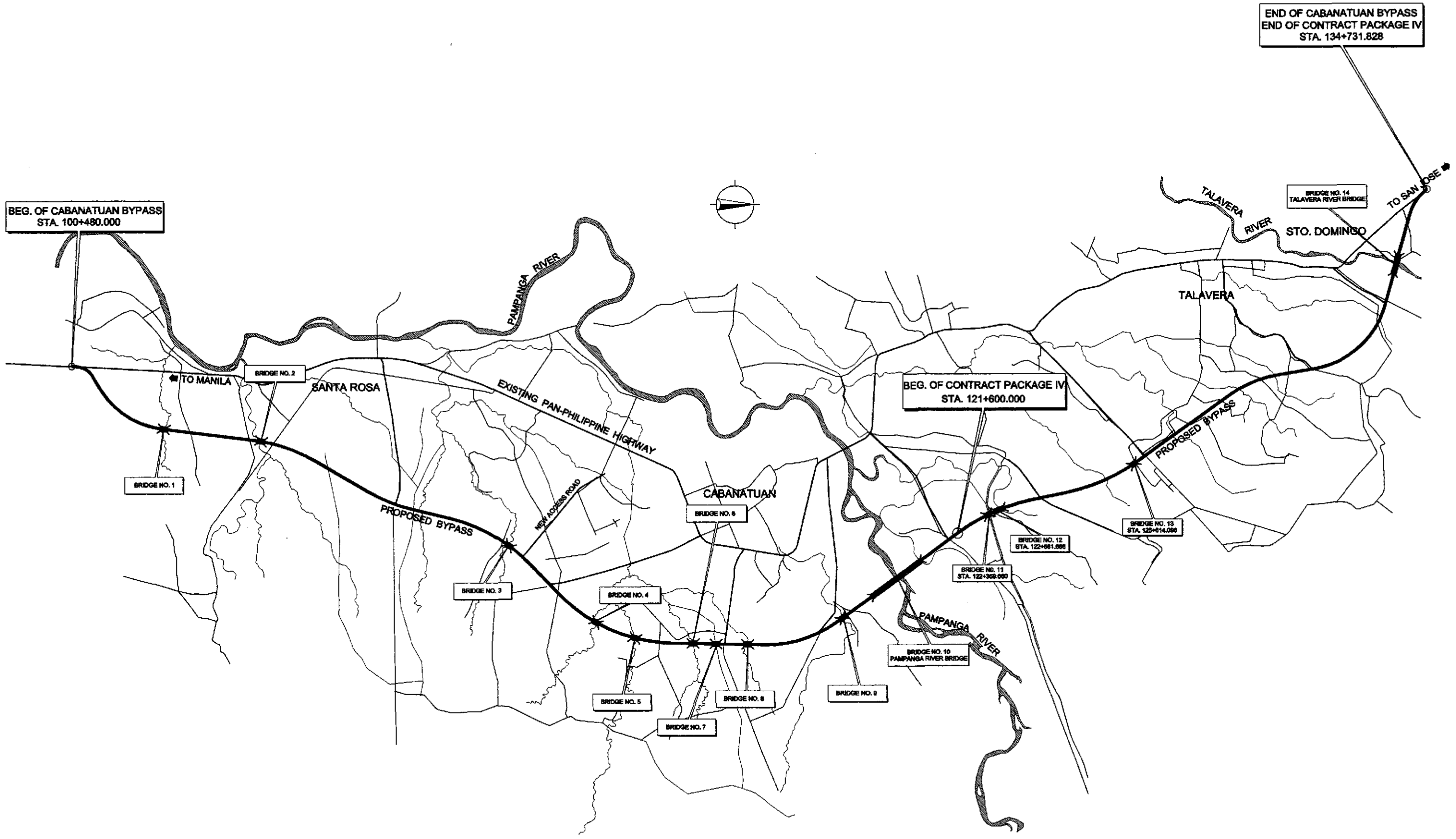


BRIDGES



A CABANATUAN BYPASS BRIDGE LOCATION MAP
NOT TO SCALE

	DESIGNED	DATE	SIGNATURE	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	PROJECT AND LOCATION :			SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	10/17/02	<i>[Signature]</i>		BUREAU OF DESIGN	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)			AS SHOWN	BRIDGE LOCATION MAP	BG-01
	SUBMITTED	10/21/02	<i>[Signature]</i>		OFFICE OF THE SECRETARY	CABANATUAN BYPASS - CONTRACT PACKAGE IV			FULL SIZE A1	(INITIAL STAGE)	
				Submitted By:	Reviewed By:	Recommended By:	Approved By:				
				DANILO C. TRAJANO Project Director	AGRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (CIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary			

GENERAL NOTES FOR BRIDGES

(SHEET 1 OF 2)

A. DESIGN CRITERIA

1. DESIGN SPECIFICATION

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

2. DESIGN METHODOLOGY

LOAD FACTOR DESIGN METHOD (ULTIMATE STRENGTH DESIGN METHOD)

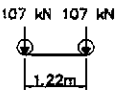
3. LOADING

3.1 DEAD LOADS

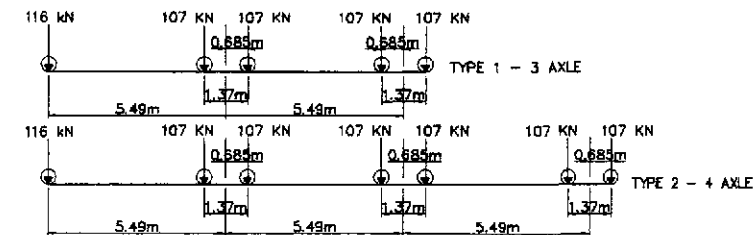
	WEIGHT
A. CONCRETE	24.00 kN/m ³
B. STEEL	77.00 kN/m ³
C. EARTH	19.00 kN/m ³
D. WEARING SURFACE	1.10 kN/m ²

3.2 LIVE LOADS

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



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



3.3 IMPACT

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

3.4 SEISMIC LOAD

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

3.5 OTHER LOADS

IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS, 1996.

3.6 LOAD COMBINATION

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

B. MATERIALS

1. CONCRETE

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

STRUCTURAL MEMBER	CLASS	28 - DAY CYLINDER STRENGTH		MAX. SIZE OF COARSE AGGREGATE mm (in.)	REMARKS
		MPa	PSI		
CAST - IN PLACE GIRDERS, SLABS, DIAPHRAGMS, WINGWALLS, BACKWALLS, COPINGS, COLUMNS	A (MOD)	21	3045	20 (3/4)	
FOOTINGS	A	21	3045	38 (1-1/2)	
PRECAST R.C. PILES	AA	28	4060	20 (3/4)	
THIN REINFORCED SECTIONS RAILINGS AND RAILPOST	C	21	3045	12 (1/2)	
PRESTRESSED CONCRETE MEMBERS	P	35	5075	20 (3/4)	⊕ TRANSFER
		41	5946	20 (3/4)	⊕ 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 (16mmØ AND SMALLER)
F_y = 276 MPa (40,000 psi)
GRADE 60 (20mmØ AND LARGER)
F_y = 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 F_y = 1860 MPa (270,000psi).

4. STRUCTURAL STEEL, BOLTS AND WELDS

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

5. ELASTOMERIC BEARING PADS

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

SPECIFICATIONS

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

C. CONSTRUCTION

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

1. DIMENSIONS

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

2. SETTING OUT

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

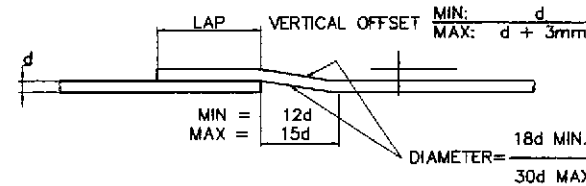
3. REINFORCED CONCRETE

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

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

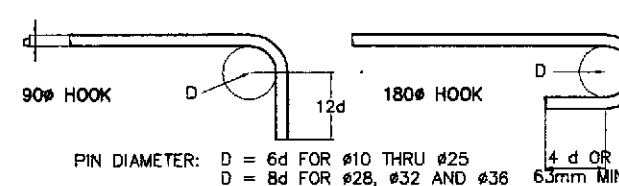
c. BAR BENDING, SPLICING AND PLACING

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

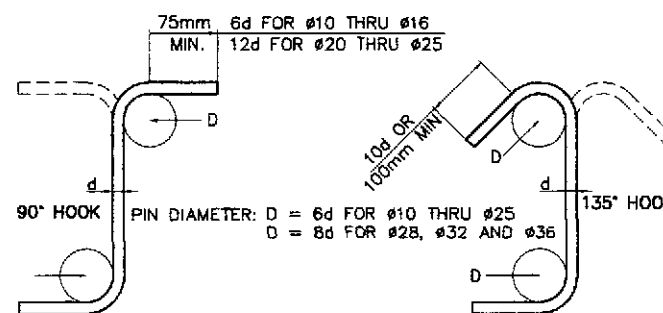


(B) HOOKS AND BENDS

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.

	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 (Palidil, Cabanatuan and San Jose Bypasses)	SCALE : AS SHOWN	SHEET CONTENTS : GENERAL NOTES FOR BRIDGES (SHEET 1 OF 2) (INITIAL STAGE)	SHEET NO. : BG-02	
	BUREAU OF DESIGN Submitted By: DANILO C. TRAJANO Project Director Reviewed By: ADRIANO M. DOROY Chief, Bridge Division Recommended By: GILBERTO S. REYES Director IV (CIC)	OFFICE OF THE SECRETARY Approved By: MANUEL M. BONDAN Undersecretary Approved By: SIMEON A. DATUMANONG Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		
	DESIGNED: 10/2/14 CHECKED: 10/10/14 SUBMITTED: 10/2/14	DATE: 10/2/14 SIGNATURE: E.N. SALLAN TEAM LEADER				

GENERAL NOTES FOR BRIDGES

(SHEET 2 OF 2)

8. STRUCTURAL STEEL

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

9. SHORING

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

10. EXCAVATION

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

11. WATER ELEVATION

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

12. DETOUR

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

13. PRESTRESSED CONCRETE

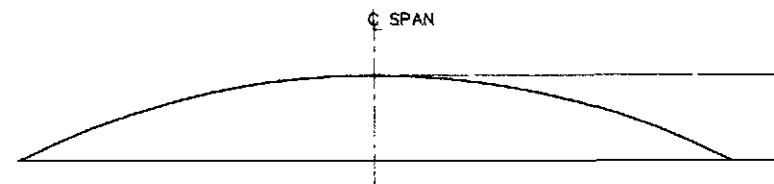
GIRDER DESIGN GUIDE

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

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

14. DRAWINGS






























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



DEAD LOAD CAMBER DIAGRAM




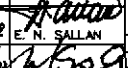

A = FABRICATION CAMBER - ESTIMATED PRESTRESS CAMBER LESS DEFLECTION DUE TO GIRDER DEAD LOAD

SYMBOLS

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

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	RDWY	ROADWAY
ELEV	ELEVATION	REINF	REINFORCEMENT
ENGR	ENGINEER	SDWK	SIDEWALK
EQ	EQUAL	SL	SLOPE
EW	EACHWAY	SP	SPIRAL
EXP	EXPANSION	SPCD	SPACED
EXT	EXTERIOR	SPCS	SPACES
EXIST	EXISTING	STD	STANDARD
FF	FAR FACE	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/	WITH
kN	KILONEWTON	&	AND

 JAPAN INTERNATIONAL COOPERATION AGENCY  KATAHIRA & ENGINEERS INTERNATIONAL  YACHIYO ENGINEERING CO., LTD.	DESIGNED: 10/2/02 CHECKED: 10/19/02 SUBMITTED: 10/2/02	SIGNATURE:  E. N. SALLAN TEAM LEADER	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	BUREAU OF DESIGN OFFICE OF THE SECRETARY Recommended By: MANUEL M. BONDAN Approved By: SIMEON A. DATUMANONG	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE IV	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : GENERAL NOTES FOR BRIDGES (SHEET 2 OF 2) (INITIAL STAGE)	SHEET NO. : BG-03
	Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: ADRIANO M. DOROY Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director IV (GIC)	Approved By: SIMEON A. DATUMANONG Secretary	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE IV	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : GENERAL NOTES FOR BRIDGES (SHEET 2 OF 2) (INITIAL STAGE)	SHEET NO. : BG-03

BRIDGE NAME : BRIDGE NO. 11 (INITIAL STAGE)
 BRIDGE LENGTH : 35.00 m
 SPECIFICATION : 1 - 35.00 m SPAN TYPE VI PSCG ON SEAT TYPE ABUTMENT

BRIDGE NAME : BRIDGE NO. 13 (INITIAL STAGE)
 BRIDGE LENGTH : 20.00 m
 SPECIFICATION : 1 - 20.00 m SPAN TYPE IV PSCG ON SEAT TYPE ABUTMENT

SUMMARY OF QUANTITIES						
PAY ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		SUPER-STRUCTURE	TOTAL
			" A1 "	" A2 "		
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	120.00	99.00		219.00
104(3)	Embankment from Borrow Pit	cu.m.	187.00	162.00		349.00
104(4)	Embankment for Bridge Approach	cu.m.	249.00	191.00		440.00
200(1)	Aggregate Subbase Course	cu.m.	15.00	15.00		30.00
311(2)	PCC Pavement (Reinforced) t=300mm, Including Dowel Bars (Approach Slab)	sq.m.	59.00	59.00		118.00
400(4)b	RC Piles (450 mm x 450 mm) Furnished	l.m.	236.00	236.00		472.00
400(13)b	RC Piles (450 mm x 450 mm) Driven	l.m.	207.00	207.00		414.00
400(15)b	Test Piles (450 mm x450 mm)	l.m.	12.25	12.25		24.50
400(19)b	Pile Shoes for 450 mm x 450 mm Piles	each	24.00	24.00		48.00
401(1)a	Concrete Post and Rolling	l.m.			70.00	70.00
404(1)	Reinforcing Steel, Grade 40	kg	3,552.00	3,539.00	18,915.00	24,006.00
404(2)	Reinforcing Steel, Grade 60	kg	7,028.00	6,851.00	1,546.00	15,425.00
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	117.00	112.00		229.00
405(1)d	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.			118.00	118.00
405(3)a	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	5.00	5.00	15.00	25.00
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	6.00	6.00		12.00
406(1)	Prestressed Concrete Girder Type VI L=35.00m	each			5.00	5.00
407(1)c	Elastomeric Bearing Pad (600x350x50, Duro 60)	each	5.00	5.00		10.00
407(2)a	Expansion Joint, (± 40mm Movement)	l.m.	10.00	10.00		20.00
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.	1.70	1.70		3.00
407(4)	Metal Drain (150 mm Ø G.I. Drain Pipe)	l.m.			3.00	3.00
504(1)	Grouted Riprap, Class "A"	cu.m.	74.00	64.00		138.00

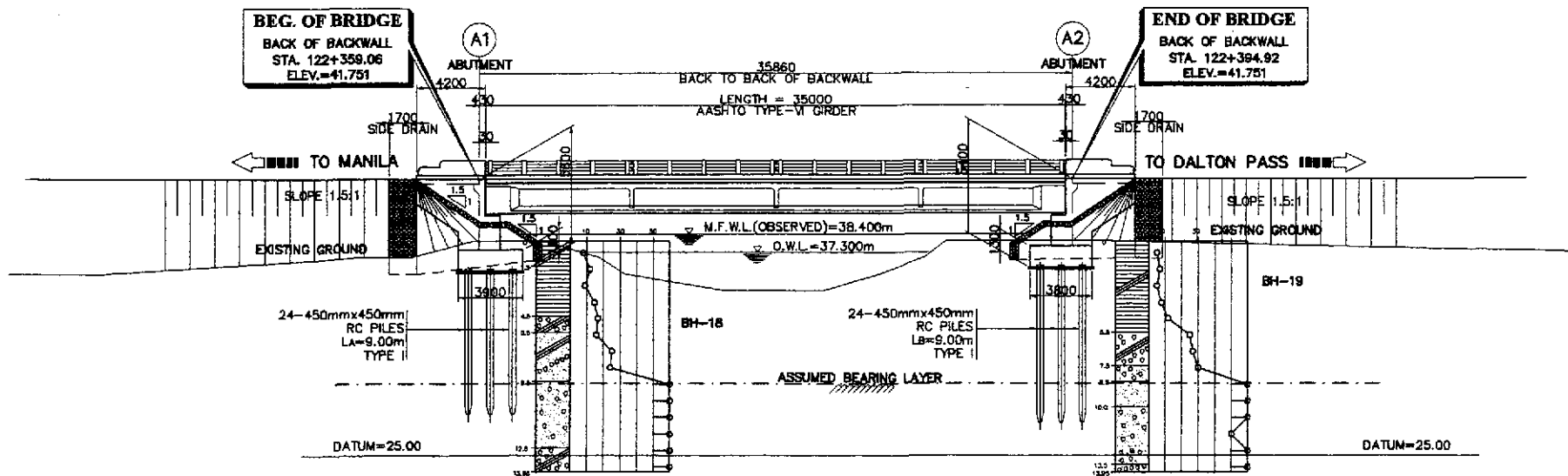
SUMMARY OF QUANTITIES						
PAY ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		SUPER-STRUCTURE	TOTAL
			" A1 "	" A2 "		
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	94.00	94.00		188.00
104(3)	Embankment from Borrow Pit	cu.m.	180.00	180.00		361.00
104(4)	Embankment for Bridge Approach	cu.m.	214.00	214.00		429.00
200(1)	Aggregate Subbase Course	cu.m.	15.00	15.00		30.00
311(2)	PCC Pavement (Reinforced) t=300mm, Including Dowel Bars (Approach Slab)	sq.m.	59.00	59.00		119.00
400(4)b	RC Piles (450 mm x 450 mm) Furnished	l.m.	445.00	445.00		890.00
400(13)b	RC Piles (450 mm x 450 mm) Driven	l.m.	420.00	420.00		840.00
400(15)b	Test Piles (450 mm x450 mm)	l.m.	24.25	24.25		48.50
400(19)b	Pile Shoes for 450 mm x 450 mm Piles	each	21.00	21.00		42.00
401(1)a	Concrete Post and Rolling	l.m.			40.00	40.00
404(1)	Reinforcing Steel, Grade 40	kg	2,948.00	2,948.00	10,524.00	16,521.00
404(2)	Reinforcing Steel, Grade 60	kg	6,551.00	6,551.00	1,124.00	14,227.00
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	108.00	108.00		217.00
405(1)d	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.			67.00	68.00
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	4.00	4.00	9.00	18.00
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	6.00	6.00		13.00
406(1)a	Prestressed Concrete Girder Type IV L=20.00m	each			5.00	5.00
407(1)c	Elastomeric Bearing Pad (600x350x50, Duro 60)	each	5.00	5.00		10.00
407(2)a	Expansion Joint, (± 40mm Movement)	l.m.	10.00	10.00		20.00
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.	1.70	1.70		4.00
407(4)	Metal Drain (150 mm Ø G.I. Drain Pipe)	l.m.			3.00	4.00
504(1)	Grouted Riprap, Class "A"	cu.m.	70.00	70.00		141.00

BRIDGE NAME : BRIDGE NO. 12 (INITIAL STAGE)
 BRIDGE LENGTH : 100.00 m
 SPECIFICATION : 4 - 25.00 m SPAN TYPE IV PSCG ON SEAT TYPE ABUTMENT

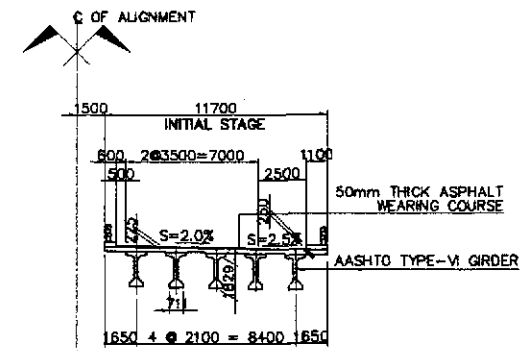
SUMMARY OF QUANTITIES									
PAY ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		PIER			SUPER-STRUCTURE	TOTAL
			" A1 "	" A2 "	" P1 "	" P2 "	" P3 "		
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	224.00	98.00					322.00
103(2)c	Bridge Excavation, Common, Below O.W.L.	cu.m.			149.00	201.00	276.00		626.00
104(3)	Embankment from Borrow Pit	cu.m.	46.00	254.00					300.00
104(4)	Embankment for Bridge Approach	cu.m.	59.00	237.00					296.00
200(1)	Aggregate Subbase Course	cu.m.	15.00	15.00					30.00
311(2)	PCC Pavement (Reinforced) t=300mm, Including Dowel Bars (Approach Slab)	sq.m.	60.00	60.00					120.00
400(3)a	BH - Steel Piles (450 mm x 260) Furnished	l.m.	176.00	138.00	145.00	145.00	145.00		749.00
400(10)a	BH - Steel Piles (450 mm x 260) Driven	l.m.	176.00	138.00	145.00	145.00	145.00		749.00
400(15)c	Test Piles (BH - Steel Pile, 450 mm x260)	l.m.	10.00	8.00	7.00	7.00	7.00		39.00
401(1)a	Concrete Post and Rolling	l.m.						204.00	204.00
404(1)	Reinforcing Steel, Grade 40	kg	3,493.00	3,711.00	3,408.00	3,408.00	3,408.00	51,616.00	69,044.00
404(2)	Reinforcing Steel, Grade 60	kg	8,000.00	8,383.00	17,475.00	17,712.00	17,475.00	10,985.00	80,030.00
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	118.00	126.00	126.00	127.00	126.00		623.00
405(1)d	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.						334.00	334.00
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	4.00	4.00				44.00	52.00
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	19.00	25.00	7.00	7.00	7.00		65.00
406(1)d	Prestressed Concrete Girder Type IV L=25.00m	each						20.00	20.00
407(1)c	Elastomeric Bearing Pad (600x350x50, Duro 60)	each	5.00	5.00	10.00	10.00	10.00		40.00
407(2)a	Expansion Joint, (± 40mm Movement)	l.m.	10.00	10.00					20.00
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.	2.00	2.00					4.00
407(4)	Metal Drain (150 mm Ø G.I. Drain Pipe)	l.m.						9.00	9.00
504(1)	Grouted Riprap, Class "A"	cu.m.	10.00	24.00					34.00
510(1)	Rubble Concrete	cu.m.	17.00	54.00					71.00
507(2)b	Steel Sheet Pile (85x400x8mm Thk.), Furnished and Driven	l.m.	280.00	403.00					683.00
509(1)	Gabions	cu.m.			176.00	176.00			352.00

NOTE: ALL QUANTITIES SHALL BE VERIFIED DURING CONSTRUCTION

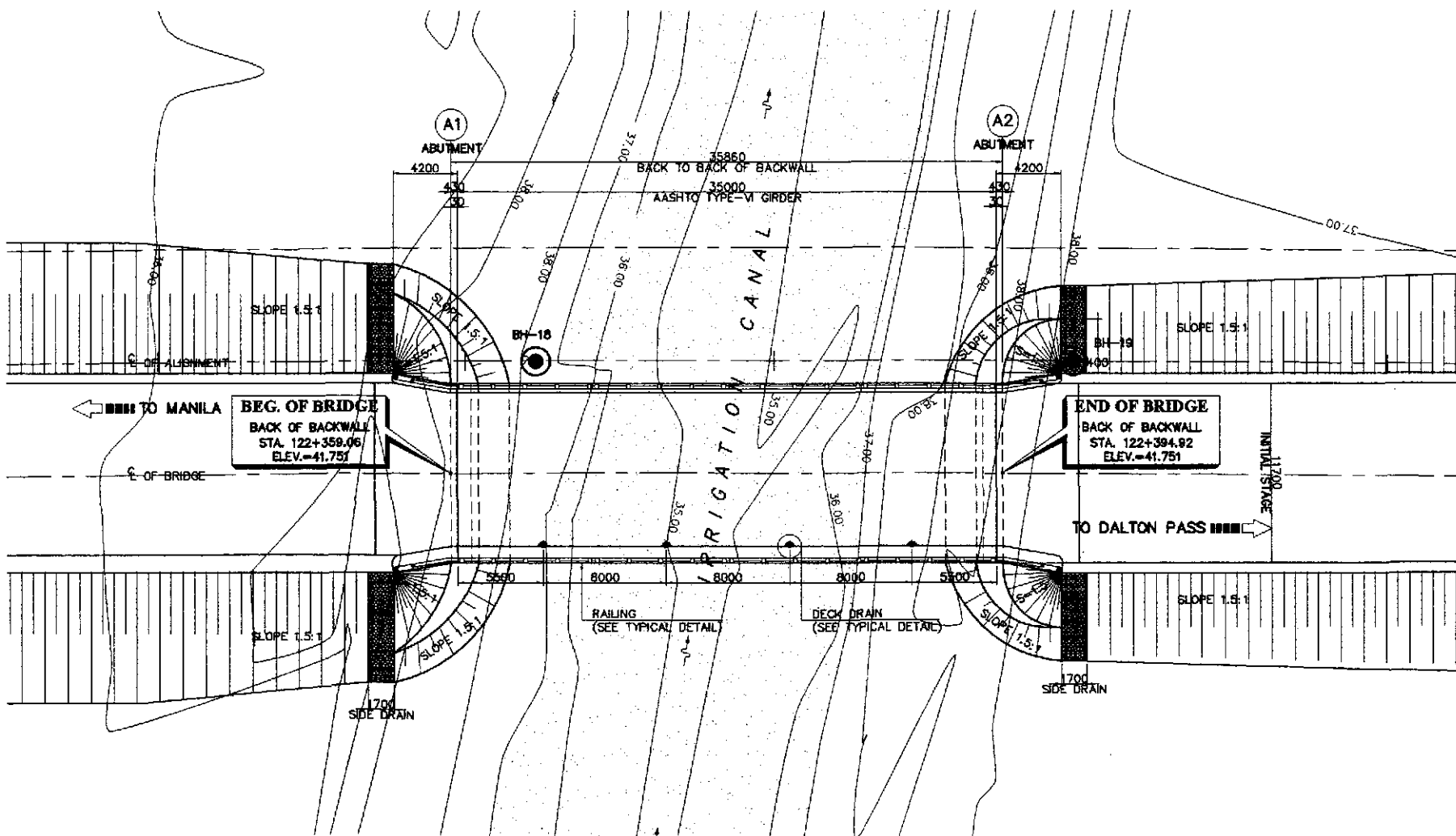
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/12	E. N. SALLAN		Submitted By:	BUREAU OF DESIGN	Office of the Secretary	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	N. T. S.	BRIDGE NO. 11, 12 & 13 SUMMARY OF QUANTITIES	BG-04	
	SUBMITTED	10/21/12	M. KIUCHI TEAM LEADER		DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (OC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE IV		FULL SIZE A1



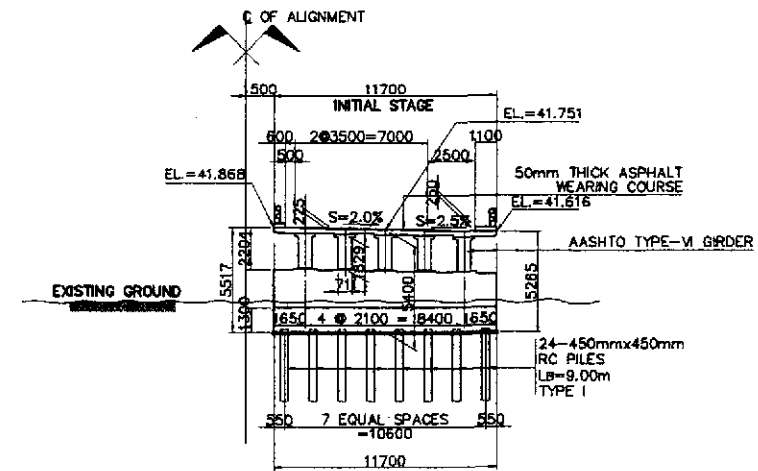
1 GENERAL ELEVATION
SCALE 1:200



3 SECTION @ MIDSPAN
SCALE 1:200



2 GENERAL PLAN
SCALE 1:200



4 SECTION @ ABUTMENT A2
SCALE 1:200

HYDRAULIC DESIGN DATA	
IRRIGATION CANAL	-

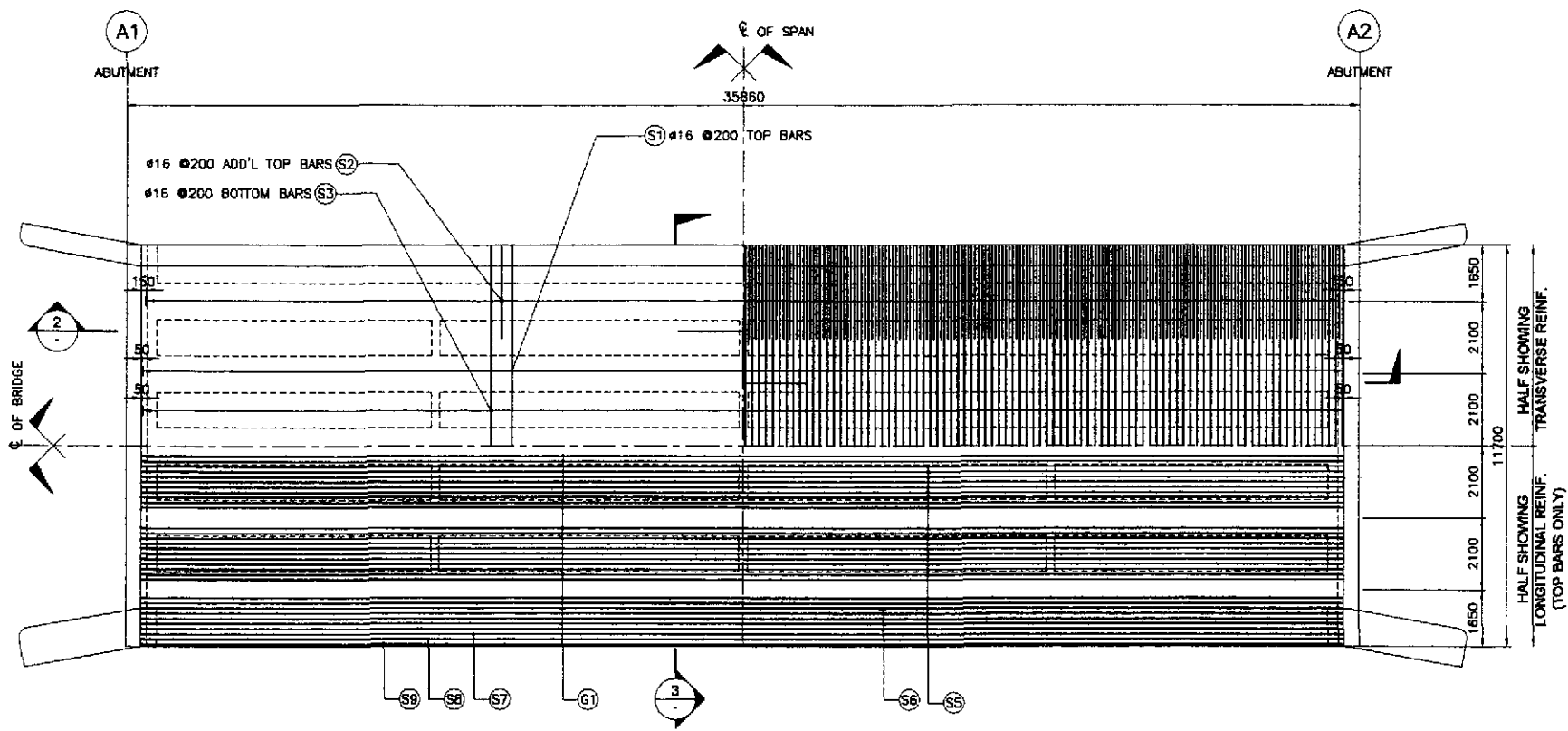
NOTE :
PRIOR TO CONSTRUCTION SOIL INVESTIGATION SHALL BE CONDUCTED FOR CONFIRMATION OF ASSUMED BEARING CAPACITY AND FOOTING ELEVATION.

