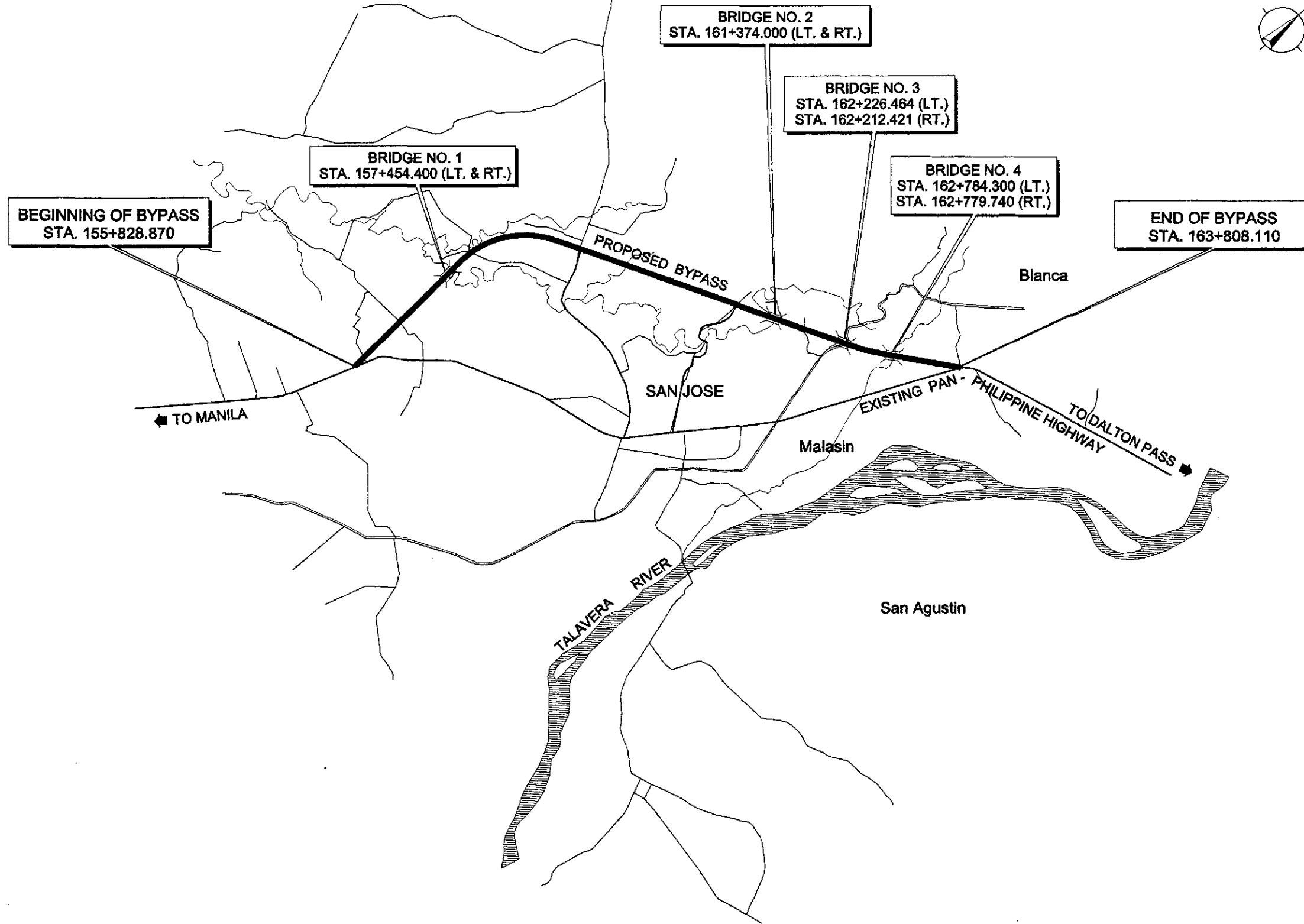


# **BRIDGES**



A SAN JOSE BYPASS BRIDGES LOCATION MAP  
NOT TO SCALE

 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 FULL SIZE A1	SHEET CONTENTS : BRIDGES LOCATION MAP (ULTIMATE STAGE)	SHEET NO. : BG-01
DESIGNED	DATE: 9/7/02	SIGNATURE: <i>[Signature]</i>	Submitted By:	Reviewed By:	Recommended By:	Approved By:			
CHECKED	9/9/02	<i>[Signature]</i>	DANILO C. TRAJANO Project Director	ADRIANO M. DORCOY Chief, Bridges Division	GILBERTO S. REYES Director IV (OC)	MANUEL M. BONGAN Undersecretary			
SUBMITTED	9/10/02	<i>[Signature]</i>							

# 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

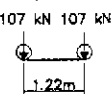
##### 3.1 DEAD LOADS

WEIGHT

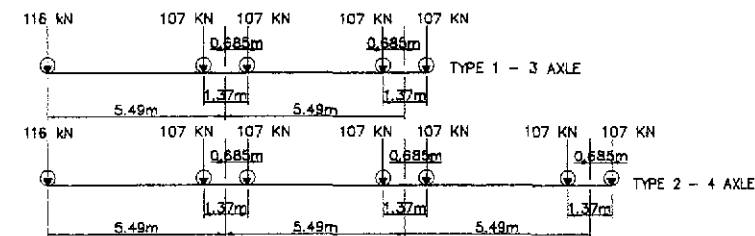
A. CONCRETE	24.00 kN/m <sup>3</sup>
B. STEEL	77.00 kN/m <sup>3</sup>
C. EARTH	19.00 kN/m <sup>3</sup>
D. WEARING SURFACE	1.10 kN/m <sup>2</sup>

##### 3.2 LIVE LOADS

- A. AASHTO HS20 (MS18) TRUCK AND EQUIVALENT LANE LOADING.
- B. SIDEWALK LOAD 4.07 kN/m<sup>2</sup>
- 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 ( 16mm# AND SMALLER )  
Fy = 276 MPa (40,000 psi)  
GRADE 60 ( 20mm# 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/cm<sup>2</sup> (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.

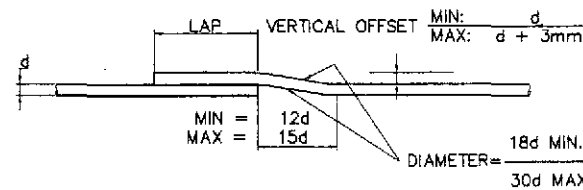
#### 3. REINFORCED CONCRETE

- 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.

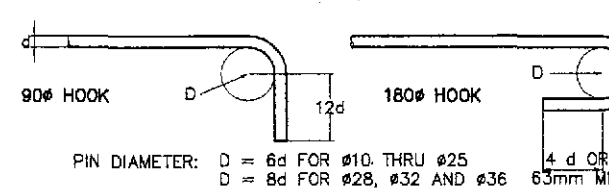
#### c. BAR BENDING, SPLICING AND PLACING

- (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 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

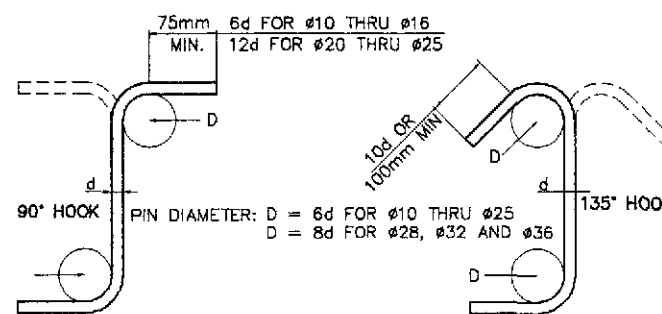


#### (B) HOOKS AND BENDS

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


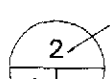


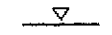
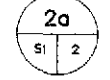
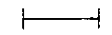
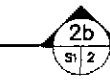

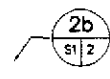

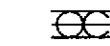




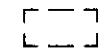



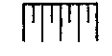



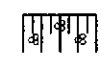


THE MINIMUM QUANTITY REQUIREMENT FOR FOUNDATION PILING SHALL ONFORM TO THE SPECIFICATION FOR STRUCTURAL STEEL FOR BRIDGES, AASHTO M270 (ASTM A 709) GRADE 36 AND/OR JIS G 3101 SS400. FULL-LENGTH PILES SHALL BE USED WHERE PRACTICABLE. IF SPLICING IS PERMITTED, THE METHOD OF SPLICING SHALL BE AS SHOWN ON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

 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 (Palaridel, Cabanatuan and San Jose Bypasses)		SCALE : N. T. S.		SHEET CONTENTS : GENERAL NOTES FOR BRIDGES (SHEET 1 OF 2) (ULTIMATE STAGE)		SHEET NO. : BG-02	
 KATAHIRA & ENGINEERS INTERNATIONAL		 YACHYO ENGINEERING CO., LTD.		SUBMITTED: 7/10/12 E. M. SALLAN Project Director		CHECKED: 7/19/12 [Signature] Reviewed By:		RECOMMENDED BY: MANUEL M. BONONAN Undersecretary		APPROVED BY: SIMEON A. DATUMANONG Secretary		FULL SIZE A1	

# GENERAL NOTES FOR BRIDGES

## (SHEET 2 OF 2)

### SYMBOLS

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

### 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
CONST	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	RQWY	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	STIR	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/	WIDTH
KN	KILONEWTON	&	AND

#### B. 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

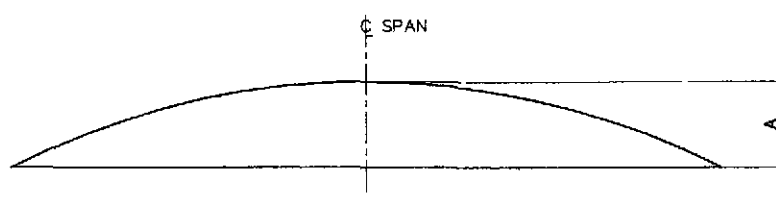
##### GIRDER DESIGN GUIDE

- 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 GROUDED IN THEIR CONDUITS IN ACCORDANCE WITH "SPECIFICATIONS".



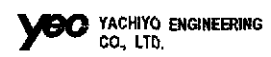




- b.) CONCRETE FOR GIRDERS SHALL BE A MINIMUM STRENGTH OF 41 N/mm<sup>2</sup> (6,000 PSI) AT THE AGE OF 28 DAYS.
- c.) CONCRETE FOR CAST-IN-PLACE SLAB HAVE A MINIMUM STRENGTH 21 N/mm<sup>2</sup> (3,000 PSI) AT THE AGE OF 28 DAYS.
- d.) THE CONTRACTOR MAY PROPOSE ANY ALTERNATIVE TENDON SIZE AND LAYOUT 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

 JAPAN INTERNATIONAL COOPERATION AGENCY  KATAHIRA & ENGINEERS INTERNATIONAL  YACHIYO ENGINEERING CO., LTD.		DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	DESIGNED	9/6/02			BUREAU OF DESIGN		DETAILED DESIGN ENGINEERING ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY	N. T. S.	GENERAL NOTES FOR BRIDGES (SHEET 2 OF 2) (ULTIMATE STAGE)	BG-03
	CHECKED	9/9/02			OFFICE OF THE SECRETARY		SAN JOSE BYPASS	FULL SIZE A1		
SUBMITTED	9/11/02			Submitted By: DANILLO C. TRAJANO Project Director	Reviewed By: ADRIANO M. DOROY Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director IV (OIC)	Recommended By: EDUARDO V. MIR Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary		

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

SUMMARY OF QUANTITIES									
PAY ITEM NO.	DESCRIPTION	UNIT	LEFT			RIGHT			TOTAL
			ABUTMENT		SUPER-STRUCTURE	ABUTMENT		SUPER-STRUCTURE	
			" A1 "	" A2 "		" A1 "	" A2 "		
101(7)	Removal of Existing Slope Protection	cu.m.	34.00	34.00		34.00	34.00	136.00	
104(3)	Embankment from Borrow Pit	cu.m.	136.00	136.00		136.00	136.00	544.00	
104(4)	Embankment for Bridge Approach	cu.m.	105.00	105.00		105.00	105.00	420.00	
200(1)	Aggregate Subbase Course	cu.m.	9.00	9.00		9.00	9.00	36.00	
311(2)	PCC Pavement (Reinforced) t=300mm, Including Dowel Bars (Approach Slab)	sq.m.	27.00	27.00		27.00	27.00	108.00	
400(16)d	Cast-in Place Concrete Bored Pile (800 mm diam.)	l.m.	36.00	36.00		36.00	36.00	144.00	
Spl 400(23)c	High Strain Dynamic Pile Test for 800 mm diam. Bored Piles	each	1.00			1.00		2.00	
Spl 400(24)	Pile Integrity Test for 800 mm diam. Bored Piles	each	1.00	1.00		1.00	1.00	4.00	
401(1)a	Concrete Post and Railing	l.m.			80.00		80.00	160.00	
404(1)	Reinforcing Steel, Grade 40	kg	2,090.00	2,090.00	10,690.00	2,090.00	2,090.00	29,740.00	
404(2)	Reinforcing Steel, Grade 60	kg	1,153.00	1,153.00	797.00	1,153.00	1,153.00	6,206.00	
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	26.00	26.00		26.00	26.00	104.00	
405(1)d	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.			78.00		78.00	156.00	
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	5.00	5.00	25.00	5.00	5.00	45.00	
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	2.00	2.00		2.00	2.00	8.00	
406(1)n	Prestressed Concrete Girder Type VI Modified L=40.00m	each			3.00		3.00	6.00	
407(1)c	Elastomeric Bearing Pad (600x350x50, Duro 60)	each	3.00	3.00		3.00	3.00	12.00	
407(2)a	Expansion Joint, (± 40mm Movement)	l.m.	4.00	4.00		4.00	4.00	16.00	
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.	3.00	3.00		3.00	3.00	12.00	
407(4)	Metal Drain (150 mmØ G.I. Drain Pipe)	l.m.			3.00		3.00	6.00	
504(1)	Grouted Riprap, Class "A"	cu.m.	23.00	23.00		23.00	23.00	92.00	

BRIDGE NAME : BRIDGE NO. 2 (ULTIMATE STAGE) LEFT & RIGHT SIDE  
 BRIDGE LENGTH : 40.00  
 SPECIFICATION : 1 - 40.00 m SPAN TYPE VI PSCG ON SEAT TYPE ABUTMENT

SUMMARY OF QUANTITIES									
PAY ITEM NO.	DESCRIPTION	UNIT	LEFT			RIGHT			TOTAL
			ABUTMENT		SUPER-STRUCTURE	ABUTMENT		SUPER-STRUCTURE	
			" A1 "	" A2 "		" A1 "	" A2 "		
101(7)	Removal of Existing Slope Protection	cu.m.	34.00	34.00		34.00	34.00	136.00	
104(3)	Embankment from Borrow Pit	cu.m.	136.00	136.00		136.00	136.00	544.00	
104(4)	Embankment for Bridge Approach	cu.m.	105.00	105.00		105.00	105.00	420.00	
200(1)	Aggregate Subbase Course	cu.m.	9.00	9.00		9.00	9.00	36.00	
311(2)	PCC Pavement (Reinforced) t=300mm, Including Dowel Bars (Approach Slab)	sq.m.	27.00	27.00		27.00	27.00	108.00	
400(16)d	Cast-in Place Concrete Bored Pile (800 mm diam.)	l.m.	36.00	36.00		36.00	36.00	144.00	
Spl 400(23)c	High Strain Dynamic Pile Test for 800 mm diam. Bored Piles	each	1.00			1.00		2.00	
Spl 400(24)	Pile Integrity Test for 800 mm diam. Bored Piles	each	1.00	1.00		1.00	1.00	4.00	
401(1)a	Concrete Post and Railing	l.m.			80.00		80.00	160.00	
404(1)	Reinforcing Steel, Grade 40	kg	2,090.00	2,090.00	10,690.00	2,090.00	2,090.00	29,740.00	
404(2)	Reinforcing Steel, Grade 60	kg	1,153.00	1,153.00	797.00	1,153.00	1,153.00	6,206.00	
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	26.00	26.00		26.00	26.00	104.00	
405(1)d	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.			78.00		78.00	156.00	
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	5.00	5.00	25.00	5.00	5.00	45.00	
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	2.00	2.00		2.00	2.00	8.00	
406(1)n	Prestressed Concrete Girder Type VI Modified L=40.00m	each			3.00		3.00	6.00	
407(1)c	Elastomeric Bearing Pad (600x350x50, Duro 60)	each	3.00	3.00		3.00	3.00	12.00	
407(2)a	Expansion Joint, (± 40mm Movement)	l.m.	4.00	4.00		4.00	4.00	16.00	
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.	3.00	3.00		3.00	3.00	12.00	
407(4)	Metal Drain (150 mmØ G.I. Drain Pipe)	l.m.			3.00		3.00	6.00	
504(1)	Grouted Riprap, Class "A"	cu.m.	13.00	13.00		13.00	13.00	52.00	
510(1)	Rubble Concrete	cu.m.	11.00	11.00		11.00	11.00	44.00	

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 (Paridel, Cabanatuan and San Jose Bypasses)	SCALE : N. T. S.	SHEET CONTENTS : BRIDGE NO. 1 AND 2 SUMMARY OF QUANTITIES LEFT & RIGHT SIDE (ULTIMATE STAGE)	SHEET NO. : BG-04	
	CHECKED	9/9/02	<i>[Signature]</i>		Submitted By:	BUREAU OF DESIGN	OFFICE OF THE SECRETARY						
	SUBMITTED	9/11/02	<i>[Signature]</i>		DANILO C. TRAJANO Project Director	ADRIANO M. DORROY Chief, Bridges Division	GILBERTO S. REYES Director IV (DC)	MANUEL M. BONONAN Undersecretary					SIMEON A. DATUMANONG Secretary
	SAN JOSE BYPASS												

BRIDGE NAME : BRIDGE NO. 3 (ULTIMATE STAGE) LEFT SIDE  
 BRIDGE LENGTH : 40.00  
 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.	3.00	4.00		7.00
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	37.00	16.00		53.00
104(3)	Embankment from Borrow Pit	cu.m.	25.00	29.00		55.00
104(4)	Embankment for Bridge Approach	cu.m.	47.00	47.00		94.00
200(1)	Aggregate Subbase Course	cu.m.	9.00	9.00		18.00
311(2)	PCC Pavement (Reinforced) t=300mm, Including Dowel Bars (Approach Slab)	sq.m.	27.00	27.00		54.00
400(16)d	Cast-in Place Concrete Bored Pile (800 mm diam.)	l.m.	36.00	36.00		72.00
Spl 400(23)c	High Strain Dynamic Pile Test for 800 mm diam. Bored Piles	each	1.00			1.00
Spl 400(24)	Pile Integrity Test for 800 mm diam. Bored Piles	each	1.00	1.00		2.00
401(1)a	Concrete Post and Railing	l.m.			80.00	80.00
404(1)	Reinforcing Steel, Grade 40	kg	2,099.00	2,099.00	11,022.00	15,220.00
404(2)	Reinforcing Steel, Grade 60	kg	1,185.00	1,185.00	797.00	3,167.00
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	27.00	27.00		54.00
405(1)d	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.			78.00	78.00
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	5.00	5.00	25.00	35.00
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	2.00	2.00		4.00
405(1)n	Prestressed Concrete Girder Type VI Modified L=40.00m	each			3.00	3.00
407(1)c	Elastomeric Bearing Pad (600x350x50, Duro 60)	each	3.00	3.00		6.00
407(2)a	Expansion Joint, (±40mm Movement)	l.m.	4.00	4.00		8.00
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.	3.00	3.00		6.00
407(4)	Metal Drain (150 mm# G.I. Drain Pipe)	l.m.			3.00	3.00
504(1)	Grouted Riprap, Class "A"	cu.m.	14.00	17.00		31.00

BRIDGE NAME : BRIDGE NO. 3 (ULTIMATE STAGE) RIGHT SIDE  
 BRIDGE LENGTH : 54.00  
 SPECIFICATION : 15.00-24.00-15.00 m SPAN RCDG ON SEAT TYPE ABUTMENT/2 COLUMN BENT PIER ON PILES

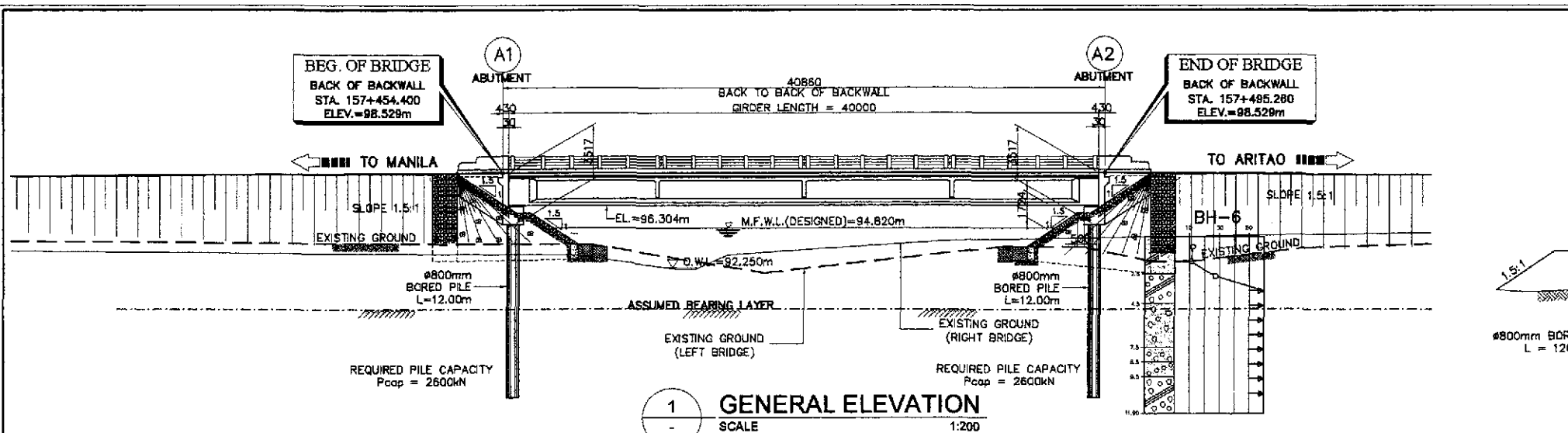
SUMMARY OF QUANTITIES								
PAY ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		PIER		SUPER-STRUCTURE	TOTAL
			" A1 "	" A2 "	" P1 "	" P2 "		
101(14)	Removal of Existing Concrete Revetment	l.s.						1.00
101(7)	Removal of Existing Slope Protection	cu.m.	54.00	3.00				57.00
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	20.00	29.00				49.00
103(2)c	Bridge Excavation, Common, Below O.W.L.	cu.m.			225.00	321.00		546.00
104(3)	Embankment from Borrow Pit	cu.m.	19.00	17.00				36.00
104(4)	Embankment for Bridge Approach	cu.m.	33.00	28.00				61.00
200(1)	Aggregate Subbase Course	cu.m.	9.00	9.00				18.00
311(2)	PCC Pavement (Reinforced) t=300 mm, Including Dowel Bars (Approach Slab)	sq.m.	27.00	27.00				54.00
400(16)d	Cast-in Place Concrete Bored Pile (800 mm diam.)	l.m.	24.00	24.00				48.00
Spl 400(23)c	High Strain Dynamic Pile Test for 800 mm diam. Bored Piles	each		1.00				1.00
Spl 400(24)	Pile Integrity Test for 800 mm diam. Bored Piles	each	1.00	1.00				2.00
401(1)a	Concrete Post & Railing	l.m.					108.00	108.00
404(1)	Reinforcing Steel, Grade 40	kg	1,787.00	1,787.00	3,137.00	3,137.00	17,225.00	27,073.00
404(2)	Reinforcing Steel, Grade 60	kg	1,121.00	1,121.00	10,137.00	10,137.00	17,399.00	39,915.00
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	18.00	18.00	89.00	89.00		214.00
405(1)c	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.					168.00	168.00
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	4.00	4.00			34.00	42.00
405(6)b	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	1.00	1.00	5.00	5.00		12.00
407(1)a	Elastomeric Bearing Pad (400x300x50, Duro 60)	each	3.00	3.00				6.00
407(2)a	Expansion Joint, (±40mm Movement)	l.m.	4.00	4.00				8.00
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.	3.00	3.00				6.00
407(4)	Metal Drain (150 mm# G.I. Drain Pipe)	l.m.					5.00	5.00
504(1)	Grouted Riprap, Class "A"	cu.m.	16.00	16.00				32.00

BRIDGE NAME : BRIDGE NO. 4 (ULTIMATE STAGE) LEFT AND RIGHT SIDE  
 BRIDGE LENGTH : 52.50  
 SPECIFICATION : 15.75-21.00-15.75 m SPAN RCDG ON SEAT TYPE ABUTMENT/2 COLUMN BENT PIER ON PILES

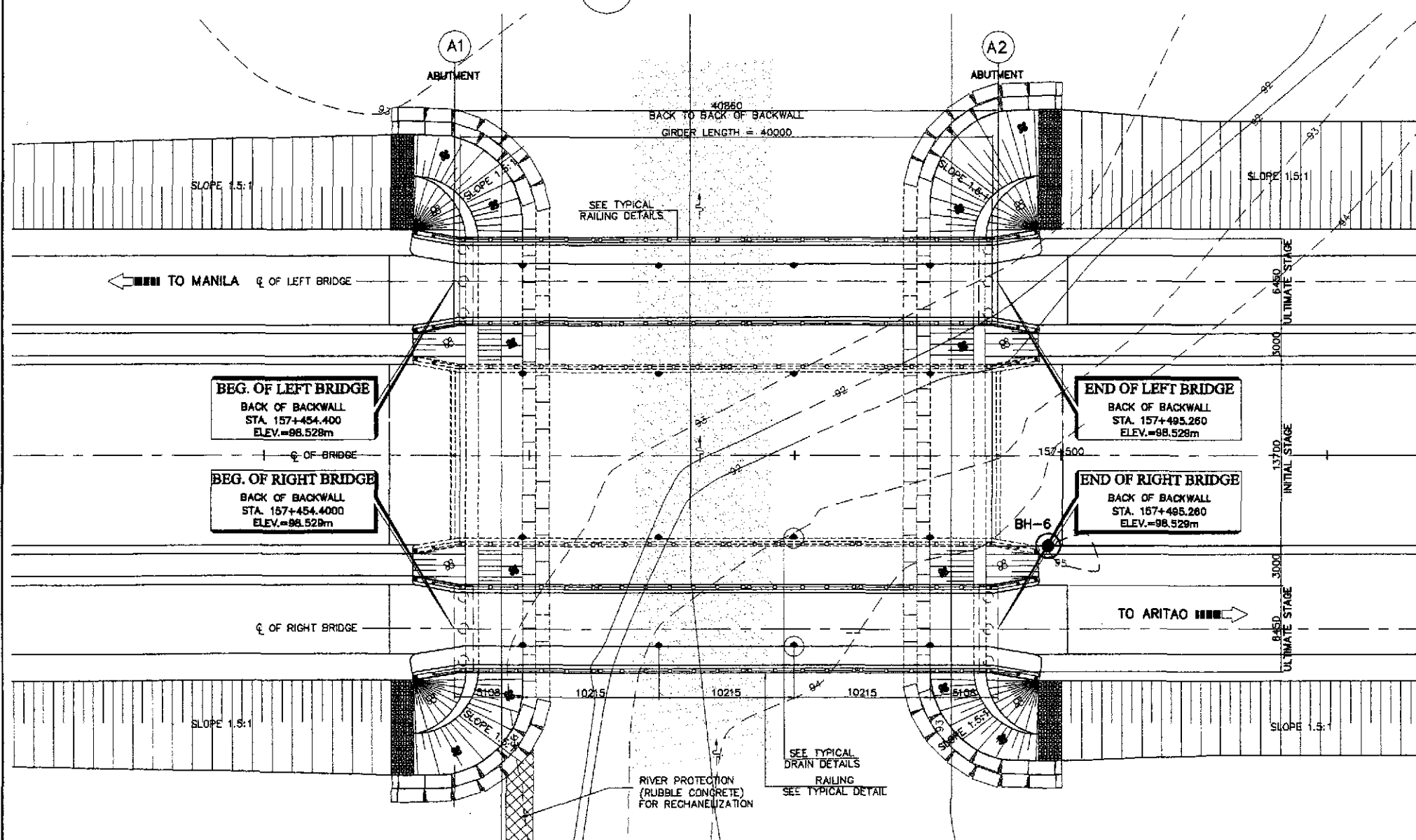
SUMMARY OF QUANTITIES												
PAY ITEM NO.	DESCRIPTION	UNIT	LEFT				RIGHT				TOTAL	
			ABUTMENT		PIER		ABUTMENT		PIER			SUPER-STRUCTURE
			" A1 "	" A2 "	" P1 "	" P2 "	" A1 "	" A2 "	" P1 "	" P2 "		
101(7)	Removal of Existing Slope Protection	cu.m.	65.00	51.00			65.00	51.00			232.00	
101(B)	Removal of Existing Slope Protection (Hand Laid Rock)	cu.m.	30.00	27.00			30.00	27.00			114.00	
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	78.00	85.00			78.00	85.00			326.00	
103(2)c	Bridge Excavation, Common, Below O.W.L.	cu.m.			135.00	102.00			135.00	102.00	474.00	
104(3)	Embankment from Borrow Pit	cu.m.	35.00	38.00			35.00	38.00			146.00	
104(4)	Embankment for Bridge Approach	cu.m.	41.00	47.00			41.00	47.00			176.00	
200(1)	Aggregate Subbase Course	cu.m.	9.00	9.00			9.00	9.00			36.00	
311(2)	PCC Pavement (Reinforced) t=300 mm, Including Dowel Bars (Approach Slab)	sq.m.	32.00	32.00			32.00	32.00			128.00	
400(4)a	RC Piles (400 mm x 400 mm) Furnished	l.m.	156.00	156.00	212.00	212.00	156.00	156.00	212.00	212.00	1,472.00	
400(13)a	RC Piles (400 mm x 400 mm) Driven	l.m.	147.00	147.00	198.00	198.00	147.00	147.00	198.00	198.00	1,380.00	
400(15)a	Test Piles (400 mm x 400 mm)	l.m.	24.25	24.25	21.25	21.25	24.25	24.25	21.25	21.25	182.00	
400(19)a	Pile Shoes	each	8.00	8.00	12.00	12.00	8.00	8.00	12.00	12.00	80.00	
401(1)a	Concrete Post & Railing	l.m.								105.00	210.00	
404(1)	Reinforcing Steel, Grade 40	kg	2,569.00	2,551.00	2,150.00	2,150.00	2,569.00	2,551.00	2,150.00	2,150.00	57,368.00	
404(2)	Reinforcing Steel, Grade 60	kg	3,305.00	3,305.00	7,132.00	7,132.00	3,305.00	3,305.00	7,132.00	7,132.00	78,350.00	
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	53.00	53.00	59.00	59.00	53.00	53.00	59.00	59.00	448.00	
405(1)c	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.								161.00	322.00	
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	5.00	5.00			5.00	5.00			86.00	
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	14.00	13.00	4.00	4.00	14.00	13.00	4.00	4.00	70.00	
407(1)a	Elastomeric Bearing Pad (400x300x50, Duro 60)	each								6.00	12.00	
407(2)a	Expansion Joint, (±40mm Movement)	l.m.								8.00	16.00	
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.								5.00	10.00	
407(4)	Metal Drain (150 mm# G.I. Drain Pipe)	l.m.								5.00	10.00	
504(1)	Grouted Riprap, Class "A"	cu.m.	17.00	14.00			17.00	14.00			62.00	
506(1)	Loose Boulder Apron (Hand Laid Rock)	cu.m.	30.00	27.00			30.00	27.00			114.00	
507(2)b	Sheet Pile (85x 400x 8mm thk.) Furnished	l.m.	216.00	191.00			216.00	191.00			814.00	
509(1)	Gabions	cu.m.			36.00	36.00			36.00	36.00	144.00	
510(1)	Rubble Concrete Slope Protection	cu.m.	25.00	14.00			25.00	14.00			78.00	

NOTE: ALL QUANTITIES SHALL BE VERIFIED DURING CONSTRUCTION

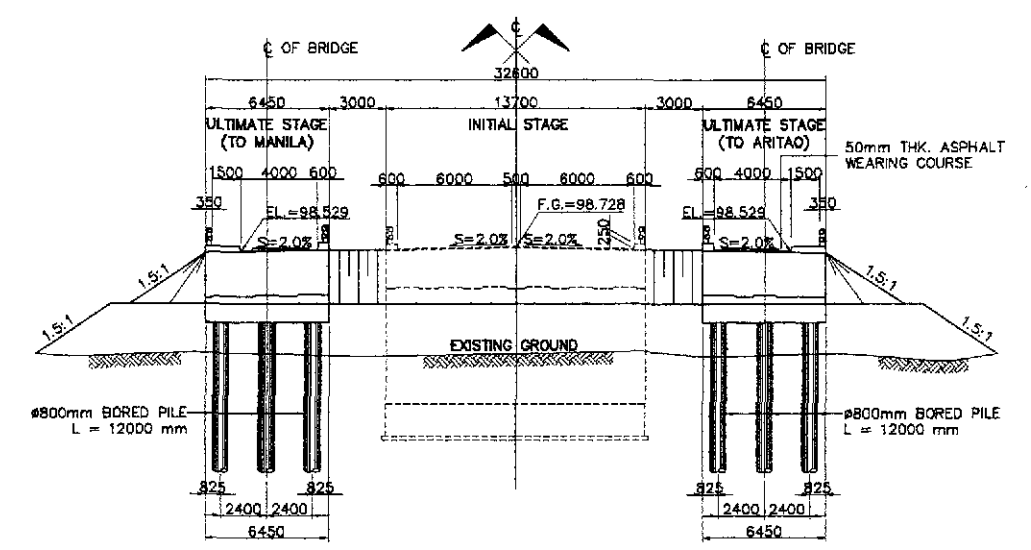
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/19/02	<i>[Signature]</i>		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	N. T. S.	BRIDGE NO. 3 AND 4 SUMMARY OF QUANTITIES LEFT & RIGHT SIDE (ULTIMATE STAGE)	BG-05
	SUBMITTED	9/11/02	<i>[Signature]</i>		OFFICE OF THE SECRETARY				SAN JOSE BYPASS	FULL SIZE A1		
		Submitted by: DANILLO C. TRAJANO Project Director		Reviewed by: ADRIANO M. DOROY Chief, Bridges Division		Recommended by: GILBERTO S. REYES Director IV (OIC)		Recommended by: MANUEL M. BONDAN Undersecretary		Approved by: SIMEON A. DATUMANDANG Secretary		



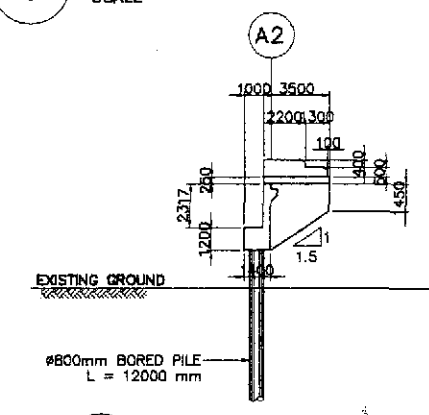
1 GENERAL ELEVATION  
SCALE 1:200



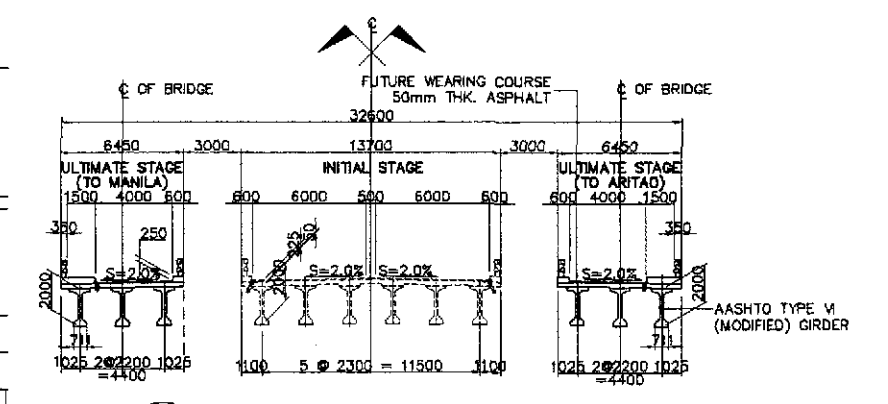
2 GENERAL PLAN  
SCALE 1:200



3A SECTION AT ABUTMENT A2  
SCALE 1:200



3B SIDE ELEVATION  
SCALE 1:200



4 SECTION AT MID-SPAN  
SCALE 1:200

HYDRAULIC DATA	
VELOCITY @ 50 YEARS, $V_{50}$	1.945 m/sec
DISCHARGE @ 50 YEARS, $Q_{50}$	101,800 cu.m/sec
CATCHMENT AREA, CA	19,300 sq. km

NOTE :  
PRIOR TO CONSTRUCTION SOIL INVESTIGATION AT ABUTMENT A1 SHALL BE CONDUCTED FOR CONFIRMATION OF ASSUMED BEARING CAPACITY AND FOOTING ELEVATION.

