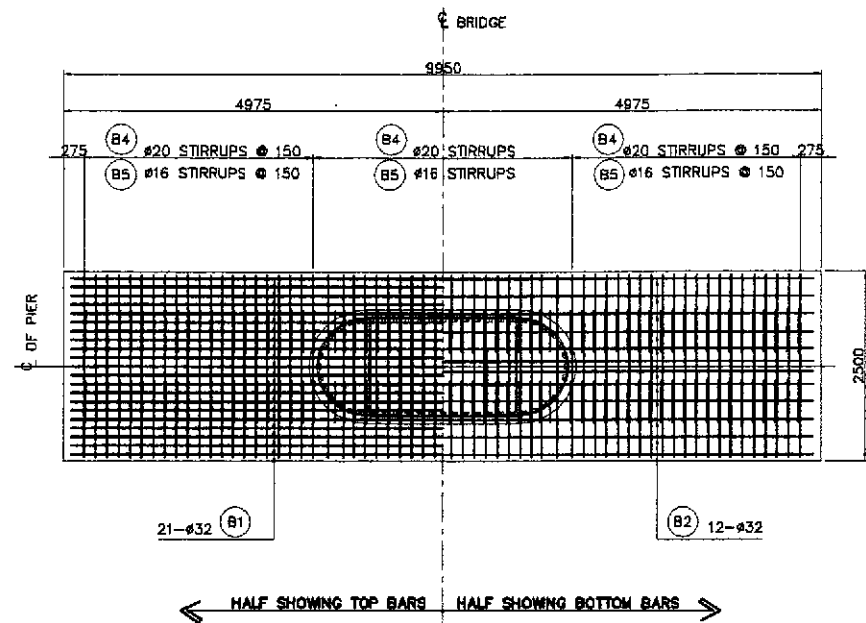
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
OFFICE OF THE SECRETARY
Submitted By: DANILO C. TRAJANO, Project Director
Reviewed By: ADRIANO M. DORAY, Chief, Bridges Division
Recommended By: GILBERTO S. REYES, Director IV (OC)
Recommended By: MANUEL M. BONOAN, Undersecretary
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)
PLARIDEL BYPASS - CONTRACT PACKAGE III

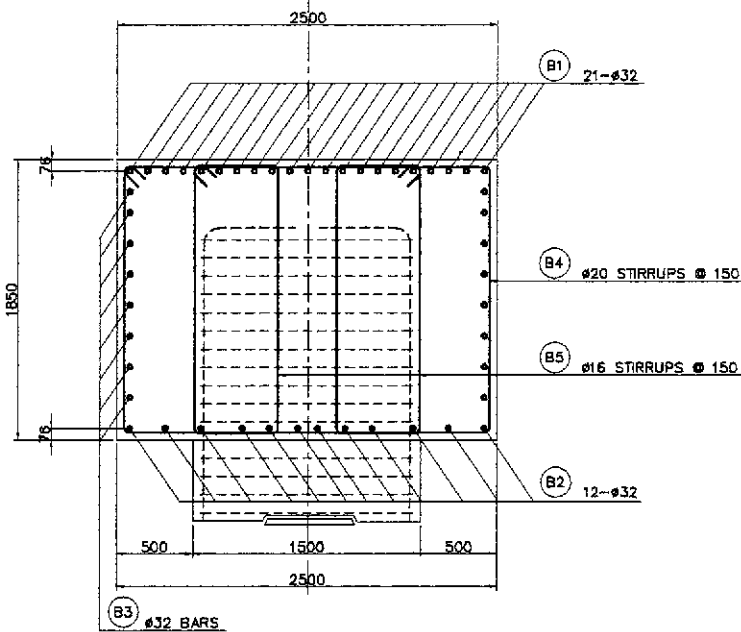
SCALE:
AS SHOWN
FULL SIZE A1

SHEET CONTENTS:
BRIDGE NO. 8 ANGAT RIVER BRIDGE
COPING REINFORCEMENT DETAILS (P5, P10, & P26) (ULTIMATE STAGE)

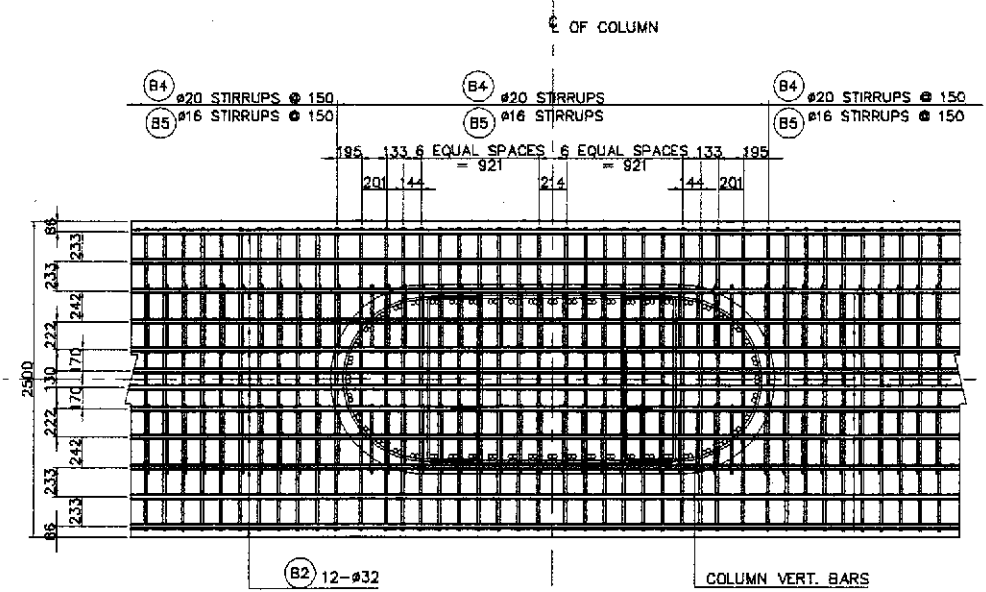
SHEET NO.:
B8A-41



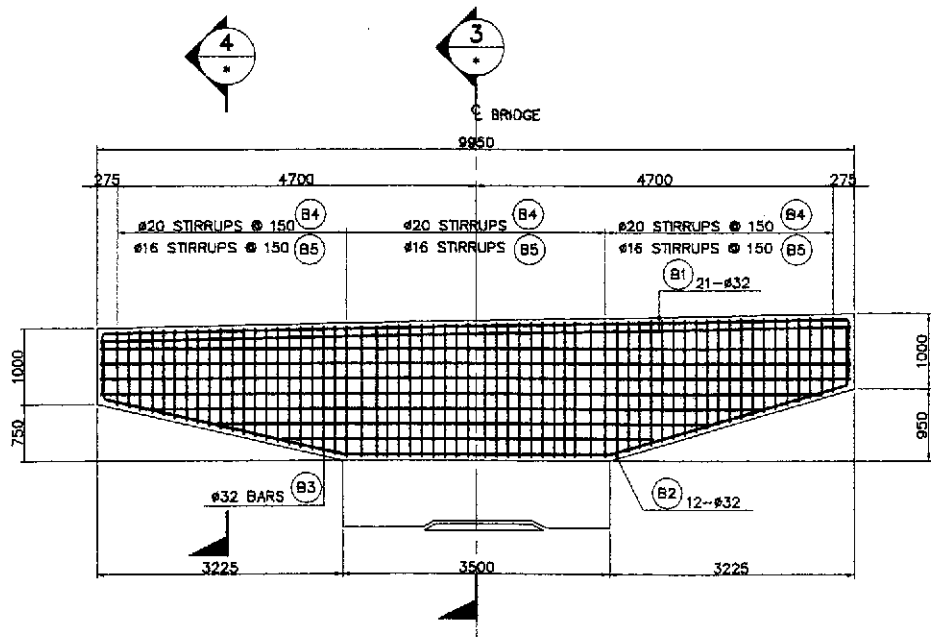
1 PLAN
SCALE 1:50



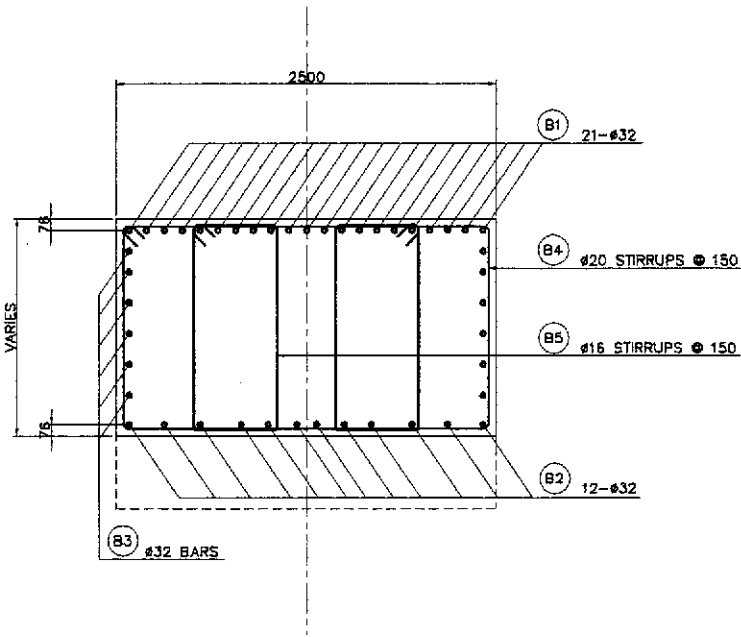
3 SECTION
SCALE 1:25



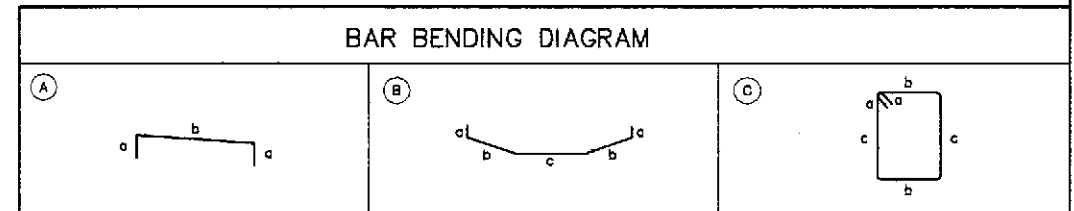
5 DETAIL
SCALE 1:30



2 ELEVATION
SCALE 1:50



4 SECTION
SCALE 1:25



SCHEDULE OF REINFORCEMENT														
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	
				a	b	c	d	e	f				GRADE 40	GRADE 60
P1, P2, P3, P4, P6, P7, P8, P9, P11, P12, P13, P22, P23, P24, P25, P27, P28 & P30	B1	32	A	900	9850					11650	21	6.313		1544.48
	B2	32	B	900	3200	3400				11600	12	6.313		878.77
	B3	32	A	675	835Q(ave)					9700	14	6.313		857.31
	B4	20	C	260	2400	1445(ave)				8210	65	2.466		1315.98
	B5	16	C	260	550	1445(ave)				4510	130	1.578	925.18	
											TOTAL WEIGHT PER COPING =		925.18	4588.53
											TOTAL WEIGHT FOR (16) PIERS =		17578.42	87334.07

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

A COPING REINFORCEMENT DETAILS (P1-P4, P6-P9, P11-P13, P22-P25 & P27-P30)
SCALE AS SHOWN

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

DESIGNED: 9/25/02
CHECKED: 9/27/02
SUBMITTED: 9/30/02

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

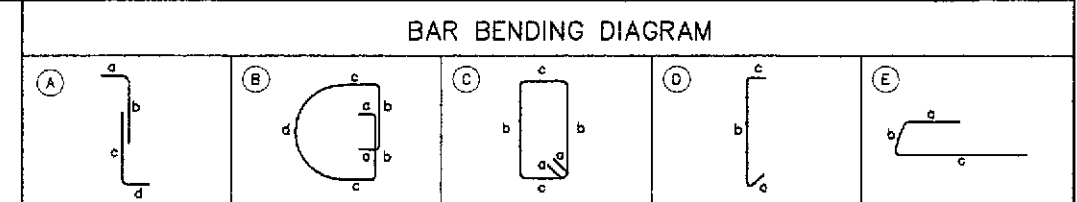
PROJECT AND LOCATION:
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
PLARIDEL BYPASS - CONTRACT PACKAGE III

SCALE:
AS SHOWN
FULL SIZE A1

SHEET CONTENTS:
BRIDGE NO. 8 ANGAT RIVER BRIDGE
COPING REINFORCEMENT DETAILS
(P1-P4, P6-P9, P11-P13, P22-P25 & P27-P30)
(ULTIMATE STAGE)

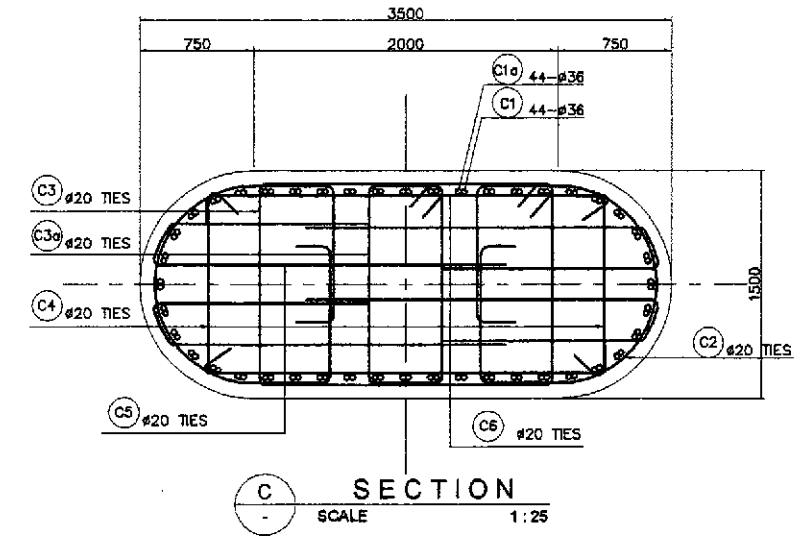
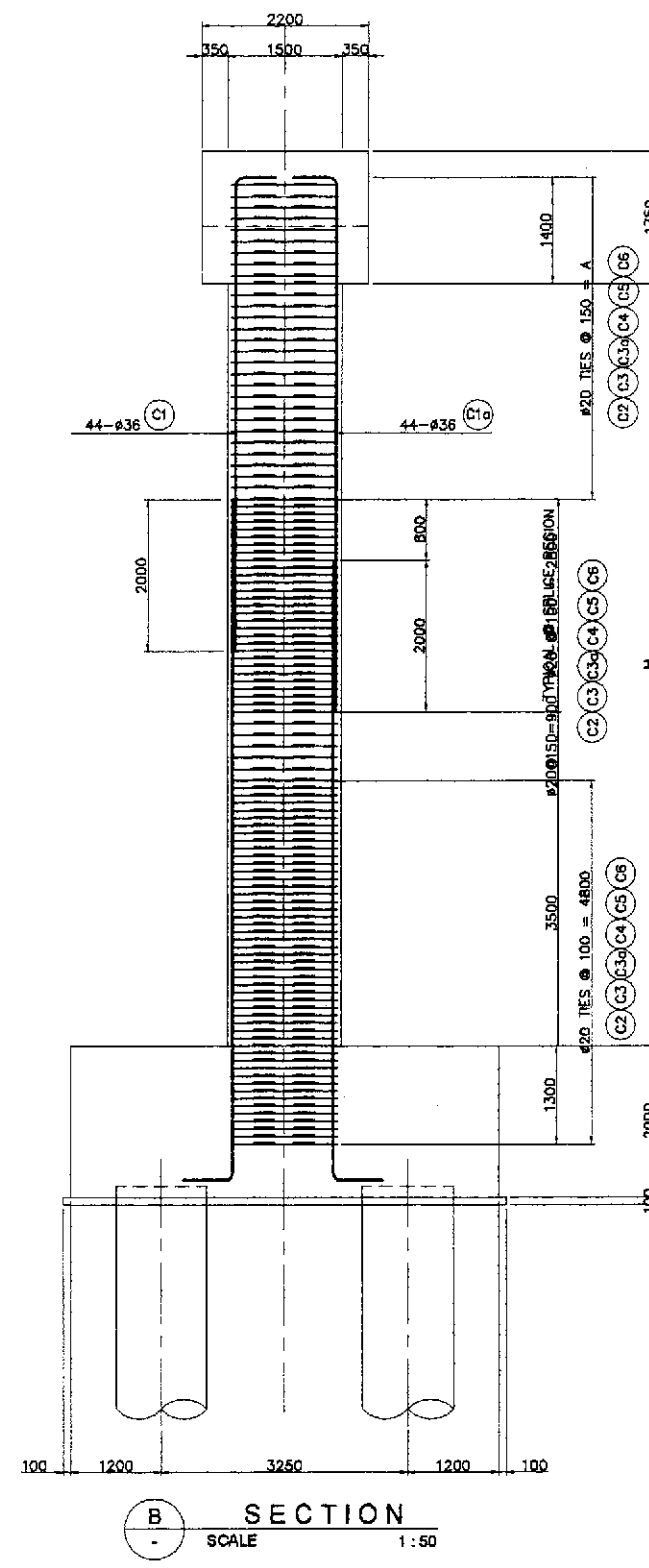
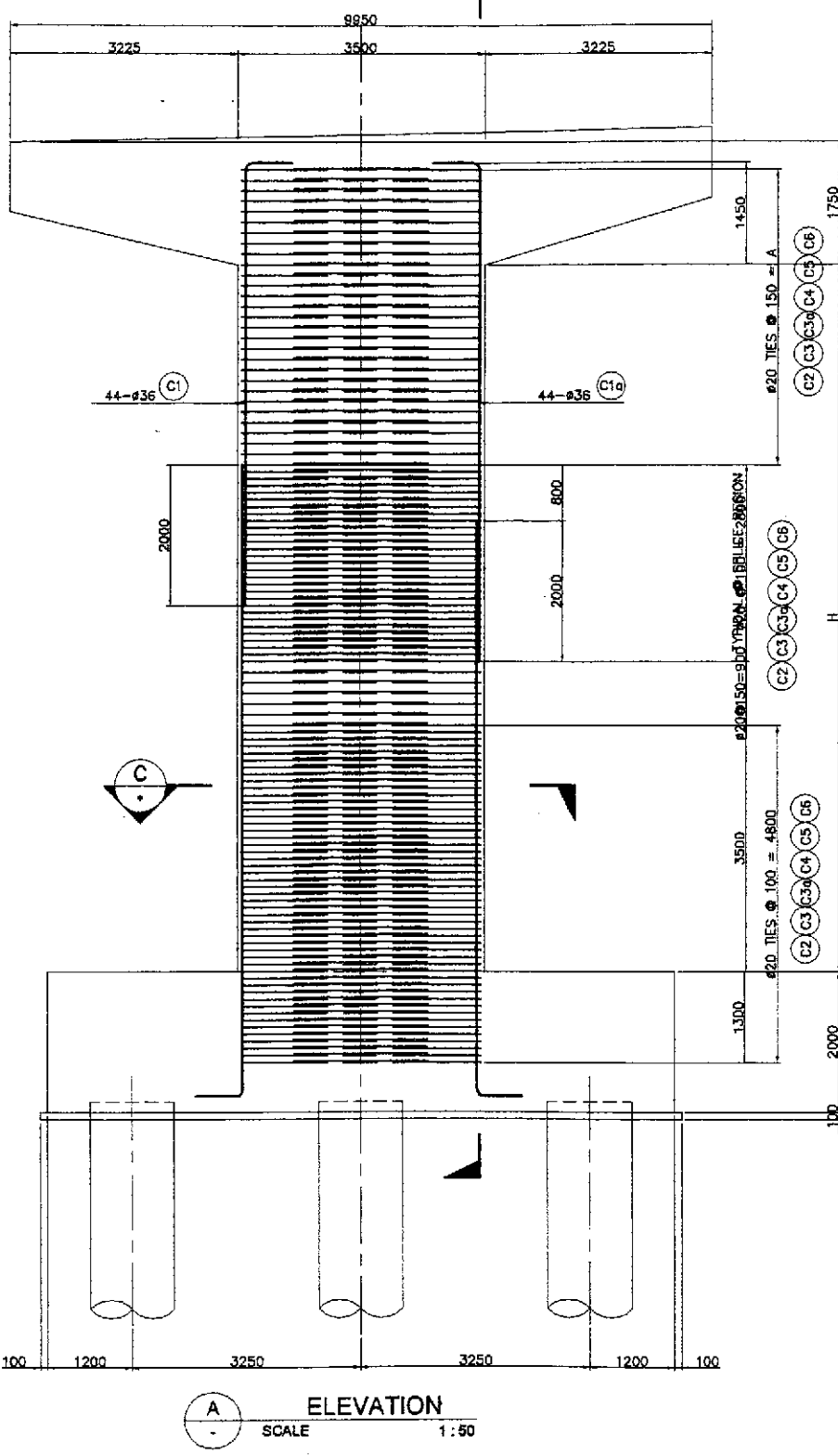
SHEET NO.:
B8A-42

SCHEDULE OF DIMENSIONS		
PIER	H (mm)	A (mm)
PIER 5	12500	6600
PIER 10	12500	6600
PIER 26	10050	4200



SCHEDULE OF REINFORCEMENT															
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)		
				a	b	c	d	e	f				GRADE 40	GRADE 60	
PIER 5	C1	36	A	660	7900	9825	660			19045	44	7.99		6695.46	
	C1a	36	A	660	8700	9025	660			19045	44	7.99		6695.46	
	C2	20	B	225	895	530	2000			5300	256	2.466		3345.88	
	C3	20	C	260	1350	1920				7060	129	2.466		2245.88	
	C3a	20	C	260	1350	475				4170	129	2.466		1326.54	
	C4	20	D	260	1170	335				1765	256	2.466		1114.24	
PIER 10	C5	20	E	1285	235	2300				3820	512	2.466		4823.10	
	C6	20	D	260	2625	335				3220	256	2.466		2032.77	
	TOTAL WEIGHT PER PIER = 0.00											28,279.32			
	PIER 26	C1	36	A	660	7900	9825	660			16595	44	7.99		5834.14
		C1a	36	A	660	7475	7800	660			16595	44	7.99		5834.14
		C2	20	B	225	895	530	2000			5300	222	2.466		2901.50
C3		20	C	260	1350	1920				7060	111	2.466		1932.51	
C3a		20	C	260	1350	475				4170	111	2.466		1141.44	
C4		20	D	260	1170	335				1765	222	2.466		966.25	
PIER 26	C5	20	E	1285	235	2300				3820	444	2.466		4182.53	
	C6	20	D	260	2625	335				3220	222	2.466		1762.80	
	TOTAL WEIGHT PER PIER = 0.00											24,555.31			
	GRAND TOTAL WEIGHT (3) PIERS = 0.00												81,202.34		

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



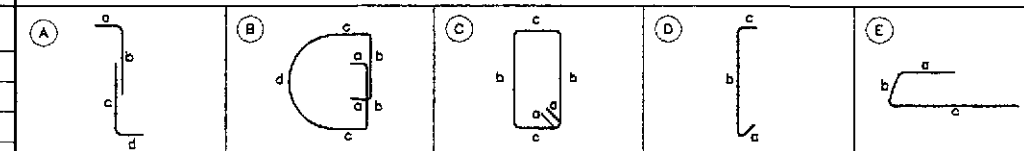
1 COLUMN REINFORCEMENT DETAILS (PIER 5, PIER 10 & PIER 26) SCALE AS SHOWN

	DESIGNED	DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	9/27/02	<i>[Signature]</i>		Submitted 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. 8 ANGAT RIVER BRIDGE COLUMN REINFORCEMENT DETAILS (P5, P10, & P26) (ULTIMATE STAGE)	B8A-43
	SUBMITTED	9/30/02	<i>[Signature]</i>		Reviewed By:	PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1		

SCHEDULE OF DIMENSIONS

PIER	H (mm)	A (mm)
PIER 1, 2, 3 & 4	12500	6600
PIER 6, 7, 8 & 9	12500	6600
PIER 11, 12 & 13	10850	5000
PIER 22, 23, 24 & 25	10250	4400
PIER 27, 28, 29 & 30	10050	4200

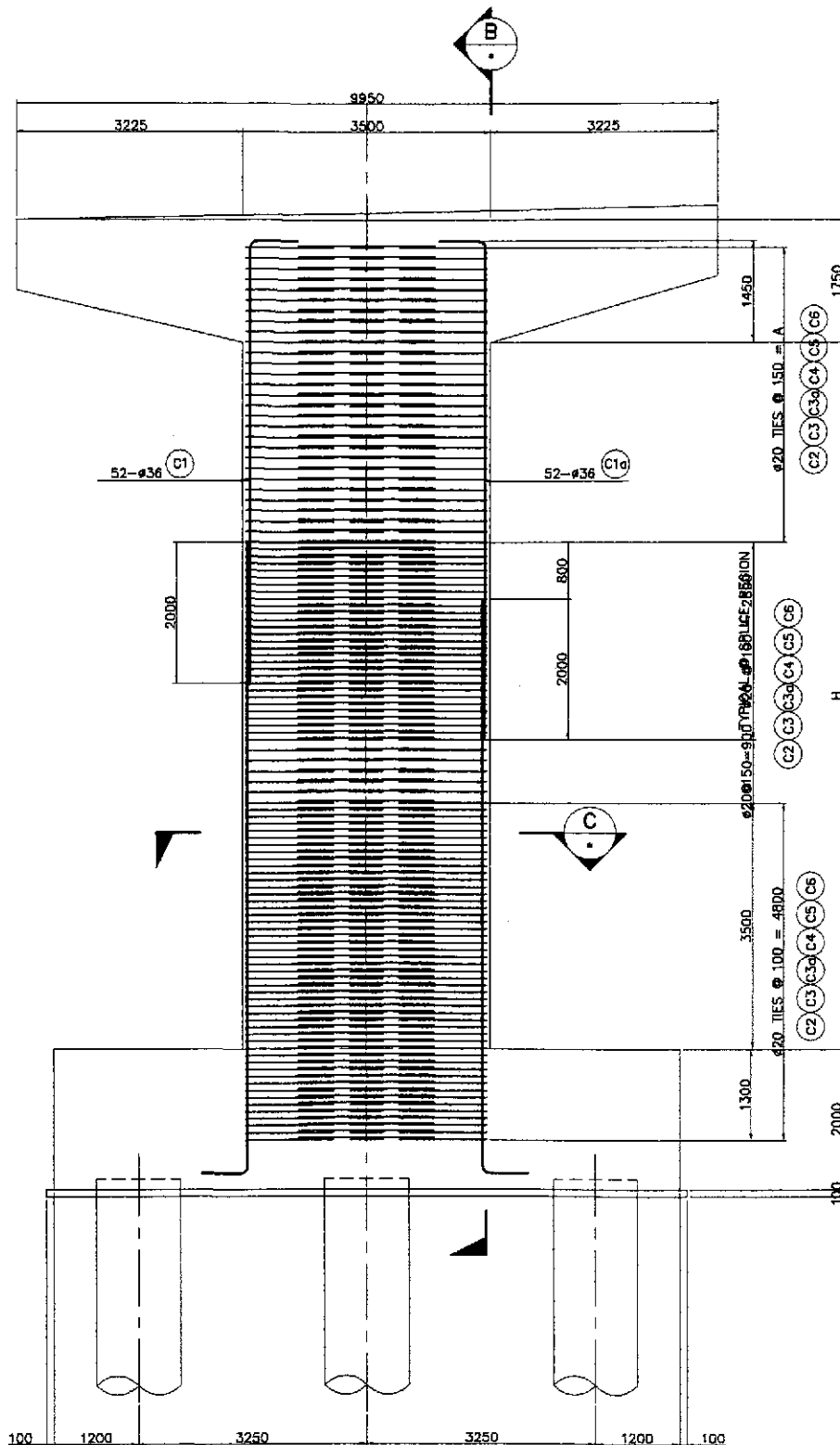
BAR BENDING DIAGRAM



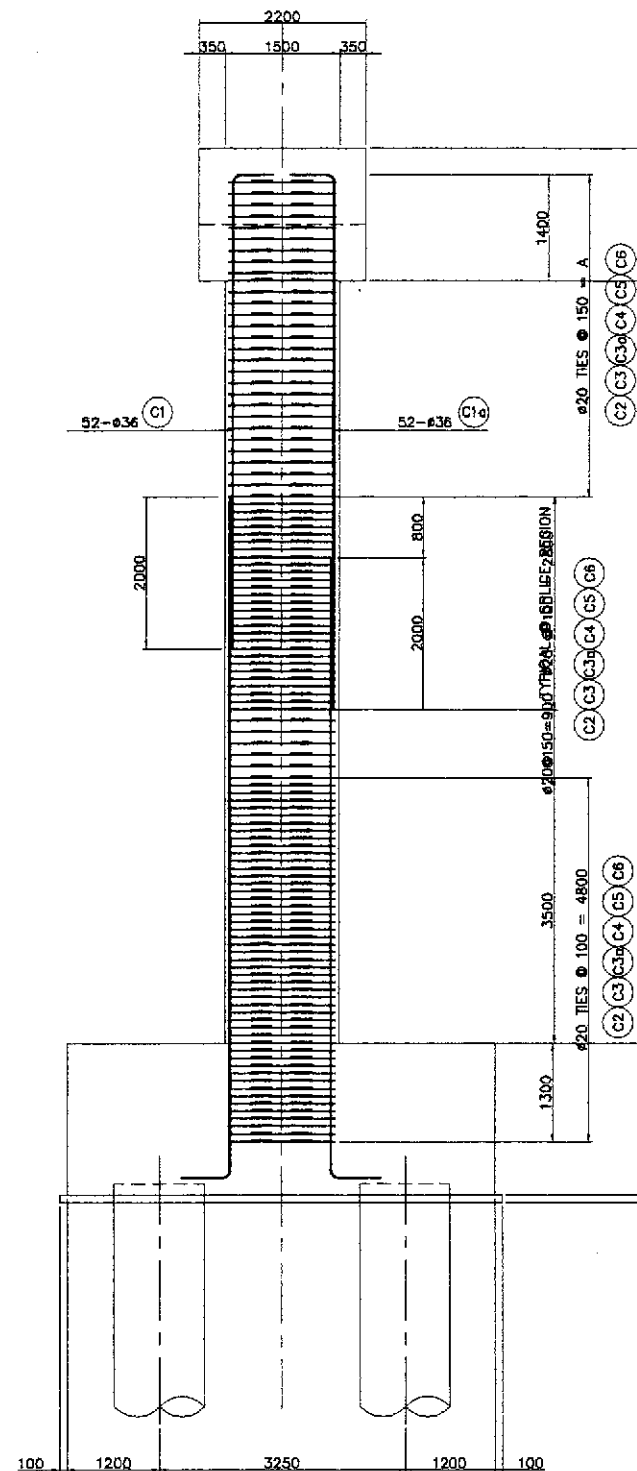
SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	
				a	b	c	d	e	f				GRADE 40	GRADE 60
P1, P2, P3 & P4	C1	36	A	660	7900	9825	660			19045	52	7.99		7912.82
	C1a	36	A	660	8700	9025	660			19045	52	7.99		7912.82
	C2	20	B	225	895	450	2000			5140	258	2.466		3270.21
	C3	20	C	260	1350	1900				7020	129	2.466		2233.16
	C3a	20	C	260	1350	400				4020	129	2.466		1278.82
	C4	20	D	260	1175	335				1770	258	2.466		1126.12
P6, P7, P8 & P9	C5	20	E	1300	250	2285				3835	56	2.466		4879.87
	C6	20	D	260	2775	335				3370	258	2.466		2144.09
	TOTAL WEIGHT PER PIER = 0.00											30,757.91		
	C1	36	A	660	7900	9825	660			19045	52	7.99		7912.82
	C1a	36	A	660	8700	9025	660			19045	52	7.99		7912.82
	C2	20	B	225	895	450	2000			5140	262	2.466		3320.91
P11, P12 & P13	C3	20	C	260	1350	1900				7020	131	2.466		2267.78
	C3a	20	C	260	1350	400				4020	131	2.466		1298.64
	C4	20	D	260	1175	335				1770	262	2.466		1143.58
	C5	20	E	1300	250	2285				3835	524	2.466		4955.53
	C6	20	D	260	2775	335				3370	262	2.466		2177.33
	TOTAL WEIGHT PER PIER = 0.00											30,989.41		
P22, P23, P24 & P25	C1	36	A	660	6775	8700	660			17395	52	7.99		7227.27
	C1a	36	A	660	7875	8200	660			17395	52	7.99		7227.27
	C2	20	B	225	885	450	2000			5140	238	2.466		2891.36
	C3	20	C	260	1350	1900				7020	118	2.466		2042.74
	C3a	20	C	260	1350	400				4020	118	2.466		1188.77
	C4	20	D	260	1175	335				1770	236	2.466		1030.10
P27, P28, P29 & P30	C5	20	E	1300	250	2285				3835	472	2.466		4463.76
	C6	20	D	260	2775	335				3370	236	2.466		1961.26
	TOTAL WEIGHT PER PIER = 0.00											28,113.53		
	C1	36	A	660	6775	8700	660			16795	52	7.99		6977.99
	C1a	36	A	660	7575	7900	660			16795	52	7.99		6977.99
	C2	20	B	225	895	450	2000			5140	226	2.466		2864.60
P27, P28, P29 & P30	C3	20	C	260	1350	1900				7020	113	2.466		1956.18
	C3a	20	C	260	1350	400				4020	113	2.466		1120.21
	C4	20	D	260	1175	335				1770	226	2.466		986.45
	C5	20	E	1300	250	2285				3835	452	2.466		4274.61
	C6	20	D	260	2775	335				3370	226	2.466		1878.15
	TOTAL WEIGHT PER PIER = 0.00											27,036.18		
TOTAL WEIGHT PER PIER = 0.00											26,754.23			
GRAND TOTAL WEIGHT (19) PIERS = 0.00												548,481.53		

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

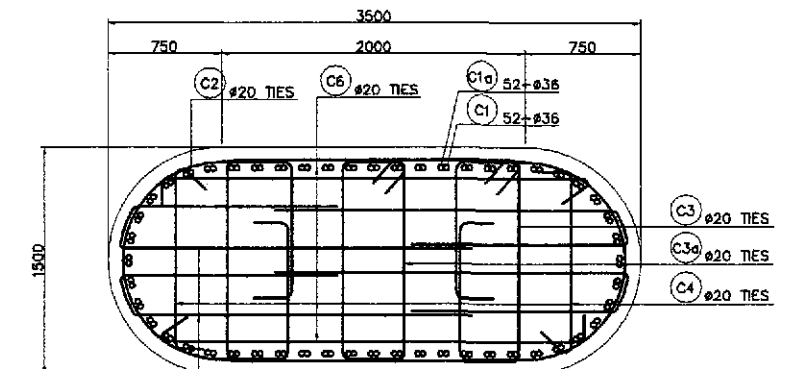


A ELEVATION SCALE 1:50



B SECTION SCALE 1:50

1 COLUMN REINF. DETAILS (PIER 1 to PIER 4, PIER 6 to PIER 9, PIER 11 to PIER 13, PIER 22 to PIER 25 & PIER 27 to PIER 30) SCALE AS SHOWN



C SECTION SCALE 1:25

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS
Yachiyo Engineering Co., Ltd.