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

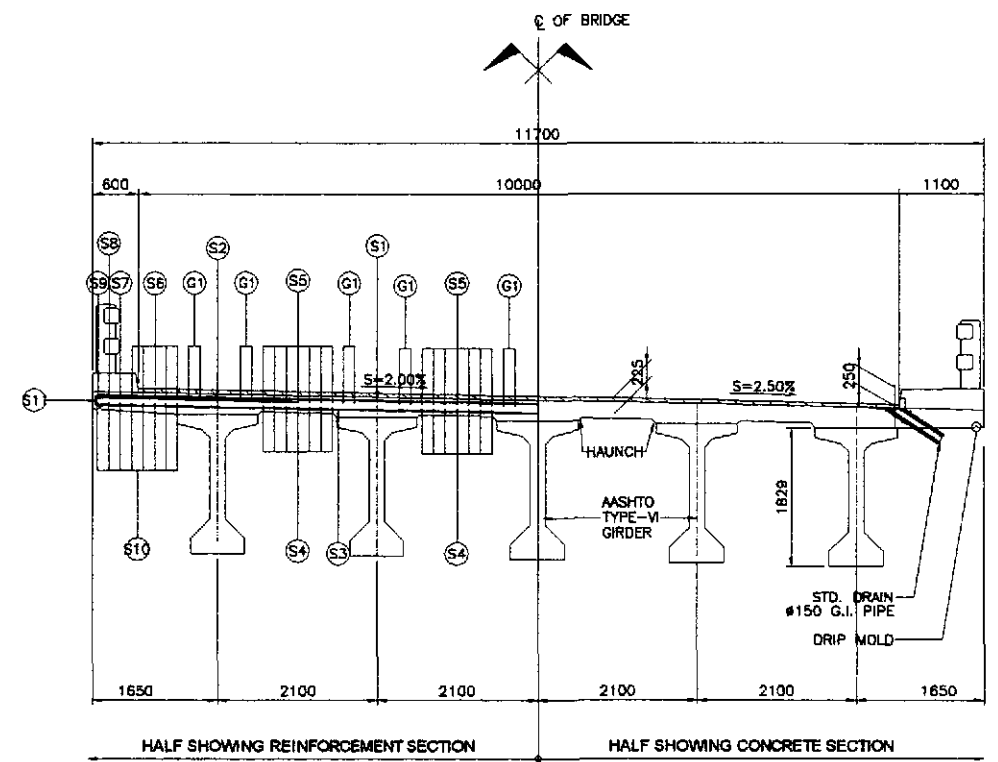
A CABANATUAN BRIDGE NO.11 (STA. 122+359.06)
SCALE AS SHOWN

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

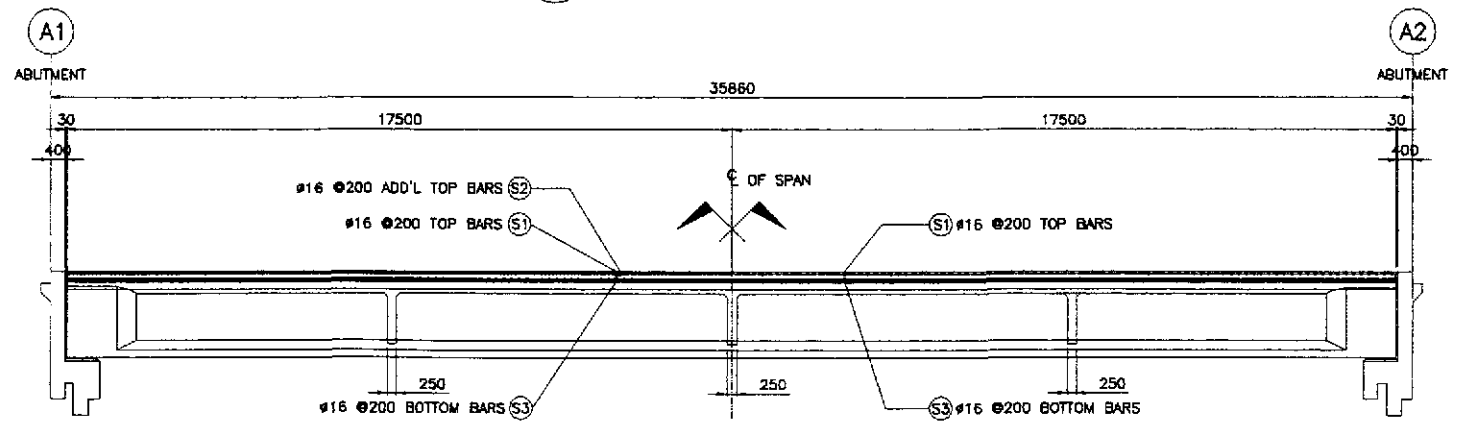
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE IV	SCALE : 1 : 200 FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 11 GENERAL PLAN, ELEVATION AND SECTIONS (INITIAL STAGE)	SHEET NO. : B11-01
	CHECKED	10/12/10	[Signature]		BUREAU OF DESIGN							
SUBMITTED				OFFICE OF THE SECRETARY								
Submitted By:				Reviewed By:		Recommended By:		Recommended By:				
DANILO C. TRAJANO Project Director				ADRIANO M. BORJOY Chief, Bridges Division		GILBERTO S. REYES Director IV (OIC)		MANUEL M. BONDAN Undersecretary		SIMEON A. DATUMANONG Secretary		



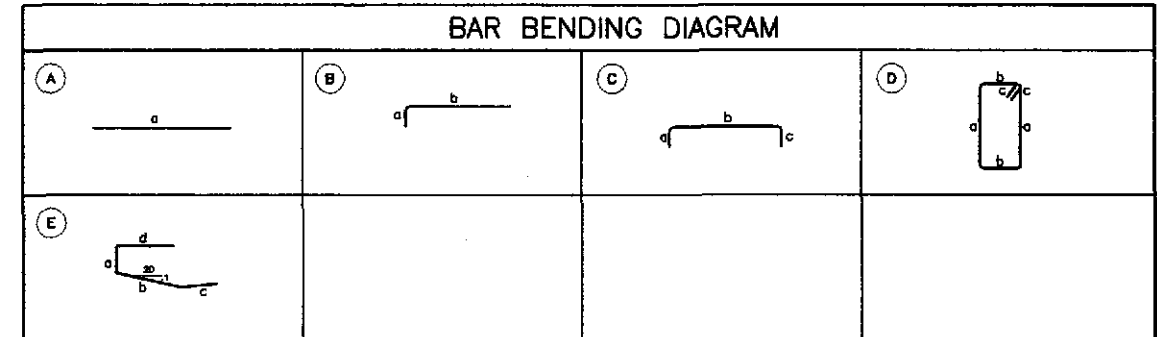
1 FRAMING PLAN
SCALE 1:100



3 TYPICAL CROSS-SECTION
SCALE 1:50



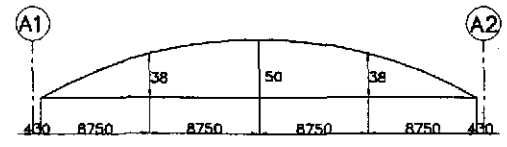
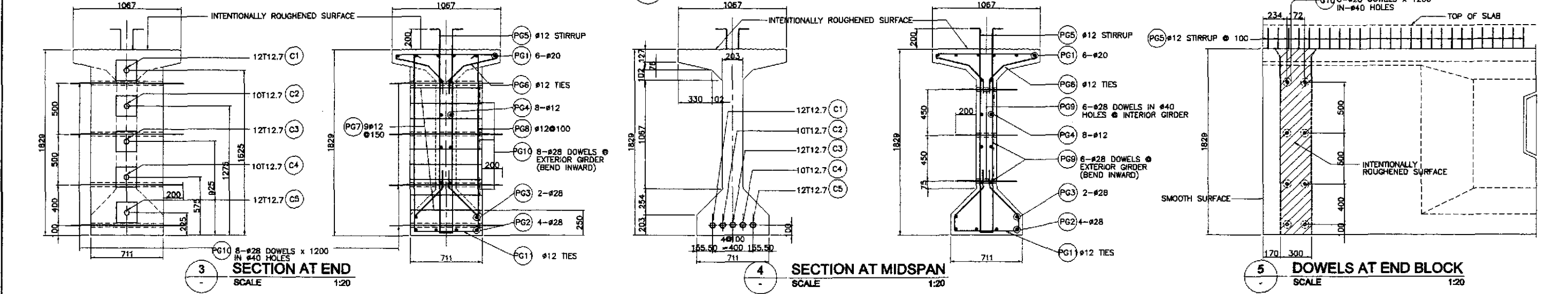
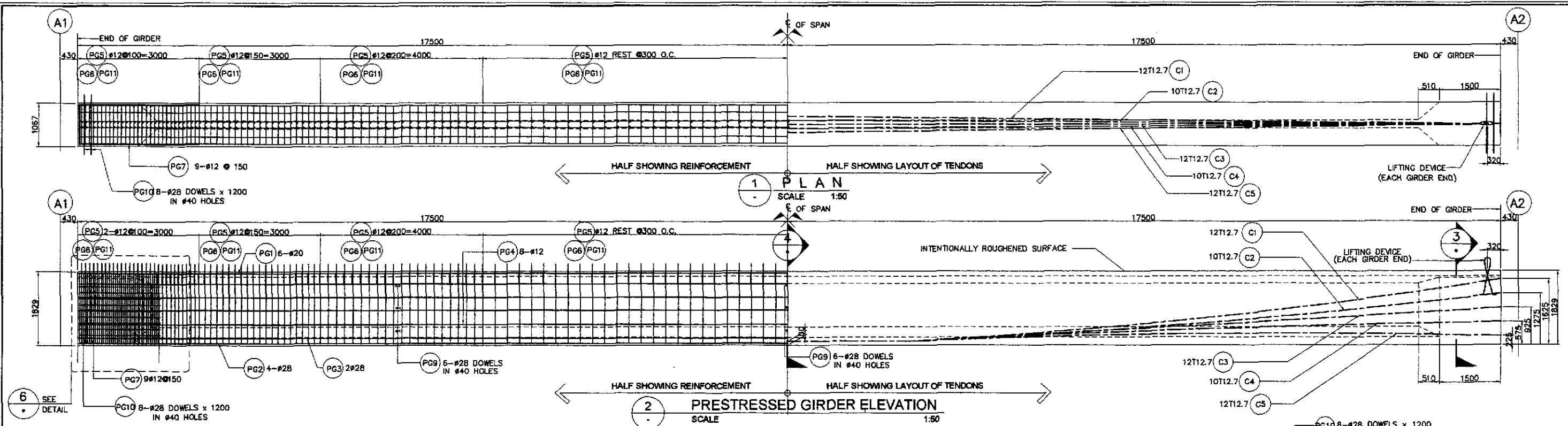
2 LONGITUDINAL SECTION
SCALE 1:100



ESTIMATED QUANTITIES OF SUPERSTRUCTURE			
ITEM NO.	DESCRIPTION	UNIT	TOTAL
404(1)a	REINFORCING STEEL GRADE 40	kgs.	29222
	DECK SLAB	14503	
	DIAPHRAGM	442	
	GIRDER	9680	
	SIDEWALK, RAILING, & POST	3255	
	APPROACH SLAB	1342	
404(1)b	REINFORCING STEEL GRADE 80	kgs.	14855
	DECK SLAB	0	
	DIAPHRAGM	1546	
	GIRDER	8385	
	SIDEWALK, RAILING, & POST	708	
	APPROACH SLAB	4216	
405(1)	STRUCTURAL CONCRETE	cu. m.	308.52
	DECK SLAB	101.91	
	DIAPHRAGM	15.32	
	GIRDER	132.75	
	SIDEWALK, RAILING, & POST	23.18	
	APPROACH SLAB	35.36	

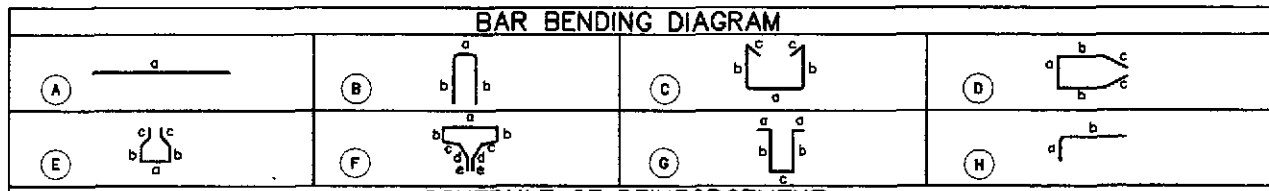
SCHEDULE OF REINFORCEMENT															
LOCATION	CONCRETE VOLUME (m³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT IN (kg)	REBAR RATIO (kg/m³)
							a	b	c	d					
DECK SLAB	101.91	G1	16	20	AS SHOWN	(A)	34900	-	-	-	34900	688.00	1.579	1103	142.31
		S1	16	176	200	(C)	145	11600	145	-	11890	2092.64	1.579	3305	
		S2	16	352	200	(B)	145	2850	-	-	2795	983.84	1.579	1554	
		S3	16	176	200	(C)	145	11800	145	-	11890	2092.64	1.579	3305	
		S4	16	28	150	(A)	34900	-	-	-	34900	977.20	1.579	1543	
		S5	16	28	150	(A)	34900	-	-	-	34900	977.20	1.579	1543	
		S6	16	10	AS SHOWN	(A)	34900	-	-	-	34900	348.00	1.579	552	
		S7	16	2	AS SHOWN	(A)	34900	-	-	-	34900	68.80	1.579	111	
		S8	16	2	AS SHOWN	(A)	34900	-	-	-	34900	68.80	1.579	111	
		S9	16	2	AS SHOWN	(A)	34900	-	-	-	34900	68.80	1.579	111	
		S10	16	16	AS SHOWN	(A)	34900	-	-	-	34900	558.40	1.579	882	
TOTAL	101.91														GRADE 40 = 14,503 kgs.

	DATE: 10/12/02 DESIGNED: E. N. SALLAN CHECKED: 10/17/02 SUBMITTED: 10/16/02	SIGNATURE: <i>[Signature]</i> E. N. SALLAN TEAM LEADER		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)	SCALE: AS SHOWN FULL SIZE A1	SHEET CONTENTS: BRIDGE NO. 11 DECK FRAMING PLAN AND SECTIONS (INITIAL STAGE)	SHEET NO.: B11-02		
	SUBMITTED BY: DANILLO C. TRAJANO, Project Director REVIEWED BY: ADRIANO M. DOROY, Chief, Bridges Division RECOMMENDED BY: GILBERTO S. REYES, Director IV (DC)				OFFICE OF THE SECRETARY APPROVED BY: MANUEL M. BONDAN, Undersecretary SIMEON A. DATUMANG, Secretary				CABANATUAN BYPASS - CONTRACT PACKAGE IV	
	PROJECT AND LOCATION: THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)									



7 CAMBER DIAGRAM
NOT TO SCALE

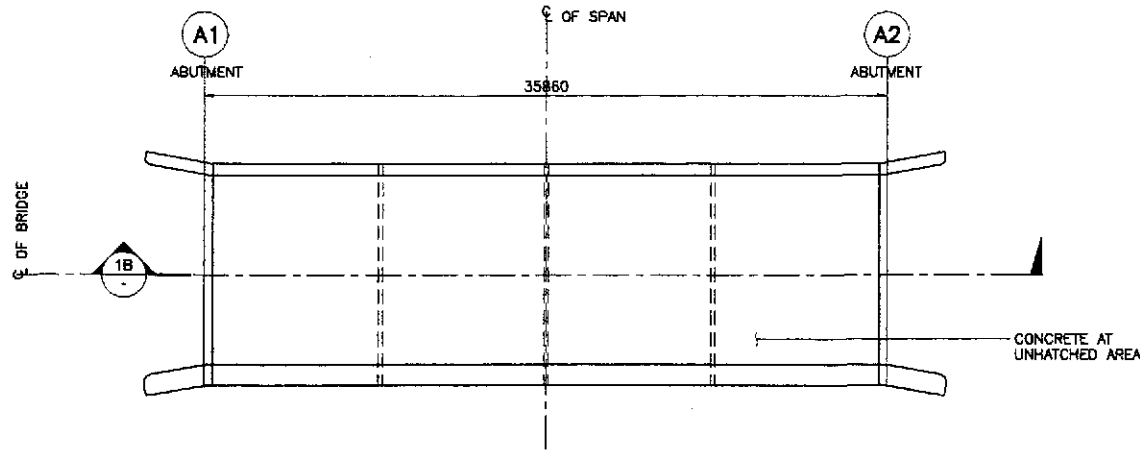
NOTES:
 1.) SEE GENERAL NOTES, -2, FOR GIRDER DESIGN GUIDE.
 2.) JACKING FORCE PER GIRDER, $P_j = 7710$ KN.
 3.) JACKING WILL BE DONE AT BOTH ENDS.
 4.) FINAL PRESTRESSING FORCE @ MIDSPAN,
 $F_{int} = 5302$ KN.



STRUCTURE COMPONENT	BAR MARK	SIZE (mm)	QTY.	SPACING	BAR SHAPE	DIMENSION (mm)					LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONC. VOLUME (cu.m)	REBAR RATIO (kg/cu.m)	REMARKS
						a	b	c	d	e							
GIRDER	PG1	20	6	AS SHOWN	(A)	34920	-	-	-	-	34920	209.52	2.466	517	26.55	136.09	QUANTITIES ARE FOR ONE (1) GIRDER ONLY
	PG2	28	4	AS SHOWN	(A)	34920	-	-	-	-	34920	139.68	4.833	676			
	PG3	28	2	AS SHOWN	(A)	34920	-	-	-	-	34920	69.84	4.833	338			
	PG4	12	8	AS SHOWN	(A)	34920	-	-	-	-	34920	279.36	0.888	249			
	PG5	12	190	100	(G)	100	2000	103	-	-	4303	817.57	0.888	727			
	PG6	12	180	100	(F)	1000	50	340	200	150	2480	471.20	0.888	419			
	PG7	12	18	150	(D)	635	1450	550	-	-	4635	83.43	0.888	75			
	PG8	12	30	100	(C)	635	1750	150	-	-	4435	133.05	0.888	119			
	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	190	100	(E)	635	160	400	150	-	2055	390.45	0.888	347			

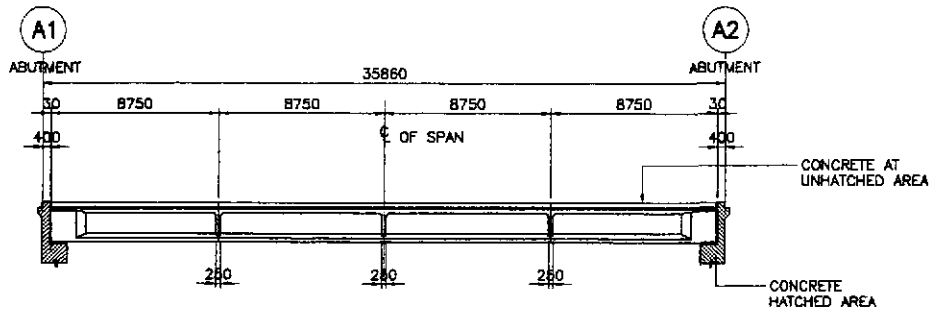
GRADE 40 TOTAL = 1,936 kgs.
 GRADE 60 TOTAL = 1,677 kgs.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION:	SCALE:	SHEET CONTENTS:	SHEET NO.:
	CHECKED	10/12/02	<i>[Signature]</i>		BUREAU OF DESIGN	OFFICE OF THE SECRETARY				AS SHOWN	BRIDGE NO. 11 AASHTO TYPE VI GIRDER	B11-03
	SUBMITTED	<i>[Signature]</i>	<i>[Signature]</i>		Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: ADRIANO M. DORDY Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director IV (CIC)	Approved By: MANUEL M. BONDAN Undersecretary	Approved By: SIMON A. DATUMANONG Secretary	FULL SIZE A1	(INITIAL STAGE)	



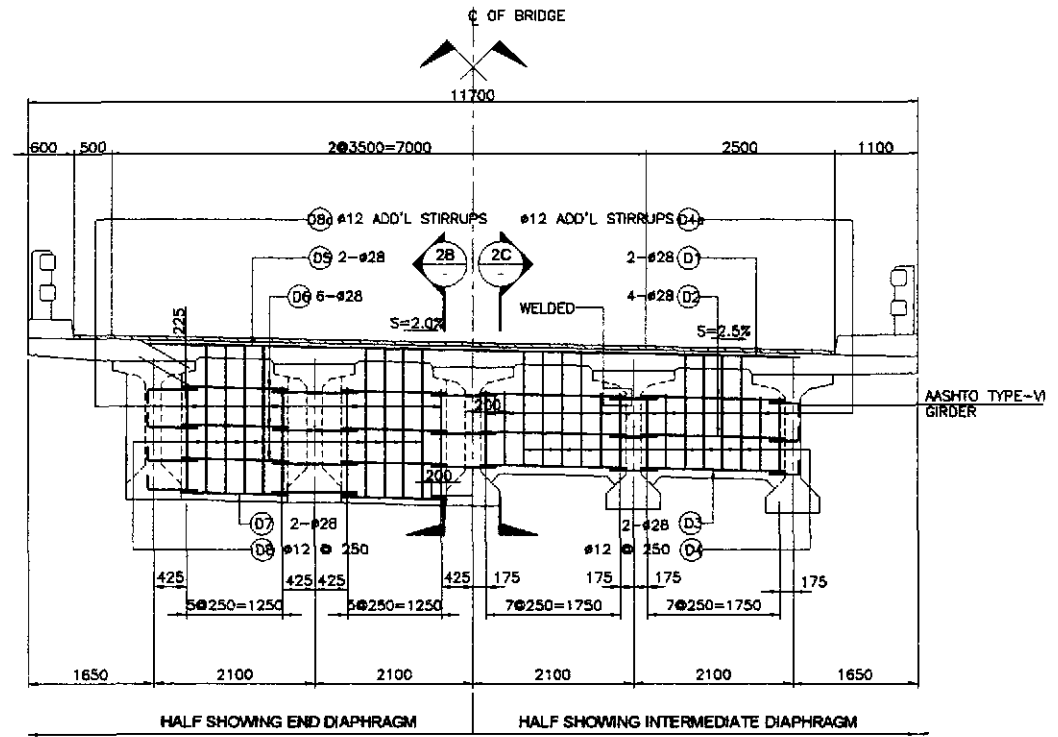
1A PLAN
SCALE 1:200

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



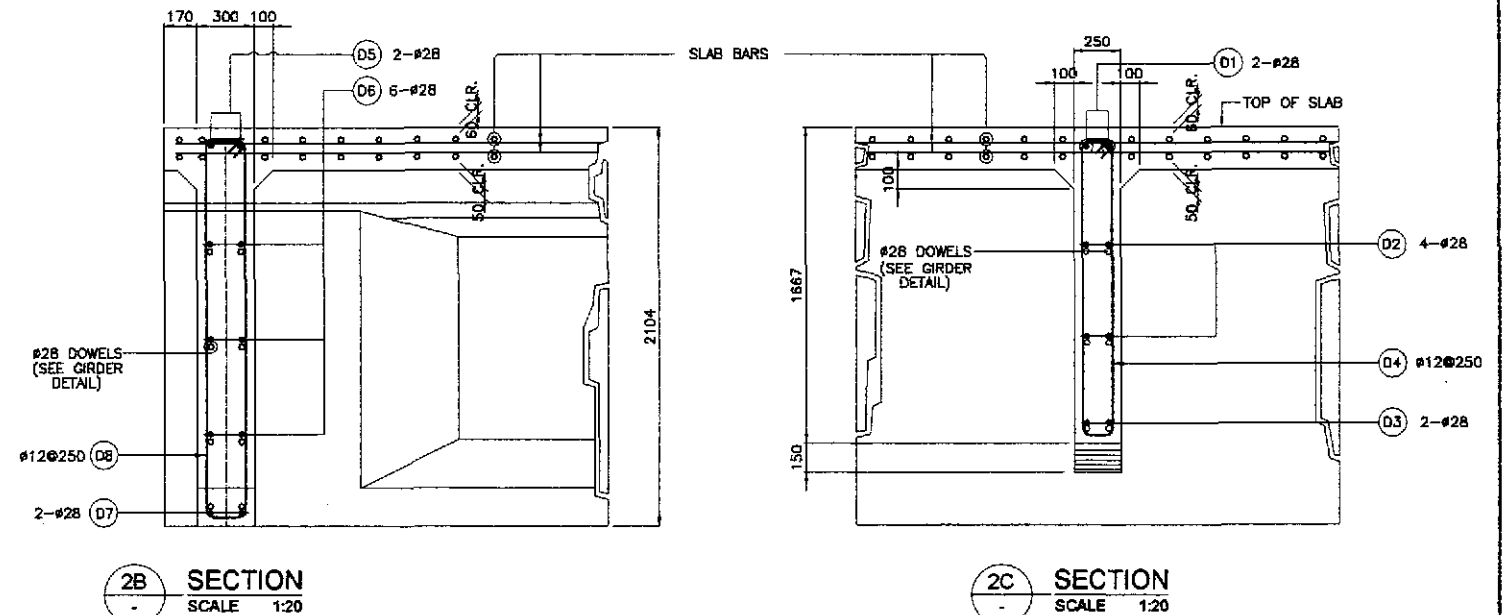
1B LONGITUDINAL SECTION
SCALE 1:200

1 CONCRETE POURING SEQUENCE
SCALE 1:200



2A ELEVATION
SCALE 1:50

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

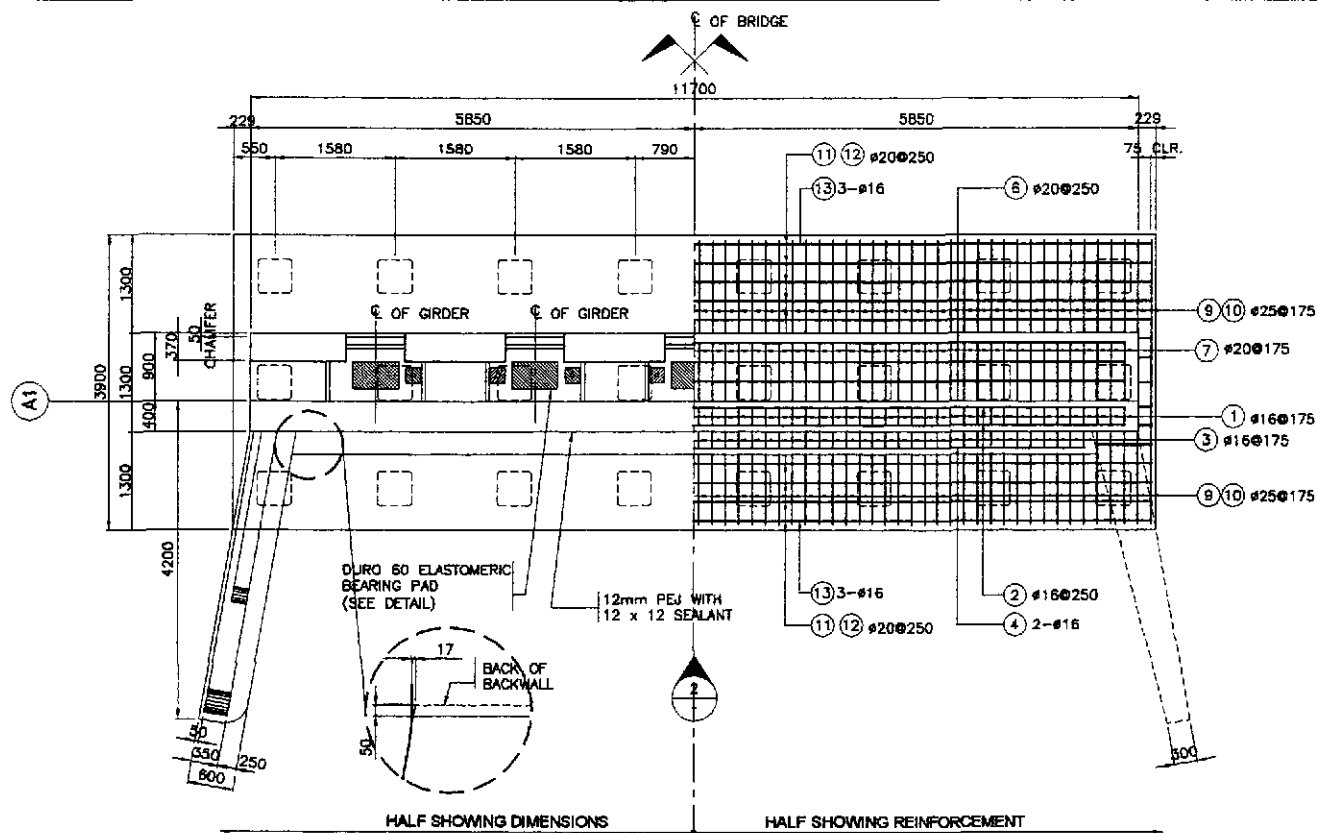


2B SECTION
SCALE 1:20

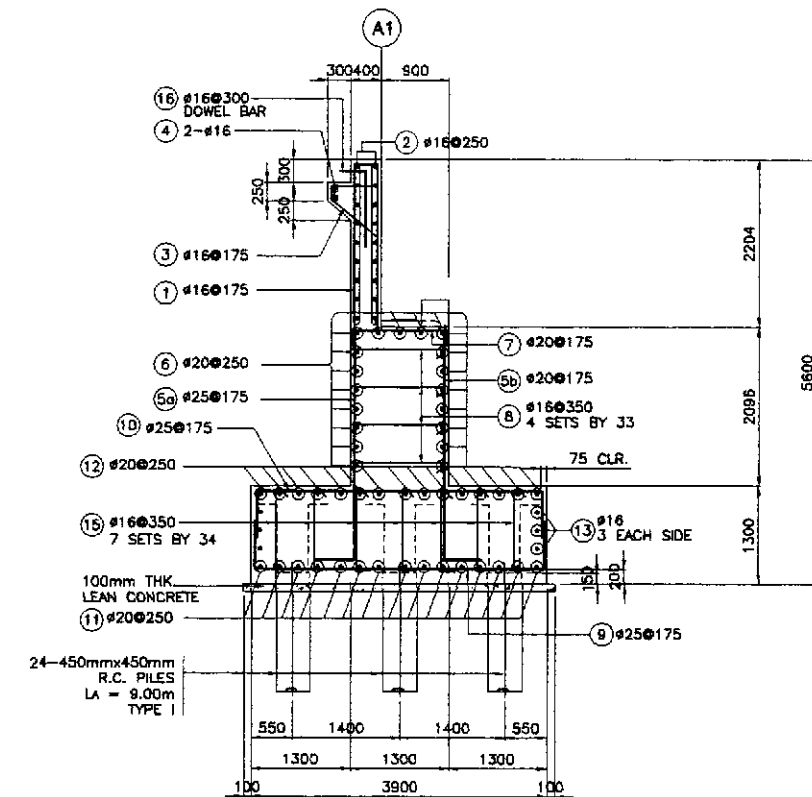
2C SECTION
SCALE 1:20

2 DETAIL OF END & INTERMEDIATE DIAPHRAGM
SCALE AS SHOWN

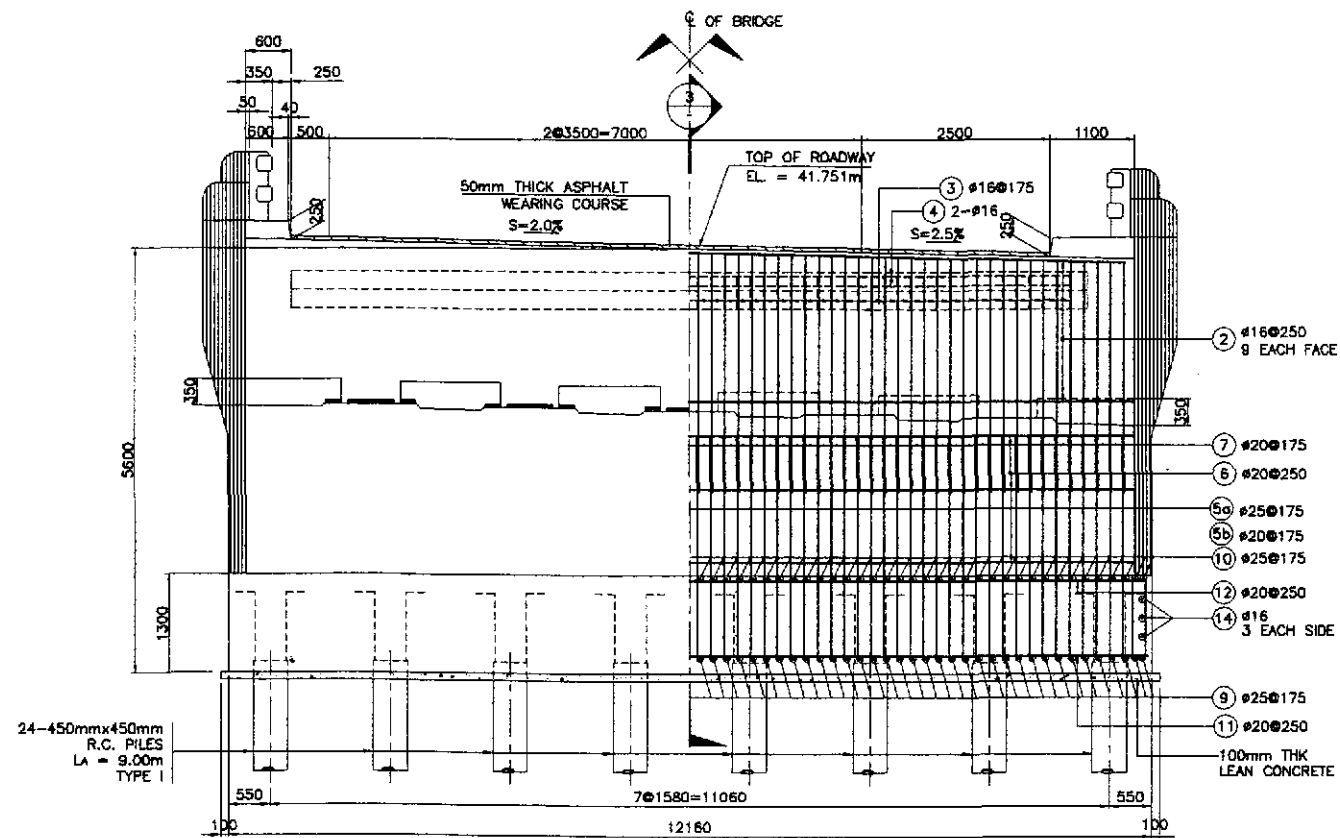
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/2/01	<i>E. N. SALLAN</i>		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 11 CONCRETE POURING SEQUENCE AND DIAPHRAGM DETAILS (INITIAL STAGE)	B11-04
	SUBMITTED	10/2/01	<i>M. R. KINOSHITA</i>		OFFICE OF THE SECRETARY				CABANATUAN BYPASS - CONTRACT PACKAGE IV	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 (CIC)		MANUEL M. BONDAN Undersecretary		SIMEON A. DATUMANONG Secretary				



1 PLAN
SCALE 1:50



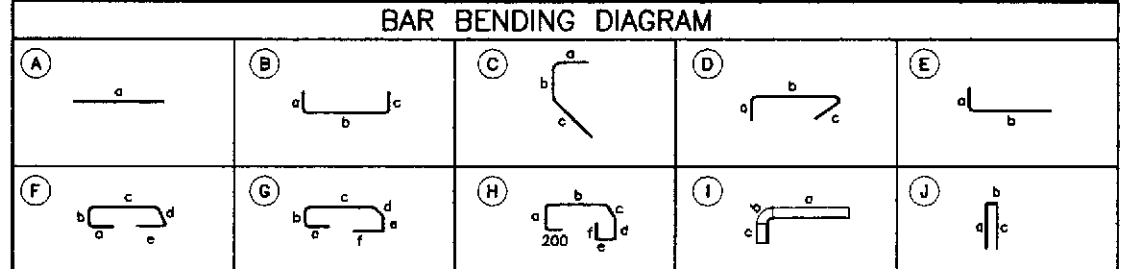
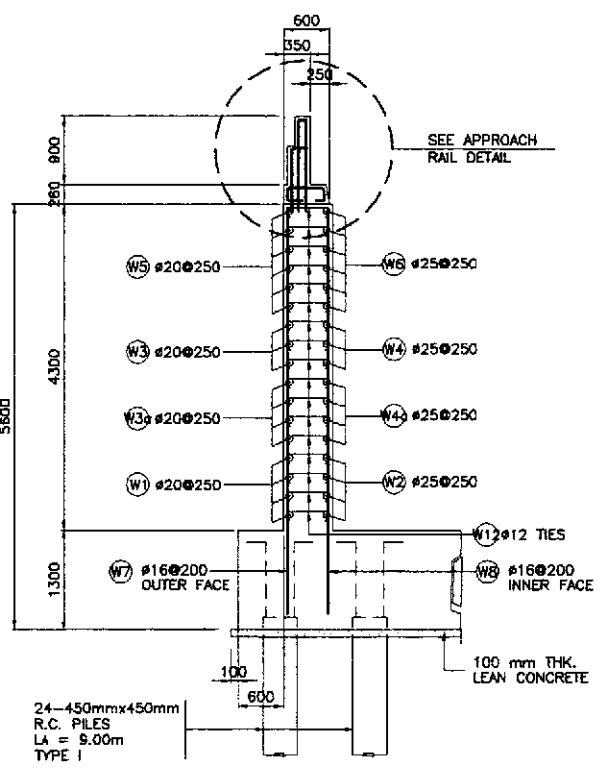
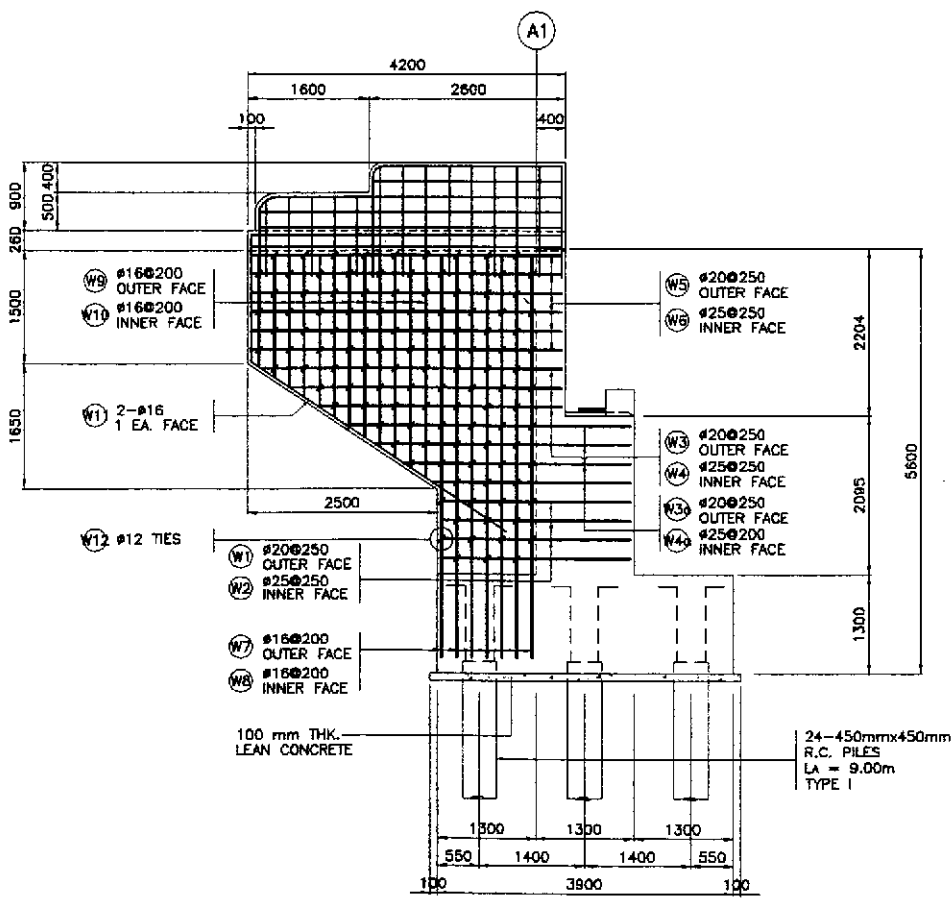
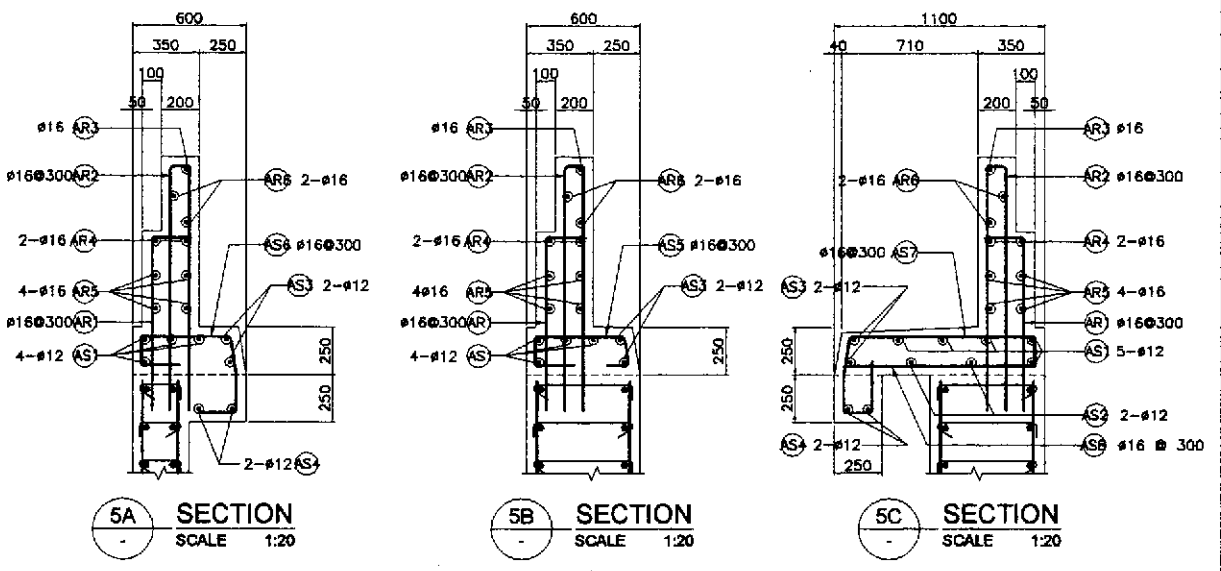
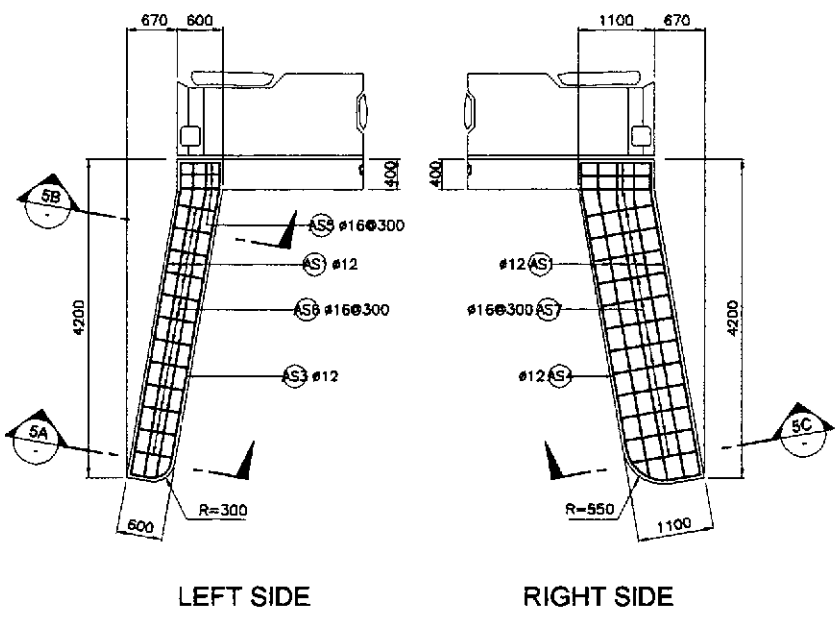
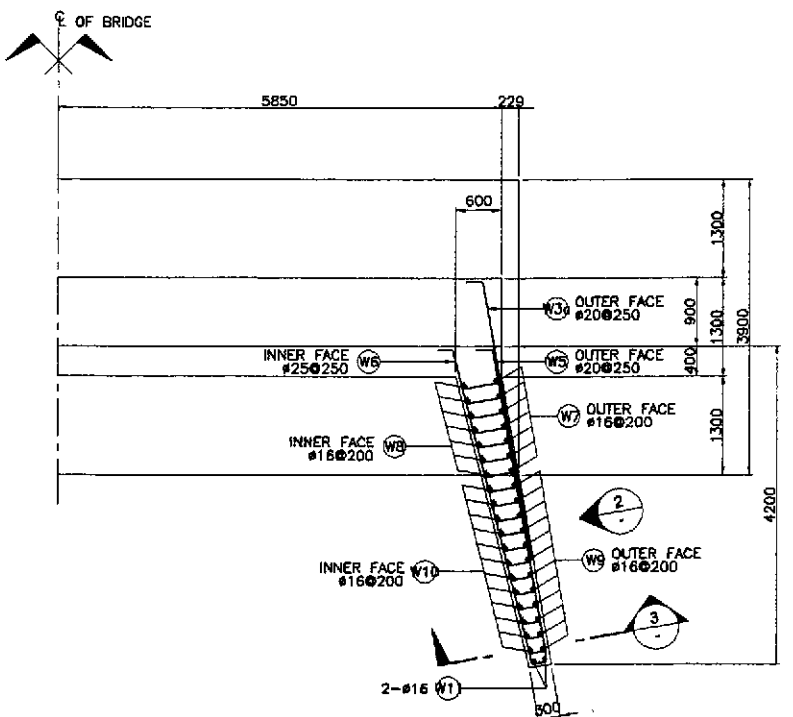
3 SECTION
SCALE 1:50