A SAN JOSE BYPASS BRIDGE NO. 1  
SCALE AS SHOWN

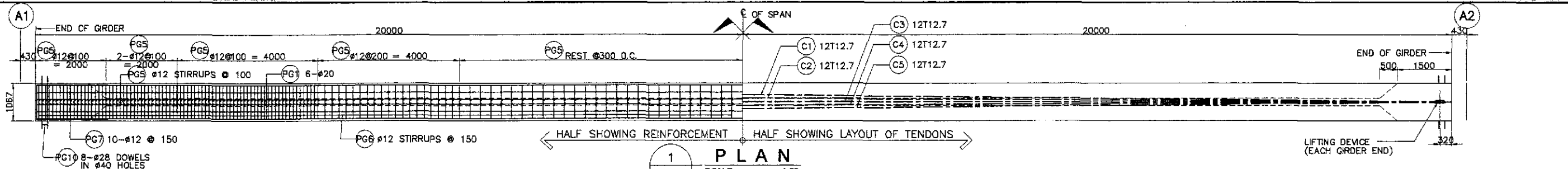
PERFECTO L. ZAPLAN JR.  
D/C Chief, Hydraulics Division, BCD

	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 (Pinarid, Cabanatuan and San Jose Bypasses) <b>SAN JOSE BYPASS</b>	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE NO.1 GENERAL PLAN, ELEVATION AND SECTIONS (ULTIMATE STAGE)	SHEET NO. : <b>B1-01</b>
	CHECKED	DATE	SIGNATURE		BUREAU OF DESIGN Submitted By: DANILLO C. TRAJANO Project Director Reviewed By: ADRIANO M. DOROY Chief, Bridges Division Recommended By: GILBERTO S. REYES Director IV (D/C) Office of the Secretary Recommended By: MANUEL M. BONDAN Undersecretary Approved By: SIMEON A. DATUMANONG Secretary						

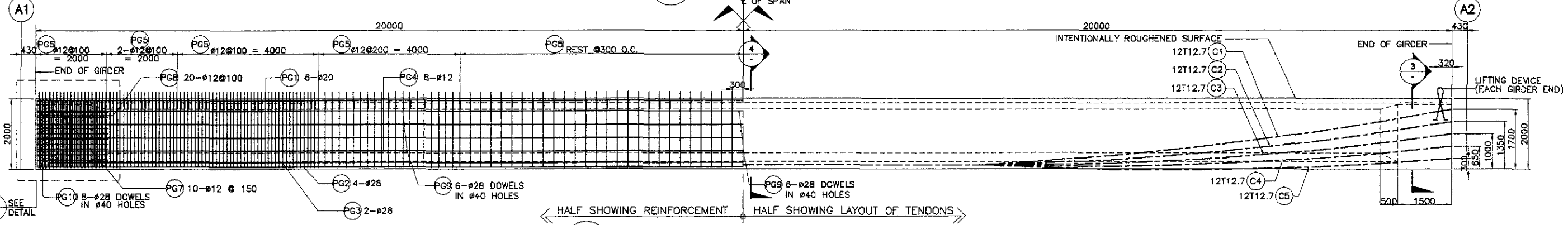




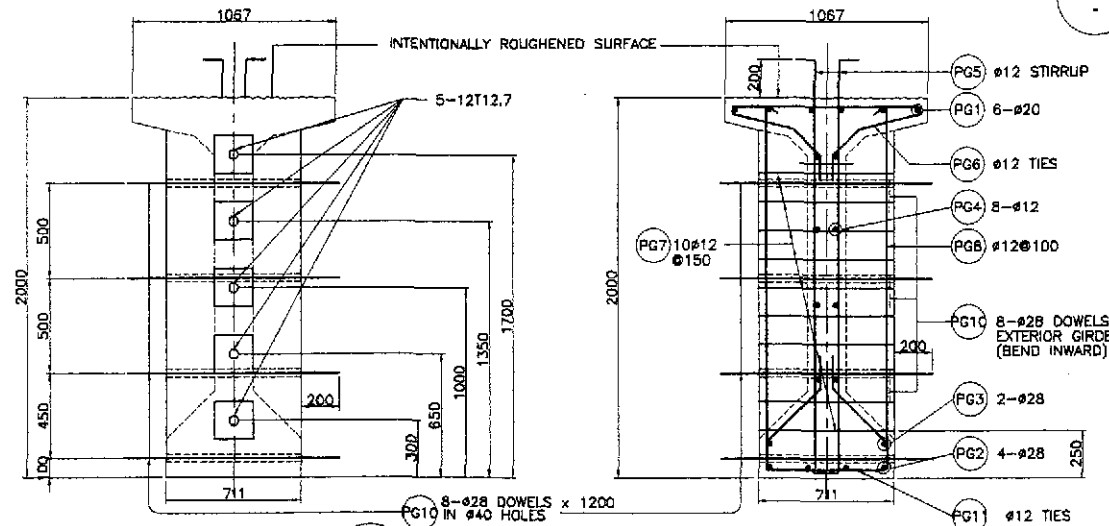




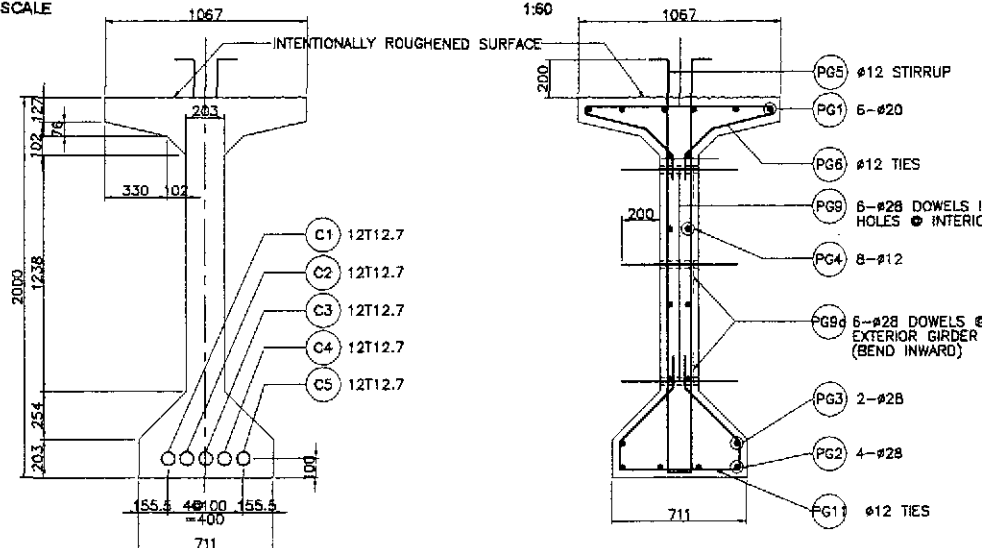
1 PLAN SCALE 1:60



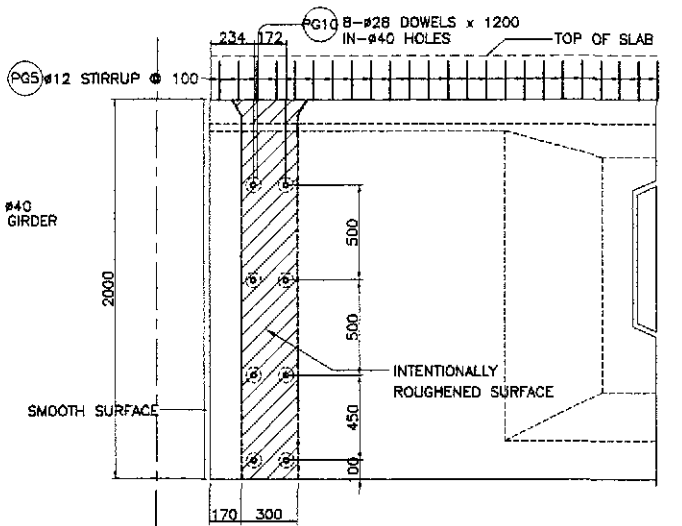
2 PRESTRESSED GIRDER ELEVATION SCALE 1:60



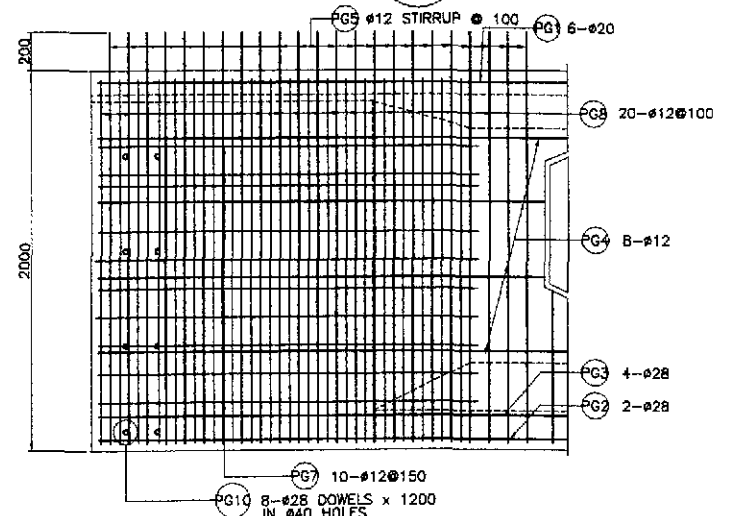
3 SECTION AT END SCALE 1:20



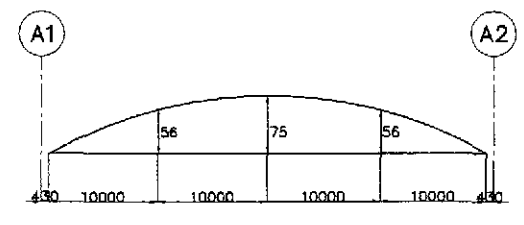
4 SECTION AT MIDSPAN SCALE 1:20



5 DOWELS AT END BLOCK SCALE 1:20

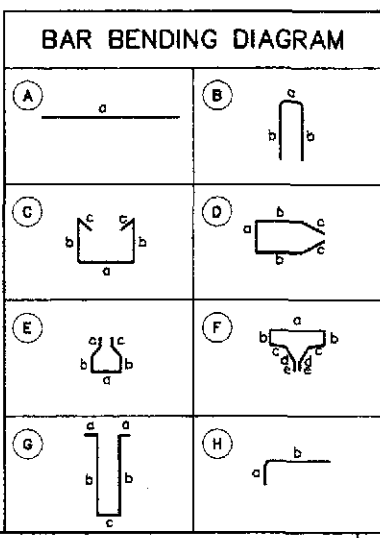


6 END BLOCK REINF. DETAIL SCALE 1:20



7 CAMBER DIAGRAM NOT TO SCALE

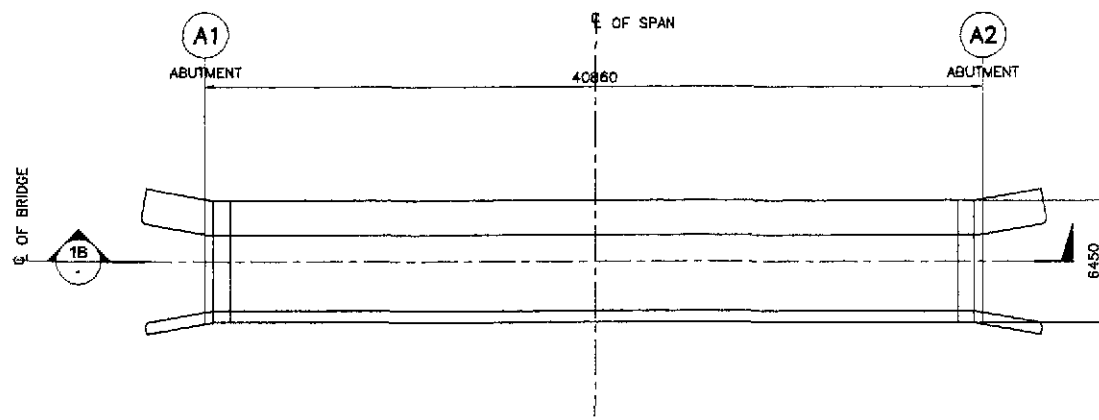
- NOTES:
- SEE GENERAL NOTES, -2, FOR GIRDER DESIGN GUIDE.
  - JACKING FORCE PER GIRDER,  $P_j = 8261$  KN.
  - JACKING WILL BE DONE AT BOTH ENDS.
  - FINAL PRESTRESSING FORCE @ MIDSPAN,  $F_{NET} = 6122$  KN.



BAR BENDING DIAGRAM				SCHEDULE OF REINFORCEMENT												
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION (mm) OUT TO OUT					LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (KG/CU.M)
							a	b	c	d	e					
GIRDER	32.07	PG1	20	6	AS SHOWN	(A)	39920	-	-	-	-	39920	239.52	2.466	591	
		PG2	28	4	AS SHOWN	(A)	39920	-	-	-	-	39920	159.68	4.833	772	
		PG3	28	2	AS SHOWN	(A)	39920	-	-	-	-	39920	79.84	4.833	386	
		PG4	12	8	AS SHOWN	(A)	39920	-	-	-	-	39920	319.36	0.888	284	
		PG5	12	294	150	(G)	210	2150	103	-	-	48230	1417.96	0.888	1260	
		PG6	12	294	150	(F)	1000	50	340	200	150	2480	729.12	0.888	648	
		PG7	12	20	150	(D)	635	1450	550	-	-	46350	92.70	0.888	83	
		PG8	12	40	100	(C)	635	1950	150	-	-	48350	193.40	0.888	172	
		PG9	28	18	AS SHOWN	(A)	603	-	-	-	-	06030	10.85	4.833	53	
		PG10	28	16	AS SHOWN	(A)	1200	-	-	-	-	1200	19.20	4.833	93	
		PG11	12	294	150	(E)	635	160	550	150	-	23550	682.37	0.888	615	
TOTAL	32.07															
													GRADE 40	TOTAL = 3,062 Kgs		
													GRADE 60	TOTAL = 1,895 Kgs		

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

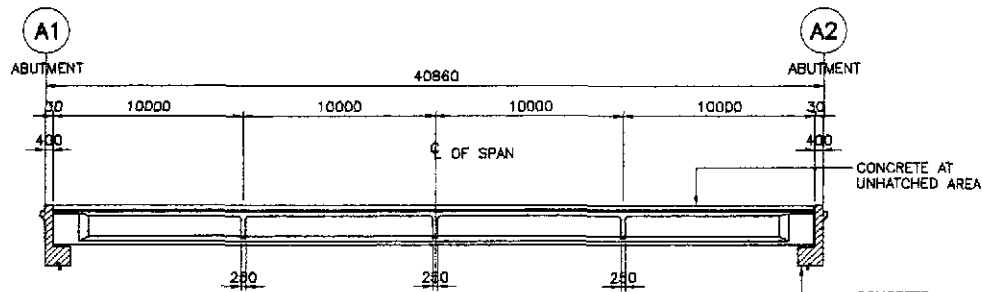
		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) <b>SAN JOSE BYPASS</b>		SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 1 & 2 AASHTO TYPE-VI GIRDER (MODIFIED) (ULTIMATE STAGE)	SHEET NO. : <b>B1-03</b>
DESIGNED:	DATE:	SIGNATURE:	APPROVED BY:	REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:				
CHECKED:	9/7/01	E.N. SALLAN	APPROVED BY:	REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:				
SUBMITTED:	9/10/01	MANUEL M. BONDAN	APPROVED BY:	REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:				
	9/10/01	MANUEL M. BONDAN	APPROVED BY:	REVIEWED BY:	RECOMMENDED BY:	APPROVED BY:				



1A PLAN  
SCALE 1:200

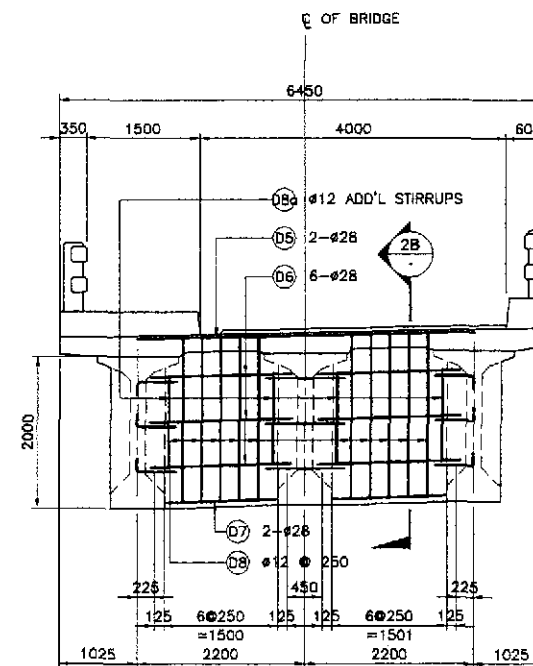
NOTES:

1. CONCRETE AT HATCHED AREAS SHALL BE PLACED AT LEAST TWENTY ONE (21) DAYS AHEAD OF CONCRETE AT UNHATCHED AREAS.
2. REINFORCEMENT SHALL BE CONTINUOUS AT CONSTRUCTION JOINTS.

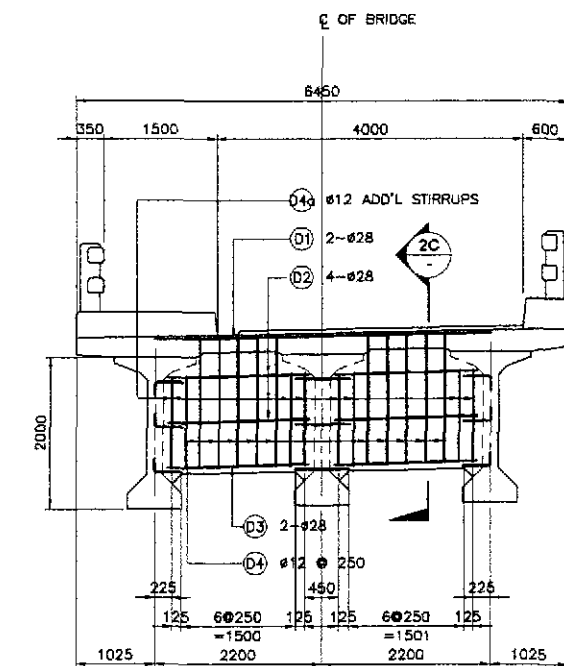


1B LONGITUDINAL SECTION  
SCALE 1:200

1 CONCRETE POURING SEQUENCE  
SCALE 1:200

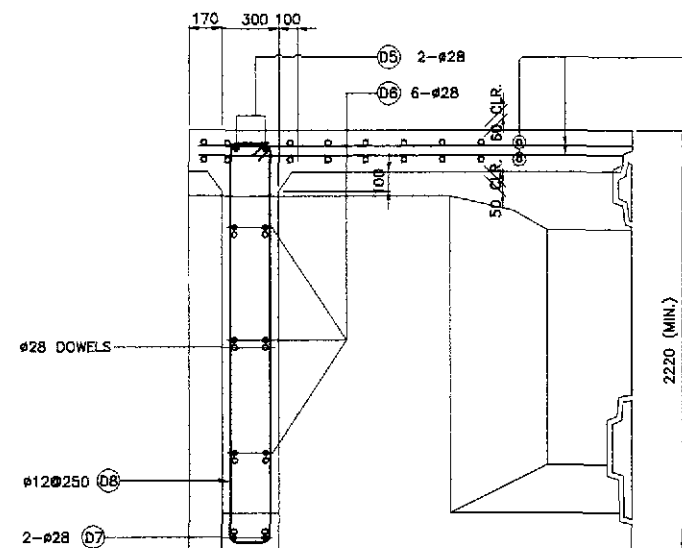


END DIAPHRAGM

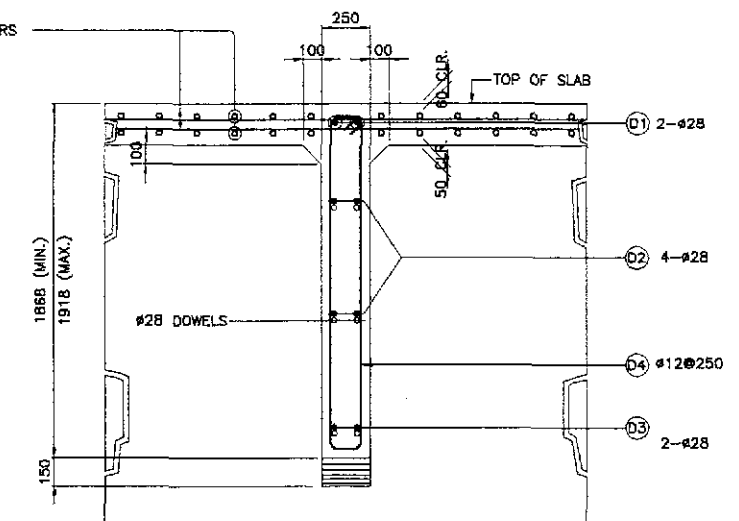


INTERMEDIATE DIAPHRAGM

2A ELEVATION  
SCALE 1:50



2B SECTION  
SCALE 1:20

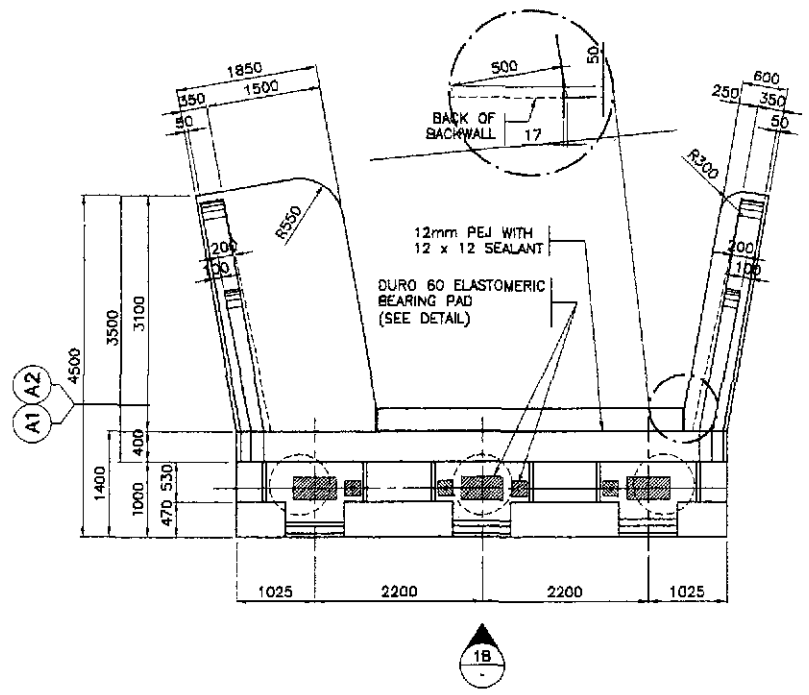


2C SECTION  
SCALE 1:20

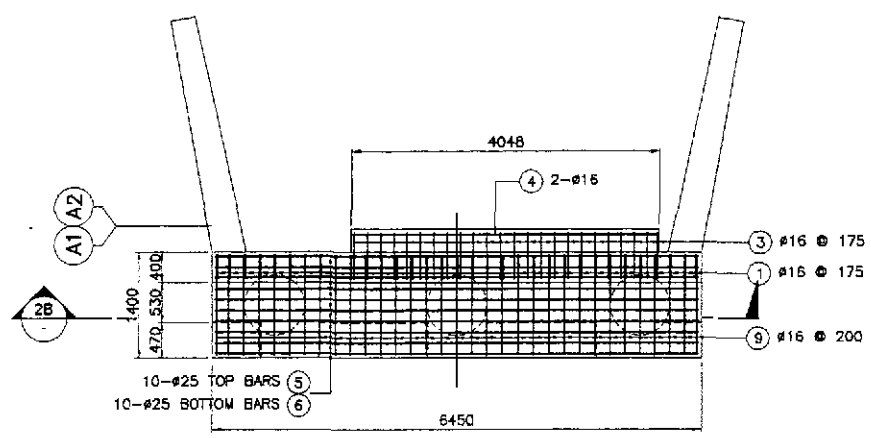
2 DETAIL OF END AND INTERMEDIATE DIAPHRAGM  
SCALE AS SHOWN

BAR BENDING DIAGRAM																
		A		B		C										
SCHEDULE OF REINFORCEMENT																
STRUCTURE COMPONENT	LOCATION	CONCRETE VOLUME (M <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (KG/M)	WEIGHT IN (KG)	REBAR RATIO (KG/M <sup>3</sup> )
DIAPHRAGM	INTERMEDIATE DIAPHRAGM	5.29	D1	28	6	AS SHOWN	(A)	4400	-	-	-	4400	26.40	4.833	128	124.86
			D2	28	24	AS SHOWN	(A)	2050	-	-	-	2050	49.20	4.833	238	
			D3	28	12	AS SHOWN	(A)	2050	-	-	-	2050	24.60	4.833	119	
			D4	12	30	250	(C)	150	1785 (AVE.)	150	-	4190	125.70	0.888	112	
	D4a	12	24	AS SHOWN	(C)	150	1200	150	-	3000	72.00	0.888	64			
	END DIAPHRAGM	4.96	D5	28	4	AS SHOWN	(A)	4400	-	-	-	4400	17.60	4.833	86	86.90
			D6	28	24	AS SHOWN	(A)	1450	-	-	-	1450	34.80	4.833	169	
			D7	28	8	AS SHOWN	(A)	1450	-	-	-	1450	11.60	4.833	57	
			D8	12	20	250	(C)	200	2145 (AVE.)	150	-	4990	99.80	0.888	89	
			D8a	12	8	AS SHOWN	(C)	200	1700	150	-	4100	32.80	0.888	30	
TOTAL			10.25													
GRADE 40 TOTAL = 295 Kgs.																
GRADE 60 TOTAL = 797 Kgs.																

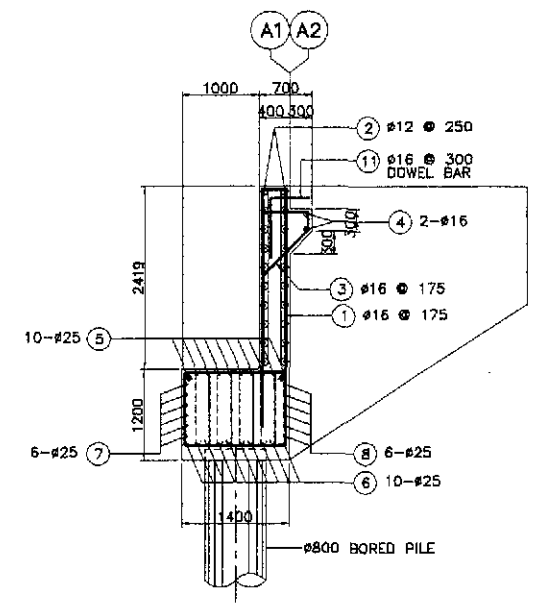
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :		SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/19/02	[Signature]		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		AS SHOWN	BRIDGE NO. 1 & 2 CONCRETE POURING SEQUENCE AND DIAPHRAGM DETAILS (ULTIMATE STAGE)	B1-04
	SUBMITTED	9/11/02	[Signature]		OFFICE OF THE SECRETARY				SAN JOSE BYPASS		FULL SIZE A1		
Submitted By:		Reviewed By:		Recommended By:		Approved By:							
DANILO C. TRAJANO Project Director		ADRIANO M. DOROY Chief, Bridge Division		GILBERTO S. REYES Director IV (GIC)		MANUEL M. BONDAN Undersecretary		SIMEON A. DATUMANONG Secretary					



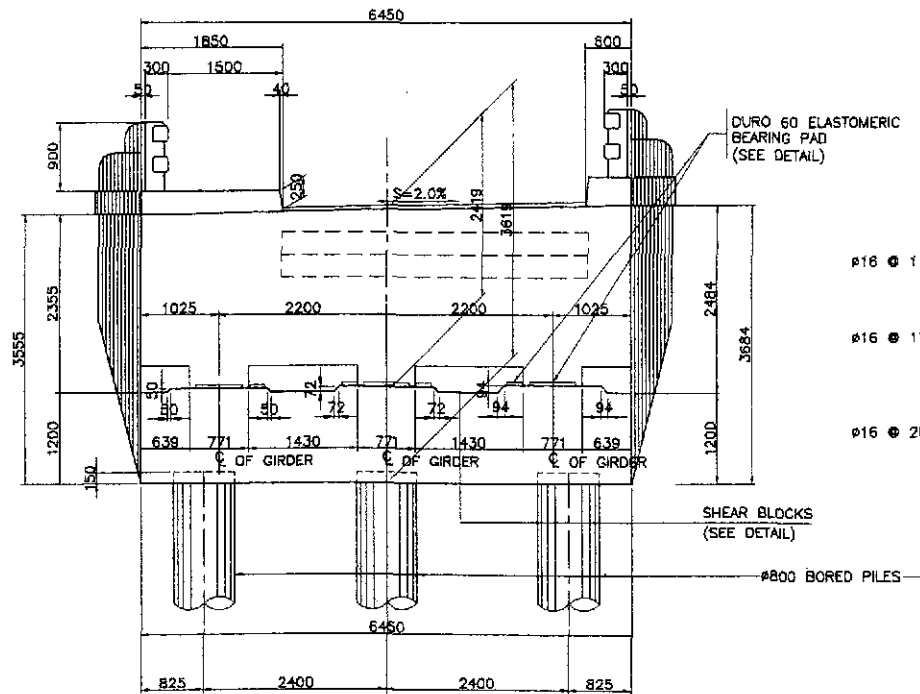
1A PLAN  
SCALE 1:50



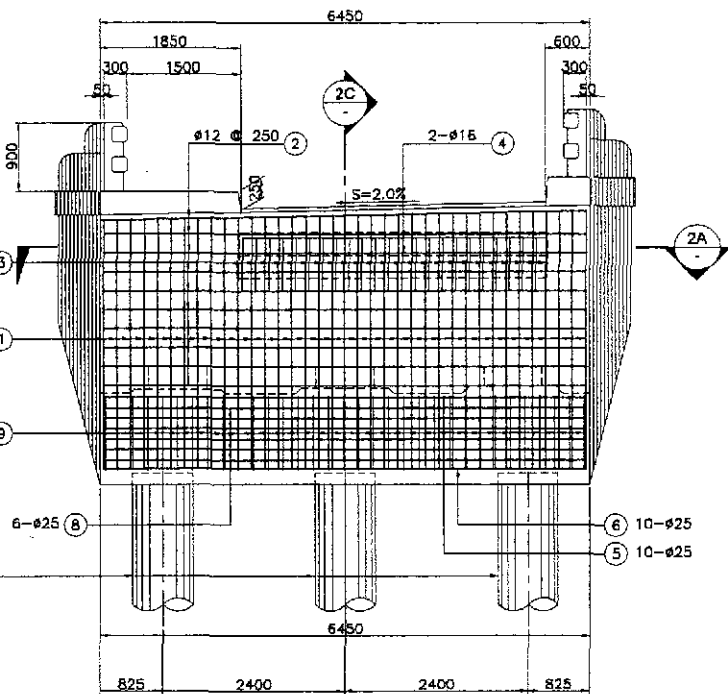
2A SECTION  
SCALE 1:50



2C SECTION  
SCALE 1:50



1B ELEVATION  
SCALE 1:50



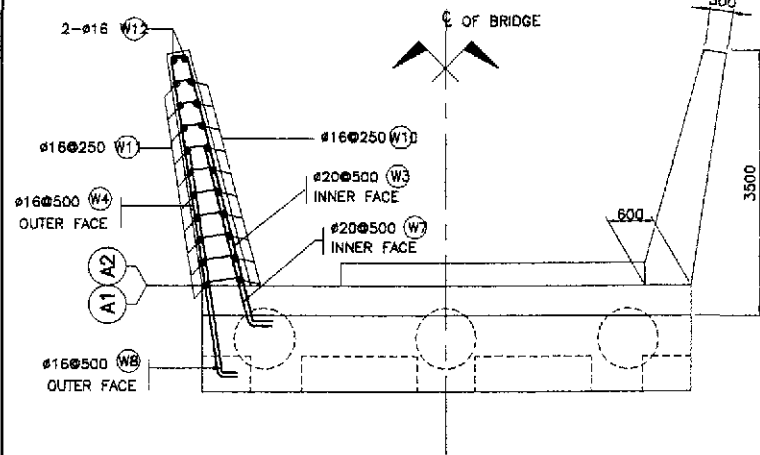
2B SECTION  
SCALE 1:50

BAR BENDING DIAGRAM																
A	B	C	D	E	F											
<b>SCHEDULE OF REINFORCEMENT PER ABUTMENT</b>																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cum)
BACKWALL	6.78	①	16	38	175	(B)	2800	300	2800	-	-	5900	224.20	1.579	355	80.24
		②	12	20	250	(A)	6350	-	-	-	-	6350	127.00	0.888	113	
		③	16	24	175	(C)	600	200	850	-	-	1650	39.60	1.579	63	
		④	16	2	AS SHOWN	(A)	4000	-	-	-	-	4000	8.00	1.579	13	
CAP BEAM	10.84	⑤	25	10	AS SHOWN	(B)	750	6350	750	-	-	7850	78.50	3.854	303	127.13
		⑥	25	10	AS SHOWN	(B)	750	6350	750	-	-	7850	78.50	3.854	303	
		⑦	25	6	AS SHOWN	(B)	250	6350	250	-	-	6850	41.10	3.854	159	
		⑧	25	6	AS SHOWN	(B)	250	6350	250	-	-	6850	41.10	3.854	159	
		⑨	16	33	200	(E)	1100	1300	150	-	-	5100	168.30	1.579	265	
		⑩	12	132	200	(D)	250	1100	250	-	-	1600	211.20	0.888	188	
DOWEL		⑪	16	15	300	(F)	650	500	-	-	-	1150	17.25	1.579	28	
TOTAL	17.62												GRADE 40 TOTAL = 1026 kgs.		GRADE 60 TOTAL = 924 kgs.	

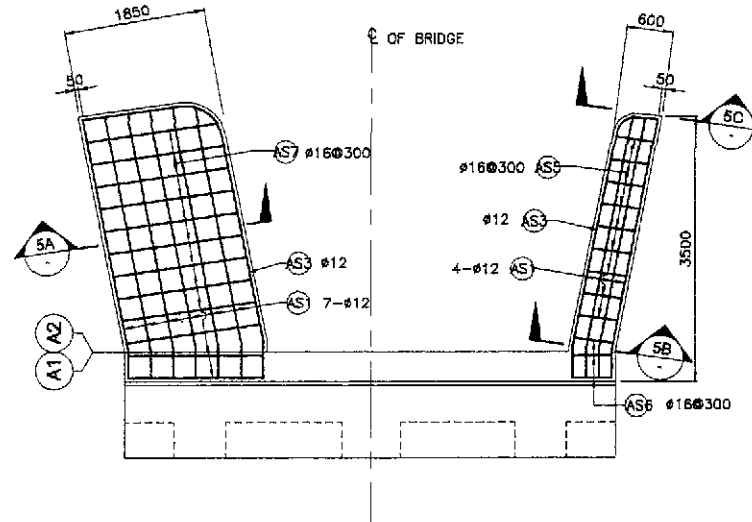
1 ABUTMENT LAYOUT AND DIMENSION  
SCALE AS SHOWN

2 ABUTMENT REINFORCEMENT DETAILS  
SCALE AS SHOWN

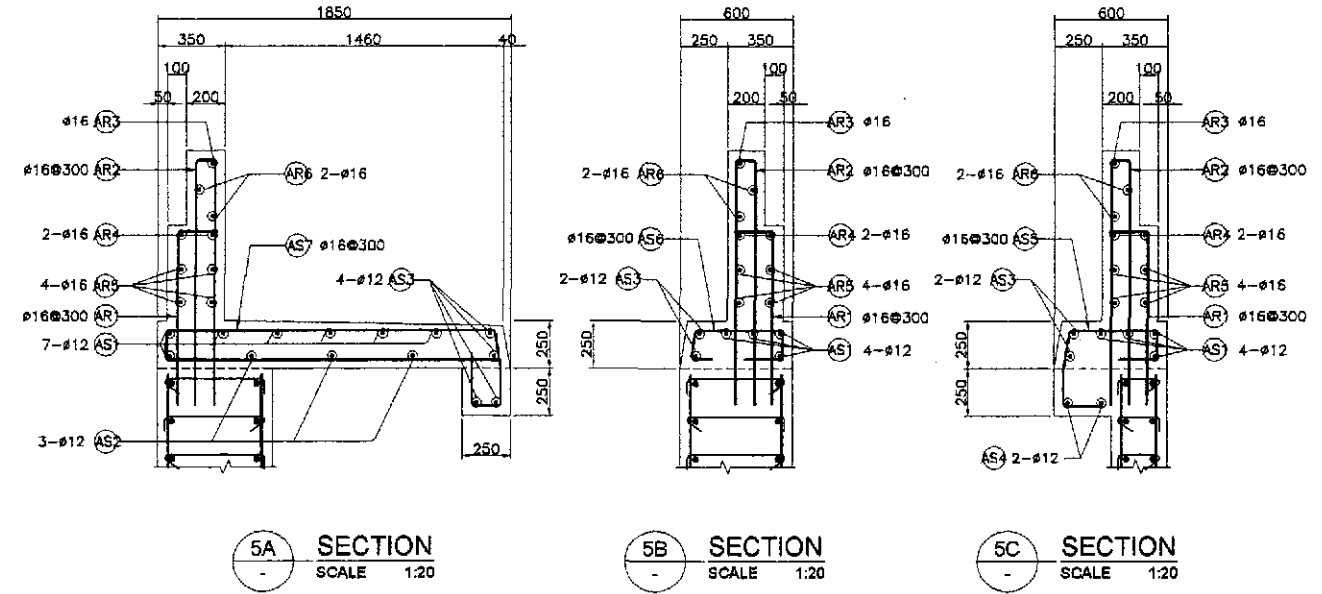
	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/10/21	A. P. GONZALES	BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pleridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 1 & 2 ABUTMENT SEATING REINFORCEMENT DETAILS (ULTIMATE STAGE)	B1-05
	SUBMITTED	9/10/21	DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (D/C)	MANUEL M. BONGAN Undersecretary	SIMEON A. DATUMANONG Secretary	FULL SIZE A1			



1 PLAN  
SCALE 1:50

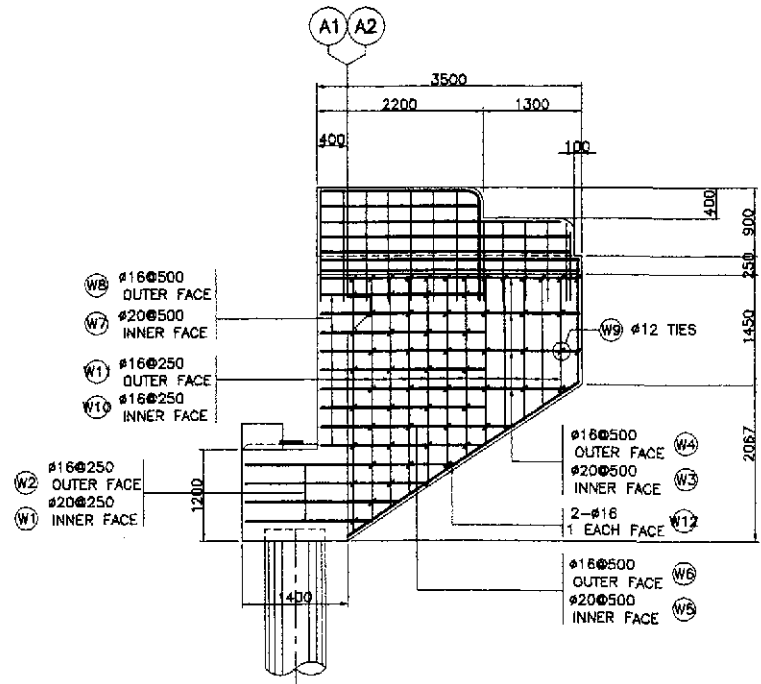


4 SIDEWALK DETAIL  
SCALE 1:50

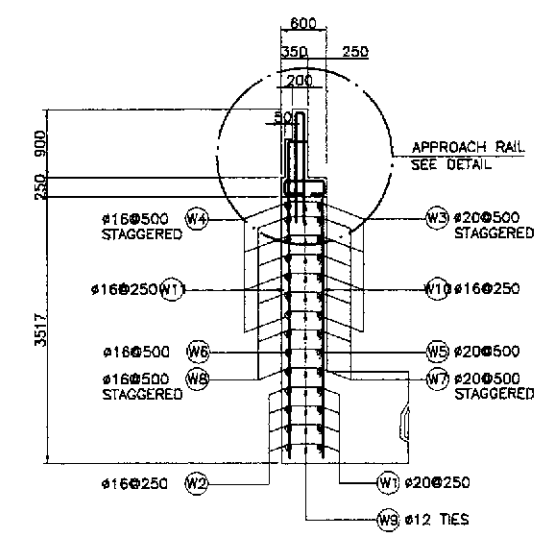


5A SECTION SCALE 1:20  
5B SECTION SCALE 1:20  
5C SECTION SCALE 1:20

5 APPROACH RAIL DETAILS  
SCALE 1:20

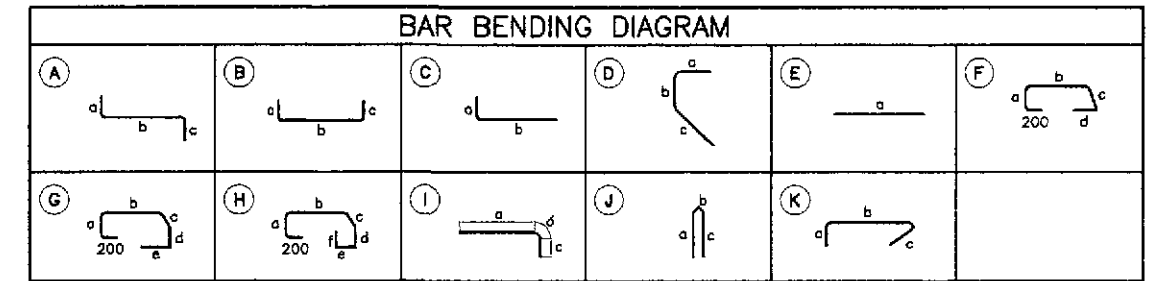


2 WINGWALL ELEVATION  
SCALE 1:50



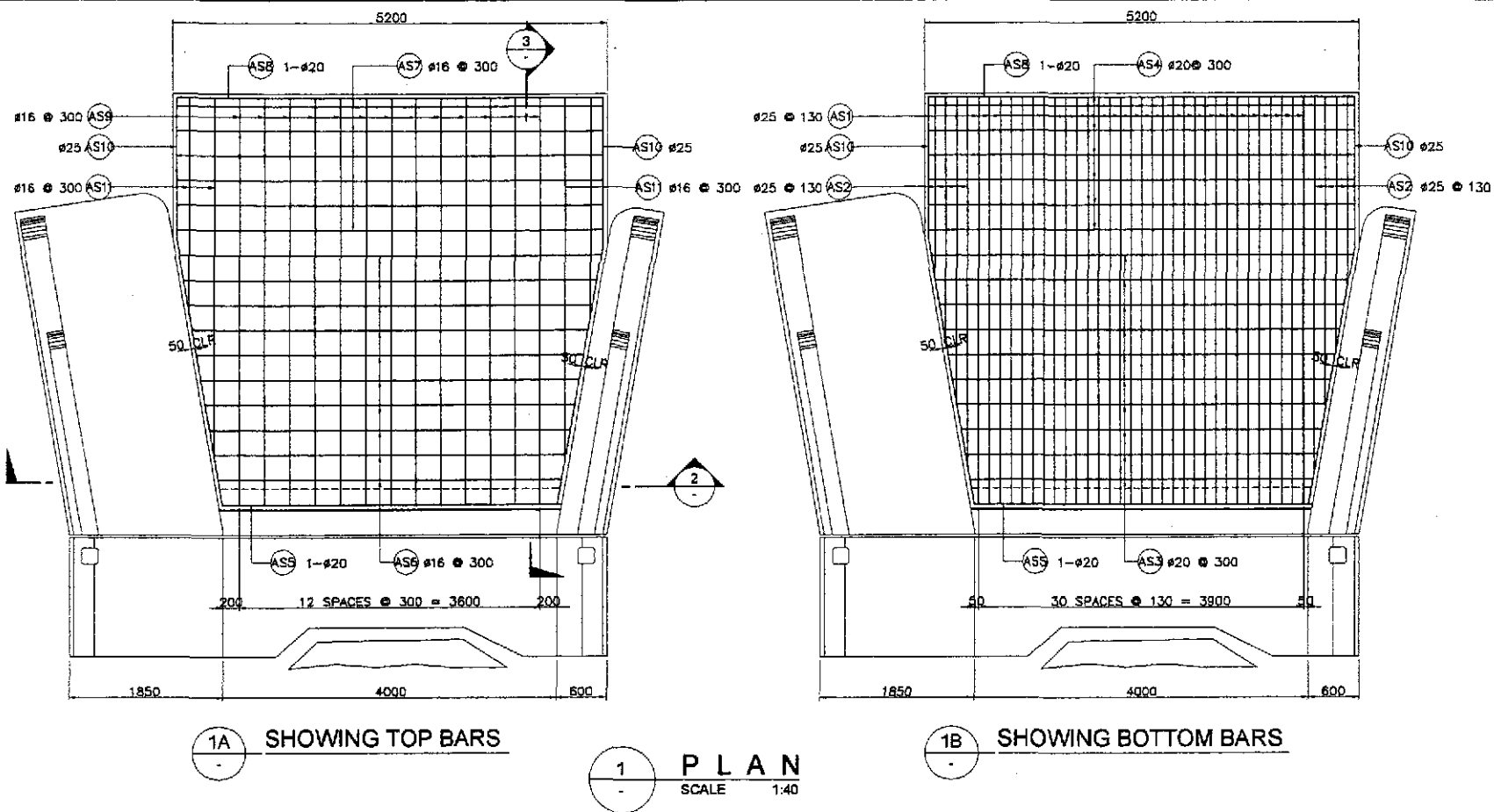
3 SECTION  
SCALE 1:50

A ABUTMENT WINGWALL REINFORCEMENT DETAILS  
SCALE AS SHOWN

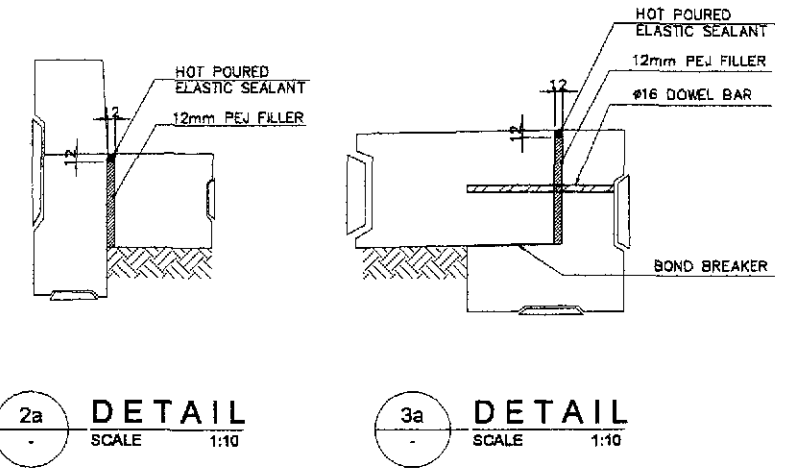


SCHEDULE OF REINFORCEMENT PER ABUTMENT																	
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE (Ø)	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm)					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)	
							a	b	c	d	e						f
WINGWALL	6.93	W1	20	8	250	A	250	2500(ovr)	400	-	-	-	3150	25.20	2.466	63	110.98
		W2	16	8	250	B	250	2500(ovr)	400	-	-	-	3150	25.20	1.579	40	
		W3	20	8	500	A	250	3600	400	-	-	-	4250	34.00	2.466	84	
		W4	16	8	500	B	250	4300	400	-	-	-	4950	39.60	1.579	63	
		W5	20	2	500	A	250	2600	400	-	-	-	3250	6.50	2.466	17	
		W6	16	2	500	B	250	2600	400	-	-	-	3250	6.50	1.579	11	
		W7	20	10	500	C	400	2200	-	-	-	-	2600	26.00	2.466	65	
		W8	16	10	500	C	400	2200	-	-	-	-	2600	26.00	1.579	42	
		W9	12	112	AS SHOWN	K	170	450(ovr)	170	-	-	-	790	88.48	0.888	79	
		W10	16	24	250	B	250	2800	250	-	-	-	3300	79.20	1.579	126	
		W11	16	24	250	B	250	2800	250	-	-	-	3300	79.20	1.579	126	
		W12	16	4	AS SHOWN	D	3400	1350	3600	-	-	-	8350	33.40	1.579	53	
APPROACH SIDEWALK	2.77	AS1	12	11	AS SHOWN	E	3500	-	-	-	-	3500	38.50	0.888	35	59.62	
		AS2	12	3	AS SHOWN	E	3500	-	-	-	-	3500	10.50	0.888	10		
		AS3	12	6	AS SHOWN	E	3500	-	-	-	-	3500	21.00	0.888	18		
		AS4	12	2	AS SHOWN	E	3500	-	-	-	-	3500	7.00	0.888	7		
		AS5	16	10	300	G	170	480	200	170	200	-	1400	14.00	1.579		23
		AS6	16	3	300	F	170	460	200	200	-	-	1230	3.69	1.579		6
		AS7	16	13	300	H	170	1710	200	170	170	300	2920	37.96	1.579		60
APPROACH RAILING	1.41	AR1	16	10	300	C	900	200	-	-	-	1100	11.00	1.579	18	123.41	
		AR2	16	14	300	J	1300	120	1300	-	-	-	2720	36.08	1.579		61
		AR3	16	2	AS SHOWN	I	2100	236	900	-	-	-	3236	6.47	1.579		11
		AR4	16	2	AS SHOWN	I	3300	236	1300	-	-	-	4836	9.67	1.579		16
		AR5	16	10	200	E	3400	-	-	-	-	-	3400	34.00	1.579		54
TOTAL	11.11															GRADE 40 TOTAL = 874 kgs GRADE 60 TOTAL = 229 kgs	