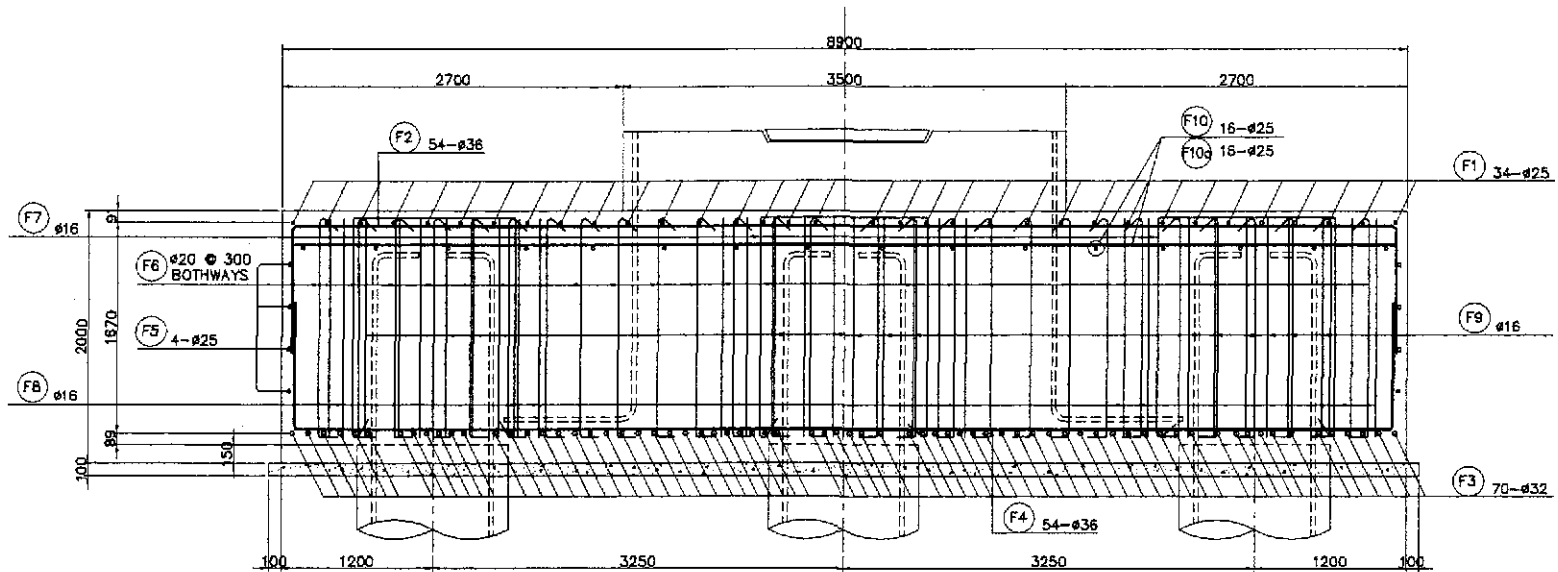
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
OFFICE OF THE SECRETARY
Submitted By: DANILO C. TRAJANO, Project Director
Reviewed By: ADRIANO M. DOROY, Chief, Bridges Division
Recommended By: GILBERTO S. REYES, Director IV (OC)
Recommended By: MANUEL M. BONGON, Undersecretary
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)
PLARIDEL BYPASS - CONTRACT PACKAGE III

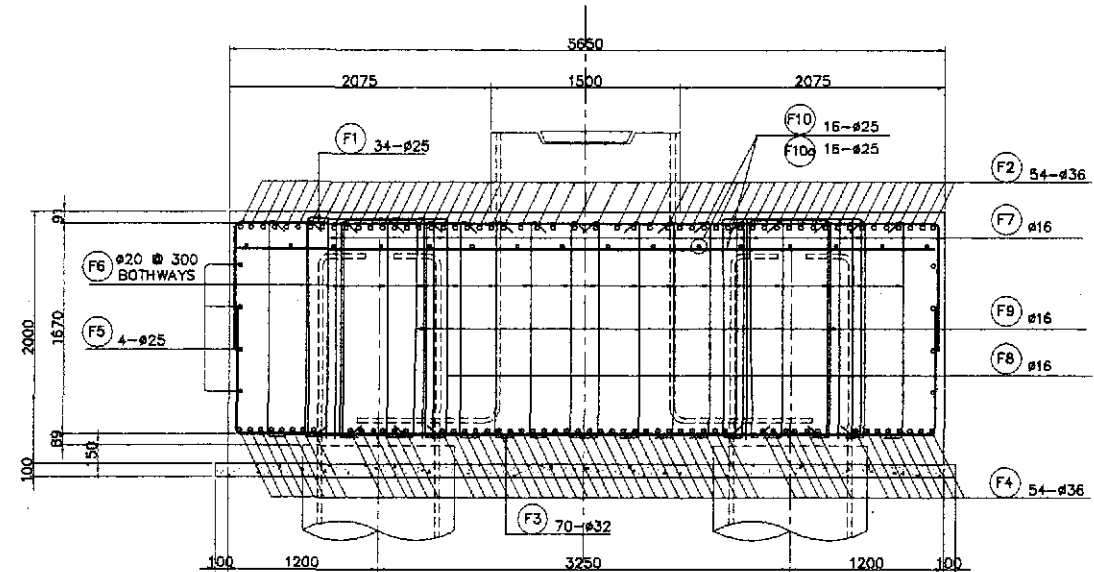
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE
COLUMN REINFORCEMENT DETAILS
(P1-P4, P6-P9, P11-P13, P22-P25 & P27-P30)
(ULTIMATE STAGE)

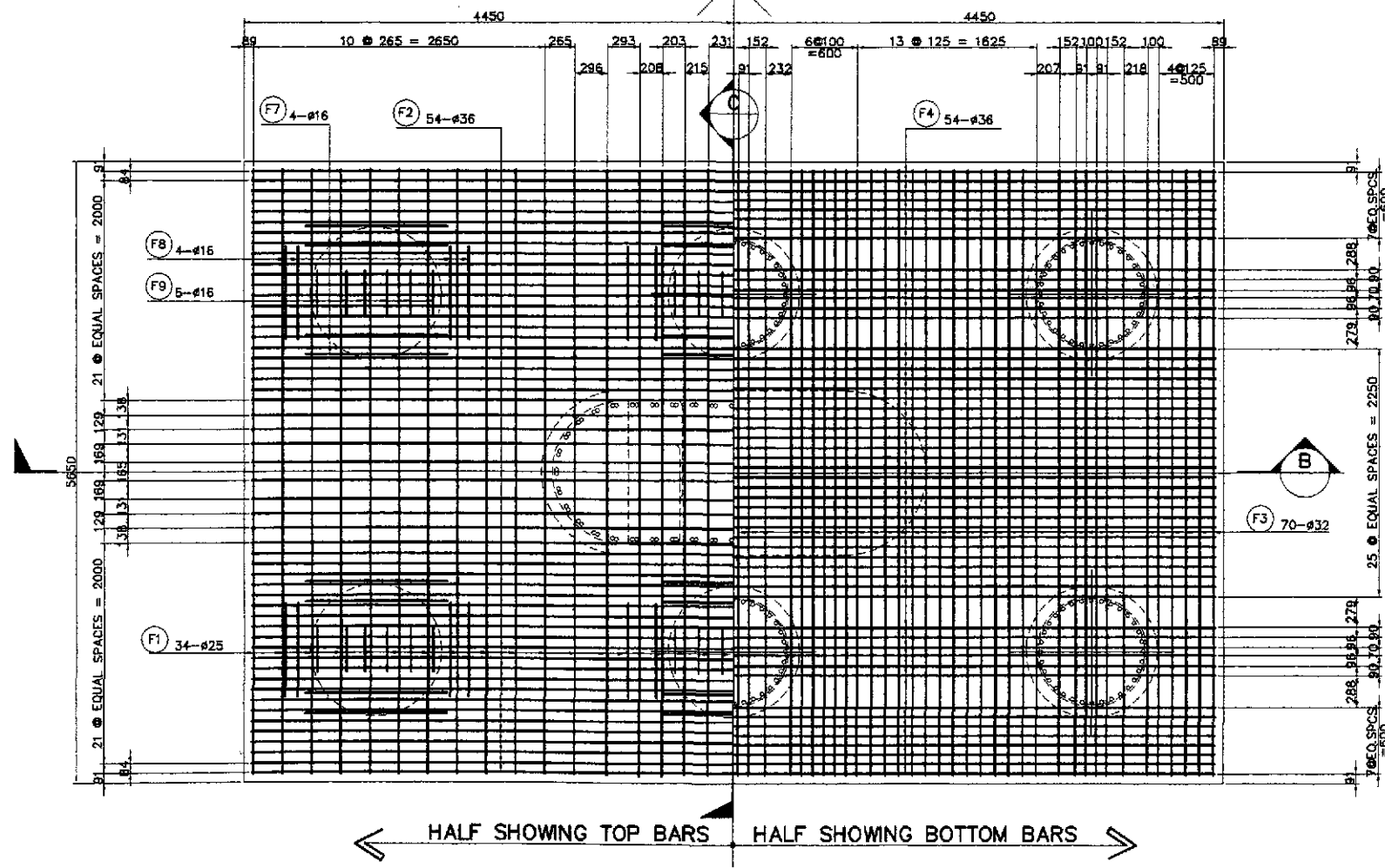
SHEET NO. :
B8A-44



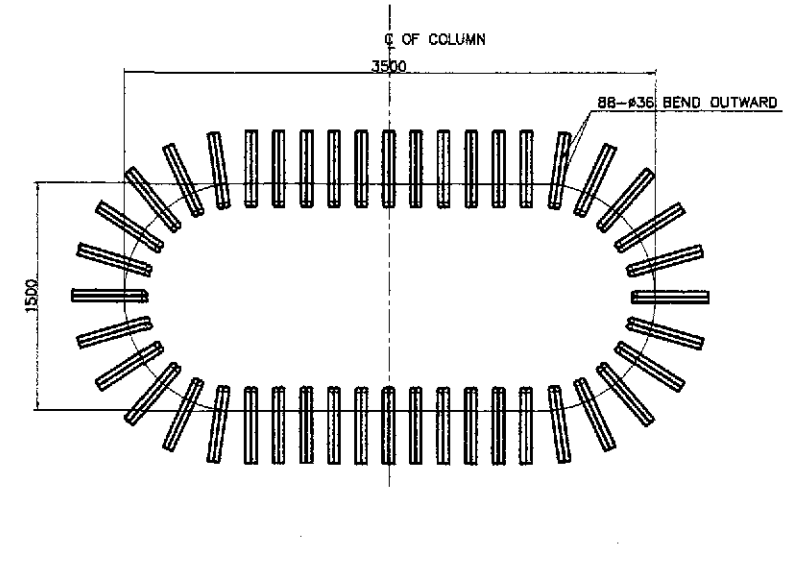
B SECTION
SCALE 1:30



C SECTION
SCALE 1:30



A PLAN
SCALE 1:30



B DETAIL OF COLUMN MAIN BAR ARRANGEMENT @ BOTTOM
SCALE 1:25

1 PILECAP REINFORCEMENT DETAILS (P5, P10 & P26)
SCALE AS SHOWN

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

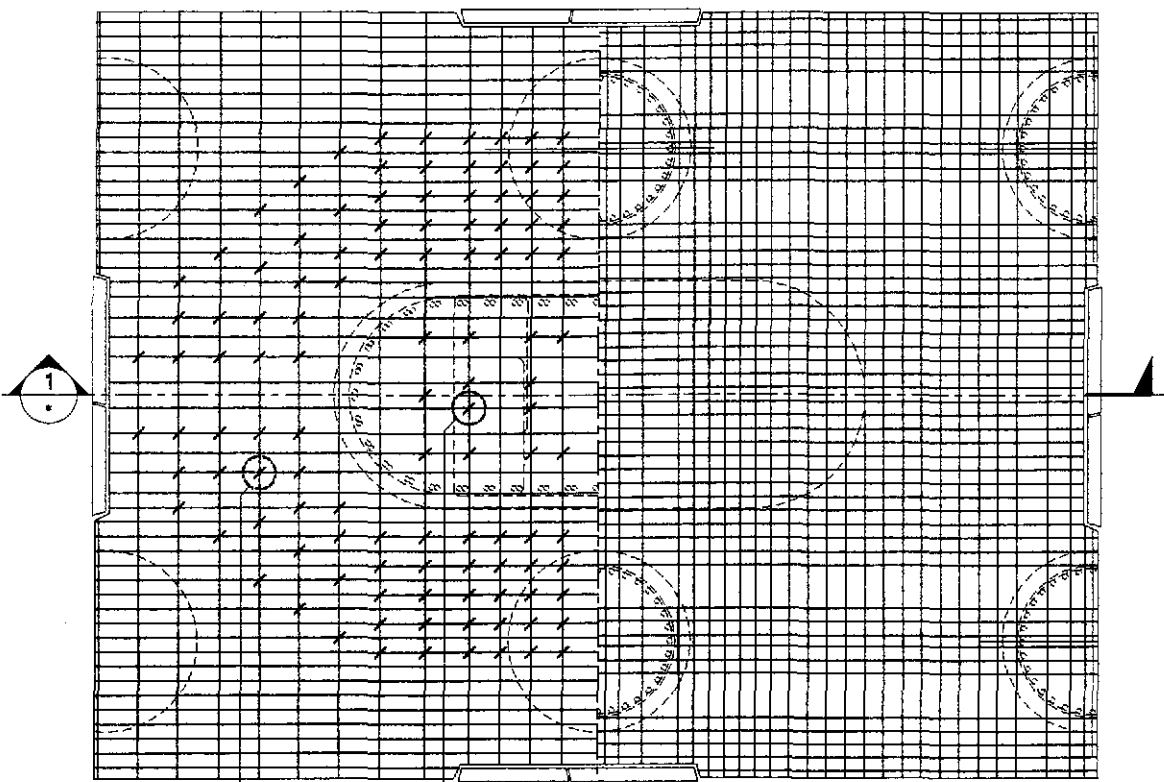
DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		
CHECKED	9/25/02	<i>[Signature]</i>	BUREAU OF DESIGN		
SUBMITTED	9/27/02	<i>[Signature]</i>	Submitted By:	Reviewed By:	Recommended By:
	9/28/02	<i>[Signature]</i>	DANILO C. TRAJANO Project Director	ADRIANO M. DORDOY Chief, Bridge Division	GILBERTO S. REYES Director IV (D/C)
				MANUEL M. BONOAN Undersecretary	SINEON 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)
PLARIDEL BYPASS - CONTRACT PACKAGE III

SCALE :
AS SHOWN
FULL SIZE A1

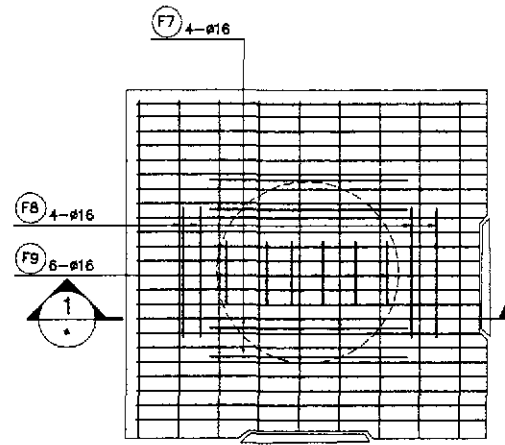
SHEET CONTENTS :
**BRIDGE NO. 8 ANGAT RIVER BRIDGE
PILE CAP REINFORCEMENT DETAILS (P5, P10 & P26) - 1 OF 2 (ULTIMATE STAGE)**

SHEET NO. :
B8A-45



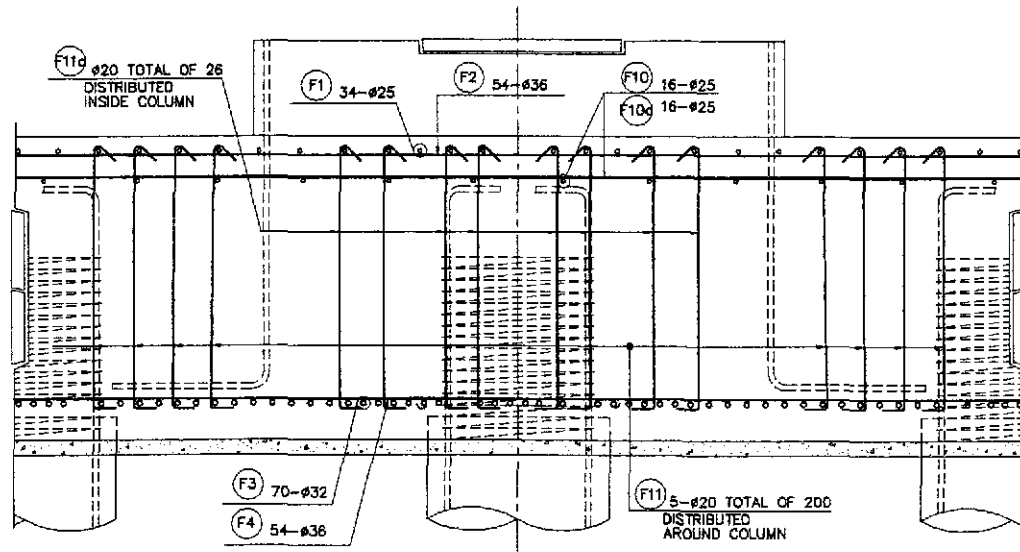
F11 5-#20 TOTAL OF 200 AROUND COLUMN
 F11a #20 TOTAL OF 26 INSIDE COLUMN

A PLAN SCALE 1:25

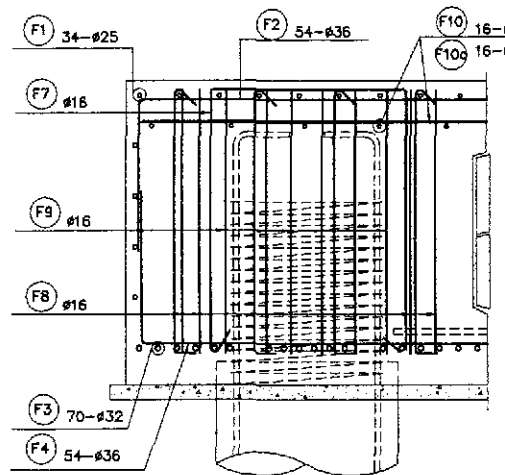


TYPICAL ON PILE-PILECAP CONNECTION

B PLAN SCALE 1:25



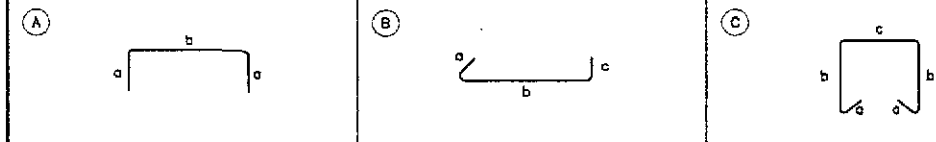
1 SECTION SCALE 1:25



2 SECTION SCALE 1:25

1 PILECAP REINFORCEMENT DETAILS (P5, P10 & P26) AS SHOWN

BAR BENDING DIAGRAM



SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT							LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	
				a	b	c	d	e	f	GRADE 40				GRADE 60	
P5, P10 & P26	F1	25	A	1000	5500						7500	34	3.853		982.52
	F2	36	A	1000	8750						10750	54	7.99		4638.20
	F3	32	A	1000	5500						7500	70	6.313		3314.33
	F4	36	A	1000	8750						10750	54	7.99		4638.20
	F5	25	A	330	5500						6160	8	3.853		189.88
	F5a	25	A	330	8750						9410	8	3.853		290.05
	F6	25	B	265	1700	335					2300	216	2.466		1225.11
	F7	16	C	175	1700	1300					5050	24	1.578	181.25	
	F8	16	G	175	1700	800					4550	24	1.578	172.32	
	F9	16	C	175	1700	400					4150	24	1.578	157.17	
	F10	25	STR	8750							8750	16	3.853		539.42
F10a	25	STR	5500							5500	16	3.853		339.06	
F11	20	B	330	1700	335					2365	200	2.466		1166.42	
F11a	20	B	330	1700	335					2365	26	2.466		151.63	
												TOTAL WEIGHT PER PIER	= 520.74	17,474.82	
												GRAND TOTAL WEIGHT (3) PIERS	= 1,562.22	52,424.46	

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

JICA
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REPUBLIC OF THE PHILIPPINES
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN
 OFFICE OF THE SECRETARY

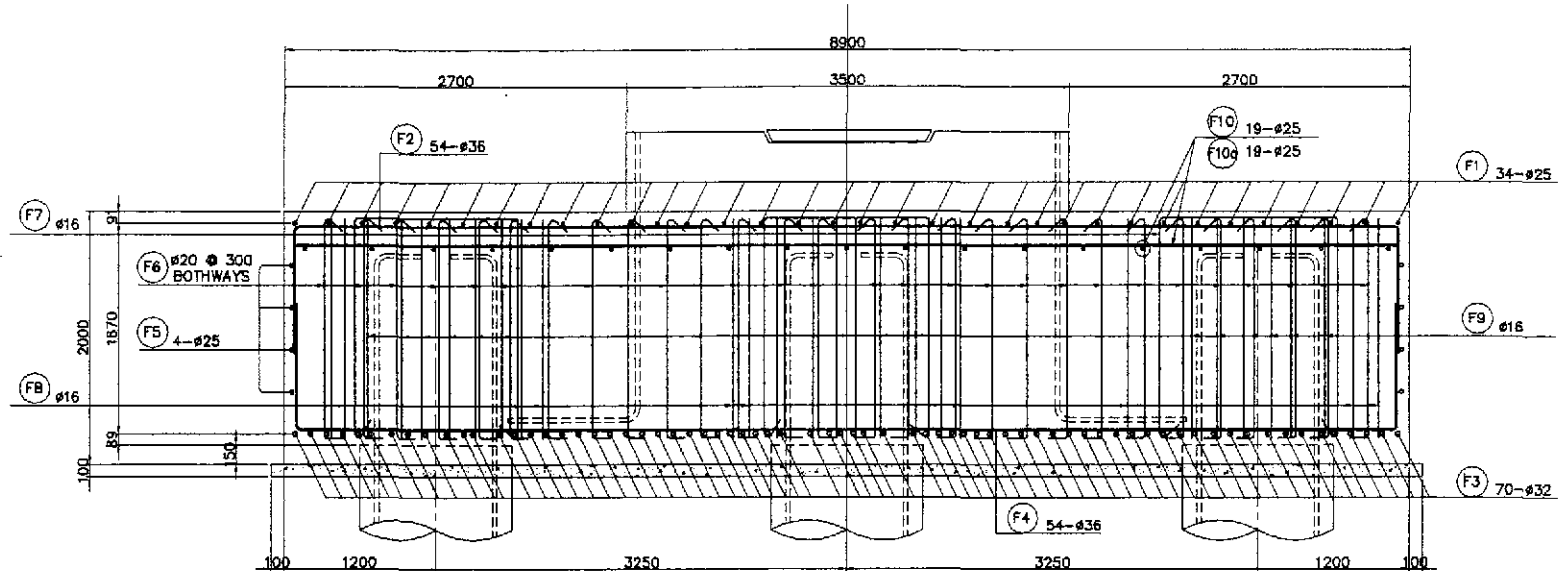
Submitted By: DANLO C. TRAJANO, Project Director
 Reviewed By: ADRIANO M. DOROY, Chief, Bridge Division
 Recommended By: GILBERTO S. REYES, Director IV (OIC)
 Recommended By: MANUEL M. BONGON, Undersecretary
 Approved By: SIMEON A. DATUMANONG, Secretary

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

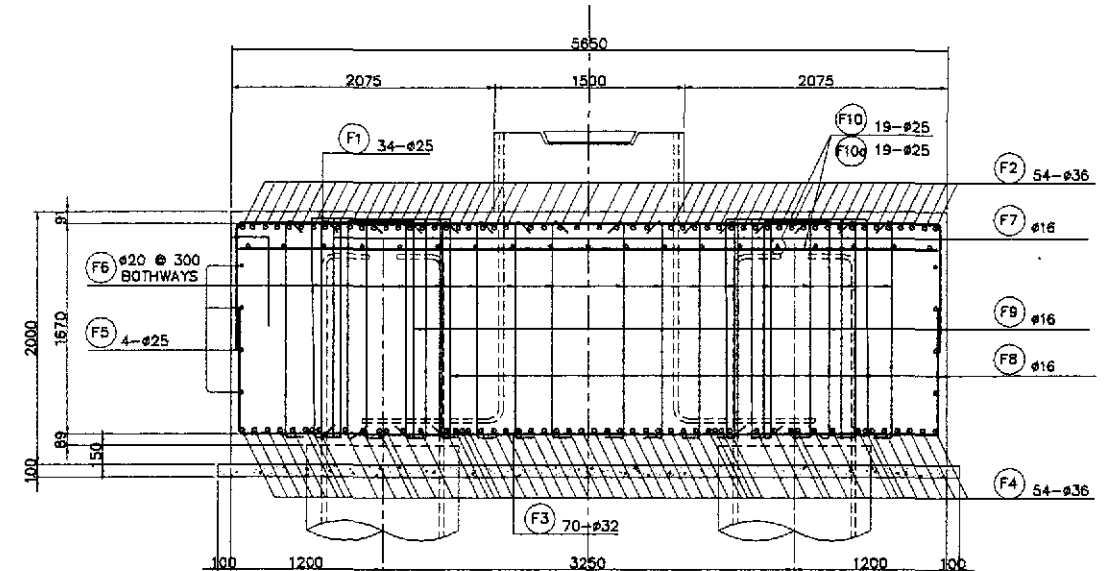
SCALE : AS SHOWN
 FULL SIZE A1

SHEET CONTENTS :
 BRIDGE NO. 8 ANGAT RIVER BRIDGE
 PILE CAP REINFORCEMENT DETAILS (P5, P10 & P26) - 2 OF 2 (ULTIMATE STAGE)

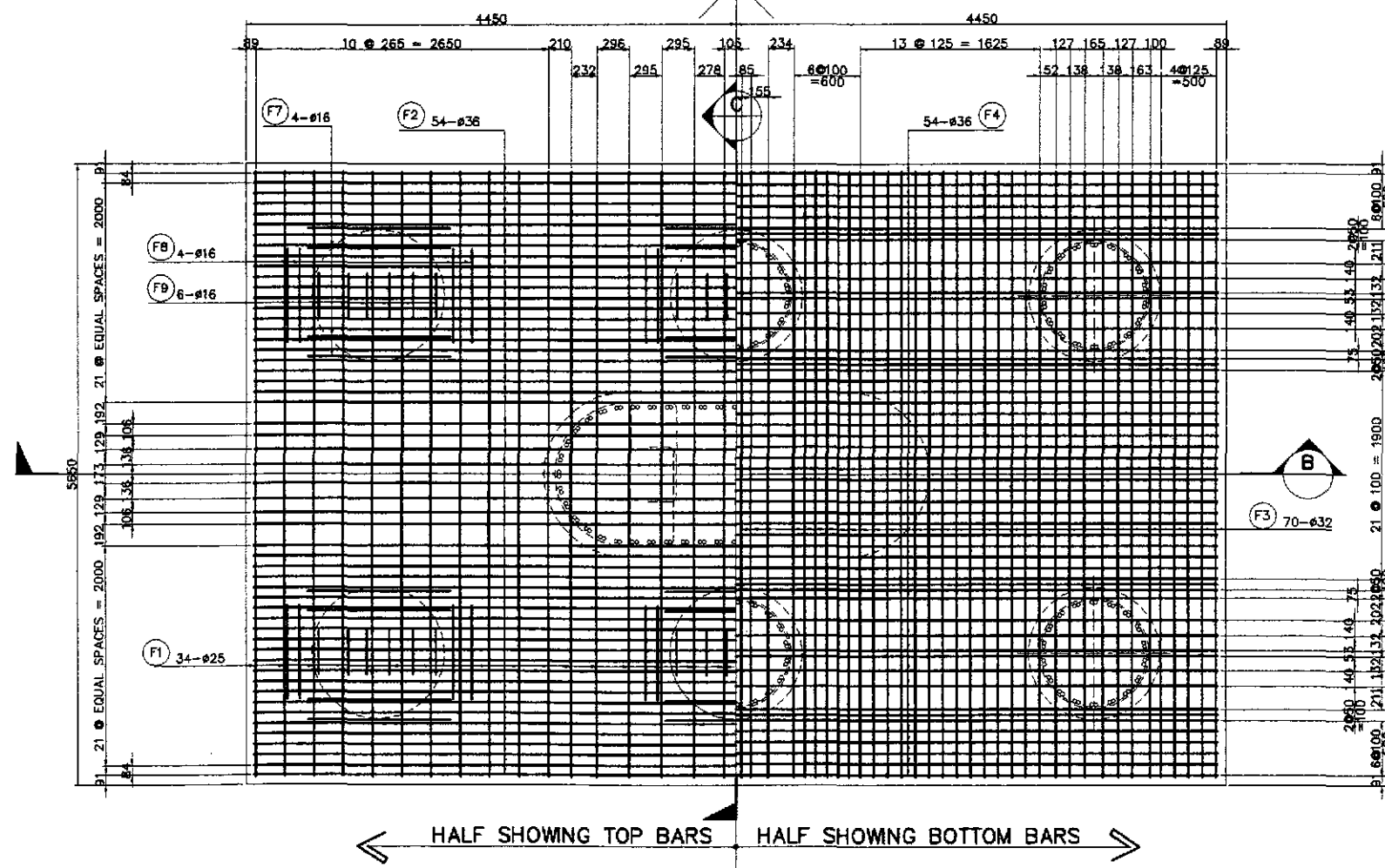
SHEET NO. : B8A-46



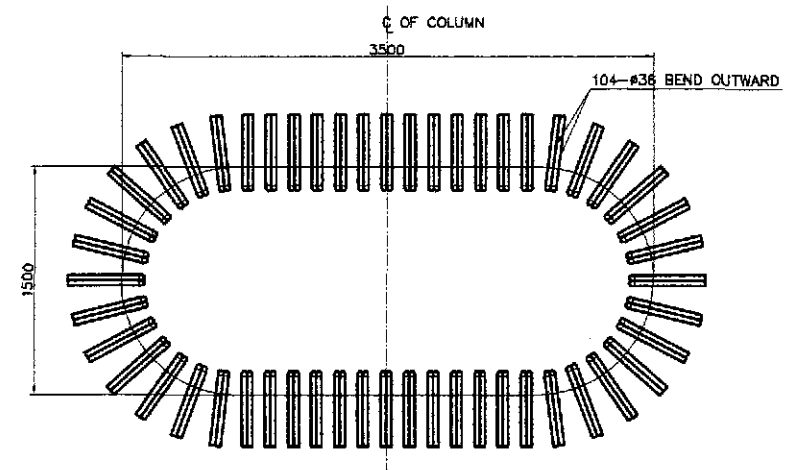
B SECTION
SCALE 1:30



C SECTION
SCALE 1:30



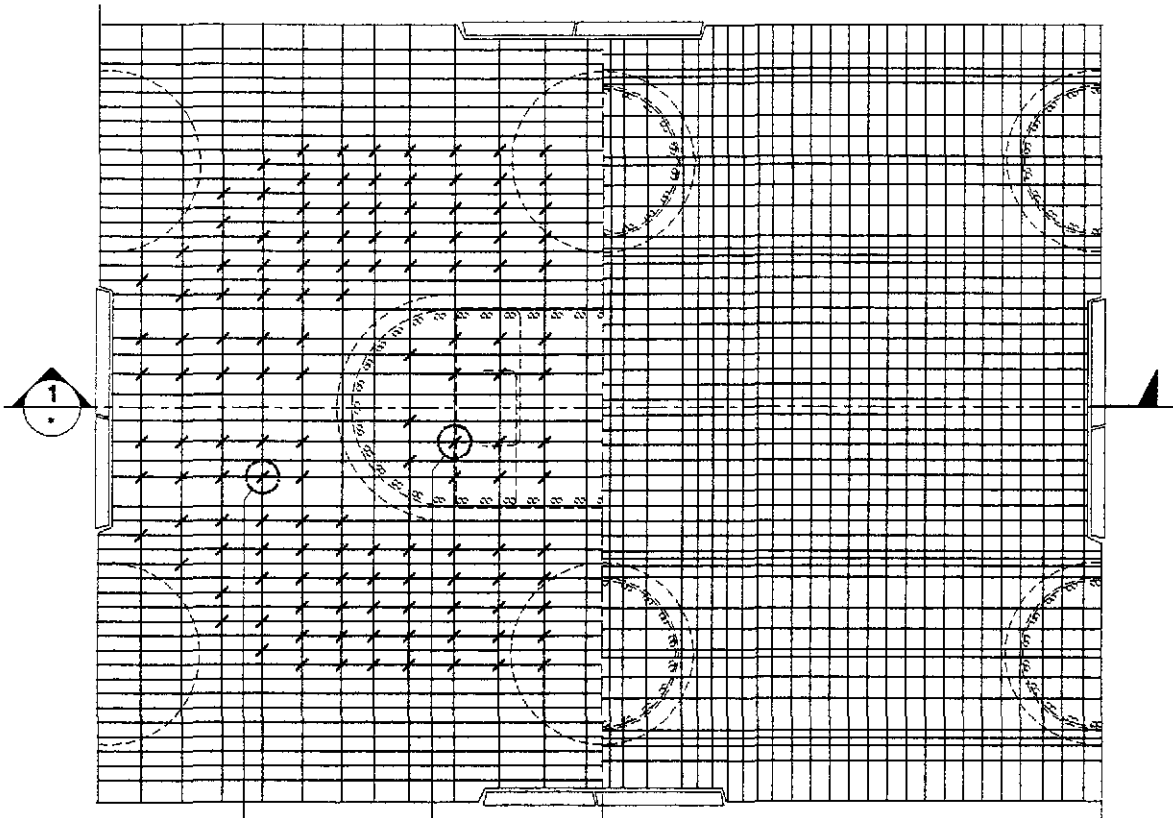
A PLAN
SCALE 1:30



B DETAIL OF COLUMN
MAIN BAR ARRANGEMENT @ BOTTOM
SCALE 1:25

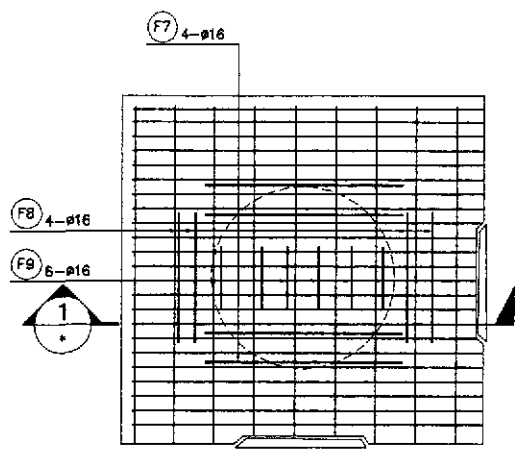
PILECAP REINFORCEMENT DETAILS (P1, P2, P3, P4, P6, P7, P8, P9, P11, P12, P13, P22, P23, P24, P25, P27, P28 & P30)
SCALE AS SHOWN

	DESIGNED	DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :			SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/27/02	[Signature]		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. 8 ANGAT RIVER BRIDGE PILE CAP REINF. DETAILS (P1-P4, P6-P9, P11-P13, P22-P25 & P27-P30) - 1 OF 2 (ULTIMATE STAGE)	B8A-47
				BUREAU OF DESIGN OFFICE OF THE SECRETARY			FULL SIZE A1			
				SUBMITTED 9/30/02 [Signature] TEAM LEADER			PLARIDEL BYPASS - CONTRACT PACKAGE III			
		Submitted By: DANILLO C. TRAJANO Project Director		Reviewed By: ADRIANO M. DORAY Chief, Bridges Division		Recommended By: GILBERTO S. REYES Director IV (GIC)		Approved By: MANUEL M. BONGUAN Undersecretary		
				Recommended By: SIMEON A. DATUMANONG Secretary						



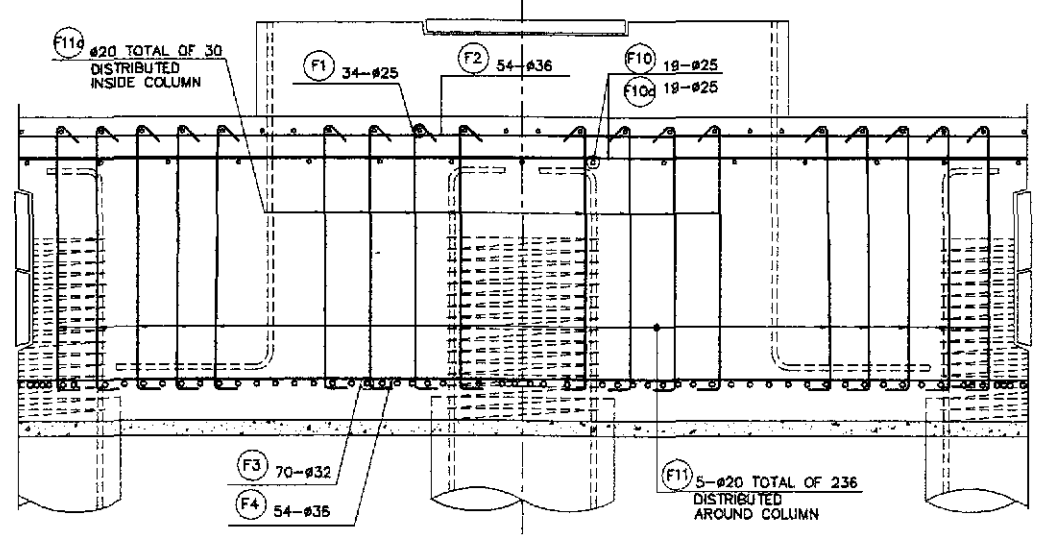
F11 5-#20 TOTAL OF 236 AROUND COLUMN
 F119 #20 TOTAL OF 30 INSIDE COLUMN

A PLAN SCALE 1:25

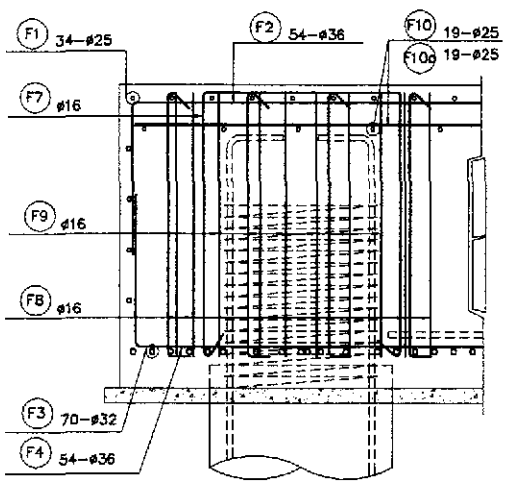


TYPICAL ON PILE-PILECAP CONNECTION

B PLAN SCALE 1:25



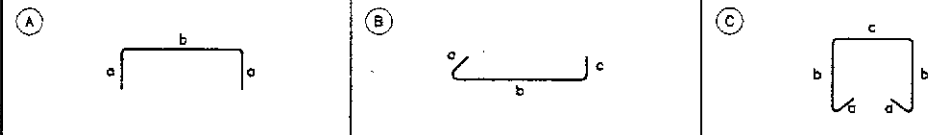
1 SECTION SCALE 1:25



2 SECTION SCALE 1:25

PILECAP REINFORCEMENT DETAILS (P1, P2, P3, P4, P6, P7, P8, P9, P11, P12, P13, P22, P23, P24, P25, P27, P28 & P30) AS SHOWN

BAR BENDING DIAGRAM



SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	
				a	b	c	d	e	f				GRADE 40	GRADE 60
P1, P2, P3, P4, P6, P7, P8, P9, P11, P12, P13, P22, P23, P24, P25, P27, P28, P29 & P30	F1	25	A	1000	5500					7500	34	3.853		982.52
	F2	36	A	1000	8750					10750	54	7.99		4638.20
	F3	32	A	1000	5500					7500	70	6.313		3314.33
	F4	36	A	1000	8750					10750	54	7.99		4638.20
	F5	25	A	330	5500					6160	8	3.853		189.88
	F5a	25	A	330	8750					9410	8	3.853		290.05
	F6	25	B	265	1700	335				2300	216	2.466		1225.11
	F7	16	C	175	1700	1300				5050	24	1.578	191.25	
	FB	16	C	175	1700	800				4550	24	1.578	172.32	
	F9	16	C	175	1700	400				4150	24	1.578	157.17	
	F10	25	STR	8750						8750	19	3.853		640.56
F10a	25	STR	5500						5500	19	3.853		402.64	
F11	20	B	330	1700	335				2365	236	2.466		1376.37	
F11a	20	B	330	1700	335				2365	30	2.466		174.96	
TOTAL WEIGHT PER PIER =											520.74	17,672.82		
GRAND TOTAL WEIGHT (19) PIERS =											9,884.06	321,710.78		

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

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

DESIGNED: 9/25/02
 CHECKED: 9/27/02
 SUBMITTED: 9/29/02

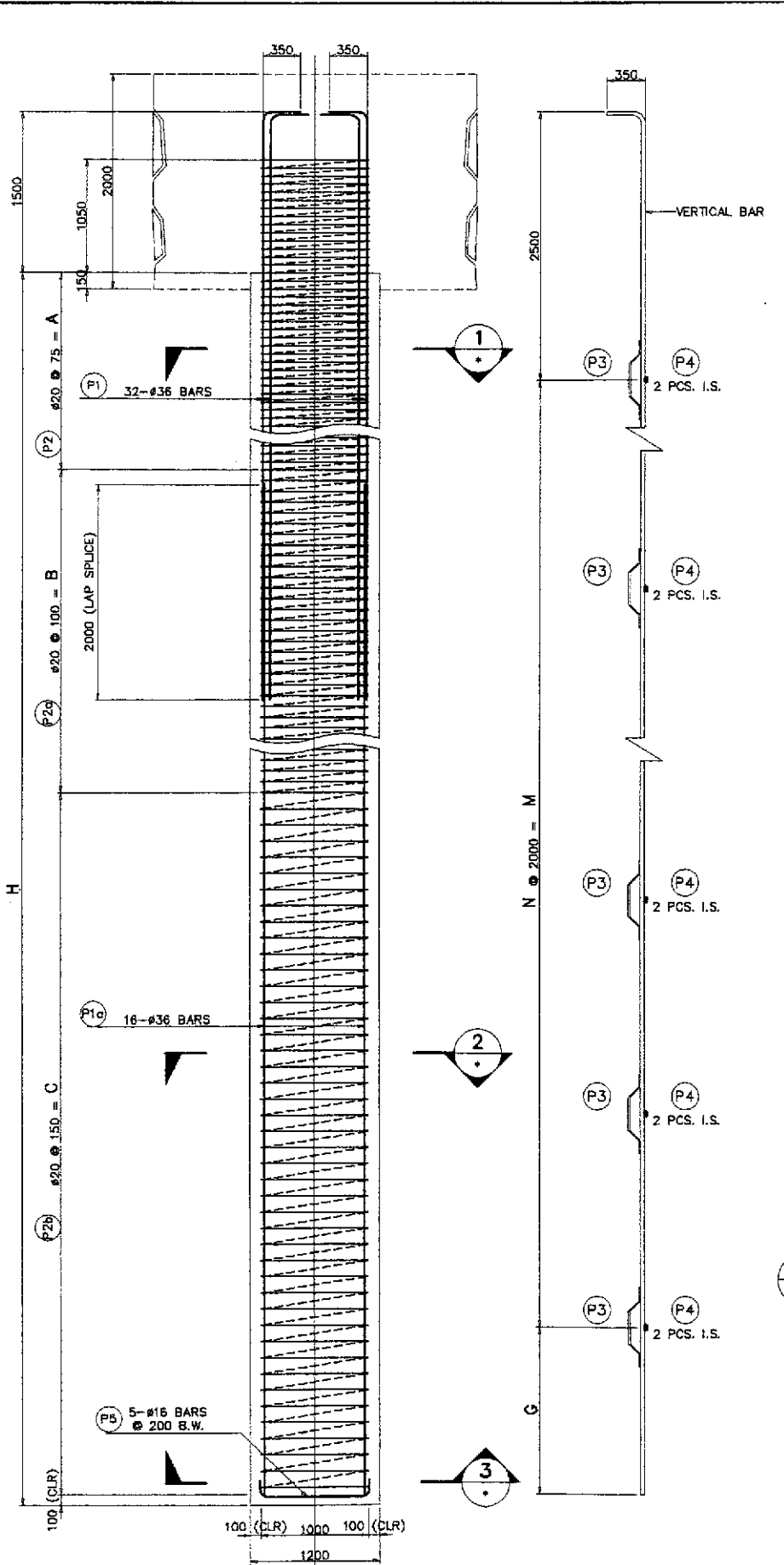
REPUBLIC OF THE PHILIPPINES
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
 BUREAU OF DESIGN
 OFFICE OF THE SECRETARY