2 ELEVATION
SCALE 1:50

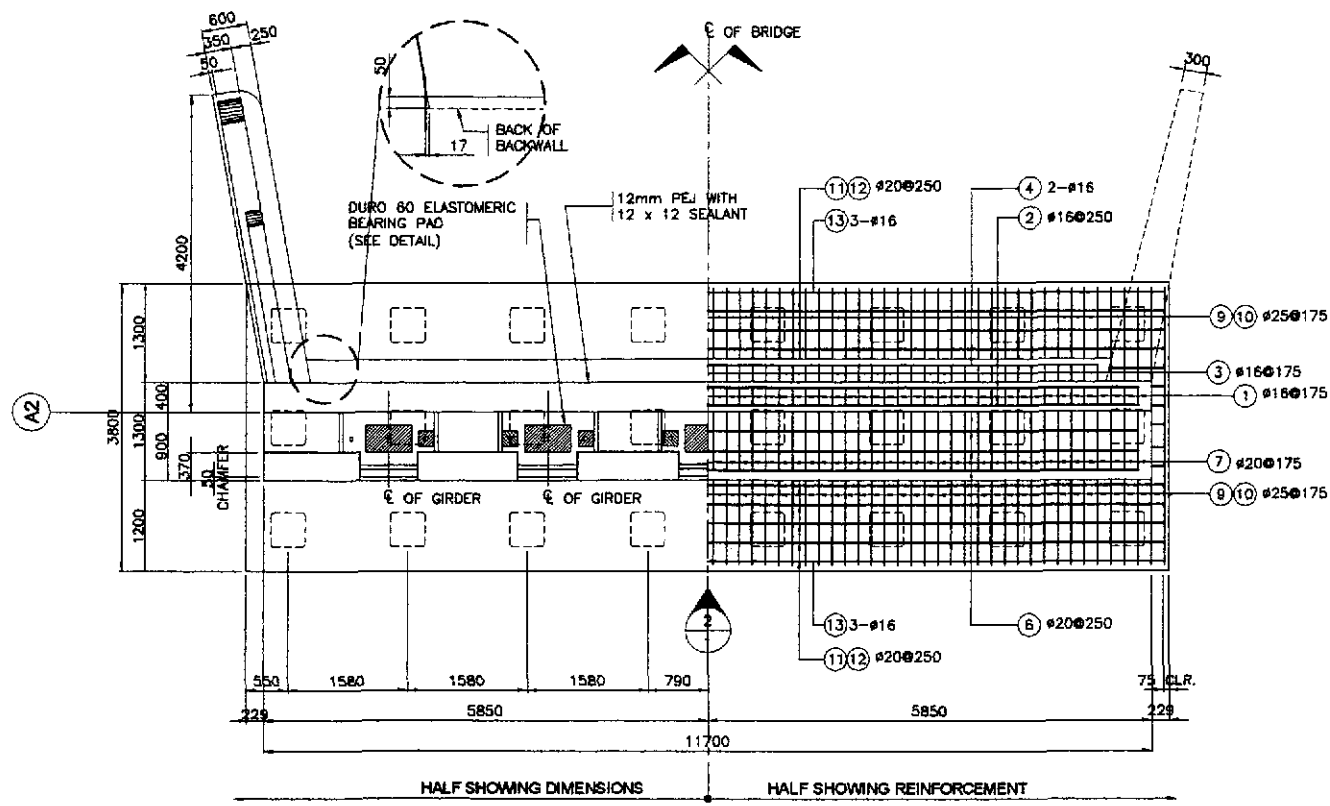
BAR BENDING DIAGRAM																		
A	B	C	D	E	F	G	H	I	J									
SCHEDULE OF REINFORCEMENT PER ABUTMENT																		
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)		
BACKWALL	11.44	1	16	67	175	B	2600	300	2600	-	-	-	5500	368.50	1.579	582	94.58	
		2	16	18	250	A	11600	-	-	-	-	-	11600	208.80	1.579	330		
		3	16	58	175	C	600	150	750	-	-	-	1500	87.00	1.579	138		
		4	16	2	AS SHOWN	A	9900	-	-	-	-	-	9900	19.80	1.579	32		
MAINWALL	31.88	5a	25	67	175	E	400	3150	-	-	-	-	3550	237.85	3.854	917	84.19	
		5b	20	67	175	E	400	3150	-	-	-	-	3550	237.85	2.466	587		
		6	20	19	250	A	11600	-	-	-	-	-	11600	220.40	2.466	544		
		7	20	67	175	B	250	1200	250	-	-	-	1700	113.90	2.466	281		
FOOTING	61.64	8	16	132	350	D	250	1200	250	-	-	-	1700	224.40	1.579	355	74.77	
		9	25	70	175	B	700	3750	700	-	-	-	5150	360.50	3.854	1390		
		10	25	70	175	B	700	3750	700	-	-	-	5150	360.50	3.854	1390		
		11	20	16	250	B	700	12000	700	-	-	-	13400	214.40	2.466	528		
DOWEL		12	20	16	250	B	700	12000	700	-	-	-	13400	214.40	2.466	528	74.77	
		13	16	6	AS SHOWN	A	12000	-	-	-	-	-	12000	72.00	1.579	114		
		14	16	6	AS SHOWN	A	3750	-	-	-	-	-	3750	22.50	1.579	36		
		15	16	238	350	D	250	1150	250	-	-	-	1650	392.70	1.579	621		
TOTAL	104.96												1150	39.10	1.579	62	GRADE 40 TOTAL = 2,270 kgs. GRADE 60 TOTAL = 6,167 kgs.	

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :		SHEET NO. :	
	CHECKED	10/12/02	P. GONZALES		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:50	BRIDGE NO. 11 ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS (INITIAL STAGE)		B11-05	
	SUBMITTED	10/16/02	M. ROYAL		OFFICE OF THE SECRETARY				CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1				
				Submitted By: DANILLO C. TRAJANO Project Director				Reviewed By: ADRIANO M. DORAY Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director IV (CIC)	Recommended By: MANUEL M. BONDAN Undersecretary	Approved By: SIMON A. DATUMANONG Secretary			

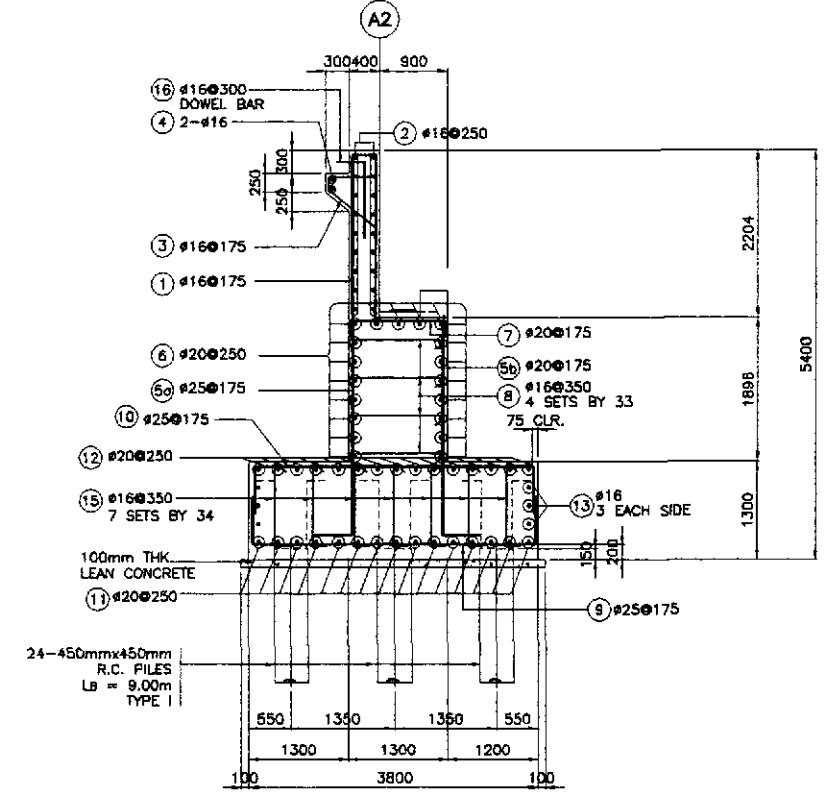


SCHEDULE OF REINFORCEMENT PER ABUTMENT

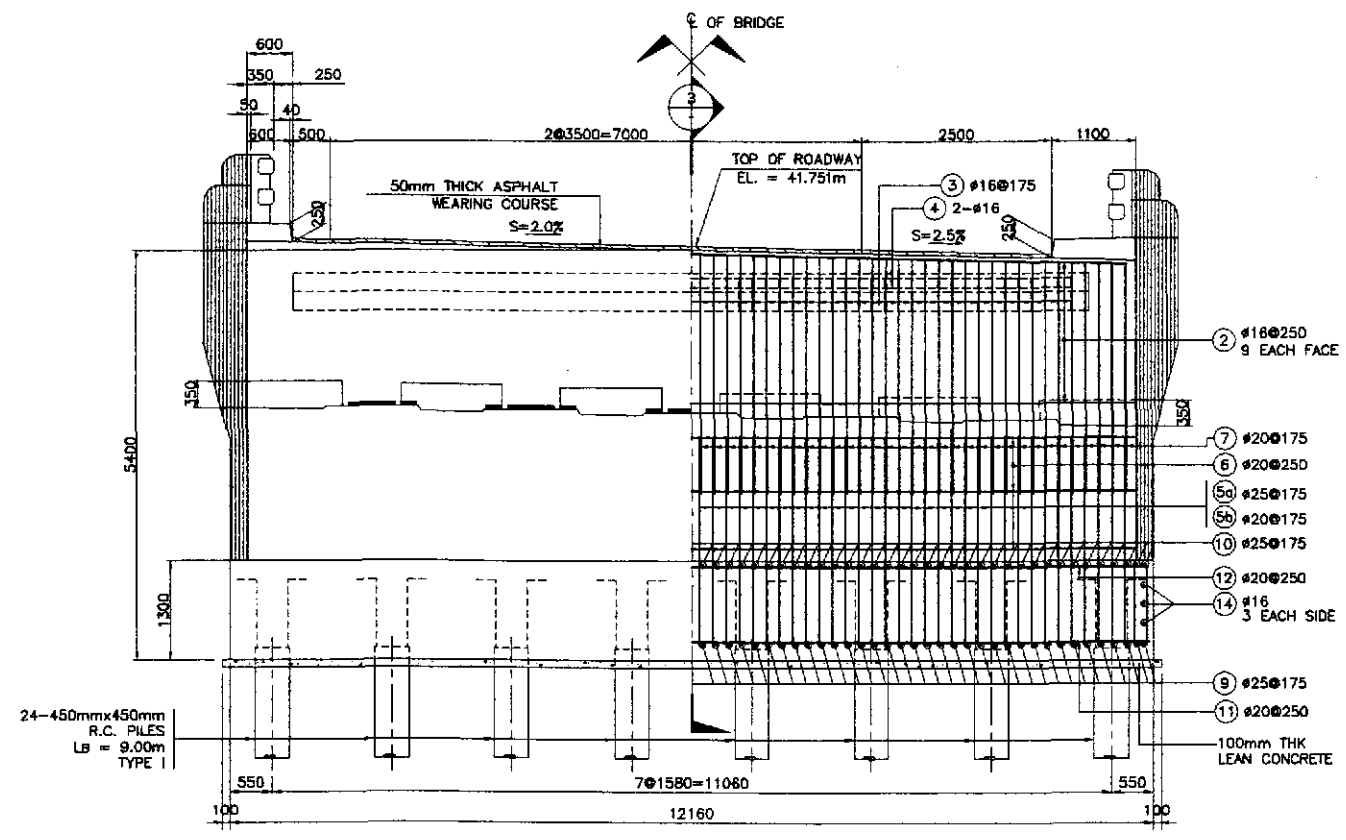
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT						LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)	
							a	b	c	d	e	f						
WINGWALL	10.26	W1	20	8	250	(B)	400	2500	150	-	-	-	3050	24.40	2.466	61	146.07	
		W2	25	8	250	(B)	400	2500	150	-	-	-	3050	24.40	3.854	95		
		W3	20	6	250	(B)	400	3650	150	-	-	-	4200	25.20	2.466	63		
		W3a	20	8	250	(B)	400	3200	150	-	-	-	3750	30.00	2.466	74		
		W4	25	6	250	(B)	400	3650	150	-	-	-	4200	25.20	3.854	98		
		W4a	25	8	250	(B)	400	3200	150	-	-	-	3750	30.00	3.854	116		
		W5	20	12	250	(B)	400	4100	150	-	-	-	4650	55.80	2.466	138		
		W6	25	12	250	(B)	400	4100	150	-	-	-	4650	55.80	3.854	216		
		W7	18	14	200	(E)	250	5350	-	-	-	-	5600	78.40	1.579	124		
		W8	16	14	200	(E)	250	5350	-	-	-	-	5600	78.40	1.579	124		
		W9	16	24	200	(E)	250	2250	-	-	-	-	2500	60.00	1.579	95		
		W10	16	24	200	(E)	250	2250	-	-	-	-	2500	60.00	1.579	95		
W11	16	4	AS SHOWN	(C)	250	1500	4000	-	-	-	5750	23.00	1.579	37				
W12	12	232	AS SHOWN	(D)	170	450	170	-	-	-	790	183.28	0.888	163				
													GRADE 60 TOTAL =	861				
													GRADE 40 TOTAL =	638				
APPROACH RAILING AND SIDEWALK	4.12	AS1	12	9	AS SHOWN	(A)	4100	-	-	-	-	4100	36.90	0.888	33	95.48		
		AS2	12	2	AS SHOWN	(A)	4100	-	-	-	-	4100	8.20	0.888	8			
		AS3	12	4	AS SHOWN	(A)	4100	-	-	-	-	4100	16.40	0.888	15			
		AS4	12	4	AS SHOWN	(A)	4100	-	-	-	-	4100	16.40	0.888	15			
		AS5	16	3	300	(F)	200	170	480	200	200	-	1250	3.75	1.579		6	
		AS6	16	12	300	(G)	200	170	480	200	170	200	1420	17.04	1.579		27	
		AS7	16	15	300	(H)	200	170	880	200	170	200	2120	31.80	1.579		51	
		AS8	16	15	300	(E)	200	1020	-	-	-	-	1220	18.30	1.579		29	
		AR1	16	10	300	(E)	200	900	-	-	-	-	1100	11.00	1.579		18	
		AR2	16	18	300	(J)	1300	120	1300	-	-	-	2720	48.96	1.579		78	
		AR3	16	2	AS SHOWN	(I)	2500	236	1300	-	-	-	4036	8.07	1.579		13	
		AR4	16	4	AS SHOWN	(I)	4000	236	900	-	-	-	5136	20.54	1.579		33	
AR5	16	8	AS SHOWN	(A)	4000	-	-	-	-	-	4000	32.00	1.579	51				
AR6	16	4	AS SHOWN	(A)	2500	-	-	-	-	-	2500	10.00	1.579	16				
													GRADE 40 TOTAL =	393				
TOTAL	14.38														GRADE 60 TOTAL =	861	kg.	
													GRADE 40 TOTAL =	1,031	kg.			



1 PLAN
SCALE 1:50



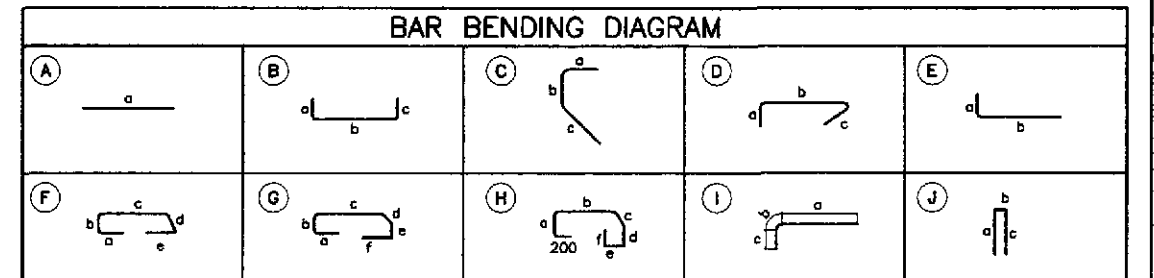
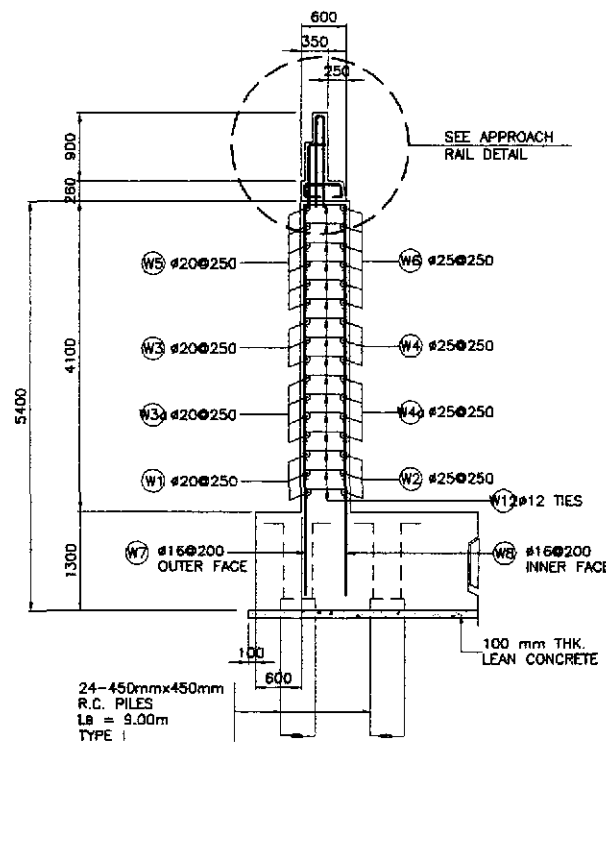
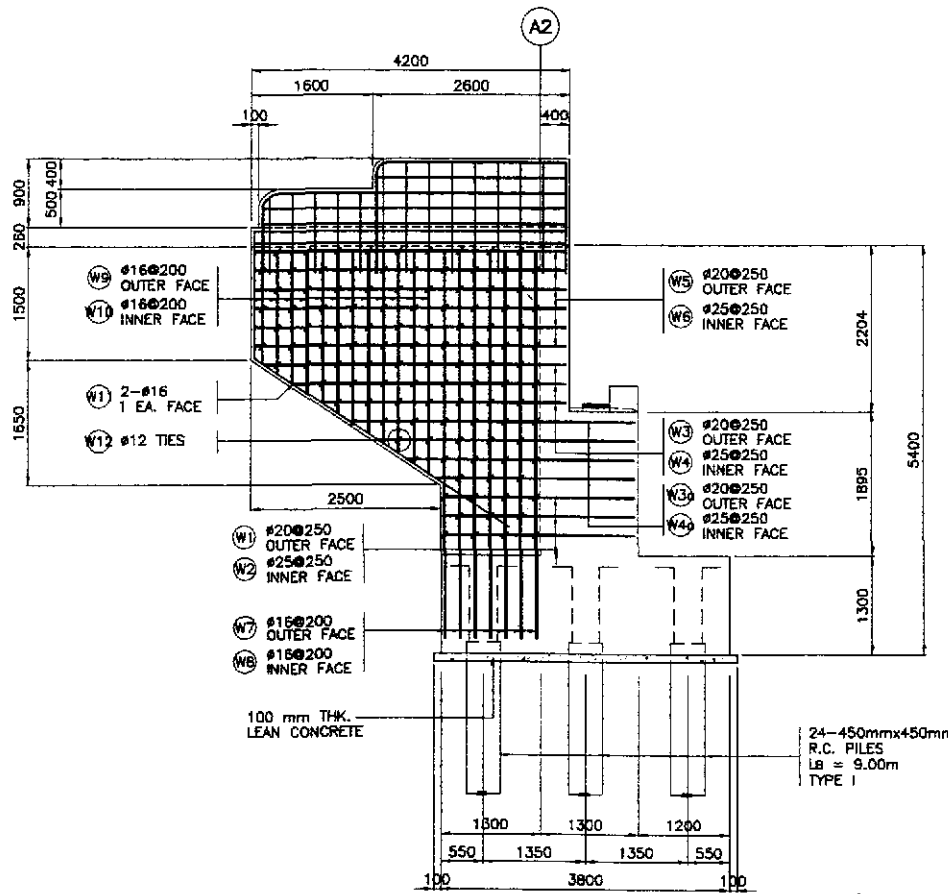
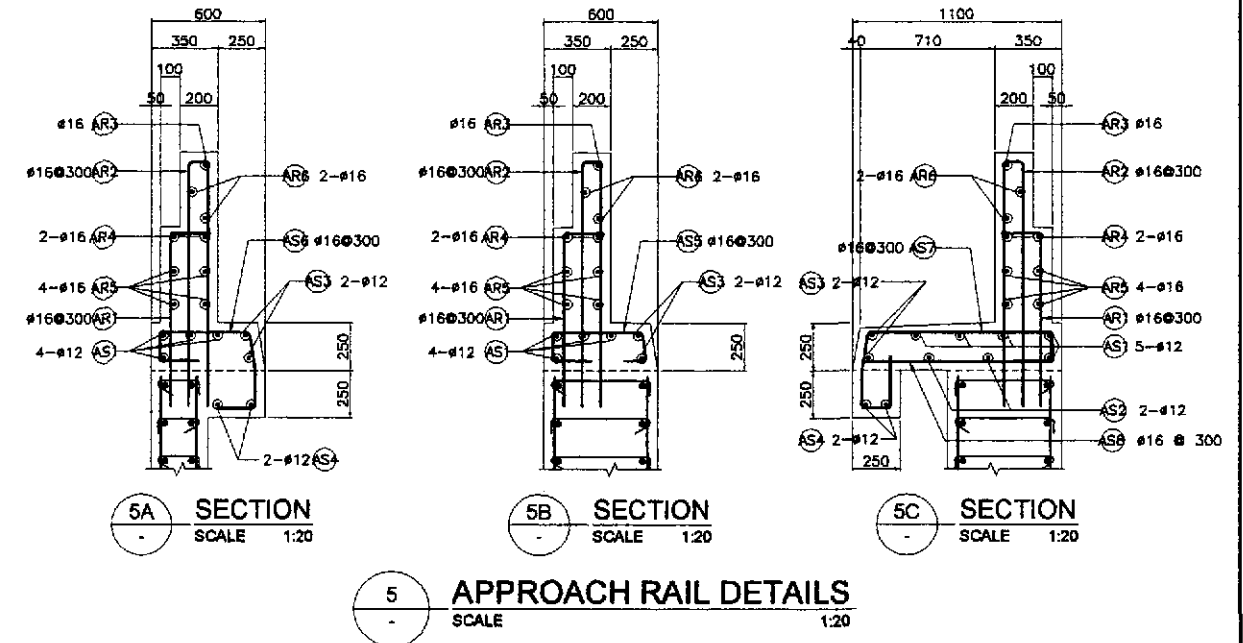
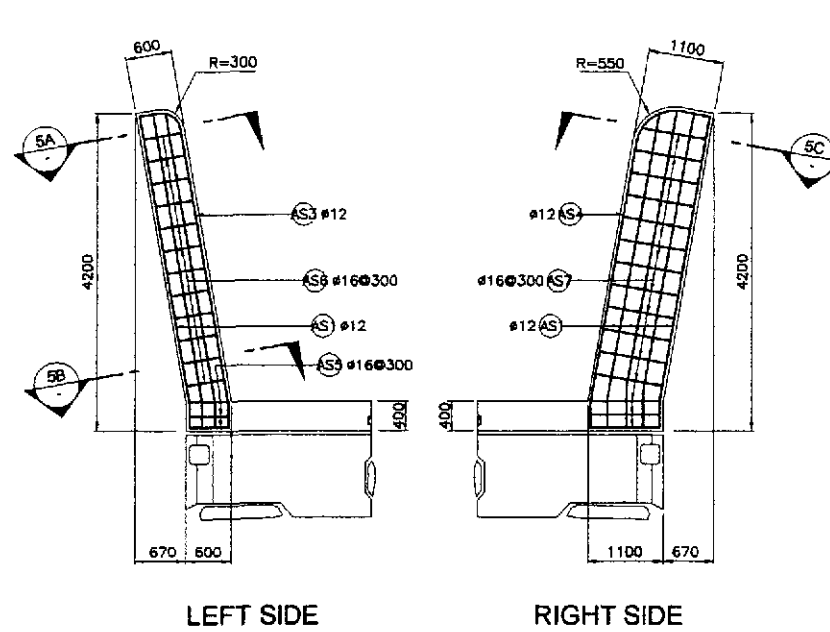
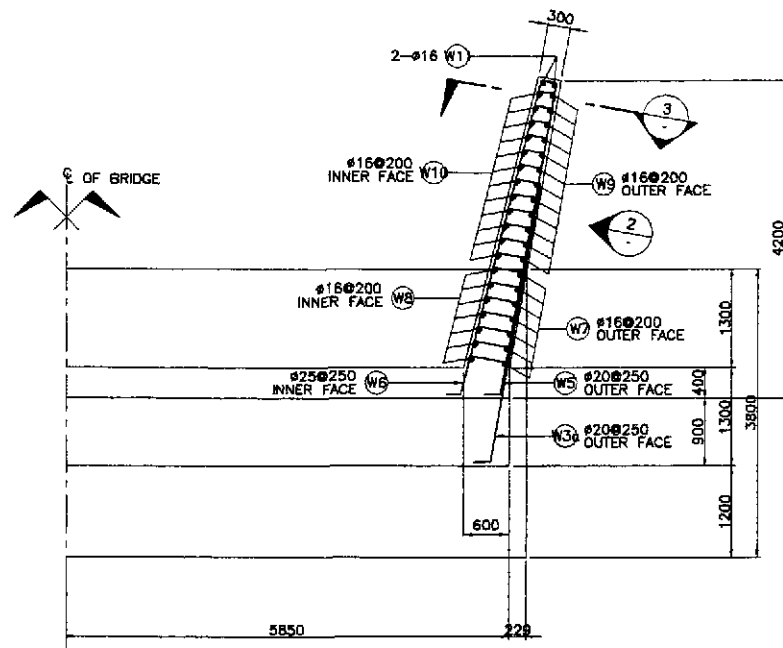
3 SECTION
SCALE 1:50



2 ELEVATION
SCALE 1:50

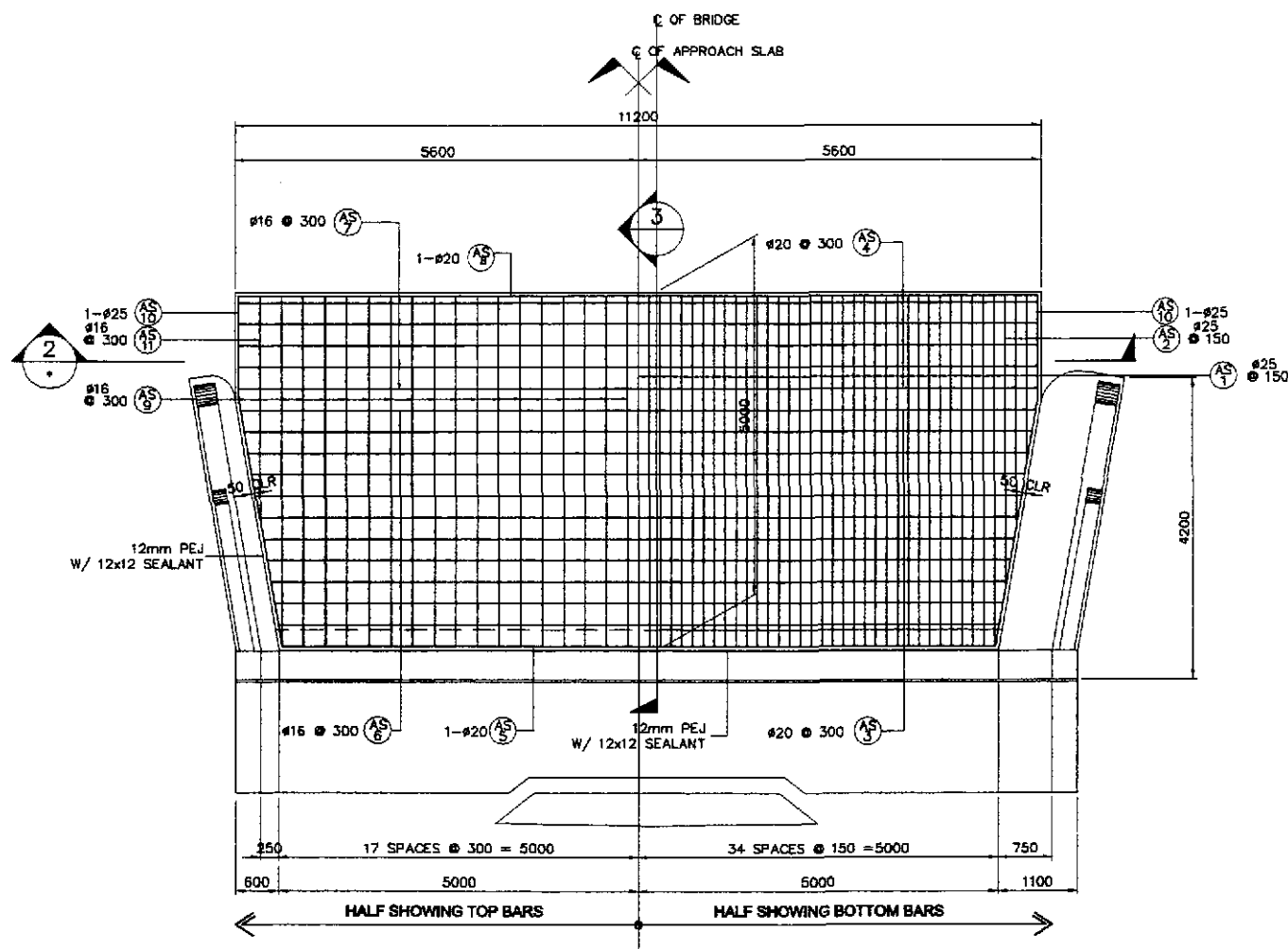
BAR BENDING DIAGRAM																	
A	B	C	D	E	F	G	H	I	J								
SCHEDULE OF REINFORCEMENT PER ABUTMENT																	
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)	
BACKWALL	11.44	1	16	67	175	(B)	2800	300	2600	-	-	-	5500	368.50	1.579	582	94.58
		2	16	18	250	(A)	11600	-	-	-	-	-	11600	208.80	1.579	330	
		3	16	58	175	(C)	600	150	750	-	-	-	1500	87.00	1.579	138	
		4	16	2	AS SHOWN	(A)	9900	-	-	-	-	-	9900	19.80	1.579	32	
MAINWALL	28.84	5a	25	67	175	(E)	400	2950	-	-	-	-	3350	224.45	3.854	866	90.16
		5b	20	67	175	(E)	400	2950	-	-	-	-	3350	224.45	2.466	554	
		6	20	19	250	(A)	11600	-	-	-	-	-	11600	220.40	2.466	544	
		7	20	67	175	(B)	250	1200	250	-	-	-	1700	113.90	2.466	281	
FOOTING	60.06	8	16	132	350	(D)	250	1200	250	-	-	-	1700	224.40	1.579	355	75.82
		9	25	70	175	(B)	700	3650	700	-	-	-	5050	363.50	3.854	1363	
		10	25	70	175	(B)	700	3650	700	-	-	-	5050	353.50	3.854	1363	
		11	20	16	250	(B)	700	12000	700	-	-	-	13400	214.40	2.466	529	
DOWEL		12	20	16	250	(B)	700	12000	700	-	-	-	13400	214.40	2.466	529	75.82
		13	16	6	AS SHOWN	(A)	12000	-	-	-	-	-	12000	72.00	1.579	114	
		14	16	6	AS SHOWN	(A)	3650	-	-	-	-	-	3650	21.90	1.579	35	
		15	16	238	350	(D)	250	1150	250	-	-	-	1650	392.70	1.579	621	
		16	16	34	300	(E)	650	500	-	-	-	-	1150	39.10	1.579	62	
TOTAL	100.34														GRADE 40 TOTAL = 2,269 kgs.	GRADE 60 TOTAL = 6,029 kgs.	