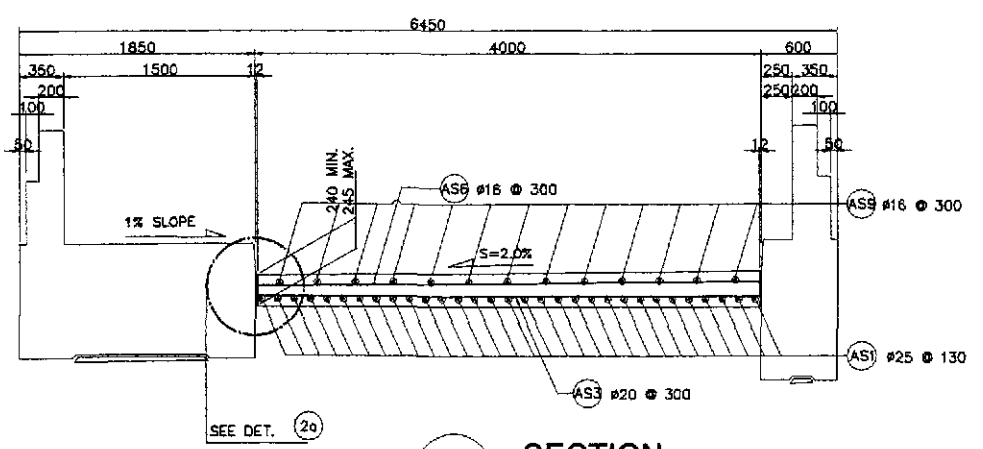
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/6/02	A.P. GONZALES		DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			THE DETAILED DESIGN STUDY ON	AS SHOWN	BRIDGE NO. 1 & 2 ABUTMENT WINGWALL REINFORCEMENT DETAILS (ULTIMATE STAGE)	B1-06
	SUBMITTED	9/10/02	M. M. BONDAN		BUREAU OF DESIGN			UPGRADING INTER-URBAN HIGHWAY SYSTEM	FULL SIZE A1		
					OFFICE OF THE SECRETARY			ALONG THE PAN-PHILIPPINE HIGHWAY			
			Submitted By: DANILO C. TRAJANO Project Director			PLARIDEL, CABANATUAN AND SAN JOSE BYPASSES)					
				Reviewed By: ADRIANO M. DORAY Chief, Bridges Division			SAN JOSE BYPASS				
				Recommended By: GILBERTO S. REYES Director IV (GIC)							
				Recommended By: MANUEL M. BONDAN Undersecretary							
				Approved By: SIMEON A. DATUMANONG Secretary							



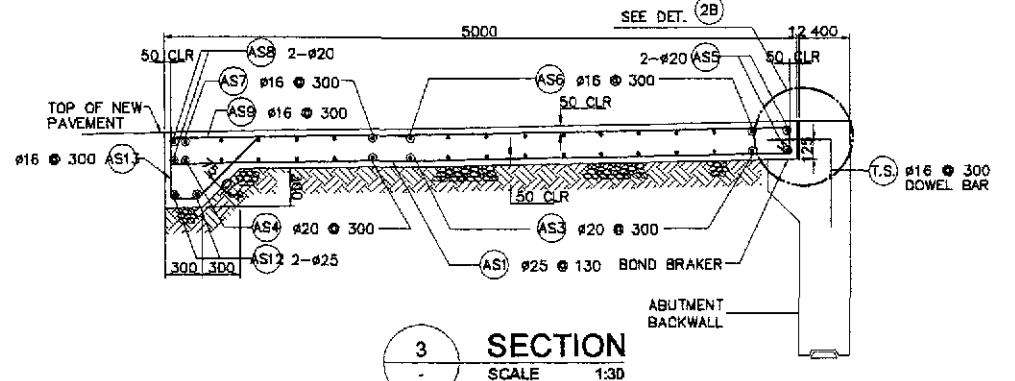
1A SHOWING TOP BARS  
1B SHOWING BOTTOM BARS  
1 PLAN  
SCALE 1:40



2a DETAIL SCALE 1:10  
3a DETAIL SCALE 1:10



2 SECTION  
SCALE 1:30



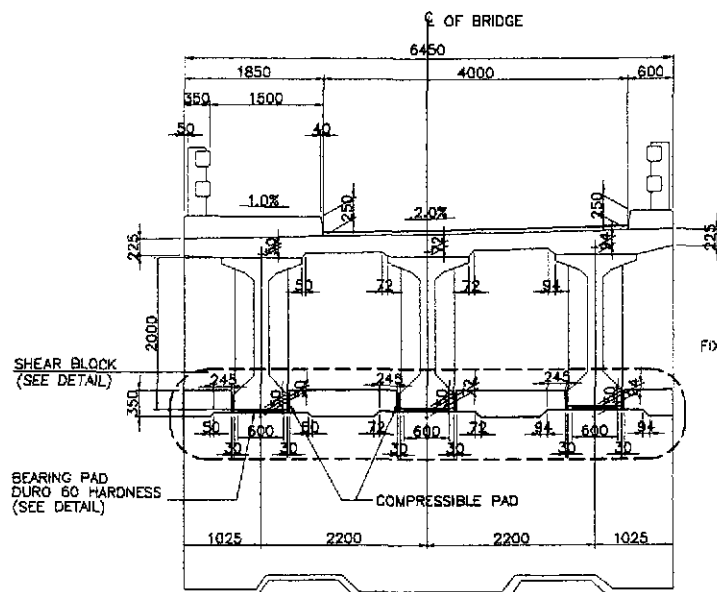
3 SECTION SCALE 1:30  
A APPROACH SLAB DETAILS SCALE AS SHOWN

BAR BENDING DIAGRAM																
A		B		C		D										
SCHEDULE OF REINFORCEMENT																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm)				LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)	
							a	b	c	d						
APPROACH SLAB	7.93	AS1	25	32	130	(B)	4900	200	-	-	-	5100	163.20	3.854	629	177.31
		AS2	25	8	130	(B)	3700	200	-	-	-	3900	31.20	3.854	121	
		AS3	20	10	300	(A)	4500	-	-	-	-	4500	45.00	2.466	111	
		AS4	20	6	300	(A)	5100	-	-	-	-	5100	30.60	2.466	76	
		AS5	20	2	AS SHOWN	(A)	3900	-	-	-	-	3900	7.80	2.466	20	
		AS6	16	10	300	(A)	4500	-	-	-	-	4500	45.00	1.579	72	
		AS7	16	6	300	(A)	5100	-	-	-	-	5100	30.60	1.579	49	
		AS8	20	2	AS SHOWN	(A)	5100	-	-	-	-	5100	10.20	2.466	26	
		AS9	16	13	300	(B)	4900	200	-	-	-	5100	66.30	1.579	105	
		AS10	25	4	AS SHOWN	(C)	1800	3200	-	-	-	5000	20.00	3.854	78	
		AS11	16	4	300	(B)	3700	500	-	-	-	4200	16.80	1.579	27	
		AS12	25	2	AS SHOWN	(A)	5100	-	-	-	-	5100	10.20	3.854	40	
		AS13	16	18	300	(D)	500	200	700	-	-	1800	32.40	1.579	52	
TOTAL	7.93											GRADE 40 TOTAL = 305 kgs.		GRADE 60 TOTAL = 1,101 kgs.		

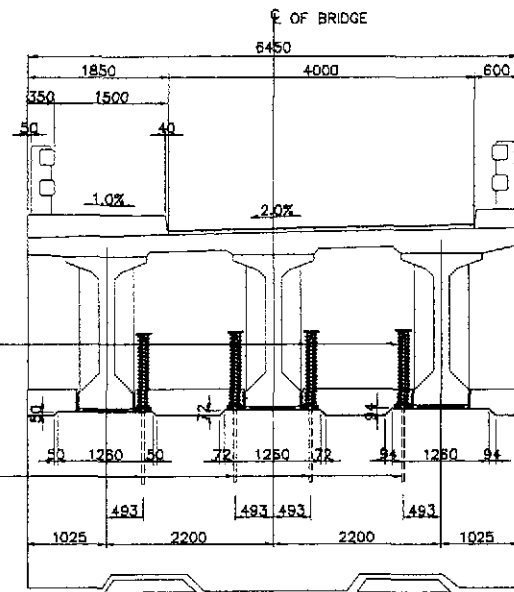
JICA  
JAPAN INTERNATIONAL COOPERATION AGENCY  
KATAHIRA & ENGINEERS  
YEO YACHYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
BUREAU OF DESIGN  
OFFICE OF THE SECRETARY  
Submitted By: DANILO C. TRAJANO  
Reviewed By: ADRIANO M. DORDY  
Recommended By: GILBERTO S. REYES  
Manuel M. Bonoan  
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)  
SCALE: AS SHOWN  
SHEET CONTENTS: BRIDGE NO. 1 & 2 APPROACH SLAB PLAN AND SECTIONS (ULTIMATE STAGE)  
SHEET NO.: B1-07

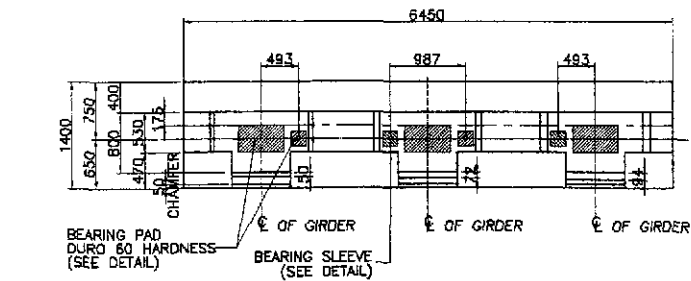


1A SHEAR KEY  
SCALE 1:50

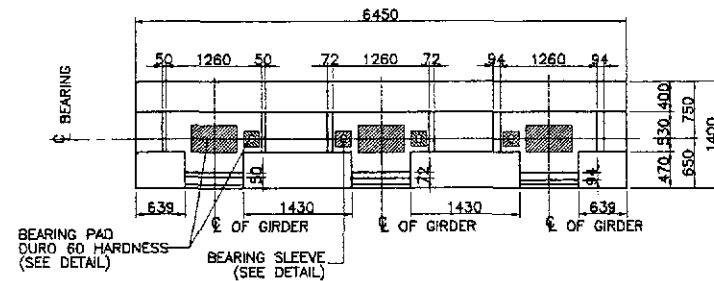


1B ANCHOR BARS  
SCALE 1:50

1 SECTION @ ABUTMENT SEAT  
SCALE 1:100

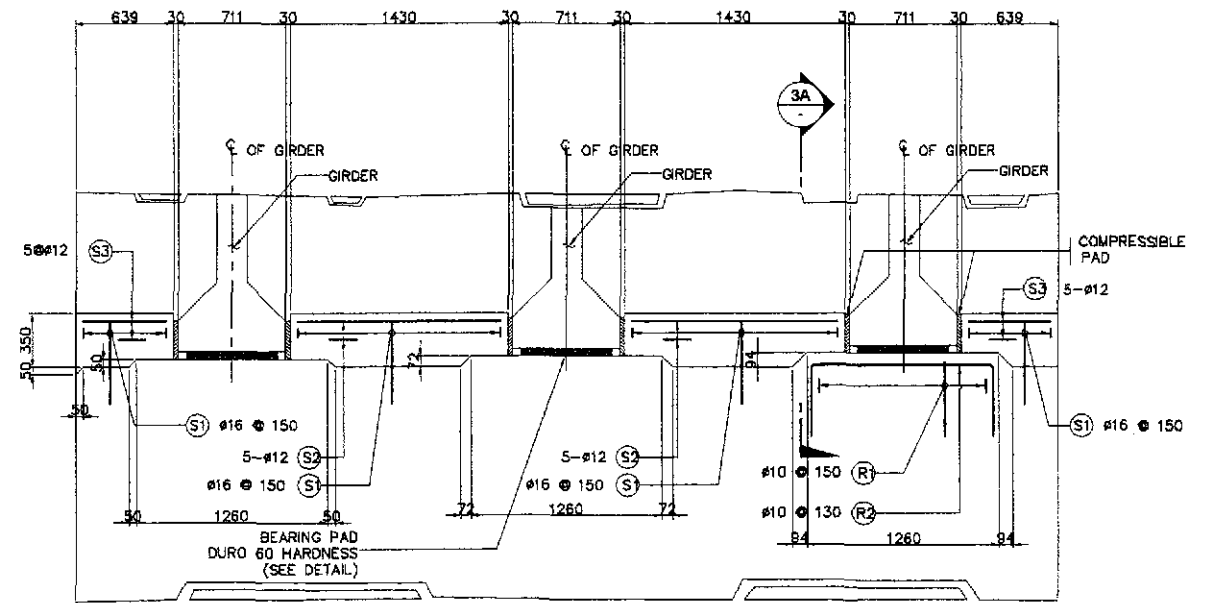


2A ABUTMENT @ FIX BEARING  
SCALE 1:50

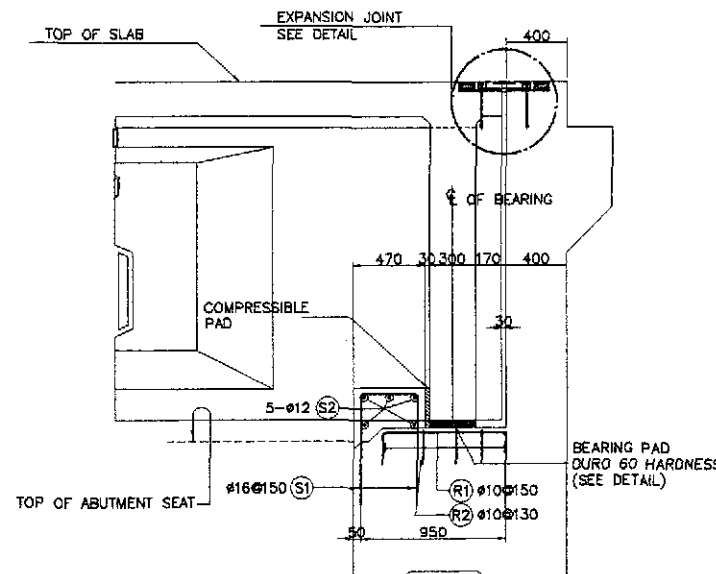


2B ABUTMENT @ EXP. BEARING  
SCALE 1:50

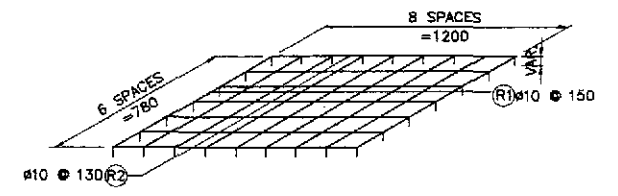
2 PLAN @ ABUTMENT SEAT  
SCALE 1:100



3 SHEAR BLOCK DETAIL  
SCALE 1:25



3A SECTION  
SCALE 1:25

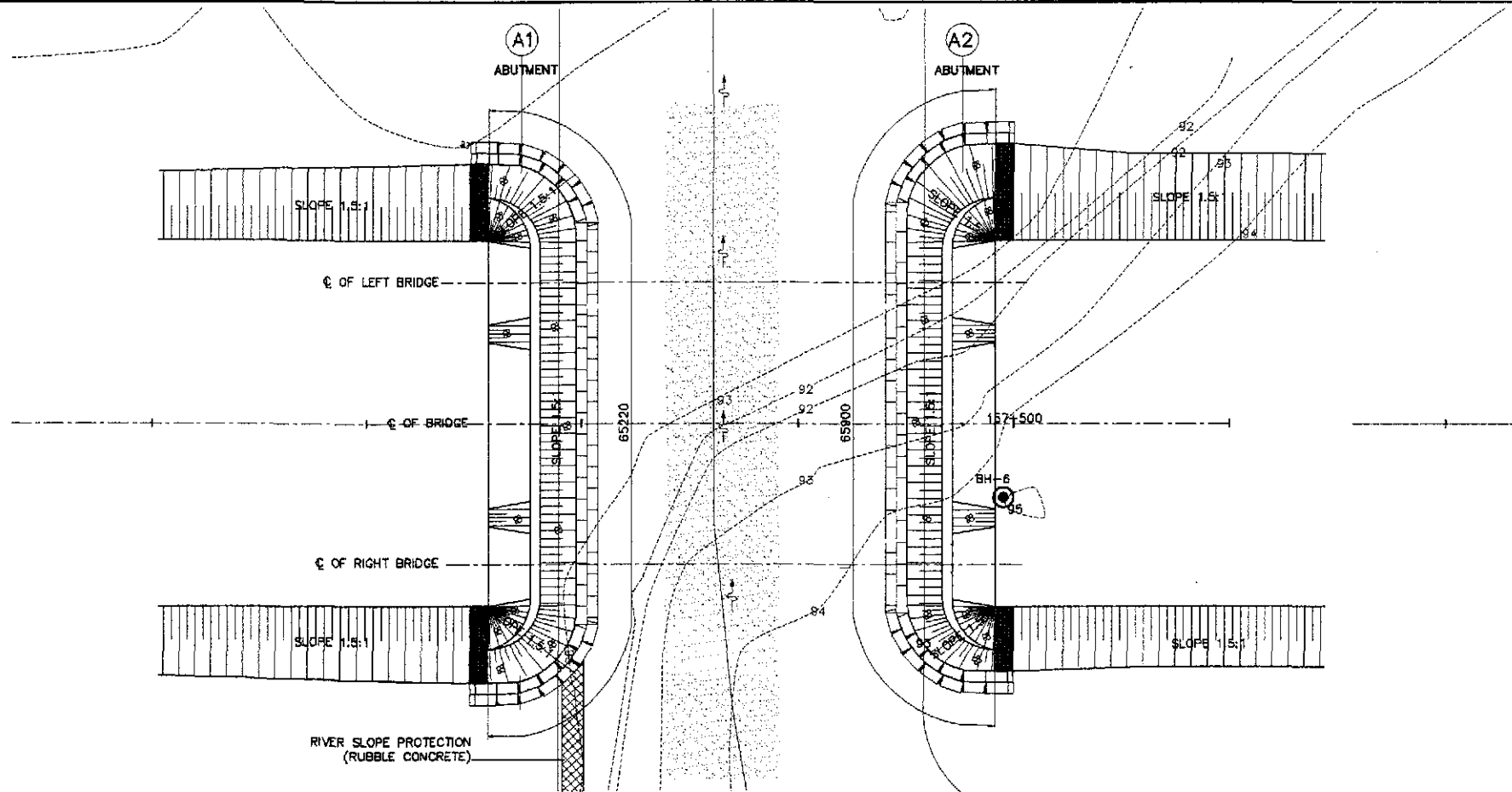


4 RISER REINFORCEMENT  
SCALE NOT TO SCALE

SCHEDULE OF REINFORCEMENT PER ABUTMENT																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION (mm) OUT TO OUT					LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)
							a	b	c	d	e					
SHEAR KEY & RISER	0.93	S1	16	30	150	(B)	560	390	560	-	-	1510	45.30	1.579	72	159.14
		S2	12	10	AS SHOWN	(A)	1350	-	-	-	-	1350	13.50	0.888	12	
		S3	12	10	AS SHOWN	(A)	560	-	-	-	-	560	5.60	0.888	5	
		R1	10	27	150	(B)	500	780	500	-	-	1780	48.06	0.616	30	
		R2	10	21	130	(B)	500	1200	500	-	-	2200	48.20	0.616	29	
TOTAL	0.83															GRADE 40 TOTAL = 148 kgs.

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

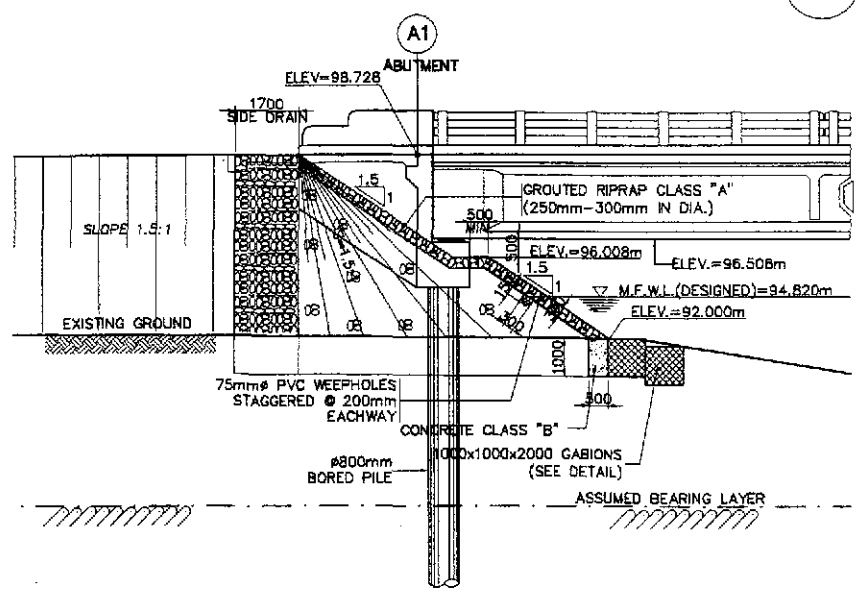
	DESIGNED	DATE	SIGNATURE		PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/10/02	E. N. SALLAN		THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO.1 & 2 SHEAR KEY AND RISER DETAILS AT ABUTMENT (ULTIMATE STAGE)	B1-08
	SUBMITTED	9/10/02	M. S. SALLAN		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY	SAN JOSE BYPASS	FULL SIZE A1	



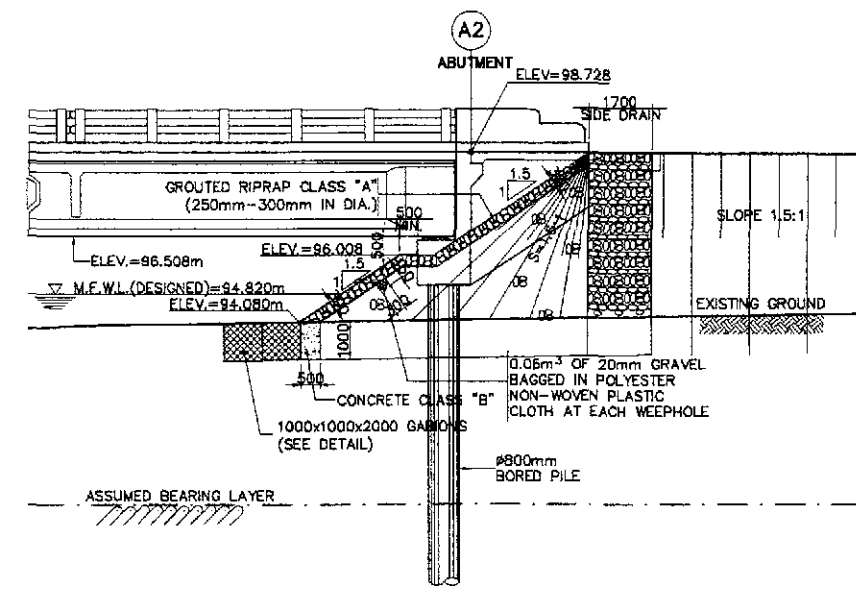
1A PLAN @ LEFT SIDE BRIDGE  
SCALE 1:300

1B PLAN @ RIGHT SIDE BRIDGE  
SCALE 1:300

1 PLAN  
SCALE 1:300



2A ELEVATION @ LEFT SIDE BRIDGE  
SCALE 1:100

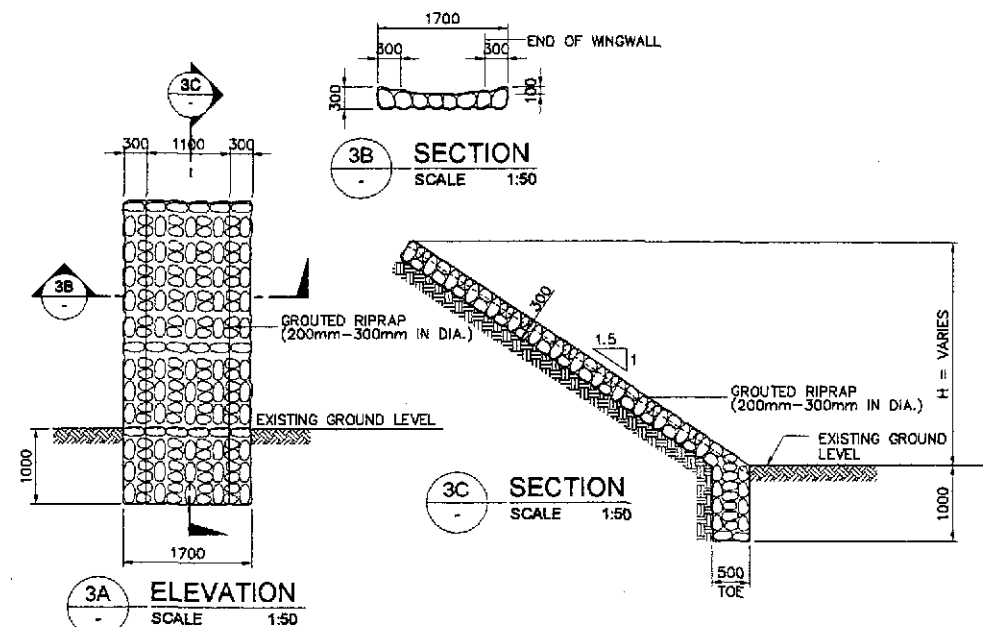


2B ELEVATION @ RIGHT SIDE BRIDGE  
SCALE 1:100

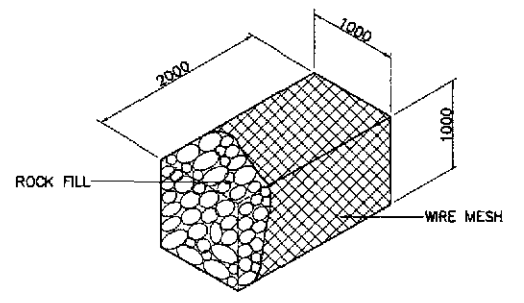
2 ABUTMENT SLOPE PROTECTION DETAIL  
SCALE AS SHOWN

GENERAL NOTES:

1. GROUTED RIPRAP (250mm-300mm DIA.) SHALL BE USED FOR THE FACING AND SHALL BE CAREFULLY HANDLAID WITH THE LONGEST DIMENSIONS PERPENDICULAR TO THE SLOPE AND FIRMLY BEDDED INTO THE SLOPE AND ADJACENT TO THE ADJOINING BOULDERS SPACED BETWEEN THE BOULDERS. THE SPACE BETWEEN THE BOULDERS SHALL BE COMPLETELY FILLED WITH MORTAR. THE OUTSIDE SURFACE OF THE BOULDERS SHALL BE LEFT EXPOSED AND THE SURFACE OF THE MORTAR SHALL BE SWEEPED WITH A STIFF BRUSH.
3. WIRE MESH GABIONS
  - A. WIRE - THE WIRE MESH SHALL BE MADE OF GALVANIZED STEEL HAVING A MINIMUM SIZE OF 3.40mm DIAMETER (U.S. WIRE GAUGE NO.11) THE TENSILE STRENGTH OF THE WIRE SHALL BE IN THE RANGE OF 413.70 TO 586.10 MPa. (60,000 TO 85,000 Psi) THE MINIMUM ZINC COATING OF THE WIRE SHALL BE 22.70 GRAMS PER 0.0928m<sup>2</sup> OF UNCOATED WIRE SURFACES AS DETERMINED BY TEST CONDUCTED IN ACCORDANCE WITH AASHTO T85.
  - B. ROCK FILL - ROCK USED IN THE GABIONS SHALL CONSIST OF HARD, DURABLE ROCK PIECES THAT WILL NOT DETERIORATE WHEN SUBMERGED IN WATER OR EXPOSED TO SEVERE WEATHER CONDITIONS. ROCK PIECES SHALL BE GENERALLY UNIFORMLY GRADED IN SIZES RANGING FROM 100mm TO 200mm. FILLED GABIONS SHALL HAVE A MINIMUM DENSITY OF 1,400Kg./m<sup>3</sup>. VOIDS SHALL BE EVENLY DISTRIBUTED. THE ROCKS SHALL MEET THE REQUIREMENTS OF AASHTO M63 EXCEPT THAT THE SODIUM SULFATE SOUNDNESS LOSS SHALL NOT EXCEED 9% AFTER 5 CYCLES.
4. GEOTEXTILE  
THE FOLLOWING SPECIFICATIONS ARE REQUIRED:
  1. POLYESTER OR POLYPROPYLENE - 100%
  2. MECHANICALLY BONDED/HEAT BONDED
  3. NON-WOVEN
  4. EFFECTIVE OPENING SIZE - 110 MICRONS (MAX.)
  5. THICKNESS UNDER PRESSURE - 0.80mm (MIN.)
  6. WEIGHT - 200g./sq. m. (MIN.)
  7. CBR PUNCTURE STRENGTH - 400N (MIN.)
  8. MULTI-DIRECTIONAL TENSILE STRENGTH - 13KN/m
5. GRAVEL FILTER SHALL BE COARSE AGGREGATES MATERIALS WHICH SATISFY THE REQUIREMENTS FOR ITEM 405, STRUCTURAL CONCRETE, GRADING B OF TABLE 405.1 AS REVISED.



3 TYPICAL SIDE DRAIN DETAIL  
SCALE AS SHOWN



4 GABION DETAIL  
SCALE 1:50

VELOCITY (m/sec)	ROCK SIZE (mm)	
	VERY TURBULENT FLOW	SMOOTH FLOW
1.00	40	-
1.50	135	-
2.00	170	-
2.50	255	137
3.00	370	197
3.50	515	270
4.00	690	350
4.50	825	425
5.00	>900	580

LOCATION	SIZES	QUANTITY	
		ABUT. A1	ABUT. A2
BORED PILE	ø800mm	6	6
GROUTED RIPRAP	250mm-300mm IN DIA.	39.64	39.64
SIDE DRAIN	200mm-300mm IN DIA.	6.12	6.12

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REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN  
OFFICE OF THE SECRETARY

Submitted By: DANILLO C. TRAJANO, Project Director  
Reviewed By: PERFECTO L. ZAPLAN JR., Chief, Hydraulics Division (OIC)  
Recommended By: GILBERTO S. REYES, Director IV (OIC)  
Manuel M. Bonoan, Undersecretary  
Simeon A. Datumanong, Secretary

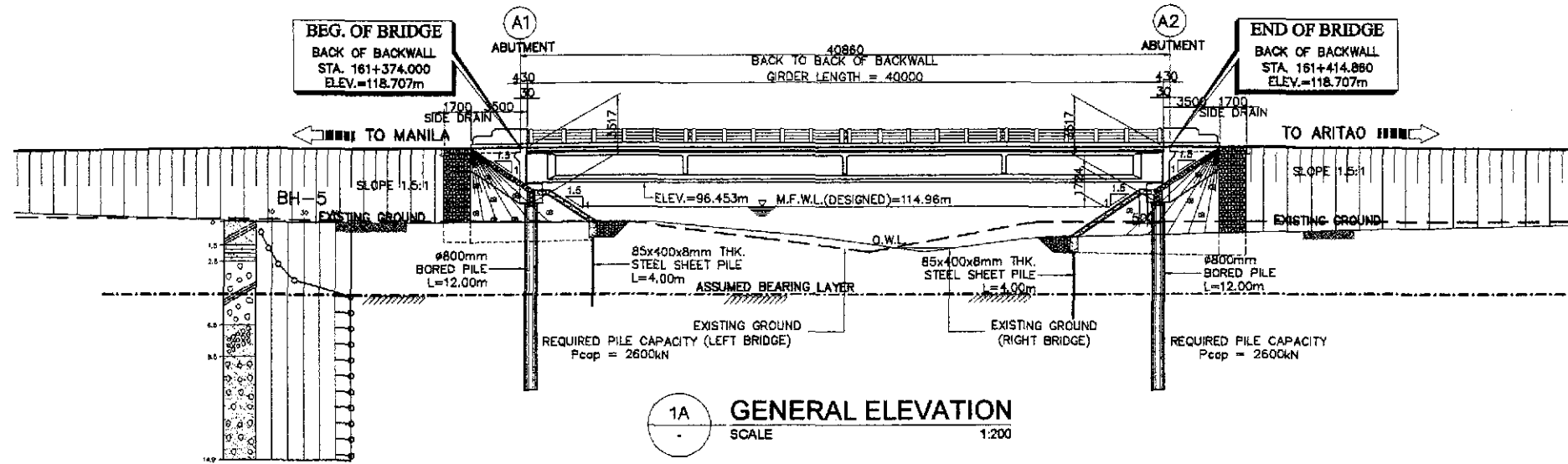
PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)

SCALE : AS SHOWN

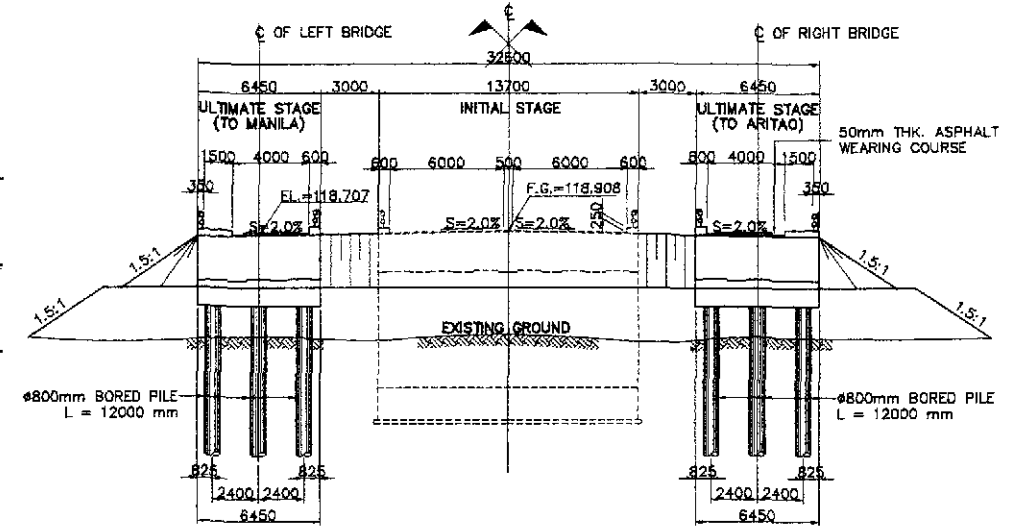
SHEET CONTENTS : BRIDGE NO. 1 ABUTMENT PROTECTION AND SIDE DRAIN DETAILS (ULTIMATE STAGE)

SHEET NO. : B1-09

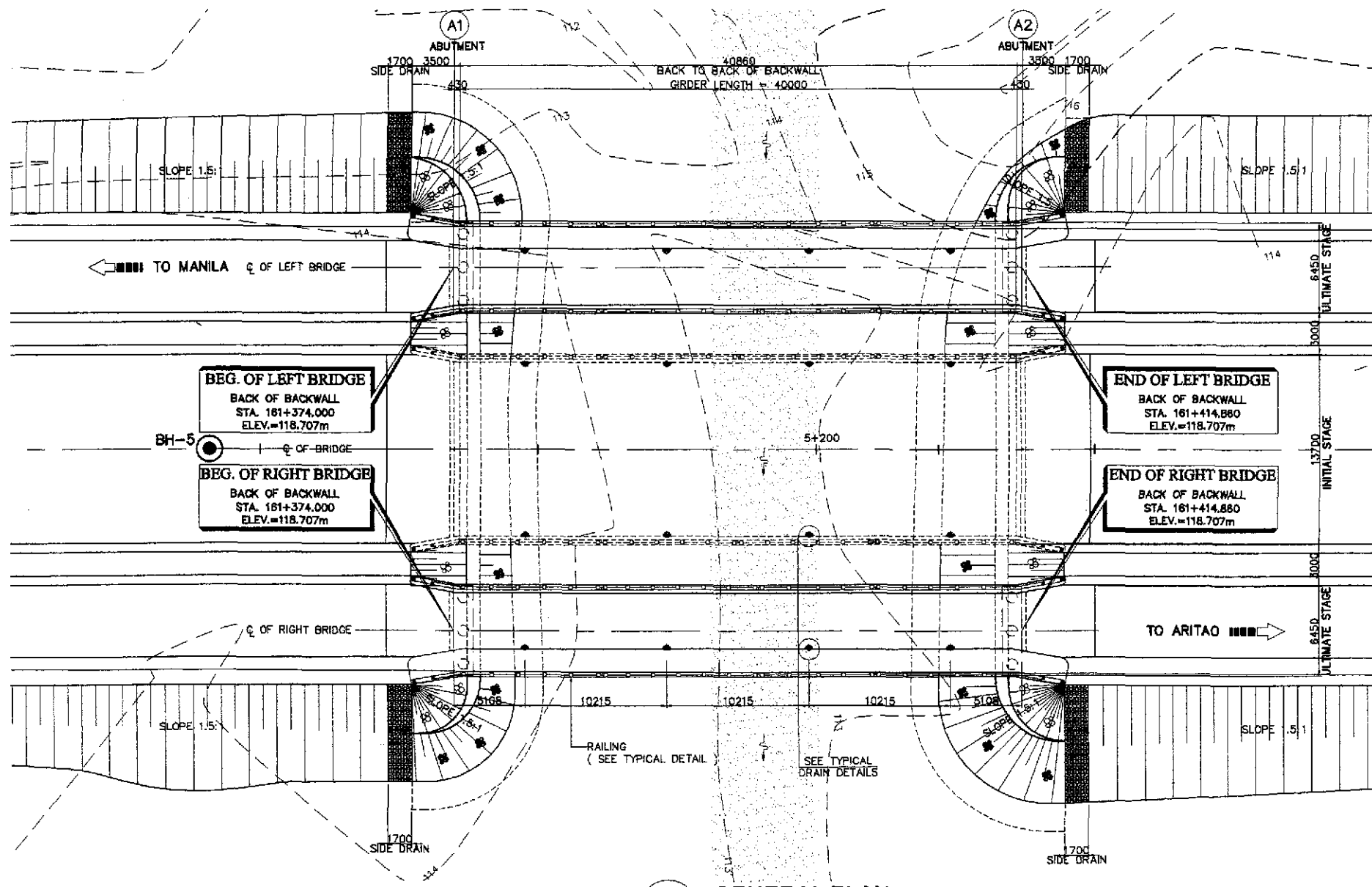




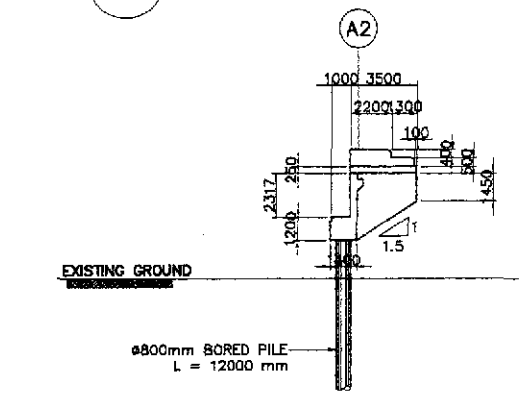
1A GENERAL ELEVATION  
SCALE 1:200



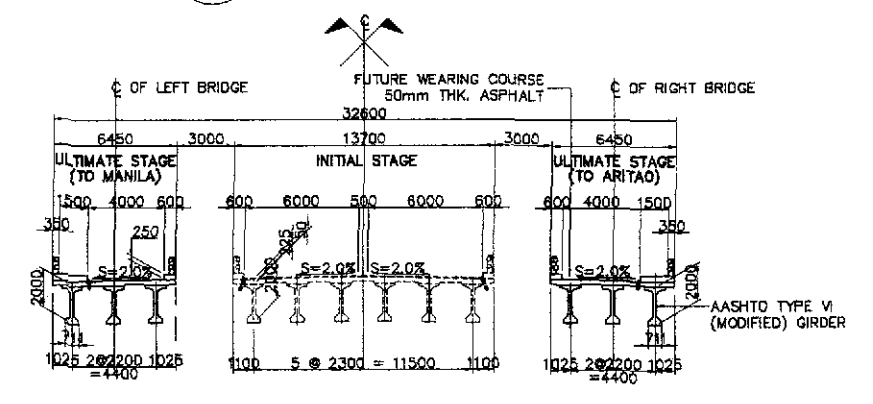
2A SECTION @ ABUTMENT A2  
SCALE 1:200



1B GENERAL PLAN  
SCALE 1:200



2B SIDE ELEVATION  
SCALE 1:200



3 SECTION @ MID-SPAN  
SCALE 1:200

HYDRAULIC DATA	
VELOCITY @ 50 YEARS, $V_{50}$	3.147 m/sec
DISCHARGE @ 50 YEARS, $Q_{50}$	148.100 cu.m/sec
CATCHMENT AREA, CA	13.300 sq. km

NOTE:  
PRIOR TO CONSTRUCTION SOIL INVESTIGATION AT ABUTMENT A2 SHALL BE CONDUCTED FOR CONFIRMATION OF ASSUMED BEARING CAPACITY AND FOOTING ELEVATION.