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

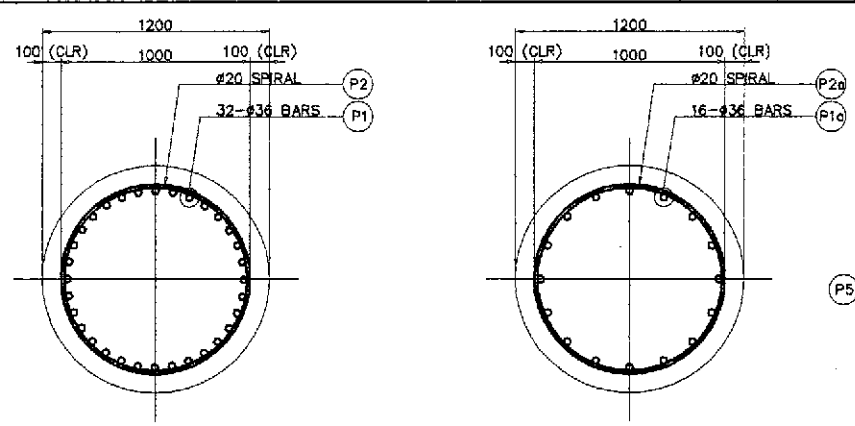
SCALE :
 AS SHOWN
 FULL SIZE A1

SHEET CONTENTS :
 BRIDGE NO. 8 ANGAT RIVER BRIDGE
 PILE CAP REIN. DETAILS (P1-P4, P6-P9,
 P11-P13, P22-P25 & P27-P30) - 2 OF 2
 (ULTIMATE STAGE)

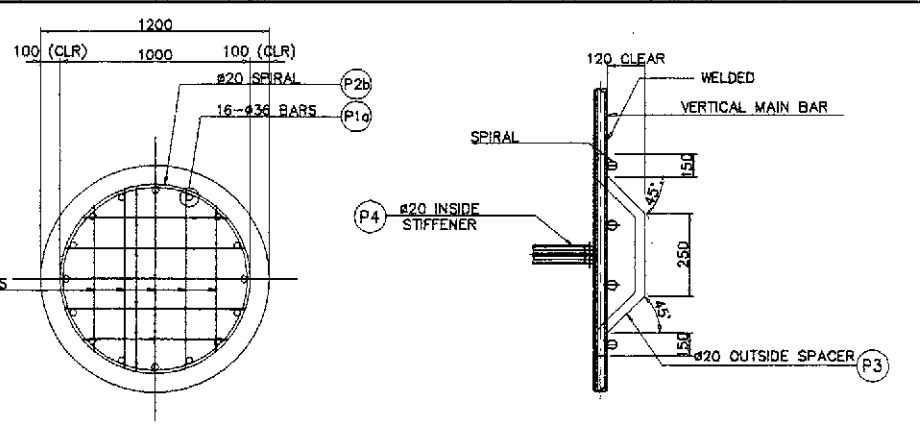
SHEET NO. :
 B8A-48



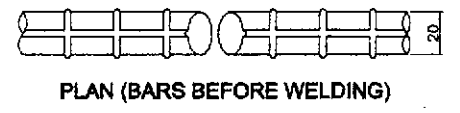
A ELEVATION SCALE 1:30
B LAYOUT OF STIFFENER SCALE 1:30



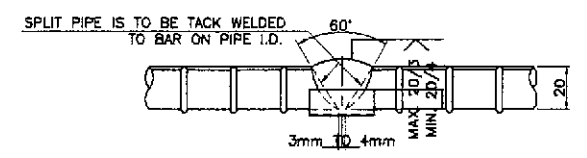
1 SECTION SCALE 1:20
2 SECTION SCALE 1:20



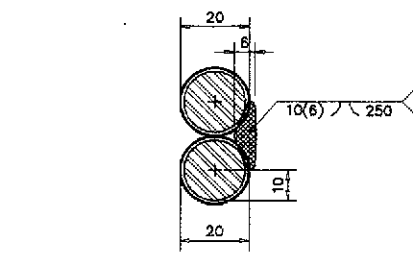
3 SECTION SCALE 1:20
E DETAIL OF STIFFENER/SPACER NOT TO SCALE



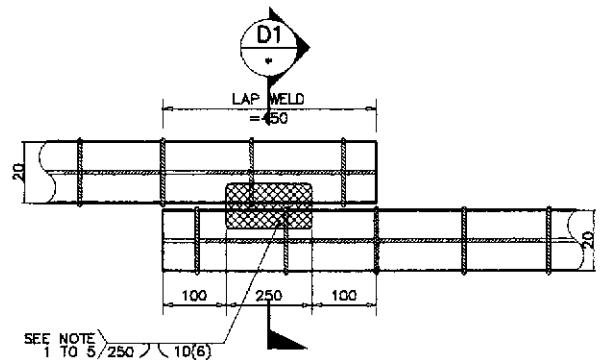
PLAN (BARS BEFORE WELDING)



DETAILS OF SINGLE-V-GROOVE BUTT WELD



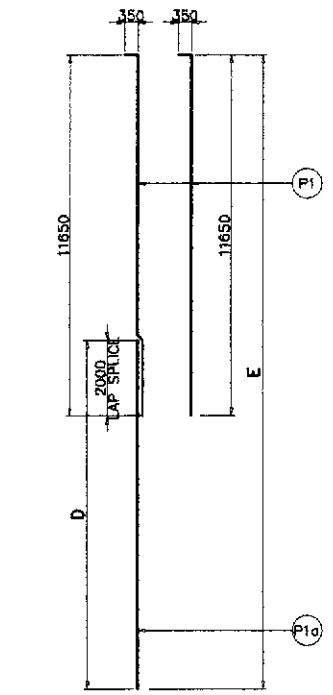
DOUBLE FLARED-V-GROOVE WELD SECTION - D1



DIRECT LAP JOINT WITH BARS IN CONTACT



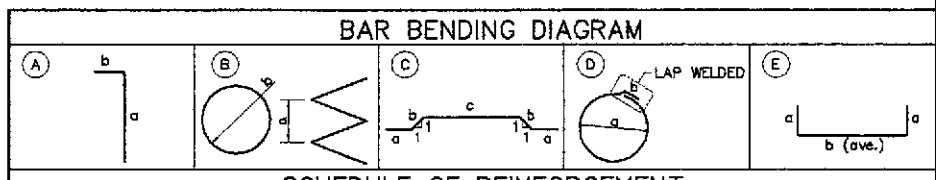
DETAILS OF SPIRAL REINF. FULL LAP-WELD CONNECTION NOT TO SCALE



C SCHEMATIC DETAIL NOT TO SCALE

- NOTES ON LAP WELD CONNECTION**
- TIES REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE).
 - WELDING SHOULD CONFORM TO ANSI/AWS D1.4-92 "STRUCTURAL WELDING CODE REINFORCEMENT STEEL".
 - USE ELECTRODE E90XX-X.
 - CARE SHOULD BE TAKEN NOT TO DAMAGE THE BORED PILE MAIN BARS DURING WELDING.
 - SPIRAL REINFORCEMENT SHOULD BE BUTT WELDED WHERE SPIRAL PITCH IS 75mm. OTHERWISE, USE LAP WELD SPLICE.

SCHEDULE OF DIMENSIONS									
PIER	H (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	G (mm)	N	M (mm)
P5 & P10	20000	4000	6200	9600	11750	21400	900	9	18000
P26 & P30	18000	4000	6200	7650	9750	18400	900	8	16000

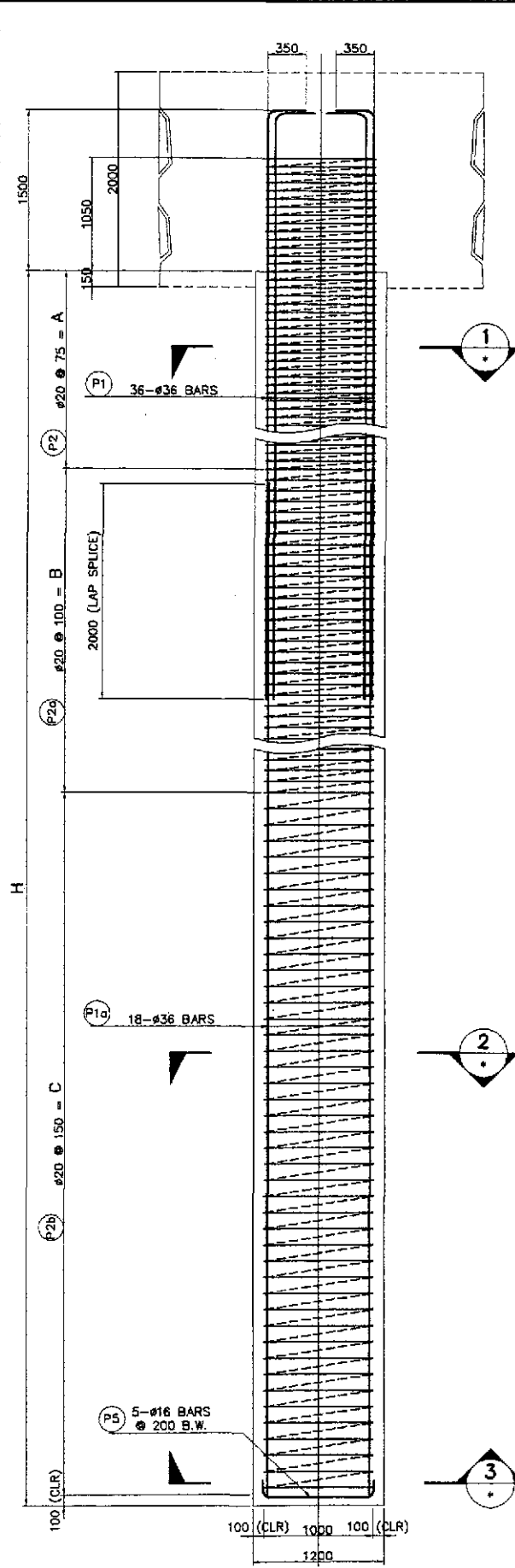


SCHEDULE OF REINFORCEMENT

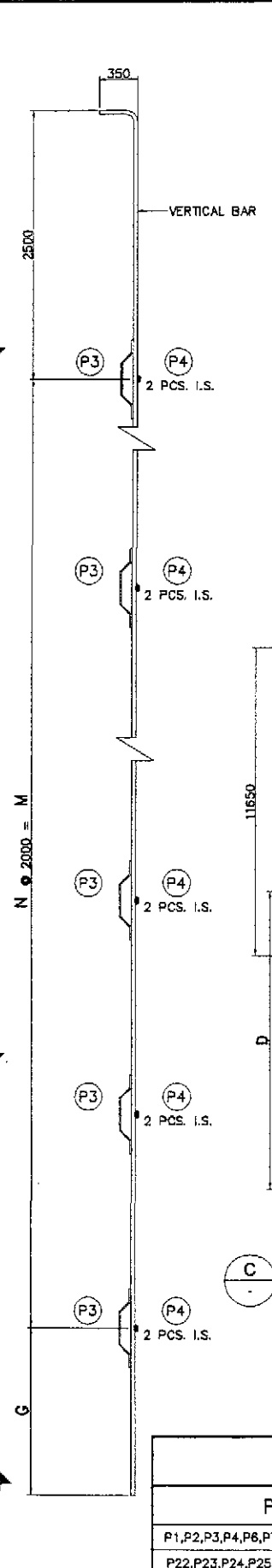
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT				LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)		
				a	b	c	d				GRADE 40	GRADE 60	
PIER P5 & P10 DIA = 1200 L = 20000	P1	36	A	11650	350			12000	32	7.991		3068.16	
	P1a	36	STR	11750				11750	16	7.991		1502.12	
	P2	20	B	75	980			170749	-	2.466		421.07	
	P2a	20	B	100	980			198483	-	2.466		489.46	
	P2b	20	B	150	980			205275	-	2.466		506.21	
	P3	20	C	150	170	250		890	80	2.466		175.58	
	P4	20	D	868	500			3227	20	2.466		159.15	
	P5	16	E	150	845			1145	10	1.579	18.07		
											TOTAL WEIGHT PER PILE =	18.07	6,321.74
											TOTAL WEIGHT FOR P5 =	108.41	37,830.47
										TOTAL WEIGHT FOR P10 =	108.41	37,830.47	
PIER P26 DIA = 1200 L = 18000	P1	36	A	11650	350			12000	32	7.991		3068.16	
	P1a	36	STR	9750				9750	16	7.991		1246.44	
	P2	20	B	75	980			170749	-	2.466		421.07	
	P2a	20	B	100	980			198483	-	2.466		489.46	
	P2b	20	B	150	980			163703	-	2.466		403.69	
	P3	20	C	150	170	250		890	72	2.466		158.02	
P4	20	D	868	500			3227	18	2.466		143.24		
P5	16	E	150	845			1145	10	1.579	18.07			
										TOTAL WEIGHT PER PILE =	18.07	5,930.07	
										TOTAL WEIGHT FOR P26 =	108.41	35,580.45	
										TOTAL WEIGHT FOR P30 =	144.54	47,440.60	

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

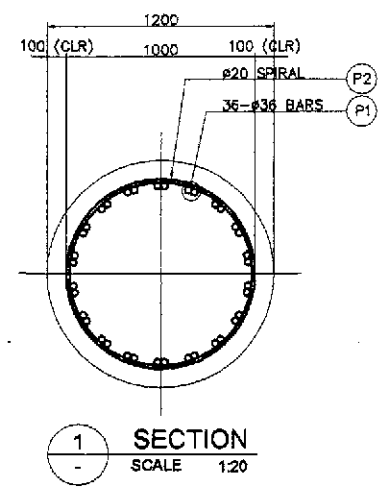
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/21/02	[Signature]		DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			THE DETAILED DESIGN STUDY ON	AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE	B8A-49
	SUBMITTED	9/21/02	[Signature]		BUREAU OF DESIGN			UPGRADING INTER-URBAN HIGHWAY SYSTEM	FULL SIZE A1	BORED PILE REINFORCEMENT DETAILS	
	Submitted By: DANILLO C. TRAJANO				Reviewed By: ADRIANO M. DOROY			Along the Pan-Philippine Highway			
Project Director			Chief, Bridge Division			(Plaridel, Cabanatuan and San Jose Bypasses)			(ULTIMATE STAGE)		
			Recommended By: GILBERTO S. REYES			PlARIDEL BYPASS - CONTRACT PACKAGE III					
			Approved By: MANUEL M. BONDAN								
			Approved By: SIMON A. DATUMANONG								



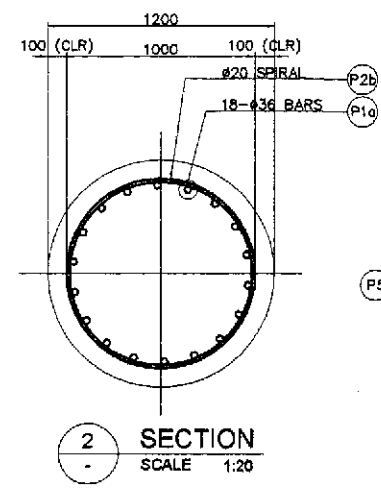
A ELEVATION
SCALE 1:30



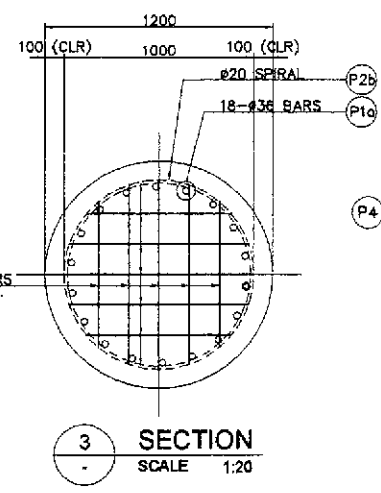
B LAYOUT OF STIFFENER
SCALE 1:30



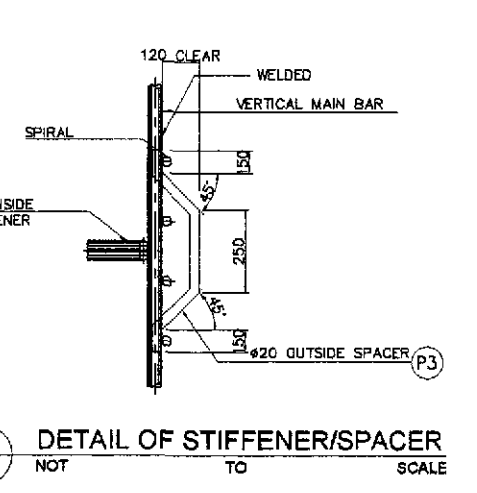
1 SECTION
SCALE 1:20



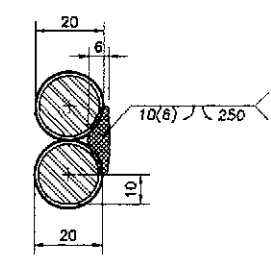
2 SECTION
SCALE 1:20



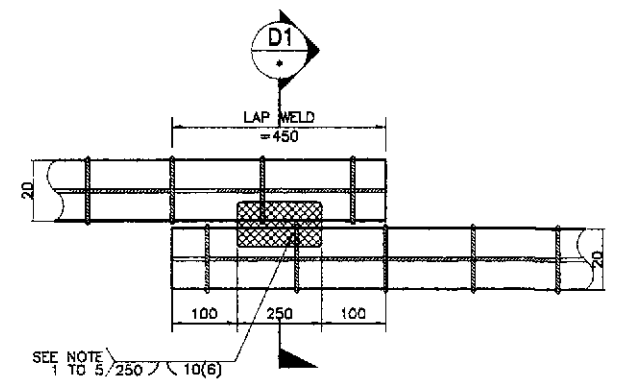
3 SECTION
SCALE 1:20



E DETAIL OF STIFFENER/SPACER
NOT TO SCALE



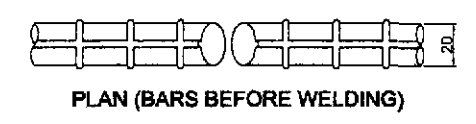
DOUBLE FLARED V-GROOVE WELD SECTION - D1



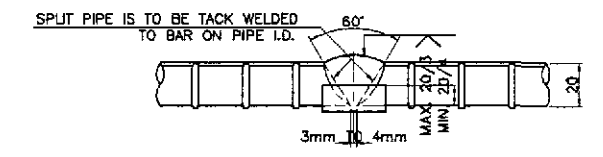
DIRECT LAP JOINT WITH BARS IN CONTACT
DETAILS OF SPIRAL REINF. FULL LAP-WELD CONNECTION
NOT TO SCALE

- NOTES ON LAP WELD CONNECTION**
1. TIES REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE).
 2. WELDING SHOULD CONFORM TO ANSI/AWS D1.4-82 "STRUCTURAL WELDING CODE REINFORCEMENT STEEL".
 3. USE ELECTRODE E90XX-X.
 4. CARE SHOULD BE TAKEN NOT TO DAMAGE THE BORED PILE MAIN BARS DURING WELDING.
 5. SPIRAL REINFORCEMENT SHOULD BE BUTT WELDED WHERE SPIRAL PITCH IS 75mm. OTHERWISE, USE LAP WELD SPLICE.

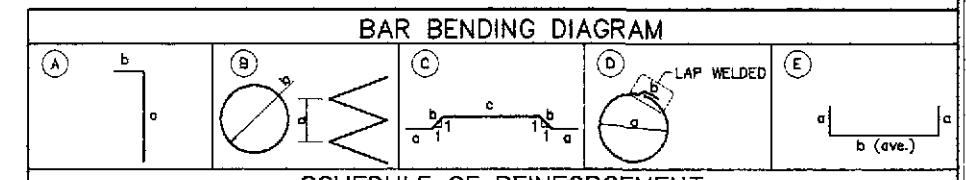
PIER	H (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	G (mm)	N	M (mm)
P1,P2,P3,P4,P6,P7,P8,P9,P11,P12 & P13	20000	4000	6200	9600	11750	21400	900	9	18000
P22,P23,P24,P25,P27,P28, P29 & P30	18000	4000	6200	7650	9750	19400	900	B	16000



PLAN (BARS BEFORE WELDING)



DETAILS OF SINGLE-V-GROOVE BUTT WELD



BAR BENDING DIAGRAM

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT				LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)		
				a	b	c	d				GRADE 40	GRADE 80	
PIER P1-P5 DIA. = 1200 L = 20000	P1	36	A	11650	350			12000	36	7.991		3451.68	
	P1a	36	STR	11750				9750	18	7.991		1402.25	
	P2	20	B	75	980			170749	-	2.466		421.07	
	P2a	20	B	100	980			198483	-	2.466		489.46	
	P2b	20	B	150	980			163703	-	2.466		403.69	
	P3	20	C	150	170	250		205275	-	2.466		508.21	
	P4	20	D	888	500			890	80	2.466		175.58	
	P5	16	E	150	845			3227	20	2.466		159.15	
								1145	10	1.578	18.07		
	TOTAL WEIGHT PER PILE =										18.07	6,863.03	
	TOTAL WEIGHT PER PIER =										108.41	41,358.18	
TOTAL WEIGHT FOR (11) PIERS =										1192.51	854,939.8		
PIER P22-P29 & P30 DIA. = 1200 L = 18000	P1	36	A	11650	350			12000	36	7.991		3451.68	
	P1a	36	A	9750				9750	18	7.991		1402.25	
	P2	20	B	75	980			170749	-	2.466		421.07	
	P2a	20	B	100	980			198483	-	2.466		489.46	
	P2b	20	B	150	980			163703	-	2.466		403.69	
	P3	20	C	150	170	250		205275	-	2.466		508.21	
P4	20	D	888	500			890	80	2.466		175.58		
P5	16	E	150	845			3227	20	2.466		159.15		
							1145	10	1.578	18.07			
TOTAL WEIGHT PER PILE =										18.07	6,469.40		
TOTAL WEIGHT PER PIER =										108.41	38,816.40		
TOTAL WEIGHT FOR (8) PIERS =										867.28	310,531.20		

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

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS
INTERNATIONAL

YEO YACHIYO ENGINEERING
CO., LTD.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

DESIGNED: 9/26/02
CHECKED: 9/27/02
SUBMITTED: 9/28/02

DATE: 9/26/02
SIGNATURE: [Signature]

PIHL - PMO
Submitted By: [Signature]
Reviewed By: [Signature]
Recommended By: [Signature]
Recommended By: [Signature]
Approved By: [Signature]

BUREAU OF DESIGN
OFFICE OF THE SECRETARY
(See cover sheet for Signatures/Approvals)

DANILO C. TRAJANO
Project Director

ADRIANO M. DORJOY
Chief, Bridges Division

GILBERTO S. REYES
Director IV (OIC)

MANUEL M. BONOAN
Undersecretary

SIMEON A. DATUMANONG
Secretary

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

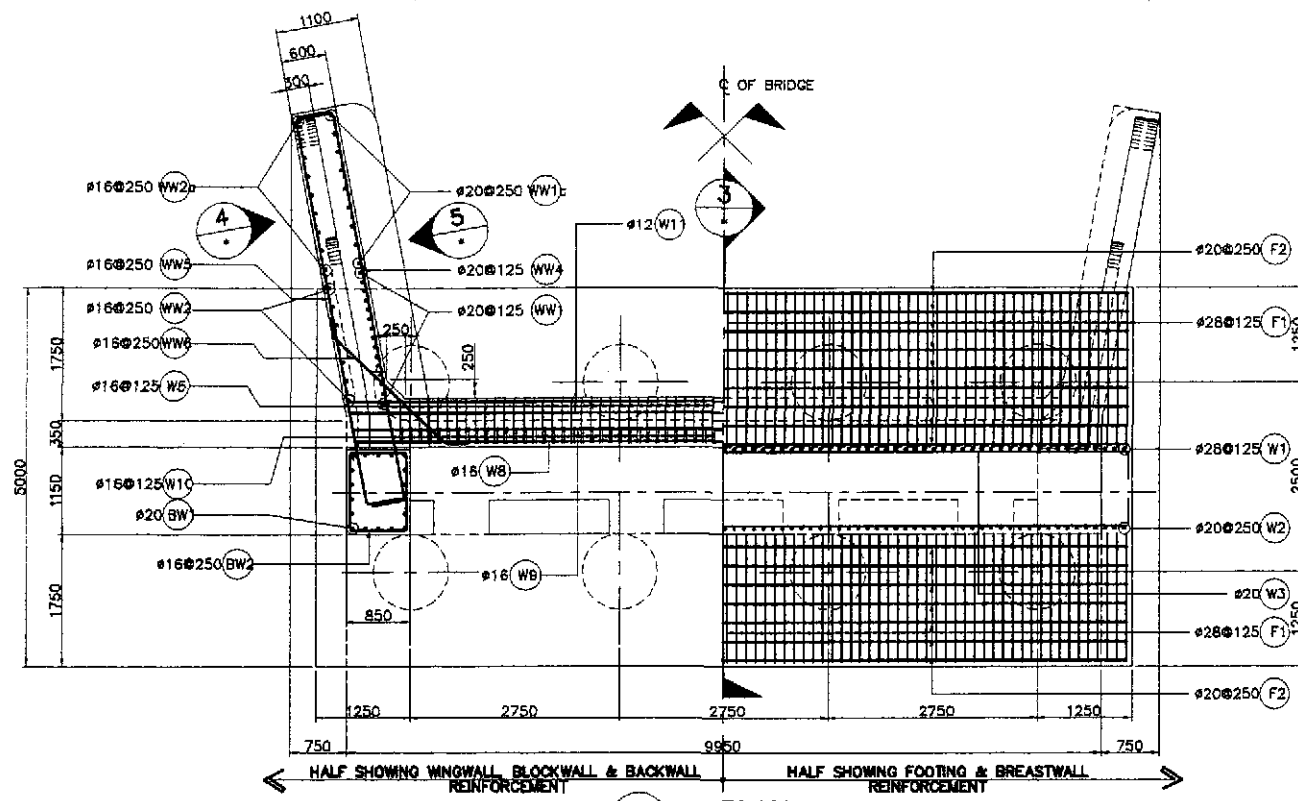
SCALE : AS SHOWN

SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE BORED PILE REINFORCEMENT DETAILS (P1-P4, P6-P9, P11-P13, P22-P25 & P27-P30) (ULTIMATE STAGE)

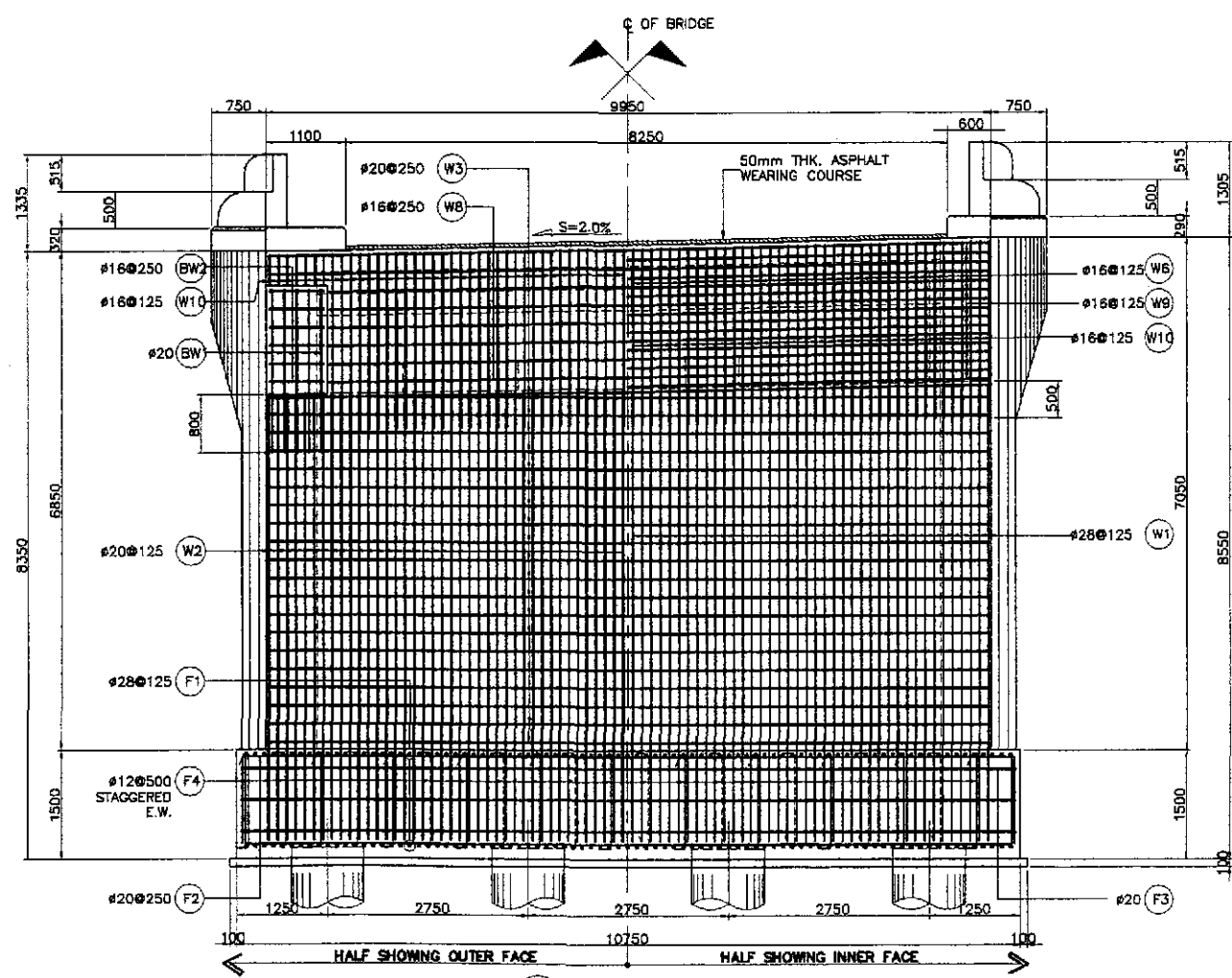
SHEET NO. : **B8A-50**

PLARIDEL BYPASS - CONTRACT PACKAGE III

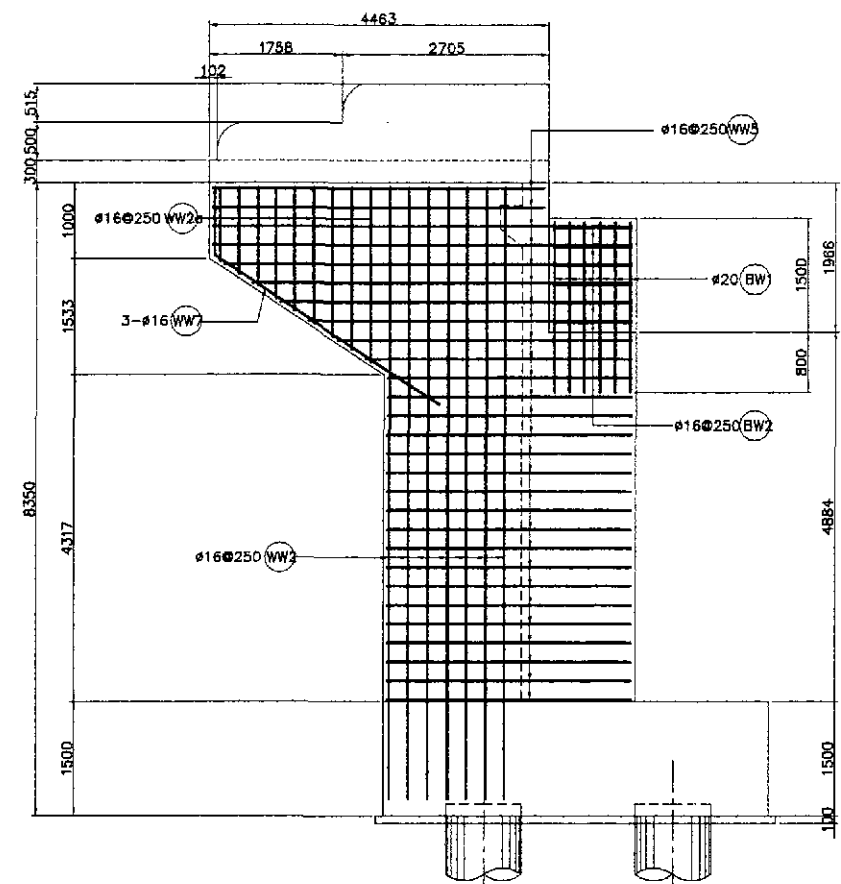
FULL SIZE A1



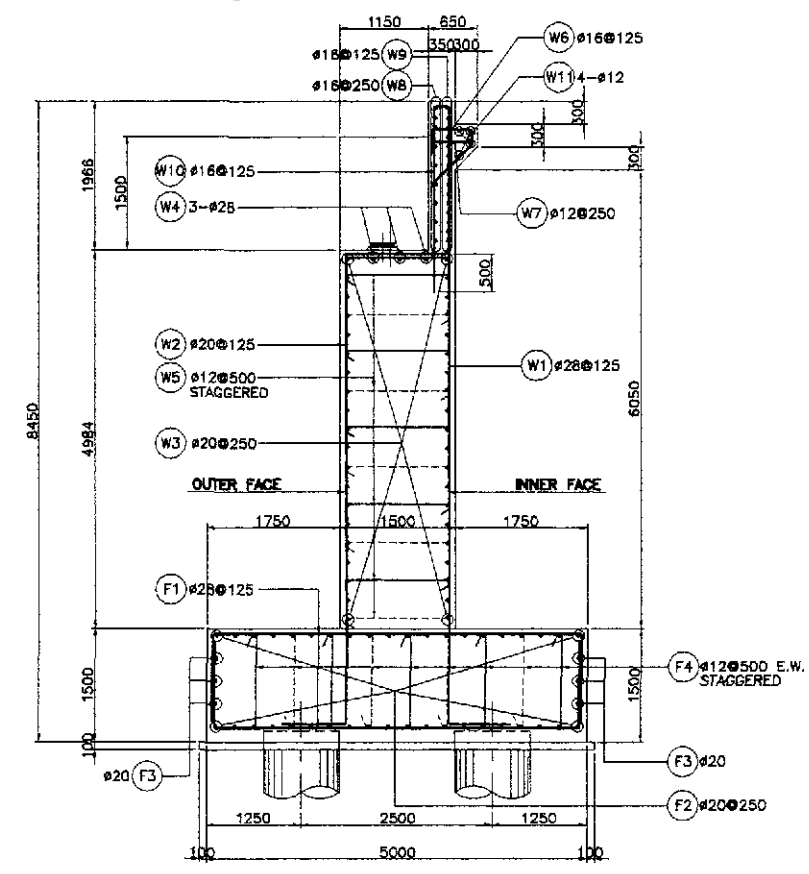
1 PLAN
SCALE 1:50



2 ELEVATION
SCALE 1:50



4 WINGWALL ELEVATION
SCALE 1:50



3 SECTION
SCALE 1:50

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

DESIGNED	DATE	SIGNATURE
9/25/02	9/25/02	<i>[Signature]</i>
CHECKED	DATE	SIGNATURE
9/27/02	9/27/02	<i>[Signature]</i>
SUBMITTED	DATE	SIGNATURE
9/30/02	9/30/02	<i>[Signature]</i>

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

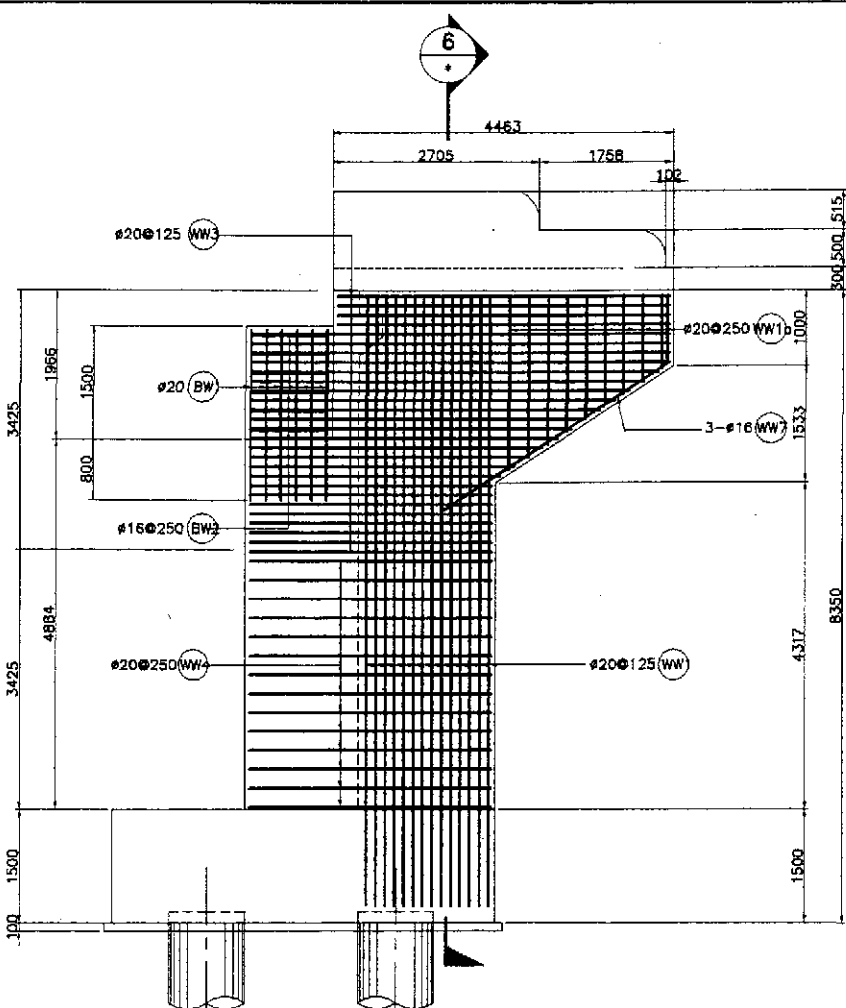
BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Approved By:
DANILO C. TRAJANO Project Director	ADRIANO M. DORCY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)	MENENDEO BONGHAN Undersecretary

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

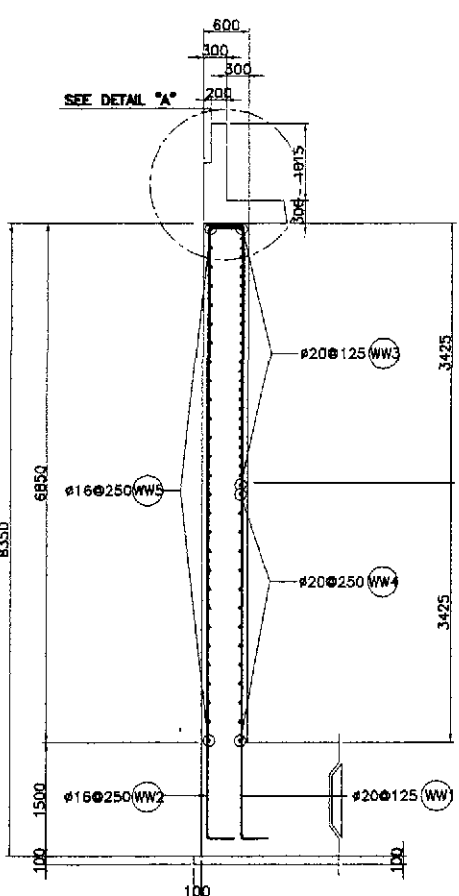
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE
ABUTMENT A1 & A2 REINFORCEMENT
DETAILS (1 OF 2)
(ULTIMATE STAGE)