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :		SHEET NO. :
	CHECKED	10/12/02	P. GONZALES		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:50	BRIDGE NO. 11 ABUTMENT A2 MAINWALL REINFORCEMENT DETAILS (INITIAL STAGE)		B11-07
SUBMITTED	10/12/02	M. KUBO	TEAM LEADER	OFFICE OF THE SECRETARY				CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1				
				Submitted By: DANILLO C. TRAJANO, Project Director Reviewed By: ADRIANO M. DOROY, Chief, Bridge Division Recommended By: GILBERTO S. REYES, Director IV (GIC) Approved By: MANUEL M. BONDAN, Undersecretary Approved By: SIMEON A. DATUMANONG, Secretary									

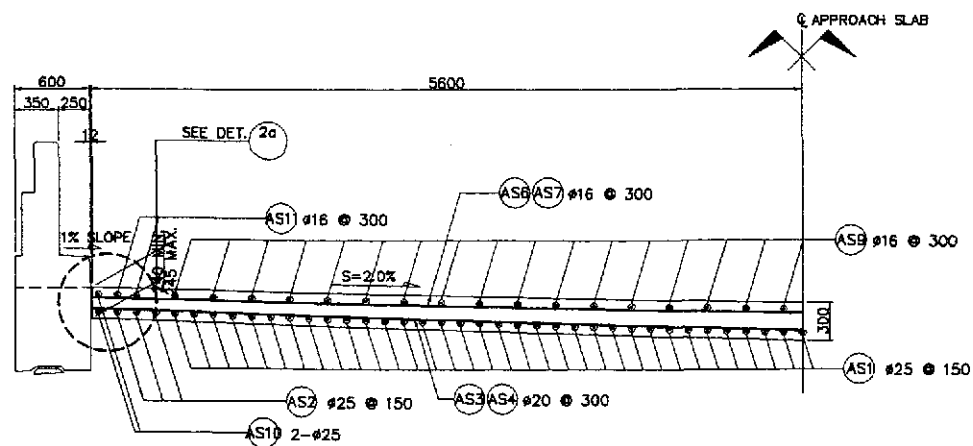


SCHEDULE OF REINFORCEMENT PER ABUTMENT																		
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)		
							a	b	c	d	e						f	
WINGWALL	10.03	W1	20	6	250	(B)	400	2500	150	-	-	-	3050	18.30	2.466	46		
		W2	25	6	250	(B)	400	2500	150	-	-	-	3050	18.30	3.854	71		
		W3	20	6	250	(B)	400	3650	150	-	-	-	4200	25.20	2.466	63		
		W3a	20	8	250	(B)	400	3200	150	-	-	-	3750	30.00	2.466	74		
		W4	25	6	250	(B)	400	3650	150	-	-	-	4200	25.20	3.854	98		
		W4a	25	8	250	(B)	400	3200	150	-	-	-	3750	30.00	3.854	116		
		W5	20	12	250	(B)	400	4100	150	-	-	-	4650	55.80	2.466	138		
		W6	25	12	250	(B)	400	4100	150	-	-	-	4650	55.80	3.854	216		
		W7	16	14	200	(E)	250	5150	-	-	-	-	5400	75.60	1.579	120		
		W8	16	14	200	(E)	250	5150	-	-	-	-	5400	75.60	1.579	120		
		W9	16	24	200	(E)	250	2250	-	-	-	-	2500	60.00	1.579	95		
		W10	16	24	200	(E)	250	2250	-	-	-	-	2500	60.00	1.579	95		
W11	16	4	AS SHOWN	(C)	250	1500	4000	-	-	-	5750	23.00	1.579	37				
W12	12	226	AS SHOWN	(D)	170	450	170	-	-	-	790	178.54	0.888	159				
												GRADE 60 TOTAL =	822					
												GRADE 40 TOTAL =	626					
APPROACH RAILING AND SIDEWALK	4.12	AS1	12	9	AS SHOWN	(A)	4100	-	-	-	-	4100	36.90	0.888	33			
		AS2	12	2	AS SHOWN	(A)	4100	-	-	-	-	4100	8.20	0.888	8			
		AS3	12	4	AS SHOWN	(A)	4100	-	-	-	-	4100	16.40	0.888	15			
		AS4	12	4	AS SHOWN	(A)	4100	-	-	-	-	4100	16.40	0.888	15			
		AS5	16	3	300	(F)	200	170	480	200	200	-	1250	3.75	1.579	6		
		AS6	16	12	300	(G)	200	170	480	200	170	200	1420	17.04	1.579	27		
		AS7	16	15	300	(H)	200	170	980	200	170	200	2120	31.80	1.579	51		
		AS8	16	15	300	(E)	200	1020	-	-	-	-	1220	18.30	1.579	29		
		AR1	16	10	300	(E)	200	900	-	-	-	-	1100	11.00	1.579	18		
		AR2	16	18	300	(J)	1300	120	1300	-	-	-	2720	48.96	1.579	76		
		AR3	16	2	AS SHOWN	(I)	2500	236	1300	-	-	-	4036	8.07	1.579	13		
		AR4	16	4	AS SHOWN	(I)	4000	236	900	-	-	-	5136	20.54	1.579	33		
AR5	16	8	AS SHOWN	(A)	4000	-	-	-	-	-	4000	32.00	1.579	51				
AR6	16	4	AS SHOWN	(A)	2500	-	-	-	-	-	2500	10.00	1.579	16				
												GRADE 40 TOTAL =	393					
TOTAL	14.15													GRADE 60 TOTAL =	822 kgs.			
												GRADE 40 TOTAL =	1,019 kgs.					

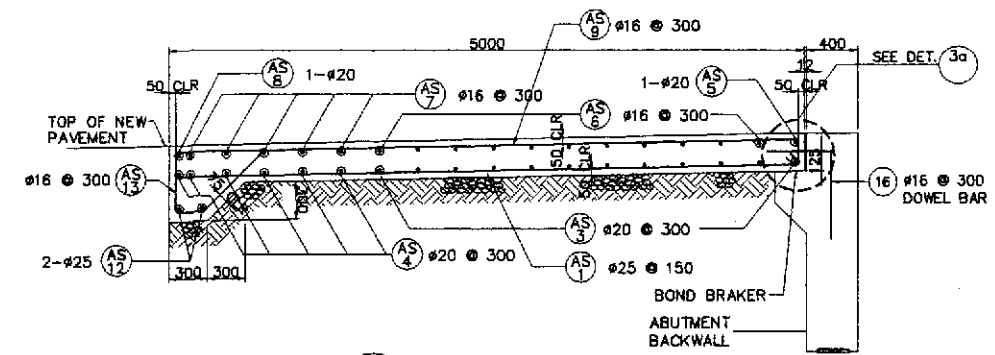
	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/12/02	A. P. GONZALES	BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 11 ABUTMENT A2 WINGWALL REINFORCEMENT DETAILS (INITIAL STAGE)	B11-08
	SUBMITTED	10/21/02	M. KINOSHITA	OFFICE OF THE SECRETARY				CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		



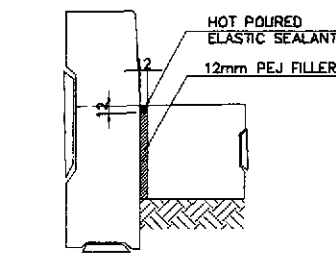
1 PLAN
SCALE 1:50



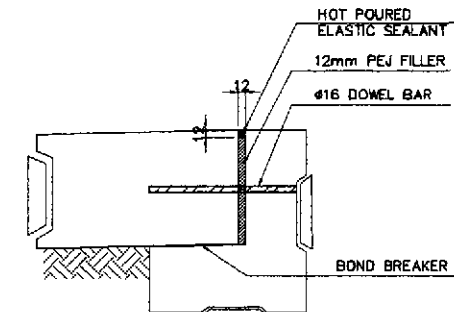
2 SECTION
SCALE 1:30



3 SECTION
SCALE 1:30



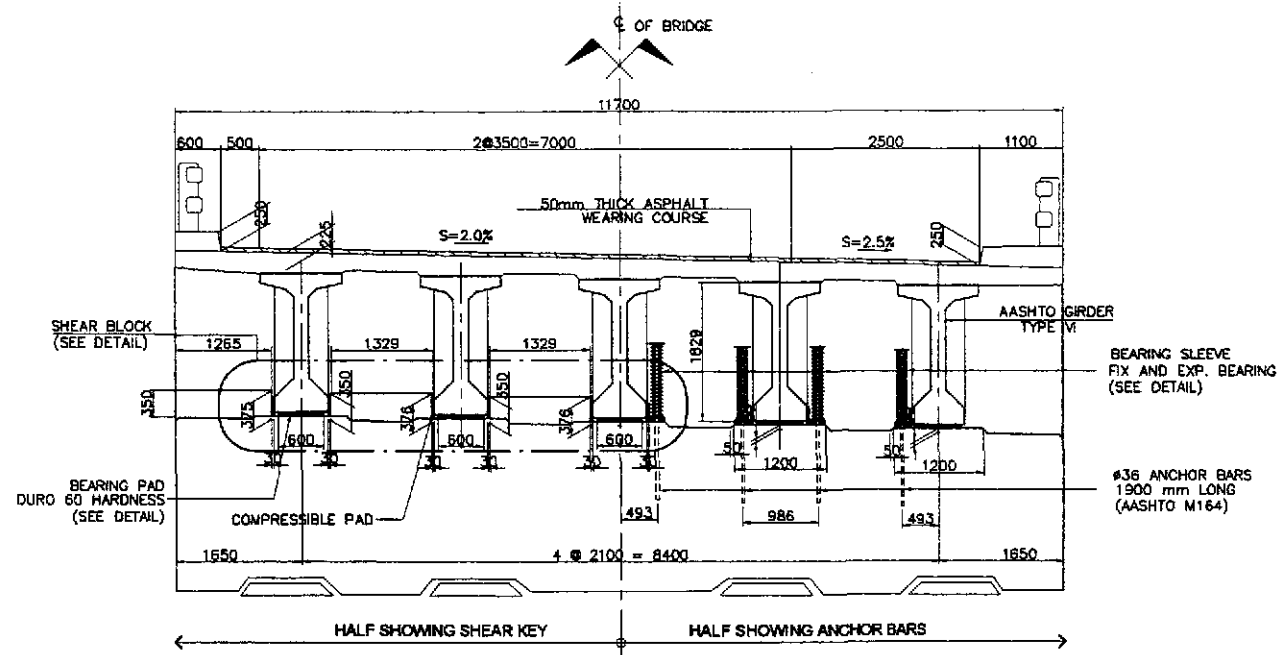
2a DETAIL
SCALE 1:10



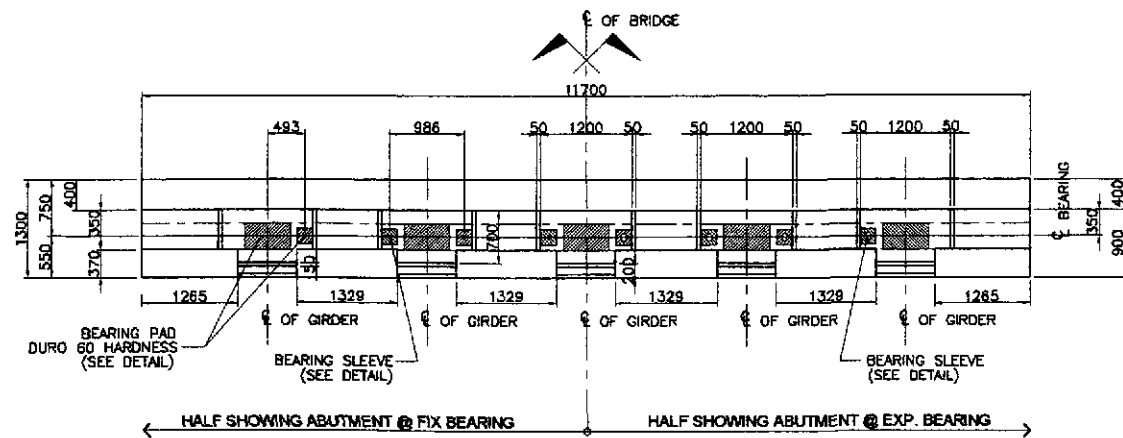
3a DETAIL
SCALE 1:10

BAR BENDING DIAGRAM																		
A	B	C	D															
SCHEDULE OF REINFORCEMENT PER APPROACH SLAB																		
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)		
APPROACH SLAB	17.68	AS1	25	68	150	(B)	4900	200	-	-	-	-	5100	346.80	3.854	1337	157.17	
		AS2	25	6	150	(B)	3200	200	-	-	-	-	3400	20.40	3.854	79		
		AS3	20	12	300	(A)	10500	-	-	-	-	-	-	10500	126.00	2.466		311
		AS4	20	6	300	(A)	11100	-	-	-	-	-	-	11100	66.60	2.466		165
		AS5	20	1	AS SHOWN	(A)	9900	-	-	-	-	-	-	9900	9.90	2.466		25
		AS6	16	11	300	(A)	10550	-	-	-	-	-	-	10550	116.05	1.579		184
		AS7	16	5	300	(A)	11100	-	-	-	-	-	-	11100	55.50	1.579		88
		AS8	20	1	AS SHOWN	(A)	11100	-	-	-	-	-	-	11100	11.10	2.466		28
		AS9	16	34	300	(B)	4900	200	-	-	-	-	-	5100	173.40	1.579		274
		AS10	25	4	AS SHOWN	(C)	1450	3500	-	-	-	-	-	4950	19.80	3.854		77
		AS11	16	4	300	(B)	2300	200	-	-	-	-	-	2500	10.00	1.579		16
		AS12	25	2	AS SHOWN	(A)	11100	-	-	-	-	-	-	11100	22.20	3.854		86
		AS13	16	38	300	(D)	400	500	200	700	-	-	-	1800	68.40	1.579		109
TOTAL	17.68											GRADE 40 TOTAL = 671 kgs. GRADE 60 TOTAL = 2,108 kgs.						

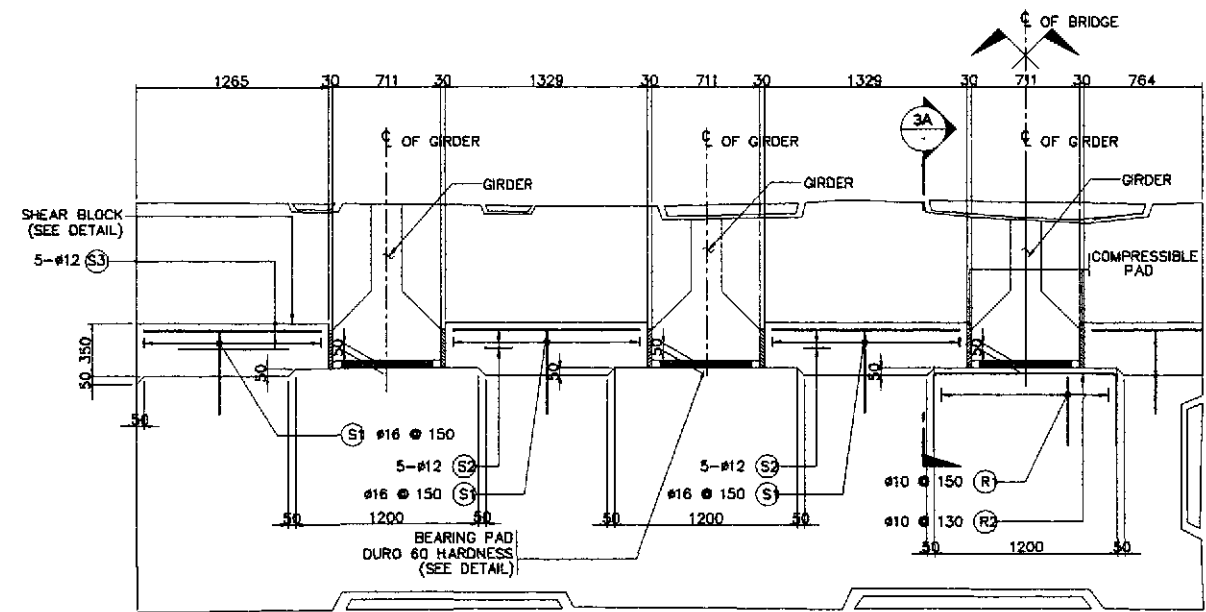
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/17/02	<i>E.N. SALLAN</i>		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 11 APPROACH SLAB PLAN, SECTIONS AND DETAILS (INITIAL STAGE)	B11-09
	SUBMITTED	10/21/02	<i>M. RUIZ</i>		Submitted By:	Reviewed By:	Recommended By:	Approved By:	CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		



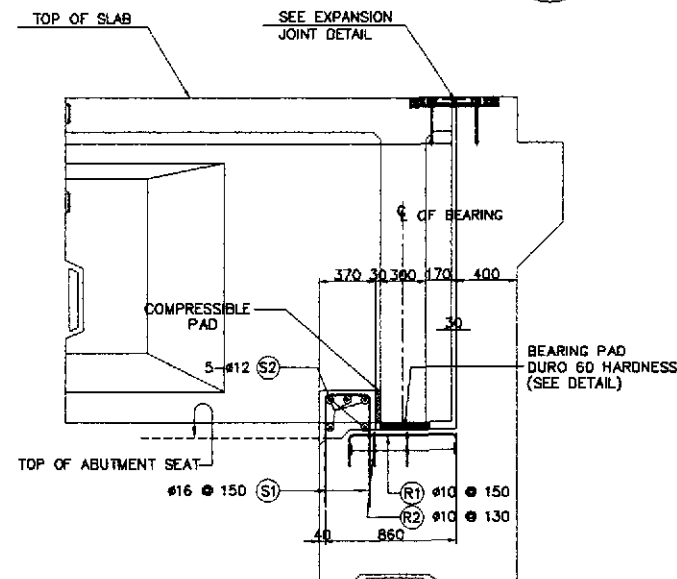
1 SECTION AT ABUTMENT SEAT
SCALE 1:50



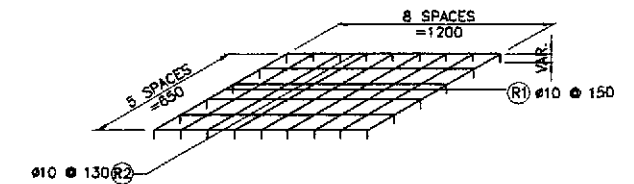
2 PLAN AT ABUTMENT SEAT
SCALE 1:50



3 SHEAR BLOCK DETAIL
SCALE 1:25



3A SECTION
SCALE 1:25

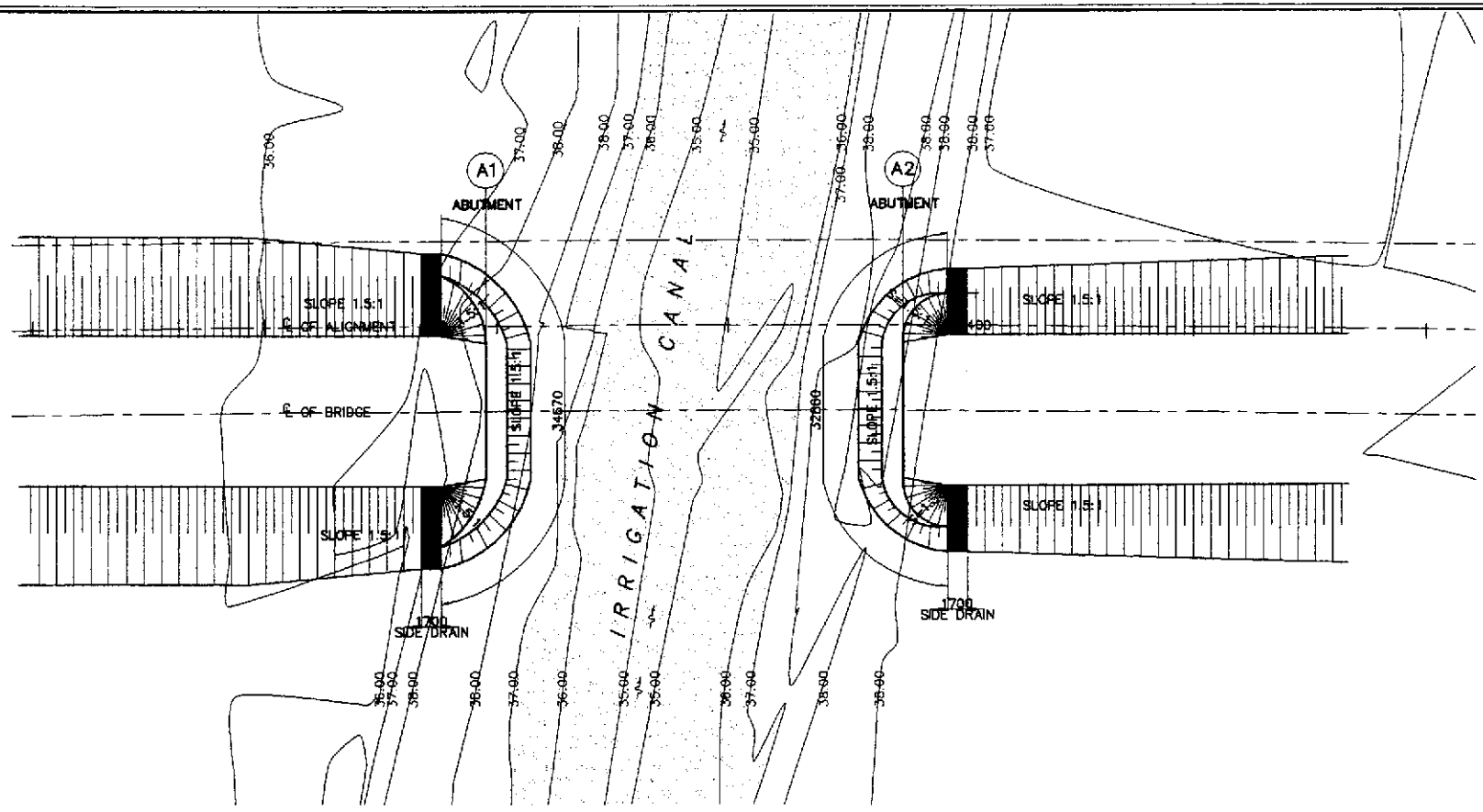


4 RISER REINFORCEMENT
NOT TO SCALE

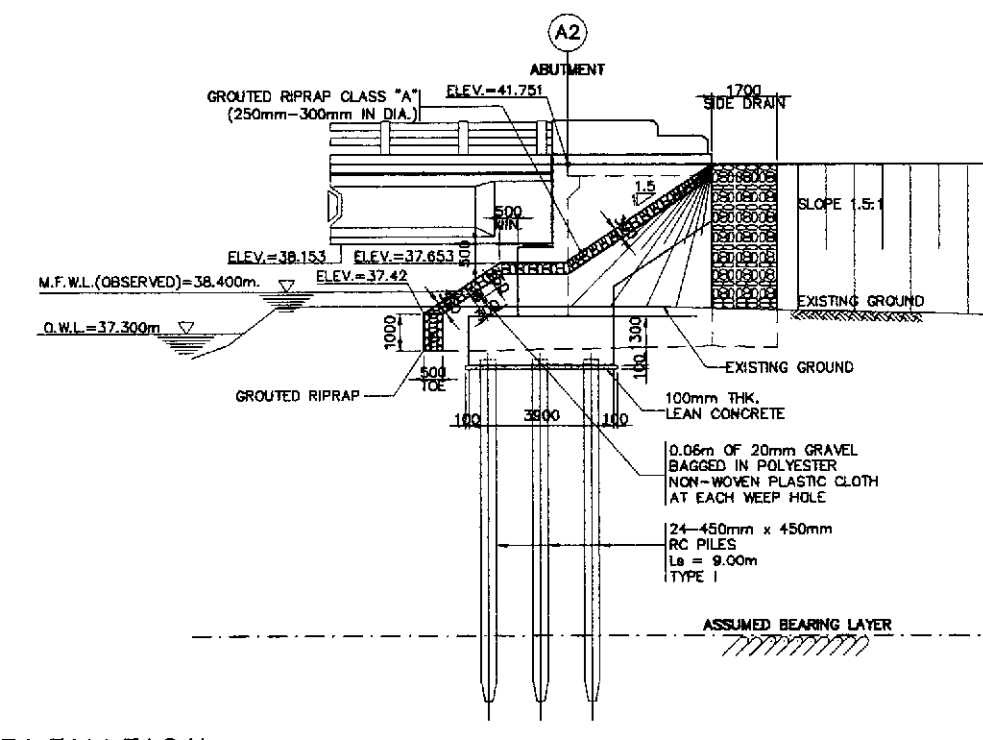
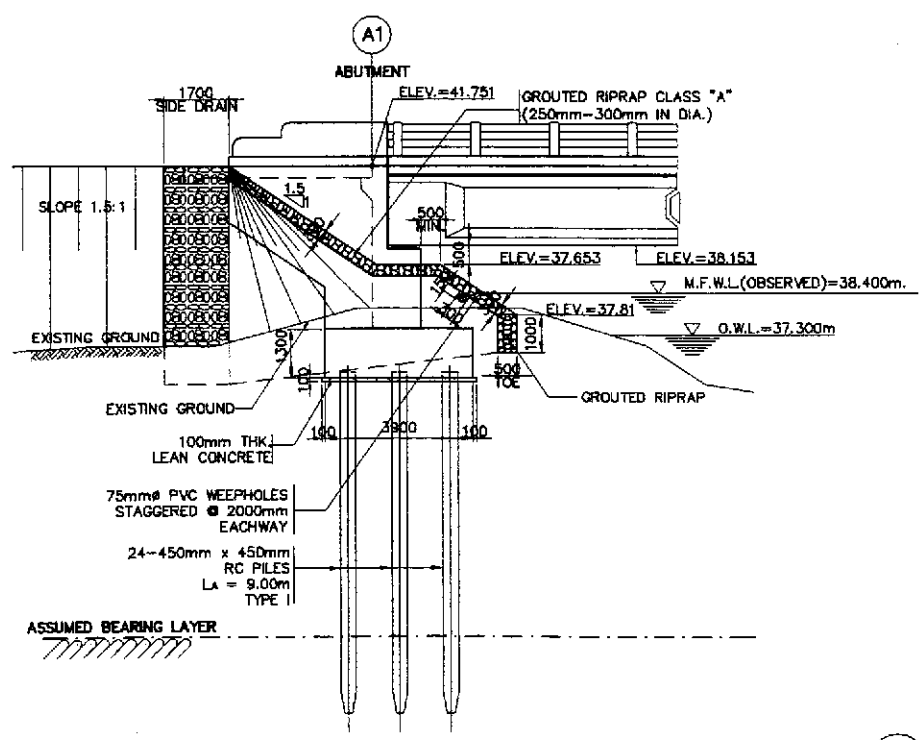
BAR BENDING DIAGRAM																
(A)							(B)									
a							a b c									
SCHEDULE OF REINFORCEMENT																
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION(mm) OUT TO OUT					LENGTH EACH BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)
							a	b	c	d	e					
SHEAR KEY & RISER	1.50	S1	16	58	150	(B)	560	290	560			1410	81.78	1.579	130	167.33
		S2	12	20	AS SHOWN	(A)	1250					1250	25.00	0.888	23	
		S3	12	10	AS SHOWN	(A)	1185					1185	11.85	0.888	11	
		R1	10	45	150	(B)	500	650	500			1650	74.25	0.616	46	
		R2	10	30	130	(B)	500	1200	500			2200	66.00	0.616	41	
TOTAL	1.50															GRADE 40 TOTAL = 251 Kgs.

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

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	E. R. SALLAN		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Parical, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 11 SHEAR KEY AND RISER DETAILS AT ABUTMENT (INITIAL STAGE)	B11-10
	SUBMITTED	10/21/02	M. KOCHI TEAM LEADER		Submitted By:	Reviewed By:	Recommended By:	Approved By:	CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		
			DANILO C. TRAJANO Project Director	ADRIANO M. DORCY Chief, Bridges Division	GILBERTO S. REYES Director IV (CIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary					



1A PLAN
SCALE 1:200

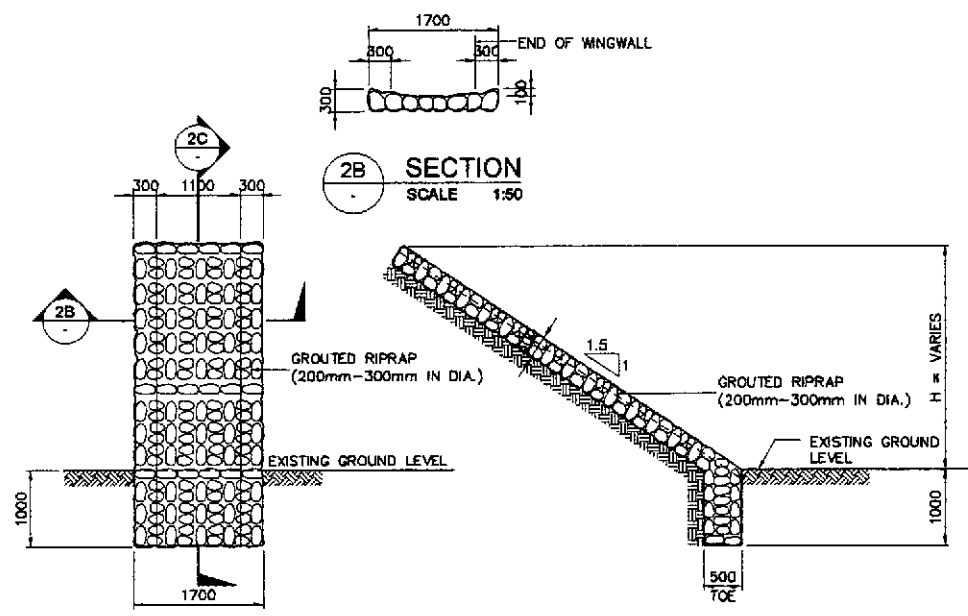


1B ELEVATION
SCALE 1:80

1 ABUTMENT SLOPE PROTECTION
SCALE AS SHOWN

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 BRUSH.
- GEOTEXTILE
THE FOLLOWING SPECIFICATIONS ARE REQUIRED:
 - POLYESTER OR POLYPROPYLENE - 100%
 - MECHANICALLY BONDED/HEAT BONDED
 - NON-WOVEN
 - EFFECTIVE OPENING SIZE - 110 MICRONS (MAX.)
 - THICKNESS UNDER PRESSURE - 0.80mm (MIN.)
 - WEIGHT - 200g/sq. m. (MIN.)
 - CBR PUNCTURE STRENGTH - 400N (MIN.)
 - MULTI-DIRECTIONAL TENSILE STRENGTH - 13kN/m
- GRAVEL FILTER SHALL BE COARSE AGGREGATES MATERIALS WHICH SATISFY THE REQUIREMENTS FOR ITEM 405, STRUCTURAL CONCRETE, GRADING B OF TABLE 405.1 AS REVISED.
- NO CONCRETING UNDER WATER SHALL BE PERMITTED.
- PROVIDE 1.0 m BERM WHEN HEIGHT (H) IS > 4.0 m.



2A ELEVATION
SCALE 1:50

2C SECTION
SCALE 1:50

2 TYPICAL SIDE DRAIN DETAIL
SCALE AS SHOWN

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	PER ABUTMENT QUANTITY	
		ABUT. A1	ABUT. A2
SIDE DRAIN	200mm-300mm IN DIA.	10.28 cu. m.	8.56 cu. m.
GROUTED RIPRAP	250mm-300mm IN DIA.	63.72 cu. m.	55.38 cu. m.

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JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN

OFFICE OF THE SECRETARY

Submitted By: DANILO C. TRAJANO, Project Director

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

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

Approved By: MANUEL M. BONDAN, Undersecretary

Approved By: SIMEON A. DATUMANONG, Secretary

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

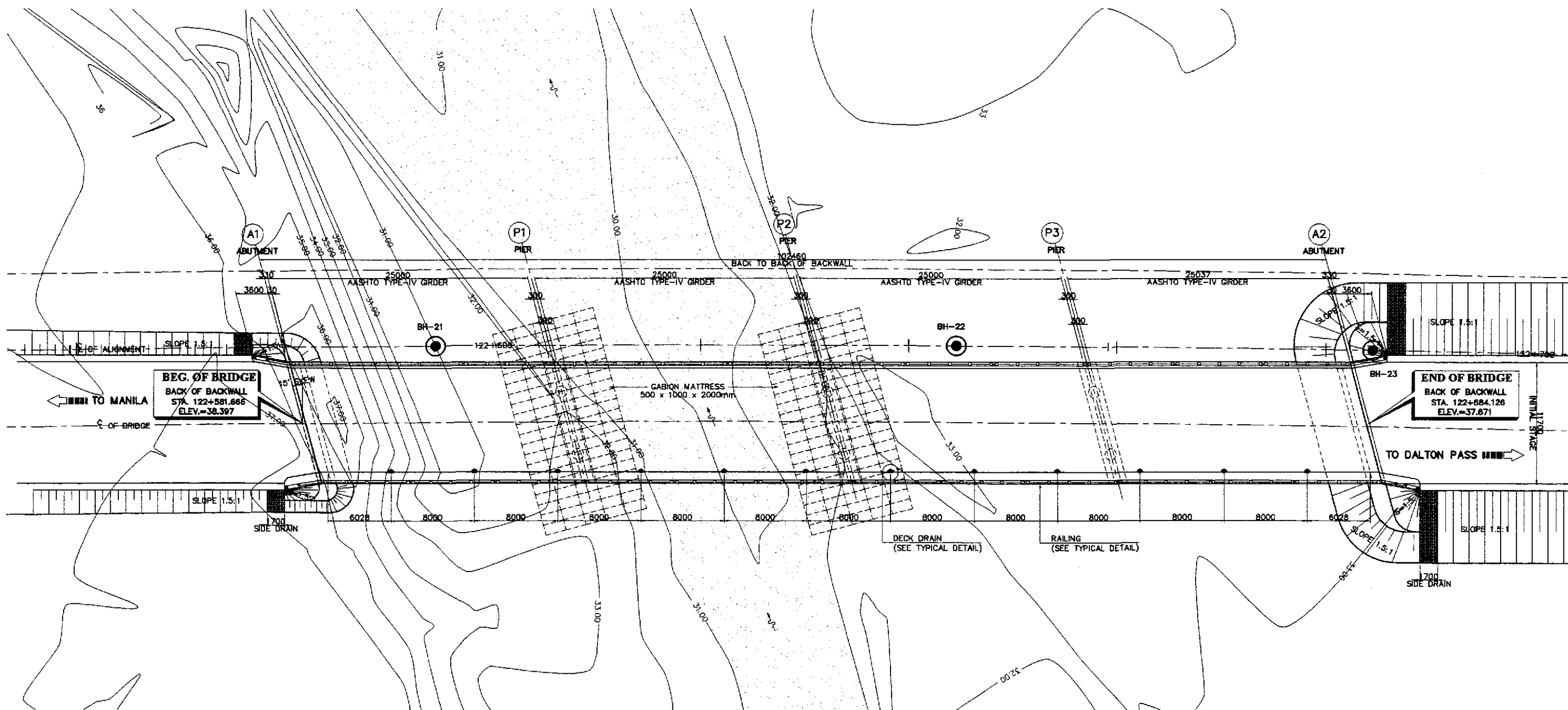
SCALE : AS SHOWN

SHEET CONTENTS : BRIDGE NO. 11 ABUTMENT PROTECTION AND SIDE DRAIN DETAILS (INITIAL STAGE)

SHEET NO. : B11-11

CABANATUAN BYPASS - CONTRACT PACKAGE IV

FULL SIZE A1



1 GENERAL PLAN
SCALE 1:200

A CABANATUAN BYPASS BRIDGE NO. 12 (STA. 122+581.666)
SCALE AS SHOWN

PERFECTO L. ZAPLAN JR. OIC Chief, Hydraulics Division, BOD		
DESIGNED	10/12/02	M. P. GONZALES
CHECKED	10/12/02	(Signature)
SUBMITTED	10/12/02	(Signature)

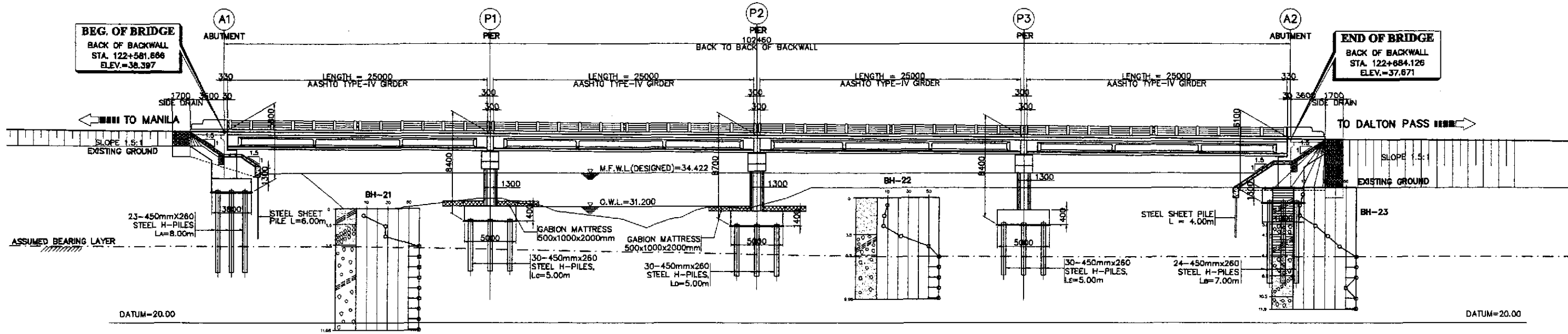
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					
BUREAU OF DESIGN		OFFICE OF THE SECRETARY			
Submitted By:	Reviewed By:	Recommended By:	Approved By:	Approved By:	
DANILO C. TRAJANO Project Director	AORIANO M. DORAY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)	MANUEL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

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Flaridel, Cabanatuan and San Jose Bypasses)	1:200	BRIDGE NO. 12 GENERAL PLAN (INITIAL STAGE)	B12-01
CABANATUAN BYPASS - CONTRACT PACKAGE IV		FULL SIZE A1	

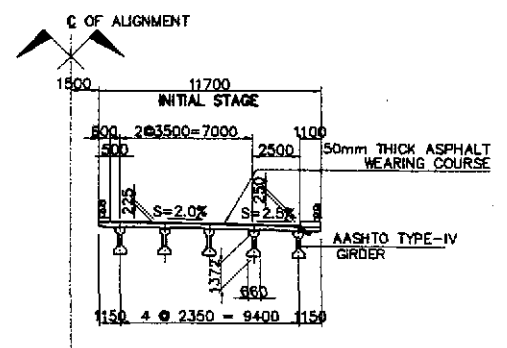
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JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL

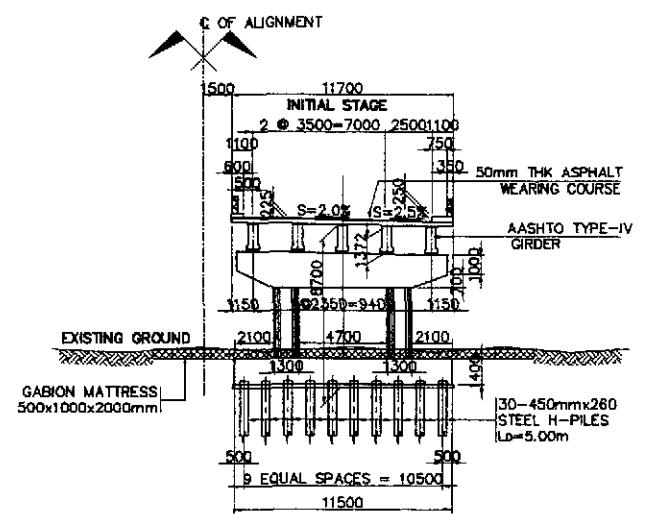
YEO YACHIYO ENGINEERING CO., LTD.