1 SAN JOSE BYPASS BRIDGE NO. 2  
SCALE AS SHOWN

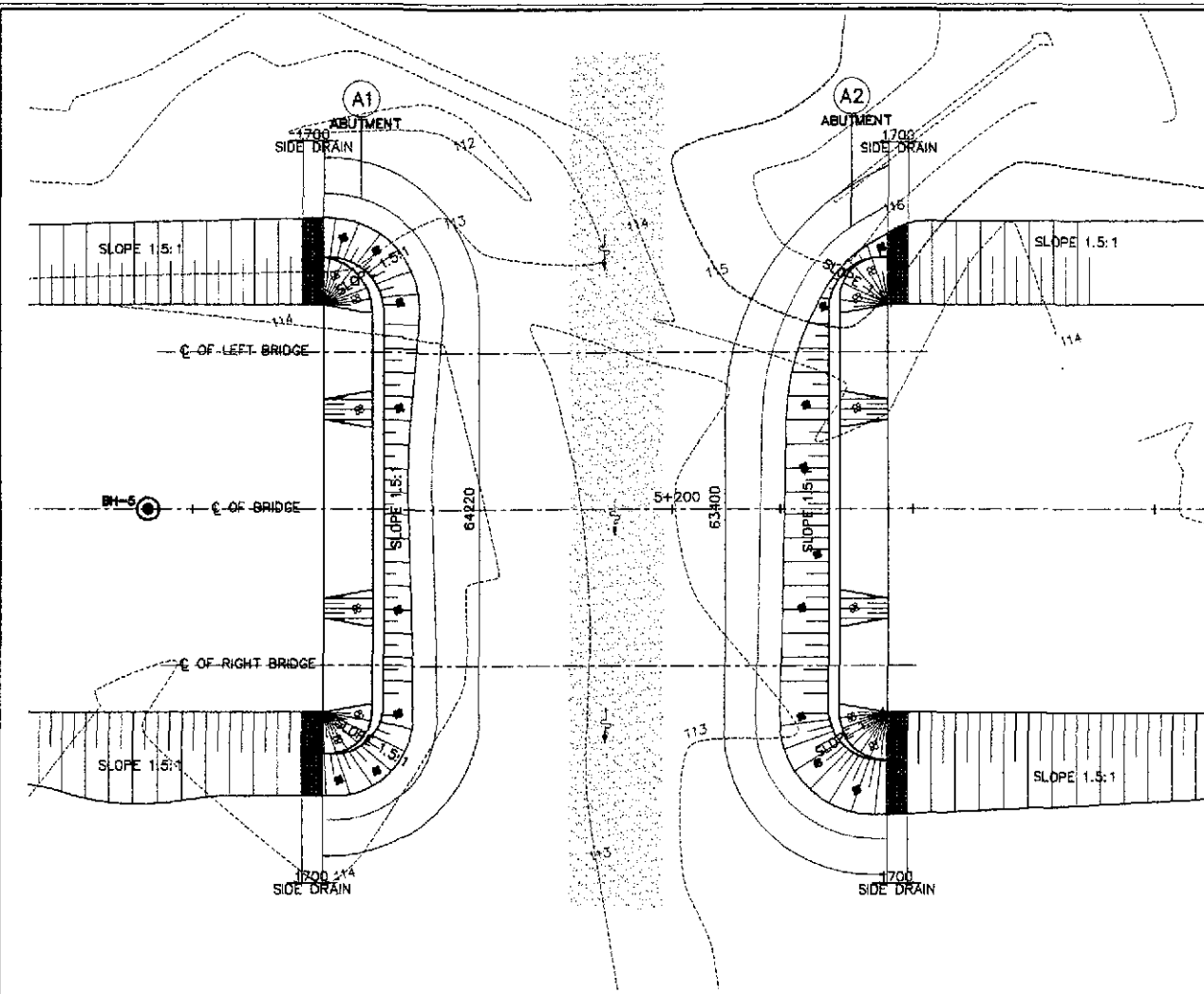
PERFECTO L. ZAPLAN JR.  
OIC Chief, Hydrolics Division, BOD

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YEO YACHIYO ENGINEERING CO., LTD.

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. DOROS, GILBERTO S. REYES  
Recommended By: MANUEL M. BONOAN, SIMONE A. DATUMANONG

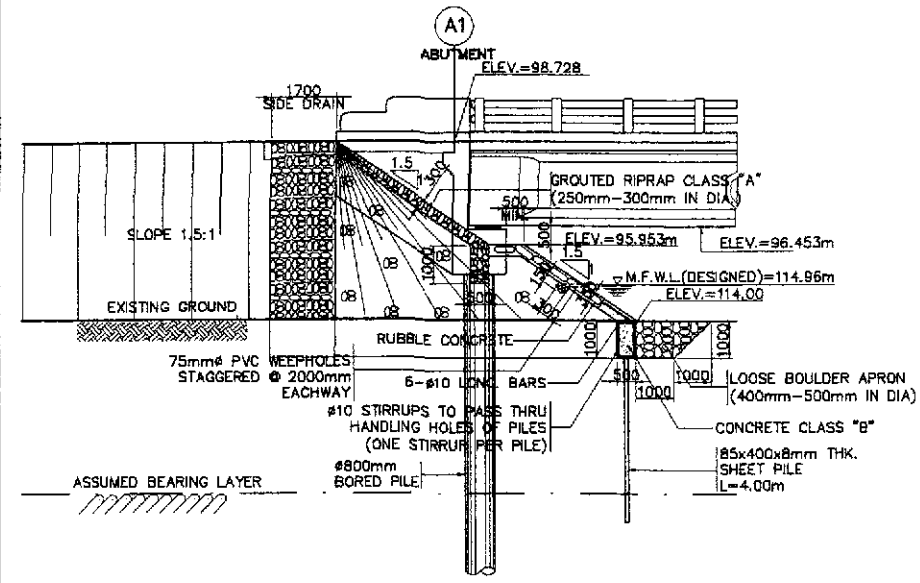
PROJECT AND LOCATION:  
THE DETAILED DESIGN STUDY ON  
UPGRADING INTER-URBAN HIGHWAY SYSTEM  
ALONG THE PAN-PHILIPPINE HIGHWAY  
(Plaridel, Cabanatuan and San Jose Bypasses)  
SAN JOSE BYPASS

SCALE: AS SHOWN  
SHEET CONTENTS: BRIDGE NO. 2  
GENERAL PLAN, ELEVATION  
AND SECTIONS  
(ULTIMATE STAGE)  
SHEET NO.: B2-01

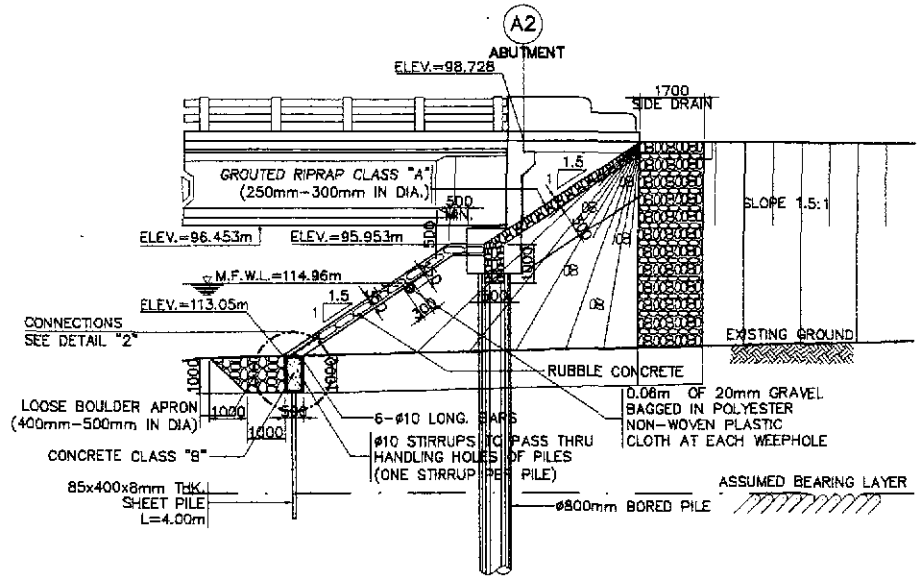


1A PLAN @ LEFT SIDE BRIDGE  
SCALE 1:300

1B PLAN @ RIGHT SIDE BRIDGE  
SCALE 1:300



1C ELEVATION @ LEFT SIDE BRIDGE  
SCALE 1:100



1C ELEVATION @ RIGHT SIDE BRIDGE  
SCALE 1:100

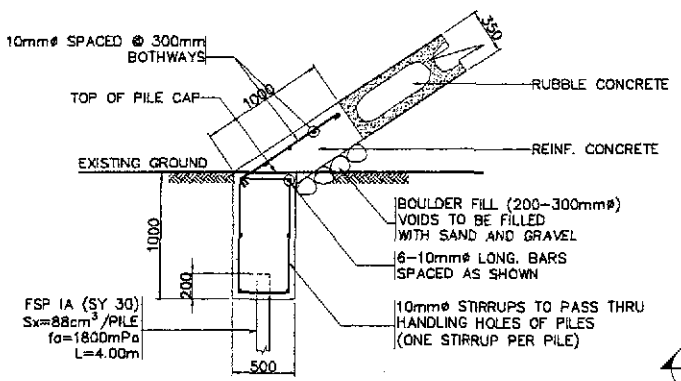
1 ABUTMENT SLOPE PROTECTION DETAIL  
SCALE AS SHOWN

NOTES FOR RUBBLE CONCRETE:

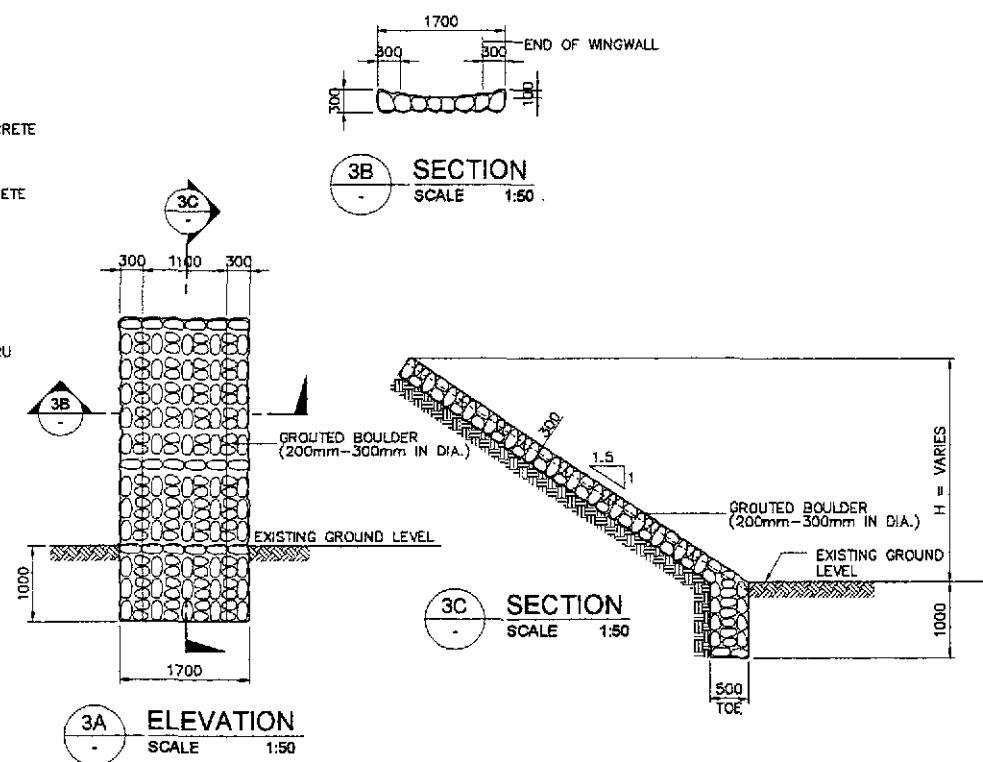
- RUBBLE CONCRETE SHALL BE CLASS "B" (1:2.5:5) MIX CONCRETE WITH BOULDERS EMBEDDED THEREIN. BOULDERS 250-300mm SHALL BE CAREFULLY HAND-LAID WITHIN THE CONCRETE SECTION. THE BOULDERS SHALL BE THOROUGHLY INCORPORATED INTO THE CONCRETE MASS WITH A COVER OF 30mm AND NOT LESS THAN 30mm APART. THE RUBBLE CONCRETE SHALL BE COMPOSED OF 40% CLASS "B" CONCRETE 60% BOULDERS.
- FOR THE LOOSE BOULDER APRON, BOULDERS 400-500mm SHALL BE HAND-LAID, CLOSE TOGETHER AND SHALL BE FIRMLY BEDDED. ALL VOIDS BETWEEN BOULDERS SHALL BE FILLED WITH GRAVEL AND THE JOINTS FILLED WITH TIGHTLY DRIVEN SPALLS.
- CURTAIN WALLS SHALL BE USED AT BOTH ENDS OF THE LOOSE BOULDER APRON BANK PROTECTION WORKS. BOULDERS SHALL BE CAREFULLY HAND-LAID AND EMBEDDED INTO THE CONCRETE SECTION.
- NO CONCRETING UNDER WATER SHALL BE PERMITTED.
- PROVIDE 1.0 m. BERM WHEN HEIGHT (H) IS > 4.0 m.

GENERAL NOTES:

- GRouted RIPRAP (250mm-300mm DIA.) SHALL BE USED FOR THE FACING AND SHALL BE CAREFULLY HANDLAID WITH THE LONGEST DIMENSIONS PERPENDICULAR TO THE SLOPE AND FIRMLY BEDDED INTO THE SLOPE AND ADJACENT TO THE ADJOINING BOULDERS SPACED BETWEEN THE BOULDERS. THE SPACE BETWEEN THE BOULDERS SHALL BE COMPLETELY FILLED WITH MORTAR. THE OUTSIDE SURFACE OF THE BOULDERS SHALL BE LEFT EXPOSED AND THE SURFACE OF THE MORTAR SHALL BE SWEEPED WITH A STIFF BROOM.
- GEOTEXTILE  
THE FOLLOWING SPECIFICATIONS ARE REQUIRED:
  - POLYESTER OR POLYPROPYLENE - 100%
  - MECHANICALLY BONDED/HEAT BONDED
  - NON-WOVEN
  - EFFECTIVE OPENING SIZE - 110 MICRONS (MAX.)
  - THICKNESS UNDER PRESSURE - 0.80mm (MIN.)
  - WEIGHT - 200g/sq. m. (MIN.)
  - CSR PUNCTURE STRENGTH - 400N (MIN.)
  - MULTI-DIRECTIONAL TENSILE STRENGTH - 13KN/m
- GRAVEL FILTER SHALL BE COARSE AGGREGATES MATERIALS WHICH SATISFY THE REQUIREMENTS FOR ITEM 405, STRUCTURAL CONCRETE, GRADING B OF TABLE 405.1 AS REVISED.
- HAND-LAID ROCK SHALL BE MORE THAN 0.015cu.m. IN VOLUME AND SHALL CONSIST 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.



2 CAPPING AND SHEET PILE CONNECTIONS  
SCALE 1:30



3 TYPICAL SIDE DRAIN DETAIL  
SCALE AS SHOWN

VELOCITY (m/sec)	ROCK SIZE (mm)	
	VERY TURBULENT FLOW	SMOOTH FLOW
1.00	40	-
1.50	135	-
2.00	170	-
2.50	255	137
3.00	370	197
3.50	515	270
4.00	690	350
4.50	825	425
5.00	>900	590

LOCATION	SIZES	QUANTITY	
		ABUT. A1	ABUT. A2
BORED PILE	#800mm	6	6
GRouted RIPRAP	250mm-300mm IN DIA.	19.56	19.56
RUBBLE CONCRETE	250mm-300mm IN DIA.	20.08	20.08
SIDE DRAIN	200mm-300mm IN DIA.	6.12	6.12

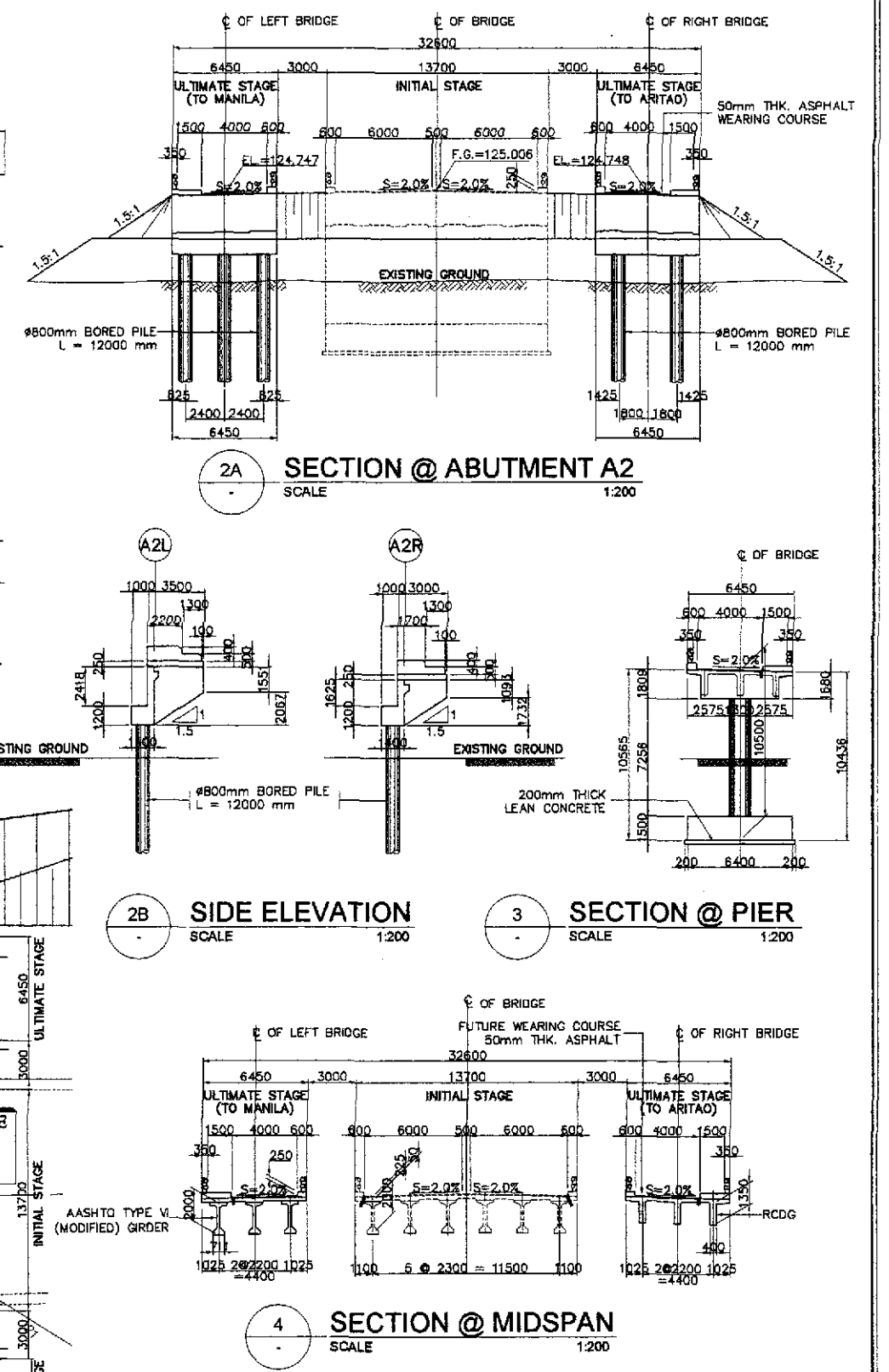
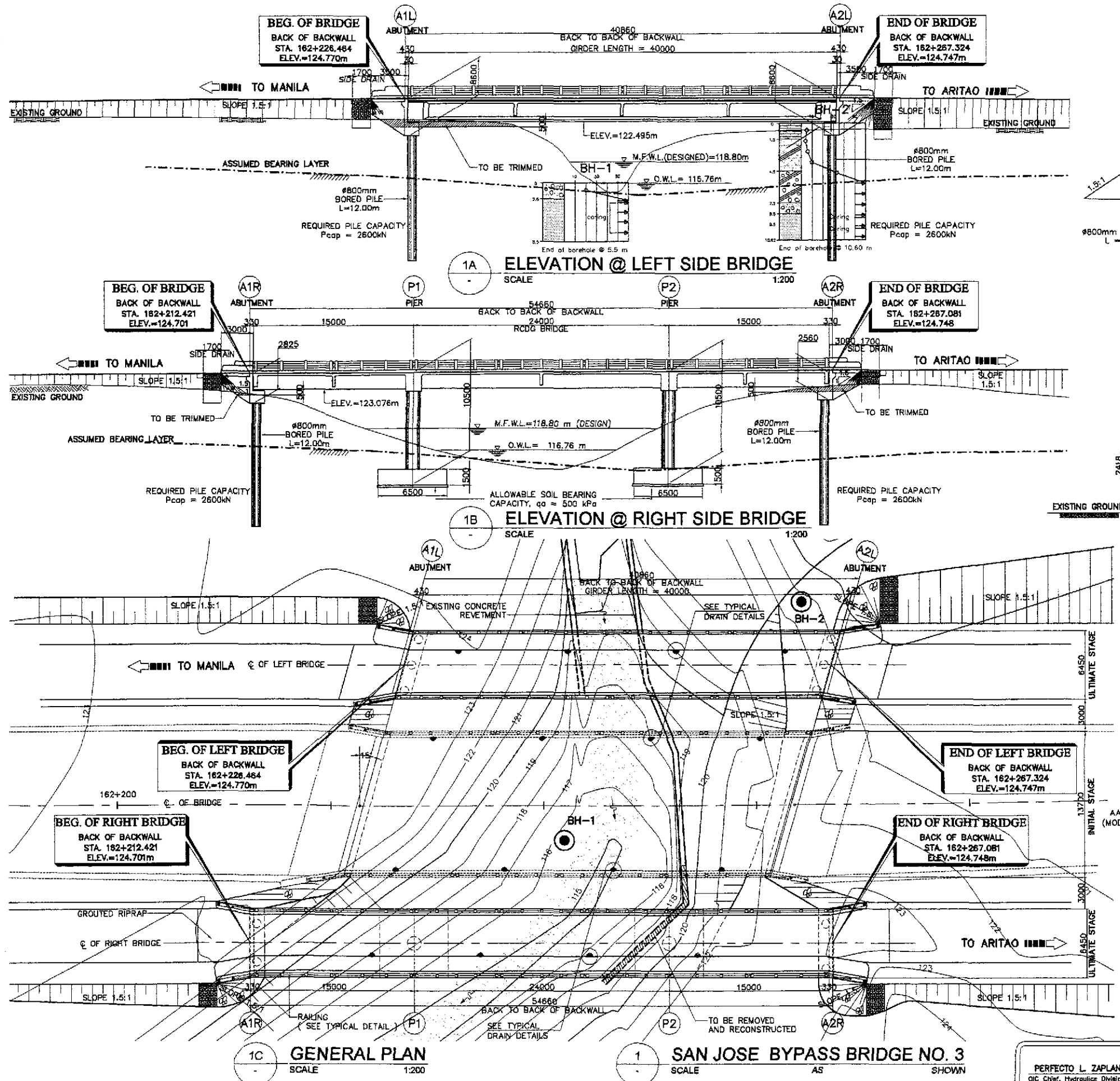
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KATAHIRA & ENGINEERS YBEI INTERNATIONAL YACHIOI ENGINEERING CO., LTD.

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 (Paridel, Cabanatuan and San Jose Bypasses)  
SAN JOSE BYPASS

SCALE: AS SHOWN FULL SIZE A1  
SHEET CONTENTS: BRIDGE NO. 2 ABUTMENT PROTECTION AND SIDE DRAIN DETAILS (ULTIMATE STAGE)  
SHEET NO.: B2-09

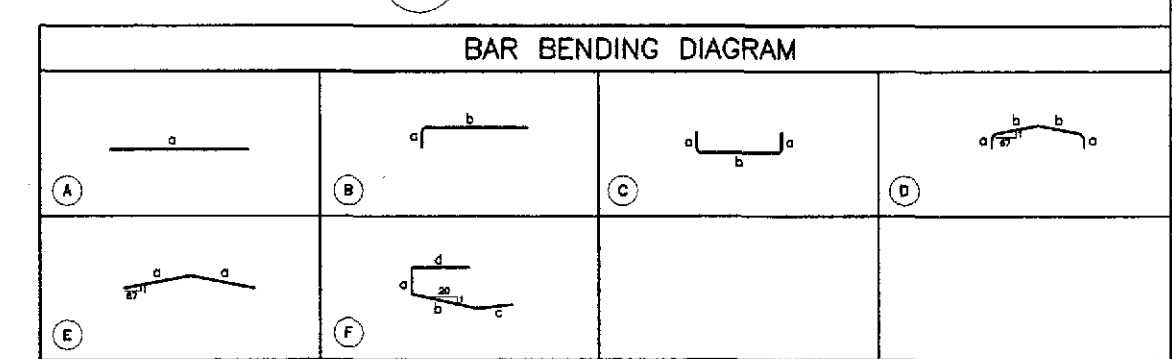
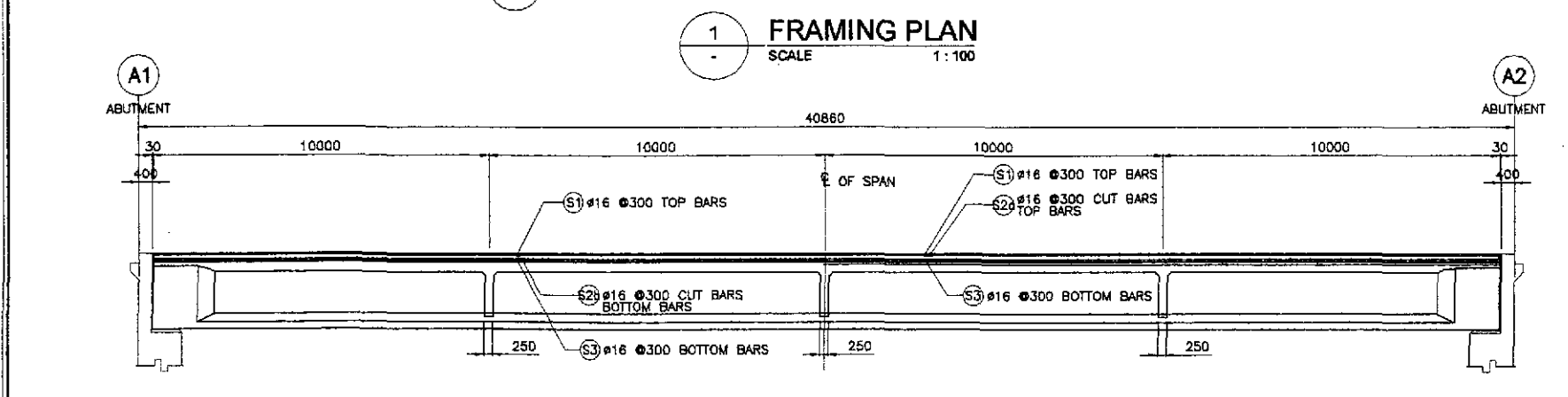
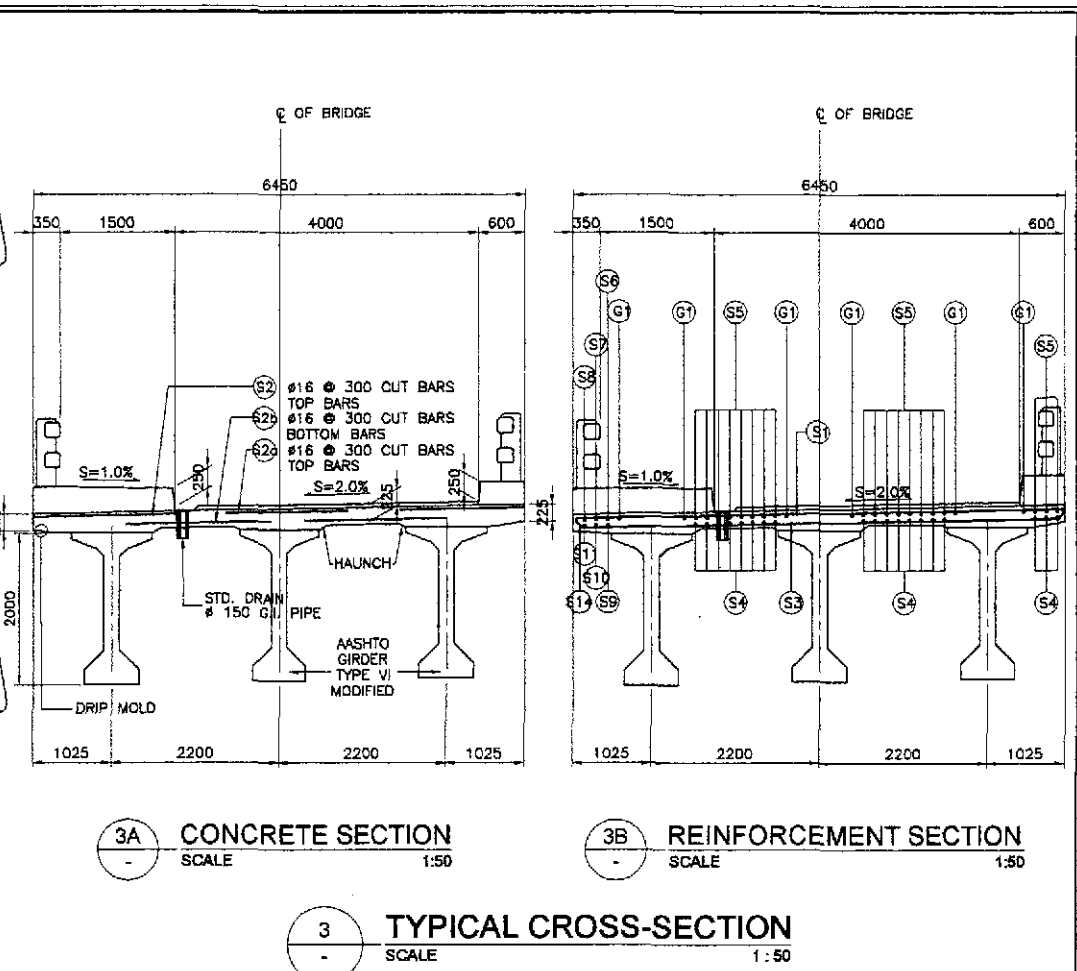
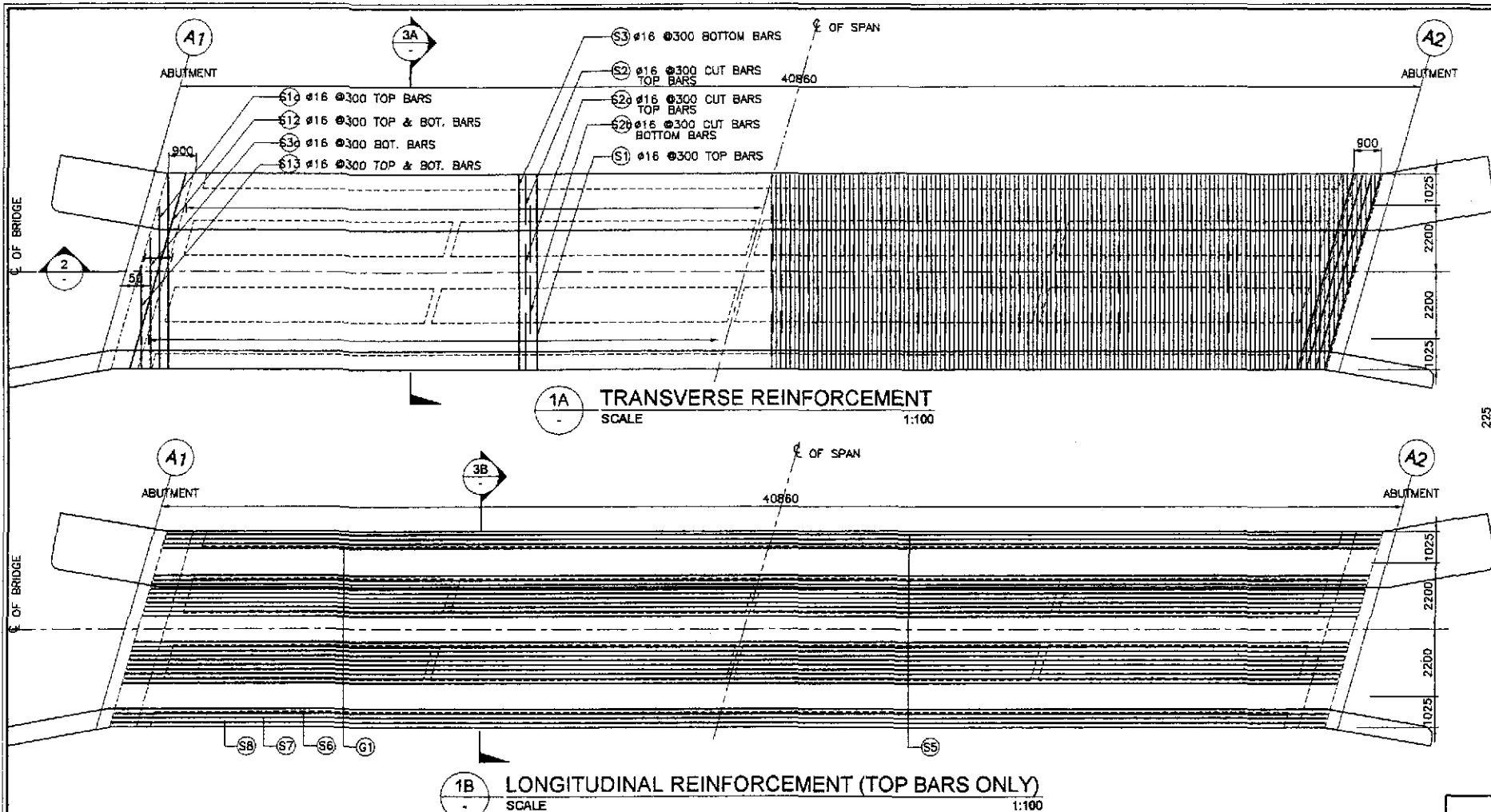
DESIGNED: 9/20/02 F. GONZALES  
CHECKED: 9/24/02 M. BONDAN  
SUBMITTED: 9/24/02 M. BONDAN  
DATE: 9/20/02  
SIGNATURE: F. GONZALES  
PROJECT DIRECTOR: DANILO C. TRAJANO  
CHIEF, HYDRAULIC DIVISION (OIC): PERFECTO L. ZAPLAN JR.  
DIRECTOR IV (OIC): GILBERTO S. REYES  
UNDERSECRETARY: MANUEL M. BONDAN  
SECRETARY: SIMEON A. DATUMANONG



HYDRAULIC DATA	
WITHIN IRRIGATION CANAL	-

NOTE :  
PRIOR TO CONSTRUCTION SOIL INVESTIGATION AT ABUTMENT A1 SHALL BE CONDUCTED FOR CONFIRMATION OF ASSUMED BEARING CAPACITY AND FOOTING ELEVATION.