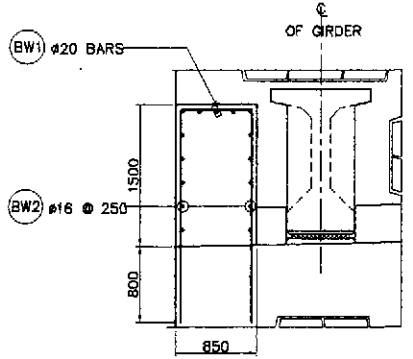
SHEET NO. :
B8A-51



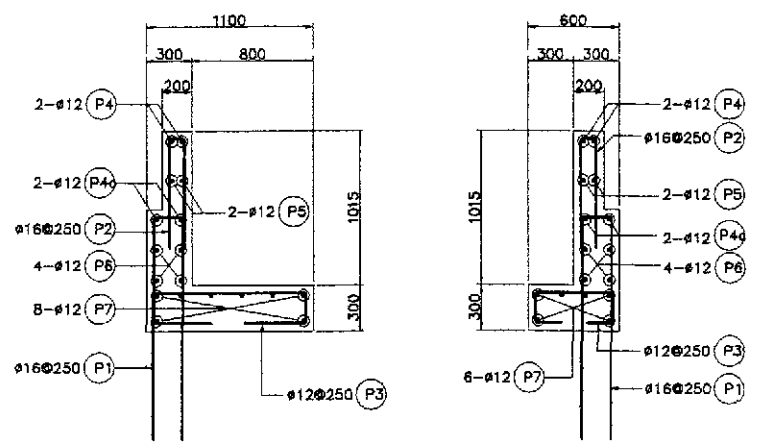
5 WINGWALL ELEVATION
SCALE 1:50



6 SECTION
SCALE 1:50

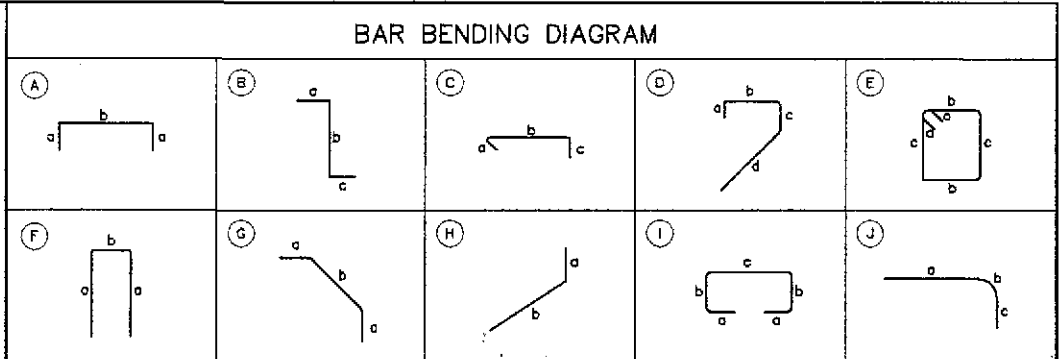


7 BLOCK WALL DETAIL
SCALE 1:40



A DETAIL
SCALE 1:25

B ELEVATION
SCALE 1:25



SCHEDULE OF REINFORCEMENT														
LOCATION	BAR MARK	BAR SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	
				a	b	c	d	e	f				GRADE 40	GRADE 60
BREASTWALL	W1	28	B	1350	6185	525				8060	80	4.834		3116.96
	W2	20	B	1350	6185	525				8060	80	2.466		1590.08
	W3	20	A	335	9800	335				10470	40	2.466		1032.76
	W4	28	A	500	9800					10800	3	4.834		156.62
	W5	12	C	130	1350	110				1590	220	0.888	310.62	
TOTAL WEIGHT =											310.62		5,896.42	
BACKWALL & CORSEL	W6	16	D	300	550	200	700			1750	70	1.578	193.31	
	W7	12	STR	550						550	70	0.888	34.19	
	W8	16	A	150	9800					10100	8	1.578	127.50	
	W9	16	A	150	9800					10100	16	1.578	255.00	
	W10	16	F	2700	250					5650	70	1.578	624.10	
	W11	12	STR	9800						9800	4	0.888	34.81	
TOTAL WEIGHT =											1,268.81		0.00	
BLOCKWALL	BW1	20	F	2250	815(ave.)					5415	18	2.466		240.36
	BW2	16	E	175	750	1050				3950	12	1.578		74.80
TOTAL WEIGHT (FOR 2 BLOCKWALLS) =											74.80		240.36	
WINGWALL	WW1	20	B	335	7685	335				8355	28	2.466		576.99
	WW1o	20	A	335	1500(ave.)					2170	14	2.466		74.92
	WW2	16	A	335	7685					8355	14	1.578	184.58	
	WW2a	16	A	335	1500					2170	14	1.578	47.94	
	WW3	20	A	335	3885(ave.)					4555	52	2.466		584.10
	WW4	20	A	335	3100					3770	26	2.466		241.72
	WW5	16	A	150	3580(ave.)					3860	52	1.578	316.74	
WW6	16	G	450	1900					2800	56	1.578	247.43		
WW7	16	H	900	2600					3700	6	1.578	35.03		
TOTAL WEIGHT (FOR 2 WINGWALLS) =											831.72		1,477.63	
PARAPET RIGHT SIDE	P1	16	F	1250	200					2700	15	1.578	63.91	
	P2	16	F	500	100					1100	9	1.578	16.62	
	P3	12	I	420	200	1000				2240	16	0.888	31.83	
	P4	12	J	2000	275	300				2575	2	0.888	4.57	
	P4o	12	J	3385	435	425				4245	2	0.888	7.54	
	P5	12	STR	2275						2275	2	0.888	4.04	
	P6	12	STR	3700						3700	4	0.888	13.14	
P7	12	STR	3800						3800	6	0.888	20.25		
TOTAL WEIGHT =											167.65		0.00	
PARAPET LEFT SIDE	P1	16	F	1250	200					2700	15	1.578	63.91	
	P2	16	F	500	100					1100	9	1.578	16.62	
	P3	12	I	420	200	500				1740	15	0.888	24.72	
	P4	12	J	2000	275	300				2575	2	0.888	4.57	
	P4o	12	J	3385	435	425				4245	2	0.888	7.54	
	P5	12	STR	2275						2275	2	0.888	4.04	
	P6	12	STR	3700						3700	4	0.888	13.14	
P7	12	STR	3800						3800	6	0.888	20.25		
TOTAL WEIGHT =											153.79		0.00	
FOOTING	F1	28	A	1350	4850					7550	170	4.834		6204.44
	F2	20	A	335	10600					11270	40	2.466		1111.67
	F3	20	A	335	10600					11270	6	2.466		166.75
	F4	12	C	130	1350	110				1590	242	0.888	341.68	
TOTAL WEIGHT PER ABUTMENT =											341.68		7,482.86	
GRAND TOTAL WEIGHT ABUT. A1 & A2 =											6,268.34		30,194.54	

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

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

Submitted By: DANILO C. TRAJANO, Project Director
Reviewed By: ADRIANO M. DORAY, Chief, Bridges Division
Recommended By: GILBERTO S. REYES, Director IV (OIC)
Approved By: MANUEL M. BONICAN, Undersecretary and SIMEON A. DATUMANONG, Secretary

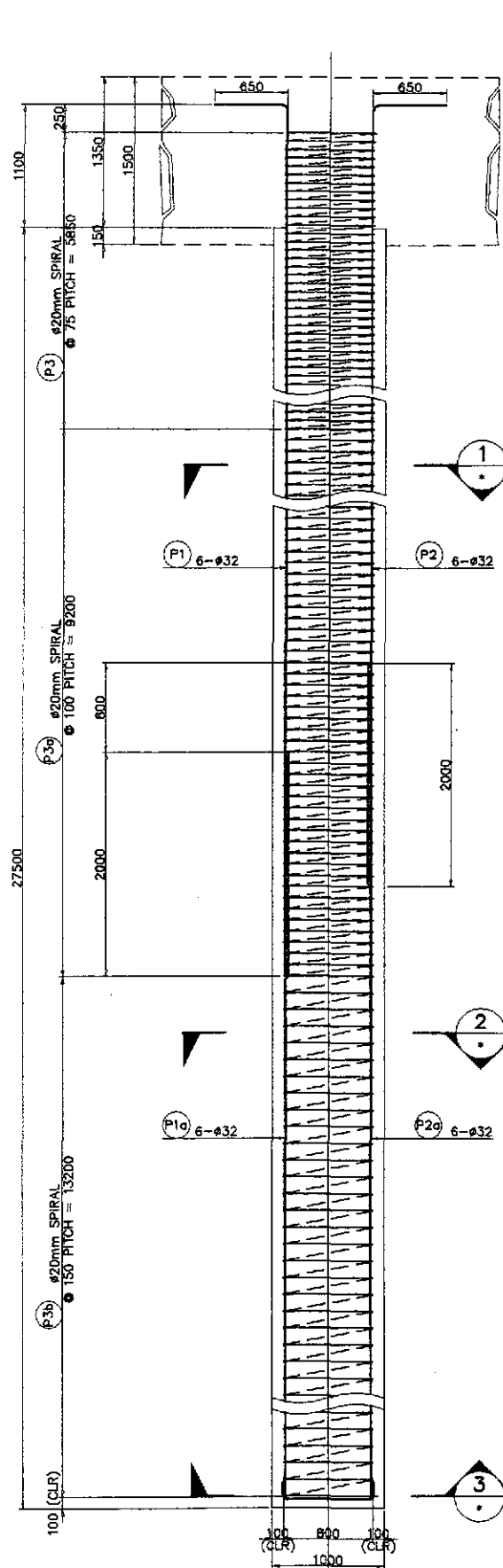
DESIGNED: 9/25/02
CHECKED: 9/27/02
SUBMITTED: 9/30/02

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

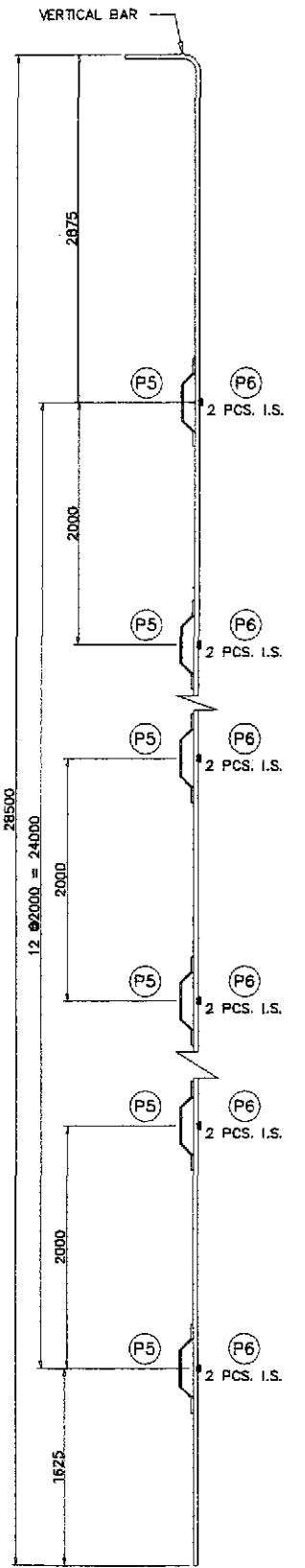
SCALE: AS SHOWN / FULL SIZE A1

SHEET CONTENTS: BRIDGE NO. 8 ANGAT RIVER BRIDGE ABUTMENT A1 & A2 REINFORCEMENT DETAILS (2 OF 2) (ULTIMATE STAGE)

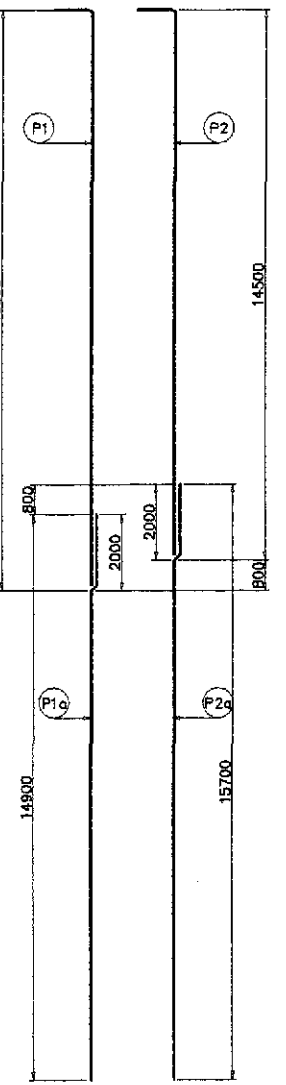
SHEET NO.: B8A-52



A ELEVATION
SCALE 1:30

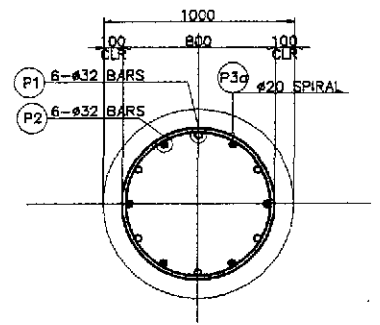


B LAYOUT OF STIFFENER
SCALE 1:30

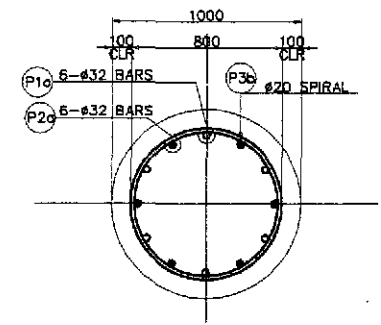


C SCHEMATIC DETAIL
NOT TO SCALE

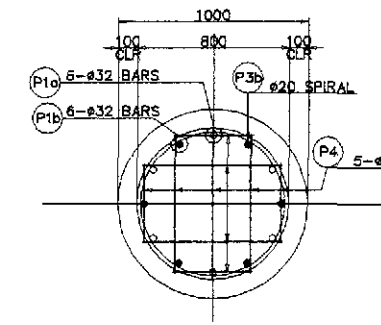
1 BORED PILE REINFORCEMENT DETAILS (ABUTMENT A1) & A2
SCALE AS SHOWN



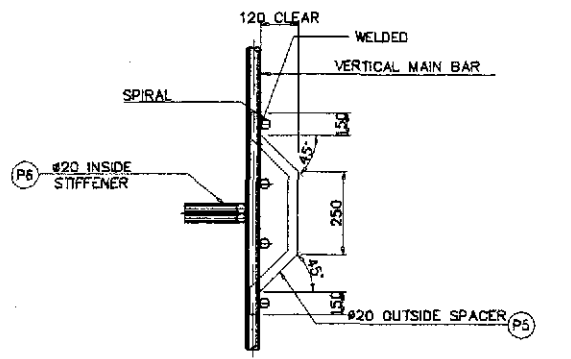
1 SECTION
SCALE 1:20



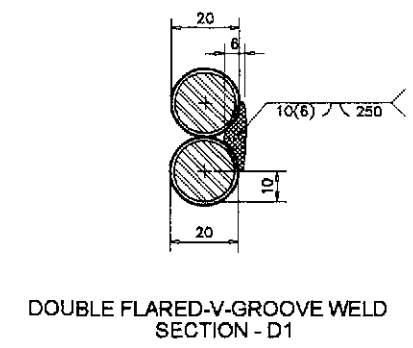
2 SECTION
SCALE 1:20



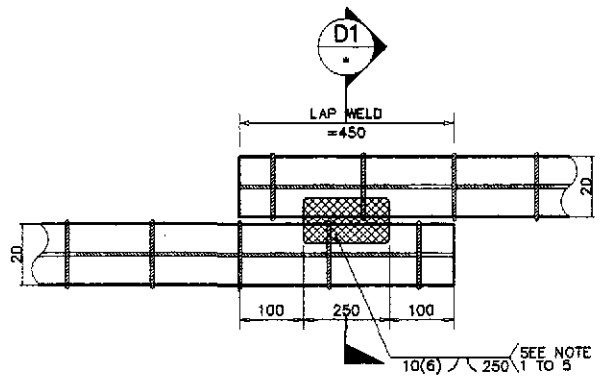
3 SECTION
SCALE 1:20



E DETAIL OF STIFFENER/SPACER
NOT TO SCALE



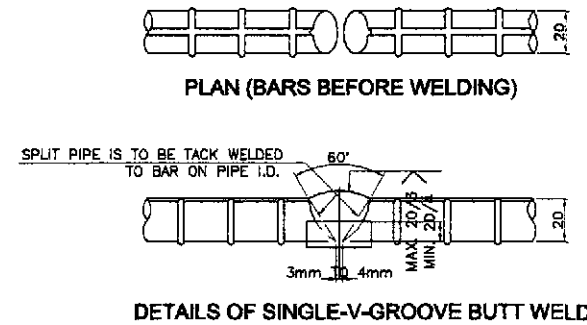
DOUBLE FLARED-V-GROOVE WELD SECTION - D1



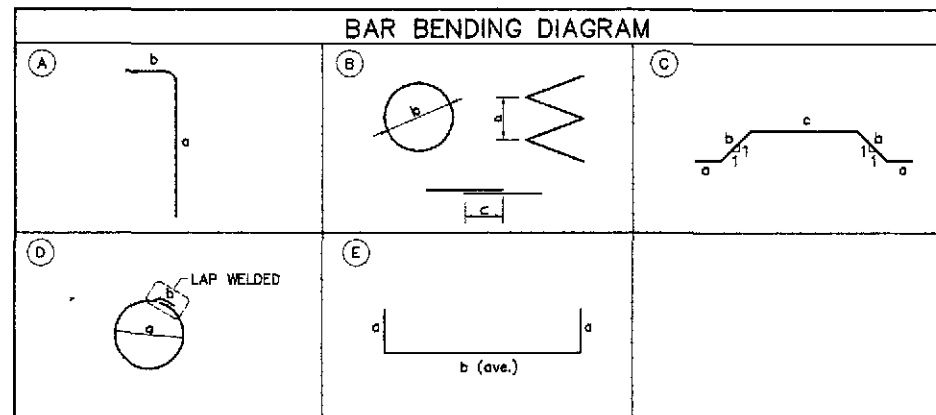
DIRECT LAP JOINT WITH BARS IN CONTACT

D DETAILS OF SPIRAL REINF. FULL LAP-WELD CONNECTION
NOT TO SCALE

- NOTES ON LAP WELD CONNECTION**
1. TIES REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE).
 2. WELDING SHOULD CONFORM TO ANSI/AWS D1.4-92 "STRUCTURAL WELDING CODE REINFORCEMENT STEEL".
 3. USE ELECTRODE E90XX-X.
 4. CARE SHOULD BE TAKEN NOT TO DAMAGE THE BORED PILE MAIN BARS DURING WELDING.
 5. SPIRAL REINFORCEMENT SHOULD BE BUTT WELDED WHERE SPIRAL PITCH IS 75mm. OTHERWISE, USE LAP WELD SPLICE.



DETAILS OF SINGLE-V-GROOVE BUTT WELD



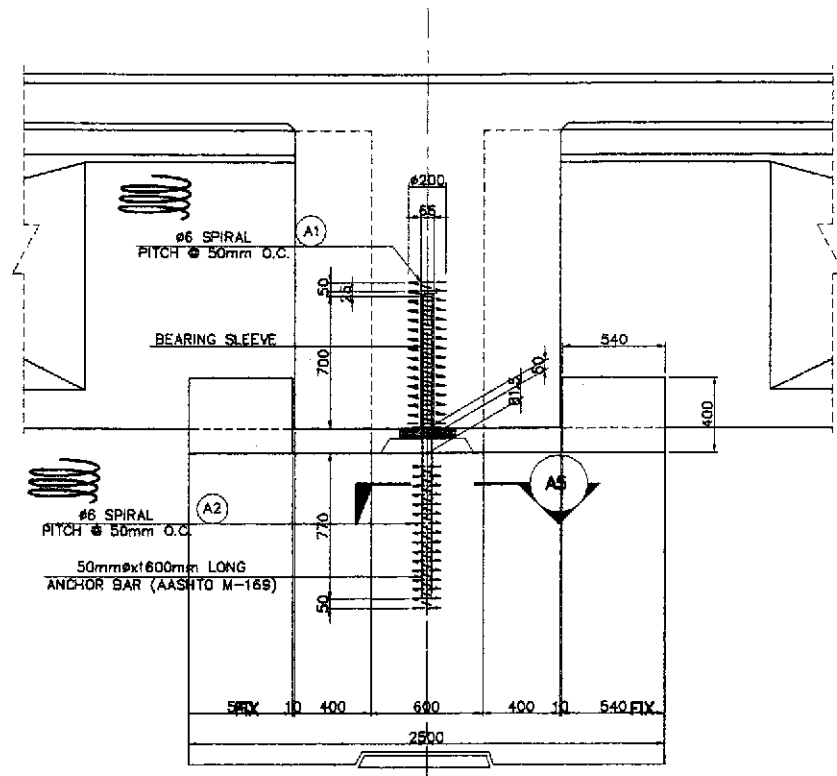
BAR BENDING DIAGRAM

SCHEDULE OF REINFORCEMENT												
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT				LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	
				a	b	c	d				GRADE 40	GRADE 60
ABUTMENT A1	P1	32	A	15300	650			15950	6	6.313		604.15
	P1a	32	STR	14900				14900	6	6.313		564.38
	P2	32	A	14500	650			15150	6	6.313		573.85
	P2a	32	STR	16000				16000	6	6.313		606.05
	P3	20	B	75	780	500		198725	-	2.466		490.06
	P3a	20	B	100	780	500		235128	-	2.466		579.83
	P3b	20	B	150	780	500		225545	-	2.466		555.19
	P4	16	E	150	590			890	10	1.578	14.04	
P5	20	C	150	170	250		890	112	2.466		245.81	
P6	20	D	665	500			2590	28	2.466		178.83	
										TOTAL WEIGHT PER PILE =	14.04	4,390.16
										TOTAL WEIGHT (16 PILES) =	224.70	70,366.50

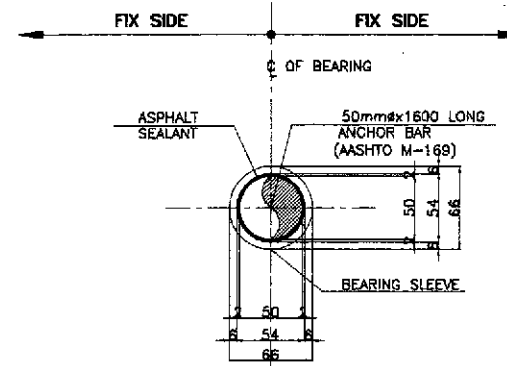
THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/27/02	<i>[Signature]</i>		DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				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. 8 ANGAT RIVER BRIDGE BORED PILE REINFORCEMENT DETAILS (ABUTMENT A1 & A2) (ULTIMATE STAGE)
SUBMITTED	9/27/02	<i>[Signature]</i>	Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:	PLARIDEL BYPASS - CONTRACT PACKAGE III		FULL SIZE A1		

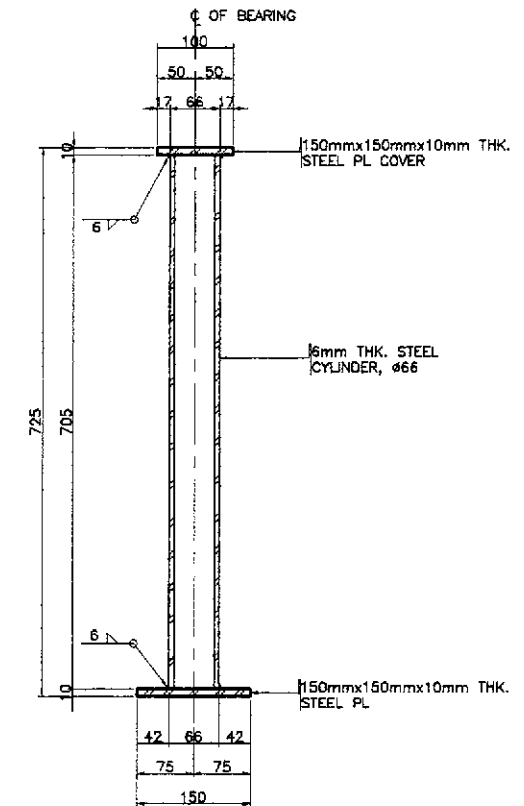
MISCELLANEOUS DRAWINGS



A1 LONG'L ELEVATION
SCALE 1:20



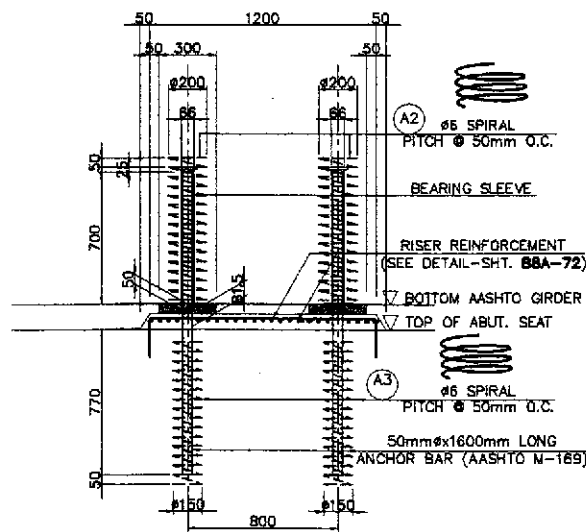
A5 TRAN'L SECTION
SCALE 1:3



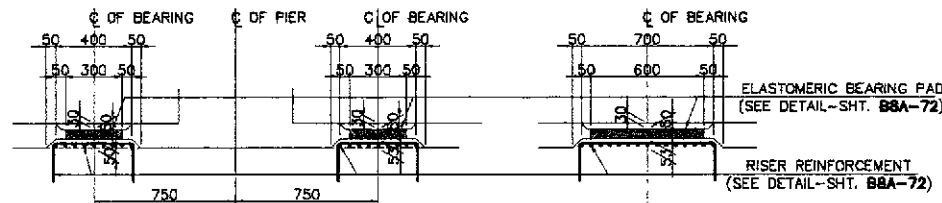
ELEVATION
SCALE 1:5

NOTE :

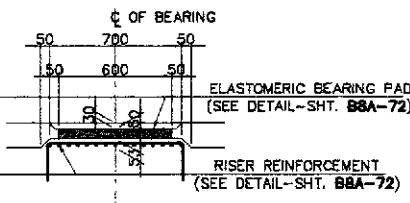
1. ALL METALS SHOWN IN THIS DRAWING SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS FOR ZINC (HOT-GALVANIZE) COATING CONFORMING TO AASHTO M111 (ASTM A123) OR AASHTO M232 (ASTM A153). THE WEIGHT OF ZINC COATING SHALL AVERAGE NOT LESS THAN 365 g PER SQ. METER OF ACTUAL SURFACE AREA WITH NO INDIVIDUAL SPECIMEN HAVING A COATING OF LESS THAN 305 g PER SQ. METER.



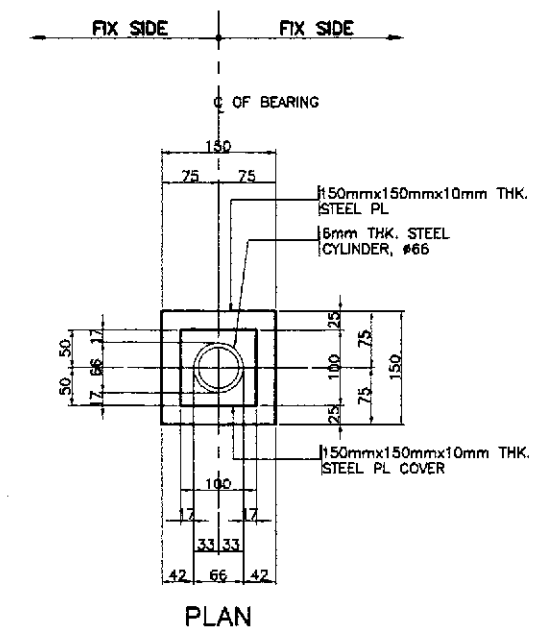
A2 TRAN'L ELEVATION
SCALE 1:20



A3 LONG'L SECTION
SCALE 1:20



A4 TRAN'L SECTION
SCALE 1:20



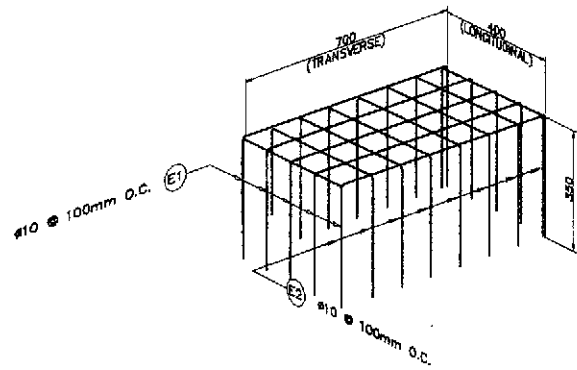
PLAN
SCALE 1:5

A MISC. DETAILS FOR PIERS (FIX-FIX PIER)
SCALE AS SHOWN

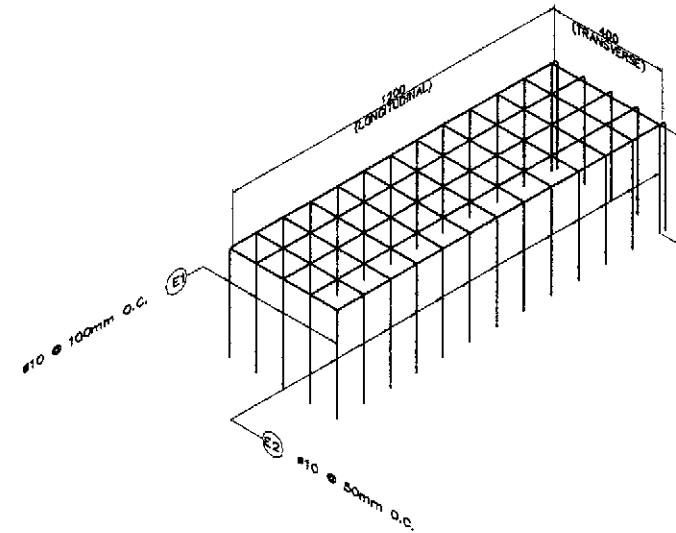
B BEARING SLEEVE DETAILS
SCALE 1:5

1 ANCHOR BAR & BEARING SLEEVE DETAILS
SCALE AS SHOWN

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	9/27/02	[Signature]		FJHL - FMO	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. 8 ANGAT RIVER BRIDGE ANCHOR BAR AND BEARING SLEEVE DETAILS (ULTIMATE STAGE)	B8A-71
	SUBMITTED	9/30/02	[Signature]		Submitted By:	Reviewed By:	Recommended By:	Approved By:	PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1			

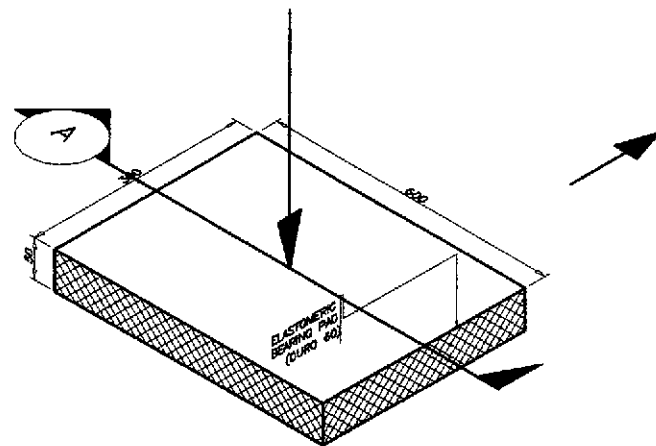


A RR-1 (BEARING PAD)
N T S

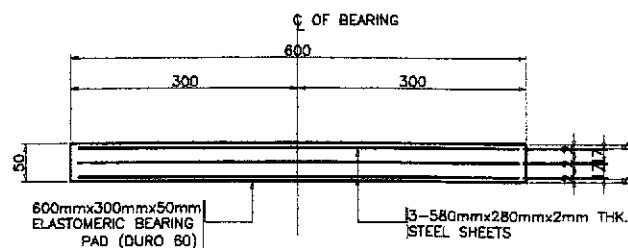


B RR-2 (DOWEL)
N T S

3 RISER REINFORCEMENT DETAILS
N T S



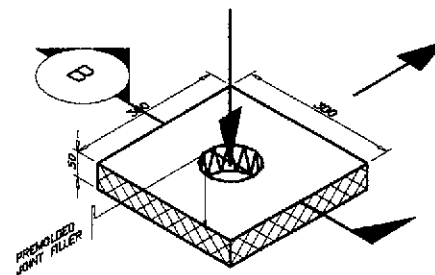
ISOMETRIC VIEW



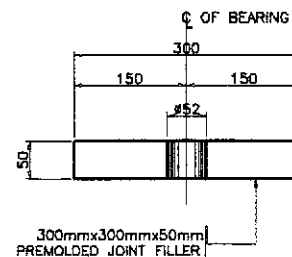
SECTION A

D BP-1 @ BEARING
N T S

1 ELASTOMERIC BEARING PAD DETAILS
SCALE AS SHOWN



ISOMETRIC VIEW



SECTION B

D BP-2 @ ANCHOR BAR
N T S

2 PREMOLDED JOINT FILLER DETAILS
SCALE AS SHOWN

BAR BENDING DIAGRAM

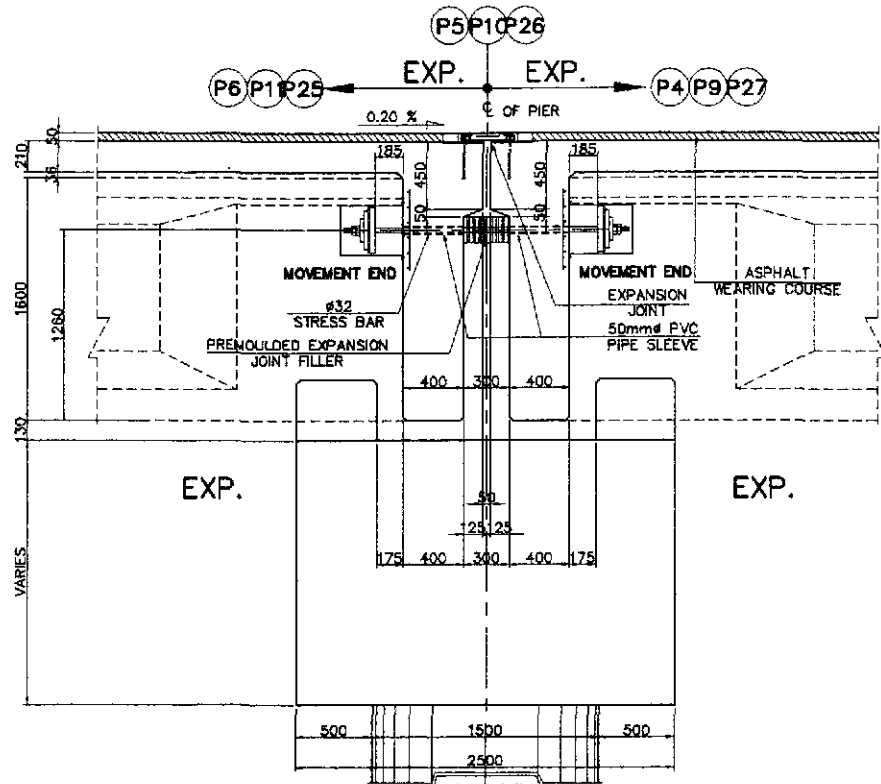


SCHEDULE OF REINFORCEMENT

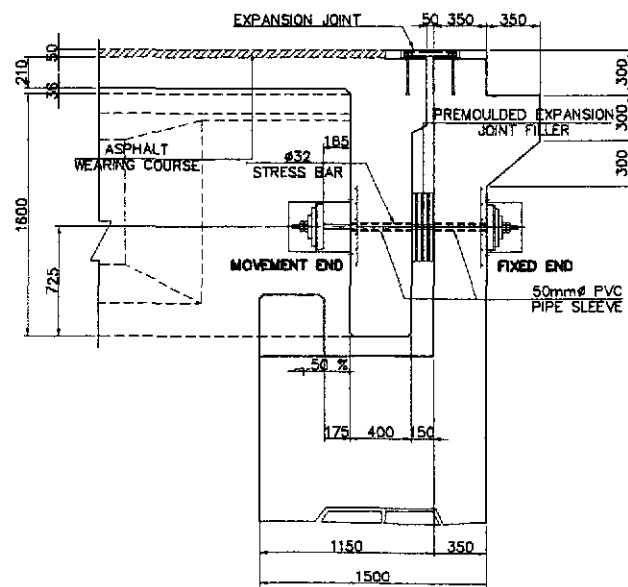
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT					LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT(kgs.)		REMARKS	
				a	b	c	d	e				Grade 40	Grade 60		
RISER (PIER FIX-FIX) GIRDER	E1	10	A	350	700				1400	40	0.616	34.50		1. ESTIMATED QUANTITY FOR ONE(1) PIER ONLY. 2. ESTIMATED QUANTITY FOR ONE(1) ABUT.	
	E2	10	A	350	400				1100	64	0.616	43.37			
											TOTAL=	77.86	0		
RISER (PIER FIX-FIX) GIRDER-P30 ONLY	E1	10	A	350	700				1400	40	0.616	34.50			
	E2	10	A	350	400				1100	64	0.616	43.37			
											TOTAL=	77.86	0		
RISER (PIER EXP-EXP) GIRDER	E1	10	A	350	700				1400	40	0.616	17.25			
	E2	10	A	350	400				1100	32	0.616	21.68			
											TOTAL=	38.93	0		
RISER (ABUT-1 EXP) GIRDER	E1	10	A	350	700				1400	25	0.616	21.56			
	E2	10	A	350	400				1100	40	0.616	27.10			
											TOTAL=	48.66	0		
RISER (PIER FIX-FIX) ANCHOR BAR	E1	10	A	200	1350				1900	15	0.616	17.56			
	E2	10	A	200	400				1100	39	0.616	26.43			
											TOTAL=	43.98	0		
RISER (PIER FIX-FIX) ANCHOR BAR P30 ONLY	E1	10	A	200	1350				1900	20	0.616	23.41			
	E2	10	A	200	400				1100	52	0.616	35.24			
											TOTAL=	58.64	0		

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

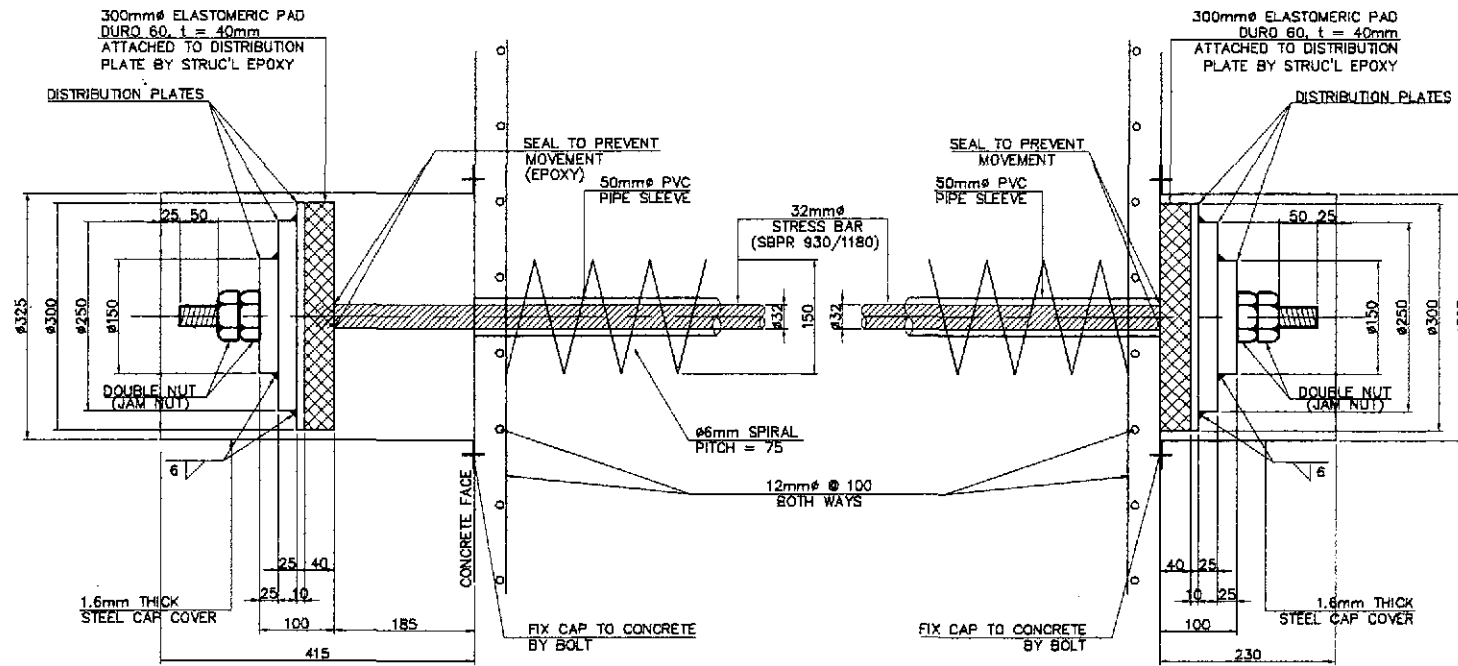
	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/25/02	<i>[Signature]</i>	BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE RISER REINFORCEMENT AND BEARING PAD DETAILS (ULTIMATE STAGE)	B8A-72
	SUBMITTED	9/25/02	<i>[Signature]</i>	Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: ADRIANO M. DOROY Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director IV (D/C)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary	FULL SIZE A1		



B ELEVATION @ EXP. PIER
SCALE 1:25



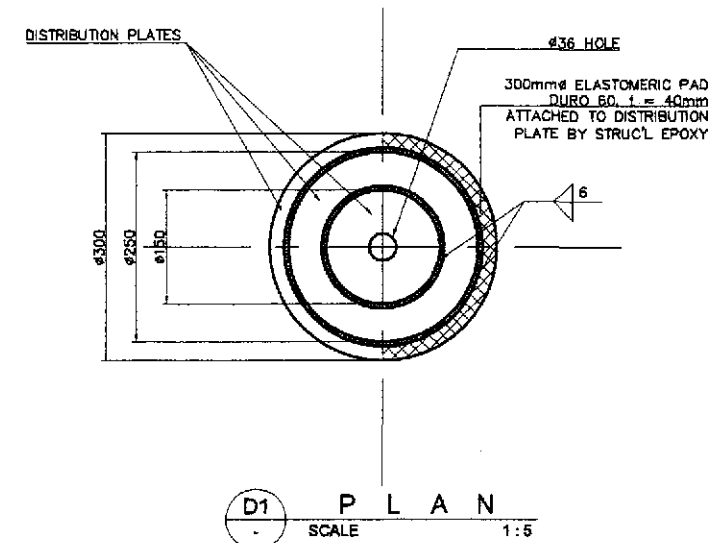
A ELEVATION @ ABUTMENT
SCALE 1:25



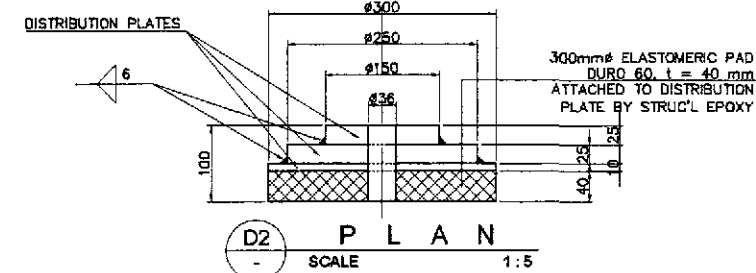
C2 MOV. END ANCHOR DETAILS
SCALE 1:5

C1 FIXED END ANCHOR DETAILS
SCALE 1:5

C HORIZONTAL ANCHOR BAR DETAILS
SCALE AS SHOWN



D1 PLAN
SCALE 1:5



D2 PLAN
SCALE 1:5

D ELASTOMERIC PAD AND BEARING PLATE DETAILS
SCALE AS SHOWN

NOTE :

1. ALL METALS SHOWN IN THIS DRAWING SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS FOR ZINC (HOT-GALVANIZE) COATING CONFORMING TO AASHTO M111 (ASTM A123) OR AASHTO M232 (ASTM A153). THE WEIGHT OF ZINC COATING SHALL AVERAGE NOT LESS THAN 365 g PER SQ. METER OF ACTUAL SURFACE AREA WITH NO INDIVIDUAL SPECIMEN HAVING A COATING OF LESS THAN 305 g PER SQ. METER.
2. THE CONTRACTOR SHALL PROVIDE A LOCKING MECHANISM ON THE NUTS TO ENSURE THAT THE GAP SHOWN IN THE DRAWINGS WILL BE KEPT AT ALL TIME.
3. NUTS SHOULD CONFORM WITH ASTM A490 WITH STRENGTH CORRESPONDING TO STRENGTH OF STRESS BAR.