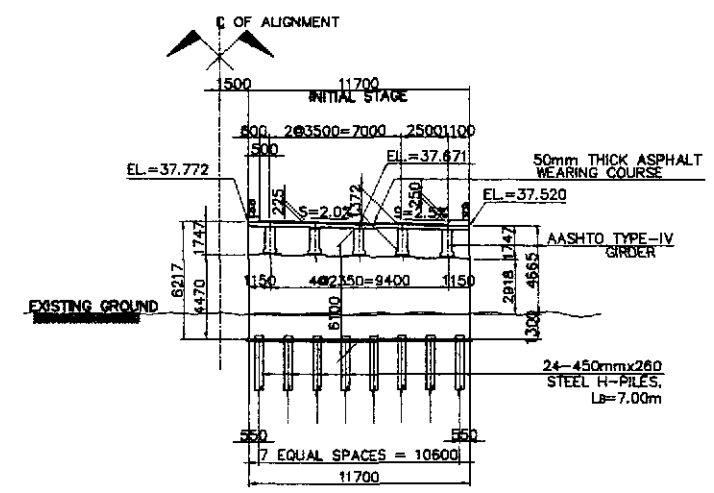
1 GENERAL ELEVATION
SCALE 1:200



2 SECTION @ MIDSPAN
SCALE 1:200



3 SECTION @ PIER P2
SCALE 1:200



4 SECTION @ ABUTMENT A2
SCALE 1:200

HYDRAULIC DESIGN DATA	
VELOCITY @ 50 YEARS, V_{50}	4.353 m/sec
DISCHARGE @ 50 YEARS, Q_{50}	735.500 cu.m/sec
CATCHMENT AREA, CA	129.925 sq. km

NOTE :
PRIOR TO CONSTRUCTION SOIL INVESTIGATION AT ABUTMENT A1, PIER P2 AND P3 SHALL BE CONDUCTED FOR CONFIRMATION OF ASSUME BEARING CAPACITY AND FOOTING ELEVATION.
THE PILE LENGTH RECOMMENDED ARE MINIMUM. SHOULD THE SOIL AT THE RECOMMENDED LENGTH BE INADEQUATE BEARING MATERIAL, LENGTH SHALL BE INCREASED. THE MINIMUM EMBEDMENT LENGTH INTO ADEQUATE SOIL FOR 400 x 400 R. C. PILE IS 1000mm WHILE FOR 450 x 450 R. C. PILE IS 1200mm.

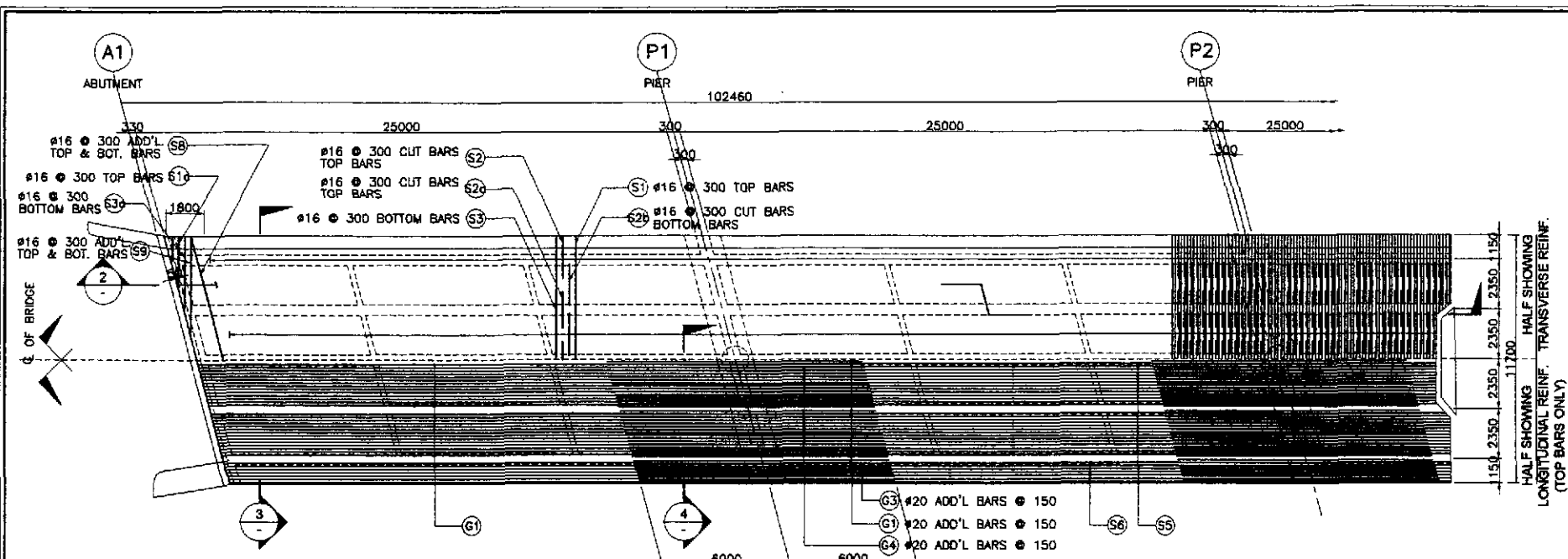
A CABANATUAN BYPASS BRIDGE NO. 12 (STA. 122+581.666)
SCALE AS SHOWN

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

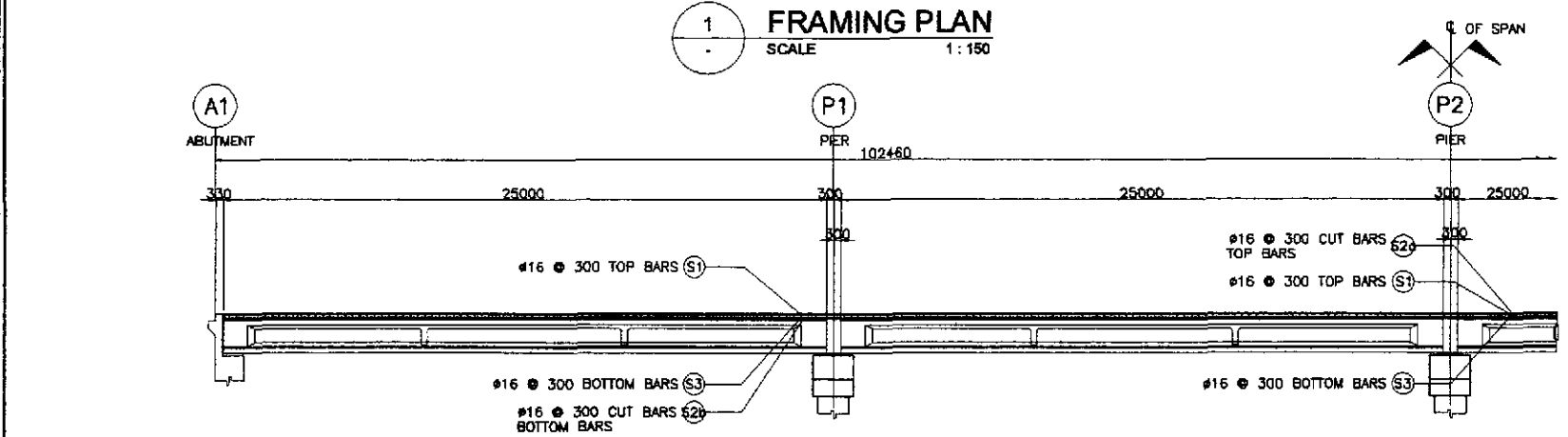
JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS
YEO YACHUO ENGINEERING CO., LTD.

DESIGNED		CHECKED		SUBMITTED	
10/12/02	A. J. GONZALES	10/17/02	M. R. RIVERA	10/21/02	M. R. RIVERA
Submitted By:		Reviewed By:		Recommended By:	
DANILO C. TRAJANO Project Director		ADRIANO M. DORAY Chief, Bridges Division		GILBERTO S. REYES Director IV (OIC)	
BUREAU OF DESIGN		OFFICE OF THE SECRETARY		BUREAU OF DESIGN	
Submitted By:		Reviewed By:		Recommended By:	
DANILO C. TRAJANO Project Director		ADRIANO M. DORAY Chief, Bridges Division		GILBERTO S. REYES Director IV (OIC)	
BUREAU OF DESIGN		OFFICE OF THE SECRETARY		BUREAU OF DESIGN	
Submitted By:		Reviewed By:		Recommended By:	
DANILO C. TRAJANO Project Director		ADRIANO M. DORAY Chief, Bridges Division		GILBERTO S. REYES Director IV (OIC)	

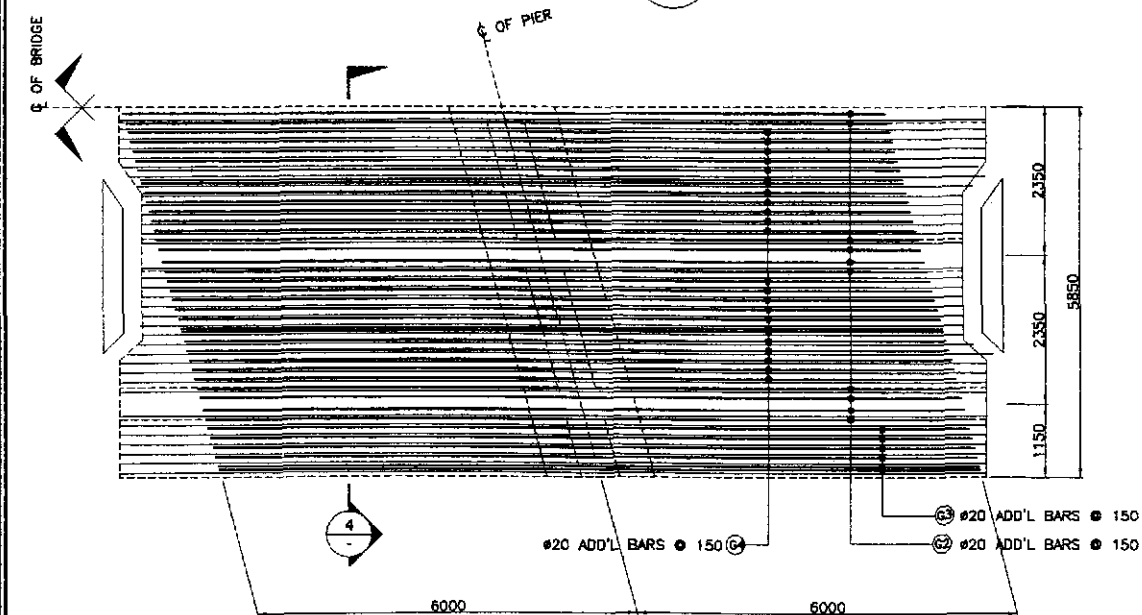
PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)	1 : 200	BRIDGE NO. 12 GENERAL ELEVATION AND SECTIONS (INITIAL STAGE)	B12-02
CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		



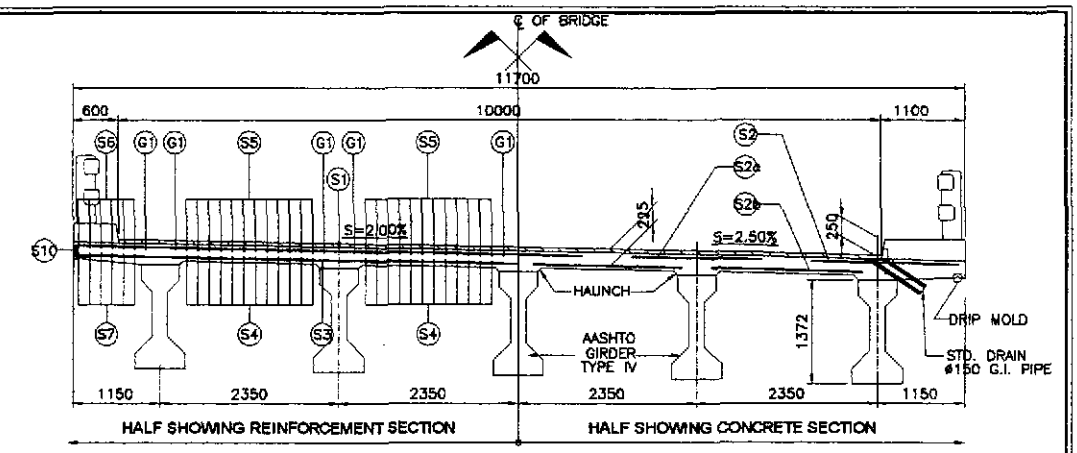
1 FRAMING PLAN
SCALE 1:150



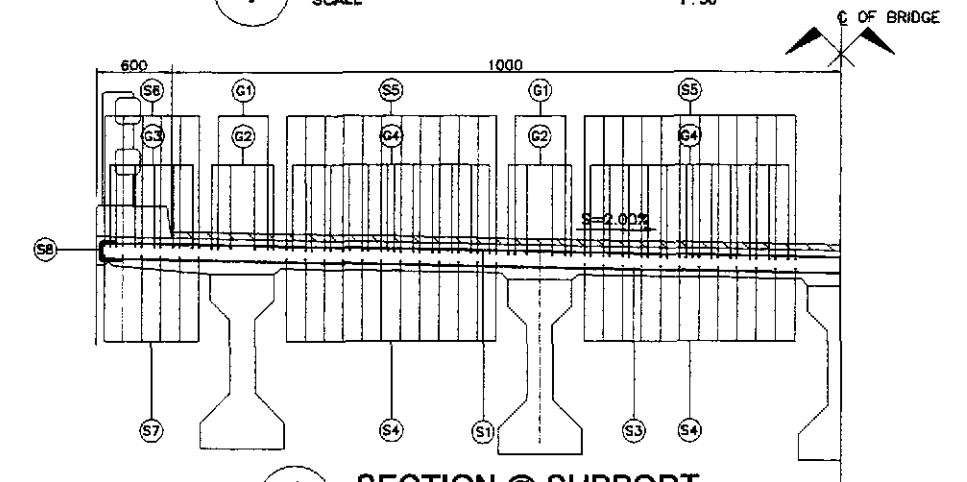
2 LONGITUDINAL SECTION
SCALE 1:150



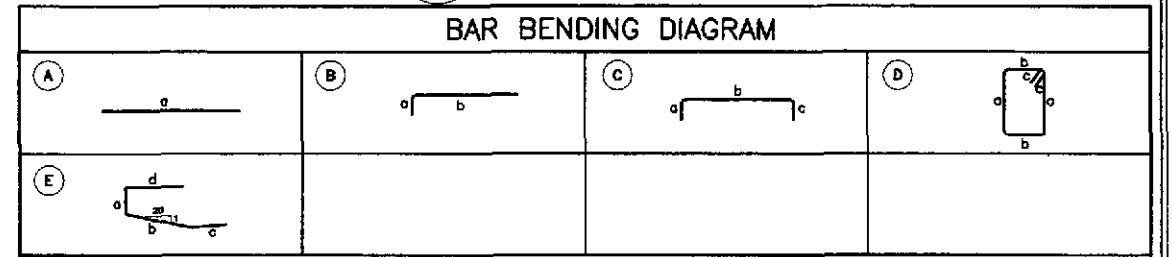
5 REINF. OVER PIER
SCALE 1:50



3 TYPICAL CROSS-SECTION
SCALE 1:50



4 SECTION @ SUPPORT
SCALE 1:30



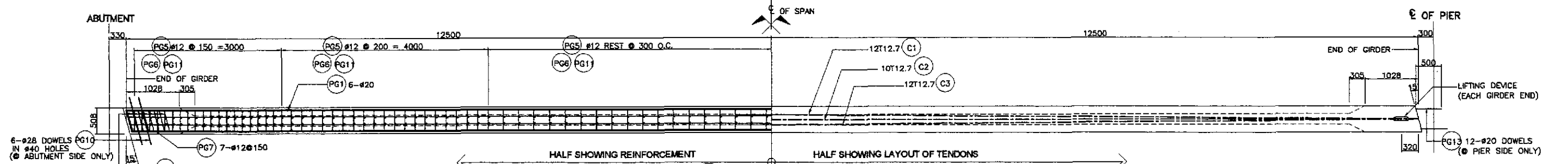
SCHEDULE OF REINFORCEMENT

ESTIMATED QUANTITIES OF SUPERSTRUCTURE			
ITEM NO.	DESCRIPTION	UNIT	TOTAL
404(1)a	REINFORCING STEEL GRADE 40	kgs.	75067
	DECK SLAB	44585	
	DIAPHRAGM	1325	
	GIRDER	18360	
	SIDEWALK, RAILING, & POST	9397	
	APPROACH SLAB	1400	
404(1)b	REINFORCING STEEL GRADE 60	kgs.	40635
	DECK SLAB	7104	
	DIAPHRAGM	4547	
	GIRDER	23540	
	SIDEWALK, RAILING, & POST	1770	
	APPROACH SLAB	4340	
405(1)	STRUCTURAL CONCRETE	cu. m.	697.15
	DECK SLAB	277.20	
	DIAPHRAGM	55.24	
	GIRDER	263.24	
	SIDEWALK, RAILING, & POST	66.02	
	APPROACH SLAB	35.45	

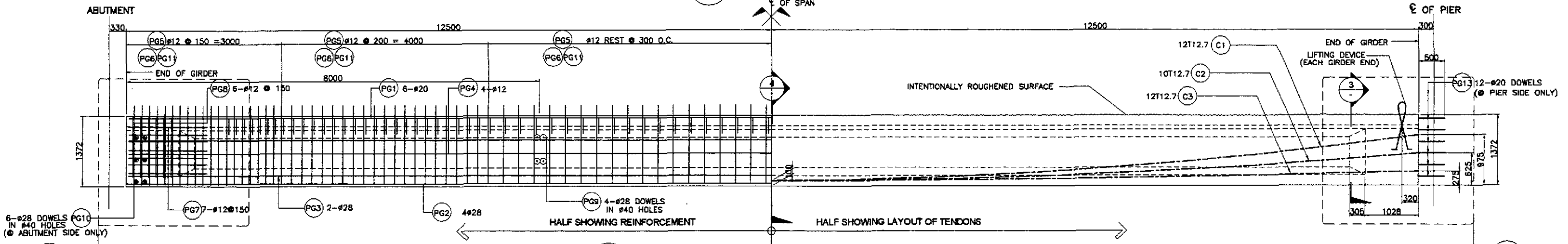
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT IN (kg)	REBAR RATIO (kg/m ³)
							a	b	c	d					
DECK SLAB	277.20	G1	16	10	AS SHOWN	(A)	101700	-	-	-	101700	1017.00	1.579	1606	186.47
		G2	20	60	150	(A)	12000	-	-	-	12000	720.00	2.466	1776	
		G3	20	36	150	(A)	12000	-	-	-	12000	432.00	2.466	1066	
		G4	20	144	150	(A)	12000	-	-	-	12000	1728.00	2.466	4262	
		S1	16	336	300	(C)	145	11600	145	-	11890	3995.04	1.579	6308	
		S1a	16	22	300	(C)	145	6590	145	-	6880	151.36	1.579	239	
		S2	16	664	300	(B)	1700	2000	-	-	2145	1424.28	1.579	2249	
		S2a	16	996	300	(A)	1950	-	-	-	1700	1683.20	1.579	2674	
		S2b	16	1328	300	(A)	11600	-	-	-	1950	2589.60	1.579	4089	
		S3	16	336	300	(A)	11600	-	-	-	11600	3897.60	1.579	6155	
S3a	16	22	300	(A)	6590	-	-	-	6590	144.98	1.579	229			
S4	16	48	150	(A)	101700	-	-	-	101700	4881.60	1.579	7709			
S5	16	48	150	(A)	101700	-	-	-	101700	4881.60	1.579	7709			
S6	16	12	AS SHOWN	(A)	101700	-	-	-	101700	1220.40	1.579	1928			
S7	16	12	AS SHOWN	(A)	101700	-	-	-	101700	1220.40	1.579	1928			
S8	16	28	AS SHOWN	(A)	12015	-	-	-	12015	336.42	1.579	532			
S9	16	44	AS SHOWN	(A)	6590	-	-	-	6590	289.96	1.579	458			
S10	12	446	450	(E)	145	900	600	300	1945	867.47	0.888	771			
TOTAL	277.20														

GRADE 40 TOTAL = 44,585 kgs.
GRADE 60 TOTAL = 7,104 kgs.

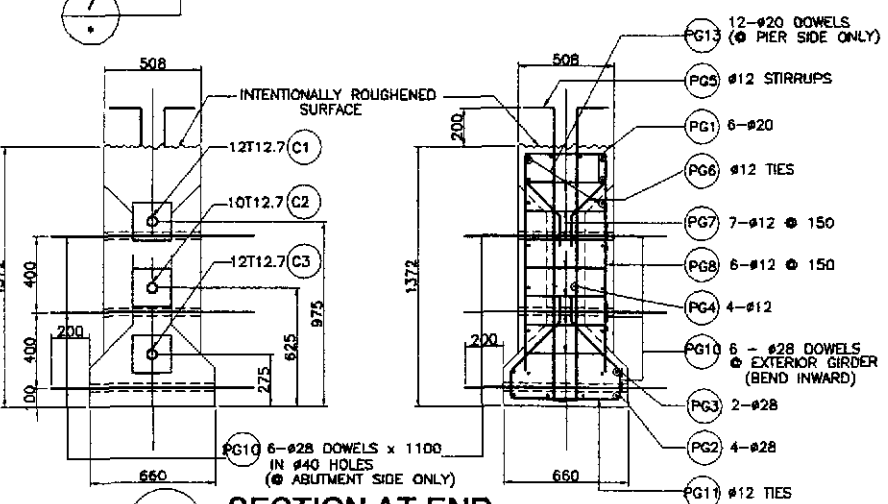
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Iralda, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE IV	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 12 DECK FRAMING PLAN AND SECTIONS (INITIAL STAGE)	SHEET NO. : B12-03
	CHECKED	10/12/02	<i>[Signature]</i>		BUREAU OF DESIGN						
	SUBMITTED	10/21/02	<i>[Signature]</i>		Submitted By: PUHL - PMO DANILO C. TRIANO Project Director	Reviewed By: ADRIANO M. DORCY Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director N (CIC)				



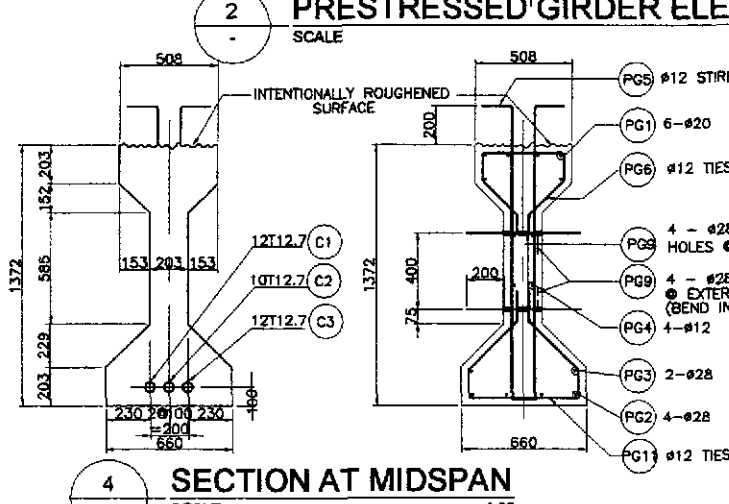
1 PLAN
SCALE 1:40



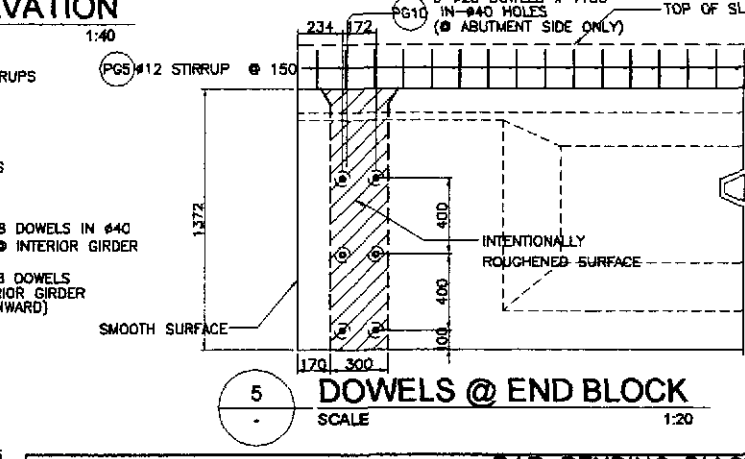
2 PRESTRESSED GIRDER ELEVATION
SCALE 1:40



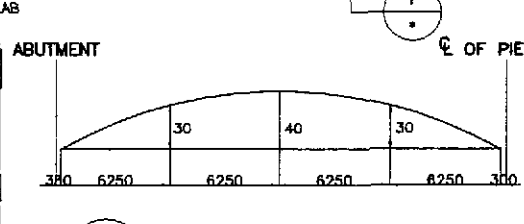
3 SECTION AT END
SCALE 1:20



4 SECTION AT MIDSPAN
SCALE 1:20

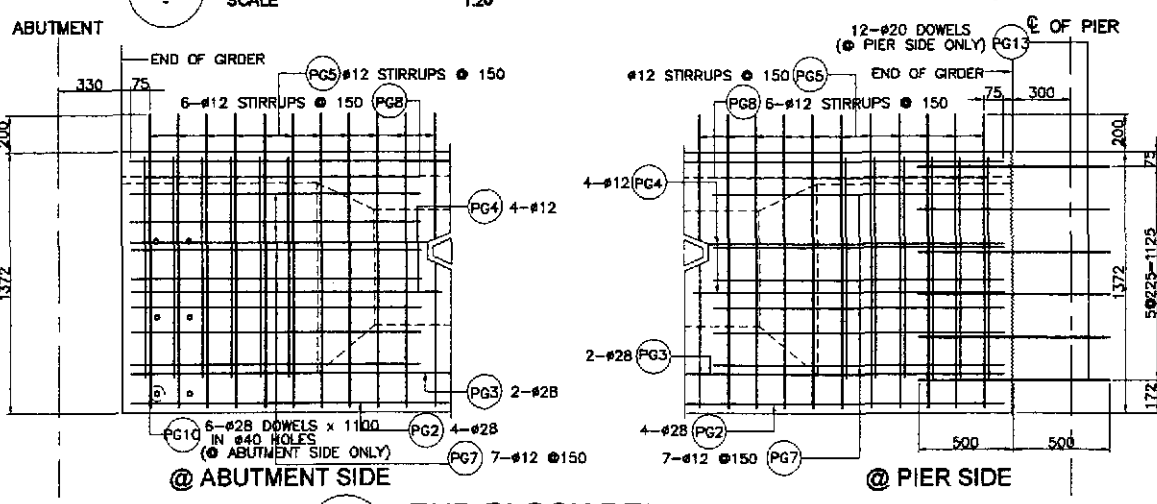


5 DOWELS @ END BLOCK
SCALE 1:20

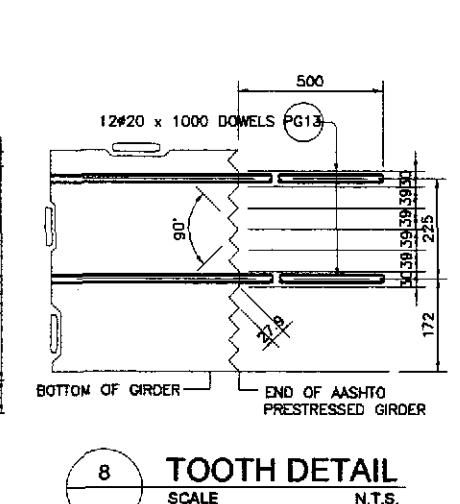


6 CAMBER DIAGRAM
NOT TO SCALE

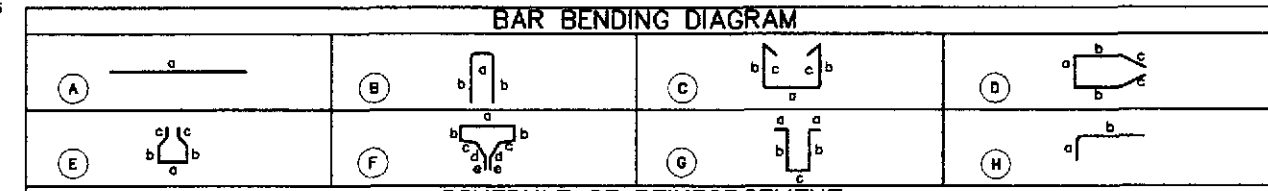
- NOTES:
- SEE GENERAL NOTES, -2, FOR GIRDER DESIGN GUIDE.
 - JACKING FORCE PER GIRDER, $P_j = 4681$ KN.
 - JACKING WILL BE DONE AT BOTH ENDS.
 - FINAL PRESTRESSING FORCE @ MIDSPAN, $F_{PT} = 3346$ KN.



7 END BLOCK REINF. DETAIL
SCALE 1:20



8 TOOTH DETAIL
SCALE N.T.S.



BAR BENDING DIAGRAM

STRUCTURE COMPONENT	BAR MARK	SIZE (mm)	QTY.	SPACING	BAR SHAPE	DIMENSION (mm)					LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONC. VOLUME (cu.m)	REBAR RATIO (kg/cu.m)	REMARKS
						a	b	c	d	e							
GIRDER	PG1	20	6	AS SHOWN	(A)	24920	-	-	-	-	24920	149.52	2.466	369			QUANTITIES ARE FOR ONE (1) GIRDER ONLY
	PG2	28	4	AS SHOWN	(A)	24920	-	-	-	-	24920	99.68	4.833	482			
	PG3	28	2	AS SHOWN	(A)	24920	-	-	-	-	24920	49.84	4.833	241			
	PG4	12	4	AS SHOWN	(A)	24920	-	-	-	-	24920	99.68	0.888	89			
	PG5	12	116	150	(G)	100	1540	103	-	-	3383	392.43	0.888	349			
	PG6	12	116	150	(E)	430	160	150	260	-	1570	182.12	0.888	162			
	PG7	12	14	150	(D)	430	1000	550	-	-	3530	49.42	0.888	44			
	PG8	12	12	150	(C)	430	1230	150	-	-	3190	38.28	0.888	34			
	PG9	28	8	AS SHOWN	(A)	603	-	-	-	-	603	4.82	4.833	24			
	PG10	28	6	AS SHOWN	(A)	1060	-	-	-	-	1060	6.36	4.833	31			
	PG11	12	116	150	(E)	580	160	150	360	-	1920	222.72	0.888	198			
	PG12	12	16	100	(B)	430	1230	-	-	-	2890	46.24	0.888	42			
	PG13	20	12	AS SHOWN	(A)	1000	-	-	-	-	1000	12.00	2.466	30			

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

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YEO YACHYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN
OFFICE OF THE SECRETARY

DESIGNED: 10/2/02
CHECKED: 10/2/02
SUBMITTED: 10/2/02

DATE: 10/2/02
SIGNATURE: [Signature]

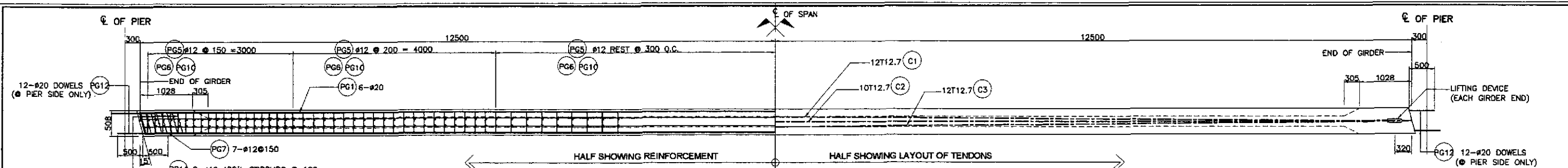
PROJECT DIRECTOR: DANILLO C. TRAJANO
CHIEF, BRIDGE DIVISION: AORIANO M. DORAY
DIRECTOR (C): GILBERTO S. REYES
UNDERSECRETARY: MANUEL M. BONDAN
SECRETARY: SIMEON A. DATUMANONG

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

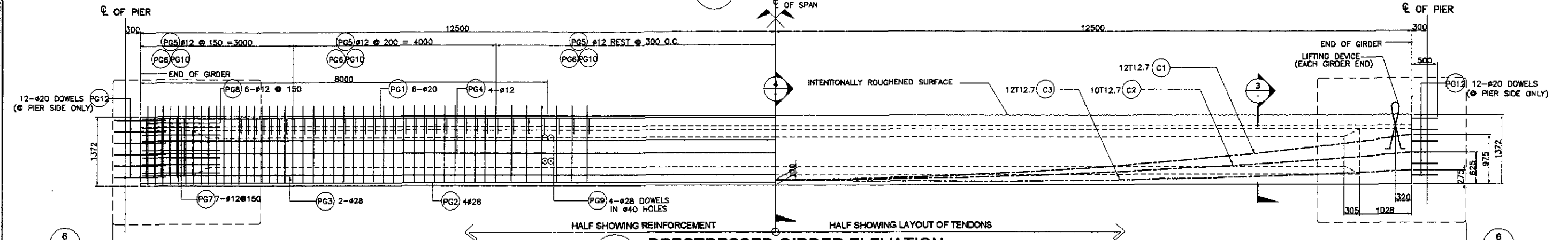
SCALE: AS SHOWN
FULL SIZE A1

SHEET CONTENTS: BRIDGE NO. 12 AASHTO TYPE IV GIRDER (EXTERIOR SPAN) (INITIAL STAGE)

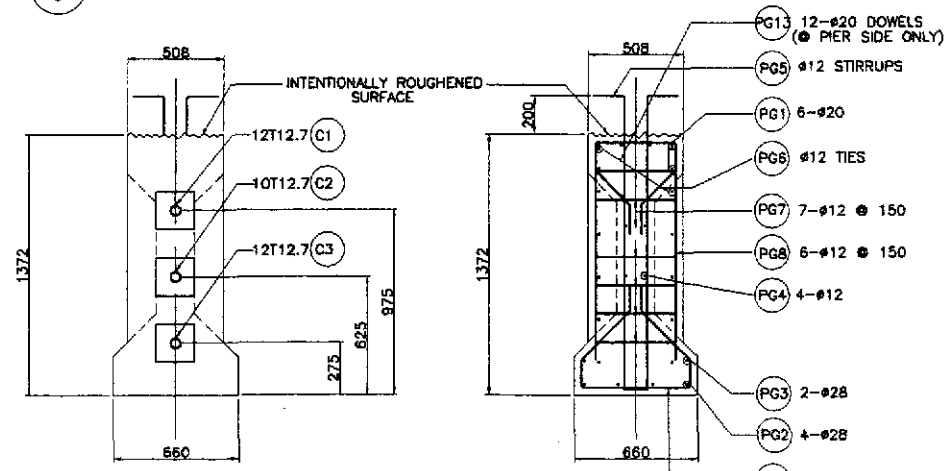
SHEET NO.: B12-04



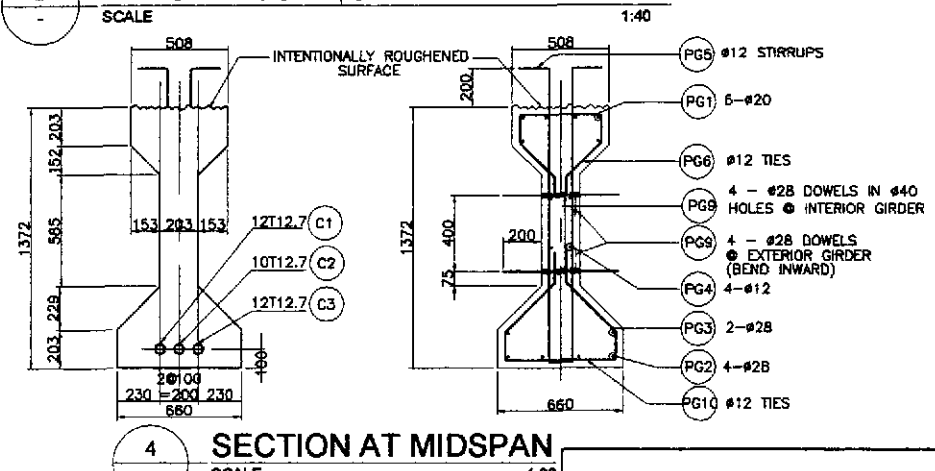
1 PLAN
SCALE 1:40



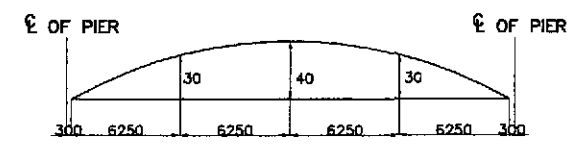
2 PRESTRESSED GIRDER ELEVATION
SCALE 1:40



3 SECTION AT END
SCALE 1:20

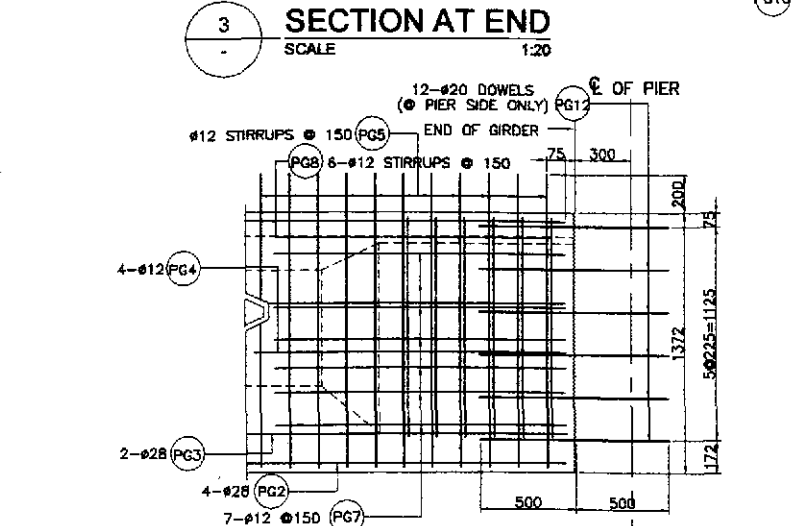


4 SECTION AT MIDSPAN
SCALE 1:20

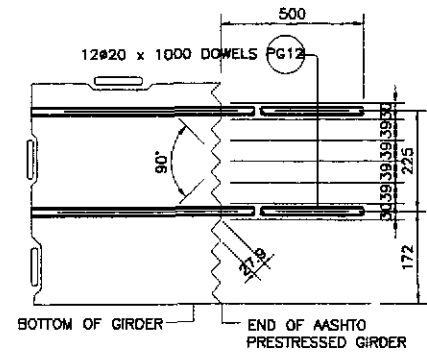


5 CAMBER DIAGRAM
NOT TO SCALE

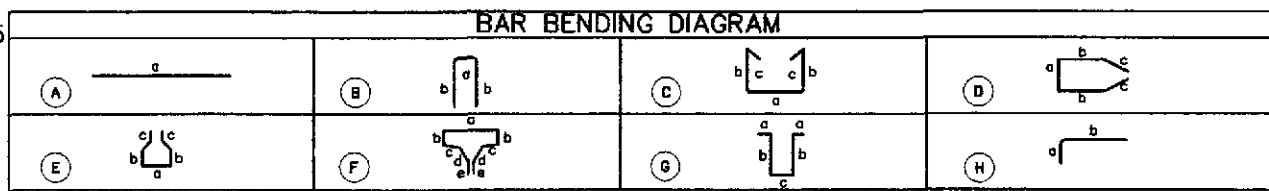
- NOTES:
- SEE GENERAL NOTES, -2, FOR GIRDER DESIGN GUIDE.
 - JACKING FORCE PER GIRDER, $P_j = 4681$ KN.
 - JACKING WILL BE DONE AT BOTH ENDS.
 - FINAL PRESTRESSING FORCE @ MIDSPAN, $F_{net} = 3346$ KN.