 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 :	SHEET CONTENTS :	SHEET NO. :
DESIGNED	DATE	SIGNATURE	BUREAU OF DESIGN		OFFICE OF THE SECRETARY		AS SHOWN	BRIDGE NO. 3 GENERAL PLAN, ELEVATION AND SECTIONS (ULTIMATE STAGE)	B3-01	
CHECKED	9/7/02	<i>[Signature]</i>	Submitted By:	Reviewed By:	Recommended By:	Approved By:	FULL SIZE A1			
SUBMITTED	9/10/02	<i>[Signature]</i>	DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (GIC)	SIMEON A. DATUMANONG Secretary				



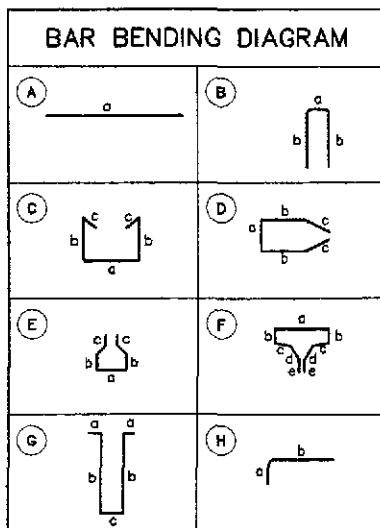
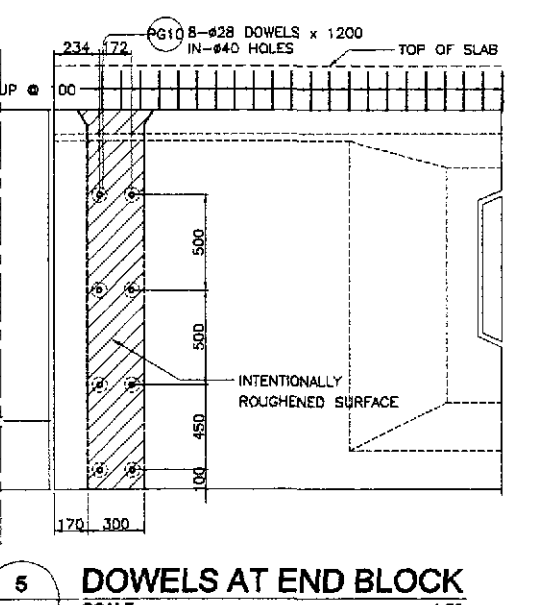
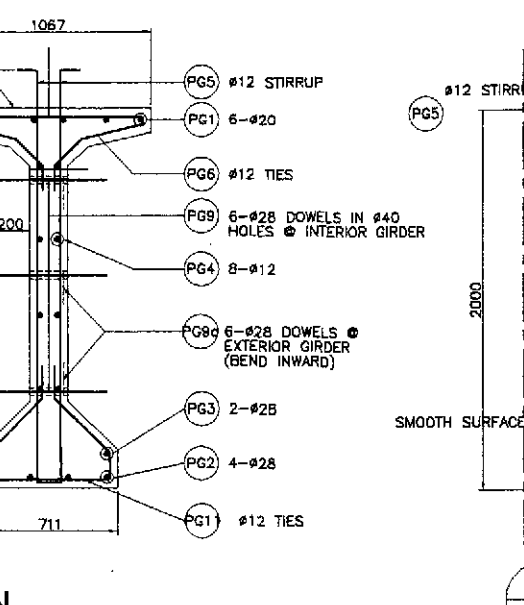
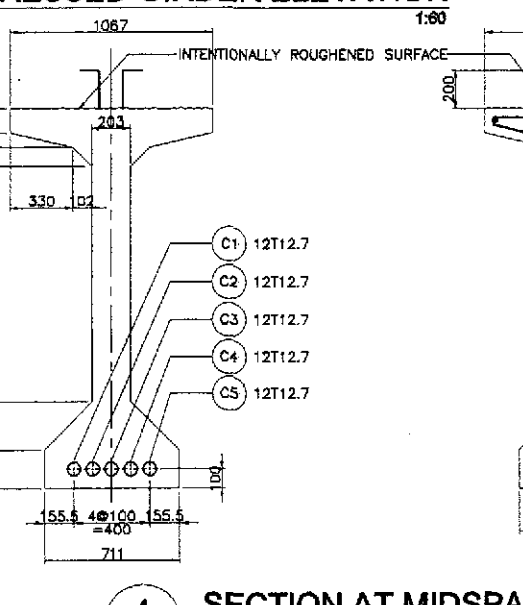
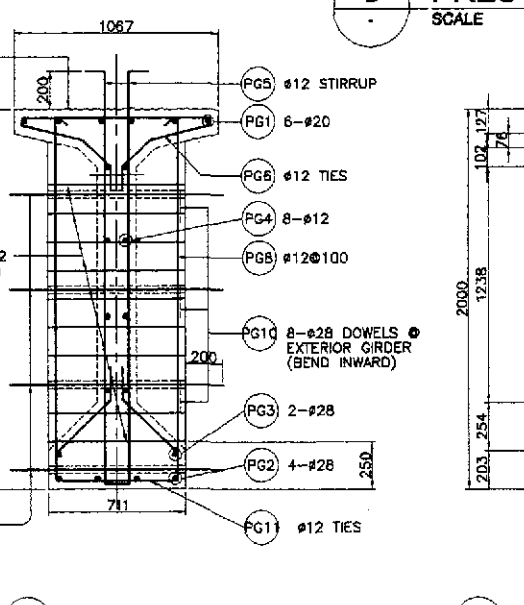
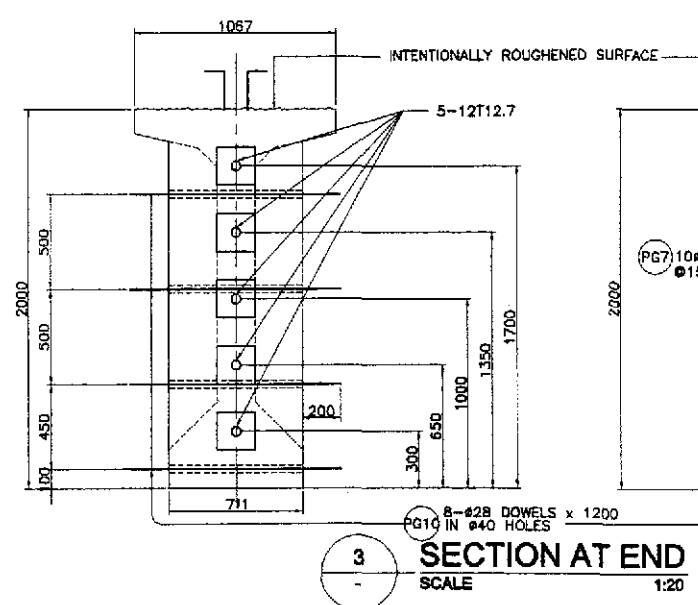
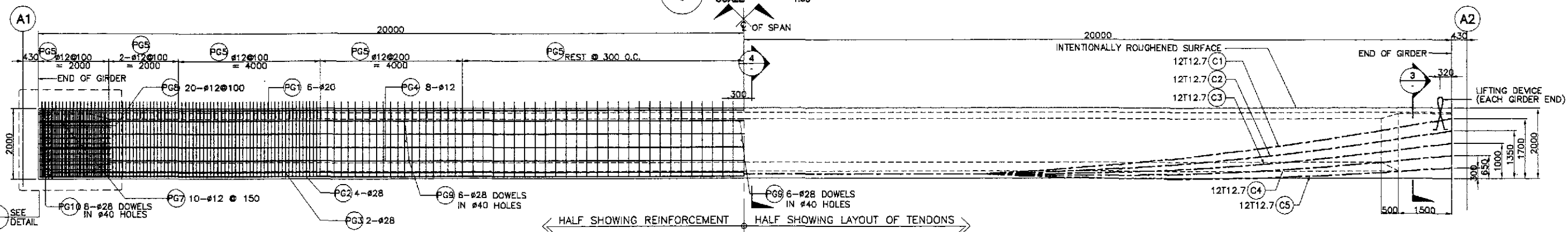
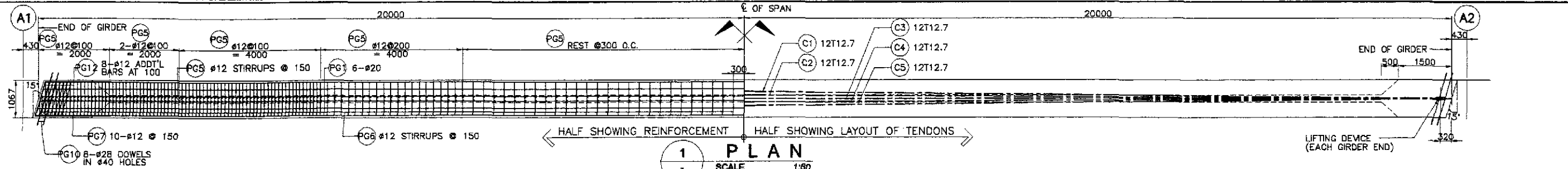
**2 LONGITUDINAL SECTION**  
SCALE 1:100

ESTIMATED QUANTITIES OF SUPERSTRUCTURE			
ITEM NO.	DESCRIPTION	UNIT	TOTAL
404(1)a	REINFORCING STEEL GRADE 40	KGS.	13102
	DECK SLAB		8461
	DIAPHRAGM		295
	SIDEWALK, RAILING, & POST		3720
	APPROACH SLAB		606
404(1)b	REINFORCING STEEL GRADE 60	KGS.	3637
	DECK SLAB		0
	DIAPHRAGM		797
	SIDEWALK, RAILING, & POST		706
	APPROACH SLAB		2132
405(1)	STRUCTURAL CONCRETE	CUM	119.31
	DECK SLAB		68.71
	DIAPHRAGM		10.25
	SIDEWALK, RAILING, & POST		24.50
	APPROACH SLAB		15.85

SCHEDULE OF REINFORCEMENT															
LOCATION	CONCRETE VOLUME (M <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)
							a	b	c	d					
DECK SLAB	68.71	G1	16	12	AS SHOWN	(A)	39920	-	-	-	39920	479.04	1.579	757	123.44
		S1	16	128	300	(C)	145	6370	-	-	6660	852.48	1.579	1347	
		S1a	16	14	300	(C)	145	3750	-	-	4040	56.56	1.579	90	
		S2	16	256	300	(A)	1775	-	-	-	1775	454.40	1.579	718	
		S2a	16	128	300	(A)	1600	-	-	-	1600	204.80	1.579	324	
		S2b	16	256	300	(A)	1150	-	-	-	1150	294.40	1.579	465	
		S3	16	128	300	(A)	6370	-	-	-	6370	815.36	1.579	1298	
		S3a	16	14	300	(A)	3750	-	-	-	3750	52.50	1.579	83	
		S4	16	19	150	(A)	39920	-	-	-	39920	758.48	1.579	1198	
		S5	16	19	150	(A)	39920	-	-	-	39920	758.48	1.579	1198	
		S6	16	1	AS SHOWN	(A)	39920	-	-	-	39920	39.92	1.579	64	
		S7	16	1	AS SHOWN	(A)	39920	-	-	-	39920	39.92	1.579	64	
		S8	16	1	AS SHOWN	(A)	39920	-	-	-	39920	39.92	1.579	64	
		S9	16	1	AS SHOWN	(A)	39920	-	-	-	39920	39.92	1.579	64	
S10	16	1	AS SHOWN	(A)	39920	-	-	-	39920	39.92	1.579	64			
S11	16	1	AS SHOWN	(A)	39920	-	-	-	39920	39.92	1.579	64			
S12	16	16	300	(A)	6620	-	-	-	6620	105.92	1.579	168			
S13	16	28	300	(A)	3750	-	-	-	3750	105.00	1.579	166			
S14	12	180	450	(F)	145	500	800	300	1845	332.10	0.888	295			
TOTAL	68.71														

GRADE 40 TOTAL = 8,481.00 KGS.

	DESIGNED	9/7/12	E. M. SALLAN		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :			
	CHECKED	9/9/12	[Signature]		BUREAU OF DESIGN	OFFICE OF THE SECRETARY	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)						AS SHOWN	BRIDGE NO. 3 DECK FRAMING PLAN AND SECTIONS (LEFT PORTION)	B3-02
	SUBMITTED	9/11/12	[Signature]		Project Director	Chief, Bridge Division	Director IV (OIC)	Undersecretary	Secretary	FULL SIZE A1					



SCHEDULE OF REINFORCEMENT		DIMENSION (mm) OUT TO OUT										TOTAL LENGTH (m)		UNIT WEIGHT (kg/m)		WEIGHT (kg)		REBAR RATIO (kg/m <sup>3</sup> )	
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	a	b	c	d	e	EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)				
GIRDER	32.07	PG1	20	6	AS SHOWN	(A)	39920	-	-	-	-	39920	239.52	2.466	591			155.73	
		PG2	28	4	AS SHOWN	(A)	39920	-	-	-	-	39920	159.68	4.833	772				
		PG3	28	2	AS SHOWN	(A)	39920	-	-	-	-	39920	79.84	4.833	386				
		PG4	12	8	AS SHOWN	(A)	39920	-	-	-	-	39920	319.36	0.888	284				
		PG5	12	294	150	(G)	210	2150	103	-	-	-	4823	1417.96	0.888	1260			
		PG6	12	294	150	(F)	1000	50	340	200	150	-	2480	729.12	0.888	648			
		PG7	12	20	150	(D)	635	1450	550	-	-	-	4835	92.70	0.888	83			
		PG8	12	40	100	(C)	635	1950	150	-	-	-	4835	193.40	0.888	172			
		PG9	28	18	AS SHOWN	(A)	603	-	-	-	-	-	603	10.85	4.833	53			
		PG10	28	16	AS SHOWN	(A)	1200	-	-	-	-	-	1200	19.20	4.833	93			
		PG11	12	294	150	(E)	635	180	550	150	-	-	2355	692.37	0.888	615			
		PG12	12	16	100	(B)	635	1900	-	-	-	-	2535	40.56	0.888	37			
TOTAL	32.07											GRADE 40 TOTAL = 3,099 kgs		GRADE 60 TOTAL = 1,895 kgs					

- NOTES:
- SEE GENERAL NOTES, -2, FOR GIRDER DESIGN GUIDE.
  - JACKING FORCE PER GIRDER, P; = 8261 KN.
  - JACKING WILL BE DONE AT BOTH ENDS.
  - FINAL PRESTRESSING FORCE @ MIDSPAN, FNET = 6122 KN.

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS YEO YACHIO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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

SCALE: AS SHOWN FULL SIZE A1

SHEET CONTENTS: BRIDGE NO. 3 AASHTO TYPE-VI GIRDER (MODIFIED) (LEFT PORTION)

SHEET NO.: B3-03

DESIGNED: E. N. SALLAN

CHECKED: [Signature]

SUBMITTED: [Signature]

DATE: 9/12/20

PROJECT DIRECTOR: DANILO C. TRAJANO

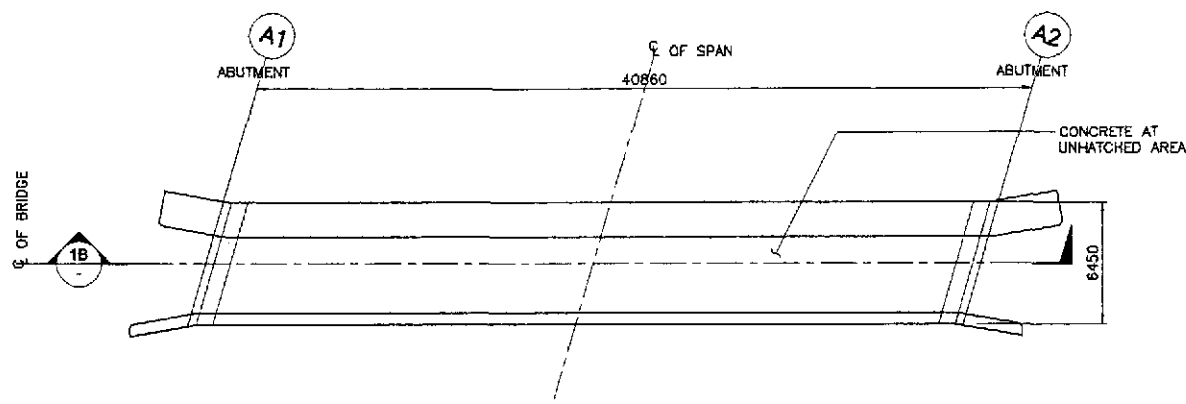
CHIEF, BRIDGES DIVISION: ADRIANO M. DOROY

DIRECTOR IV (OIC): QLBERTO S. REYES

UNDERSECRETARY: MANUEL M. BORDIAN

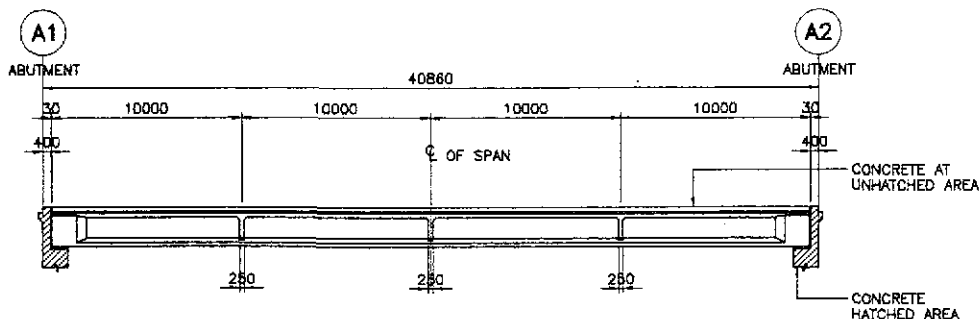
SECRETARY: SIMEON A. DATUMANONG





1A PLAN  
SCALE 1:200

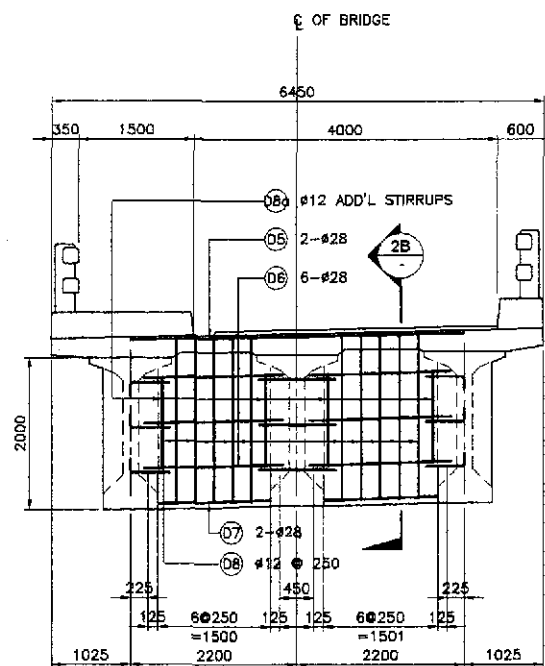
- NOTES:
- CONCRETE AT HATCHED AREAS SHALL BE PLACED AT LEAST TWENTY ONE (21) DAYS AHEAD OF CONCRETE AT UNHATCHED AREAS.
  - REINFORCEMENT SHALL BE CONTINUOUS AT CONSTRUCTION JOINTS.



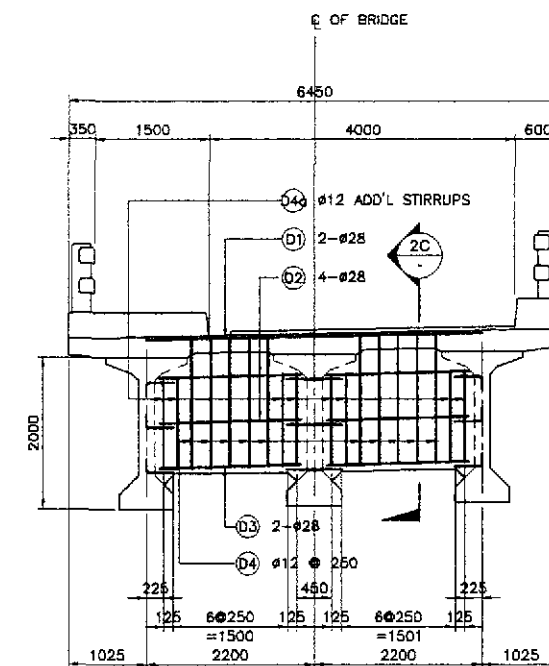
1B LONGITUDINAL SECTION  
SCALE 1:200

1 CONCRETE POURING SEQUENCE  
SCALE 1:200

BAR BENDING DIAGRAM																
		A			B			C								
SCHEDULE OF REINFORCEMENT																
STRUCTURE COMPONENT	LOCATION	CONCRETE VOLUME (M <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (KG/M)	WEIGHT IN (KG)	REBAR RATIO (KG/M <sup>3</sup> )
DIAPHRAGM	INTERMEDIATE DIAPHRAGM	5.29	D1	28	6	AS SHOWN	(A)	4400	-	-	-	4400	26.40	4.833	128	124.96
			D2	28	24	AS SHOWN	(A)	2050	-	-	-	2050	49.20	4.833	238	
			D3	28	12	AS SHOWN	(A)	2050	-	-	-	2050	24.60	4.833	119	
			D4	12	30	250	(C)	150	1795 (AVE.)	150	-	-	4190	125.70	0.888	
	D4a	12	24	AS SHOWN	(C)	150	1200	150	-	-	3000	72.00	0.888	64		
	D5	28	4	AS SHOWN	(A)	4400	-	-	-	-	4400	17.60	4.833	86		
	D6	28	24	AS SHOWN	(A)	1450	-	-	-	-	1450	34.80	4.833	169		
	D7	28	8	AS SHOWN	(A)	1450	-	-	-	-	1450	11.60	4.833	57		
END DIAPHRAGM	4.96	D8	12	20	250	(C)	200	2145 (AVE.)	150	-	-	4990	99.80	0.888	89	86.90
		D8a	12	8	AS SHOWN	(C)	200	1700	150	-	-	4100	32.80	0.888	30	
		GRADE 40 TOTAL = 295 Kgs. GRADE 60 TOTAL = 797 Kgs.														
TOTAL		10.25														

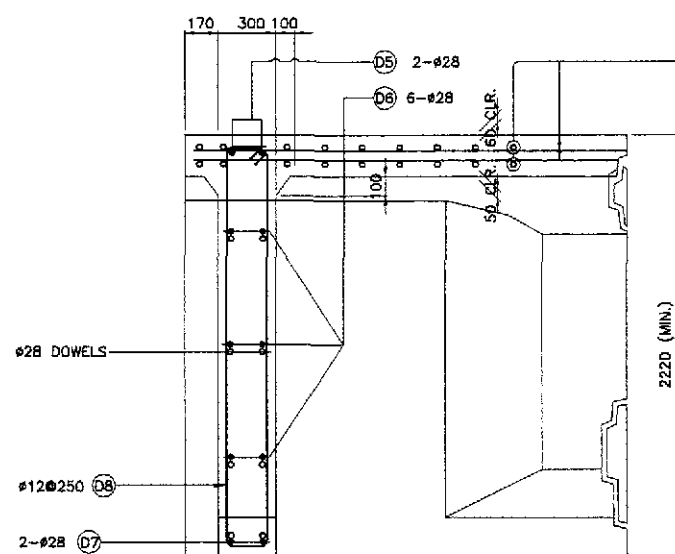


END DIAPHRAGM

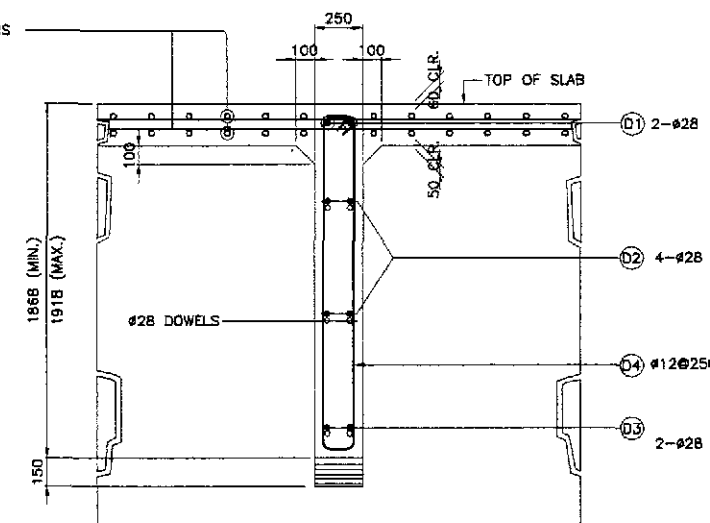


INTERMEDIATE DIAPHRAGM

2A ELEVATION  
SCALE 1:50



2B SECTION  
SCALE 1:20

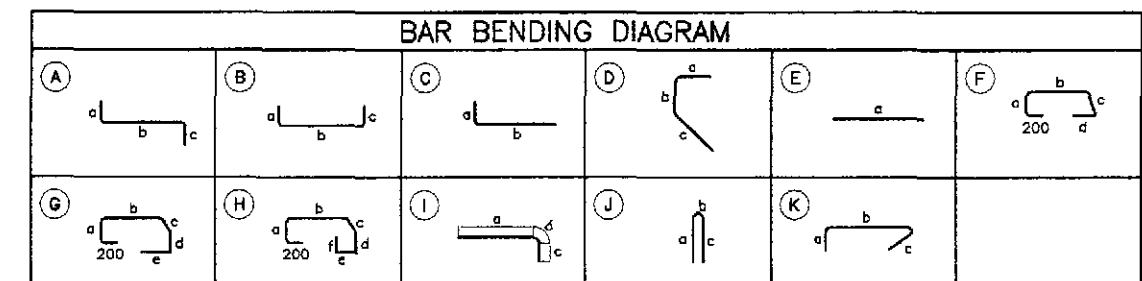
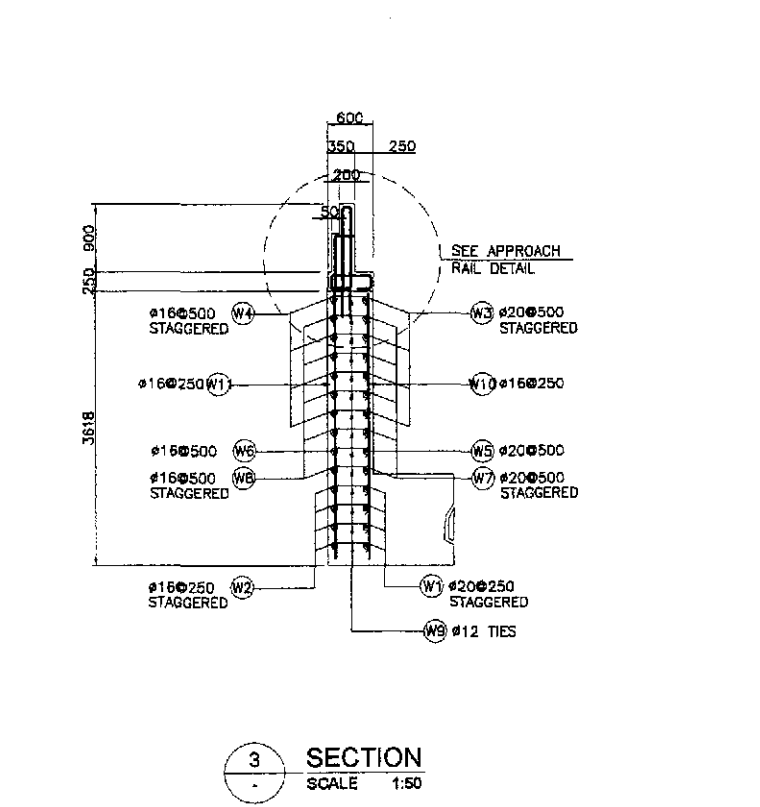
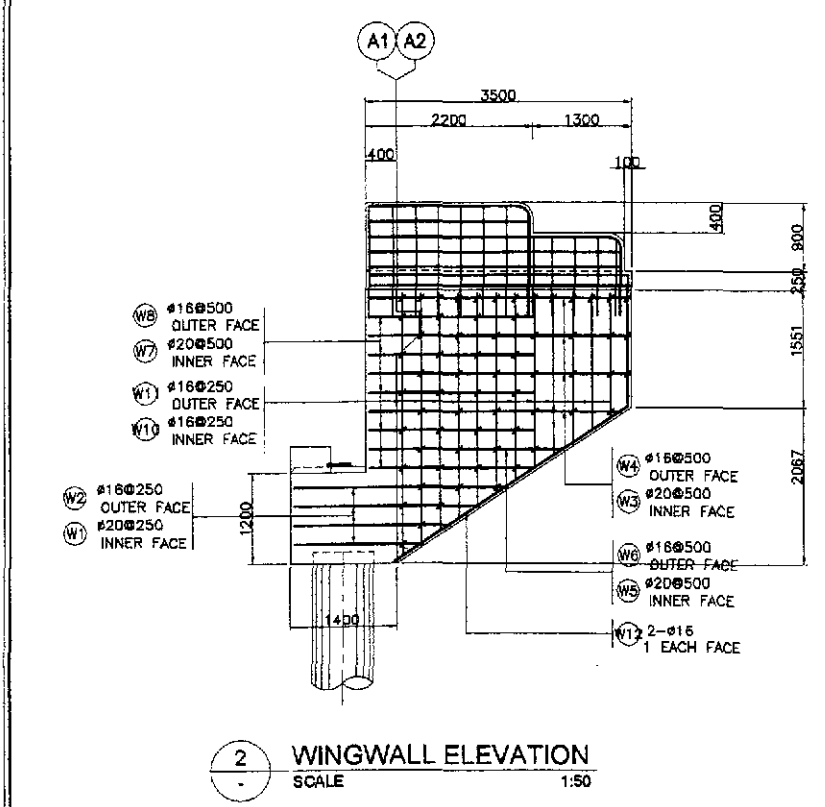
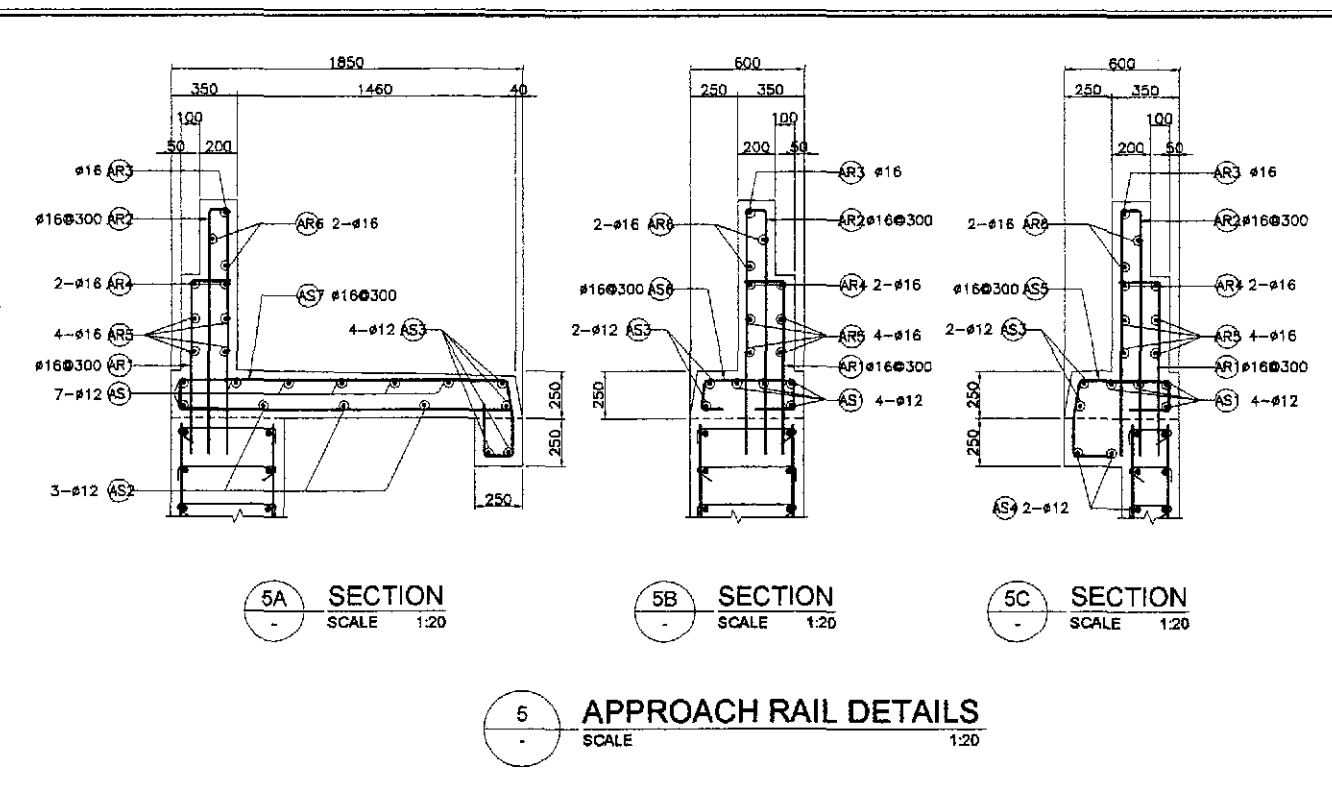
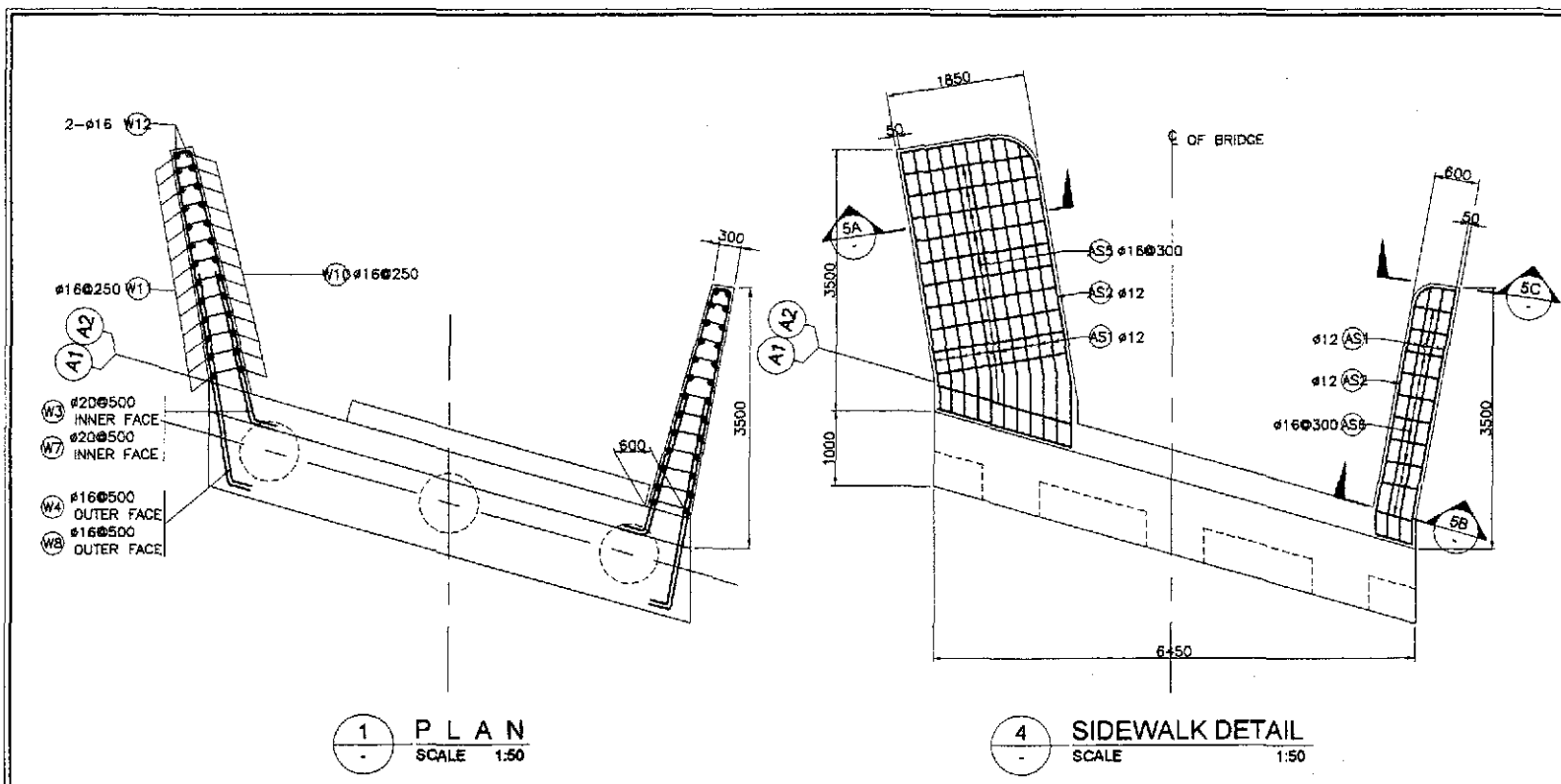


2C SECTION  
SCALE 1:20

2 DETAIL OF END AND INTERMEDIATE DIAPHRAGM  
SCALE AS SHOWN

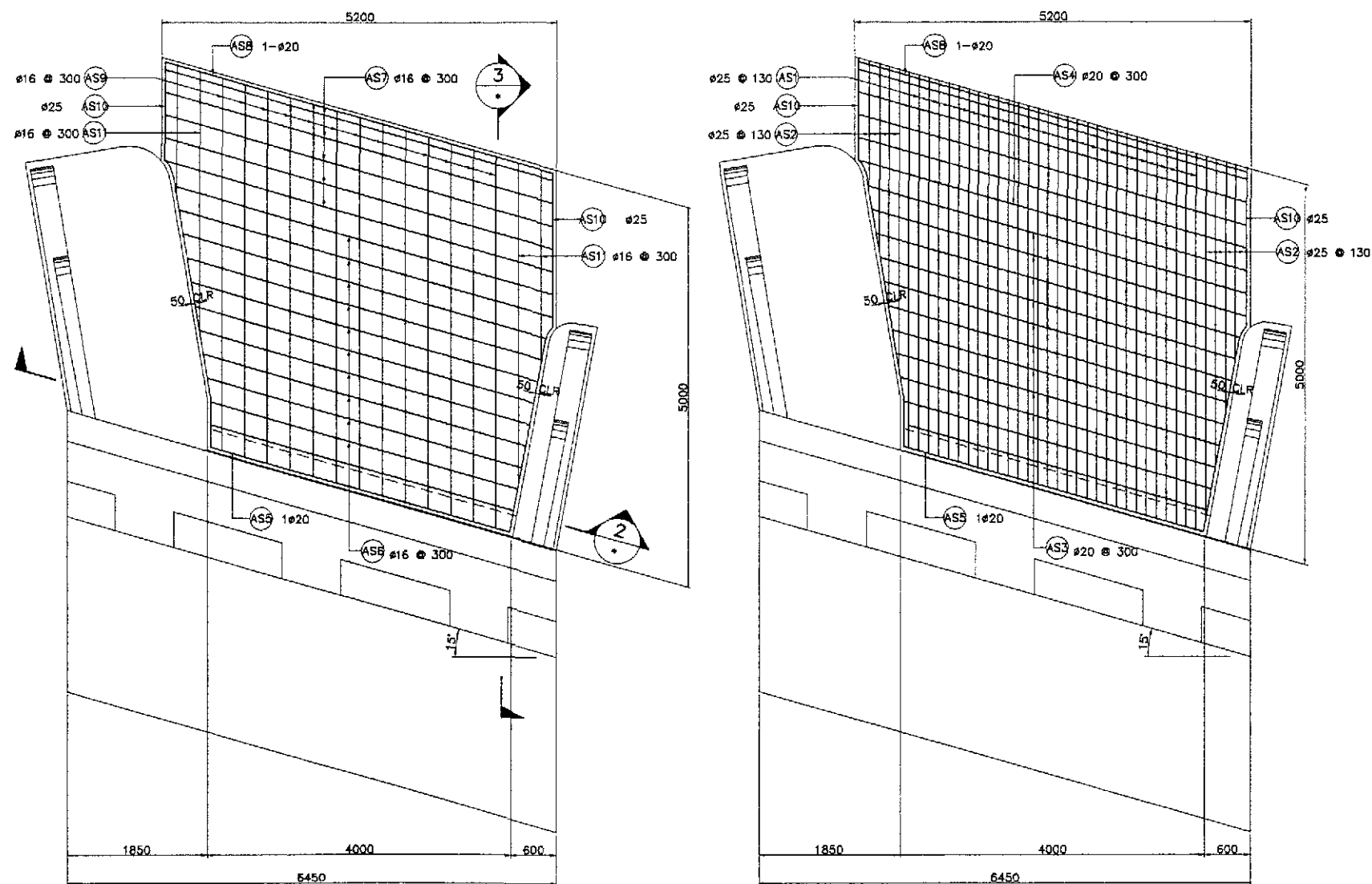






SCHEDULE OF REINFORCEMENT PER ABUTMENT																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE (DIA.)	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm)				LENGTH EA. BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)	
							a	b	c	d						
WINGWALL	6.93	W1	20	8	250	(A)	250	2500(ovr)	400	-	-	-	3150	25.20	2.466	63
		W2	16	8	250	(B)	250	2500(ovr)	400	-	-	-	3150	25.20	1.579	40
		W3	20	8	500	(A)	250	3600	400	-	-	-	4250	34.00	2.466	84
		W4	16	8	500	(B)	250	4300	400	-	-	-	4950	39.60	1.579	63
		W5	20	2	500	(A)	250	2600	400	-	-	-	3250	6.50	2.466	17
		W6	16	2	500	(B)	250	2600	400	-	-	-	3250	6.50	1.579	11
		W7	20	10	500	(C)	400	2200	-	-	-	-	2600	26.00	2.466	65
		W8	16	10	500	(C)	400	2200	-	-	-	-	2600	26.00	1.579	42
		W9	12	112	AS SHOWN	(K)	170	450(ovr)	170	-	-	-	790	88.48	0.888	79
		W10	16	24	250	(B)	250	2800	250	-	-	-	3300	79.20	1.579	126
		W11	16	24	250	(B)	250	2800	250	-	-	-	3300	79.20	1.579	126
		W12	16	4	AS SHOWN	(D)	3400	1350	3600	-	-	-	8350	33.40	1.579	53
APPROACH SIDEWALK	2.77	AS1	12	11	AS SHOWN	(A)	3500	-	-	-	-	3500	38.50	0.888	35	
		AS2	12	3	AS SHOWN	(E)	3500	-	-	-	-	3500	10.50	0.888	10	
		AS3	12	6	AS SHOWN	(E)	3500	-	-	-	-	3500	21.00	0.888	19	
		AS4	12	2	AS SHOWN	(E)	3500	-	-	-	-	3500	7.00	0.888	7	
		AS5	16	10	300	(G)	170	460	200	170	200	-	1400	14.00	1.579	23
		AS6	16	3	300	(F)	170	460	200	200	-	-	1230	3.69	1.579	6
		AS7	16	13	300	(H)	170	1710	200	170	170	300	2920	37.96	1.579	60
APPROACH RAILING	1.41	AR1	16	10	300	(C)	900	200	-	-	-	1100	11.00	1.579	18	
		AR2	16	14	300	(J)	1300	120	1300	-	-	-	2720	38.08	1.579	61
		AR3	16	2	AS SHOWN	(I)	2100	236	900	-	-	-	3236	6.47	1.579	11
		AR4	16	2	AS SHOWN	(I)	3300	236	1300	-	-	-	4836	9.67	1.579	16
		AR5	16	10	200	(E)	3400	-	-	-	-	-	3400	34.00	1.579	54
AR6	16	4	200	(E)	2100	-	-	-	-	-	2100	8.40	1.579	14		
TOTAL	11.11															

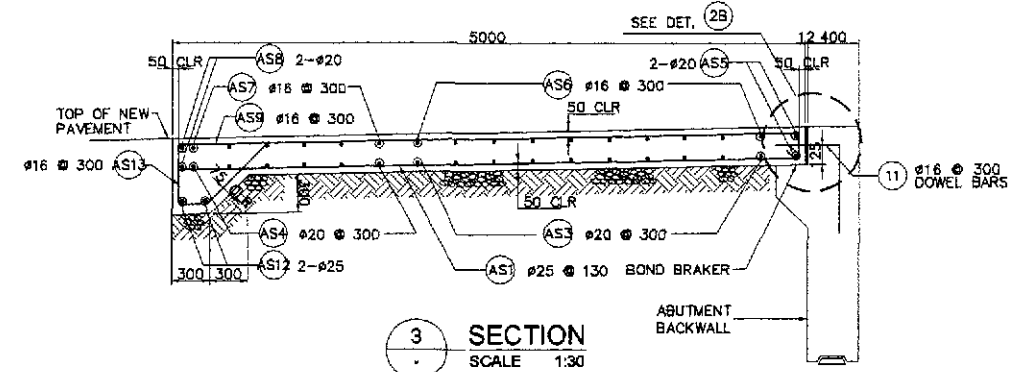
GRADE 40 TOTAL = 874 kgs.  
GRADE 60 TOTAL = 229 kgs.