1 RESTRAINING BAR DETAILS
SCALE AS SHOWN

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JAPAN INTERNATIONAL COOPERATION AGENCY

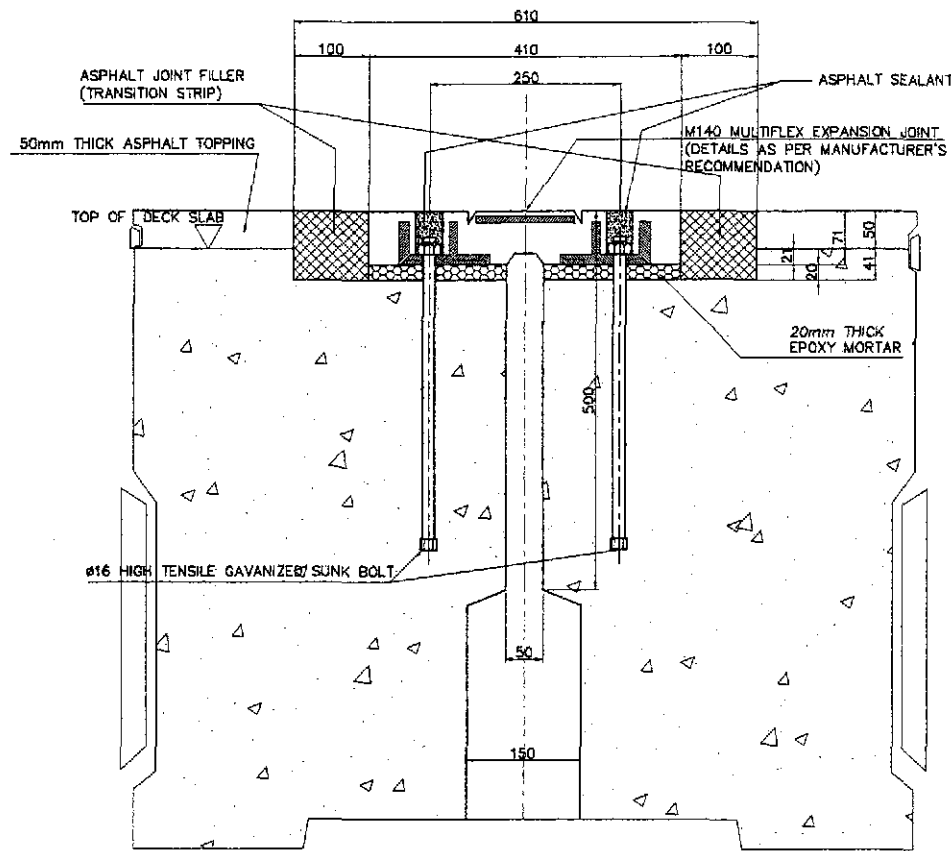
KATAHIRA & ENGINEERS
K&E INTERNATIONAL

YEO YACHIYO ENGINEERING CO., LTD.

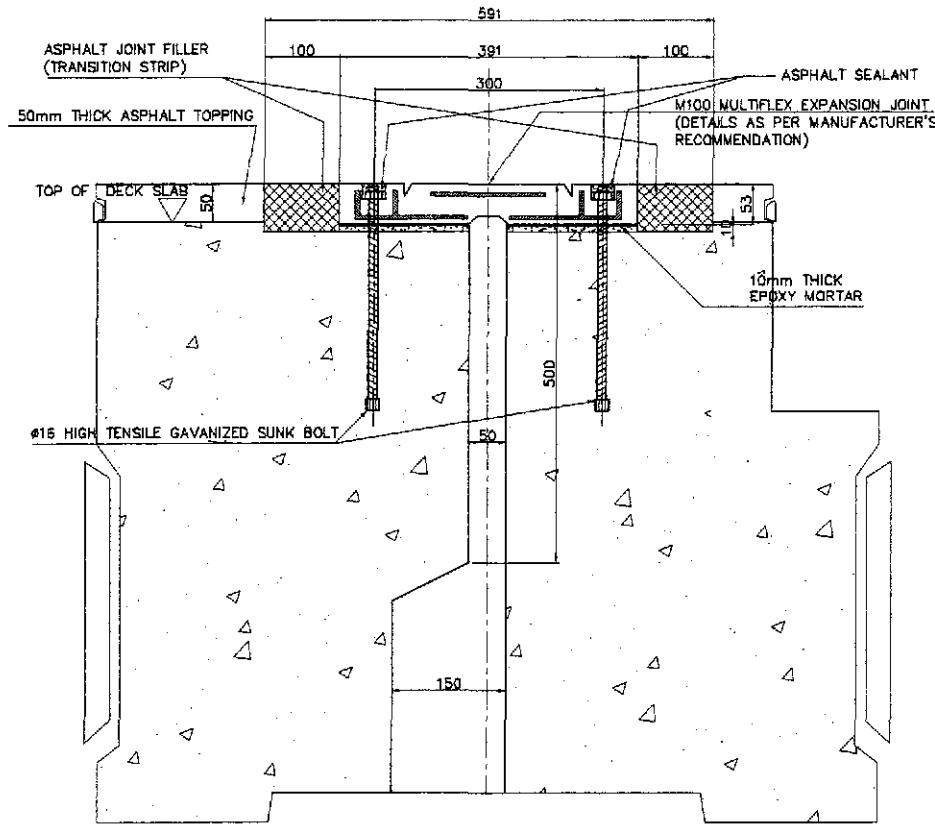
DESIGNED	DATE	SIGNATURE
9/25/02		
CHECKED	DATE	SIGNATURE
9/27/02		
SUBMITTED	DATE	SIGNATURE
9/30/02		

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:	Approved By:
DANILO C. TRAJANO Project Director	ADRIANO N. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (CIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary	

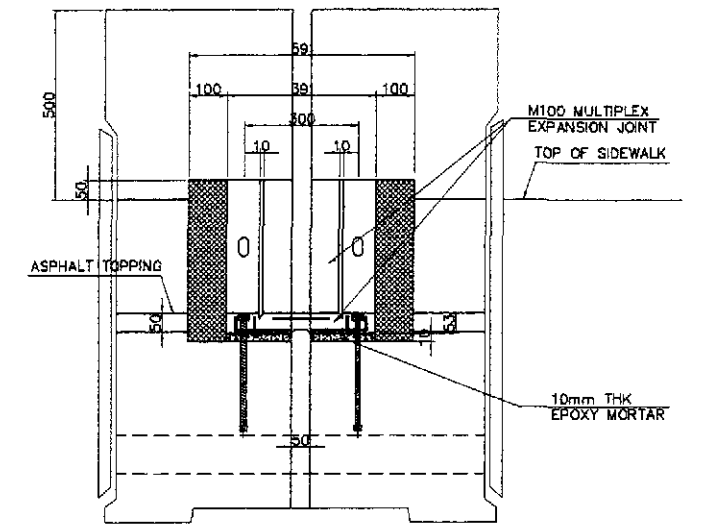
PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE RESTRAINING BAR DETAILS	B8A-73
PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1	(ULTIMATE STAGE)	



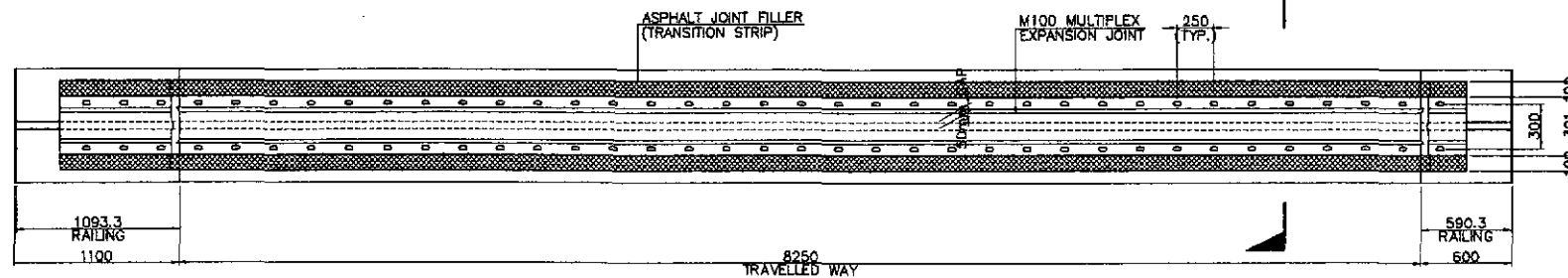
C SECTION @ PIER P5, P10 & P26 (M140 MULTIFLEX)
SCALE 1:5



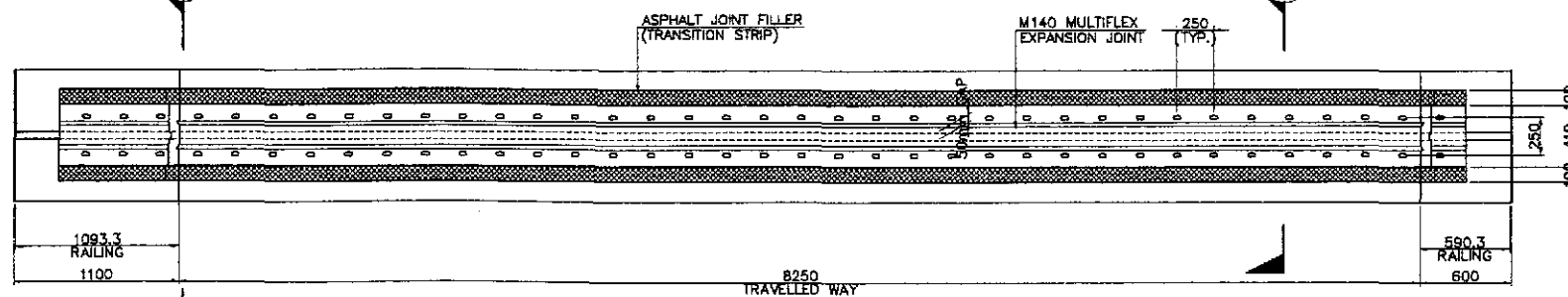
B SECTION @ ABUTMENT A1 & A2 (M100 MULTIFLEX)
SCALE 1:15



E DETAIL
SCALE 1:15



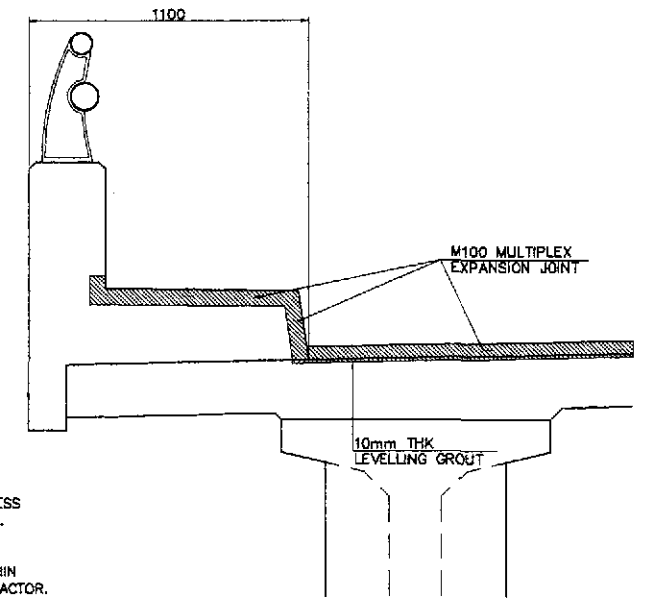
B PLAN (M100 MULTIFLEX)
SCALE 1:25



A PLAN (M140 MULTIFLEX)
SCALE 1:25

NOTES :

1. THE EXPANSION JOINT SHALL BE MULTIFLEX M140 & M100 OR EQUIVALENT.
2. THE CONTRACTOR SHALL GUARANTEE WATERTIGHTNESS OF EXPANSION JOINTS INCLUDING SIDEWALK JOINTS.
3. THE EXPANSION JOINT SHALL HAVE A 15-YEAR WARRANTY PERIOD. DAMAGES ON THE JOINTS WITHIN THIS PERIOD SHALL BE REPLACED BY THE CONTRACTOR.
4. VERIFY ACTUAL DIMENSIONS OF EXPANSION JOINT BLOCK-OUT AS PER MANUFACTURER'S RECOMMENDATION.



F DETAIL
SCALE 1:15

1 EXPANSION JOINT DETAILS
SCALE AS SHOWN

LOCATION	EXPANSION JOINT TYPE	MOVEMENT (mm)	LENGTH (m)
ABUT. A1	MULTIFLEX M100	±50(TOTAL=100mm)	10.20
ABUT. A2	MULTIFLEX M100	±50(TOTAL=100mm)	13.20
PIER 5	MULTIFLEX M140	±70(TOTAL=140mm)	10.20
PIER 10	MULTIFLEX M140	±70(TOTAL=140mm)	10.20
PIER 26	MULTIFLEX M140	±70(TOTAL=140mm)	10.20

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KATAHIRA & ENGINEERS
YACHIYO ENGINEERING CO., LTD.

DESIGNED: 9/25/02
CHECKED: 9/27/02
SUBMITTED: 9/27/02

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

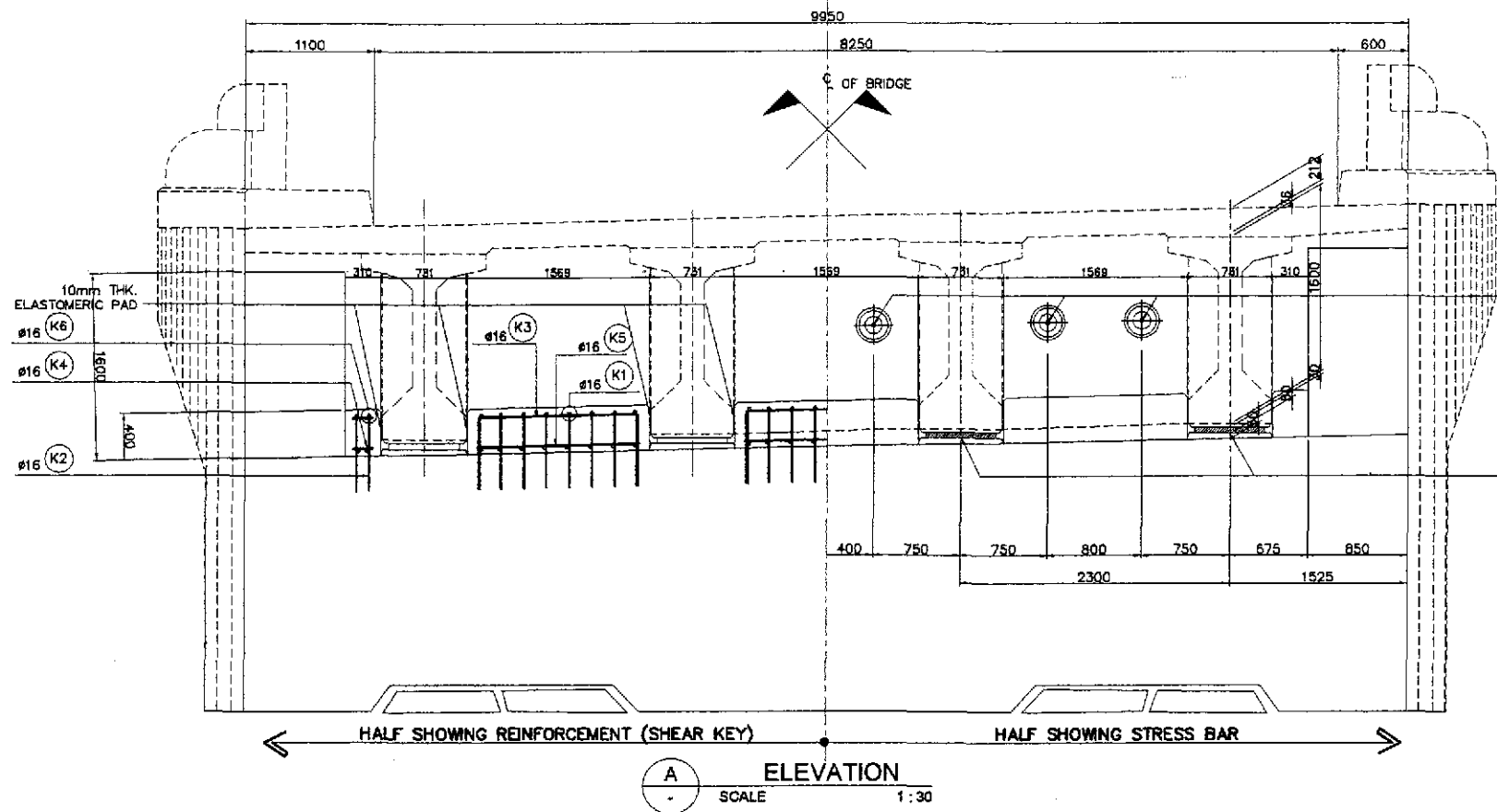
Submitted By: DANILLO C. TRAJANO
Reviewed By: ADRIANO M. DORON
Recommended By: GILBERTO S. REYES
Recommended By: MANUEL M. BONCAN
Approved By: SIMEON A. DATUMANONG

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

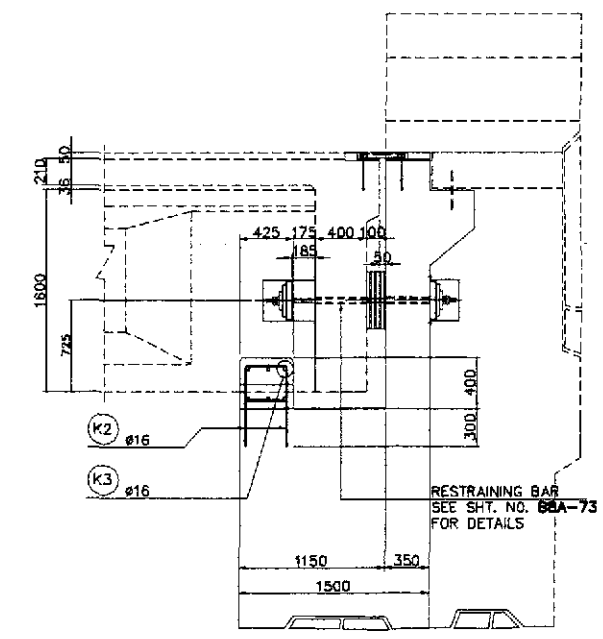
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE
EXPANSION JOINT DETAILS
(ULTIMATE STAGE)

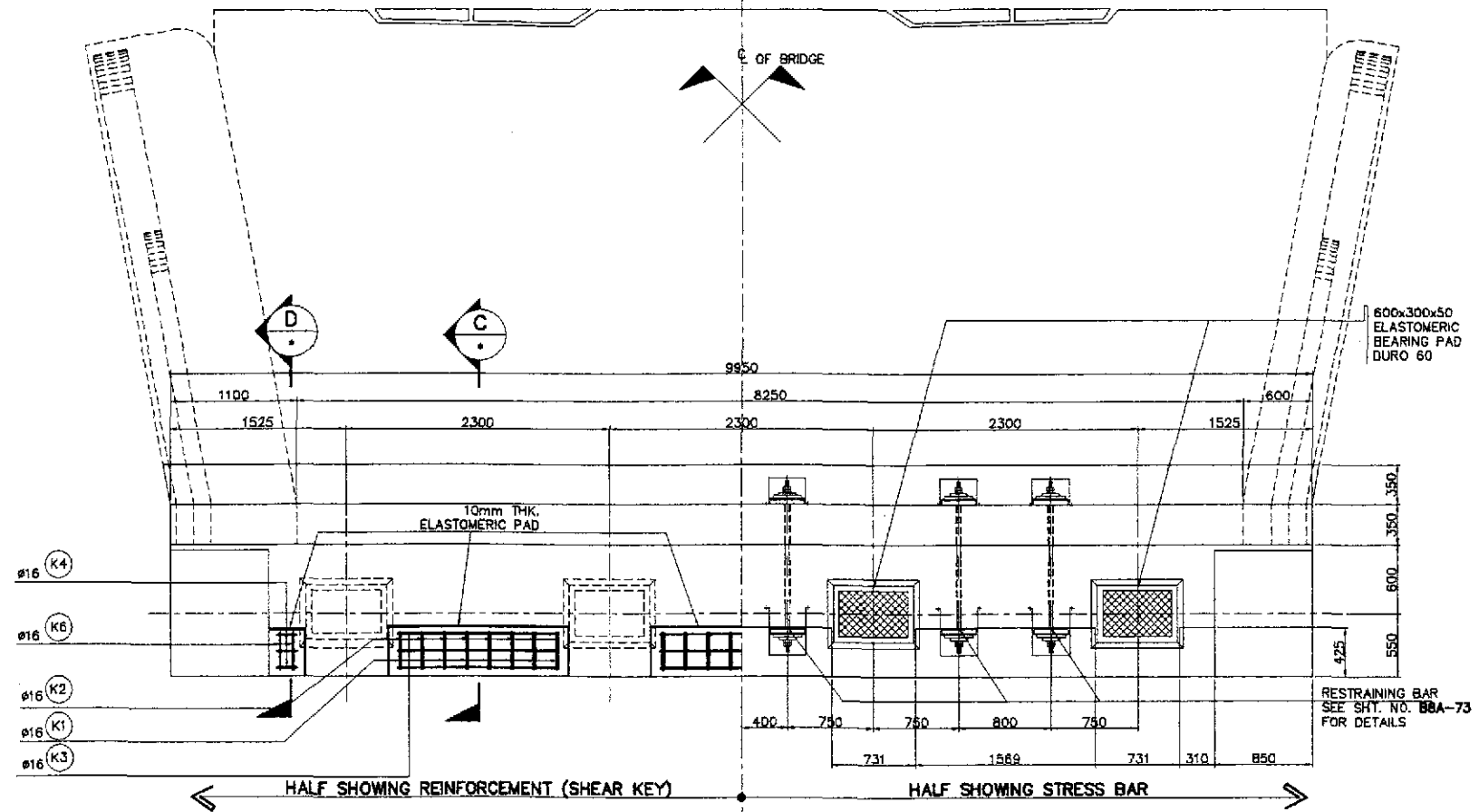
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B8A-74



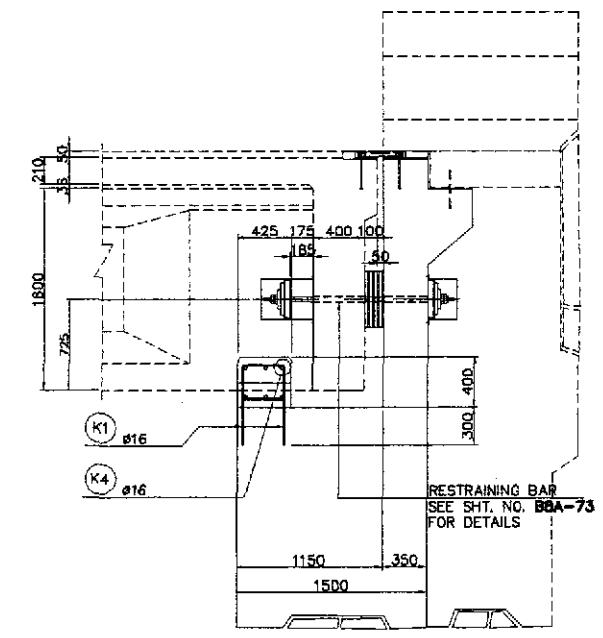
A ELEVATION
SCALE 1:30



C SECTION
SCALE 1:30



B PLAN
SCALE 1:30



D SECTION
SCALE 1:30

1 DETAIL OF SHEAR KEY RESTRAINING BAR @ ABUTMENT (A1 & A2)
SCALE AS SHOWN

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

DESIGNED	DATE	SIGNATURE
9/25/02		
CHECKED	DATE	SIGNATURE
9/27/02		
SUBMITTED	DATE	SIGNATURE
9/27/02		

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

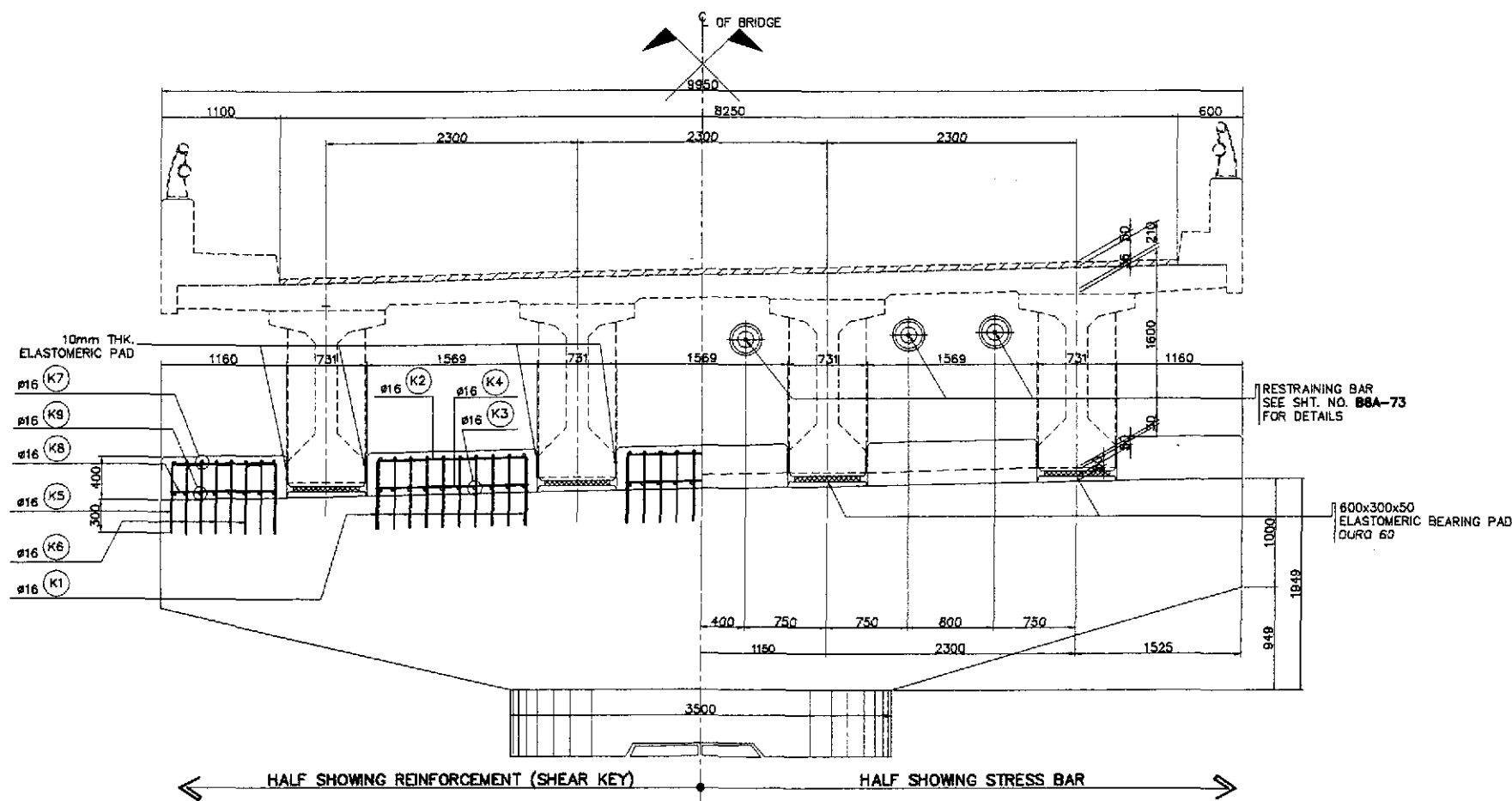
FJHL - PMO	BUREAU OF DESIGN	OFFICE OF THE SECRETARY
Submitted By: DANILLO C. TRAJANO Project Director	Reviewed By: ADRIANO M. DORAY Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director IV (DIC)
	Recommended By: MANUEL M. BONCAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary

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

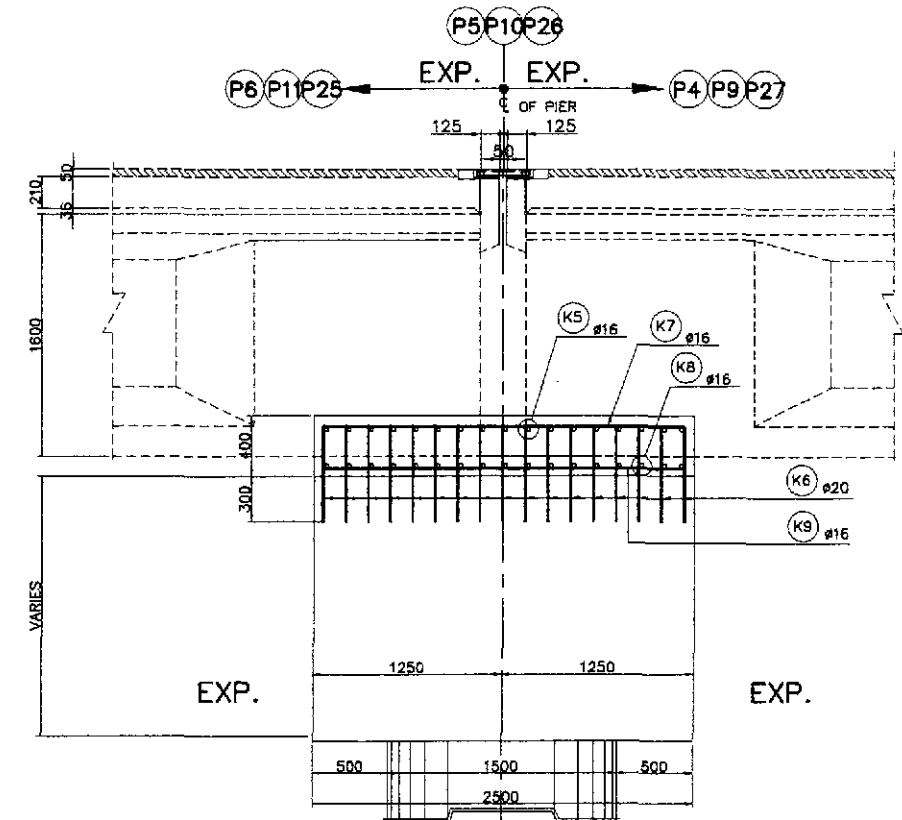
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE
DETAILS OF SHEAR KEY AND
RESTRAINING BAR (ABUT. A1 & A2)
(ULTIMATE STAGE)

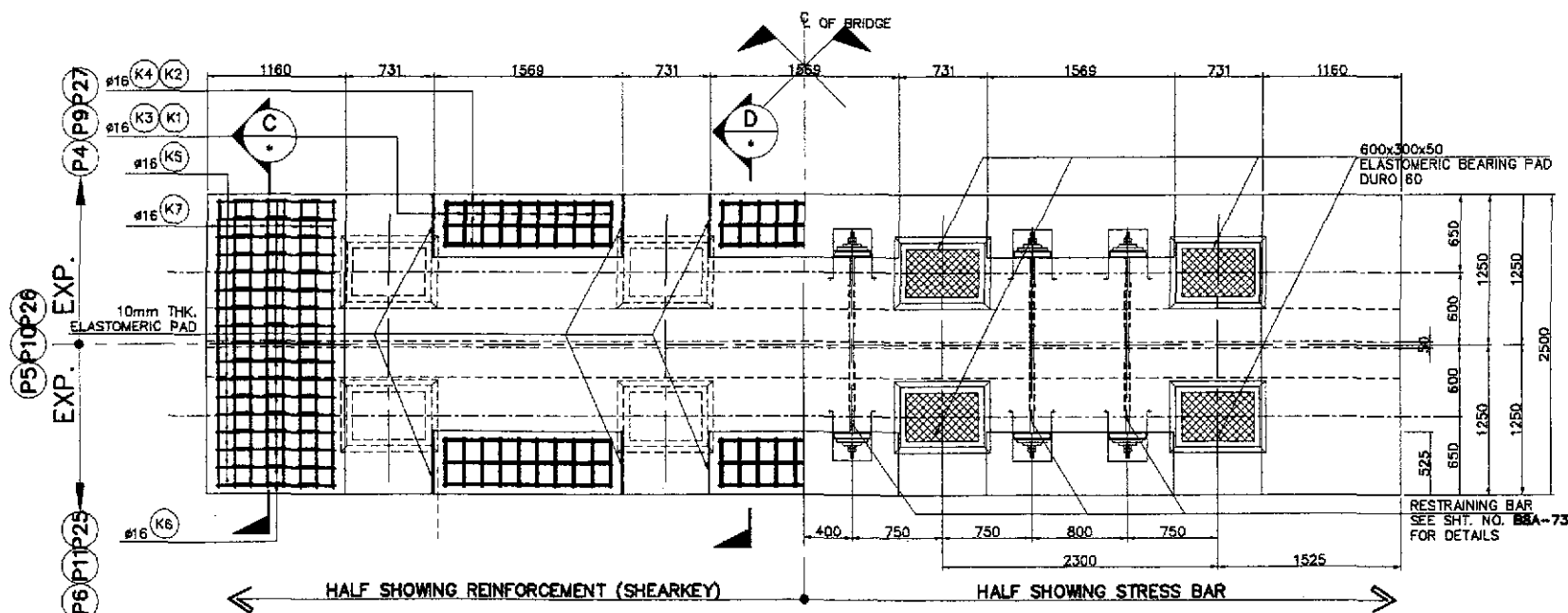
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B8A-75