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



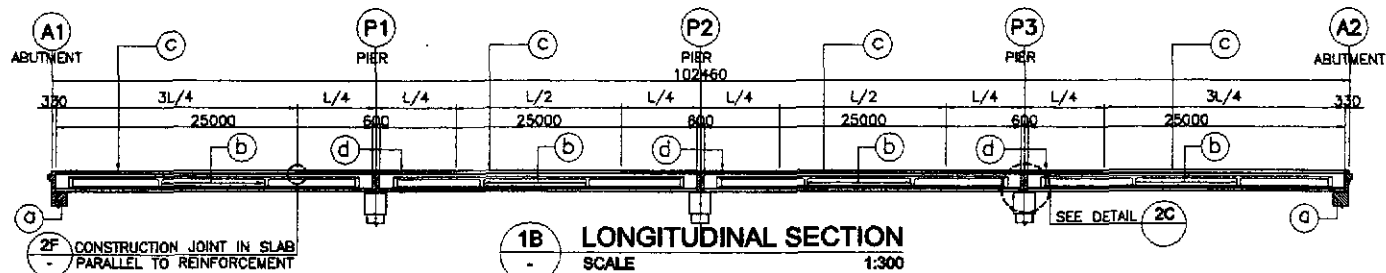
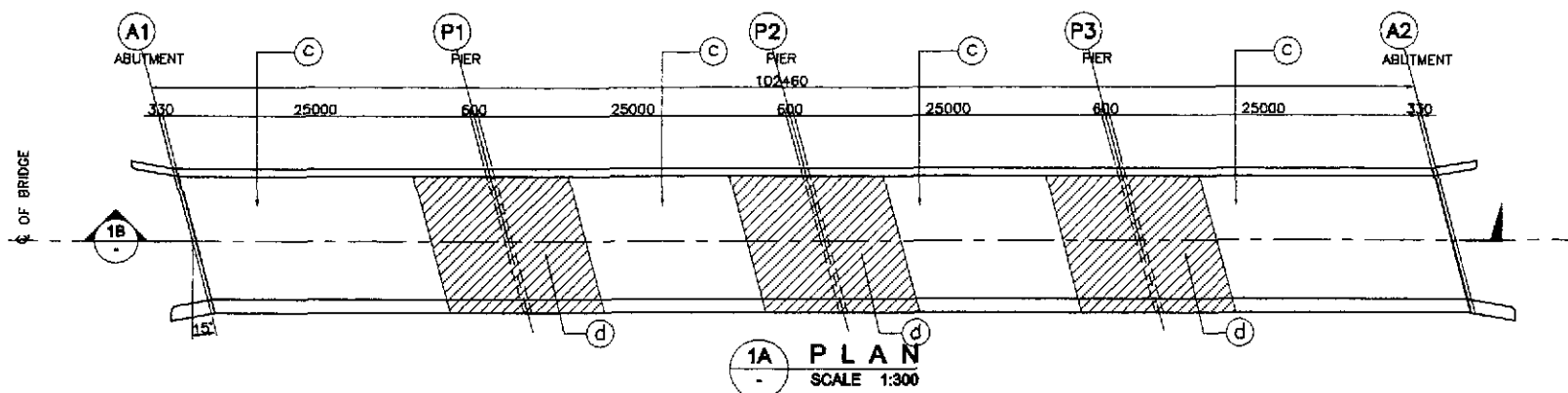
7 TOOTH DETAIL
SCALE N.T.S.



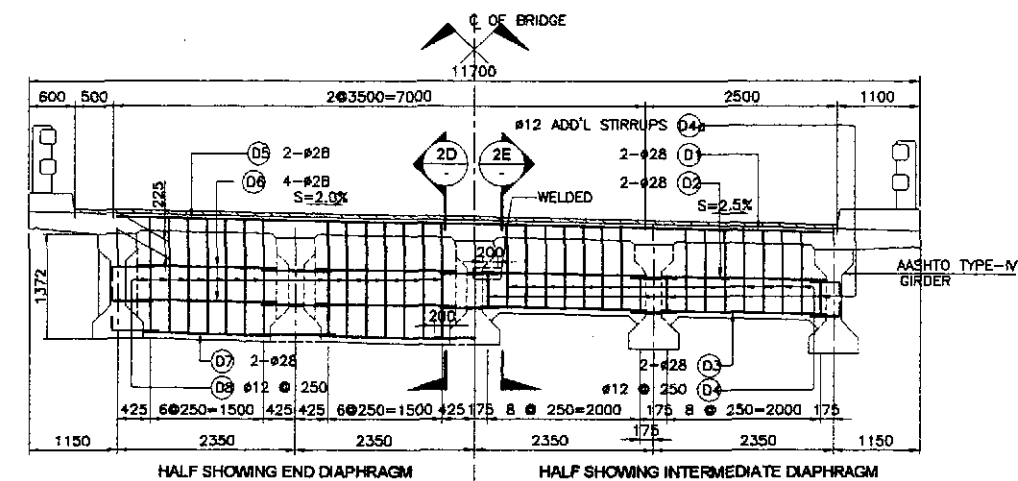
STRUCTURE COMPONENT	BAR MARK	SIZE (mm)	QTY.	SPACING	BAR SHAPE	DIMENSION (mm)					LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONC. VOLUME (cu.m)	REBAR RATIO (kg/cu.m)	REMARKS
						a	b	c	d	e							
GIRDER	PG1	20	6	AS SHOWN	(A)	24920	-	-	-	-	24920	149.52	2.466	369			
	PG2	28	4	AS SHOWN	(A)	24920	-	-	-	-	24920	99.68	4.833	482			
	PG3	28	2	AS SHOWN	(A)	24920	-	-	-	-	24920	49.84	4.833	241			
	PG4	12	4	AS SHOWN	(A)	24920	-	-	-	-	24920	99.68	0.888	89			
	PG5	12	116	150	(C)	100	1540	103	-	-	3383	392.43	0.888	349			
	PG6	12	116	150	(E)	430	160	150	260	-	1570	182.12	0.888	162			
	PG7	12	14	150	(D)	430	1000	550	-	-	3530	49.42	0.888	44	13.18	158.88	QUANTITIES ARE FOR ONE (1) GIRDER ONLY
	PG8	12	12	150	(C)	430	1230	150	-	-	3190	38.28	0.888	34			
	PG9	28	8	AS SHOWN	(A)	603	-	-	-	-	603	4.82	4.833	24			
	PG10	12	116	150	(E)	580	160	150	360	-	1920	222.72	0.888	198			
	PG11	12	16	100	(B)	430	1230	-	-	-	2890	46.24	0.888	42			
	PG12	20	24	AS SHOWN	(A)	1000	-	-	-	-	1000	24.00	2.466	60			

GRADE 40 TOTAL = 918 kgs.
GRADE 60 TOTAL = 1,176 kgs.

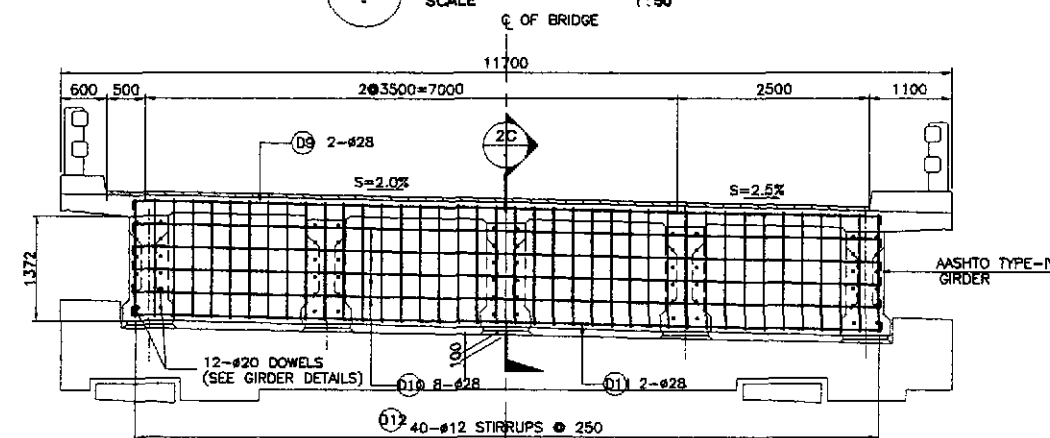
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/19/02	[Signature]		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Flaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 12 AASHTO TYPE IV GIRDER (INTERIOR SPAN) (INITIAL STAGE)	B12-05
	SUBMITTED	10/21/02	[Signature]		Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:	FULL SIZE A1		
			[Signature]	OFFICE OF THE SECRETARY				CABANATUAN BYPASS - CONTRACT PACKAGE IV				



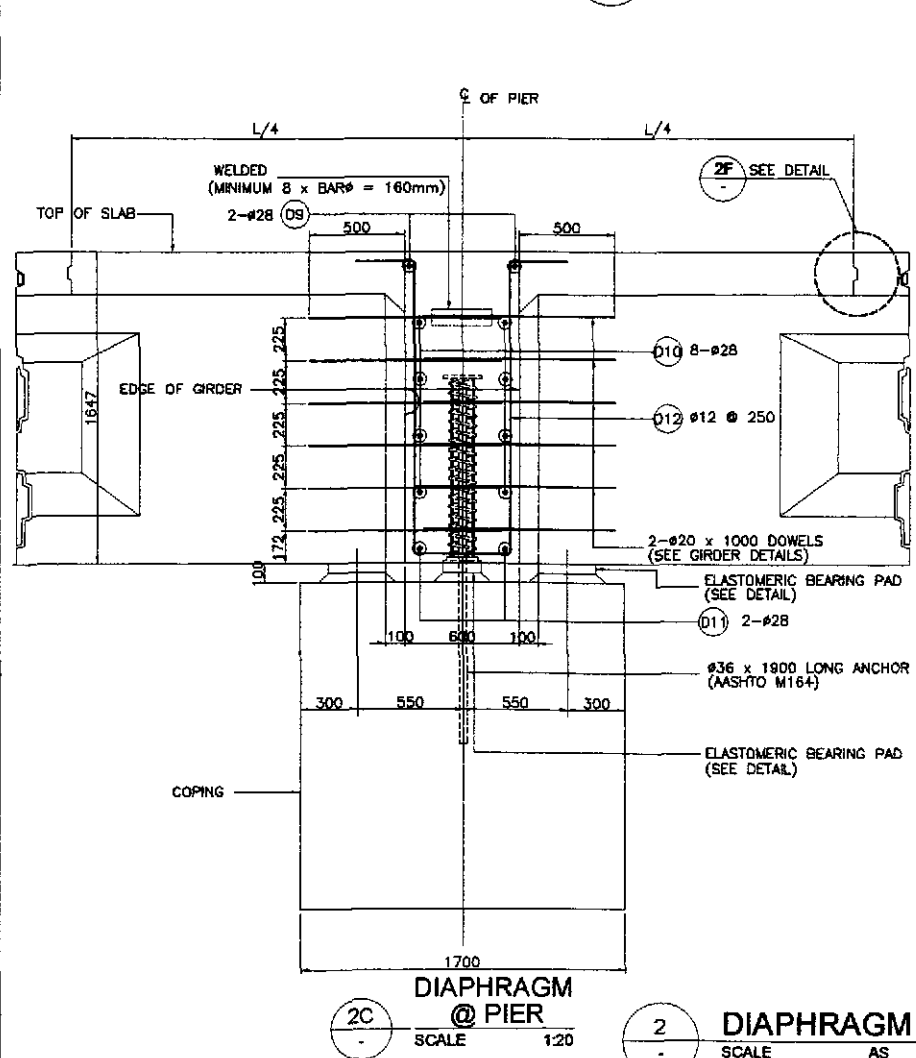
1 CONC. POURING SEQUENCE SCALE 1:300



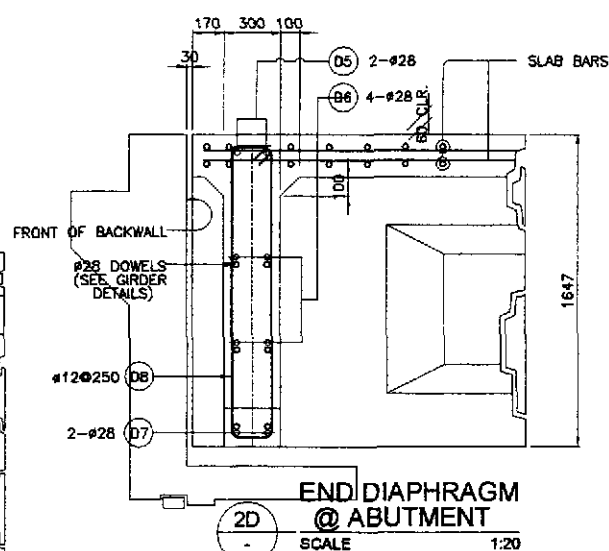
2A ELEVATION SCALE 1:50



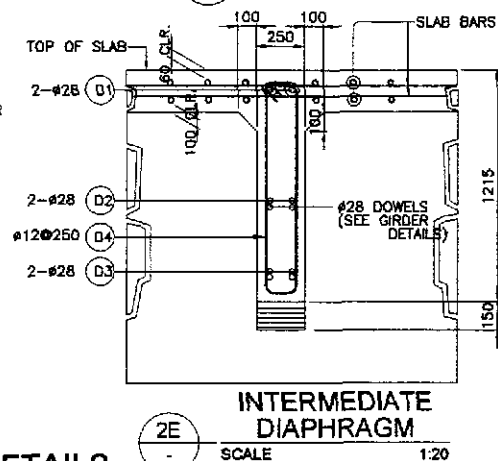
ELEVATION SHOWING DIAPHRAGM REINFORCEMENT @ PIER SCALE 1:50



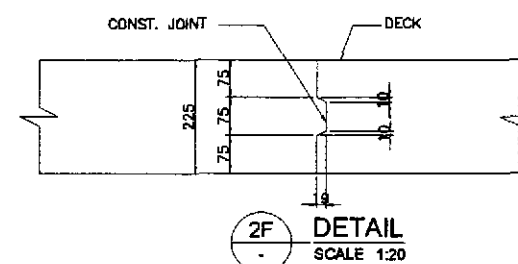
2C DIAPHRAGM @ PIER SCALE 1:20



2D END DIAPHRAGM @ ABUTMENT SCALE 1:20



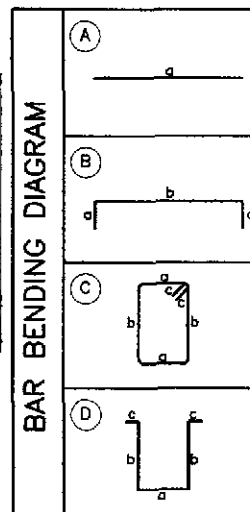
2E INTERMEDIATE DIAPHRAGM SCALE 1:20



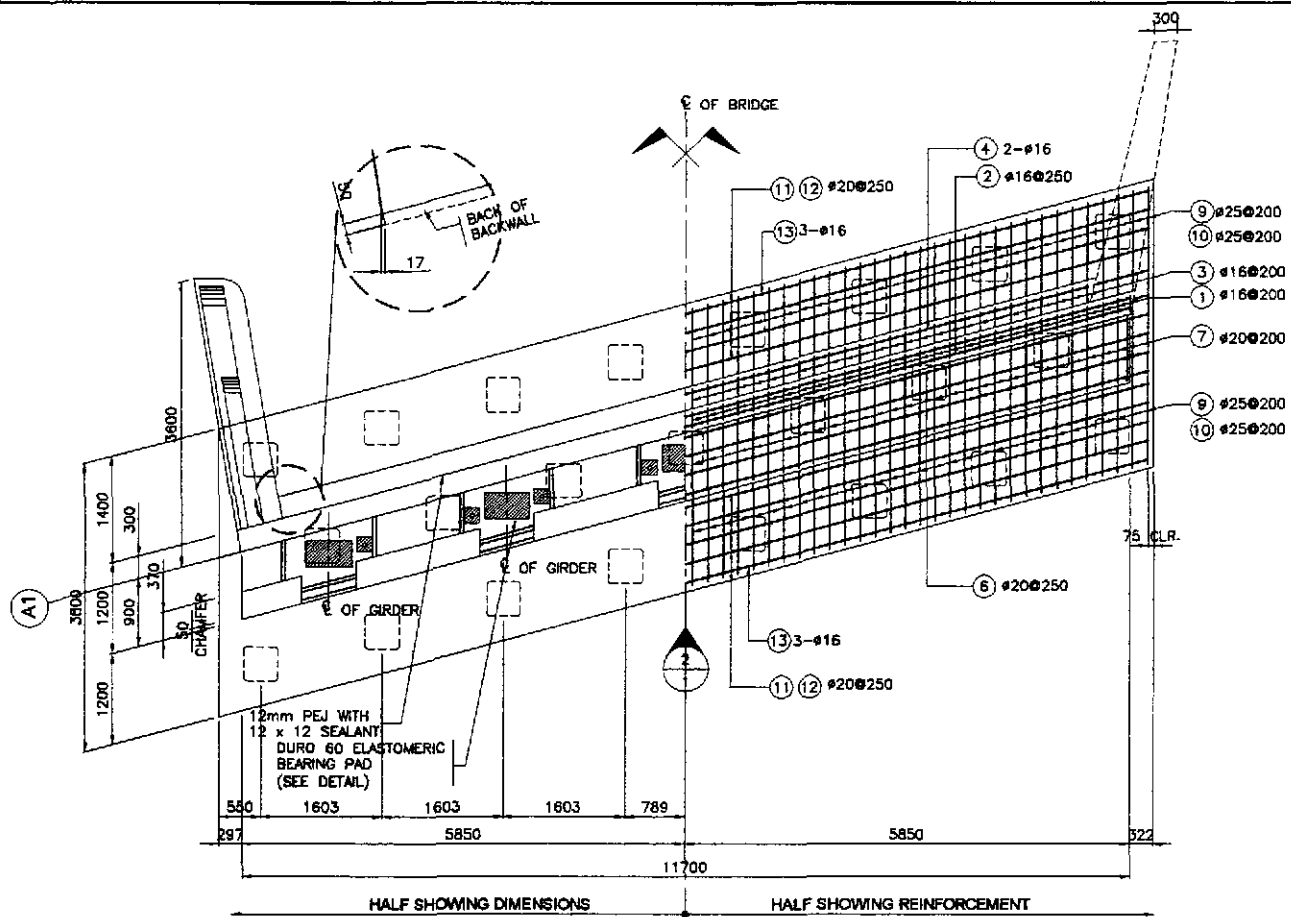
2F DETAIL SCALE 1:20

- NOTES:
1. CONCRETE AT @ AREAS SHALL BE PLACED AT LEAST 21 DAYS AHEAD OF CONCRETE AT @ AREAS.
 2. CONCRETE AT @ AREAS SHALL BE PLACED AT LEAST ONE DAY AHEAD OF CONCRETE AT @ AREAS. POUR @ AREAS LAST.
 3. REINFORCEMENT SHALL BE CONTINUOUS AT CONSTRUCTION JOINTS.
 4. SEE GIRDER DETAILS FOR SPACING OF #28 DOWELS.

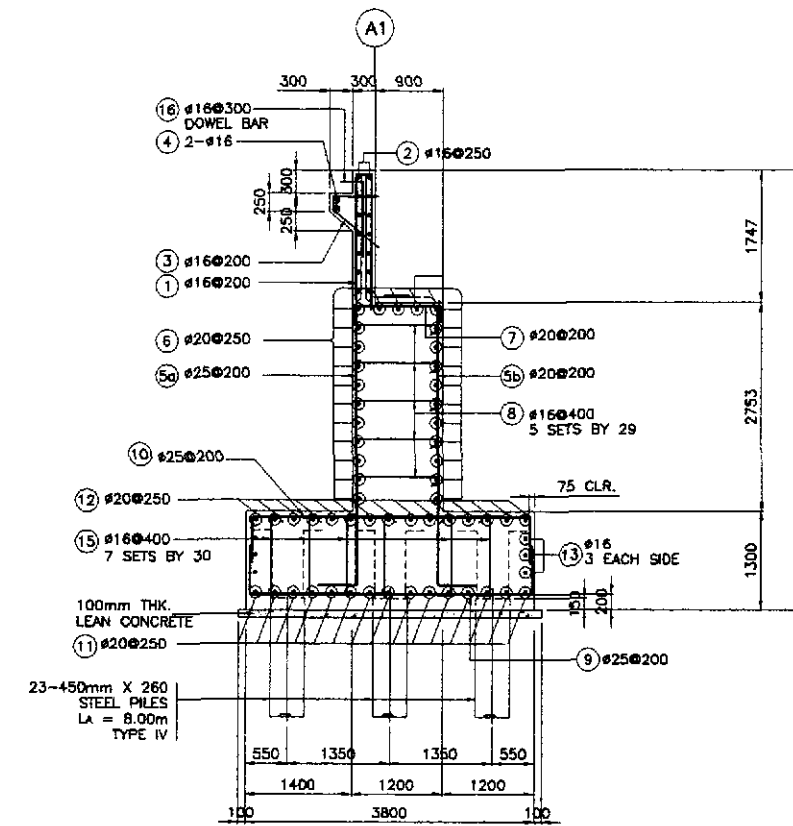
STRUCTURE COMPONENT	LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	DIMENSIONS (mm) OUT TO OUT				LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	TOTAL WEIGHT IN (kg)	REBAR RATIO (kg/m ³)
							a	b	c	d					
DIAPHRAGM	INTERMEDIATE DIAPHRAGM	19.58	D1	28	16	AS SHOWN	A	9400			9400	150.40	4.833	727	140.09
			D2	28	64	AS SHOWN	A	2145			2145	137.28	4.833	664	
			D3	28	64	AS SHOWN	A	2145			2145	137.28	4.833	664	
			D4	12	224	250	C	150	1200	150	3000	672.00	0.888	597	
			D4a	12	64	AS SHOWN	C	150	500	150	1600	102.40	0.888	91	
			D5	28	4	AS SHOWN	A	9400			9400	37.60	4.833	182	
	END DIAPHRAGM	6.29	D6	28	32	AS SHOWN	A	1840			1840	58.88	4.833	285	127.10
			D7	28	16	AS SHOWN	A	1840			1840	29.44	4.833	143	
			D8	12	56	250	C	200	1500	150	3800	212.80	0.888	189	
			D9	28	6	AS SHOWN	B	500	9810	500	10810	64.86	4.833	314	
			D10	28	24	AS SHOWN	B	500	9810	500	10810	259.44	4.833	1254	
			D11	28	6	AS SHOWN	B	500	9810	500	10810	64.86	4.833	314	
DIAPHRAGM AT PIER	25.36	D12	12	120	250	D	500	1550	300	4200	504.00	0.888	448	91.88	
TOTAL		51.23													
													GRADE 80 TOTAL = 4,547 kgs.		
													GRADE 40 TOTAL = 1,325 kgs.		



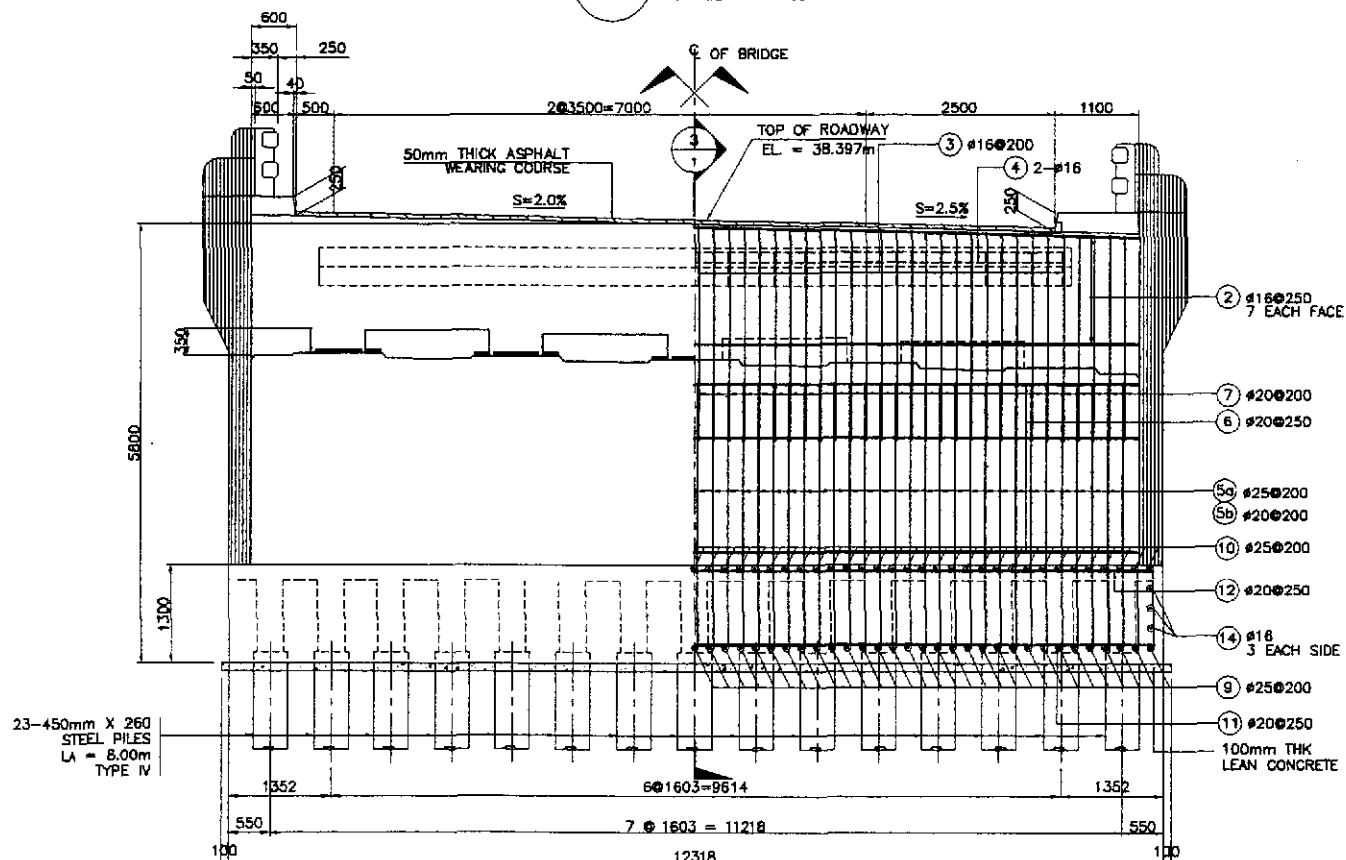
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/12/02	E. N. SALLAN		BUREAU OF DESIGN	OFFICE OF THE SECRETARY	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 12 CONCRETE POURING SEQUENCE AND DIAPHRAGM DETAILS (INITIAL STAGE)	B12-06	
SUBMITTED	10/12/02	M. K. KUBAYASHI	Submitted By:	Reviewed By:	Recommended By:	Approved By:	CABANATUAN BYPASS - CONTRACT PACKAGE IV				
		M. K. KUBAYASHI TEAM LEADER	DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (CIC)	MANUEL N. BONGAN Undersecretary	FULL SIZE A1				



1 PLAN
SCALE 1:50



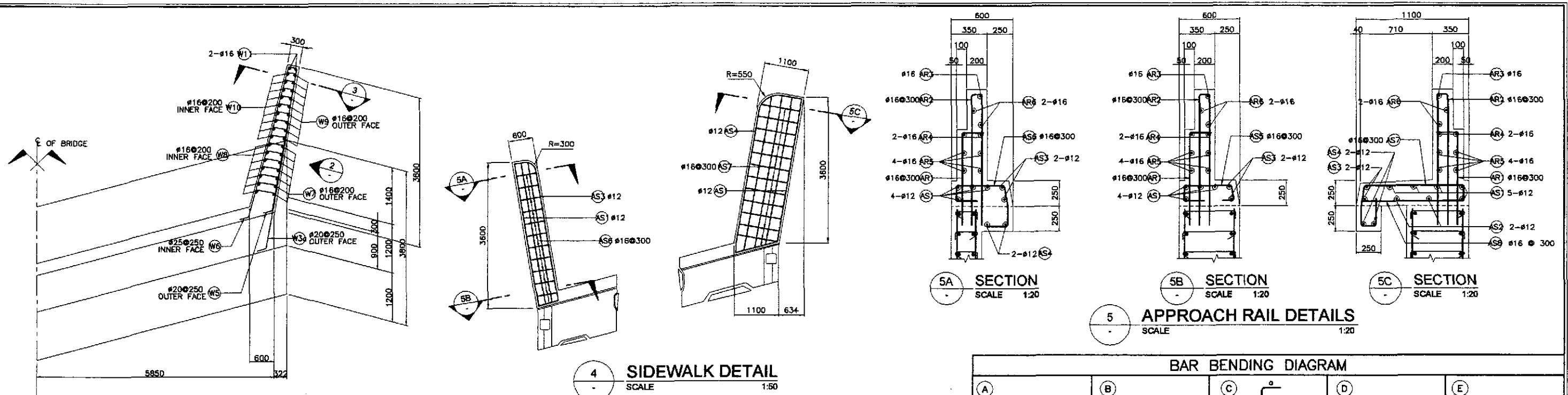
3 SECTION
SCALE 1:50



2 ELEVATION
SCALE 1:50

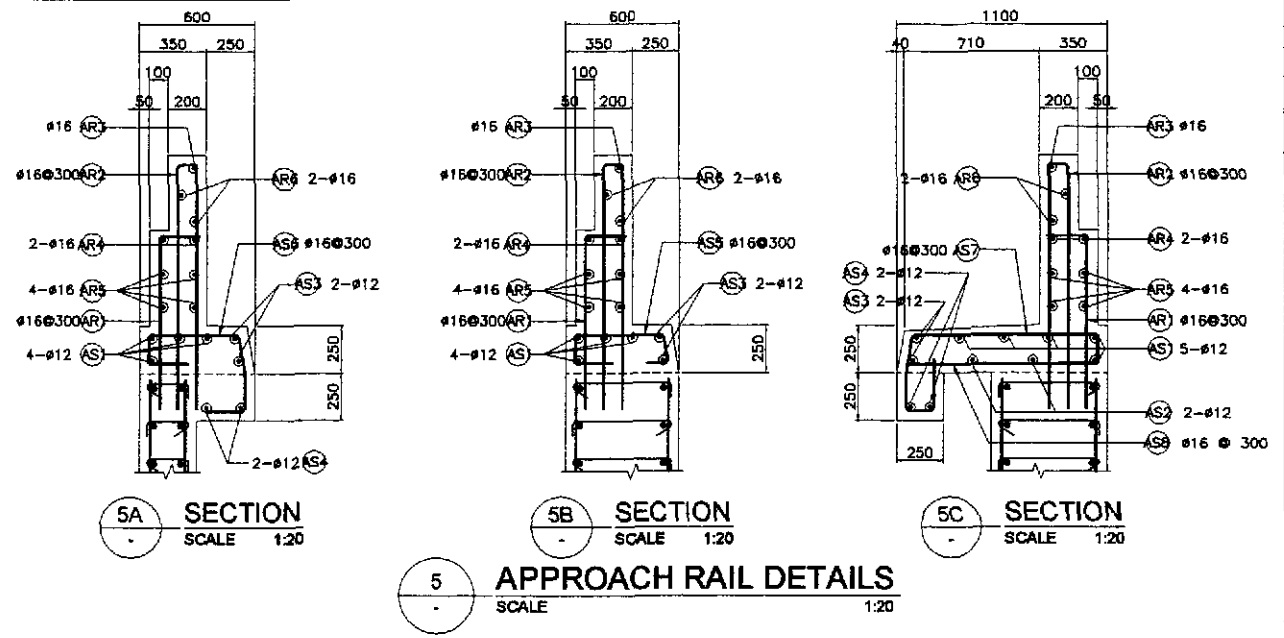
BAR BENDING DIAGRAM																	
A	B	C	D	E	F	G	H	I	J								
SCHEDULE OF REINFORCEMENT PER ABUTMENT																	
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (m)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)	
BACKWALL	7.26	1	16	59	200	(B)	2000	200	2000	-	-	-	4200	247.80	1.579	392	117.13
		2	16	16	250	(A)	12000	-	-	-	-	-	12000	192.00	1.579	304	
		3	16	51	200	(C)	600	150	750	-	-	-	1500	76.50	1.579	121	
		4	16	2	AS SHOWN	(A)	10250	-	-	-	-	-	10250	20.50	1.579	33	
MAINWALL	38.65	5a	25	59	200	(E)	400	3800	-	-	-	4200	247.80	3.854	956	75.24	
		5b	20	59	200	(E)	400	3800	-	-	-	4200	247.80	2.466	612		
		6	20	25	250	(A)	12000	-	-	-	-	-	12000	300.00	2.466		740
		7	20	59	200	(B)	250	1100	250	-	-	-	1600	94.40	2.466		233
		8	16	145	400	(D)	250	1100	250	-	-	-	1600	232.00	1.579		367
		9	25	62	200	(B)	700	3650	700	-	-	-	5050	313.10	3.854		1207
FOOTING	60.86	10	25	62	200	(B)	700	3650	700	-	-	-	5050	313.10	3.854	1207	68.39
		11	20	16	250	(B)	700	12600	700	-	-	-	14000	224.00	2.466	533	
		12	20	16	250	(B)	700	12600	700	-	-	-	14000	224.00	2.466	533	
		13	16	6	AS SHOWN	(A)	12600	-	-	-	-	-	12600	75.60	1.579	120	
		14	16	6	AS SHOWN	(A)	3650	-	-	-	-	-	3650	21.90	1.579	35	
DOWEL		15	16	210	400	(D)	250	1150	250	-	-	-	1650	346.50	1.579	548	
TOTAL	106.76																GRADE 40 TOTAL = 1,982 kgs. GRADE 60 TOTAL = 8,061 kgs.