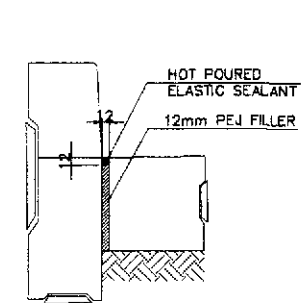
1A SHOWING TOP BARS

1B SHOWING BOTTOM BARS

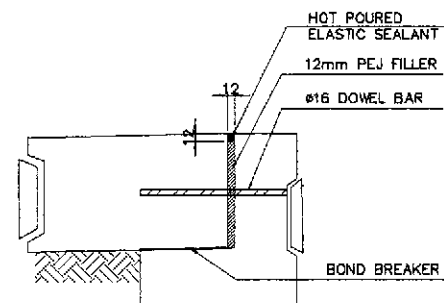
1 PLAN SCALE 1:40



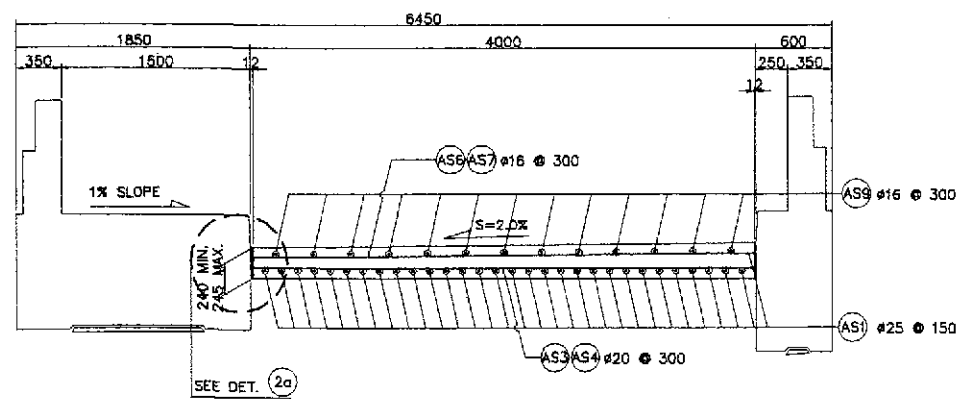
3 SECTION SCALE 1:30



2a DETAIL SCALE 1:10



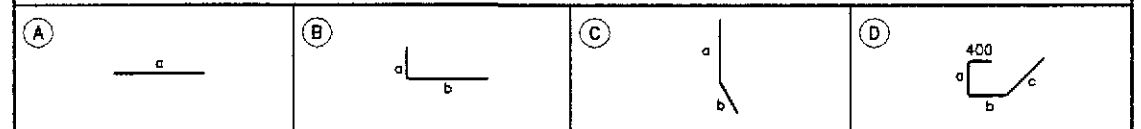
3a DETAIL SCALE 1:10



2 SECTION SCALE 1:30

A APPROACH SLAB DETAILS SCALE AS SHOWN

BAR BENDING DIAGRAM



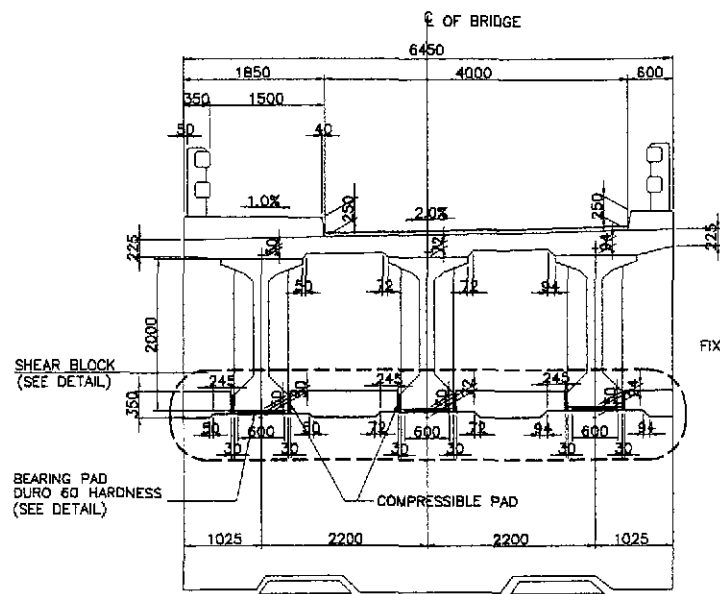
SCHEDULE OF REINFORCEMENT PER APPROACH SLAB

LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT						LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)
							a	b	c	d	e	f					
APPROACH SLAB	7.93	AS9	25	30	130	(B)	4900	200	-	-	-	-	5100	153.00	3.854	580	174.28
		AS10	25	8	130	(B)	3700	200	-	-	-	-	3900	31.20	3.854	121	
		AS11	20	11	300	(A)	4650	-	-	-	-	-	4650	51.15	2.466	127	
		AS12	20	5	300	(A)	5500	-	-	-	-	-	5500	27.50	2.466	68	
		AS13	20	2	AS SHOWN	(A)	4000	-	-	-	-	-	4000	8.00	2.466	20	
		AS14	16	11	300	(A)	4650	-	-	-	-	-	4650	51.15	1.579	81	
		AS15	16	5	300	(A)	5500	-	-	-	-	-	5500	27.50	1.579	44	
		AS16	20	2	AS SHOWN	(A)	5500	-	-	-	-	-	5500	11.00	2.466	28	
		AS17	16	13	300	(B)	4900	200	-	-	-	-	5100	66.30	1.579	105	
		AS18	25	4	AS SHOWN	(C)	2200	2800	-	-	-	-	5000	20.00	3.854	78	
		AS19	16	4	300	(B)	3700	200	-	-	-	-	3900	11.00	1.579	25	
		AS20	25	2	AS SHOWN	(A)	5500	-	-	-	-	-	5300	10.60	3.854	41	
		AS21	16	18	300	(D)	500	200	700	-	-	-	1800	32.40	1.579	52	
TOTAL	7.93																GRADE 40 TOTAL = 307 kgs. GRADE 80 TOTAL = 1,075 kgs.

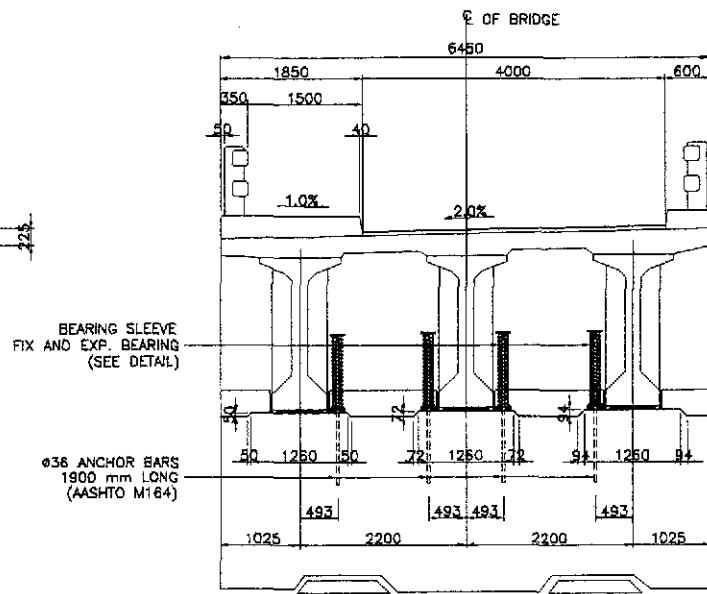
JICA  
JAPAN INTERNATIONAL COOPERATION AGENCY  
KATAMIRA & ENGINEERS  
YEC YACHIYO ENGINEERING CO., LTD.

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 N. DORCY, Chief, Bridges Division  
Recommended By: 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. 3 APPROACH SLAB PLAN, SECTIONS AND DETAILS (ULTIMATE STAGE) LEFT PORTION  
SHEET NO.: B3-07

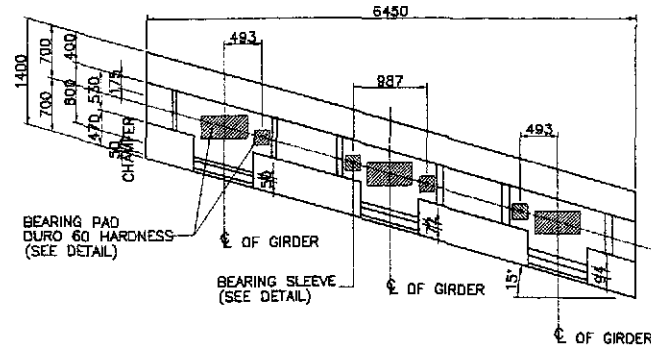


1A SHEAR KEY  
SCALE 1:50

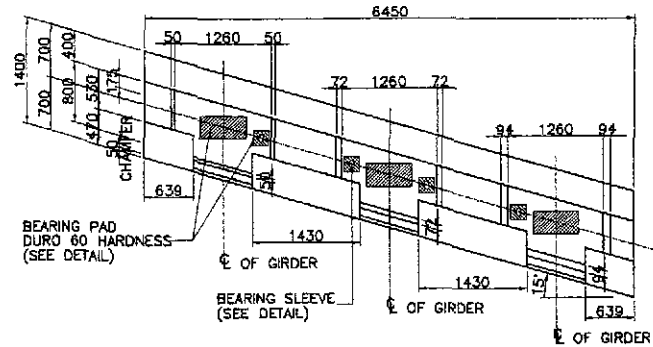


1B ANCHOR BARS  
SCALE 1:50

1 SECTION AT ABUTMENT SEAT  
SCALE 1:100

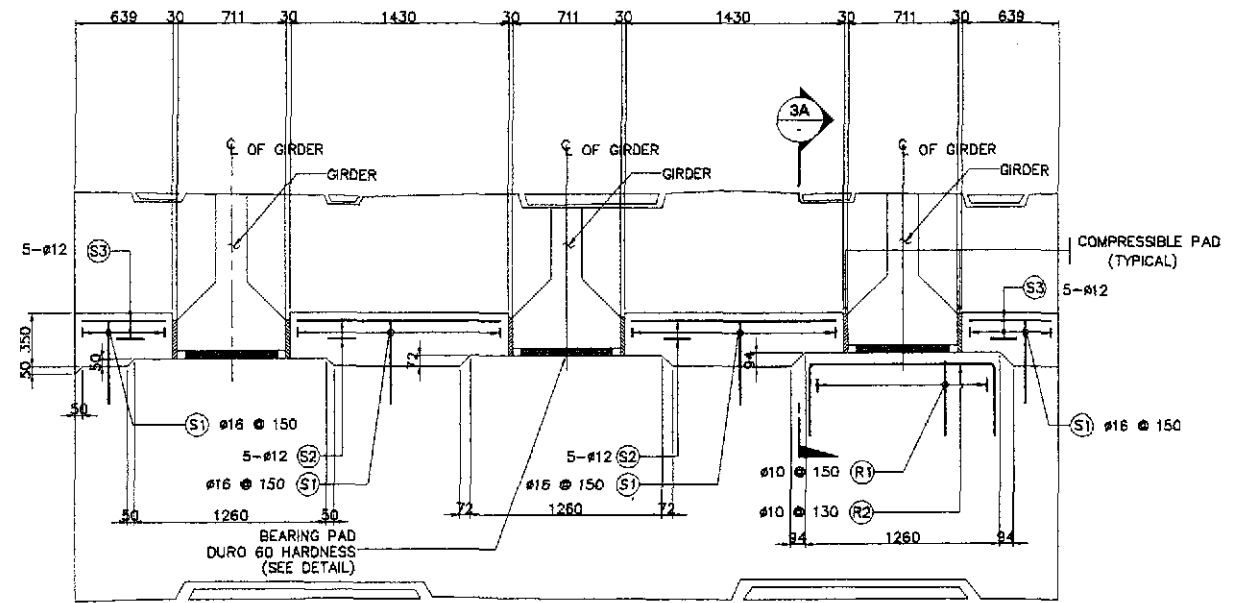


2A ABUTMENT @ FIX BEARING  
SCALE 1:50

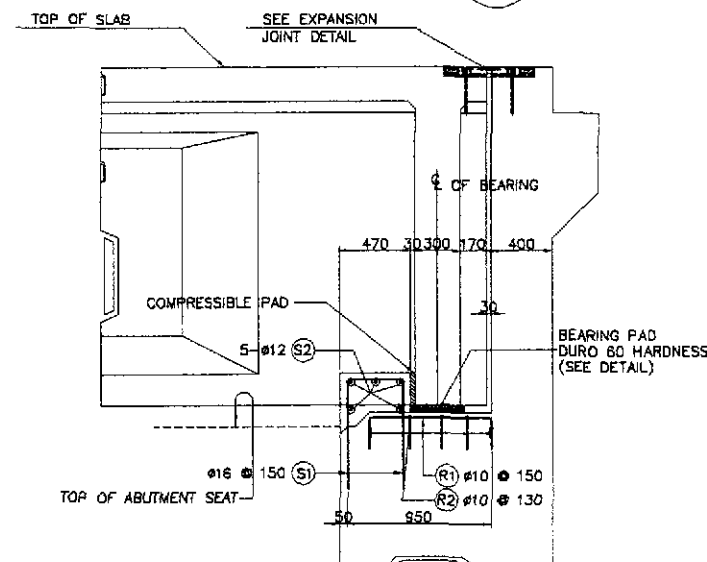


2B ABUTMENT @ EXP. BEARING  
SCALE 1:50

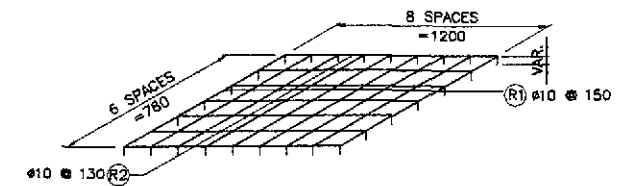
2 PLAN AT ABUTMENT SEAT  
SCALE 1:100



3 SHEAR BLOCK DETAIL  
SCALE 1:25



3A SECTION  
SCALE 1:25

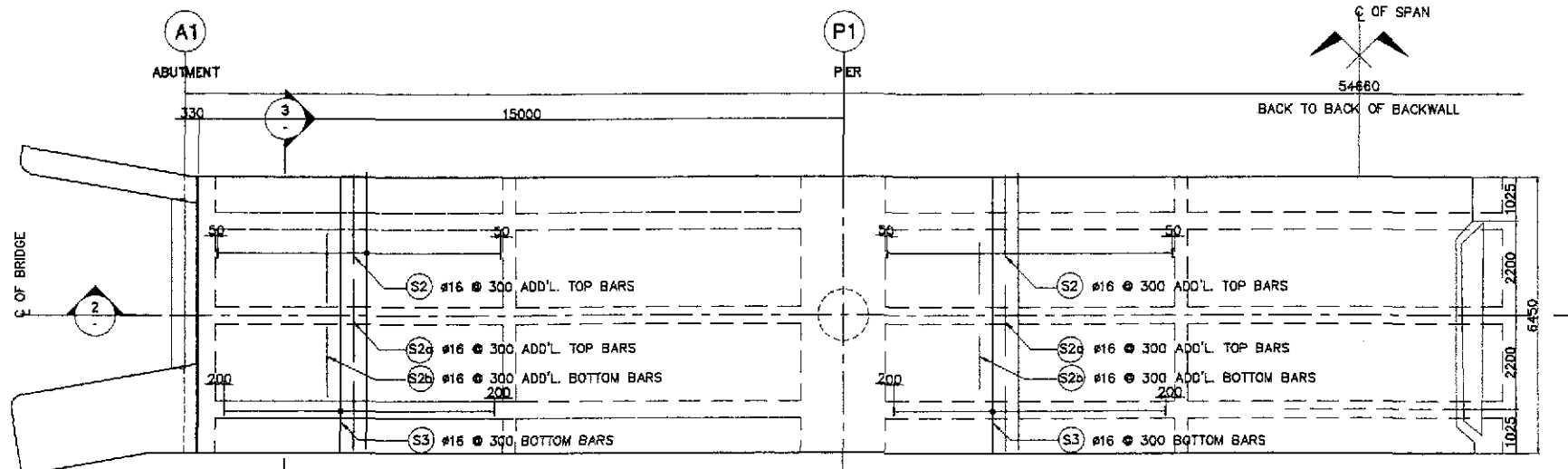


4 RISER REINFORCEMENT  
NOT TO SCALE

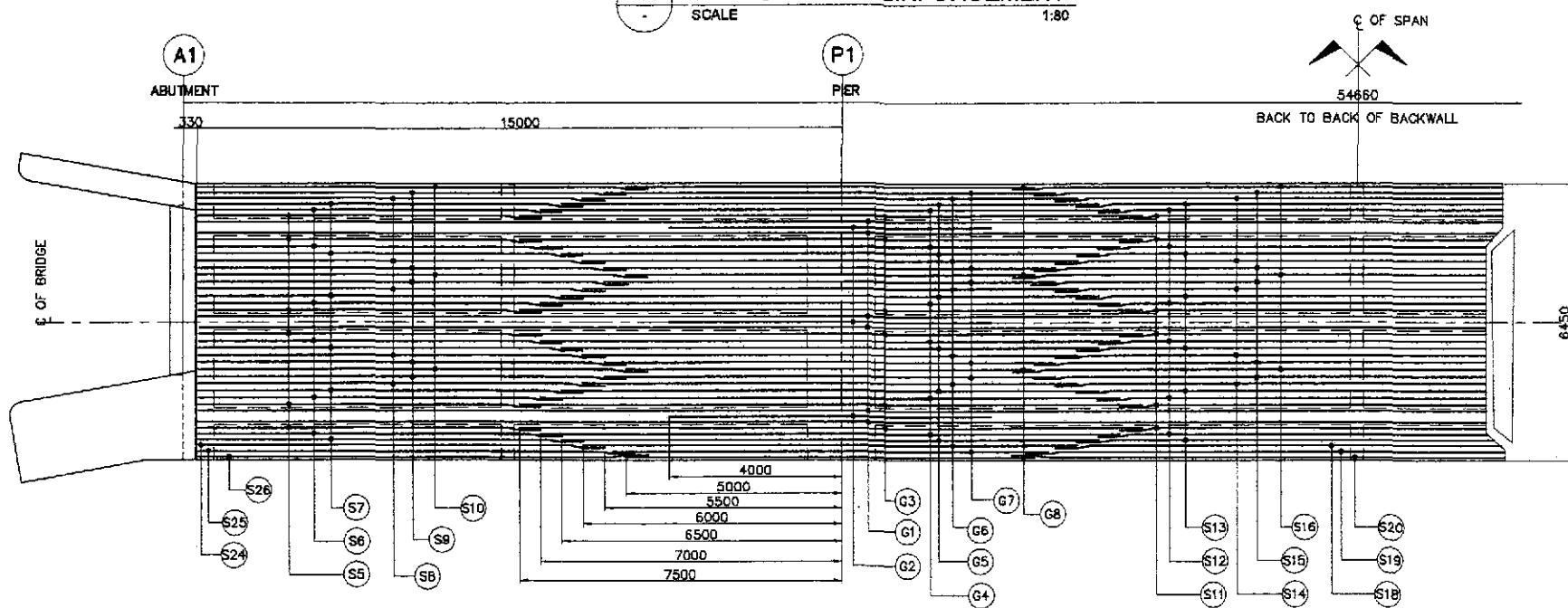
SCHEDULE OF REINFORCEMENT																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION (mm) OUT TO OUT					LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)
							a	b	c	d	e					
SHEAR KEY & RISER	0.93	Ⓢ1	16	30	150	(B)	560	390	560	-	-	1510	45.30	1.579	72	159.14
		Ⓢ2	12	10	AS SHOWN	(A)	1350	-	-	-	-	1350	13.50	0.888	12	
		Ⓢ3	12	10	AS SHOWN	(A)	560	-	-	-	-	560	5.60	0.888	5	
		(R1)	10	27	150	(B)	500	780	500	-	-	1780	48.06	0.616	30	
		(R2)	10	21	130	(B)	500	1200	500	-	-	2200	46.20	0.616	29	
TOTAL	0.93															GRADE 40 TOTAL = 148 kgs.

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

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/10/01	E. N. SALLAN		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.3 SHEAR KEY AND RISER DETAILS AT ABUTMENT (ULTIMATE STAGE) LEFT PORTION	B3-08
	SUBMITTED	9/11/01	M. B. BARRERA		Submitted By:	Reviewed By:	Recommended By:	Office of the Secretary	SAN JOSE BYPASS	FULL SIZE A1			

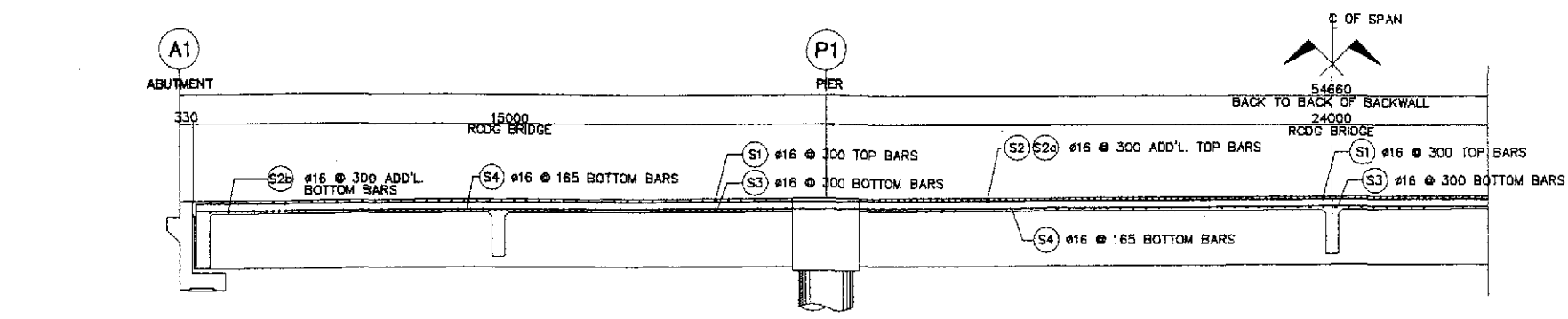


1A TRANSVERSE REINFORCEMENT  
SCALE 1:80

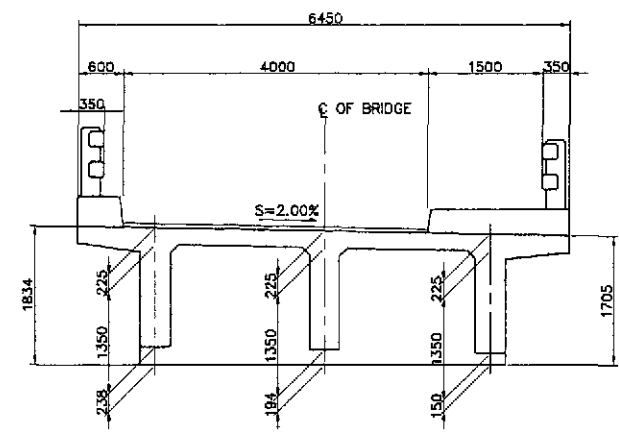


1B LONGITUDINAL REINFORCEMENT (TOP BARS ONLY)  
SCALE 1:80

1 FRAMING PLAN  
SCALE 1:80

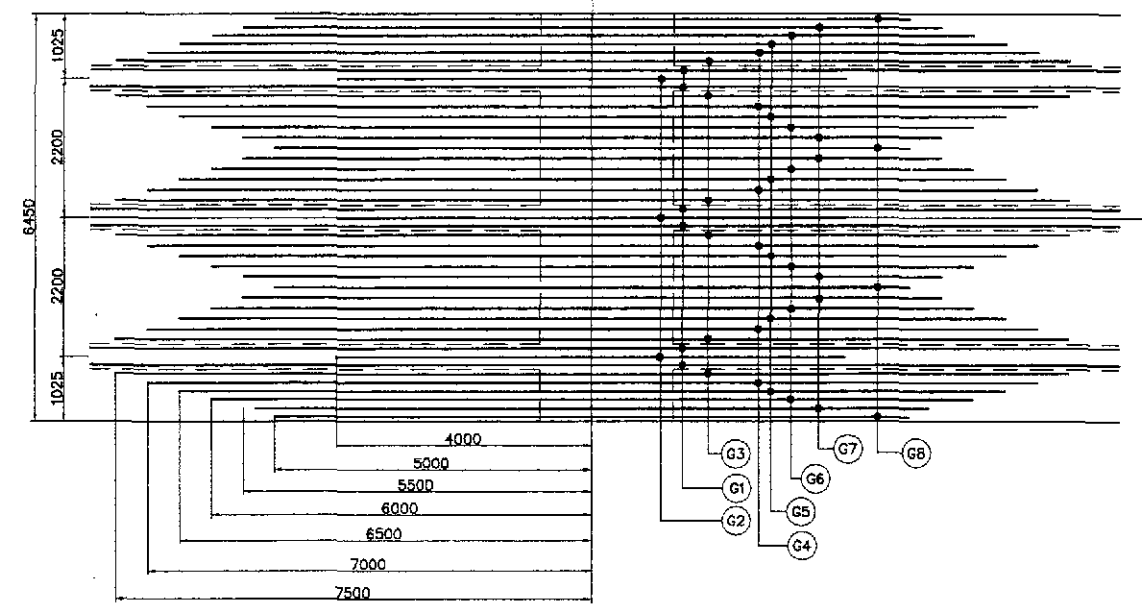


2 LONGITUDINAL SECTION  
SCALE 1:80



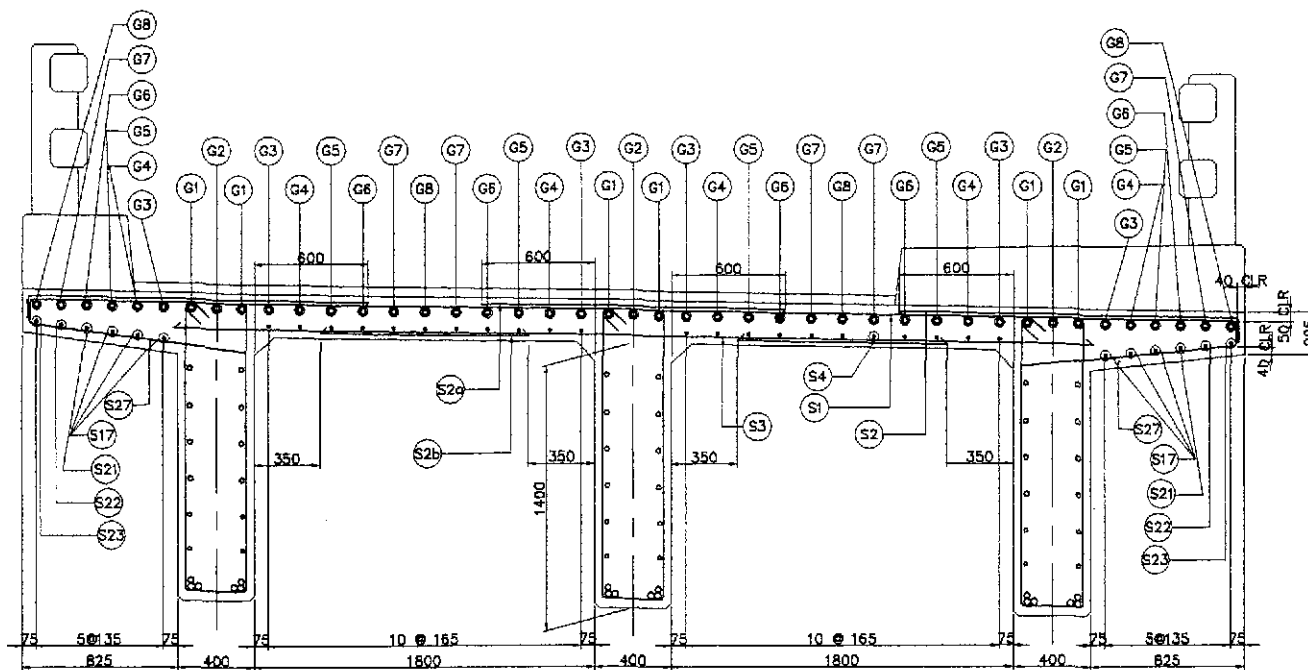
3 TYPICAL CROSS-SECTION  
SCALE 1:50

ESTIMATED QUANTITIES OF SUPERSTRUCTURE			
ITEM NO.	DESCRIPTION	UNIT	TOTAL
404(1)a	REINFORCING STEEL GRADE 40	kg.	24881
	DECK SLAB		10061
	DIAPHRAGM		282
	GIRDER		10530
	SIDEWALK		3372
	APPROACH SLAB		636
404(1)b	REINFORCING STEEL GRADE 60	kg.	51317
	DECK SLAB		0
	DIAPHRAGM		1541
	GIRDER		47574
	SIDEWALK		0
	APPROACH SLAB		2202
405(1)	STRUCTURAL CONCRETE	cu. m.	405.25
	DECK SLAB		85.96
	DIAPHRAGM		5.67
	GIRDER		227.7
	SIDEWALK		33.08
	APPROACH SLAB		52.84

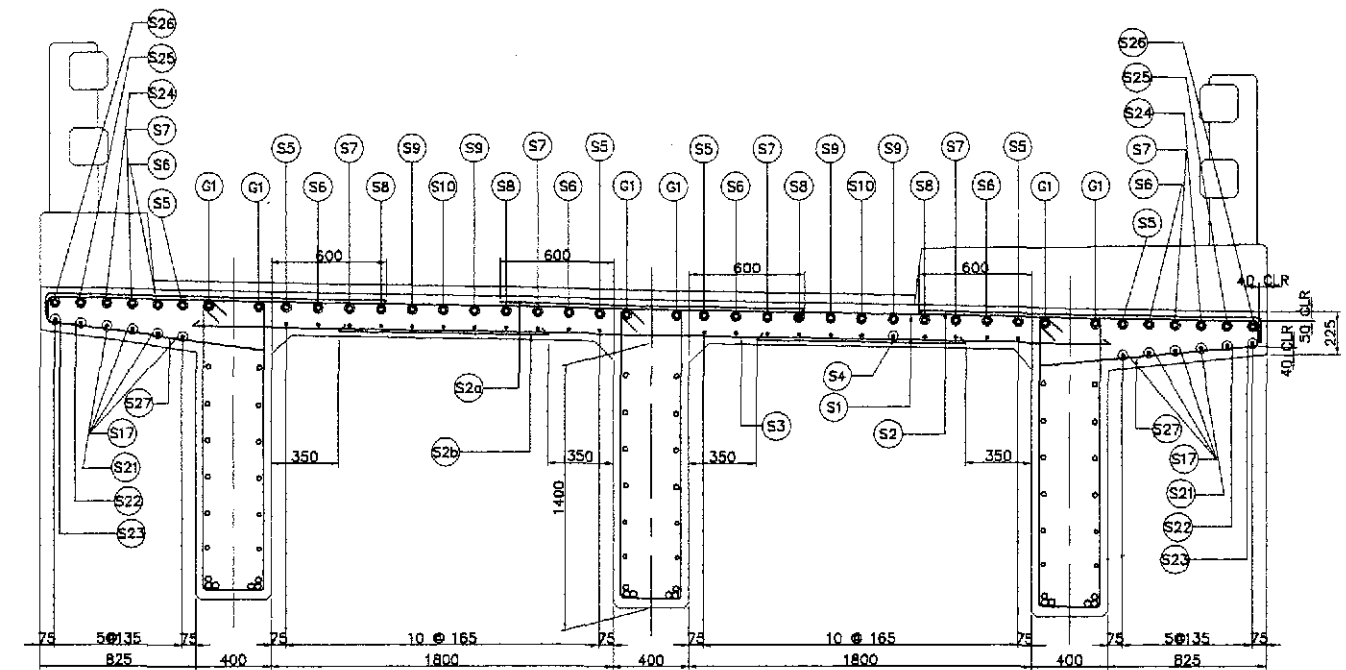


4 REINFORCEMENT OVER PIER  
SCALE 1:60

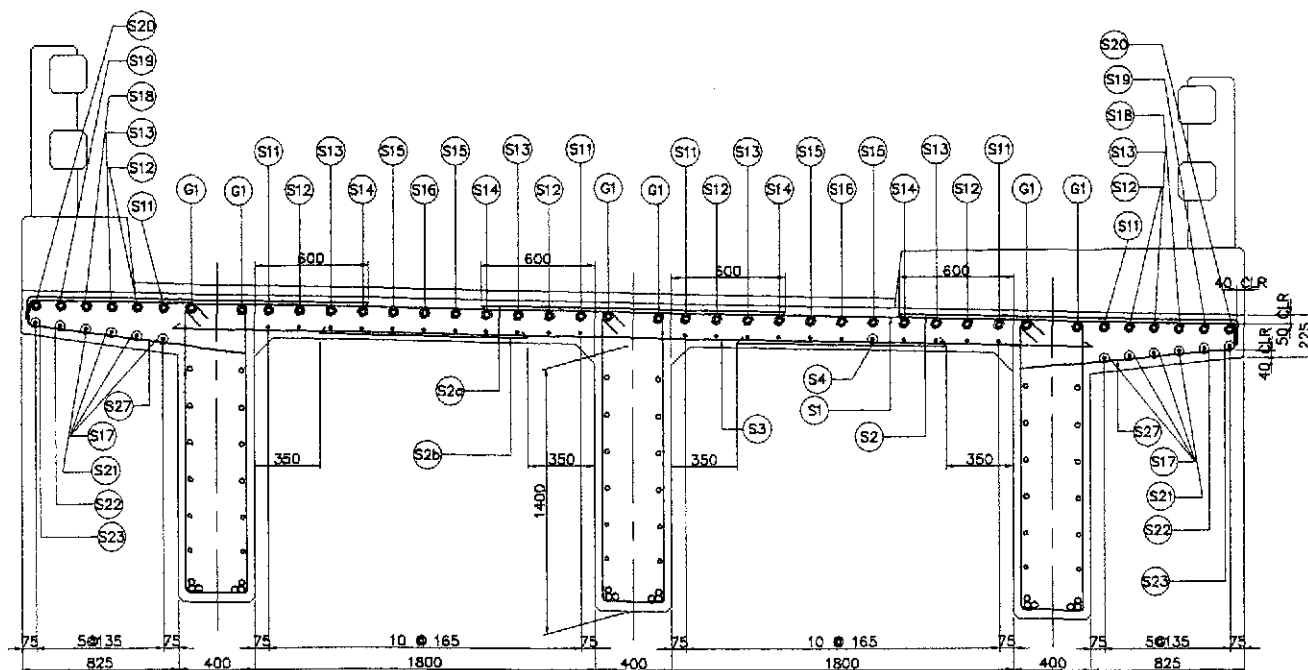
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) <b>SAN JOSE BYPASS</b>	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : <b>BRIDGE NO.3</b> SLAB REINFORCEMENT DETAILS (LONGITUDINAL SECT.) (RIGHT PORTION) (ULTIMATE STAGE)	SHEET NO. : <b>B3-09</b>
	CHECKED	9/19/02	E. N. SALLAN		Submitted By:	Reviewed By:	Recommended By:				
	SUBMITTED	9/19/02	[Signature]		DANILO C. TRAJANO Project Director	ADRIANO M. DOROCY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)				
					MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary					



1 TRANSVERSE SECTION NEAR PIER SUPPORT  
SCALE 1:20



2 TRANSVERSE SECTION NEAR ABUTMENT  
SCALE 1:20

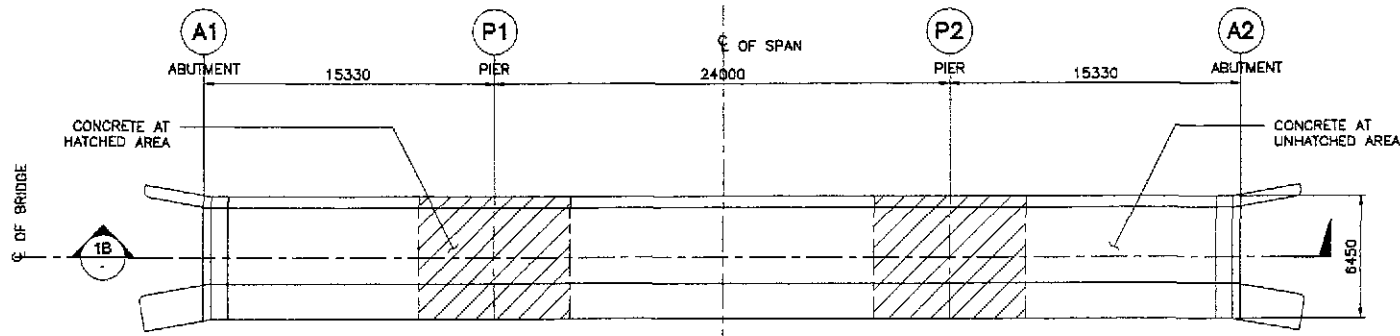


3 TRANSVERSE SECTION AT MIDSPAN OF SPAN 2  
SCALE 1:20

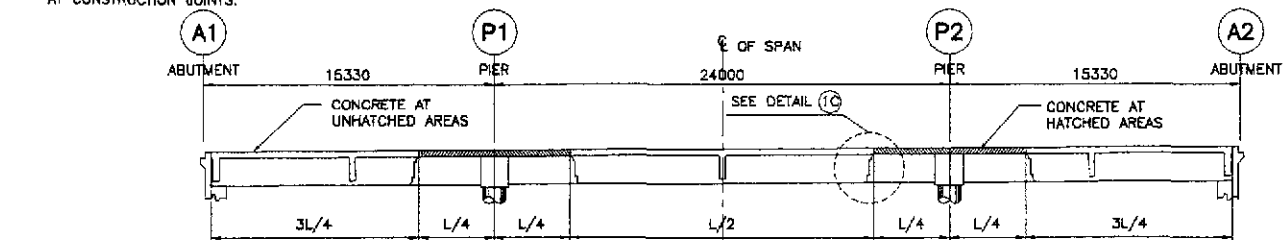
A 3-SPAN RCDG SUPERSTRUCTURE DETAILS  
SCALE AS SHOWN

BAR BENDING DIAGRAM																
A			B				C									
SCHEDULE OF REINFORCEMENT																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				L <sub>a</sub> (mm)	LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (Kg/m)	WEIGHT IN (Kg)	REBAR RATIO (kg/m <sup>2</sup> )
							a	b	c	d						
DECK SLAB	85.96	S1	16	167	300	(B)	145	6370	145	-	-	6660	1112.22	1.579	1757	117.05
		S2	16	334	300	(A)	1825	-	-	-	-	1825	609.55	1.579	963	
		S2a	16	165	300	(A)	1600	-	-	-	-	1600	264.00	1.579	417	
		S2b	16	330	300	(A)	1100	-	-	-	-	1100	363.00	1.579	574	
		S3	16	167	300	(A)	4800	-	-	-	-	4800	801.60	1.579	1266	
		S4	16	22	AS SHOWN	(A)	54580	-	-	-	-	54580	1200.76	1.579	1897	
		S5	16	12	AS SHOWN	(A)	8400	-	-	-	-	8400	100.80	1.579	160	
		S6	16	12	AS SHOWN	(A)	8900	-	-	-	-	8900	106.80	1.579	169	
		S7	16	12	AS SHOWN	(A)	9400	-	-	-	-	9400	112.80	1.579	179	
		S8	16	8	AS SHOWN	(A)	9900	-	-	-	-	9900	79.20	1.579	126	
		S9	16	8	AS SHOWN	(A)	10400	-	-	-	-	10400	83.20	1.579	132	
		S10	16	4	AS SHOWN	(A)	10900	-	-	-	-	10900	43.60	1.579	69	
		S11	16	6	AS SHOWN	(A)	9900	-	-	-	-	9900	59.40	1.579	94	
		S12	16	6	AS SHOWN	(A)	10900	-	-	-	-	10900	65.40	1.579	104	
		S13	16	6	AS SHOWN	(A)	11900	-	-	-	-	11900	71.40	1.579	113	
		S14	16	4	AS SHOWN	(A)	12900	-	-	-	-	12900	51.60	1.579	82	
		S15	16	4	AS SHOWN	(A)	13900	-	-	-	-	13900	55.60	1.579	88	
		S16	16	2	AS SHOWN	(A)	14900	-	-	-	-	14900	29.80	1.579	48	
		S17	16	6	AS SHOWN	(A)	54580	-	-	-	-	54580	327.48	1.579	518	
		S18	16	2	AS SHOWN	(A)	12900	-	-	-	-	12900	25.80	1.579	41	
S19	16	2	AS SHOWN	(A)	13900	-	-	-	-	13900	27.80	1.579	44			
S20	16	2	AS SHOWN	(A)	14900	-	-	-	-	14900	29.80	1.579	48			
S21	16	2	AS SHOWN	(A)	54580	-	-	-	-	54580	109.16	1.579	173			
S22	16	2	AS SHOWN	(A)	54580	-	-	-	-	54580	109.16	1.579	173			
S23	16	2	AS SHOWN	(A)	54580	-	-	-	-	54580	109.16	1.579	173			
S24	16	4	AS SHOWN	(A)	12000	-	-	-	6000	12000	48.00	1.579	76			
S25	16	4	AS SHOWN	(A)	11000	-	-	-	5500	11000	44.00	1.579	70			
S26	16	4	AS SHOWN	(A)	10000	-	-	-	5000	10000	40.00	1.579	64			
S27	12	364	300	(C)	145	1220	-	-	-	-	1365	496.86	0.888	442		
TOTAL	85.96															GRADE 40 TOTAL = 10,061 kgs.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	7/1/02	E. N. SALLAN		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.3	B3-10
	SUBMITTED	7/1/02	M. M. MORALES		OFFICE OF THE SECRETARY				FULL SIZE A1	SLAB REINFORCEMENT DETAILS (TRANSVERSE SECT.) (RIGHT PORTION) (ULTIMATE STAGE)		
Submitted By:		Reviewed By:		Recommended By:		Approved By:						
DANILO C. TRAJANO Project Director		ADRIANO M. DORAY Chief, Bridges Division		GILBERTO S. REYES Director IV (DC)		MANUEL M. BONOAN Undersecretary		SIMEON A. DATUMANONG Secretary				