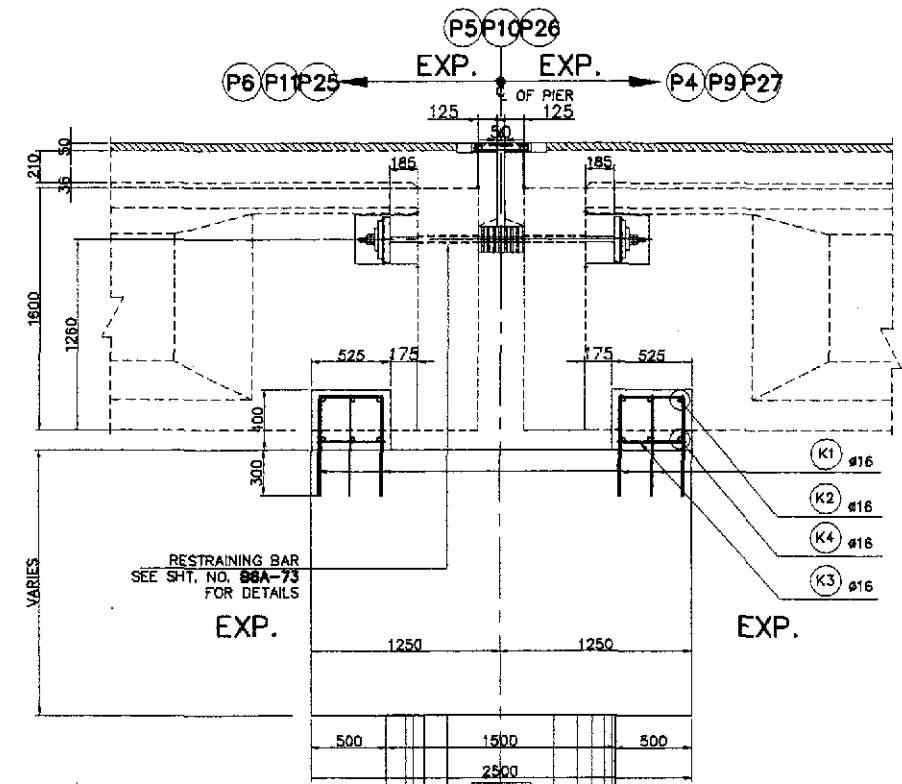
A ELEVATION
SCALE 1:30



C SECTION
SCALE 1:25



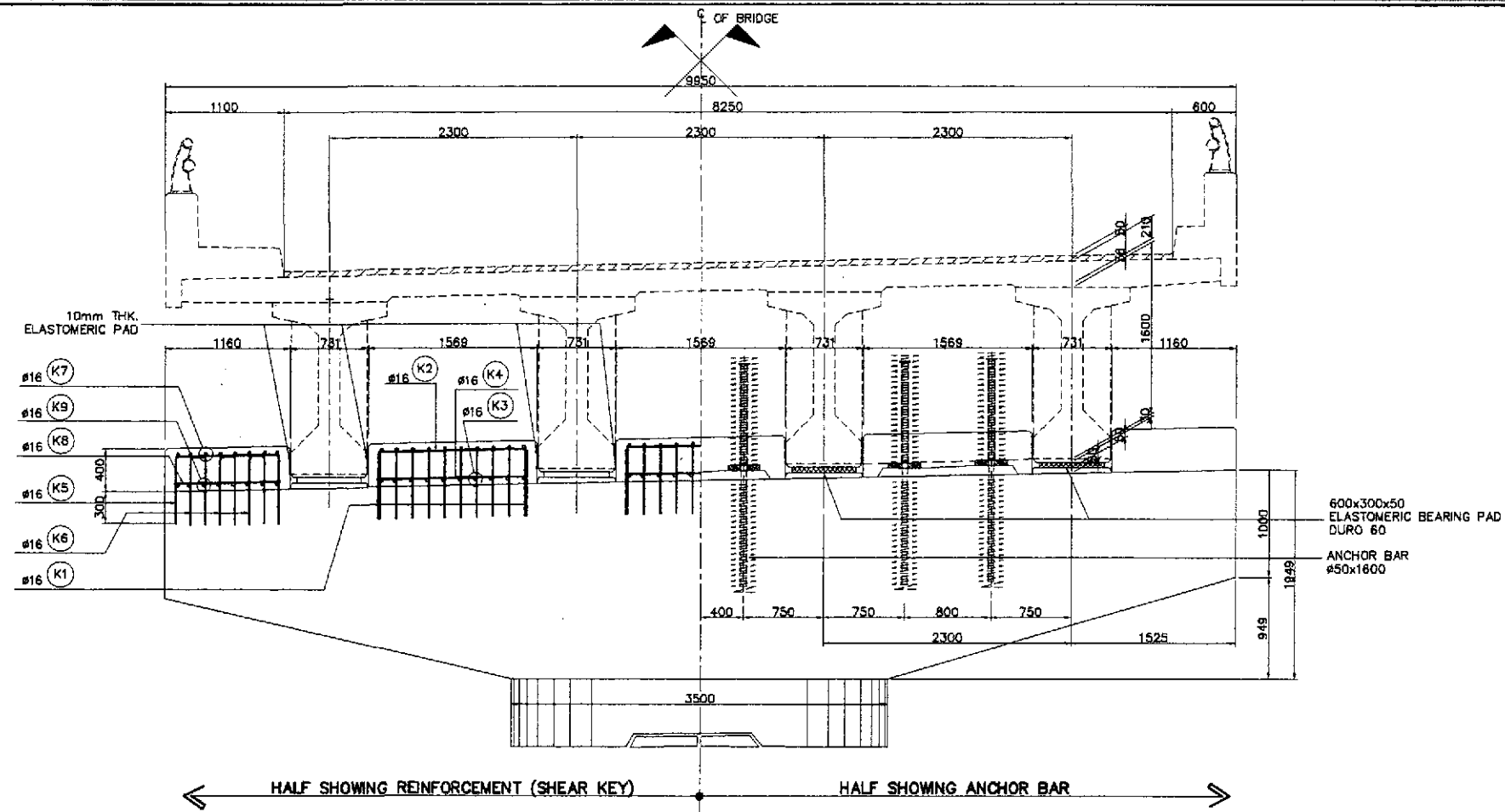
B PLAN
SCALE 1:30



D SECTION
SCALE 1:25

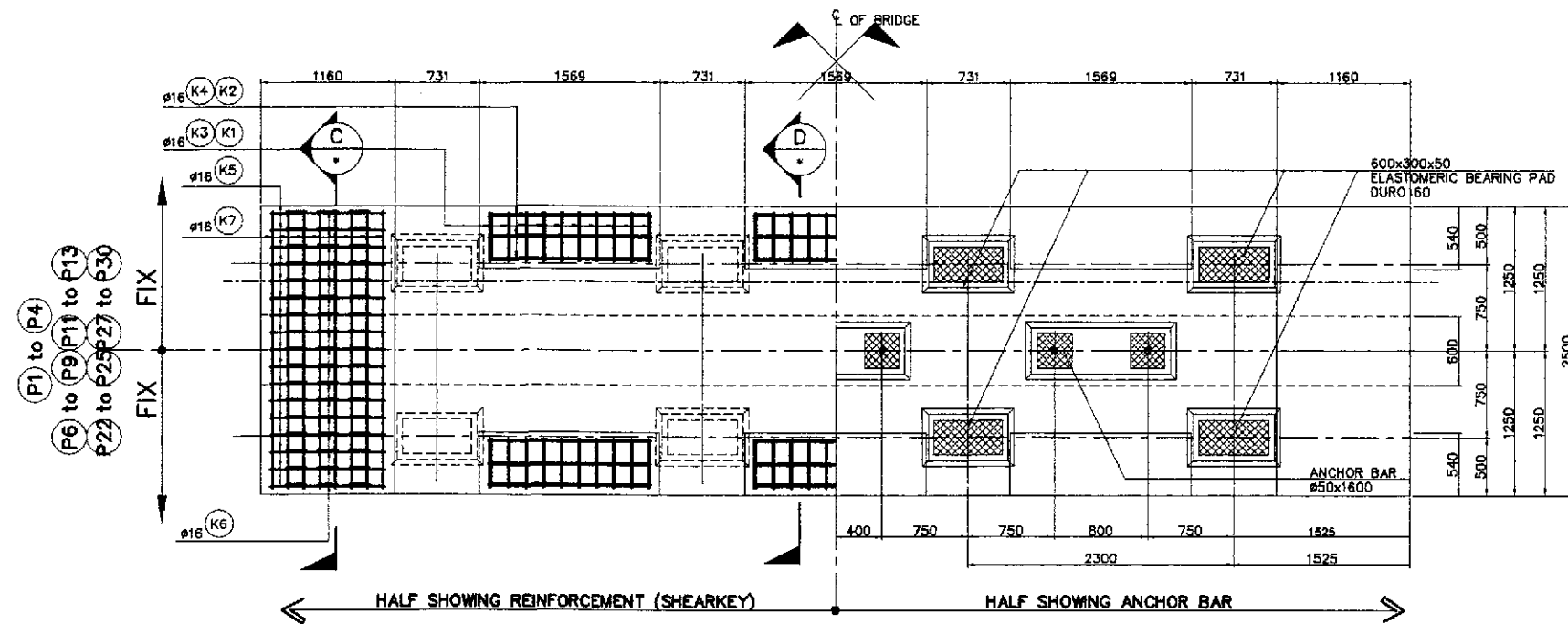
1 DETAIL OF SHEAR KEY & RESTRAINING BAR (P5, P10 & P26)
SCALE AS SHOWN

	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) PLARIDEL BYPASS - CONTRACT PACKAGE III	SCALE :	SHEET CONTENTS :	SHEET NO. : B8A-76
	CHECKED	9/25/02	<i>[Signature]</i>		BUREAU OF DESIGN						AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE DETAILS OF SHEAR KEY AND RESTRAINING BAR (P5, P10 & P26) (ULTIMATE STAGE)	
	SUBMITTED	9/25/02	<i>[Signature]</i>		Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:		FULL SIZE A1		
					DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (GIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary				



← HALF SHOWING REINFORCEMENT (SHEAR KEY) HALF SHOWING ANCHOR BAR →

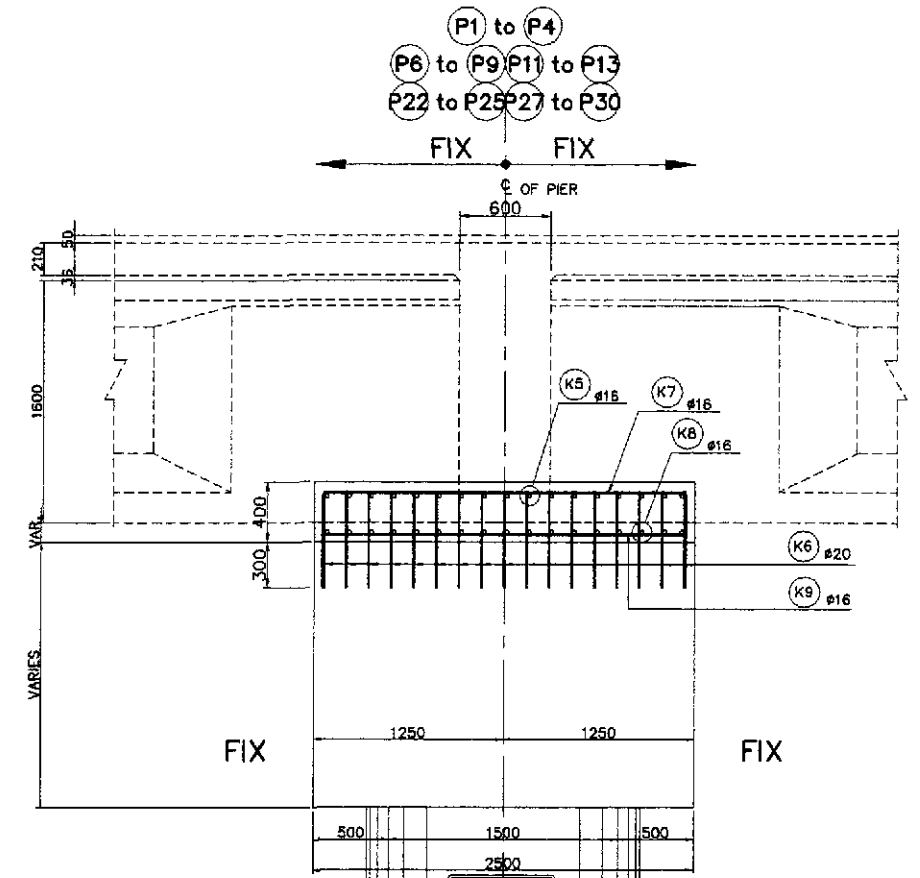
A ELEVATION
SCALE 1:30



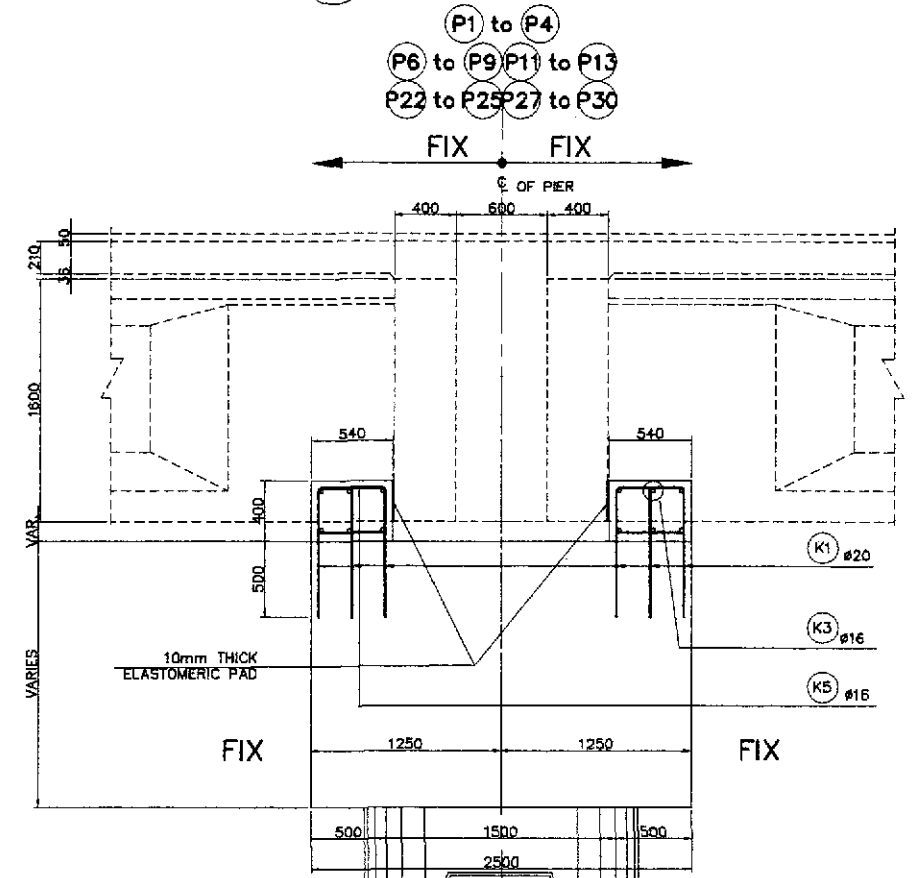
← HALF SHOWING REINFORCEMENT (SHEARKEY) HALF SHOWING ANCHOR BAR →

B PLAN
SCALE 1:30

1 DETAIL OF SHEAR KEY & ANCHOR BAR AT PIER
(P1-P4, P6-P9, P11-P13, P22-P25 & P27-P30)
SCALE AS SHOWN



C SECTION
SCALE 1:25



D SECTION
SCALE 1:25

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

DESIGNED	DATE	SIGNATURE
9/25/02		
CHECKED	DATE	SIGNATURE
9/27/02		
SUBMITTED	DATE	SIGNATURE
9/29/02		

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

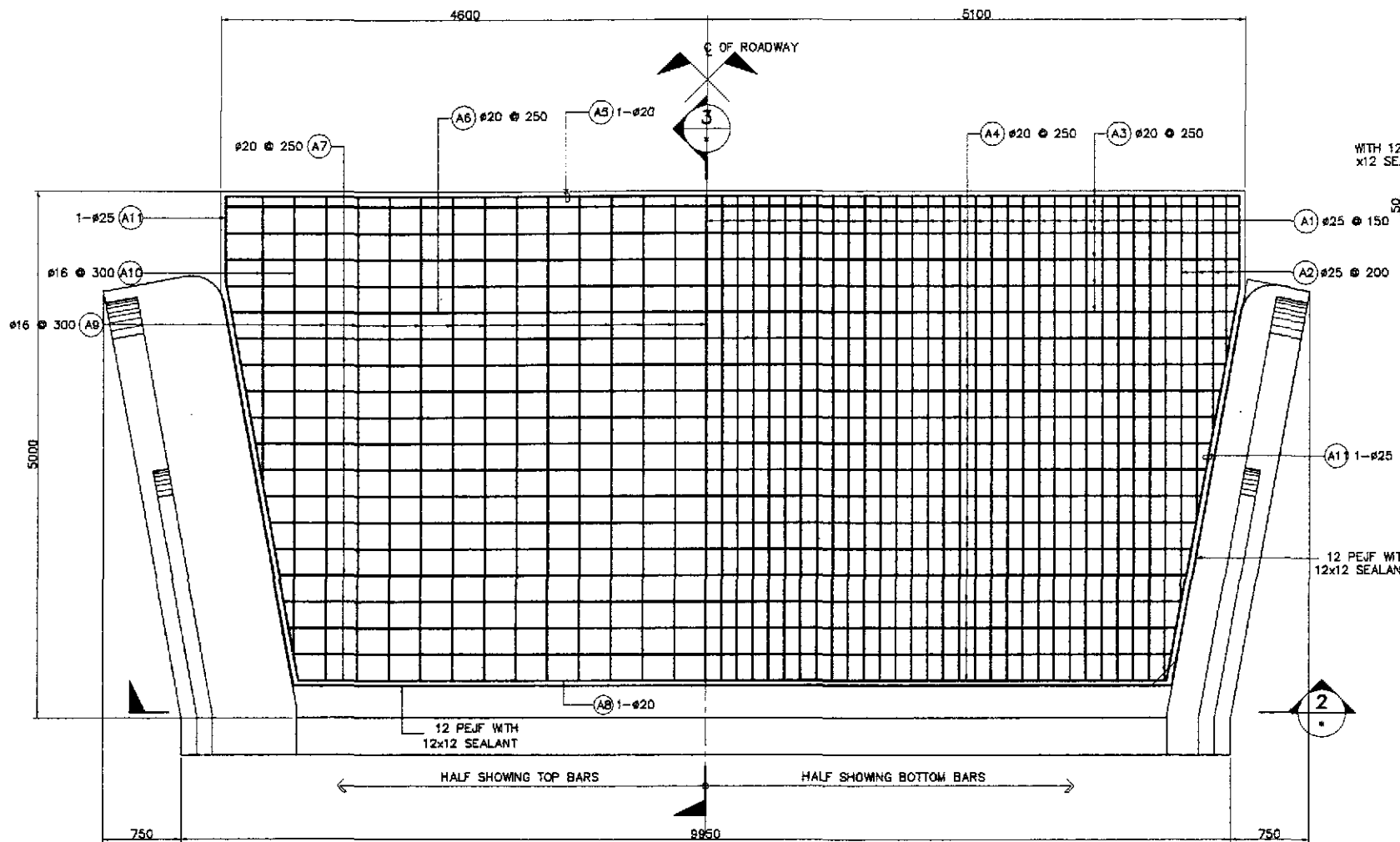
BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Approved By:
DANILO C. TRAJANO Project Director	ADRIANO M. DORAY Chief, Bridges Division	GILBERTO S. REYES Director IV (D/C)	MANUEL M. BONOAN Undersecretary

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

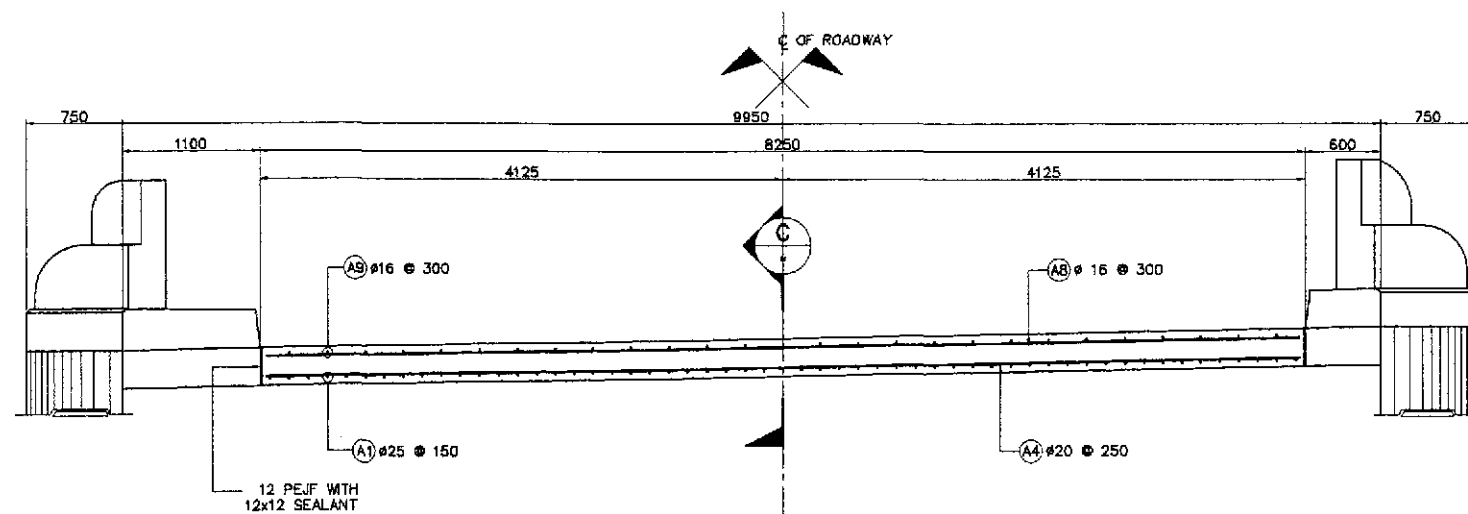
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE
DETAILS OF SHEAR KEY & ANCHOR BAR
(P1-P4, P6-P9, P11-P13, P22-P25 & P27-P30)
(ULTIMATE STAGE)

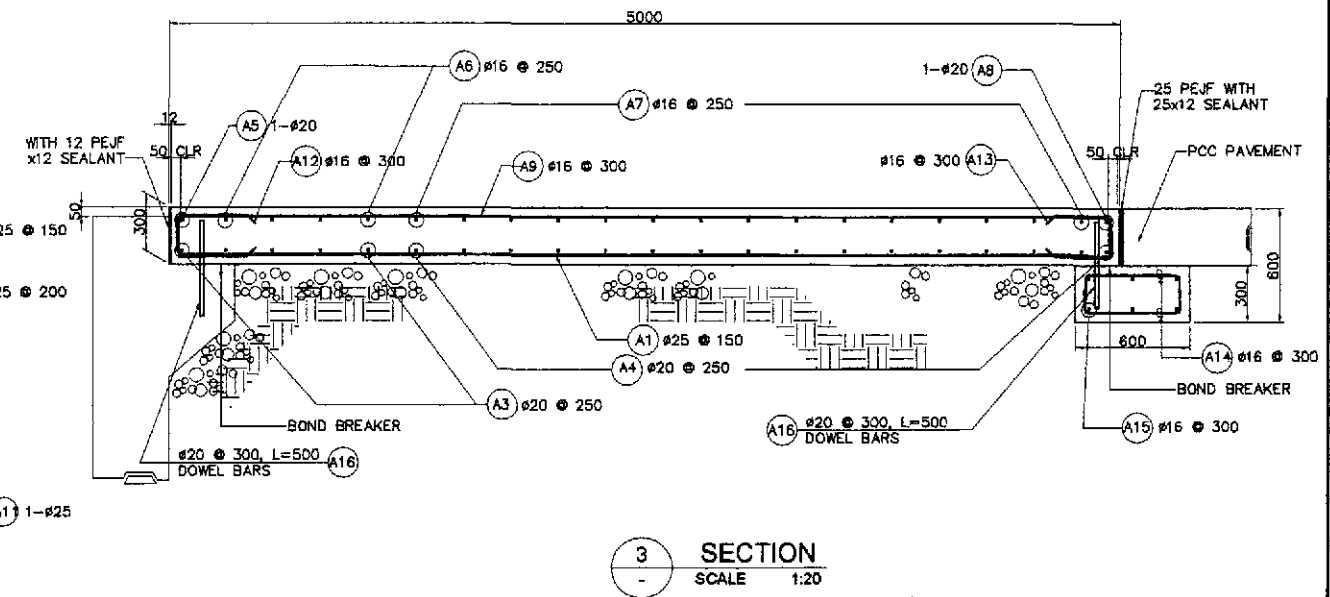
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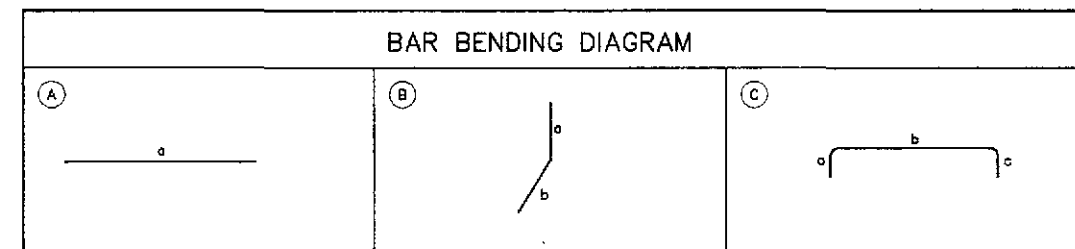
1 PLAN
SCALE 1:30



2 SECTION
SCALE 1:30



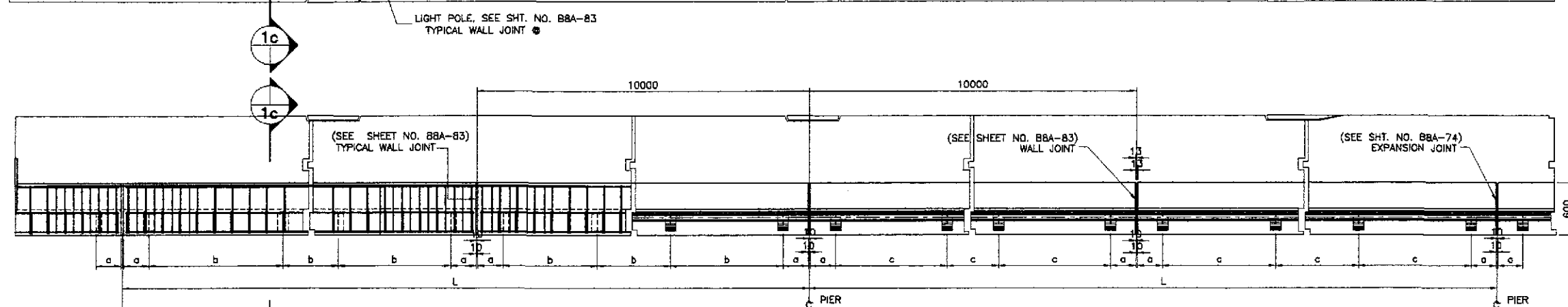
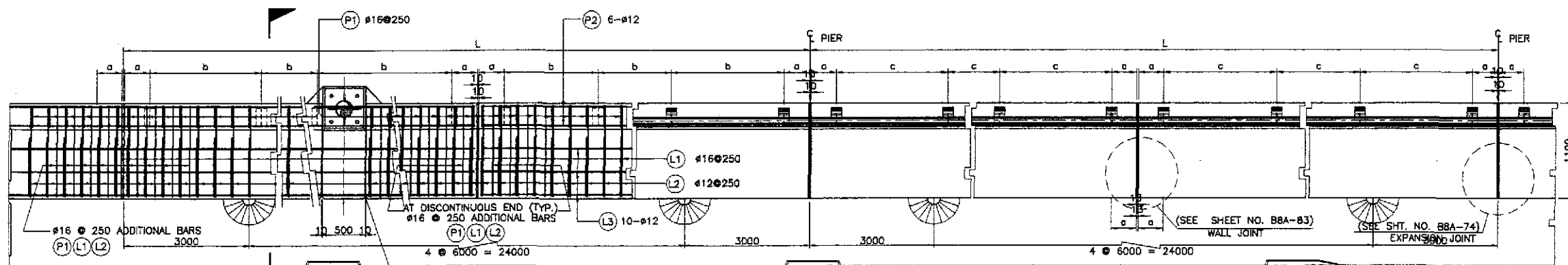
3 SECTION
SCALE 1:20



SCHEDULE OF REINFORCEMENT														
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQD.	UNIT WEIGHT (kg/m)	WEIGHT (Kgs.)	
				a	b	c	d	e	f				GRADE 40	GRADE 60
APPROACH SLAB (ABUT. A1 & A2)	A1	25	A	4900						4900	55	3.853		1038
	A2	25	A	4450	max					3200	8	3.853		99
	A3	20	A	1950	min					9600	5	2.466		116
	A4	20	A	9500	max					8820	16	2.466		348
	A5	20	A	8140	min					9600	1	2.466		24
	A6	16	A	9600						9600	4	1.578	61	
	A7	16	A	9500	max					8820	15	1.578	209	
	A8	20	A	8140	min					8140	1	2.466		20
	A9	16	A	4900						4900	28	1.578	217	
	A10	16	A	4450	max					3650	4	1.578	23	
	A11	25	B	2850	min					4950	4	3.853		76
	A12	16	C	1000	3950					800	28	1.578	35	
	A13	16	C	300	200	300				800	33	1.578	42	
	A14	16	C	300	200	300				900	65	1.578	94	
	A15	16	A	200	500	200				9600	6	1.578	91	
	A16	20	A	9600						500	61	2.466		75
											TOTAL WEIGHT	=	772	1723
											TOTAL WEIGHT A1 & A2	=	1544	3446

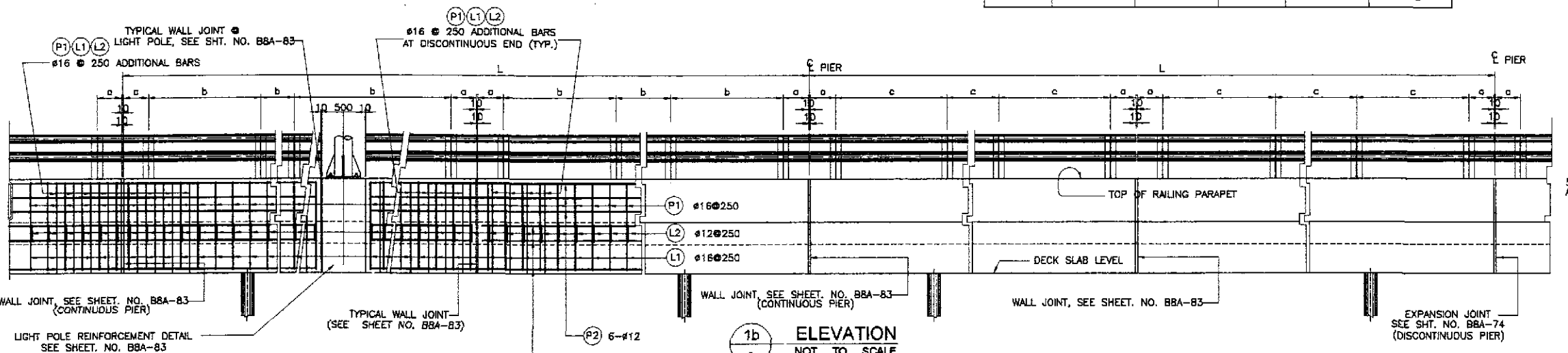
THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/25/02	[Signature]		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. 8 ANGAT RIVER BRIDGE APPROACH SLAB REINF. DETAILS (ABUTMENT A1 & A2) (ULTIMATE STAGE)	B8A-78
	SUBMITTED	9/25/02	[Signature]		Submitted By:	Reviewed By:	Recommended By:	Approved By:	PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1		



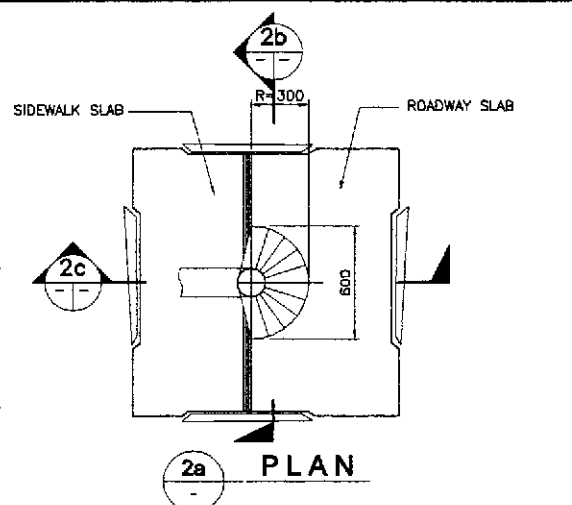
1a PLAN NOT TO SCALE

SCHEDULE OF RAILING					
SPAN LENGTH (m)	NO. OF DEFLECTION JT. INSIDE SPAN	NO. OF RAIL POST PER SIDE/SPAN	a (mm)	b (mm)	c (mm)
30.00	2	18	250	1895	1895

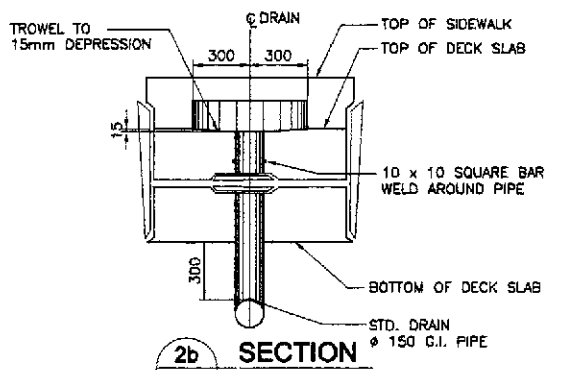


1b ELEVATION NOT TO SCALE

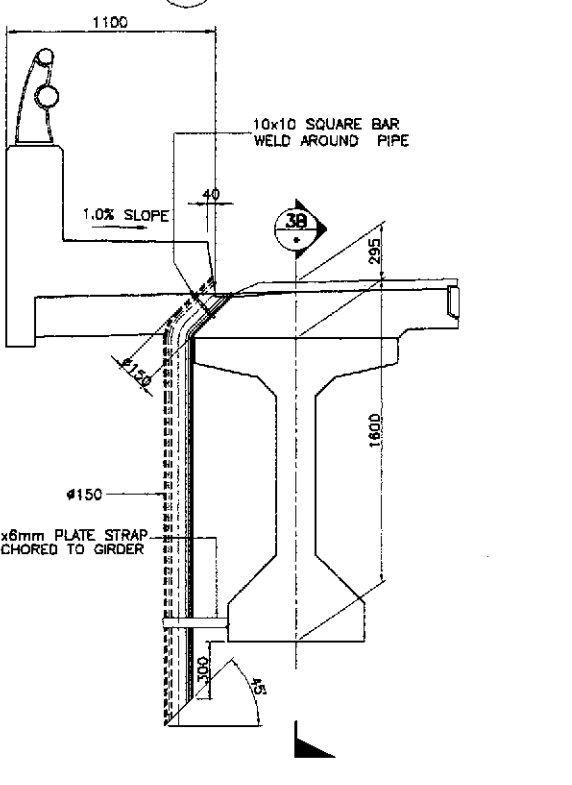
1 TYPICAL SIDEWALK, RAILING AND DRAIN DETAILS SCALE AS SHOWN



2a PLAN



2b SECTION

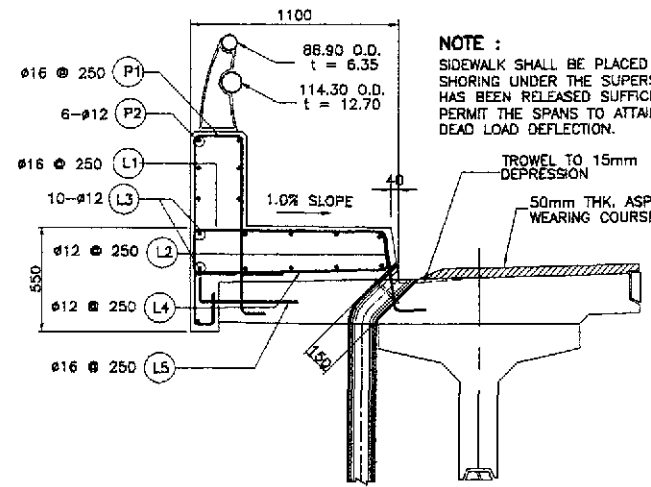


2c SECTION

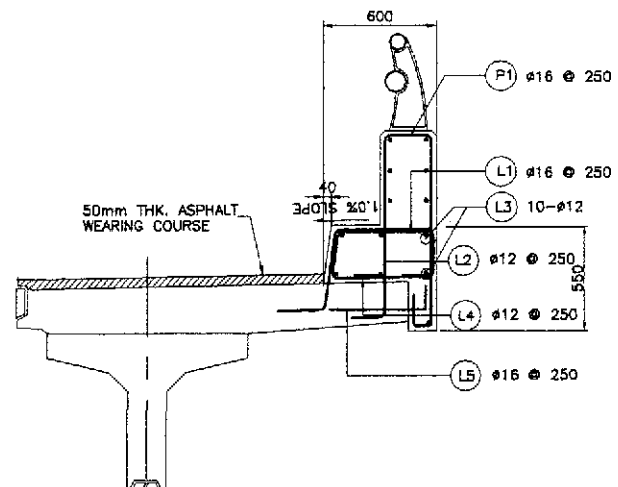
2 TYPICAL DRAIN DETAILS SCALE 1:20

- NOTES:
- THE DEFLECTION JOINT SHALL BE FROM THE TOP OF CONCRETE RAILING /PARAPET TO THE TOP OF DECK SLAB.
 - NUMBER OF DEFLECTION JOINT INSIDE SPAN DOES NOT INCLUDE LIGHT POLE.