	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	DESIGNED	10/12/02	A. GONZALES	BUREAU OF DESIGN			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)	1:50	BRIDGE NO. 12 ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS (INITIAL STAGE)	B12-07
	CHECKED	10/14/02	M. ROBERTO	Submitted By:	Reviewed By:	Recommended By:	CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		
SUBMITTED	10/21/02	M. ROBERTO TEAM LEADER	DANILO C. TRAJANO Project Director	ADRIANO M. DORCY Chief, Bridges Division	GILBERTO S. REYES Director IV (RC)	MANNIEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary			

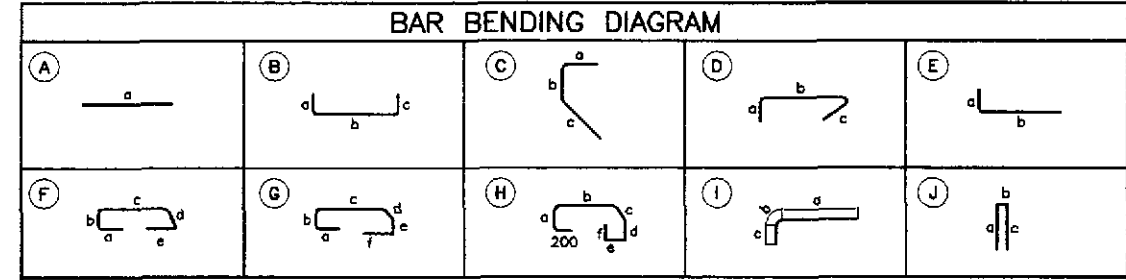


1 PLAN SCALE 1:50

4 SIDEWALK DETAIL SCALE 1:50

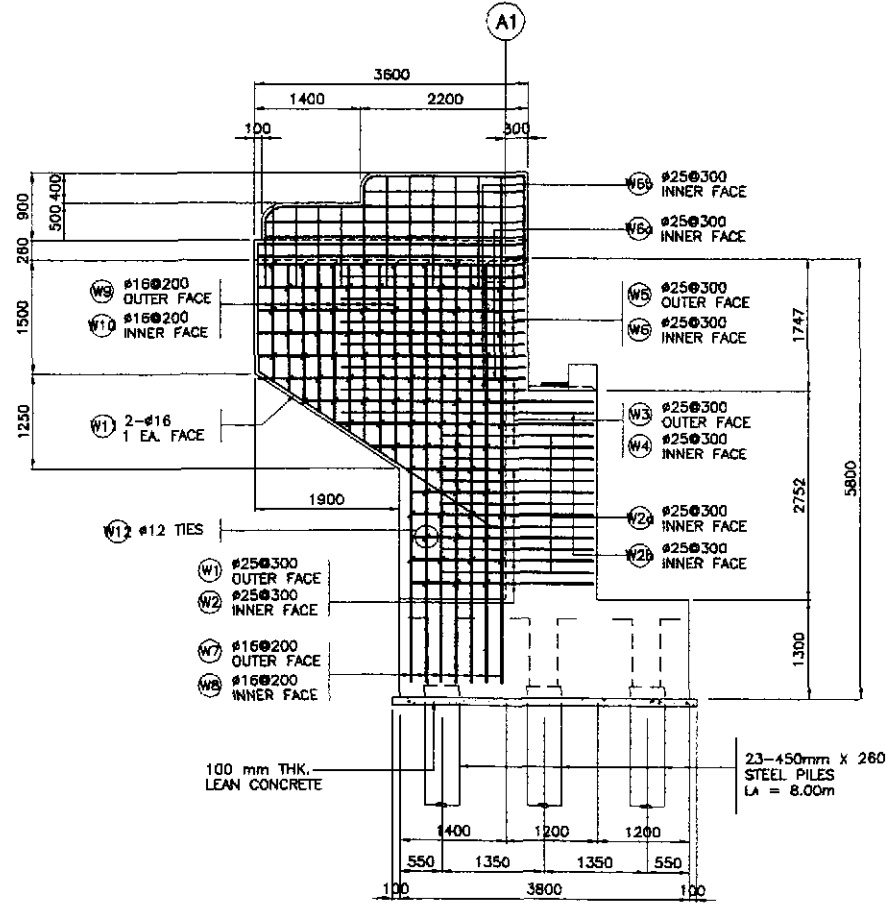


5 APPROACH RAIL DETAILS SCALE 1:20

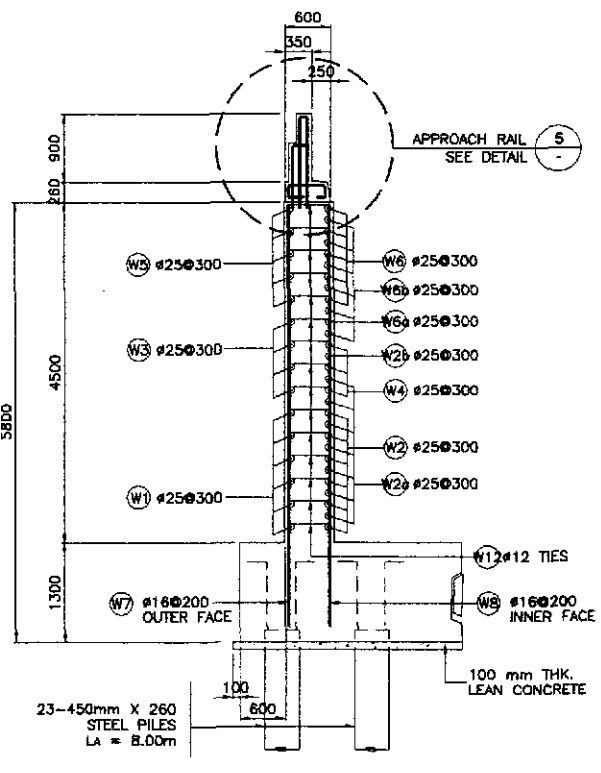


SCHEDULE OF REINFORCEMENT PER ABUTMENT

LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)	
							a	b	c	d	e						f
WINGWALL	9.30	W1	25	12	300	(B)	400	2500	150	-	-	-	3050	36.60	3.854	142	175.41
		W2	25	12	300	(B)	400	2900	150	-	-	-	3050	36.60	3.854	142	
		W3	25	14	300	(E)	400	1735	-	-	-	-	3650	29.89	3.854	116	
		W4	25	2	300	(E)	400	3250	-	-	-	-	3950	7.30	3.854	29	
		W5	25	6	300	(B)	400	3400	150	-	-	-	3950	23.70	3.584	92	
		W6	25	6	300	(B)	400	3400	150	-	-	-	4050	23.70	3.854	92	
		W7	25	10	300	(B)	400	3500	150	-	-	-	4050	40.50	3.584	157	
		W8	25	10	300	(B)	400	3500	150	-	-	-	3900	40.50	3.854	157	
		W9	25	2	300	(B)	400	3350	150	-	-	-	2800	40.50	3.854	31	
		W10	25	12	300	(E)	400	2400	-	-	-	-	5800	7.80	3.854	130	
		W11	16	14	200	(E)	250	5550	-	-	-	-	5800	81.20	1.579	129	
		W12	16	14	200	(E)	250	5550	-	-	-	-	2300	81.20	1.579	129	
		W13	16	18	200	(E)	250	2050	-	-	-	2300	41.40	1.579	66		
		W14	16	18	200	(E)	250	2050	-	-	-	6250	41.40	4.579	66		
		W15	16	4	AS SHOWN	(C)	250	1500	3500	-	-	-	5150	21.00	1.579	34	
		W16	12	170	AS SHOWN	(D)	170	450	170	-	-	-	790	134.30	0.888	120	
																GRADE 60 TOTAL = 1,088	
																GRADE 40 TOTAL = 544	
APPROACH RAILING AND SIDEWALK	3.53	AS1	12	9	AS SHOWN	(A)	3500	-	-	-	-	-	3500	31.50	0.888	28	98.34
		AS2	12	2	AS SHOWN	(A)	3500	-	-	-	-	-	3500	7.00	0.888	7	
		AS3	12	4	AS SHOWN	(A)	3500	-	-	-	-	-	3500	14.00	0.888	13	
		AS4	12	4	AS SHOWN	(A)	3500	-	-	-	-	-	1250	14.00	0.888	13	
		AS5	16	3	300	(F)	200	170	480	200	200	-	1420	3.75	1.579	6	
		AS6	16	11	300	(G)	200	170	480	200	170	200	3500	15.62	1.579	25	
		AS7	16	14	300	(H)	200	170	980	200	200	200	1250	29.68	1.579	47	
		AS8	16	14	300	(E)	200	1020	-	-	-	-	1420	17.08	1.579	27	
		AR1	16	8	300	(E)	200	900	-	-	-	-	1100	8.80	1.579	14	
		AR2	16	16	300	(J)	1300	120	1300	-	-	-	2720	43.52	1.579	69	
AR3	16	2	AS SHOWN	(I)	2100	236	1300	-	-	-	3636	7.27	1.579	12			
AR4	16	4	AS SHOWN	(I)	3400	236	900	-	-	-	4536	18.14	1.579	29			
AR5	16	8	AS SHOWN	(A)	3400	-	-	-	-	-	3500	27.20	1.579	43			
AR6	16	4	AS SHOWN	(A)	2100	-	-	-	-	-	2100	8.40	1.579	14			
																GRADE 40 TOTAL = 347	
TOTAL	12.83																GRADE 60 TOTAL = 1,088 kgs. GRADE 40 TOTAL = 891 kgs.



2 WINGWALL ELEVATION SCALE 1:50



3 SECTION SCALE 1:50

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

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

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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

SCALE: AS SHOWN FULL SIZE A1

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

SHEET NO.: B12-08

DESIGNED: 10/12/02 DATE: 10/12/02 SIGNATURE: [Signature] CHECKED: 10/12/02 SUBMITTED: 10/12/02

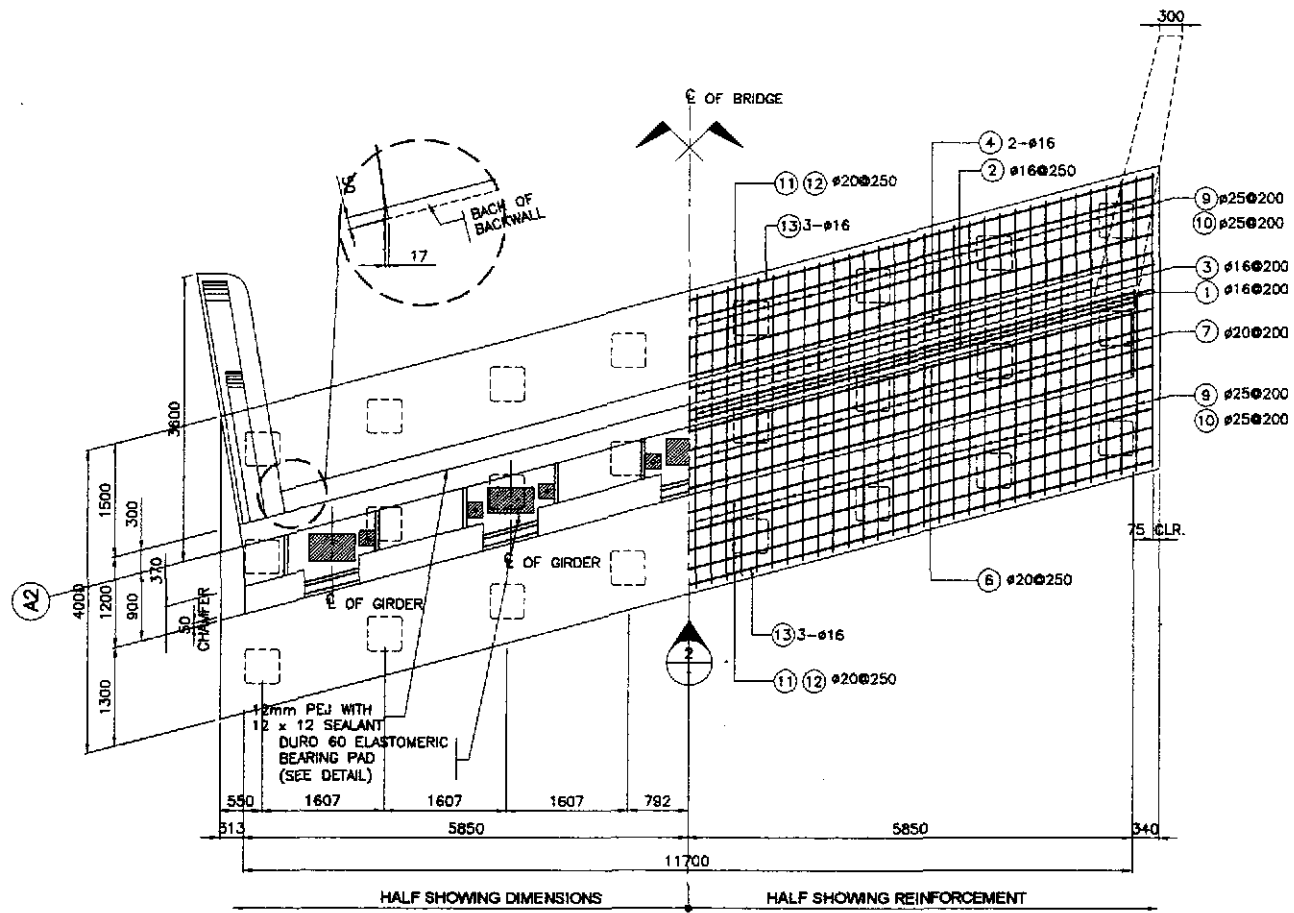
PROJECT DIRECTOR: DANILLO C. TRAJANO

CHIEF, BRIDGES DIVISION: ARIANO M. DORCOY

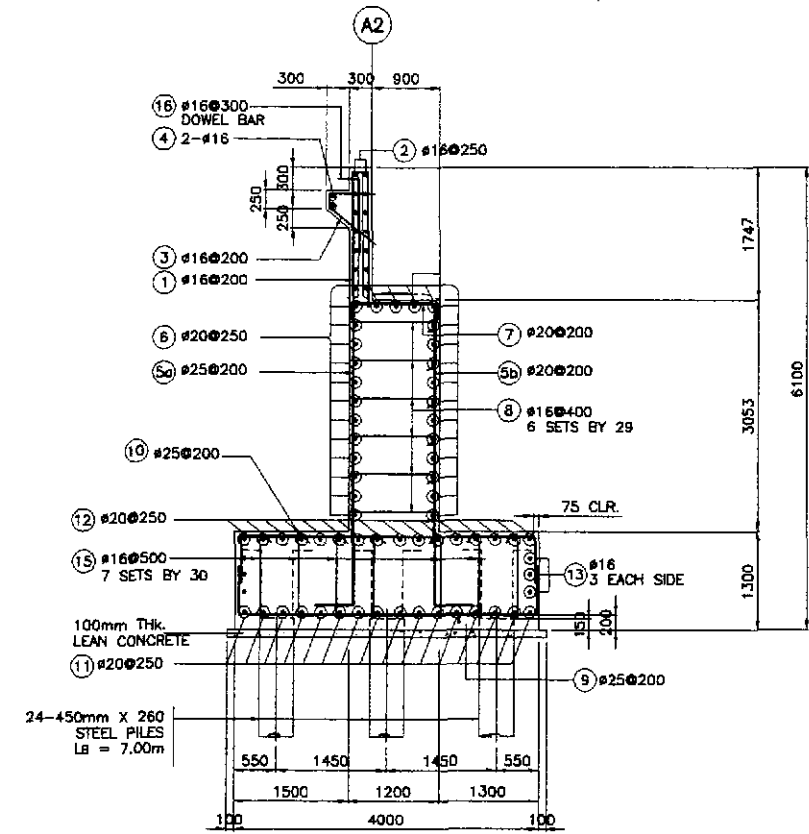
DIRECTOR 'N' (GIC): GILBERTO S. REYES

UNDERSECRETARY: MANUEL M. BONOAN

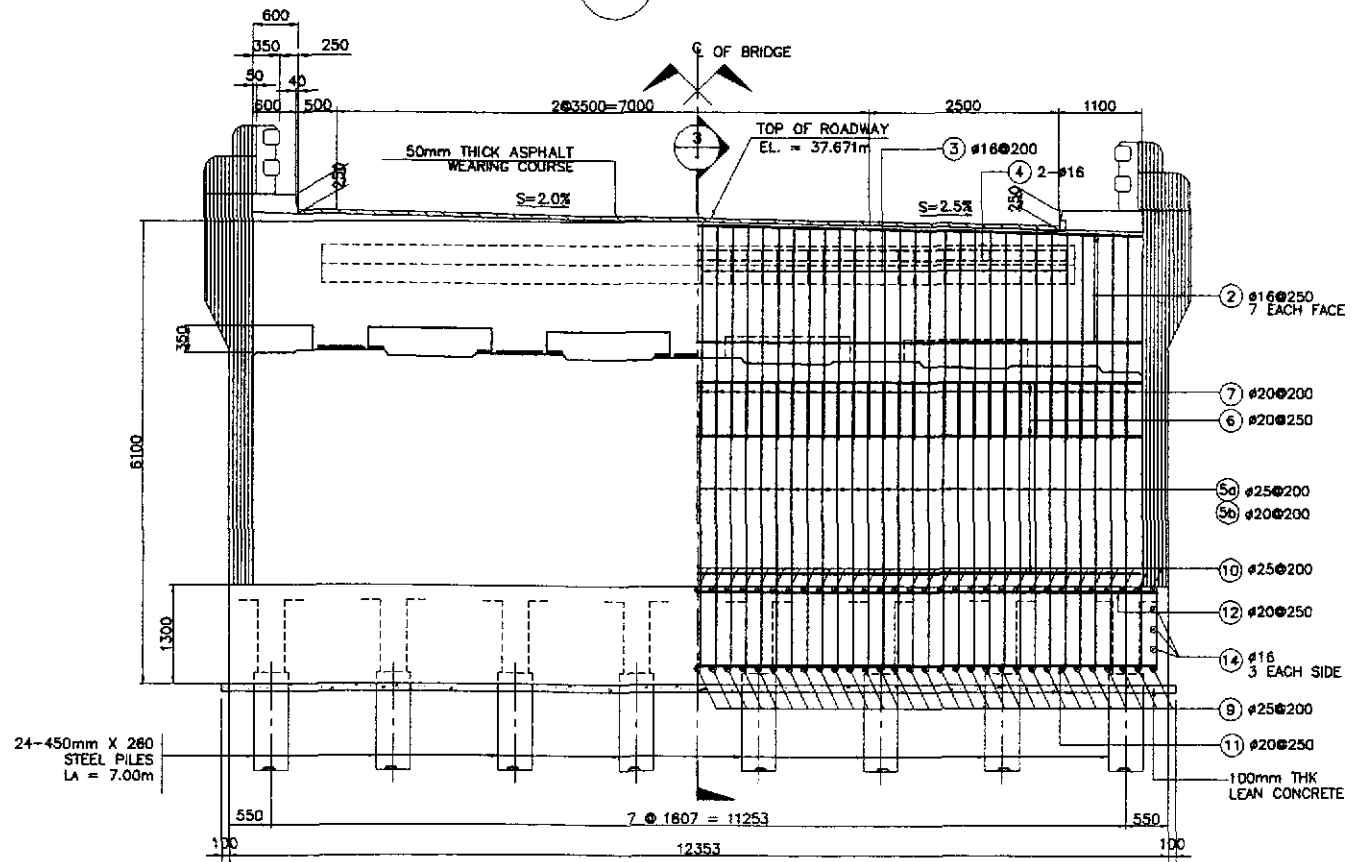
SECRETARY: SIMON A. DATUMANONG



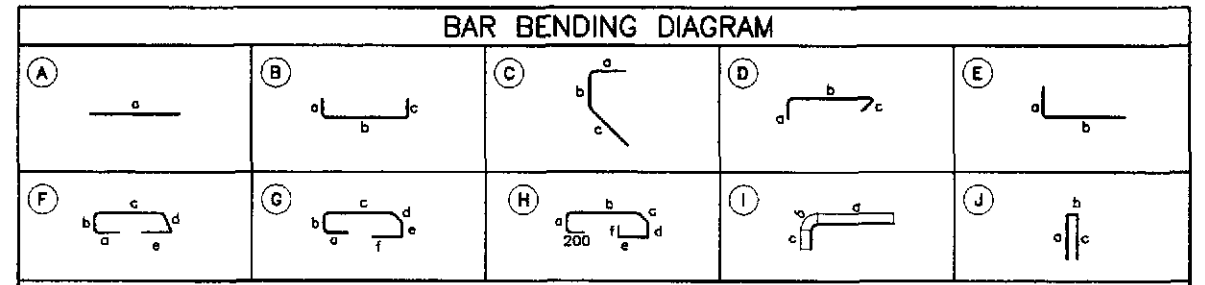
1 PLAN
SCALE 1:50



3 SECTION
SCALE 1:50



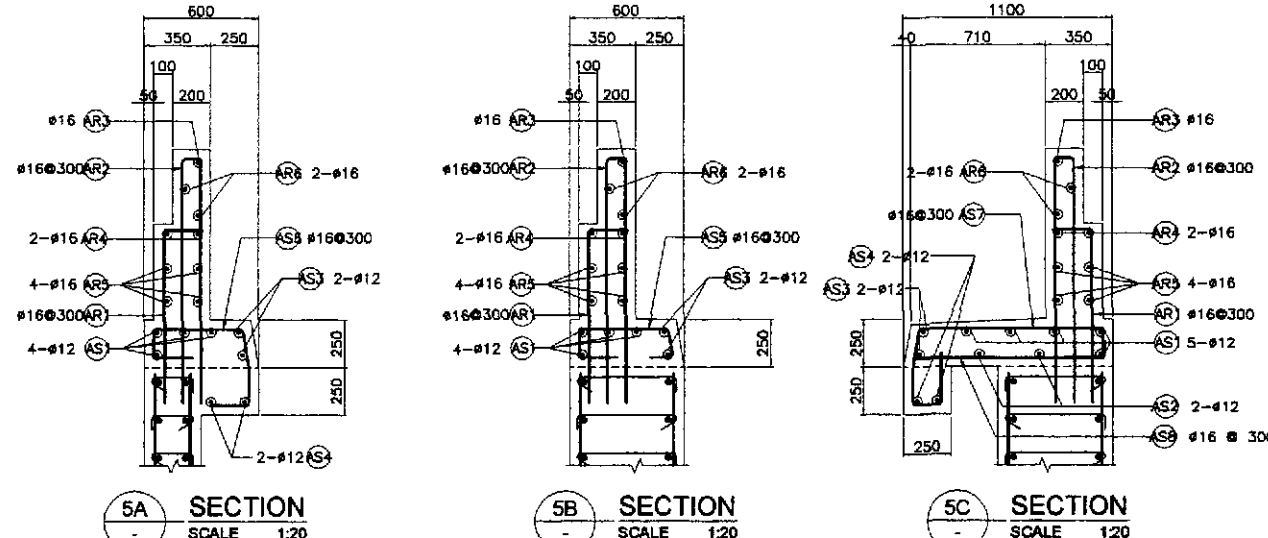
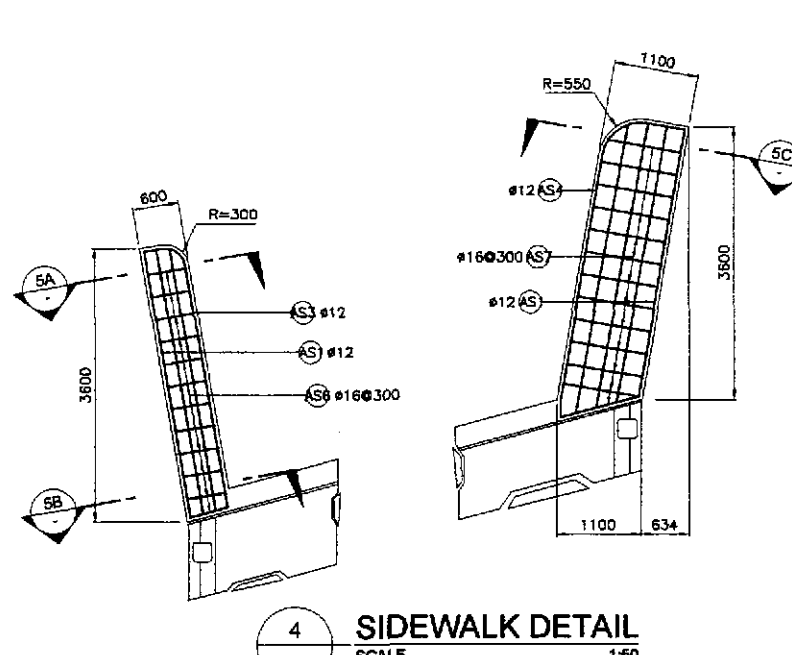
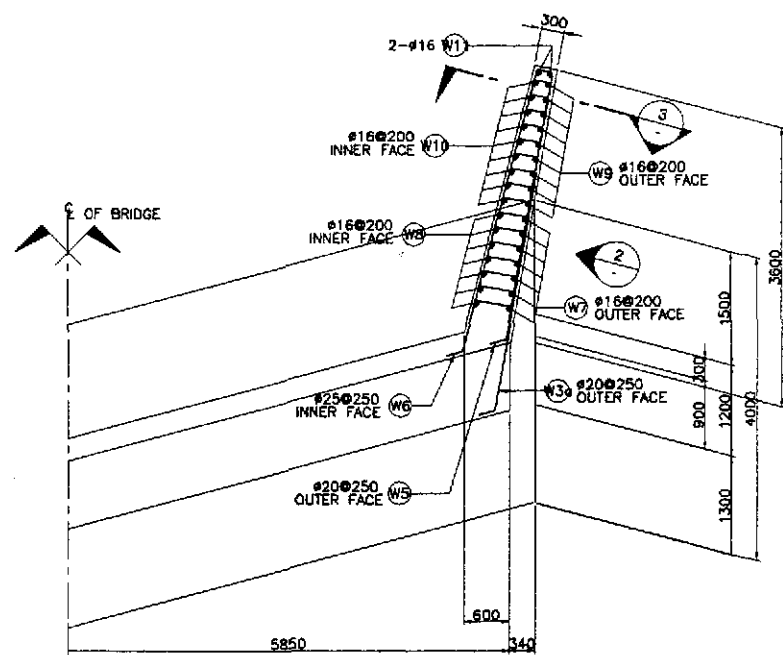
2 ELEVATION
SCALE 1:50



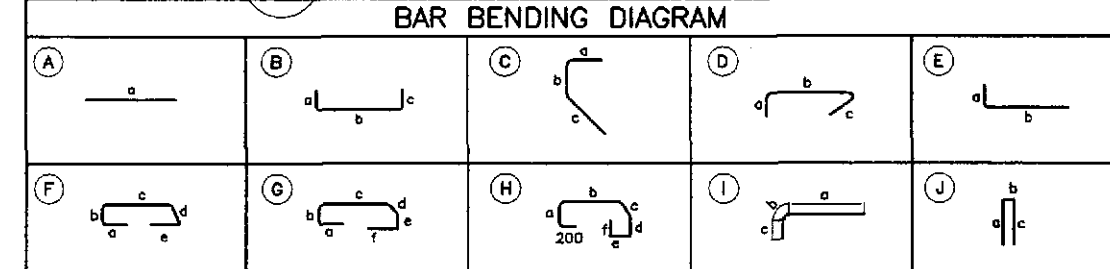
SCHEDULE OF REINFORCEMENT PER ABUTMENT																	
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)	
							a	b	c	d	e						f
BACKWALL	7.26	1	16	59	200	(B)	2000	200	2000	-	-	-	4200	247.80	1.579	392	117.13
		2	16	16	250	(A)	12000	-	-	-	-	-	12000	192.00	1.579	304	
		3	16	51	200	(C)	600	150	750	-	-	-	1500	76.50	1.579	121	
		4	16	2	AS SHOWN	(A)	10250	-	-	-	-	-	10250	20.50	1.579	33	
MAINWALL	42.86	5a	25	59	200	(E)	400	4100	-	-	-	4500	265.50	3.854	1024	73.51	
		5b	20	59	200	(E)	400	4100	-	-	-	4500	265.50	2.466	655		
		6	20	27	250	(A)	12000	-	-	-	-	-	12000	324.00	2.466		799
		7	20	59	200	(B)	250	1100	250	-	-	-	1600	94.40	2.466		233
FOOTING	64.24	8	16	174	400	(D)	250	1100	250	-	-	-	1600	278.40	1.579	440	67.33
		9	25	62	200	(B)	700	3850	700	-	-	-	5250	325.50	3.854	1255	
		10	25	62	200	(B)	700	3850	700	-	-	-	5250	325.50	3.854	1255	
		11	20	16	250	(B)	700	12650	700	-	-	-	14050	224.80	2.466	555	
		12	20	16	250	(B)	700	12650	700	-	-	-	14050	224.80	2.466	555	
DOWEL	114.36	13	16	6	AS SHOWN	(A)	12650	-	-	-	-	-	12650	75.90	1.579	120	67.33
		14	16	6	AS SHOWN	(A)	3850	-	-	-	-	-	3850	23.10	1.579	37	
		15	16	210	400	(D)	250	1150	250	-	-	-	1650	346.50	1.579	548	
TOTAL	114.36																

GRADE 40 TOTAL = 2,057 kgs.
GRADE 60 TOTAL = 6,331 kgs.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/12/02	[Signature]		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Flaridel, Cabanatuan and San Jose Bypasses)	1:50	BRIDGE NO. 12 ABUTMENT A2 MAINWALL REINFORCEMENT DETAILS (INITIAL STAGE)	B12-09
	SUBMITTED	10/21/02	[Signature]		Submitted By:	Reviewed By:	Recommended By:	Approved By:	CABANATUAN BYPASS - CONTRACT PACKAGE IV	FULL SIZE A1		

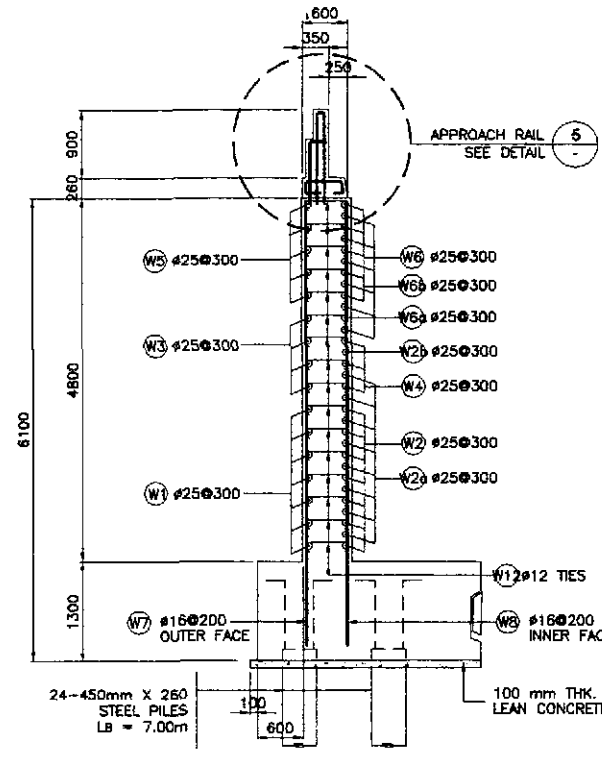
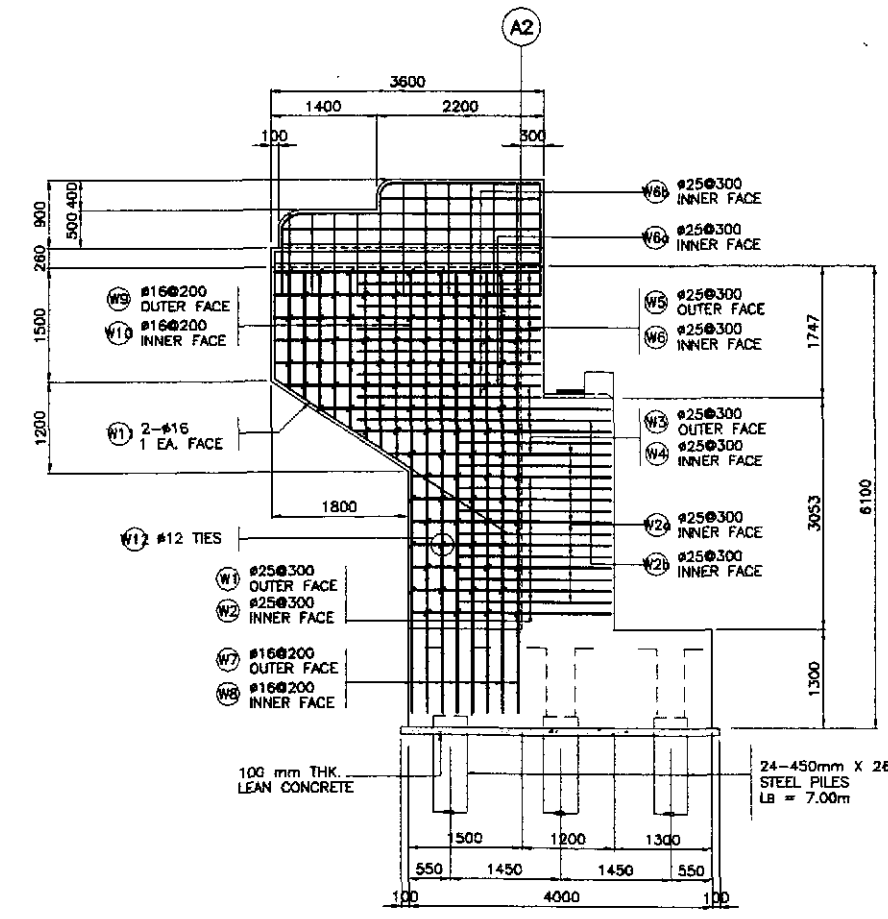


5 APPROACH RAIL DETAILS
SCALE 1:20



SCHEDULE OF REINFORCEMENT PER ABUTMENT

LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)		
							a	b	c	d							
WINGWALL	9.88	W1	25	14	300	(B)	400	2600	150	-	-	3150	44.10	3.854	170	177.80	
		W2	25	14	300	(B)	400	2600	150	-	-	3150	44.10	3.854	170		
		W3	25	16	300	(E)	400	1800	-	-	-	2200	35.20	3.854	136		
		W4	25	2	300	(E)	400	3250	-	-	-	3650	7.30	3.854	29		
		W5	25	6	300	(B)	400	3400	150	-	-	3950	23.70	3.584	92		
		W6	25	6	300	(B)	400	3400	150	-	-	3950	23.70	3.854	92		
		W7	25	10	300	(B)	400	3500	150	-	-	4050	40.50	3.584	157		
		W8	25	10	300	(B)	400	3500	150	-	-	4050	40.50	3.854	157		
		W9	25	2	300	(B)	400	3350	150	-	-	3900	7.80	3.854	31		
		W10	25	12	300	(E)	400	2400	-	-	-	2800	33.60	3.854	130		
		W11	16	16	200	(E)	250	5850	-	-	-	6100	97.60	1.579	155		
		W12	16	16	200	(E)	250	5850	-	-	-	6100	97.60	1.579	155		
W13	16	16	200	(E)	250	2050	-	-	-	2300	36.80	1.579	59				
W14	16	16	200	(E)	250	2050	-	-	-	2300	36.80	4.578	59				
W15	16	4	AS SHOWN	(C)	250	1500	3500	-	-	-	5250	21.00	1.579	34			
W16	12	186	AS SHOWN	(D)	170	450	170	-	-	-	790	146.94	0.888	131			
											GRADE 80 TOTAL = 1,164						
											GRADE 40 TOTAL = 593						
APPROACH RAILING AND SIDEWALK	3.53	AS1	12	9	AS SHOWN	(A)	3500	-	-	-	-	3500	31.50	0.888	28	98.34	
		AS2	12	2	AS SHOWN	(A)	3500	-	-	-	-	3500	7.00	0.888	7		
		AS3	12	4	AS SHOWN	(A)	3500	-	-	-	-	3500	14.00	0.888	13		
		AS4	12	4	AS SHOWN	(A)	3500	-	-	-	-	3500	14.00	0.888	13		
		AS5	16	3	300	(F)	200	170	480	200	200	-	1250	3.75	1.579		6
		AS6	16	11	300	(G)	200	170	480	200	170	200	1420	15.82	1.579		25
		AS7	16	14	300	(H)	200	170	980	200	200	200	2120	29.68	1.579		27
		AS8	16	14	300	(E)	200	1020	-	-	-	-	1220	17.08	1.579		27
		AR1	16	8	300	(E)	200	900	-	-	-	-	1100	8.80	1.579		14
		AR2	16	16	300	(J)	1300	120	1300	-	-	-	2720	43.52	1.579		69
		AR3	16	2	AS SHOWN	(I)	2100	236	1300	-	-	-	3636	7.27	1.579		12
		AR4	16	4	AS SHOWN	(I)	3400	236	900	-	-	-	4536	18.14	1.579		29
AR5	16	8	AS SHOWN	(A)	3400	-	-	-	-	-	3400	27.20	1.579	43			
AR6	16	4	AS SHOWN	(A)	2100	-	-	-	-	-	2100	8.40	1.579	14			
											GRADE 40 TOTAL = 347						
TOTAL	13.41												GRADE 80 TOTAL = 1,164 kgs.				
											GRADE 40 TOTAL = 940 kgs.						