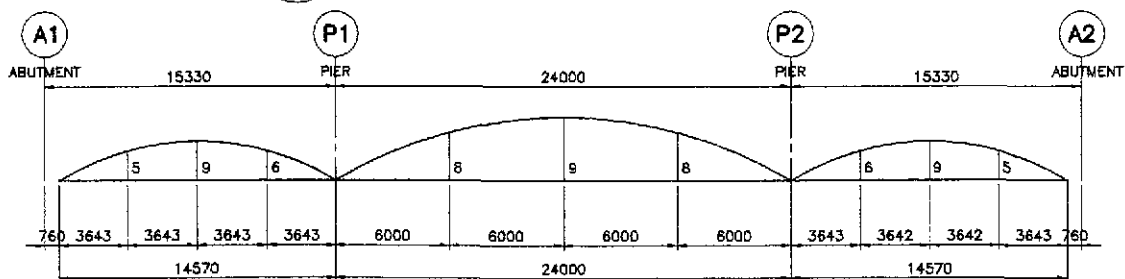


**1A PLAN**  
SCALE 1:200



**1B LONGITUDINAL SECTION**  
SCALE 1:200

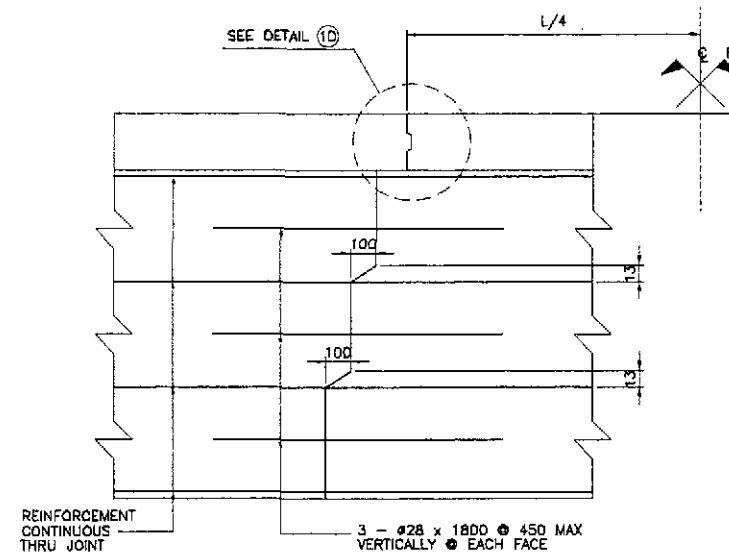
**1 CONCRETE POURING SEQUENCE**  
SCALE 1:200



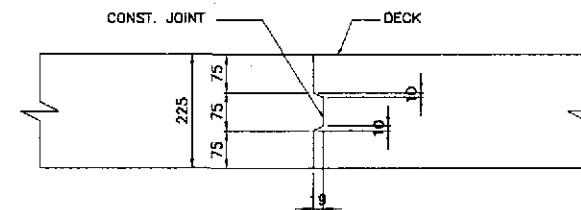
**2 CAMBER DIAGRAM**  
SCALE 1:200

BAR BENDING DIAGRAM																
SCHEDULE OF REINFORCEMENT																
STRUCTURE COMPONENT	LOCATION	CONCRETE VOLUME (M <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (KG/M)	WEIGHT IN (KG)	REBAR RATIO (KG/M <sup>3</sup> )
DIAPHRAGM	INTERMEDIATE DIAPHRAGM	2.97	ID1	28	6	AS SHOWN	(B)	400	4720	400	-	5520	33.12	4.833	161	363.30
			ID2	28	6	AS SHOWN	(B)	400	4720	400	-	5520	33.12	4.833	161	
			ID3	28	24	AS SHOWN	(A)	4720	-	-	-	4720	113.28	4.833	548	
			ID4	12	66	160	(C)	150	1475 (AVE.)	150	-	3550	234.30	0.888	209	
DIAPHRAGM	END DIAPHRAGM	2.70	ED1	28	4	AS SHOWN	(B)	400	4720	400	-	5520	22.08	4.833	107	275.56
			ED2	28	4	AS SHOWN	(B)	400	4720	400	-	5520	22.08	4.833	107	
			ED3	28	20	AS SHOWN	(A)	4720	-	-	-	4720	94.40	4.833	457	
			ED4	12	22	250	(C)	200	1485 (AVE.)	150	-	3690	81.18	0.888	73	
TOTAL		5.67														

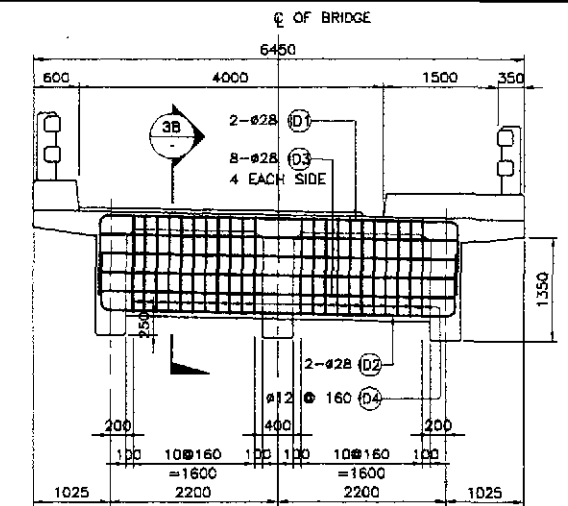
GRADE 40 TOTAL = 282 Kgs.  
GRADE 60 TOTAL = 1,541 Kgs.



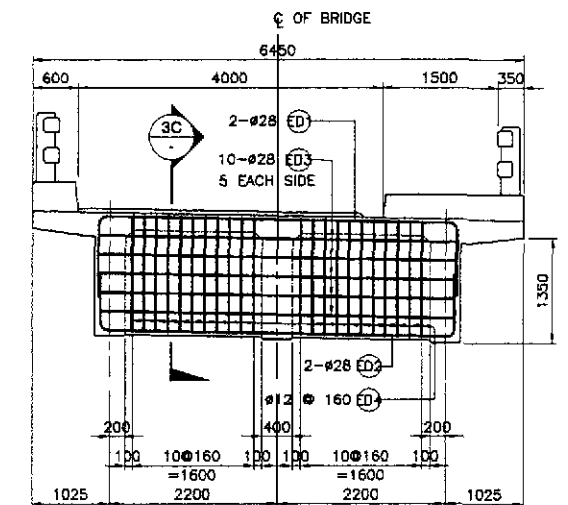
**1C TRANSVERSE GIRDER CONST. JOINT**  
SCALE 1:30



**1D DETAIL**  
SCALE 1:20

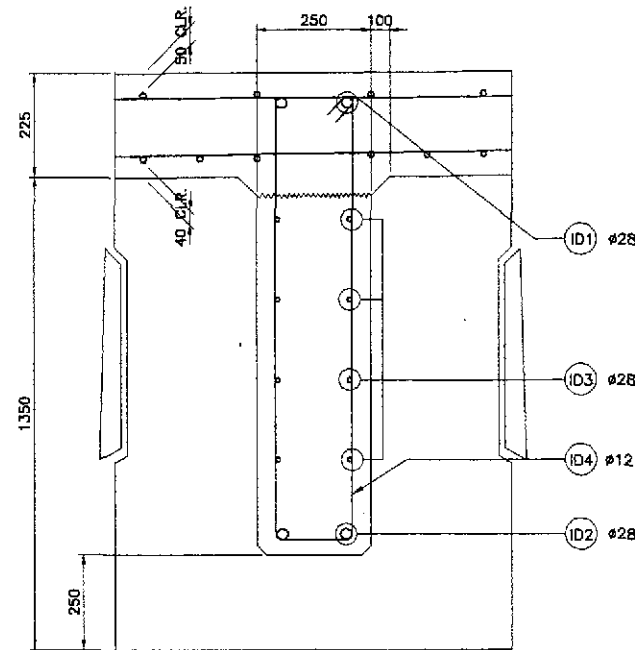


**INTERMEDIATE DIAPHRAGM**

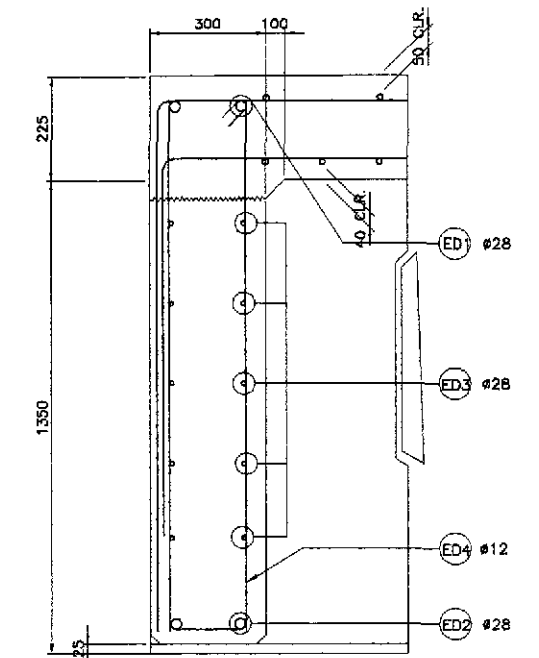


**END DIAPHRAGM**

**3A ELEVATION**  
SCALE 1:50

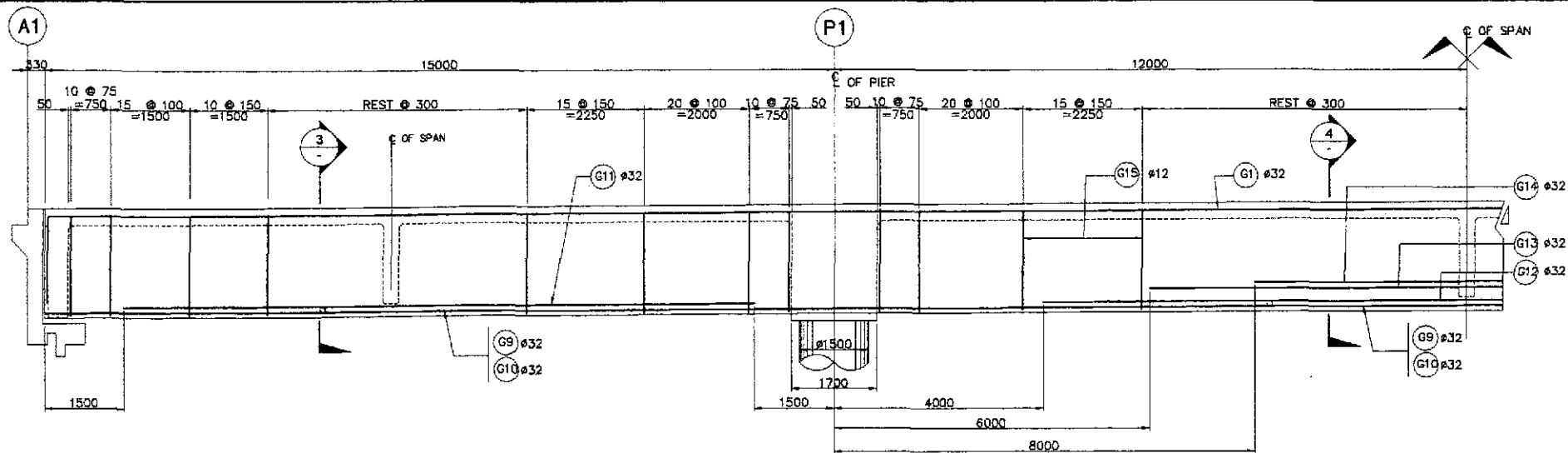


**3B SECTION**  
SCALE 1:10

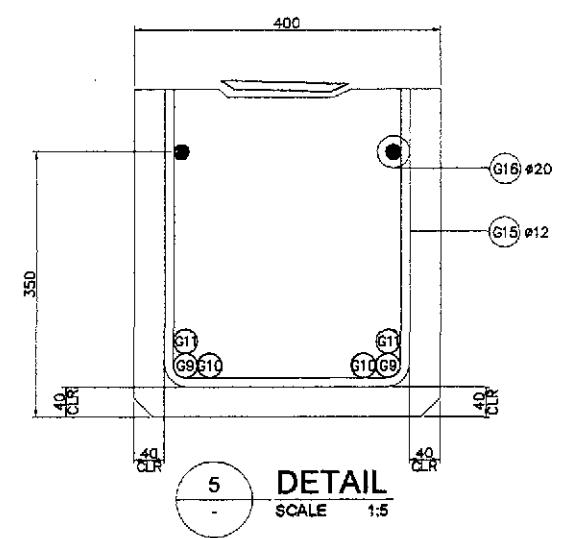


**3C SECTION**  
SCALE 1:10

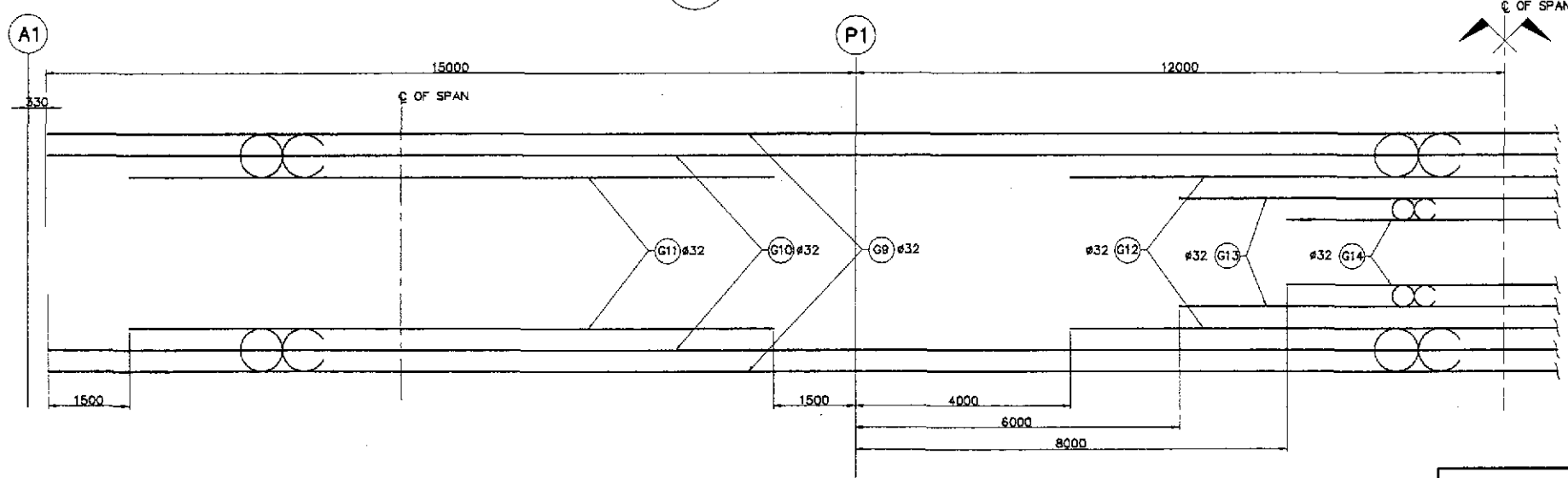
**3 DETAIL OF END AND INTERMEDIATE DIAPHRAGM**  
SCALE AS SHOWN



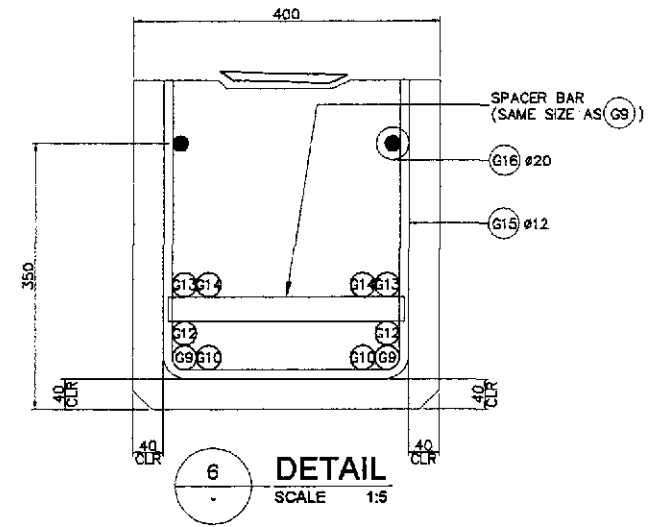
1 GIRDER ELEVATION  
SCALE NTS



5 DETAIL  
SCALE 1:5

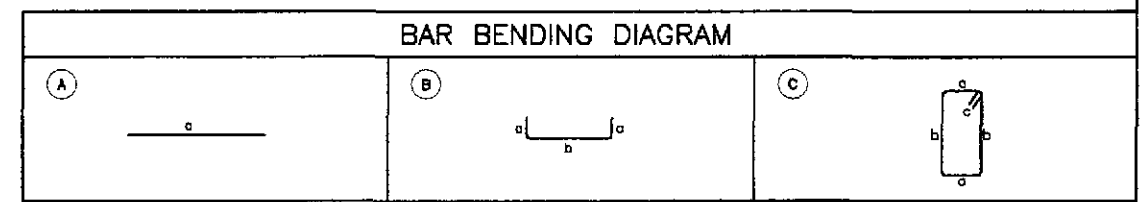


2 BOTTOM BAR SCHEMATIC LAYOUT  
SCALE NTS



6 DETAIL  
SCALE 1:5

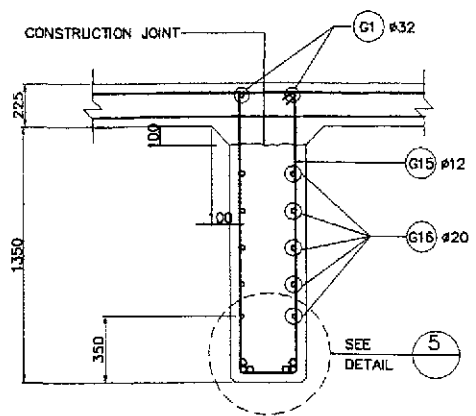
NOTE:  
CONCRETE CHAMFER AT BOTTOM OF GIRDER IS 25mm.



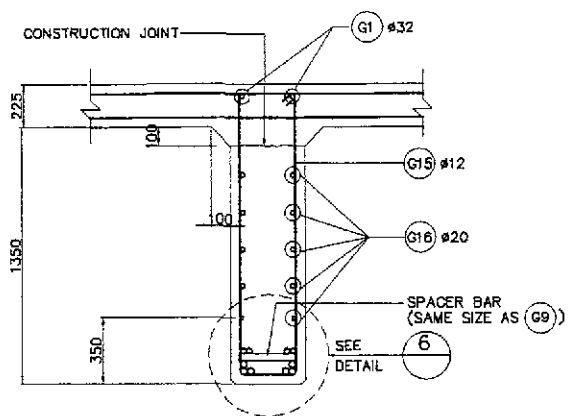
**SCHEDULE OF REINFORCEMENT FOR THREE GIRDERS**

LOCATION	CONC. VOL (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				L <sub>c</sub> (mm)	LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	TOTAL WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )
							a	b	c	d						
GIRDER (W/ FILLET)	75.90	G1	32	6	AS SHOWN	(B)	1300	54580	-	-	-	57180	343.08	6.313	2166	255.18
		G2	32	6	AS SHOWN	(A)	8000	-	-	-	4000	8000	48.00	6.313	304	
		G3	32	12	AS SHOWN	(A)	15000	-	-	-	7500	15000	180.00	6.313	1137	
		G4	32	12	AS SHOWN	(A)	14000	-	-	-	7000	14000	168.00	6.313	1061	
		G5	32	12	AS SHOWN	(A)	13000	-	-	-	6500	13000	156.00	6.313	985	
		G6	32	12	AS SHOWN	(A)	12000	-	-	-	6000	12000	144.00	6.313	910	
		G7	32	12	AS SHOWN	(A)	11000	-	-	-	5500	11000	132.00	6.313	834	
		G8	32	8	AS SHOWN	(A)	10000	-	-	-	5000	10000	80.00	6.313	506	
		G9	32	6	AS SHOWN	(B)	1300	54580	-	-	-	57180	343.08	6.313	2166	
		G10	32	6	AS SHOWN	(B)	1300	54580	-	-	-	57180	343.08	6.313	2166	
		G11	32	12	AS SHOWN	(A)	12000	-	-	-	1500	12000	144.00	6.313	910	
		G12	32	6	AS SHOWN	(A)	16000	-	-	-	4000	16000	96.00	6.313	607	
		G13	32	6	AS SHOWN	(A)	12000	-	-	-	6000	12000	72.00	6.313	455	
		G14	32	6	AS SHOWN	(A)	8000	-	-	-	8000	8000	48.00	6.313	304	
		G15	12	1032	AS SHOWN	(C)	320	1495	100	-	-	3830	3952.56	0.888	3510	
		G16	20	10	AS SHOWN	(A)	54580	-	-	-	-	54580	545.82	2.466	1346	
TOTAL	75.90															

GRADE 40 TOTAL = 3,510 kgs.  
GRADE 60 TOTAL = 15,858 kgs.



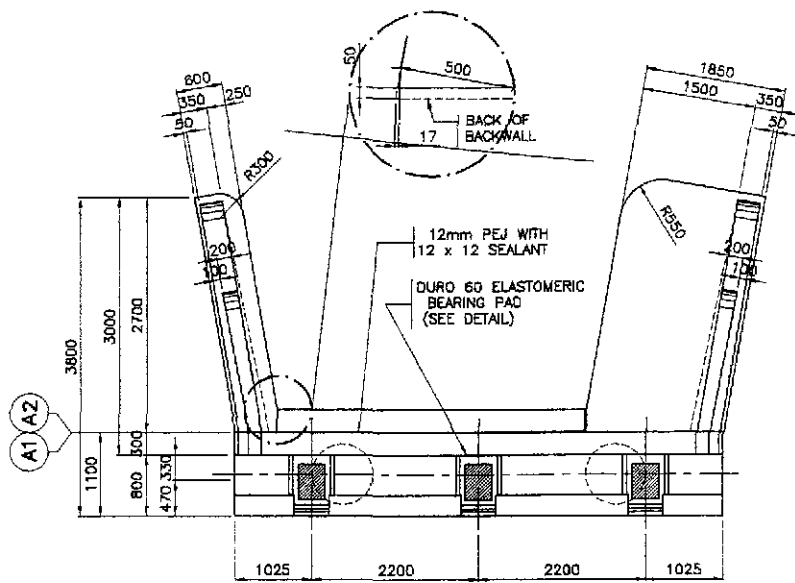
3 SECTION AT MIDSPAN (SPAN 1 & 3)  
SCALE 1:20



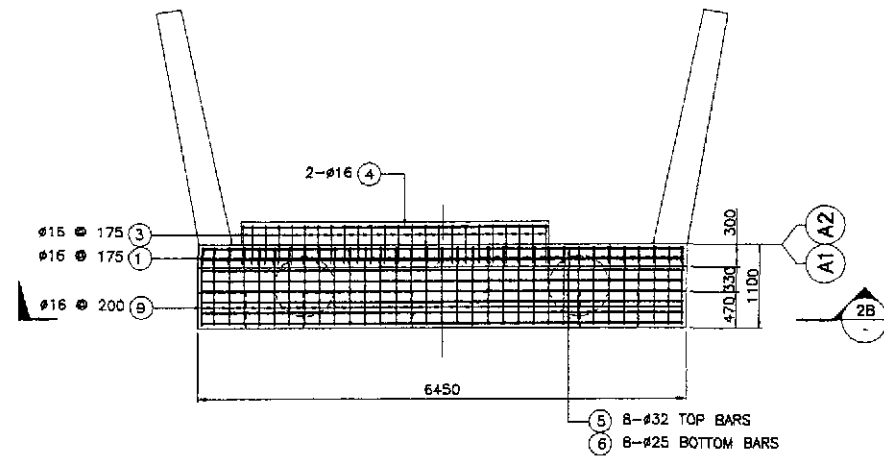
4 SECTION AT MIDSPAN (SPAN 2)  
SCALE 1:20

	DESIGNED: <i>[Signature]</i> DATE: 9/3/02	SIGNATURE: <i>[Signature]</i> N. SALLAN	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.3 GIRDER ELEV., BOTTOM BAR LAYOUT AND SECTIONS (RIGHT PORTION) (ULTIMATE STAGE)	SHEET NO.:
	CHECKED: <i>[Signature]</i> 9/10/02	Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: ADRIANO M. DORON Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director IV (OIC)	Recommended By: MANUEL M. BONGAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary	<b>SAN JOSE BYPASS</b>	FULL SIZE A1	BRIDGE NO.3 GIRDER ELEV., BOTTOM BAR LAYOUT AND SECTIONS (RIGHT PORTION) (ULTIMATE STAGE)	<b>B3-12</b>
	SUBMITTED: 9/10/02									

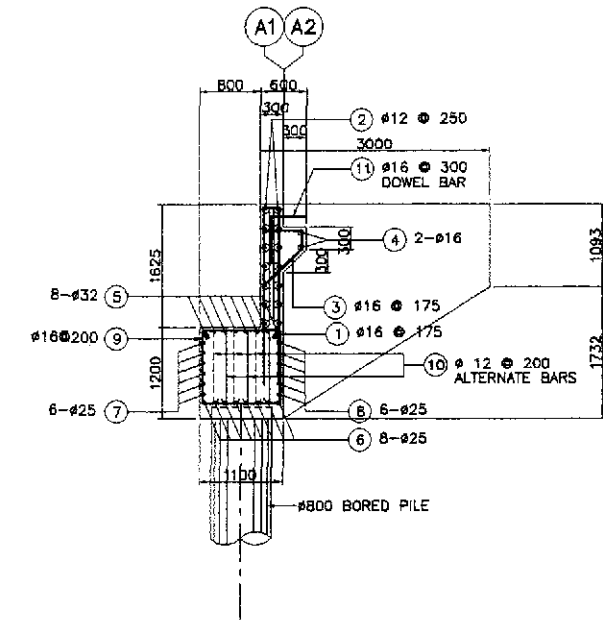




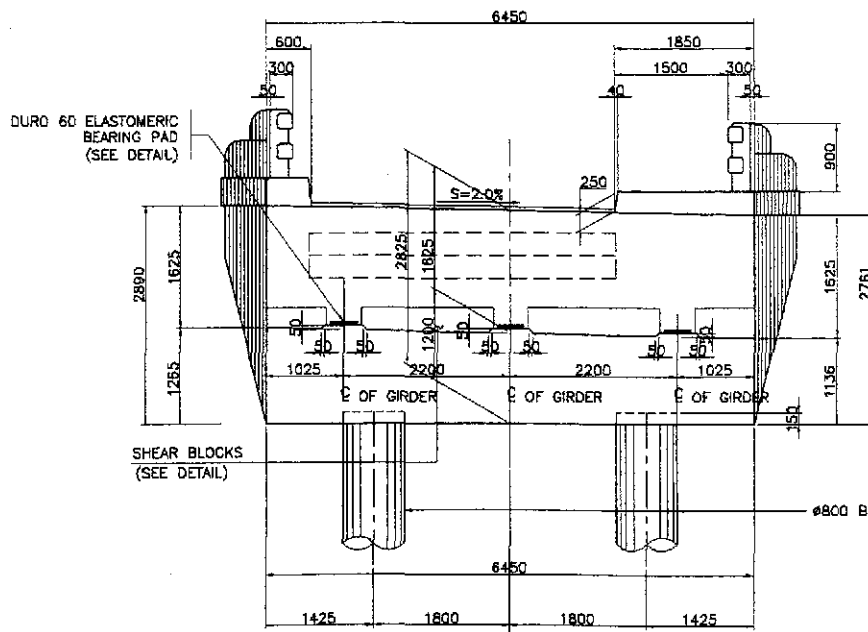
1A PLAN  
SCALE 1:50



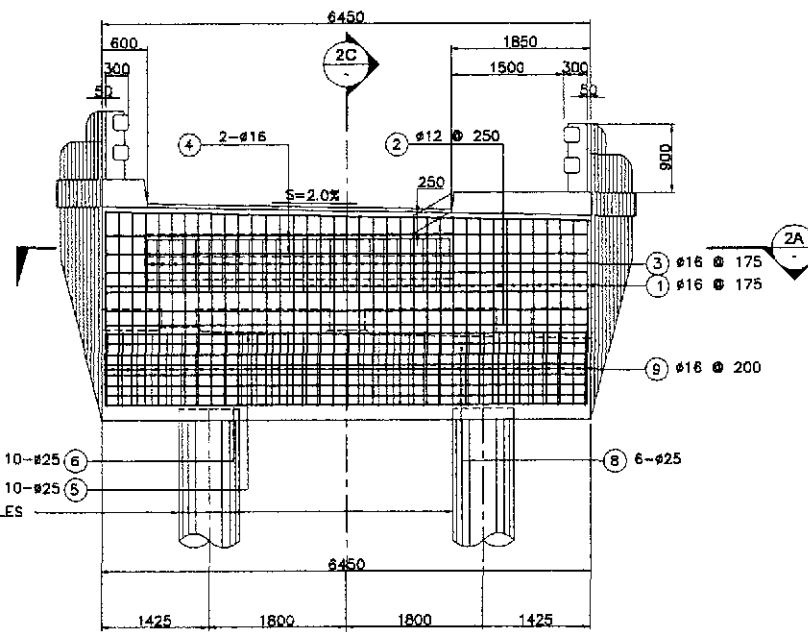
2A SECTION  
SCALE 1:50



2C SECTION  
SCALE 1:50



1B ELEVATION  
SCALE 1:50



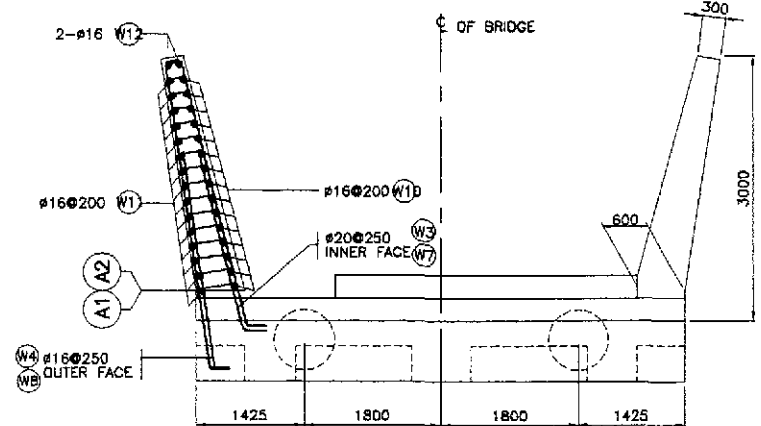
2B SECTION  
SCALE 1:50

BAR BENDING DIAGRAM																
A	B	C	D	E	F											
<b>SCHEDULE OF REINFORCEMENT PER ABUTMENT</b>																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)
BACKWALL	3.68	①	16	38	175	(B)	2800	200	2800	-	-	5800	220.40	1.579	349	136.96
		②	12	14	250	(A)	6350	-	-	-	-	6350	88.90	0.888	79	
		③	16	24	175	(C)	600	200	850	-	-	1650	39.60	1.579	63	
		④	16	2	AS SHOWN	(A)	4000	-	-	-	-	4000	8.00	1.579	13	
CAP BEAM	8.52	⑤	32	8	AS SHOWN	(B)	750	6350	750	-	-	7850	62.80	6.313	397	156.58
		⑥	25	8	AS SHOWN	(B)	750	6350	750	-	-	7850	62.80	3.854	243	
		⑦	25	6	AS SHOWN	(B)	250	6350	250	-	-	6850	41.10	3.854	159	
		⑧	25	6	AS SHOWN	(B)	250	6350	250	-	-	6850	41.10	3.854	159	
		⑨	16	33	200	(E)	1100	1000	150	-	-	4500	148.50	1.579	235	
		⑩	12	99	200	(D)	250	1100	250	-	-	1600	158.40	0.888	141	
DOWEL		⑪	16	15	300	(F)	650	500	-	-	1150	17.25	1.579	28		
TOTAL	12.20												GRADE 40 TOTAL = 906 kgs. GRADE 60 TOTAL = 958 kgs.			

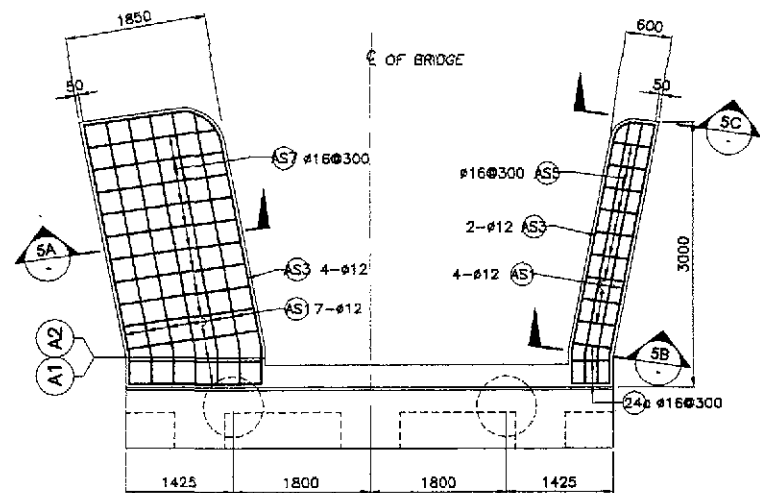
1 ABUTMENT LAYOUT AND DIMENSION  
SCALE AS SHOWN

2 ABUTMENT REINFORCEMENT DETAILS  
SCALE AS SHOWN

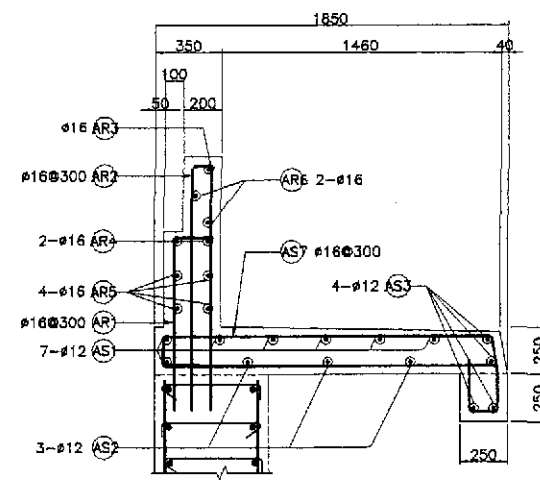
	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/12/12	GONZALES	BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Palarid, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 3 ABUTMENT MAINWALL REINFORCEMENT DETAILS (RIGHT PORTION)	B3-13
	SUBMITTED	9/10/12	M. KUBAN	Submitted By:	Reviewed By:	Recommended By:	Office of the Secretary	FULL SIZE A1			
			DANILO C. TRAJANO Project Director	ADRIANO M. DORAY Chief, Bridges Division	GILBERTO S. REYES Director IV (GIC)	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANANG Secretary	<b>SAN JOSE BYPASS</b>			