	DESIGNED	DATE	SIGNATURE	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	<p>PROJECT AND LOCATION :</p> <p>THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)</p>	<p>SCALE :</p> <p>AS SHOWN</p>	<p>SHEET CONTENTS :</p> <p>BRIDGE NO. 8 ANGAT RIVER BRIDGE TYPICAL SIDEWALK, RAILING AND DRAIN DETAILS (ULTIMATE STAGE)</p>	<p>SHEET NO. :</p> <p>B8A-79</p>							
	CHECKED	9/27/02	[Signature]						<p>BUREAU OF DESIGN</p> <p>Submitted By: DANILLO C. TRAJANO Project Director</p>	<p>OFFICE OF THE SECRETARY</p> <p>Recommended By: ADRIANO M. DORON Chief, Bridges Division</p>	<p>Recommended By: GILBERTO S. REYES Director IV (GD)</p>	<p>Approved By: MANUEL M. BONGAN Underscretary</p>	<p>Approved By: SIMEON A. DATUMANONG Secretary</p>	<p>PLARIDEL BYPASS - CONTRACT PACKAGE III</p>	<p>FULL SIZE A1</p>
	SUBMITTED	9/27/02	[Signature]						<p>Submitted By: DANILLO C. TRAJANO Project Director</p>	<p>Recommended By: ADRIANO M. DORON Chief, Bridges Division</p>	<p>Recommended By: GILBERTO S. REYES Director IV (GD)</p>	<p>Approved By: MANUEL M. BONGAN Underscretary</p>	<p>Approved By: SIMEON A. DATUMANONG Secretary</p>	<p>PLARIDEL BYPASS - CONTRACT PACKAGE III</p>	<p>FULL SIZE A1</p>

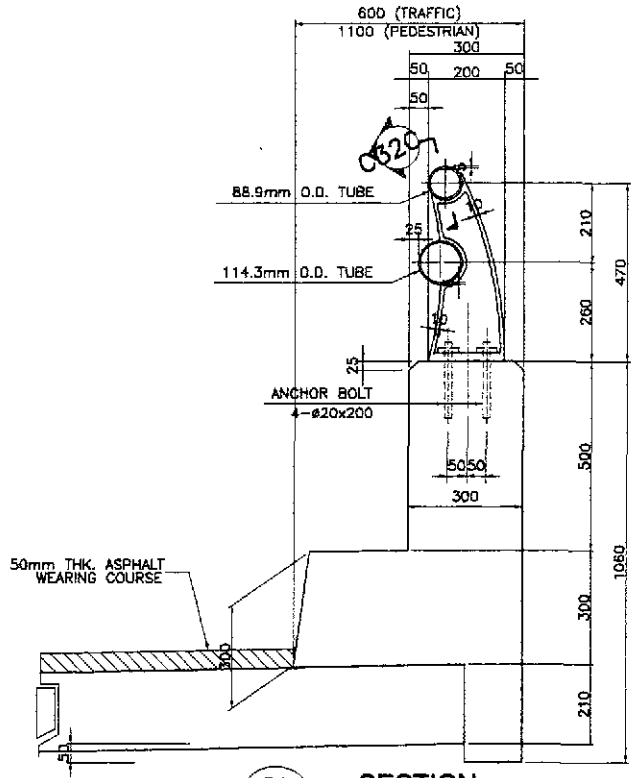


A2 SIDEWALK (PEDESTRIAN)
SCALE 1:20

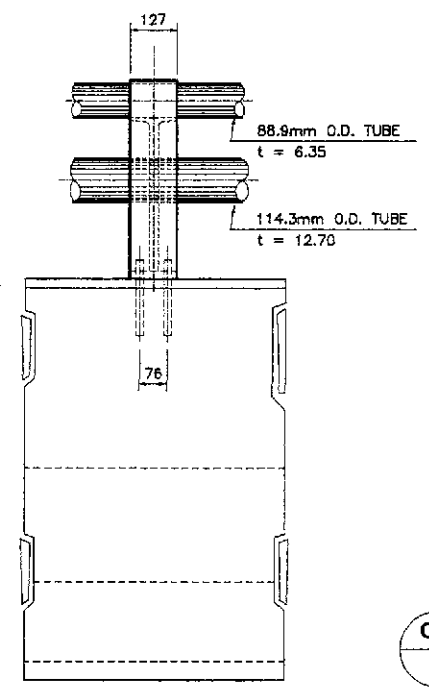


A1 SIDEWALK (TRAFFIC)
SCALE 1:20

A SIDEWALK REINFORCEMENT DETAILS
SCALE AS SHOWN



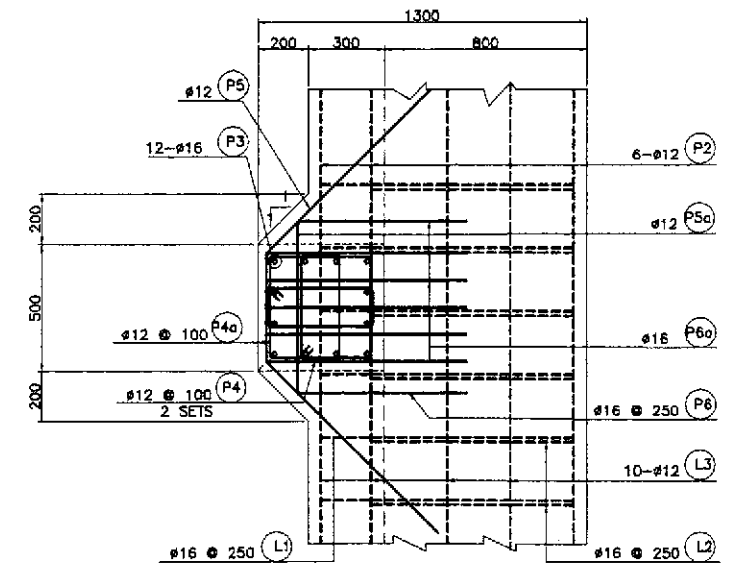
C1 SECTION
SCALE 1:10



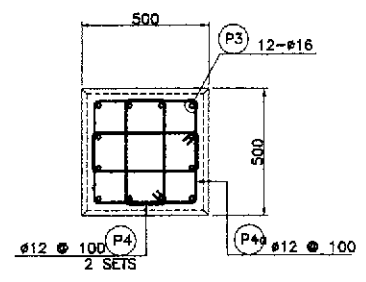
C2 ELEVATION
SCALE 1:10

C3 SECTION
SCALE 1:5

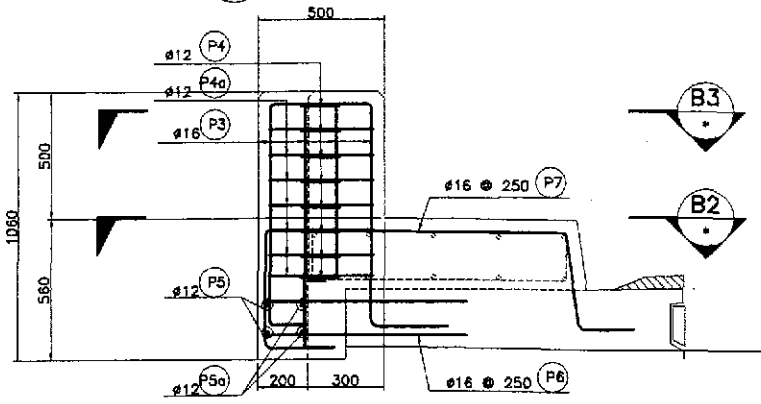
C DETAILED DIMENSION OF RAILING
SCALE AS SHOWN



B2 SECTION
SCALE 1:15

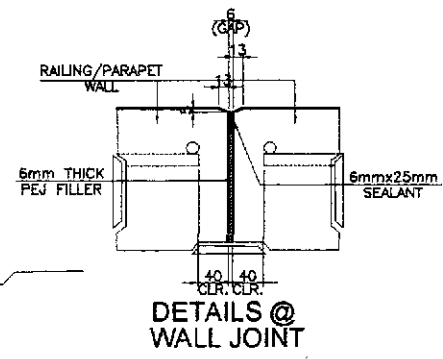


B3 SECTION
SCALE 1:15

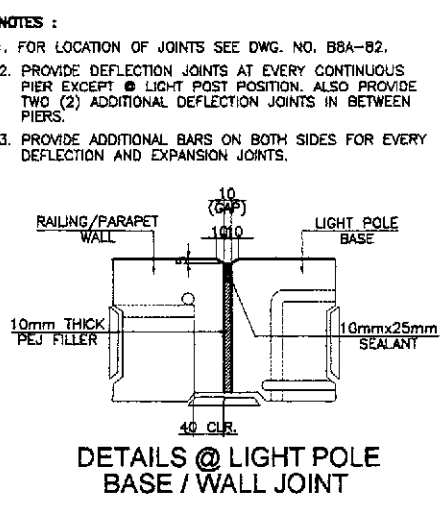


B1 ELEVATION
SCALE 1:15

B LIGHT POLE BASE REINF. DETAIL
SCALE AS SHOWN



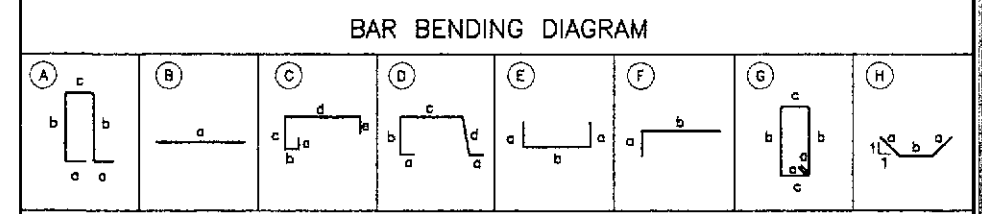
D DETAILS OF DEFLECTION JOINTS
SCALE 1:5



DETAILS @ LIGHT POLE BASE / WALL JOINT

1 SIDEWALK & LIGHT POLE BASE REINF. DETAILS, RAILING DIMENSIONS
SCALE AS SHOWN

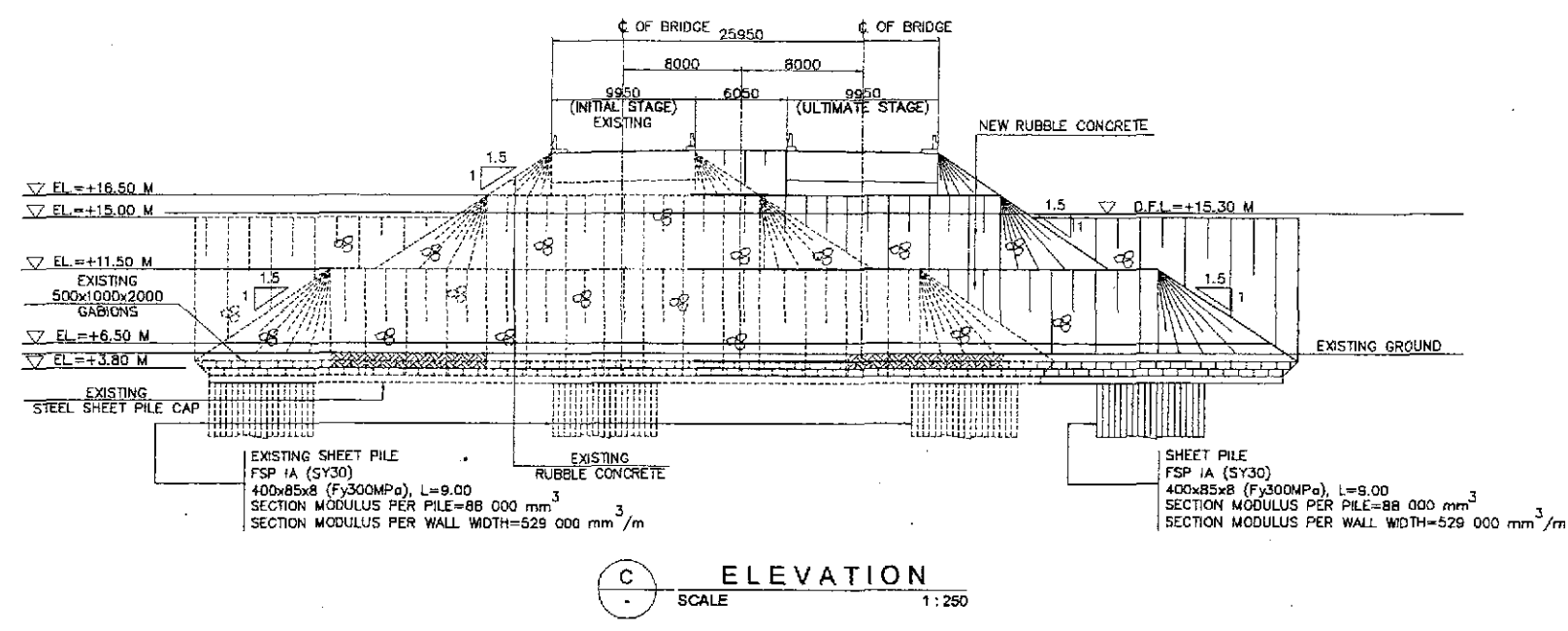
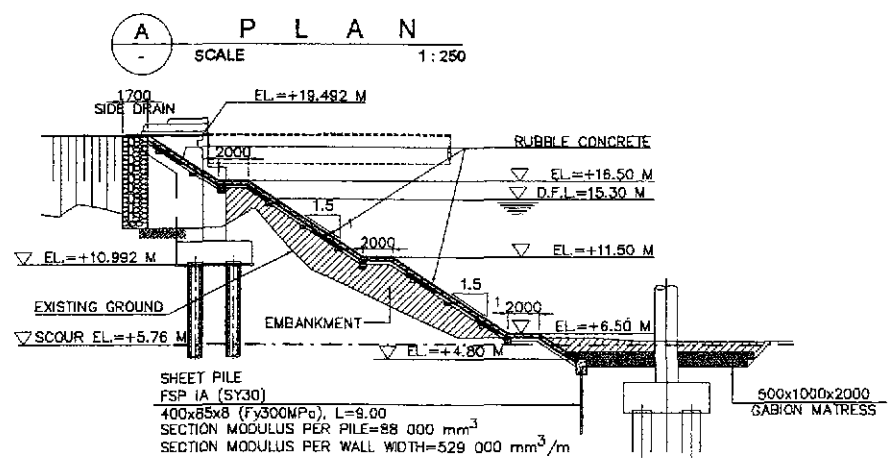
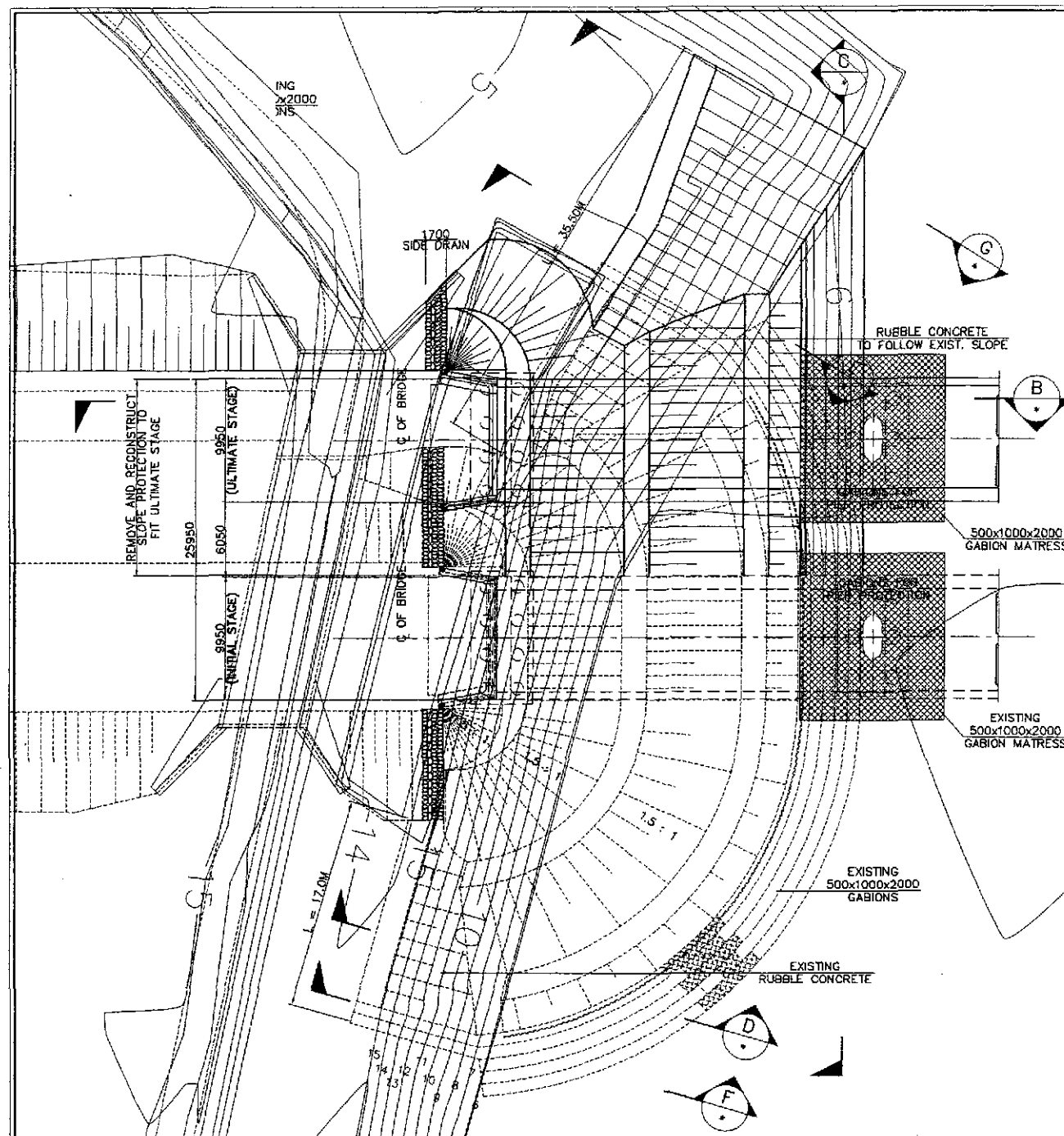
- NOTES :**
- FOR LOCATION OF JOINTS SEE DWG. NO. B8A-82.
 - PROVIDE DEFLECTION JOINTS AT EVERY CONTINUOUS PIER EXCEPT @ LIGHT POST POSITION. ALSO PROVIDE TWO (2) ADDITIONAL DEFLECTION JOINTS IN BETWEEN PIERS.
 - PROVIDE ADDITIONAL BARS ON BOTH SIDES FOR EVERY DEFLECTION AND EXPANSION JOINTS.



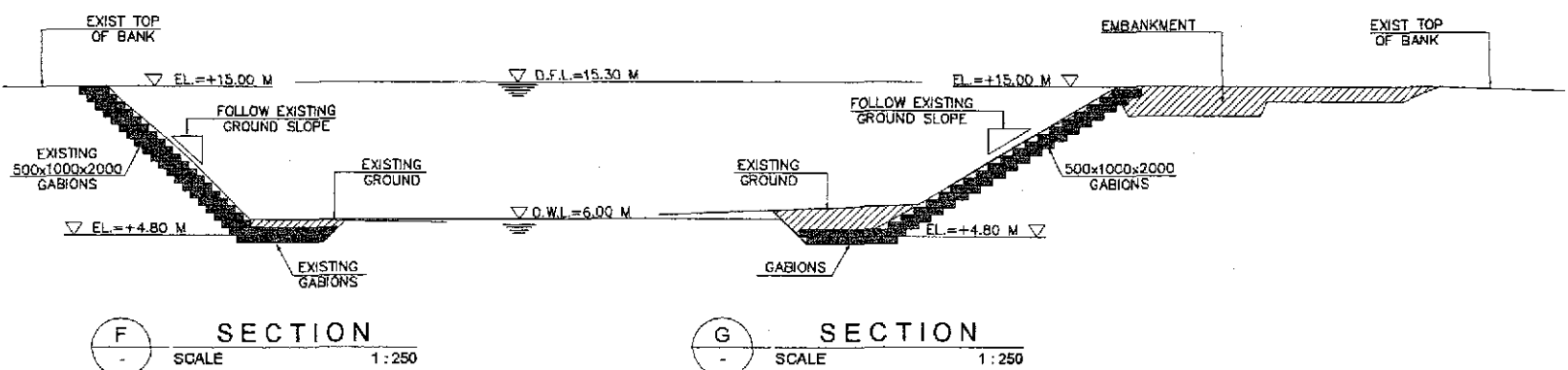
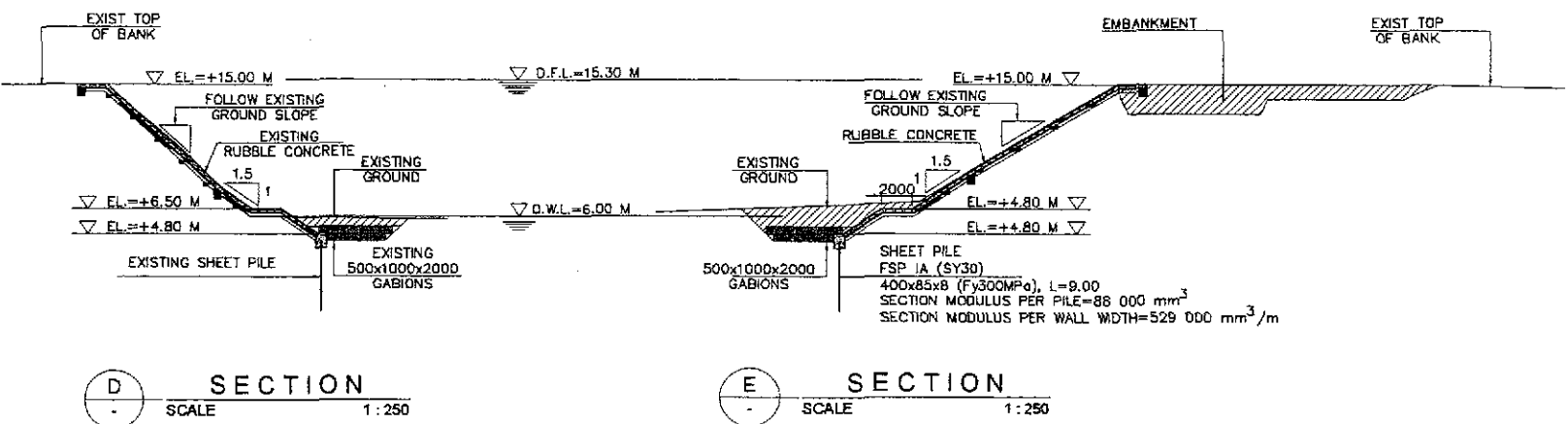
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT					LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT(kgs.)	
				a	b	c	d	e				Grade 40	Grade 60
PARAPET	P1	16	A	300	720	220			2260	288	1.578	1027	
	P2	12	B	9874					9874	36	0.888	316	
											TOTAL WEIGHT PER SPAN = 1343 Kgs.		
											TOTAL WEIGHT FOR 24 SPANS = 32232 Kgs.		
SIDEWALK PEDESTRIAN	L1	16	C	100	70	450	980	260	1860	144	1.578	423	
	L2	12	D	200	375	700	375		1850	144	0.888	237	
	L3	12	B	9874					9874	33	0.888	289	
	L4	12	E	200	480				1380	144	0.888	176	
	L5	12	F	200	400				600	144	0.888	77	
											TOTAL WEIGHT PER SPAN = 1202 Kgs.		
											TOTAL WEIGHT FOR 24 SPANS = 28848 Kgs.		
SIDEWALK TRAFFIC	L1	16	C	100	70	4750	480	260	5660	144	1.578	1286	
	L2	12	D	200	375	200	375		1350	144	0.888	173	
	L3	12	B	9874					9874	21	0.888	184	
	L4	12	E	220	480				880	144	0.888	113	
	L5	12	F	200	400				600	144	0.888	77	
											TOTAL WEIGHT PER SPAN = 1833 Kgs.		
											TOTAL WEIGHT FOR 24 SPANS = 43992 Kgs.		
LIGHT POST	P3	16	F	300	910				1210	12	1.578	23	
	P4	12	G	150	150	420			1440	16	0.888	20	
	P4c	12	G	150	420	420			1980	8	0.888	14	
	P5	12	H	1000	500				2500	2	0.888	4	
	P5c	12	B	700					700	2	0.888	1	
	P6	16	E	650	130				1430	5	1.578	11	
	P6c	16	E	750	130				1630	5	1.578	13	
P7	12	C	100	250	4750	1160	260	6520	3	0.888	17		
											TOTAL WEIGHT PER POST = 103 Kgs.		
											TOTAL WEIGHT FOR 24 POST = 1236 Kgs.		

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	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE III	SCALE :	SHEET CONTENTS : BRIDGE NO. 8 ANGAT RIVER BRIDGE SIDEWALK & LIGHT POLE BASE REINF. DETAILS, RAILING DIMENSIONS (ULTIMATE STAGE)	SHEET NO. : B8A-80
	CHECKED	DATE	SIGNATURE		DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		AS SHOWN		
	SUBMITTED	DATE	SIGNATURE		BUREAU OF DESIGN		FULL SIZE A1		
Submitted By: DANILO C. TRAJANO Project Director Reviewed By: ADRIANO M. DOROY Chief, Bridges Division Recommended By: GILBERTO S. REYES Director IV (GIC) Recommended By: MANUEL M. BONDAN Undersecretary Approved By: SIMEON A. DATUMANONG Secretary									

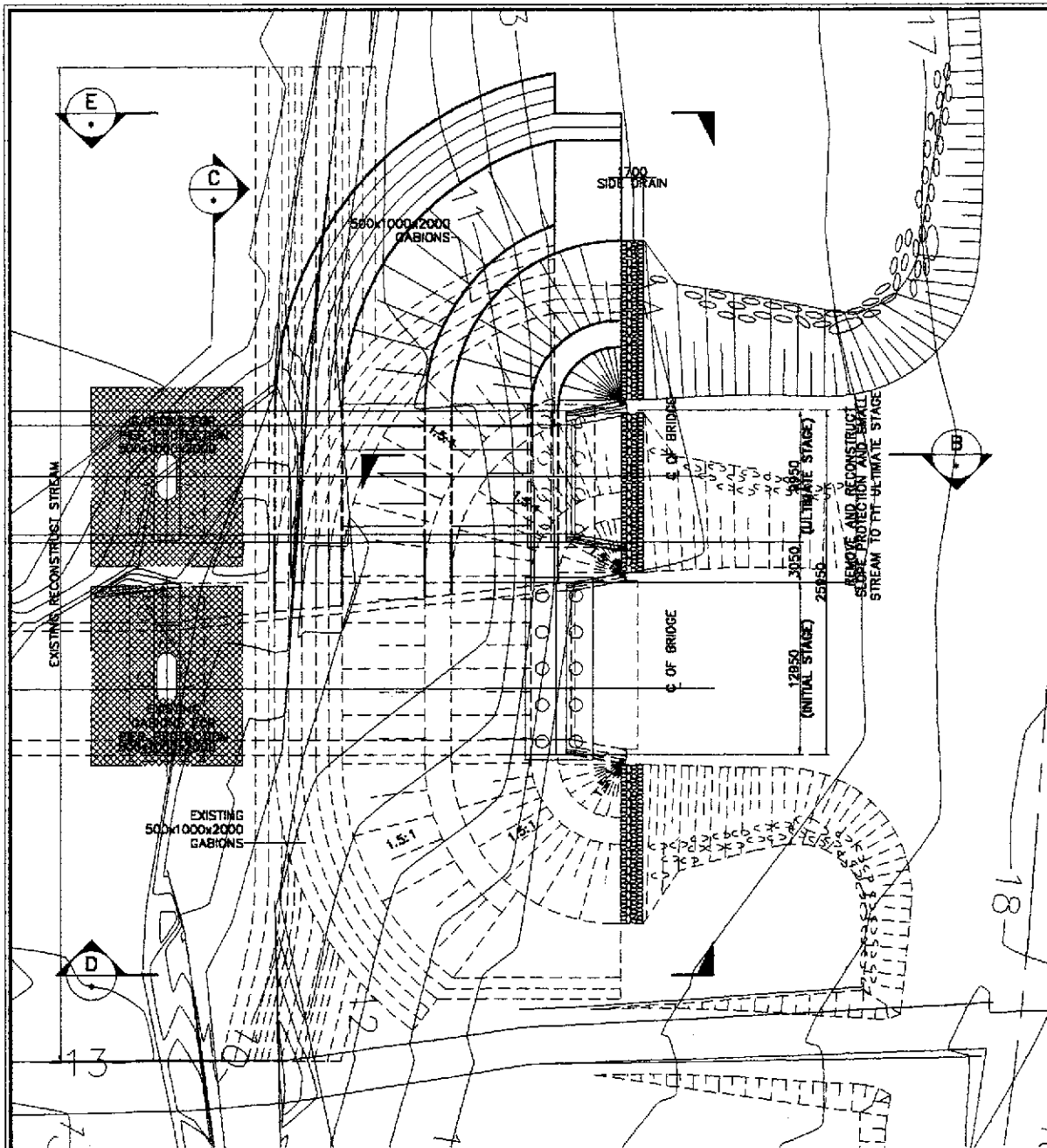


NOTE :
 PART OF THE EXISTING SLOPE PROTECTION FOR THE INITIAL STAGE SHALL BE REMOVED AND RECONSTRUCTED TO MATCH THE ULTIMATE STAGE SLOPE PROTECTION. ANY DAMAGES TO THE EXISTING STRUCTURES DURING THE EXECUTION OF THIS WORK SHALL BE REPAIRED/ BROUGHT BACK TO ITS ORIGINAL CONDITION AT THE EXPENSE OF THE CONTRACTOR.

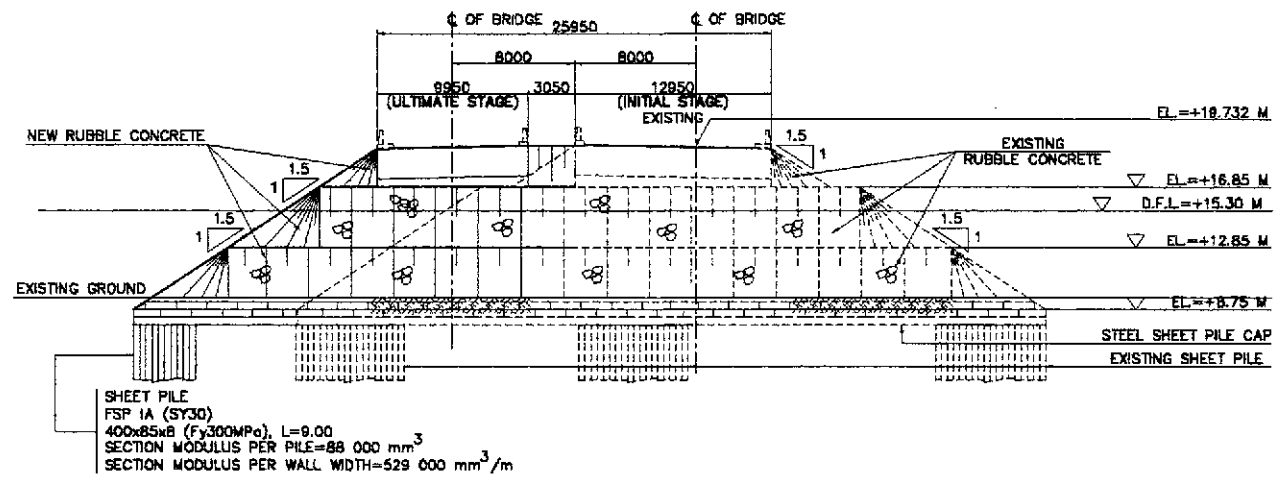


1 ABUTMENT SLOPE PROTECTION LAYOUT (ABUTMENT A1)
 SCALE 1:250 AS SHOWN

	DESIGNED: 9/28/02	DATE: 9/28/02	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. 8 ANGAT RIVER BRIDGE ABUTMENT SLOPE PROTECTION LAYOUT (ABUTMENT A1) (ULTIMATE STAGE)	SHEET NO.:
	CHECKED: 9/27/02	SUBMITTED: 9/28/02	BUREAU OF DESIGN OFFICE OF THE SECRETARY DANILLO C. TRAJANO (Project Director) PERFECTO L. ZAPLAN, JR. (Chief, Hydraulic Division (DIO)) GILBERTO S. REYES (Director IV (DIO)) MANUEL M. BONGUAN (Undersecretary) SIMEON A. DATUMANONG (Secretary)	PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1	B8A-81	

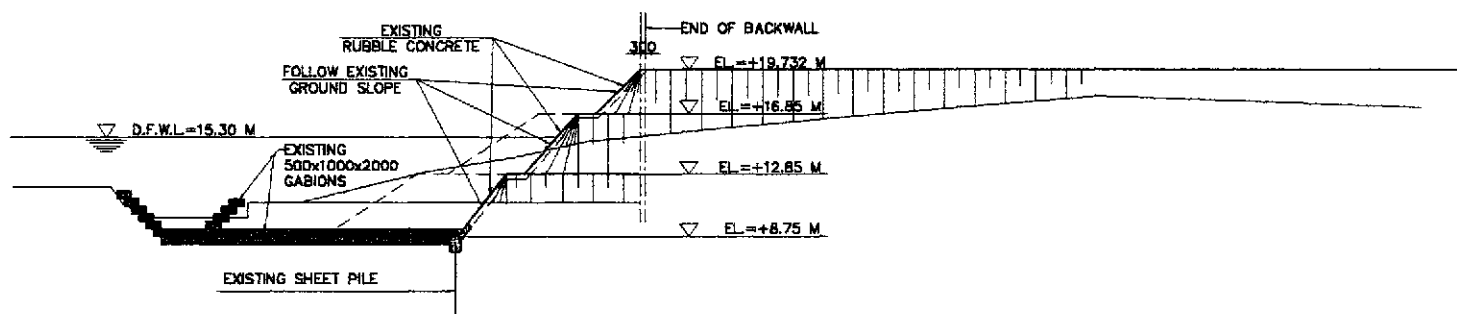


A PLAN
SCALE 1:250

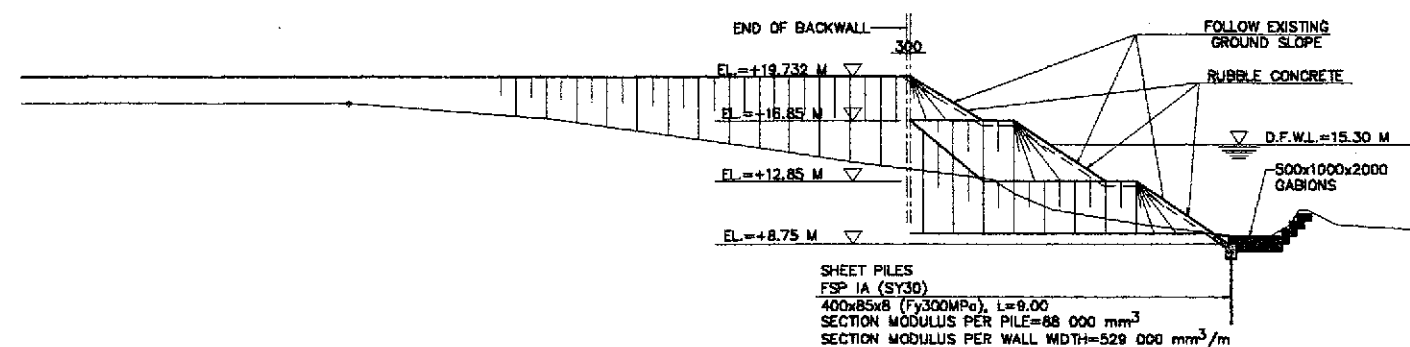


C ELEVATION
SCALE 1:250

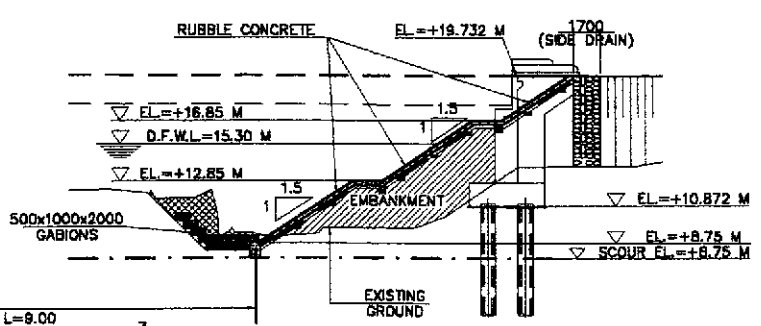
NOTE :
PART OF THE EXISTING SLOPE PROTECTION FOR THE INITIAL STAGE SHALL BE REMOVED AND RECONSTRUCTED TO MATCH THE ULTIMATE STAGE SLOPE PROTECTION. ANY DAMAGES TO THE EXISTING STRUCTURES DURING THE EXECUTION OF THIS WORK SHALL BE REPAIRED/ BROUGHT BACK TO ITS ORIGINAL CONDITION AT THE EXPENSE OF THE CONTRACTOR.



D SECTION
SCALE 1:250



E SECTION
SCALE 1:250



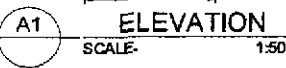
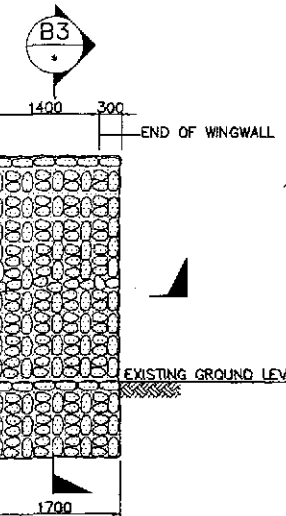
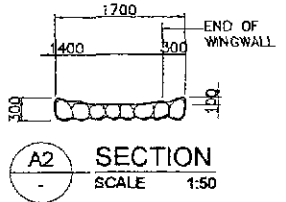
B SECTION
SCALE 1:250

SHEET PILES
FSP 1A (SY30)
400x85x8 (Fy300MPa), L=9.00
SECTION MODULUS PER PILE=88 000 mm³
SECTION MODULUS PER WALL WIDTH=529 000 mm³/m

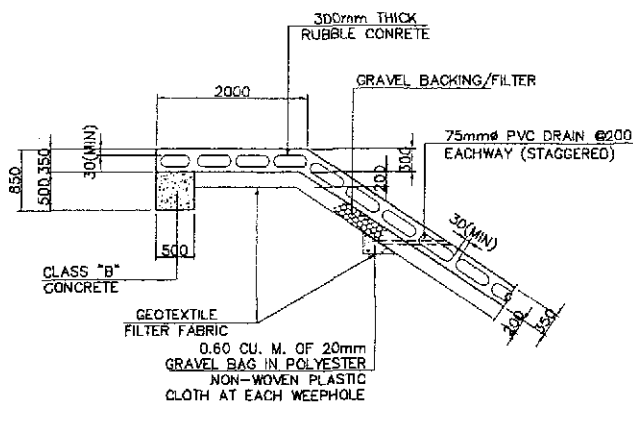
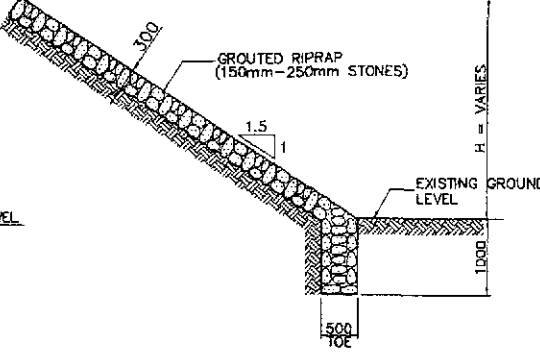
SHEET PILES
FSP 1A (SY30)
400x85x8 (Fy300MPa), L=9.00
SECTION MODULUS PER PILE=88 000 mm³
SECTION MODULUS PER WALL WIDTH=529 000 mm³/m

1 ABUTMENT SLOPE PROTECTION LAYOUT (ABUTMENT A2)
SCALE AS SHOWN

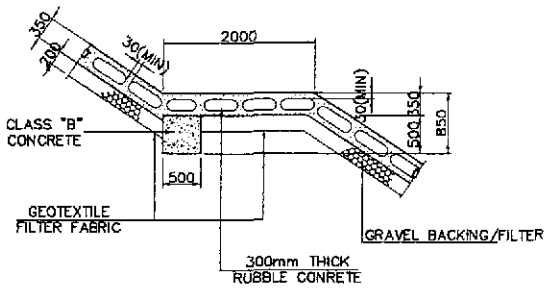
 JAPAN INTERNATIONAL COOPERATION AGENCY		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		SCALE : AS SHOWN	SHEET CONTENTS : BRIDGE NO. 8 ANGAT RIVER BRIDGE ABUTMENT SLOPE PROTECTION LAYOUT (ABUTMENT A2) (ULTIMATE STAGE)	SHEET NO. : B8A-82
DESIGNED : 9/25/02	CHECKED : 9/27/02	SUBMITTED : 9/30/02	P.J.H. - PMO DANILLO C. TRAJANO Project Director	Reviewed By: PERFECTO L. ZAPLAN JR. Chief, Hydraulic Division (CH)	Recommended By: GILBERTO S. REYES Director IV (IC)	Recommended By: MANUEL M. BONGAN Undersecretary	Approved By: SIMON A. DATUMANONG Secretary	FULL SIZE A1		



A SIDE DRAIN DETAILS
SCALE AS SHOWN

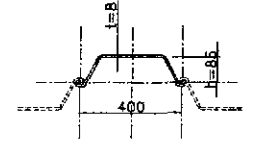


D BERM DETAIL
SCALE 1:50

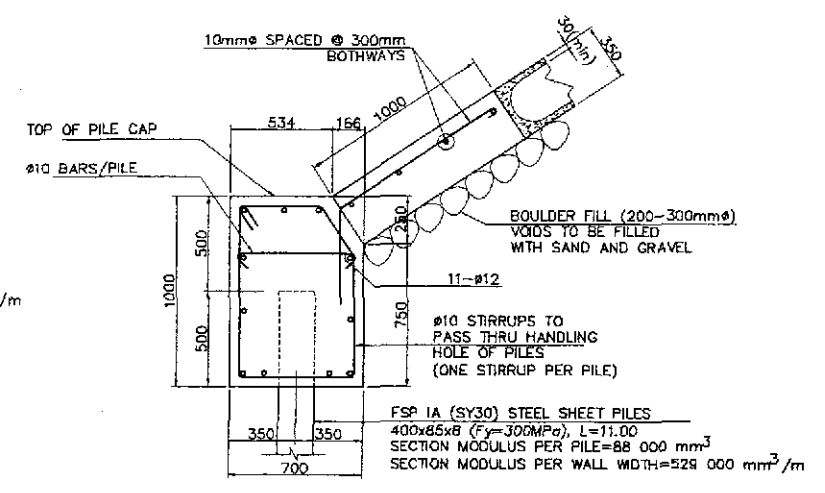


G BERM DETAIL
SCALE 1:50

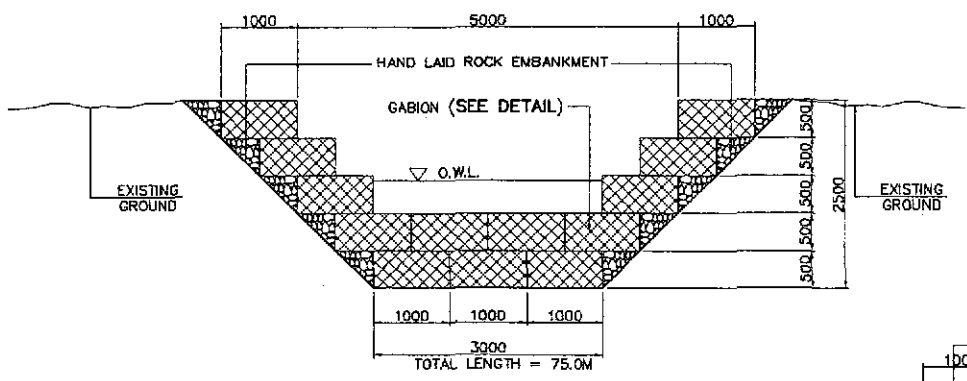
FSP 1A :
SECTION MODULUS PER PILE = 88 000 mm³
SECTION MODULUS PER WALL WIDTH = 529 000 mm³/m



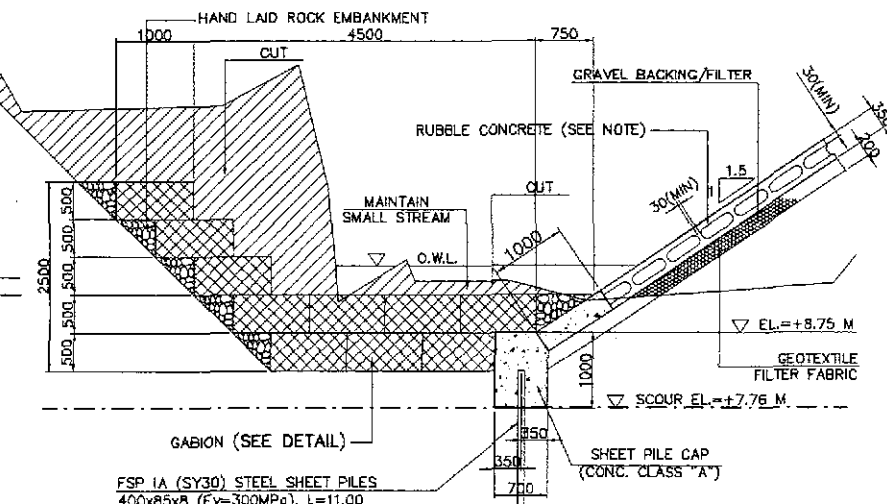
SECTION OF SHEET PILE



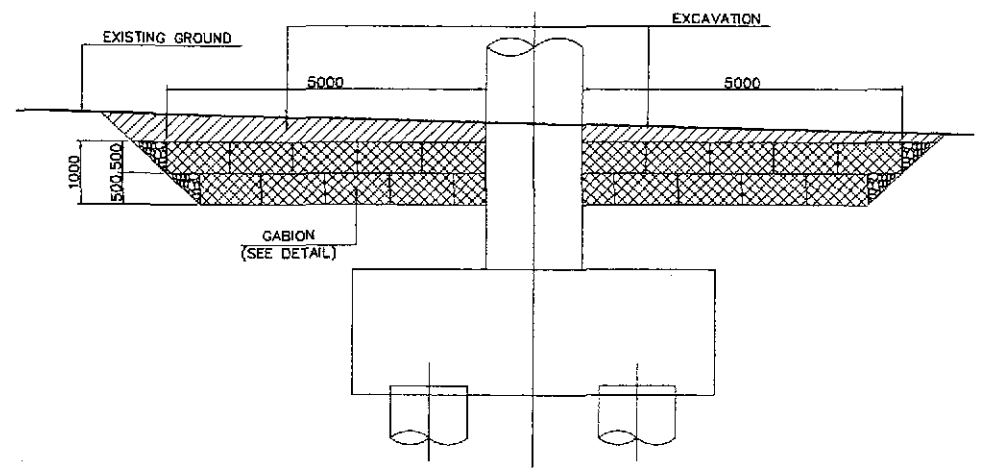
H CAPPING & SHEET PILE CONNECTION
SCALE 1:20



E TYPICAL SMALL STREAM SECTION
SCALE 1:50



F DETAIL (ABUT. A2)
SCALE 1:50



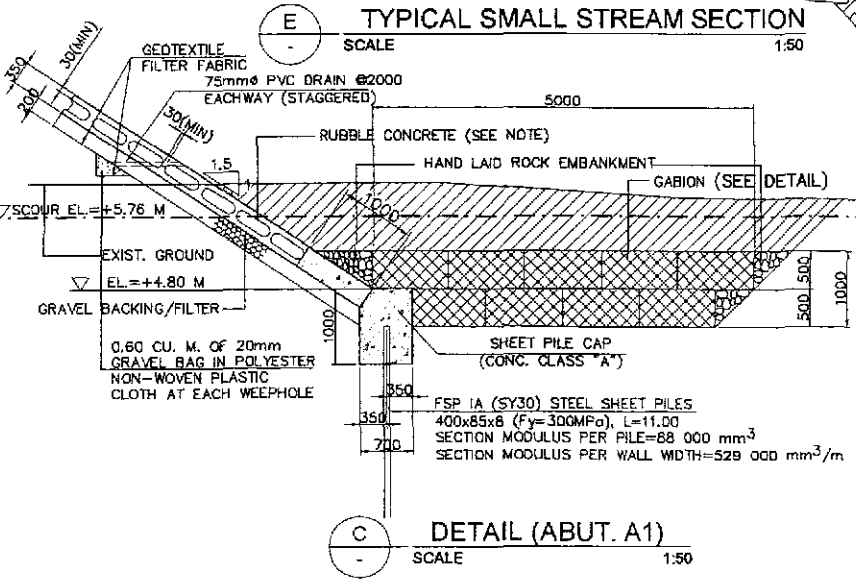
I GABION FOR PIER PROTECTION DETAIL
SCALE 1:60

GENERAL NOTES:

- THE SLOPE PROTECTION SHOWN IN THE DRAWINGS SHALL CONFORM WITH THE DPWH STANDARD SPECIFICATIONS FOR SLOPE PROTECTION.
- GRouted RIPRAP FOR SIDE DRAIN (150-300mm DIA.) SHALL BE USED FOR THE FACING AND SHALL BE CAREFULLY HANDLAID WITH THE LONGEST DIMENSIONS PERPENDICULAR TO THE SLOPE AND ADJACENT TO THE ADJOINING BOULDERS SHALL BE COMPLETELY FILLED WITH MORTAR. THE OUTSIDE SURFACE OF THE BOULDERS SHALL BE EXPOSED AND THE SURFACE OF THE MORTAR SHALL BE SWEEPED WITH A STIFF BROOM.
- RUBBLE CONCRETE FOR SLOPE PROTECTION SHALL CONSIST OF CLASS "B" (1:2.5:5) MIX CONCRETE WITH 200-300mm DIA. BOULDERS EMBEDDED THEREIN. THE BOULDERS SHALL BE CAREFULLY HANDLAID AND THOROUGHLY INCORPORATED INTO THE MASS. AT LEAST 30mm APART AND SHALL BE AT LEAST 30mm BELOW THE OUTSIDE SURFACE OF SURFACE OF THE CONCRETE. THE RUBBLE CONCRETE SHALL BE COMPOSED OF 40% CLASS "B" CONCRETE & 60% BOULDERS.
- WIRE MESH GABIONS:
 - WIRE - THE WIRE MESH SHALL MADE OF GALVANIZED STEEL HAVING A MINIMUM SIZE OF 3.40mm DIA. (U.S. WIRE GAUGE NO.11). THE TENSILE STRENGTH OF THE WIRE SHALL BE IN RANGE OF 413 TO 586.10 MPa. (60000-85000 PSI). THE MINIMUM ZINC COATING OF THE WIRE SHALL BE 22.70 g/0.0929 sq.m. OF UNCOATED WIRE SURFACES AS DETERMINED BY TEST CONDUCTED IN ACCORDANCE WITH AASHTO T65.
 - ROCK FILL - ROCK USED IN THE GABIONS SHALL CONSISTS OF HARD DURABLE ROCK PIECES THAT WILL NOT DETERIORATE WHEN SUBMERGED IN WATER OR EXPOSED TO SEVER WEATHER CONDITIONS. ROCK PIECES SHALL BE GENERALLY UNIFORMLY GRADED IN SIZES RANGING FROM 100 TO 200mm FILLED GABIONS SHALL HAVE A MINIMUM DENSITY OF 1400 kg/cu.m. 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.
- GRAVEL FILTER SHALL BE COARSE AGGREGATE MATERIALS WHICH SATISFY THE REQUIREMENTS FOR ITEM 405, STRUCTURAL CONCRETE GRADING B. OF TABLE 405.1 AS REVISED.
- GEOTEXTILE: THE FOLLOWING SPECIFICATIONS ARE REQUIRED.
 - POLYESTER OR POLYPROPYLENE - 100%
 - MECHANICALLY HEAT BOND BONDED
 - NON-WOVEN & COMPRISE OF CONTINUOUS FILAMENT
 - EFFECTIVE OPENING SIZE - 110 MICRONS (MAX)
 - THICKNESS UNDER PRESSURE - 200 KN/sq.m., 0.60mm (MIN)
 - WEIGHT 200 g/sq.m. (MIN)
 - CBR PUNCTURE STRENGTH - 2100 N
 - MULTI-DIRECTIONAL TENSILE STRENGTH - 13 KN/m.
- HAND-LAID ROCK SHALL BE MORE THAN 0.015 cu.m. IN VOLUME AND SHALL CONSISTS OF HARD AND DURABLE STONES. ALL SHALL BE LAID FLAT AND SECURELY PLACED WITH LARGER STONES GENERALLY LOCATED IN THE LOWER PART OF THE STRUCTURE.

FOR MATTRESSES:

- BODY WIRE DIAMETER ----- 2.70 mm
- SELVAGE WIRE DIAMETER ----- 3.40 mm
- TENSILE STRENGTH ----- 413.7 MPa-586.10 MPa
- WT. OF ZINC COATING ----- 244 g/sq.m OF COATED WIRE SURFACE
- ELONGATION; 200mm GAGE LEGNTH --- 12% (min)
- TYING & CONNECTING WIRE DIAMETER --- 2.20 mm
- ROCK FILL ----- 100 mm DIAMETER
- DENSITY OF FILLED GABIONS ----- 1400 Kg/cu.m
- WIRE SHOULD BE TRIPLE TWISTED



C DETAIL (ABUT. A1)
SCALE 1:50

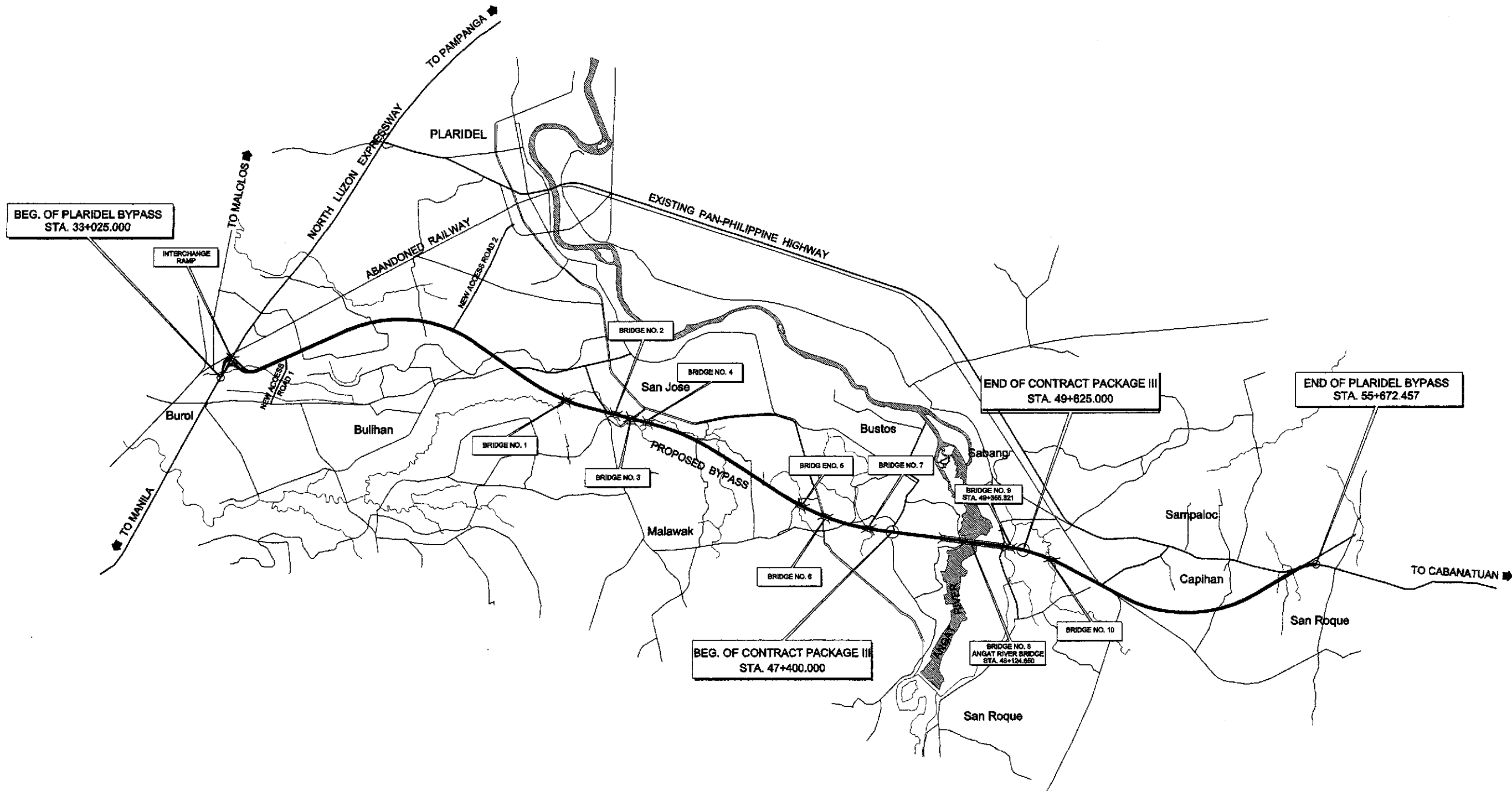
JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS
INTERNATIONAL

YEO YACHIYO ENGINEERING
CO., LTD.

DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	
CHECKED	9/25/02	M. S. ...	BUREAU OF DESIGN	
SUBMITTED	9/25/02	C. SANTOS	OFFICE OF THE SECRETARY	
Submitted By:			Reviewed By:	Recommended By:
DANILO C. TRAJANO Project Director			PERFECTO L. ZAPLAN JR. Chief, Hydraulics Division (OC)	GILBERTO S. REYES Director IV (OC)
TEAM LEADER			MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE DETAILS OF ABUT. SLOPE PROTECTION FOR ABUTMENT A1 & A2 (ULTIMATE STAGE)	B8A-83
PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1		



A
 NOT TO SCALE

JICA JAPAN INTERNATIONAL COOPERATION AGENCY		DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :		SCALE :	SHEET CONTENTS :	SHEET NO. :		
	DESIGNED	9/25/02	<i>[Signature]</i>		BUREAU OF DESIGN		OFFICE OF THE SECRETARY		AS SHOWN FULL SIZE A1	BRIDGE LOCATION MAP (ULTIMATE STAGE)	BG-01
	CHECKED	9/27/02	<i>[Signature]</i>		Submitted By:	Reviewed By:	Recommended By:	Approved By:			
SUBMITTED	9/30/02	<i>[Signature]</i>	DANILO C. TRAJANO Project Director	ADRIANO M. DOROS Chief, Bridge Division	GILBERTO S. REYES Director IV (OIC)	MANUEL M. BONGAN Undersecretary	SIMEON A. DATUMANONG Secretary				

GENERAL NOTES FOR BRIDGES

(SHEET 1 OF 2)

A. DESIGN CRITERIA

1. DESIGN SPECIFICATION

- (a) THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES 16TH EDITION, 1996.
- (b) NATIONAL STRUCTURAL CODE OF THE PHILIPPINES, VOLUME II--BRIDGES, 2ND EDITION, 1997.

2. DESIGN METHODOLOGY

LOAD FACTOR DESIGN METHOD (ULTIMATE STRENGTH DESIGN METHOD)

3. LOADING

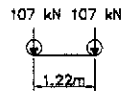
3.1 DEAD LOADS

WEIGHT

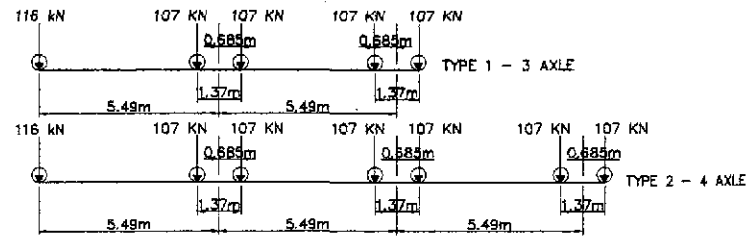
A. CONCRETE	24.00 kN/m ³
B. STEEL	77.00 kN/m ³
C. EARTH	19.00 kN/m ³
D. WEARING SURFACE	1.10 kN/m ²

3.2 LIVE LOADS

- A. AASHTO HS20 (MS18) TRUCK AND EQUIVALENT LANE LOADING.
- B. SIDEWALK LOAD 4.07 kN/m²
- C. ALTERNATE MILITARY LOADING.



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



3.3 IMPACT

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

3.4 SEISMIC LOAD

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

3.5 OTHER LOADS

IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS, 1996.

3.6 LOAD COMBINATION

- A. GROUP I = 1.3 [1.0 D + 1.67(L+1)n + 1.0 SF]
- B. GROUP II = 1.3 [1.0 D + 1.0(L+1)p + 1.0 SF]
- C. GROUP VII = 1.3 [1.0 D + 1.0 SF + EQ]

B. MATERIALS

1. CONCRETE

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

STRUCTURAL MEMBER	CLASS	28 - DAY CYLINDER STRENGTH		MAX. SIZE OF COARSE AGGREGATE mm (in.)	REMARKS
		MPa	PSI		
CAST - IN PLACE GIRDERS, SLABS, DIAPHRAGMS, WINGWALLS, BACKWALLS, COPINGS, COLUMNS	A (MOD)	21	3045	20 (3/4)	
FOOTINGS	A	21	3045	38 (1-1/2)	
PRECAST R.C. PILES	AA	28	4060	20 (3/4)	
THIN REINFORCED SECTIONS RAILINGS AND RAILPOST	C	21	3045	12 (1/2)	
PRESTRESSED CONCRETE MEMBERS	p	35 41	5075 5946	20 (3/4) 20 (3/4)	⊗ TRANSFER ⊗ SERVICE
LEAN CONCRETE	-	17	2465	50 (2)	

2. REINFORCING STEEL

- (a) REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADES 40 & 60 DEFORMED WITH MINIMUM YIELD STRENGTH. GRADE 40 (16mmφ AND SMALLER)
Fy = 276 MPa (40,000 psi)
GRADE 60 (20mmφ AND LARGER)
Fy = 414 MPa (60,000 psi)
- (b) REINFORCING STEEL SHALL BE FREE OF MILL SCALES, OIL OR ANY SUBSTANCES WHICH WILL WEAKEN THE BOND WITH CONCRETE.

3. PRESTRESSING STEEL

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

4. STRUCTURAL STEEL, BOLTS AND WELDS

MATERIALS	UNIT WEIGHT
STEEL PLATES AND ROLLED SHAPES	AASHTO M183 (ASTM A36)
BOLTS	AASHTO M164 (ASTM A325)
WELDS	AWS D1.1 - 183, E70XX SERIES

5. ELASTOMERIC BEARING PADS

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

SPECIFICATIONS

DURO HARDNESS, SHORE A (ASTM D-2240)-----60
TENSILE STRENGTH ASTM D 412-175 Kg/cm² (min)
ULTIMATE ELONGATION % 350 % (min)
MATERIAL NEOPRENE

C. CONSTRUCTION

ALL WORKS SHALL COMPLY WITH 1995 DPWH SPECIFICATION FOR ROADS AND BRIDGES OR MODIFIED BY SPECIAL PROVISIONS.

1. DIMENSIONS

- 1.1 SECTION, DIMENSIONS AND DISTANCES SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES. THE INDICATED DIMENSION SHALL GOVERN UNLESS OTHERWISE SPECIFIED.
- 1.2 ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- 1.3 ALL STATIONING ARE IN KILOMETER PLUS METER AND ELEVATION IN METER.

2. SETTING OUT

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

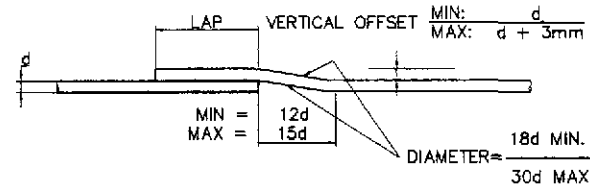
3. REINFORCED CONCRETE

- a. ALL CAST IN PLACE CONCRETE SHALL BE CLASS "A" EXCEPT RAILINGS WHICH SHALL BE CLASS "C" UNLESS OTHERWISE NOTED ON THE PLANS. ALL EXPOSED EDGES SHALL BE CHAMFERED 25mm EXCEPT RAILINGS AND RE-ENTRANT ANGLES WHICH SHALL BE CHAMFERED AND FILLETED 13mm RESPECTIVELY.
- b. CONCRETE MIX AND PLACING
 - (1) DESIGN OF CONCRETE MIX SHALL MEET THE DESIGN CONCRETE STRENGTH GIVEN UNDER ITEM 1 OF MATERIALS.
 - (2) CONCRETE SHALL BE DEPOSITED, VIBRATED AND CURED IN ACCORDANCE WITH THE SPECIFICATION.

- (3) FOR CONCRETE DEPOSITED AGAINST THE GROUND, LEAN CONCRETE WITH A MINIMUM THICKNESS OF 200mm SHALL LAID FIRST BEFORE INSTALLING THE REINFORCEMENT. THIS LEAN CONCRETE SHALL NOT BE CONSIDERED IN MEASURING THE STRUCTURAL DEPTH OF CONCRETE SECTION.
- (4) THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER/CONSULTANT FOR APPROVAL PLACING SEQUENCES FOR ALL CONCRETING WORK.

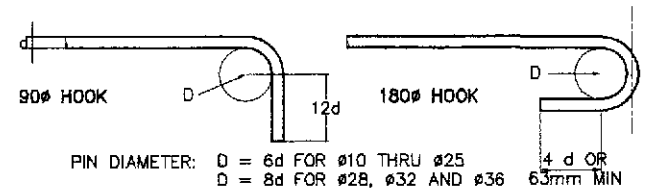
c. BAR BENDING, SPLICING AND PLACING

- (1) THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER/CONSULTANT FOR APPROVAL OF SHOP DRAWINGS INDICATING THE BENDING, CUTTING, SPLICING AND INSTALLATION OF ALL REINFORCING BARS.
- (2) BARS SHALL BE BEND COLD. BARS PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT UNLESS PERMITTED BY THE ENGINEER/CONSULTANT.
- (3) BAR SPLICING NOT INDICATED ON DRAWINGS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- (4) WELDED SPLICES, IF APPROVED BY THE ENGINEER, SHALL DEVELOP IN TENSION AT LEAST 125% OF THE SPECIFIED YIELD STRENGTH OF THE BARS.
- (5) NOT MORE THAN 50% OF THE BARS AT ANY ONE SECTION SHALL BE SPLICED.
- (6) UNLESS OTHERWISE SHOWN ON DRAWINGS, THE CLEAR DISTANCE BETWEEN PARALLEL BARS IN A LAYER SHALL NOT BE LESS THAN 1.5 TIMES THE NOMINAL DIAMETER OF THE BAR NOR LESS THAN 1.5 TIMES THE MAXIMUM SIZE OF COARSE AGGREGATE. THE CLEAR DISTANCE BETWEEN LAYERS SHALL NOT BE LESS THAN 25mm NOR ONE BAR DIAMETER. THE BARS IN THE UPPER LAYER SHALL BE PLACED DIRECTLY ABOVE THOSE IN THE BOTTOM LAYER.
- (7) CRANKED SPLICES

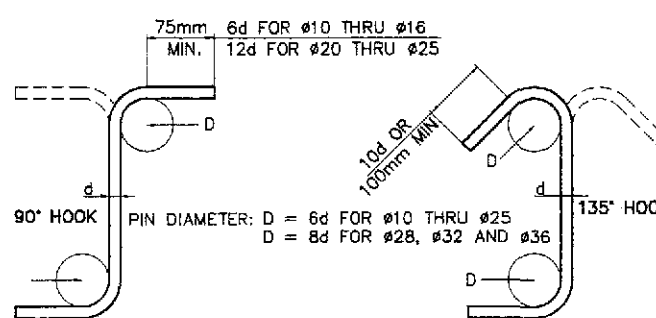


(8) HOOKS AND BENDS

DIMENSIONS OF 90-DEGREE AND 180-DEGREE HOOKS



DIMENSIONS FOR STIRRUPS AND TIE HOOKS



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

e. CONSTRUCTION JOINT

- (1) THE POSITION AND FORM OF ANY CONSTRUCTION JOINT SHALL BE AS SHOWN ON DRAWINGS OR AS AGREED WITH THE ENGINEER/CONSULTANT.
- (2) THE INTERFACE BETWEEN THE FIRST AND SECOND POUR CONCRETES SHALL BE ROUGHENED WITH AN AMPLITUDE OF 6MM MINIMUM.

f. FALSEWORK

ALL FALSEWORK SHALL BE DESIGNED BY THE CONTRACTOR SUBJECT TO THE APPROVAL BY THE ENGINEER/CONSULTANT.

g. FORMWORK

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

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

h. PROTECTION AND CURING OF CONCRETE

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

6. EMBANKMENT CONSTRUCTION SEQUENCE

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

7. (a) REINFORCED CONCRETE PILES/TEST PILES

ALL PILES SHALL BE 400mm x 400mm AND 450mm x 450mm PRECAST REINFORCED CONCRETE, FRESH OR SALT WATER TYPE, UNLESS OTHERWISE NOTED. ALL PRECAST R.C. PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 50 TONNES (490 KN) AND 70 TONNES (680 KN), RESPECTIVELY EACH AND TO THE FULL AUTHORIZED PAY LENGTH AND IN ACCORDANCE WITH ITEM 400 (13) (PILE DRIVING) OF THE STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, VOL. II 1995. ACTUAL CASTING LENGTH SHALL BE DETERMINED FROM THE RESULT OF DRIVING TEST PILE. CUT-OFF SHALL BE AUTHORIZED ONLY UPON PRIOR APPROVAL OF THE ENGINEER/CONSULTANT. ALL PILES SHALL BE PROVIDED WITH METAL SHOES FOR HARD DRIVING. TEST PILE SHALL BE DRIVEN AS DIRECTED BY THE ENGINEER/CONSULTANT.

(b) STEEL H-PILES/SHEET PILES

THE MINIMUM QUANTITY REQUIREMENT FOR FOUNDATION PILING SHALL CONFORM TO THE SPECIFICATION FOR STRUCTURAL STEEL FOR BRIDGES, AASHTO M270 (ASTM A 709) GRADE 36 AND/OR JIS G 3101 SS400. FULL-LENGTH PILES SHALL BE USED WHERE PRACTICABLE. IF SPLICING IS PERMITTED, THE METHOD OF SPLICING SHALL BE AS SHOWN ON THE PLANS OR AS APPROVED BY THE ENGINEER/CONSULTANT.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/27/02	<i>[Signature]</i>		DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	GENERAL NOTES FOR BRIDGES (SHEET 1 OF 2) (ULTIMATE STAGE)	BG-02
SUBMITTED	9/30/02	<i>[Signature]</i>	BUREAU OF DESIGN Submitted By: DANILLO C. TRAJANO, Project Director Reviewed By: ADRIANO M. DORCOY, Chief, Bridges Division Recommended By: GILBERTO S. REYES, Director IV (IG) Approved By: MANUEL M. BONDAN, Undersecretary SIMEON A. DATUMANDING, Secretary		PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1			

GENERAL NOTES FOR BRIDGES (SHEET 2 OF 2)

SYMBOLS

LINE OF SYMMETRY OR SIMILARITY
 NORTH ARROW
 INDICATION OF ELEVATION
 LIMITS OF DIMENSION
 SECTION IN WATER
 SECTION IN EARTH
 SECTION IN STRUCTURAL STEEL
 SECTION IN CONCRETE
 SECTION IN EXISTING CONCRETE STRUCTURE
 BITUMINOUS WEARING SURFACE ON BRIDGES
 PLAN VIEW AND ELEVATION OF CUT & FILL SLOPES
 PLAN VIEW OF RUBBLE CONC. ON SLOPE
 PLAN VIEW OF GROUTED RIPRAP ON SLOPE
 IDENTIFICATION SYMBOL
 TITLE TARGET
 SHEET No.
 SUB-TITLE TARGET
 SECTION TARGET
 DETAIL REF TARGET
 BUNDLED BARS
 ROUND
 SQUARE
 AT
 AND
 CENTERLINE
 PLATE
 ANGLE SHAPE
 C/C, C TO C CENTER TO CENTER

8. STRUCTURAL STEEL

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

9. SHORING

- (a) CAMBER FOR REINFORCED CONCRETE SUPERSTRUCTURES WERE DETERMINED BASED ON THE USE OF SHORINGS DURING CONSTRUCTION.
- (b) CAMBER FOR COMPOSITE SUPERSTRUCTURES WITH PRECAST PRESTRESSED GIRDERS WERE DETERMINED BASED ON UNSHORED CONDITIONS.

10. EXCAVATION

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

11. WATER ELEVATION

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

12. DETOUR

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

13. PRESTRESSED CONCRETE

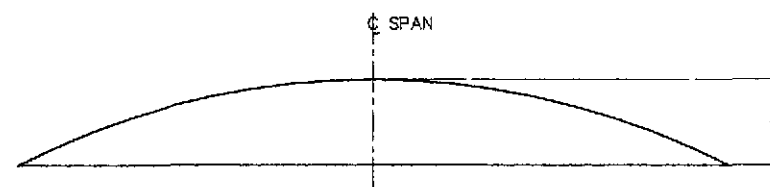
GIRDER DESIGN GUIDE

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

- b.) CONCRETE FOR GIRDERS SHALL BE A MINIMUM STRENGTH OF 41 N/mm² (6,000 PSI) AT THE AGE OF 28 DAYS.
- c.) CONCRETE FOR CAST-IN-PLACE SLAB HAVE A MINIMUM STRENGTH 21 N/mm² (3,000 PSI) AT THE AGE OF 28 DAYS.
- d.) THE CONTRACTOR MAY PROPOSE ANY ALTERNATIVE TENDON SIZE AND LAYOUT AND SUBJECT SHALL MEET THE APPROVAL OF THE ENGINEER.
- e.) THE REQUIRED STRENGTH OF CONCRETE AT TIME OF TENSIONING SHALL BE 35 MPa (5,000 PSI). A GRID CONSISTING OF #12 BARS AT 100 CENTERS IN BOTH DIRECTIONS SHALL BE PLACED NEAR EACH ANCHORAGE OF THE POST-TENSIONING SYSTEM.
- f.) HANDLING PRESTRESSED CONCRETE BEAMS : THE BEAMS SHALL BE MAINTAINED IN AN UPRIGHT POSITION AND SHALL BE LIFTED BY SUITABLE DEVICES PROVIDED AT THE ENDS OF THE BEAMS. ATTENTION IS DIRECTED TO THE INCREASED DIFFICULTY OF LIFTING BEAMS WITHOUT END BLOCKS. THE CONTRACTORS PROPOSED LIFTING DETAILS SHOULD BE GIVEN CAREFUL CONSIDERATION BEFORE BEING SUBMITTED ON SHOP DRAWING FOR APPROVAL. THE USE OF HOLES FOR LIFTING PURPOSES WILL NOT BE PERMITTED.
- g.) CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE ENGINEER THE CALCULATED ELONGATION OF THE PRESTRESSING TENDONS CORRESPONDING TO THE REQUIRED JACKING FORCES.
- h.) SHOP DRAWING SHALL SUBMIT FOR APPROVAL PRIOR TO FABRICATION.

14. DRAWINGS

- a.) ALL ELEVATIONS, STATIONING AND DIMENSIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
- b.) ALL QUANTITIES SHALL BE VERIFIED DURING CONSTRUCTION.



DEAD LOAD CAMBER DIAGRAM

A = FABRICATION CAMBER - ESTIMATED PRESTRESS CAMBER LESS DEFLECTION DUE TO GIRDER DEAD LOAD

ABBREVIATIONS

ABT	ABOUT	kPa	KILOPASCAL
ABUT	ABUTMENT	m	METER
BEG	BEGINNING	mm	MILLIMETER
BET	BETWEEN	MAX	MAXIMUM
BOTT	BOTTOM	MFWL	MAX. FLOOD WATER LEVEL
BR	BRIDGE	MIN	MINIMUM
BRG	BEARING	MO	MIDDLE ORDINATE
CLR	CLEAR	MPa	MEGAPASCAL
cm	CENTIMETER	N	NEWTON
COL	COLUMN	NF	NEAR FACE
CONC	CONCRETE	No.	NUMBER
CONC CONST	CONCRETE CONSTRUCTION	O.C.	ON CENTER
CTR	CENTER	PEJ	PREMOULDED EXPANSION JOINT
DET	DETAIL	PVC	POLYVINYL CHLORIDE
DIAM	DIAMETER	PVI	POINT OF VERT. INTERSECTION
DIAPH	DIAPHRAGM	QTY	QUANTITY
DWG	DRAWING	R	RADIUS
EA	EACH	RC	REINFORCED CONCRETE
EF	EACH FACE	RDWY	ROADWAY
ELEV	ELEVATION	REINF	REINFORCEMENT
ENGR	ENGINEER	SDWK	SIDEWALK
EQ	EQUAL	SL	SLOPE
EW	EACHWAY	SP	SPIRAL
EXP	EXPANSION	SPCD	SPACED
EXT	EXTERIOR	SPCS	SPACES
EXIST	EXISTING	STD	STANDARD
FF	FAR FACE	STR	STIRRUP
FTG	FOOTING	STA	STATION
GEN	GENERAL	STRUCT	STRUCTURE
HOR	HORIZONTAL	SYMM	SYMMETRY
HW	HIGH WATER	THK	THICK
INT	INTERIOR	TYP	TYPICAL
INTERM	INTERMEDIATE	VAR	VARIABLE
JT	JOINT	VERT	VERTICAL
L	LENGTH	VOL	VOLUME
LG	LONG	W	WIDTH
kg	KILOGRAM	W/	WITH
kN	KILONEWTON	&	AND

	DESIGNED	9/25/02			PROJECT AND LOCATION :		SCALE :	SHEET CONTENTS :	SHEET NO. :			
	CHECKED	9/27/02			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		AS SHOWN	GENERAL NOTES FOR BRIDGES (SHEET 2 OF 2) (ULTIMATE STAGE)	BG-03			
SUBMITTED	9/25/02		BUREAU OF DESIGN OFFICE OF THE SECRETARY		PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1						
			DANILLO C. TRAJANO Project Director		ADRIANO M. DORGY Chief, Bridges Division		GILBERTO S. REYES Director IV (DC)		MANUEL M. BONDAN Undersecretary		SIMEON A. DATUMANONG Secretary	

BRIDGE NAME : BRIDGE NO. 9 (ULTIMATE STAGE)
 BRIDGE LENGTH : 40.00 m
 SPECIFICATION : 1 - 40.00 m SPAN TYPE VI PSCG ON SEAT TYPE ABUTMENT

SUMMARY OF QUANTITIES						
PAY ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		SUPER-STRUCTURE	TOTAL
			" A1 "	" A2 "		
101(7)	Removal of Existing Slope Protection	cu.m.	22.00	22.00		44.00
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	147.00	147.00		294.00
104(3)	Embankment from Borrow Pit	cu.m.	350.00	376.00		726.00
104(4)	Embankment for Bridge Approach	cu.m.	329.00	329.00		658.00
200(1)	Aggregate Subbase Course	cu.m.	20.00	20.00		40.00
311(2)	PCC Pavement (Reinforced) t=300mm, Including Dowel Bars (Approach Slab)	sq.m.	77.00	77.00		154.00
400(4)b	RC Piles (450 mm x 450 mm) Furnished	l.m.	553.00	553.00		1,106.00
400(13)b	RC Piles (450 mm x 450 mm) Driven	l.m.	510.00	510.00		1,020.00
400(15)b	Test Piles (450 mm x 450 mm)	l.m.	18.25	18.25		36.50
400(19)b	Pile Shoes	each	35.00	35.00		70.00
401(1)a	Concrete Post and Railing	l.m.			80.00	80.00
404(1)	Reinforcing Steel, Grade 40	kg	4,965.00	4,965.00	25,903.00	35,833.00
404(2)	Reinforcing Steel, Grade 60	kg	10,585.00	10,585.00	2,671.00	23,841.00
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	192.00	192.00		384.00
405(1)d	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.			183.00	183.00
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	6.00	6.00	25.00	37.00
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	9.00	9.00		18.00
406(1)n	Prestressed Concrete Girder Type VI (Modified) L=40.00m	each			7.00	7.00
407(1)c	Elastomeric Bearing Pad (600x350x50, Duro 60)	each	7.00	7.00		14.00
407(2)a	Expansion Joint, (± 40mm Movement)	l.m.	10.00	10.00		20.00
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.	3.00	3.00		6.00
407(4)	Metal Drain (150 mm ø G.I. Drain Pipe)	l.m.			4.00	4.00
504(1)	Grouted Riprap, Class "A"	cu.m.	79.00	85.00		165.00

NOTE: ALL QUANTITIES SHALL BE VERIFIED DURING CONSTRUCTION

	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) PLARIDEL BYPASS - CONTRACT PACKAGE III	SCALE : N. T. S. FULL SIZE A1	SHEET CONTENTS : BRIDGE NO.9 SUMMARY OF QUANTITIES (ULTIMATE STAGE)	SHEET NO. : BG-04
	CHECKED	9/27/02			BUREAU OF DESIGN Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: ADRIANO M. DOROY Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director IV (QC)	Recommended By: MANUEL M. BONGAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary				
	SUBMITTED	7/3/02			TEAM LEADER								