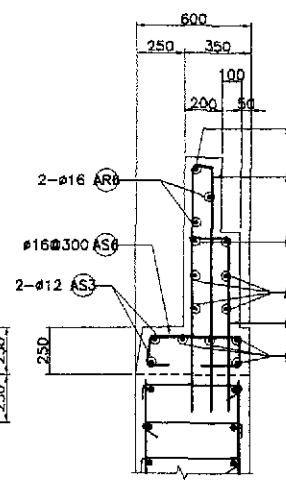
1 PLAN SCALE 1:50



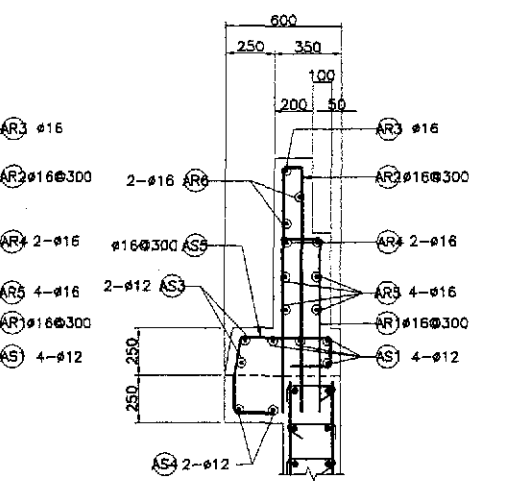
4 SIDEWALK DETAIL SCALE 1:50



5A SECTION SCALE 1:20

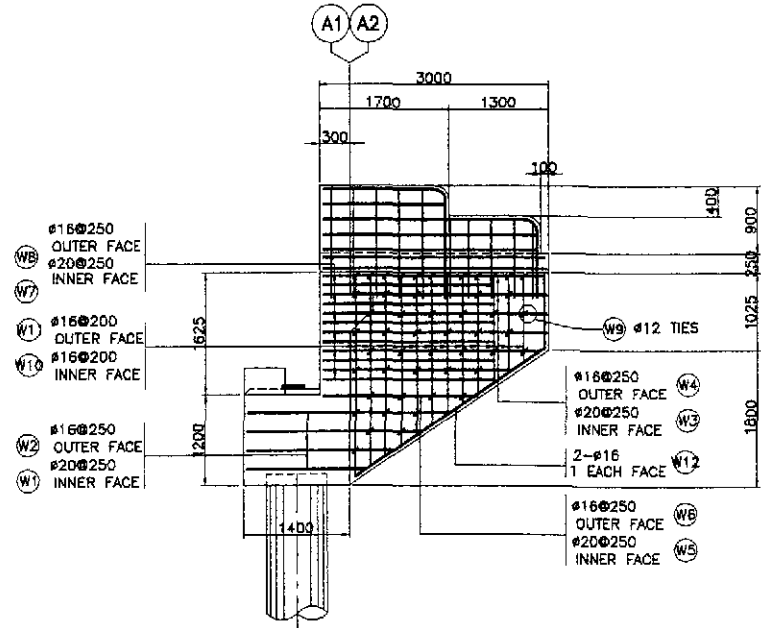


5B SECTION SCALE 1:20

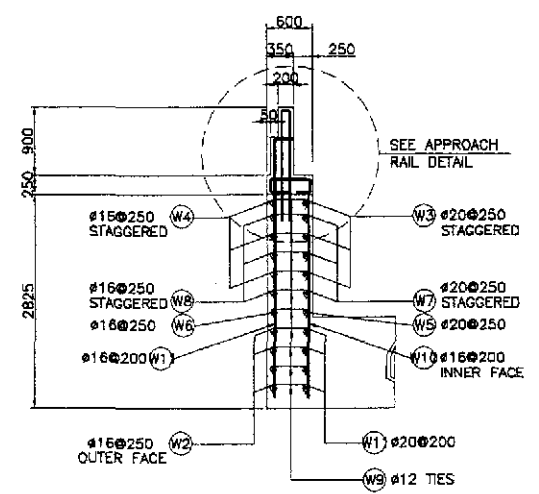


5C SECTION SCALE 1:20

5 APPROACH RAIL DETAILS SCALE 1:20

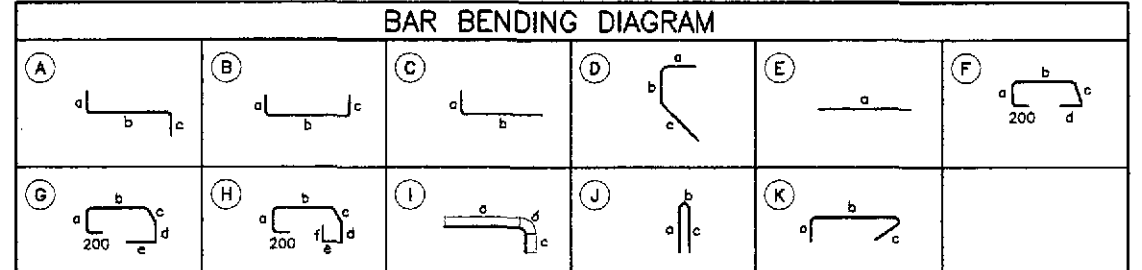


2 WINGWALL ELEVATION SCALE 1:50



3 SECTION SCALE 1:50

A ABUTMENT WINGWALL REINFORCEMENT DETAILS SCALE AS SHOWN

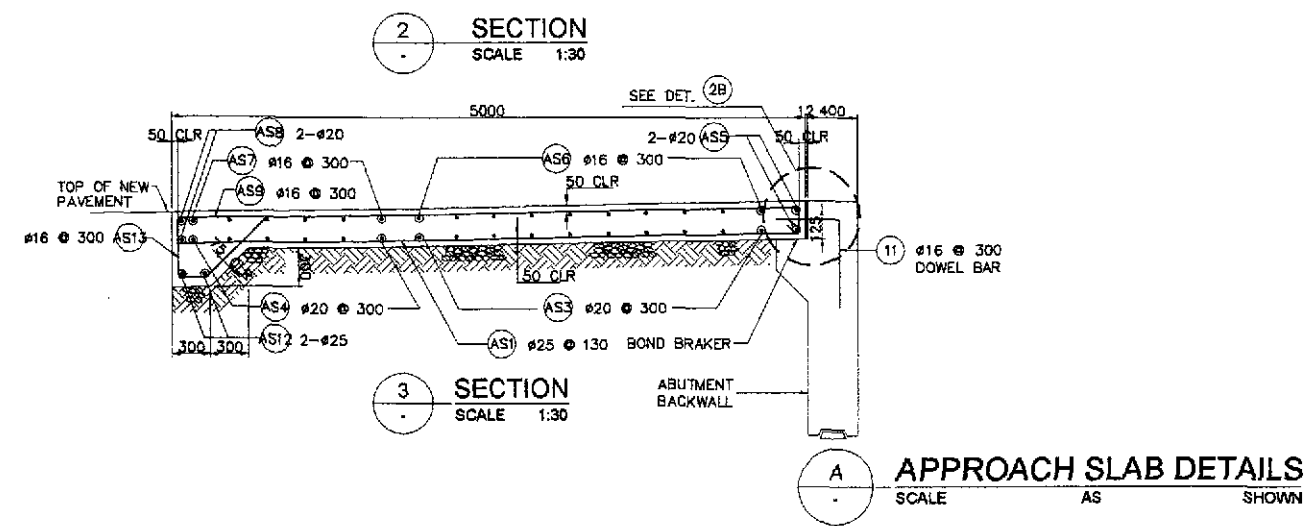
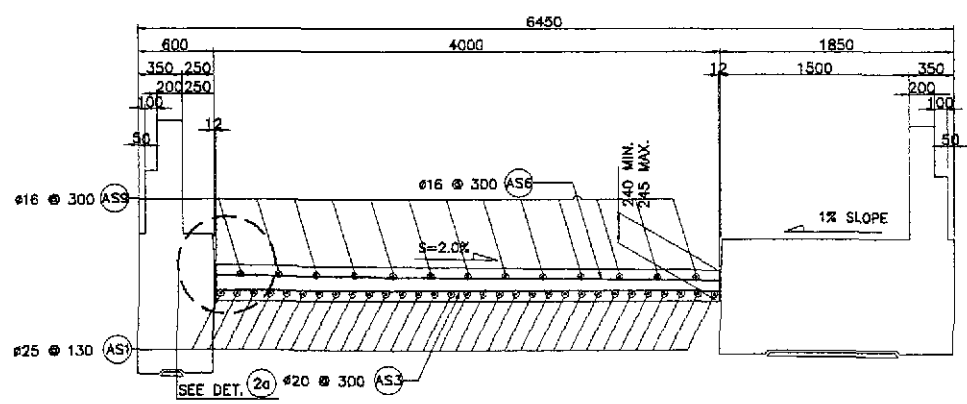
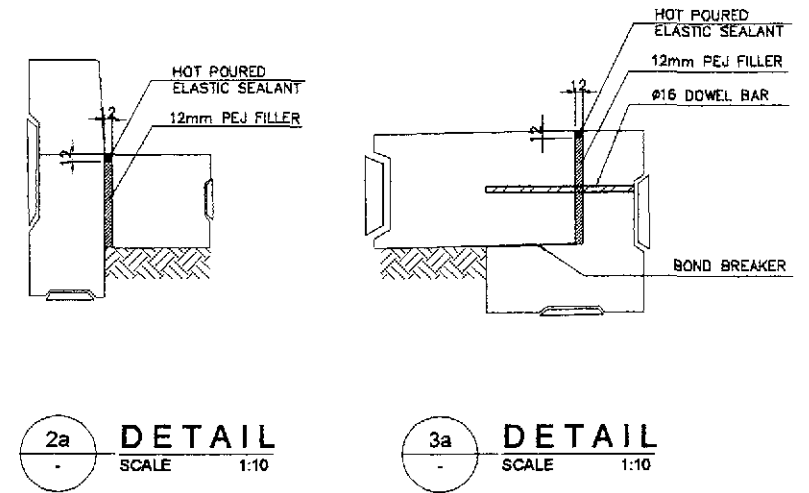
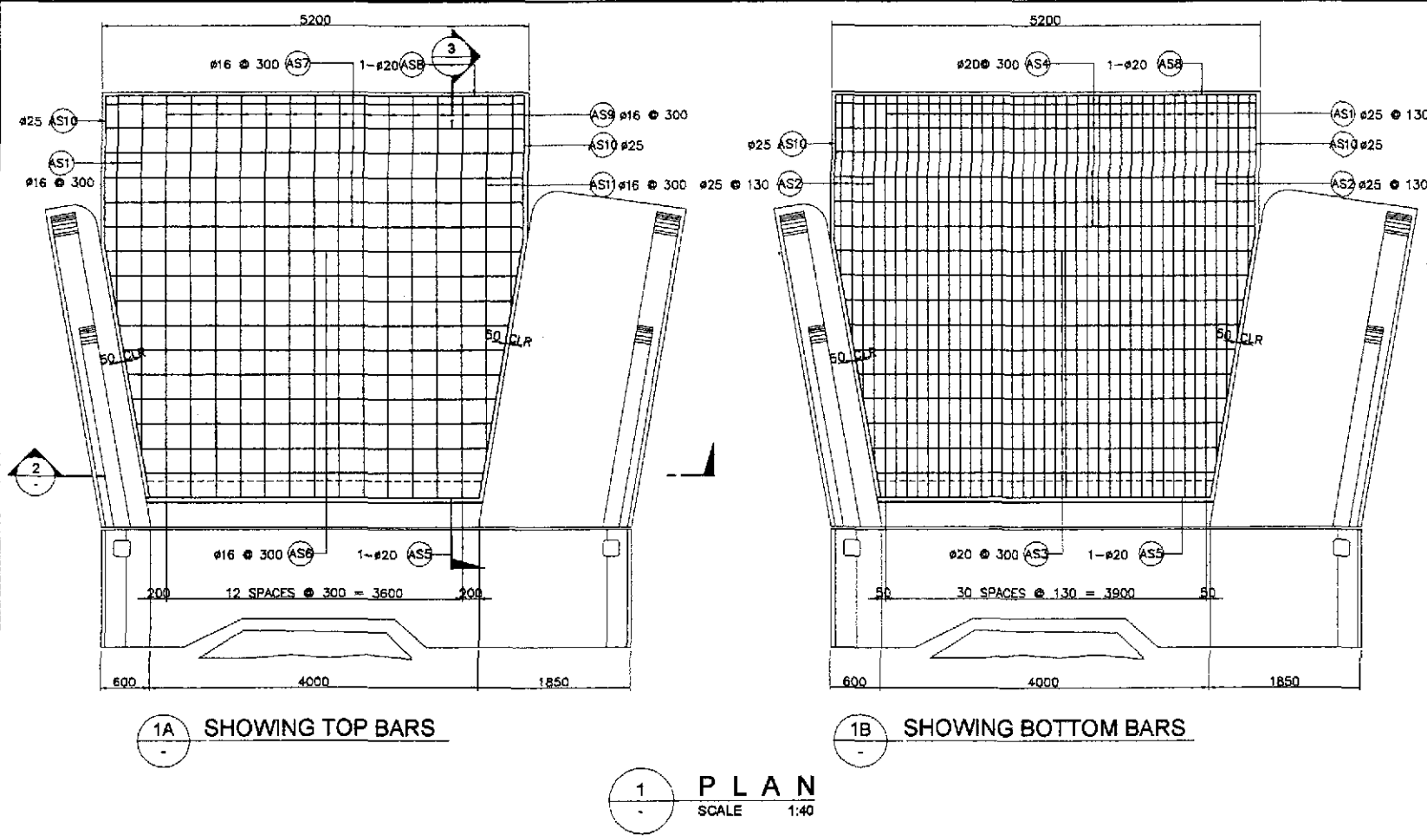


SCHEDULE OF REINFORCEMENT PER ABUTMENT																	
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE (DIA.)	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)	
							a	b	c	d	e						f
WINGWALL	4.76	(W1)	20	8	250	(A)	250	2100	400	-	-	2750	22.00	2,466	55	113.66	
		(W2)	16	8	250	(B)	250	2100	400	-	-	2750	22.00	1,579	35		
		(W3)	20	6	500	(A)	250	3000	400	-	-	3650	21.00	2,466	55		
		(W4)	16	6	500	(B)	250	3000	400	-	-	3650	21.00	1,579	35		
		(W5)	20	2	500	(A)	250	2000	400	-	-	2650	5.30	2,466	14		
		(W6)	16	2	500	(B)	250	2000	400	-	-	2650	5.30	1,579	9		
		(W7)	20	6	500	(C)	400	2200	-	-	-	2600	15.60	2,466	39		
		(W8)	16	6	500	(C)	400	2200	-	-	-	2600	15.60	1,579	25		
		(W9)	12	82	AS SHOWN	(K)	170	450(over)	170	-	-	-	790	64.78	0.888		58
		(W10)	16	20	250	(B)	250	2200	250	-	-	-	2700	54.00	1,579		86
		(W11)	16	20	250	(B)	250	2200	250	-	-	-	2700	54.00	1,579		86
		(W12)	16	4	AS SHOWN	(D)	2900	950	3000	-	-	-	6850	27.40	1,579		44
APPROACH SIDEWALK	2.40	(AS1)	12	11	AS SHOWN	(E)	3000	-	-	-	-	3000	33.00	0.888	30	56.25	
		(AS2)	12	3	AS SHOWN	(E)	3000	-	-	-	-	3000	9.00	0.888	8		
		(AS3)	12	6	AS SHOWN	(E)	3000	-	-	-	-	3000	18.00	0.888	16		
		(AS4)	12	2	AS SHOWN	(E)	3000	-	-	-	-	3000	6.00	0.888	6		
		(AS5)	16	8	300	(G)	170	460	200	170	200	-	1400	11.20	1,579		18
		(AS6)	16	3	300	(F)	170	460	200	200	-	-	1230	3.69	1,579		6
		(AS7)	16	11	300	(H)	170	1710	200	170	170	300	2920	32.12	1,579		51
APPROACH RAILING	1.17	(AR1)	16	10	300	(C)	900	200	-	-	-	1100	11.00	1,579	18	135.05	
		(AR2)	16	14	300	(J)	1300	120	1300	-	-	-	2720	38.08	1,579		61
		(AR3)	16	2	AS SHOWN	(I)	1600	236	900	-	-	-	2736	5.00	1,579		9
		(AR4)	16	2	AS SHOWN	(I)	2800	236	1300	-	-	-	4336	8.00	1,579		14
		(AR5)	16	10	200	(E)	2800	-	-	-	-	-	2800	28.00	1,579		45
(AR6)	16	4	200	(E)	1600	-	-	-	-	-	1600	6.40	1,579	11			
TOTAL	8.33															GRADE 40 TOTAL = 719 kgs GRADE 60 TOTAL = 175 kgs	

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

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. DORAY  
Recommended By: GILBERTO S. REYES  
Approved By: MANUEL M. BONJAN  
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)  
SAN JOSE BYPASS  
SCALE : AS SHOWN  
FULL SIZE A1  
SHEET CONTENTS :  
BRIDGE NO. 3  
ABUTMENT WINGWALL  
REINFORCEMENT DETAILS  
(RIGHT PORTION)  
SHEET NO. : B3-14



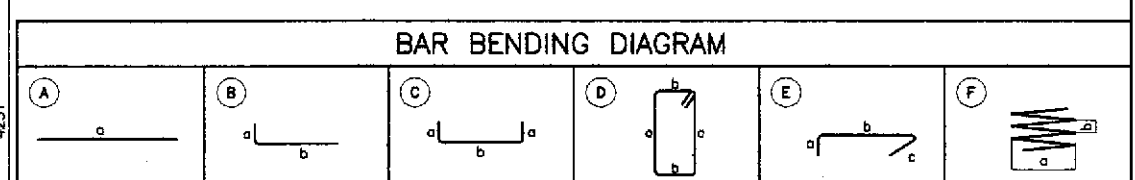
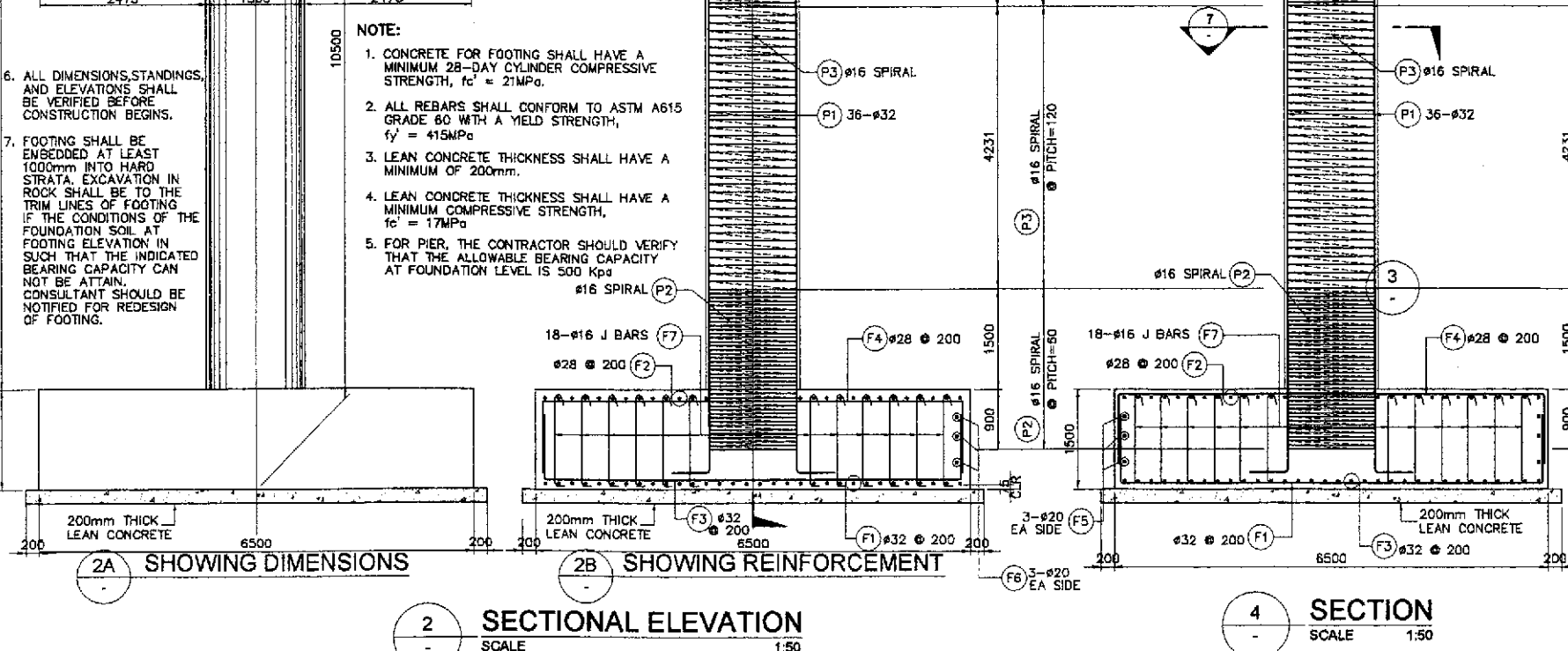
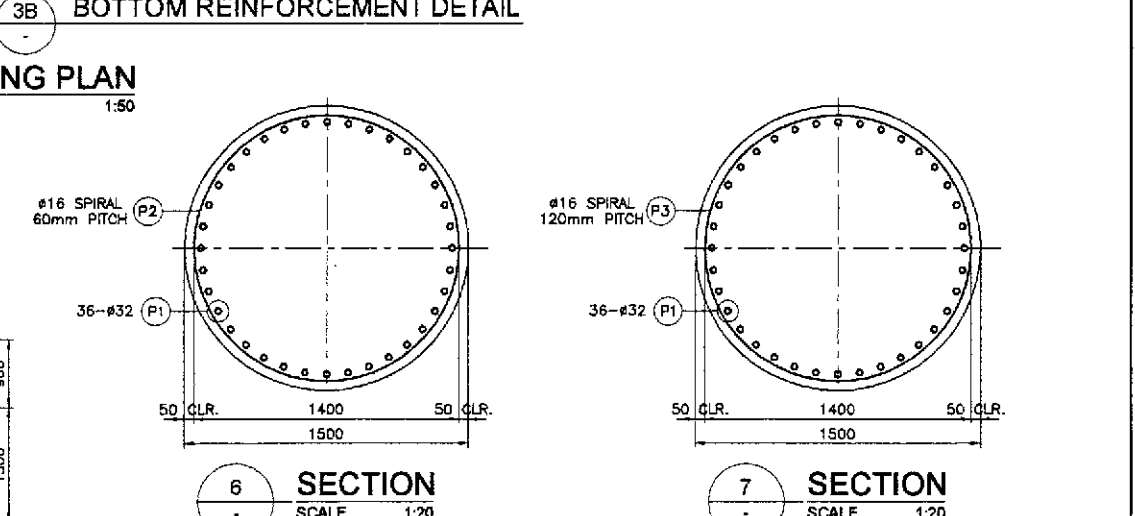
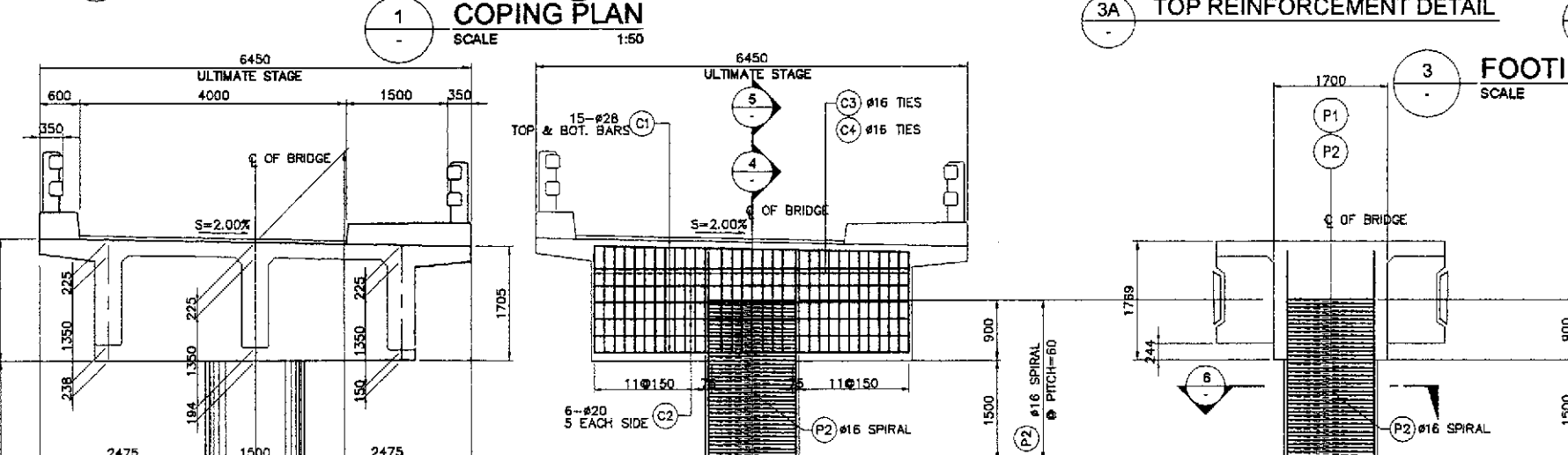
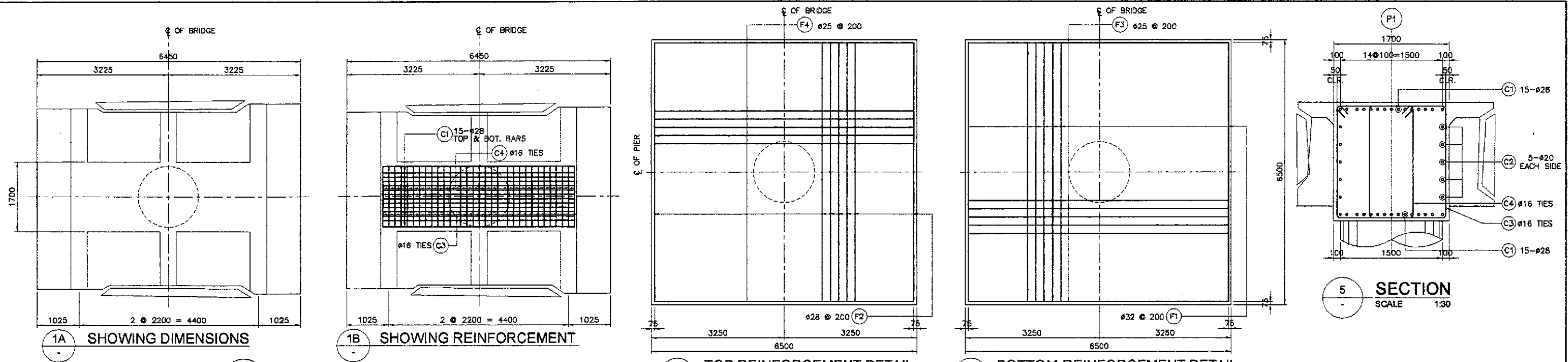
**BAR BENDING DIAGRAM**

A	B	C	D

**SCHEDULE OF REINFORCEMENT**

LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT						LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)
							a	b	c	d	e	f					
APPROACH SLAB	7.93	AS	25	32	130	(B)	4900	200	-	-	-	-	5100	163.20	3.854	629	178.95
		AS2	25	8	130	(B)	3700	200	-	-	-	-	3900	31.20	3.854	121	
		AS3	20	10	300	(A)	4500	-	-	-	-	-	4500	45.00	2.466	111	
		AS4	20	6	300	(A)	5100	-	-	-	-	-	5100	30.60	2.466	76	
		AS5	20	2	AS SHOWN	(A)	3900	-	-	-	-	-	3900	7.80	2.466	20	
		AS7	16	10	300	(A)	4500	-	-	-	-	-	4500	45.00	1.579	72	
		AS7	16	6	300	(A)	5100	-	-	-	-	-	5100	30.60	1.579	49	
		AS9	20	2	AS SHOWN	(A)	5100	-	-	-	-	-	5100	10.20	2.466	26	
		AS9	16	13	300	(B)	4900	200	-	-	-	-	5100	66.30	1.579	105	
		AS10	25	4	AS SHOWN	(C)	1800	3200	-	-	-	-	5000	20.00	3.854	78	
		AS11	16	4	300	(B)	3700	500	-	-	-	-	4200	25.20	1.579	40	
		AS12	25	2	AS SHOWN	(A)	5100	-	-	-	-	-	5100	10.20	3.854	40	
		AS13	16	18	300	(D)	500	200	700	-	-	-	1800	32.40	1.579	52	
<b>TOTAL</b>	<b>7.93</b>																

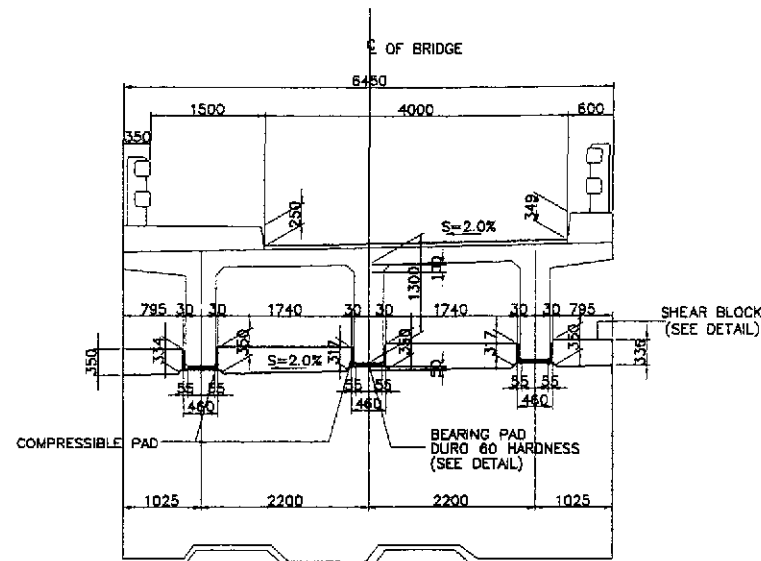
GRADE 40 TOTAL = 318 kgs.  
 GRADE 60 TOTAL = 1,101 kgs.



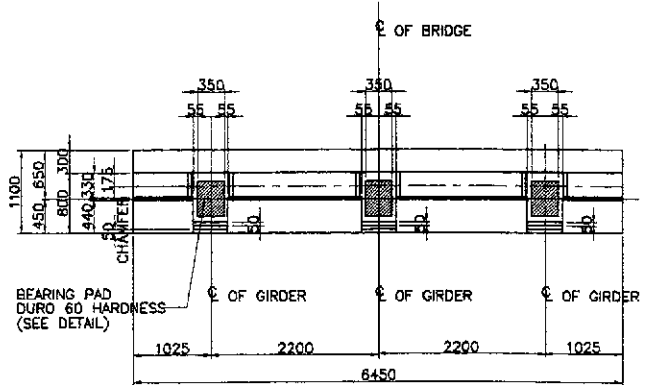
SCHEDULE OF REINFORCEMENT FOR PIER															
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	TOTAL WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )
							a	b	c	d					
COPING	12.60	C1	28	30	AS SHOWN	(C)	1100	4700	-	-	6900	207.00	4.833	1101	143.42
		C2	20	10	AS SHOWN	(A)	4700	-	-	-	4700	47.00	2.466	116	
		C3	16	31	AS SHOWN	(D)	1600	1770 ave	100	-	6990	215.14	1.579	340	
		C4	16	31	AS SHOWN	(D)	675	1770 ave	100	-	5090	147.25	1.579	250	
COLUMN	12.78	P1	32	36	AS SHOWN	(B)	400	10450	-	-	10850	390.60	6.313	2466	256.11
		P2	16	80	60	(F)	1400	60	-	-	4398	351.86	1.579	556	
		P3	16	36	120	(C)	1400	120	-	-	4398	158.34	1.579	251	
FOOTING	63.38	F1	32	33	200	(F)	1150	6350	-	-	8650	285.45	6.313	1803	130.87
		F2	32	33	200	(C)	1150	6350	-	-	8650	285.45	6.313	1803	
		F3	28	33	200	(C)	1150	6350	-	-	8650	285.45	4.833	1360	
		F4	28	33	200	(C)	1150	6350	-	-	8650	285.45	4.833	1360	
		F5	20	6	AS SHOWN	(A)	6350	-	-	-	6350	38.10	2.466	94	
		F6	20	6	AS SHOWN	(A)	6350	-	-	-	6350	38.10	2.466	94	
		F7	16	324	AS SHOWN	(E)	200	1350	150	-	3400	1101.60	1.579	1740	
TOTAL	88.76														

DESIGNED: 9/2/02, A.P. GONZALES	DATE: 9/2/02	SIGNATURE: [Signature]	PROJECT AND LOCATION: THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)	SCALE: AS SHOWN	SHEET CONTENTS: BRIDGE NO.3 PIER P1 & P2 BAR ARRANGEMENT DETAILS (RIGHT PORTION) (ULTIMATE STAGE)	SHEET NO.: B3-16
CHECKED: 9/10/02, [Signature]	APPROVED BY: [Signature]	REVIEWED BY: [Signature]	PROJECT AND LOCATION: SAN JOSE BYPASS	SCALE: FULL SIZE A1	SHEET CONTENTS: BRIDGE NO.3 PIER P1 & P2 BAR ARRANGEMENT DETAILS (RIGHT PORTION) (ULTIMATE STAGE)	SHEET NO.: B3-16
SUBMITTED: 7/10/02, [Signature]	PROJECT DIRECTOR: DANILLO C. TRAJANO	CHIEF, BRIDGES DIVISION: ADRIANO M. DOROY	DIRECTOR IV (GIC): GILBERTO S. REYES	UNDERSECRETARY: MANUEL M. BONOAN	SECRETARY: SIMEON A. DATUMANONG	

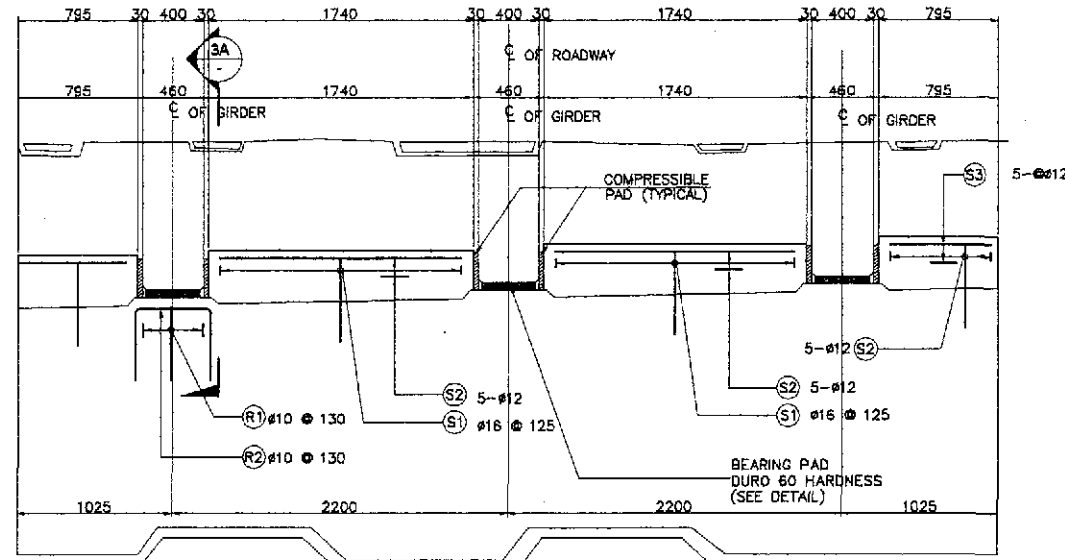
GRADE 40 TOTAL = 3,137.00 kgs.  
 GRADE 60 TOTAL = 10,137.00 kgs.



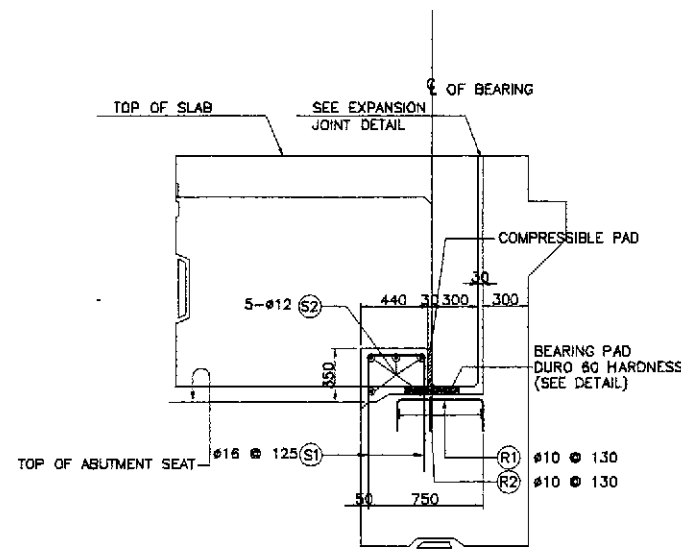
1 SECTION AT ABUTMENT SEAT  
SCALE 1:50



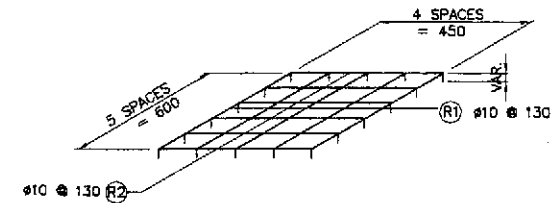
2 PLAN AT ABUTMENT SEAT  
SCALE 1:50



3 SHEAR BLOCK DETAIL  
SCALE 1:25



3A SECTION  
SCALE 1:25

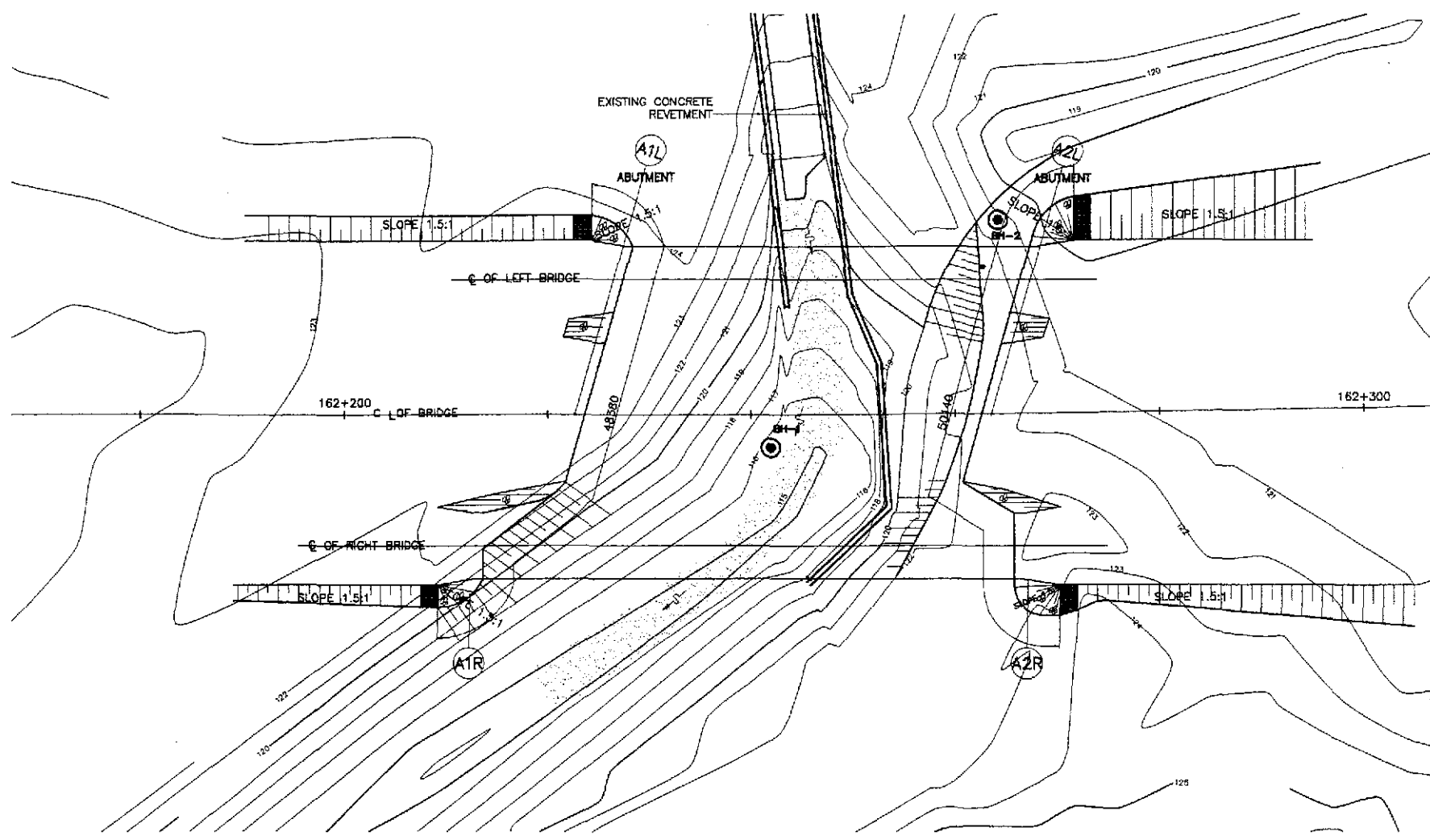


6 RISER REINFORCEMENT  
NOT TO SCALE

BAR BENDING DIAGRAM																
A							B									
a							a b c									
SCHEDULE OF REINFORCEMENT																
LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION(mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )
SHEAR KEY & RISER	0.89	S1	16	46	125	(B)	560	370	560			1490	68.54	1.578	109	166.67
		S2	12	10	AS SHOWN	(A)	1740					1740	17.40	0.888	16	
		S3	12	10	AS SHOWN	(A)	795					795	7.95	0.888	8	
		R1	10	15	130	(B)	500	450	500			1450	21.75	0.616	14	
		R2	10	18	130	(B)	500	600	500			1600	28.80	0.616	18	
TOTAL	0.89												GRADE 40 TOTAL = 185 Kgs			

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

	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	DESIGNED	9/5/02	E. N. SALLAN	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.3 SHEAR KEY AND RISER DETAILS	B3-17
	CHECKED	9/9/02	M. KUCHI	OFFICE OF THE SECRETARY				FULL SIZE A1	(RIGHT PORTION)		
SUBMITTED	9/10/02	M. KUCHI TEAM LEADER	DANILO C. TRAJANO Project Director	ADRIANO M. DORAY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary				

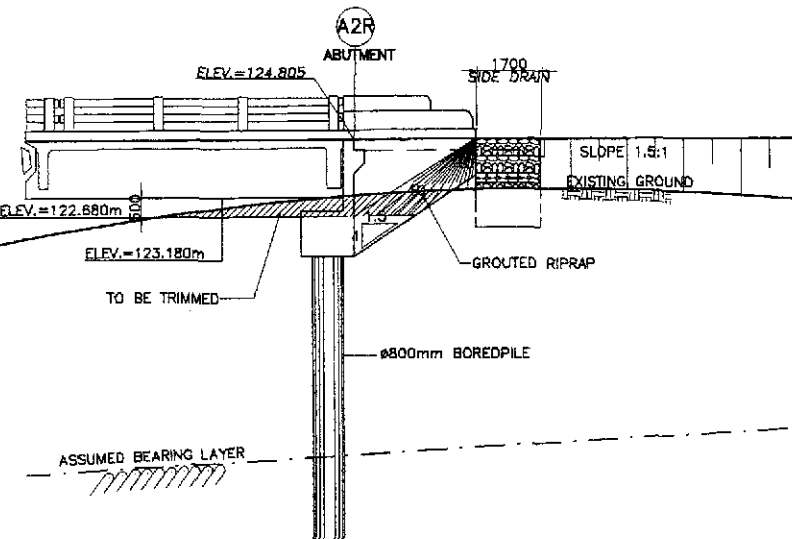
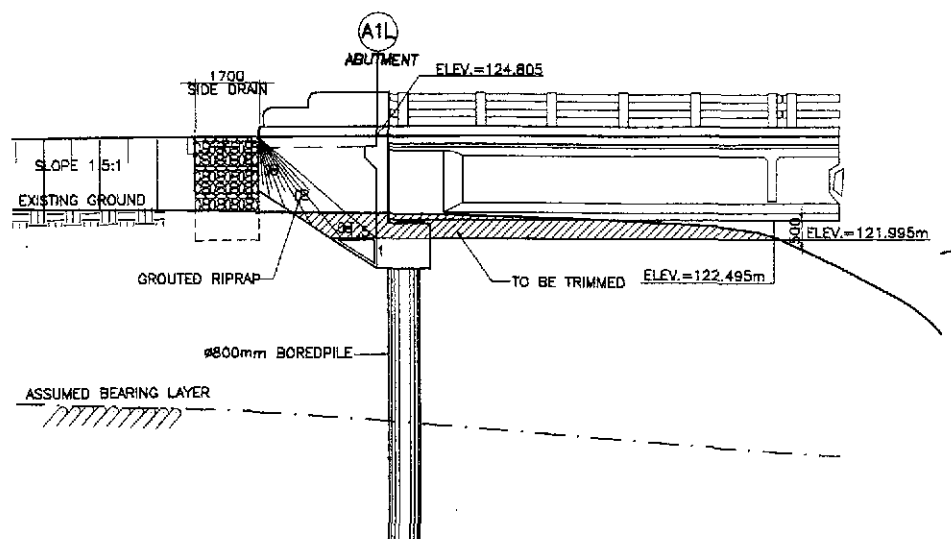


GENERAL NOTES:

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

1A PLAN @ LEFT SIDE BRIDGE SCALE 1:300

1B PLAN @ RIGHT SIDE BRIDGE SCALE 1:300



1 ABUTMENT SLOPE PROTECTION DETAIL SCALE AS SHOWN

VELOCITY (m/sec)	ROCK SIZE (mm)	
	VERY TURBULENT FLOW	SMOOTH FLOW
1.00	40	-
1.50	135	-
2.00	170	-
2.50	255	137
3.00	370	197
3.50	515	270
4.00	690	350
4.50	825	425
5.00	>900	590

LOCATION	SIZES	QUANTITY	
		ABUT. A1	ABUT. A2
GROUTED RIPRAP	200mm - 300mm IN DIA.	32.83	28.35
BORED PILE	Ø800mm	5 pcs.	5 pcs.
SIDE DRAIN	200mm ~ 300mm IN DIA.	4.52 cu. m.	6.03 cu. m.

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JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS  
YEO YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

DESIGNED: A.M. GONZALES  
CHECKED: [Signature]  
SUBMITTED: [Signature]

DATE: 9/2/02

SIGNATURE: [Signature]

Submitted By: DANILLO C. TRAJANO, Project Director

Reviewed By: PERFECTO L. ZAPLAN JR., Chief, Hydraulics Division (OC)

Recommended By: GILBERTO S. REYES, Director IV (OC)

Recommended By: MANUEL M. BONGAN, 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. 3 ABUTMENT PROTECTION AND SIDE DRAIN DETAILS (ULTIMATE STAGE)

SHEET NO.: B3-18