JICA JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL **YEO YACHYO ENGINEERING CO., LTD.**

DESIGNED: 10/2/02 P. GONZALES
CHECKED: 10/2/02
SUBMITTED: 10/2/02

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN
OFFICE OF THE SECRETARY

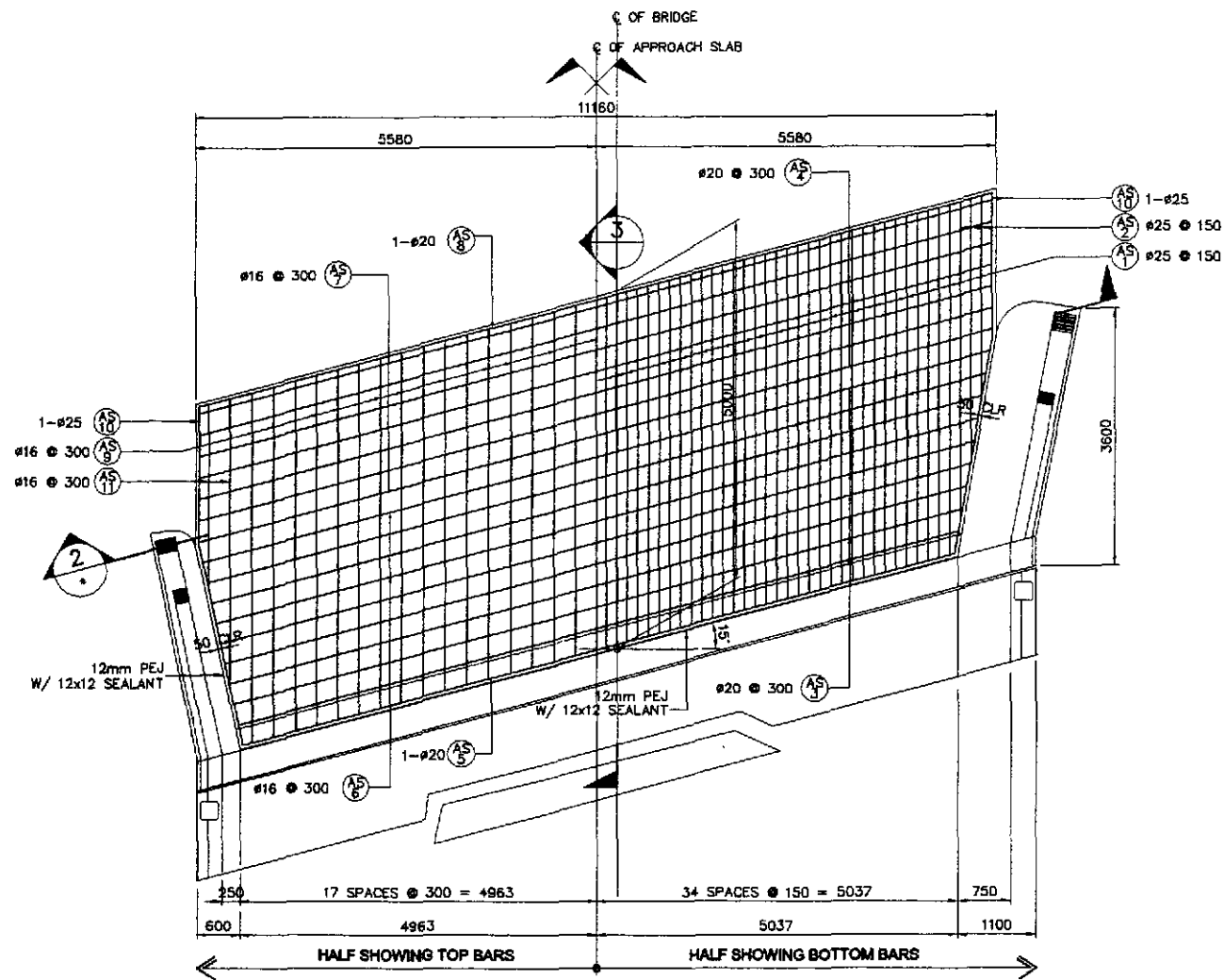
PROJECT AND LOCATION: THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)

SCALE: AS SHOWN
FULL SIZE A1

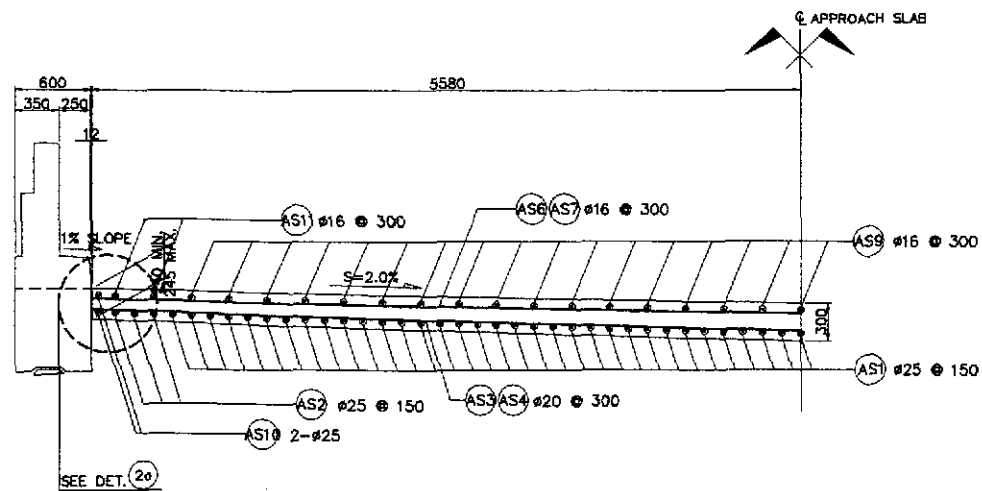
SHEET CONTENTS: BRIDGE NO. 12 ABUTMENT A2 WINGWALL REINFORCEMENT DETAILS (INITIAL STAGE)

SHEET NO.: B12-10

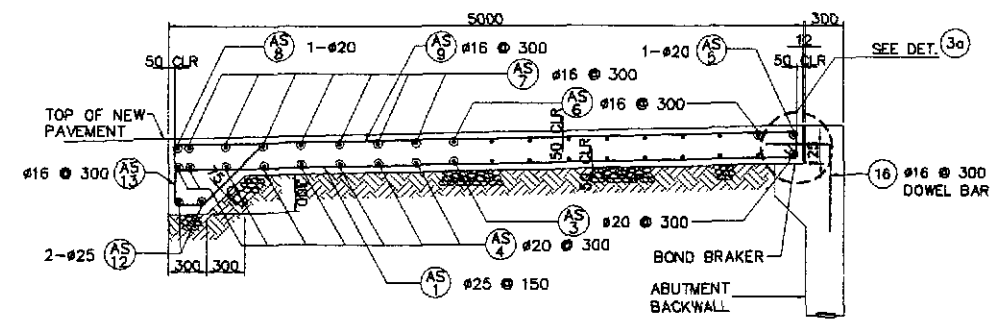
CABANATUAN BYPASS - CONTRACT PACKAGE IV



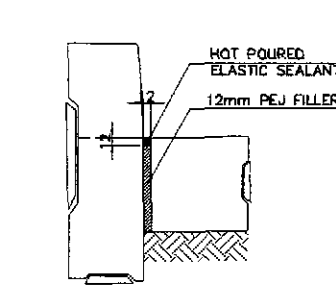
1 PLAN SCALE 1:50



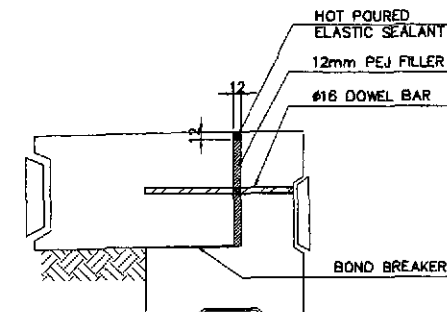
2 SECTION SCALE 1:30



3 SECTION SCALE 1:30



2a DETAIL SCALE 1:10

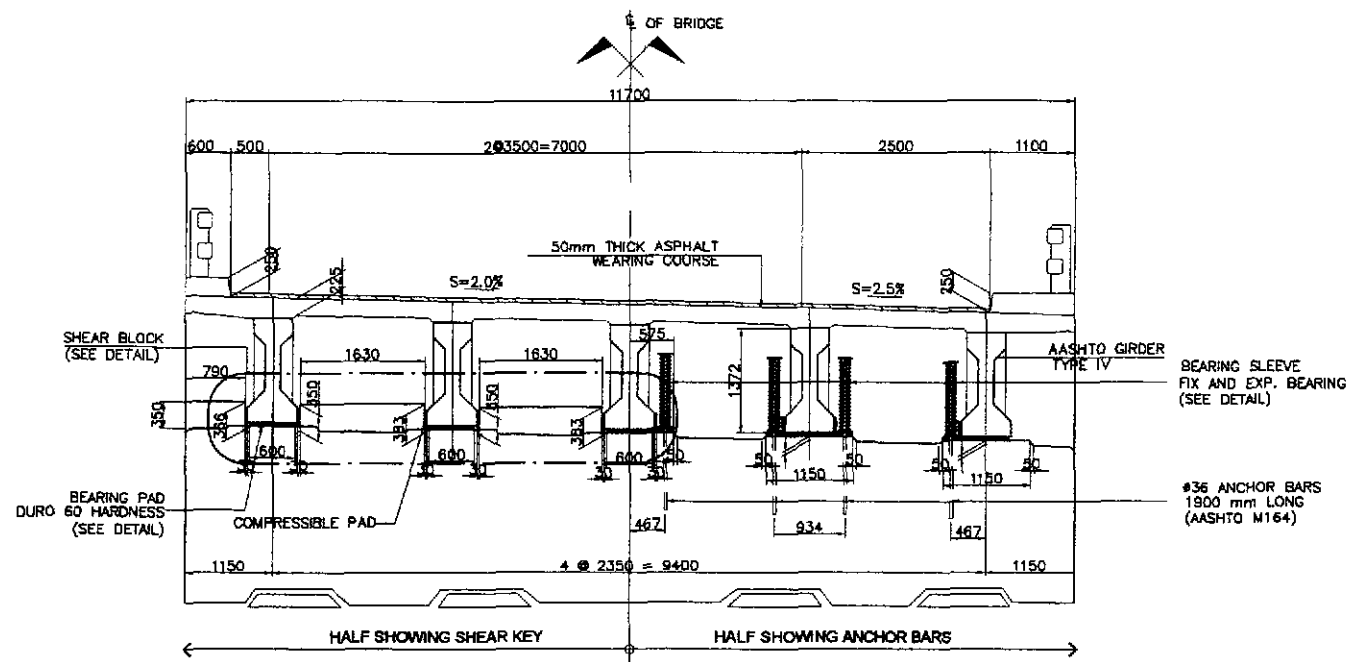


3a DETAIL SCALE 1:10

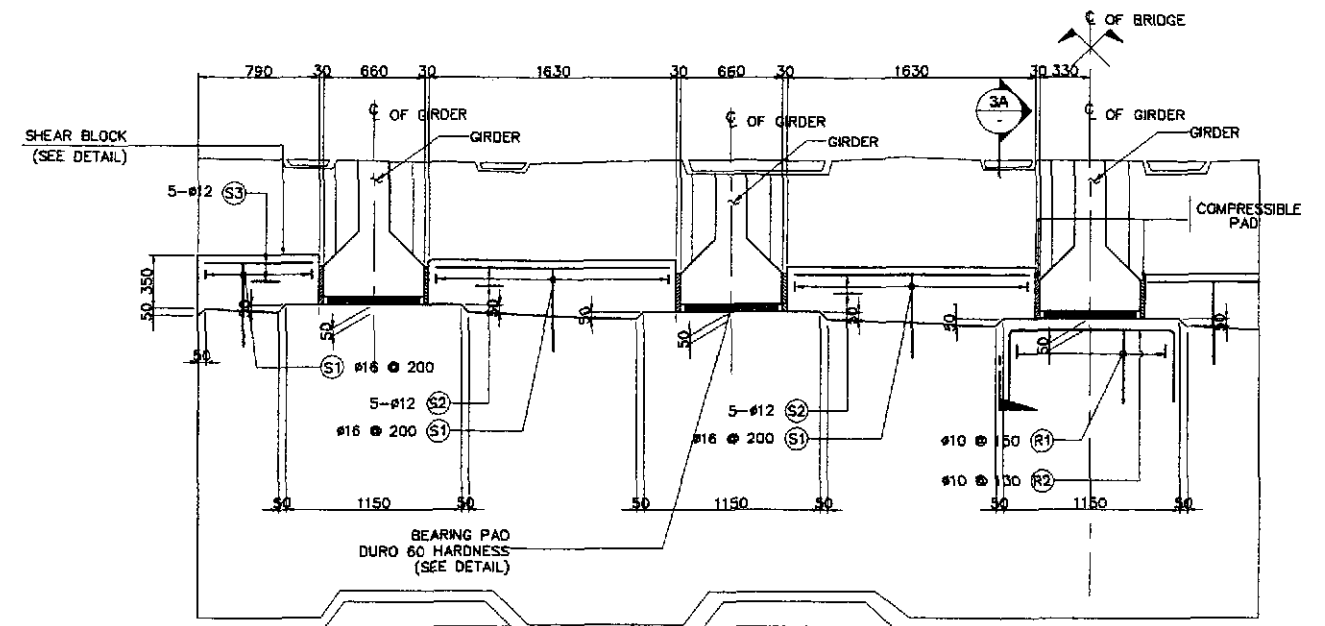
BAR BENDING DIAGRAM																
SCHEDULE OF REINFORCEMENT PER APPROACH SLAB																
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)
							a	b	c	d	e					
APPROACH SLAB	17.72	AS1	25	68	150	(B)	4900	200	-	-	-	5100	346.80	3.854	1337	161.92
		AS2	25	8	150	(B)	3650	200	-	-	-	3850	23.10	3.854	90	
		AS3	20	10	300	(A)	11250	-	-	-	-	11250	112.50	2.466	278	
		AS4	20	8	300	(A)	11950	-	-	-	-	11950	95.60	2.466	236	
		AS5	20	1	AS SHOWN	(A)	10700	-	-	-	-	10700	10.70	2.466	27	
		AS6	16	9	300	(A)	11300	-	-	-	-	11300	101.70	1.579	161	
		AS7	16	7	300	(A)	11950	-	-	-	-	11950	83.65	1.579	133	
		AS8	20	1	AS SHOWN	(A)	11950	-	-	-	-	11950	11.95	2.466	30	
		AS9	16	34	300	(B)	4900	200	-	-	-	5100	173.40	1.579	274	
		AS10	25	4	AS SHOWN	(C)	2000	3100	-	-	-	5100	20.40	3.854	79	
		AS11	16	4	300	(B)	3300	200	-	-	-	3500	14.00	1.579	23	
		AS12	25	2	AS SHOWN	(A)	11950	-	-	-	-	11950	23.90	3.854	93	
		AS13	16	38	300	(D)	400	500	200	700	-	1800	68.40	1.579	109	
		TOTAL	17.72													

GRADE 40 TOTAL = 700 kgs.
GRADE 60 TOTAL = 2,170 kgs.

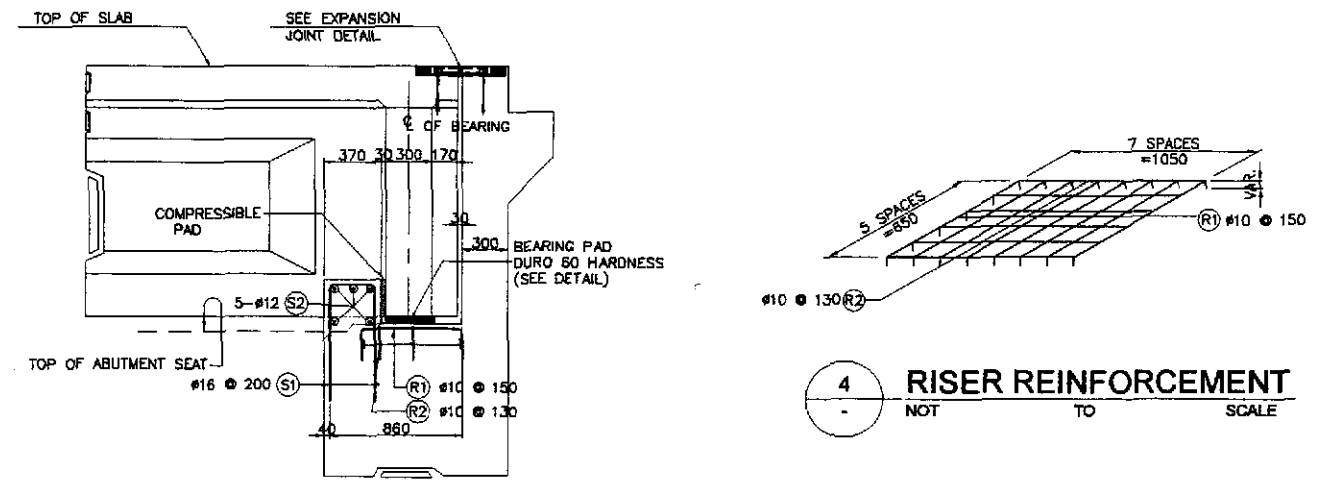
	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	DESIGNED	<i>[Signature]</i>	BUREAU OF DESIGN			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pardel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 12 APPROACH SLAB PLAN, SECTIONS AND DETAILS (INITIAL STAGE)	B12-11
	CHECKED	<i>[Signature]</i>	Submitted By:	Reviewed By:	Recommended By:	FULL SIZE A1			



1 SECTION AT ABUTMENT SEAT
SCALE 1:50

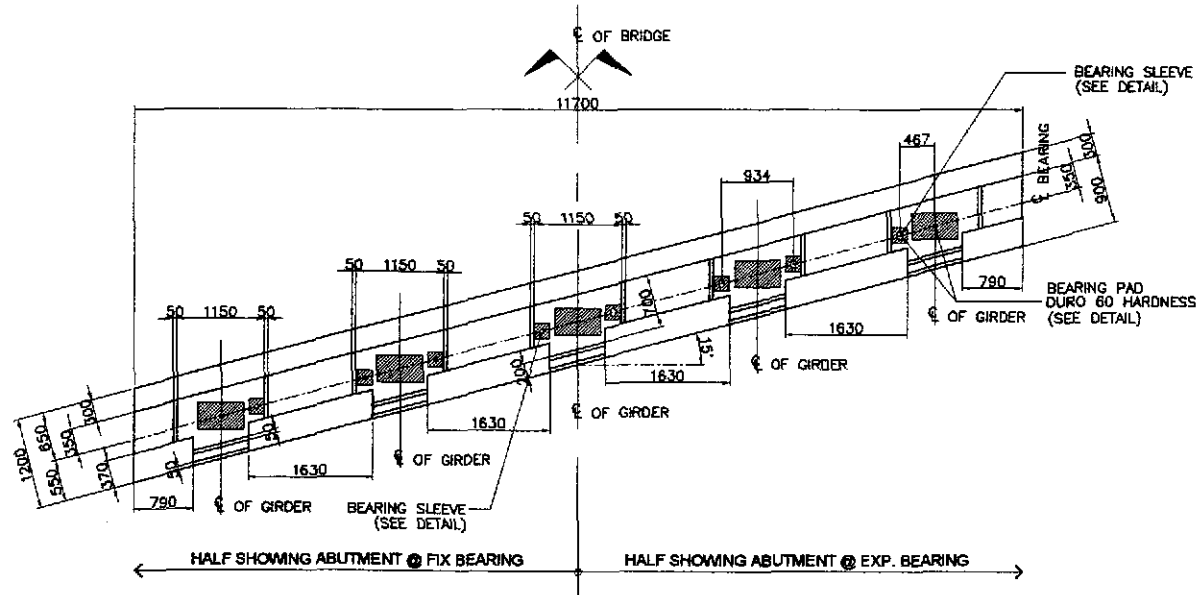


3 SHEAR BLOCK DETAIL
SCALE 1:25

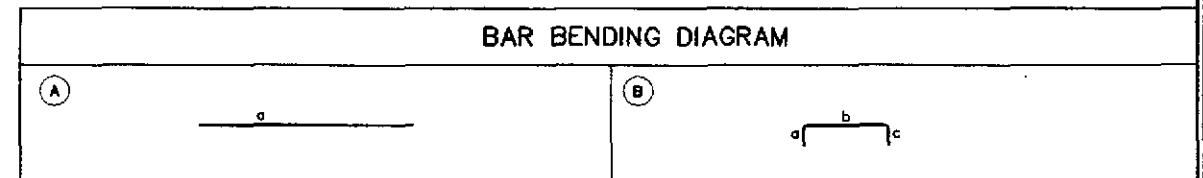


3A SECTION
SCALE 1:25

4 RISER REINFORCEMENT
NOT TO SCALE



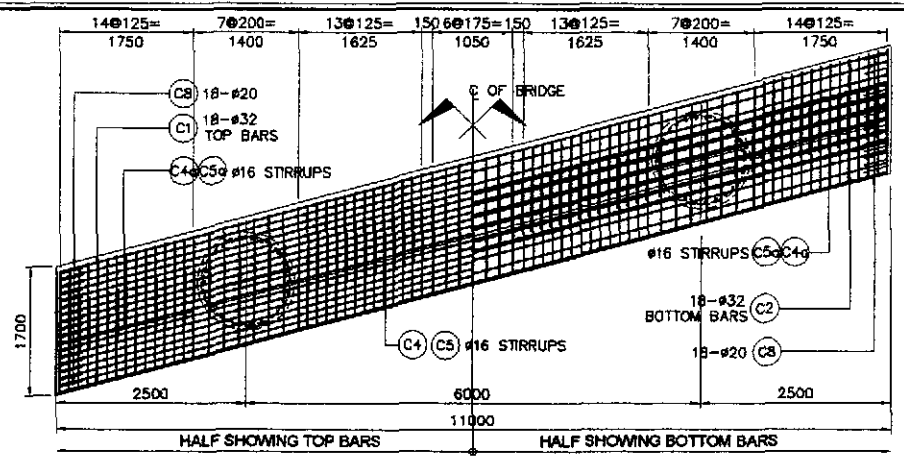
2 PLAN AT ABUTMENT SEAT
SCALE 1:50



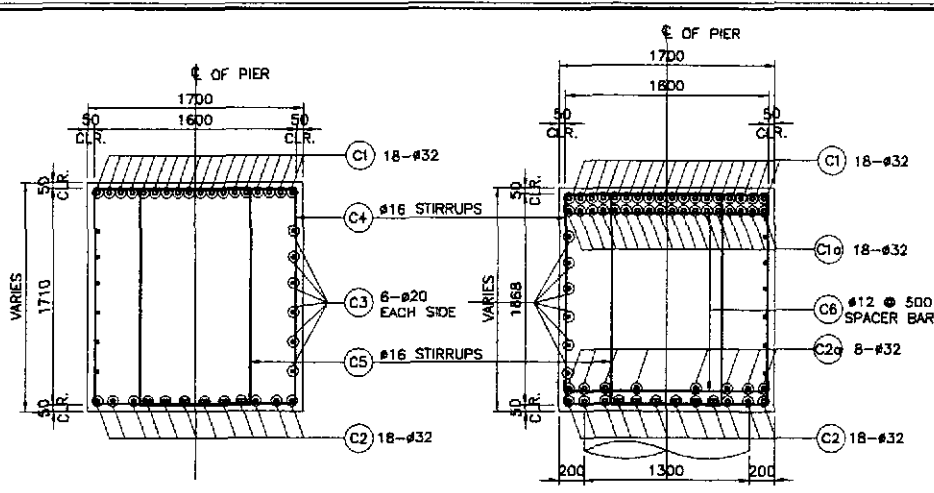
LOCATION	CONCRETE VOLUME (m³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION(mm) OUT TO OUT					LENGTH EACH BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m²)
							a	b	c	d	e					
SHEAR KEY & RISER	1.55	S1	16	46	200	(B)	560	290	560			1410	64.86	1.579	103	148.63
		S2	12	20	AS SHOWN	(A)	1610					1610	32.20	0.888	29	
		S3	12	10	AS SHOWN	(A)	735					735	7.35	0.888	7	
		R1	10	40	150	(B)	500	670	500			1670	66.80	0.616	42	
		R2	10	30	130	(B)	500	1080	500			2080	62.70	0.616	39	
TOTAL	1.55															GRADE 40 TOTAL = 220 kgs.

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

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/17/02	<i>[Signature]</i>		BUREAU OF DESIGN Submitted By: DANILLO C. TRAJANO, Project Director Reviewed By: ADRIANO W. DORCOY, Chief, Bridge Division Recommended By: GILBERTO S. REYES, Director IV (CIC) Recommended By: MANUEL M. BONDAN, Undersecretary Approved By: SIBEDON A. DATUMANONG, Secretary	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Iligan, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE IV	AS SHOWN FULL SIZE A1	BRIDGE NO. 12 SHEAR KEY AND RISER DETAILS AT ABUTMENT (INITIAL STAGE)	B12-12			

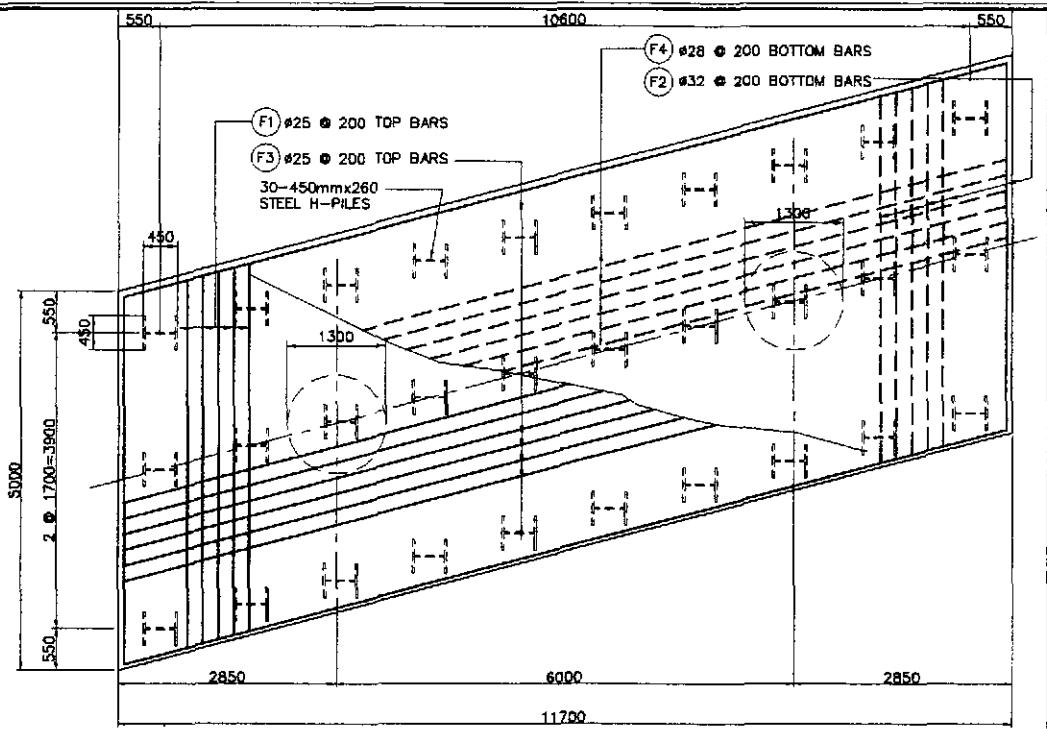


1 COPING PLAN
SCALE 1:50

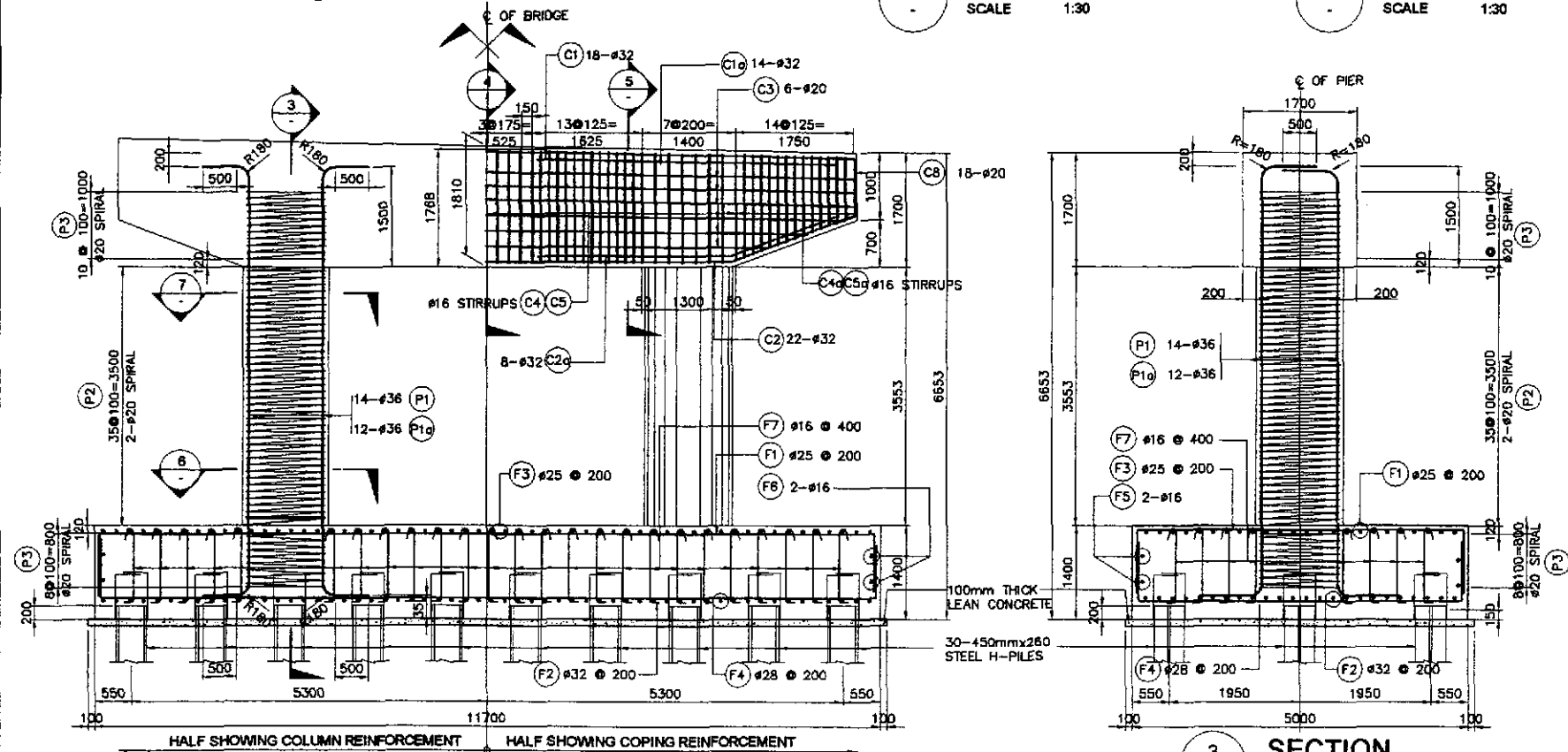


4 SECTION
SCALE 1:30

5 SECTION
SCALE 1:30

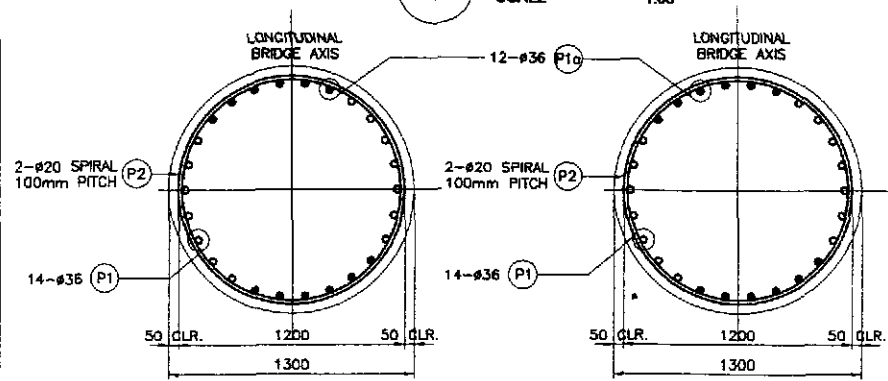


9 FOOTING PLAN
SCALE 1:50



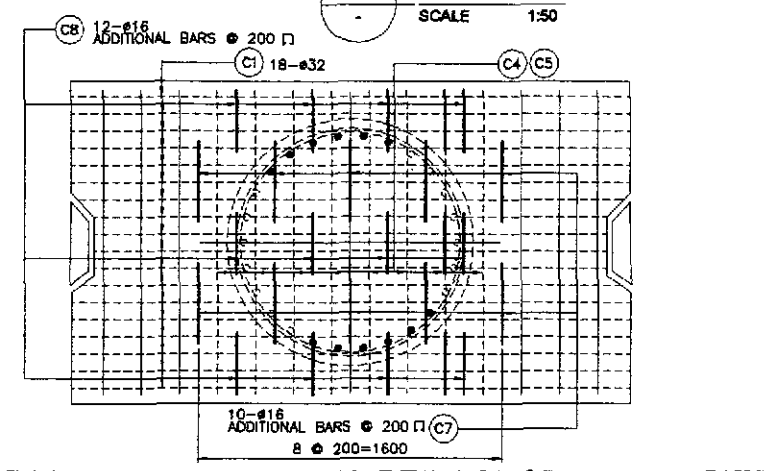
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SCALE 1:50

3 SECTION
SCALE 1:50

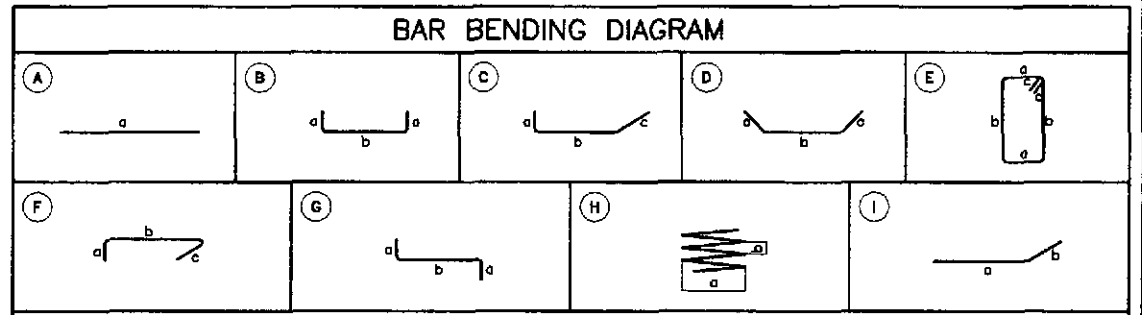


6 SECTION
SCALE 1:20

7 SECTION
SCALE 1:20



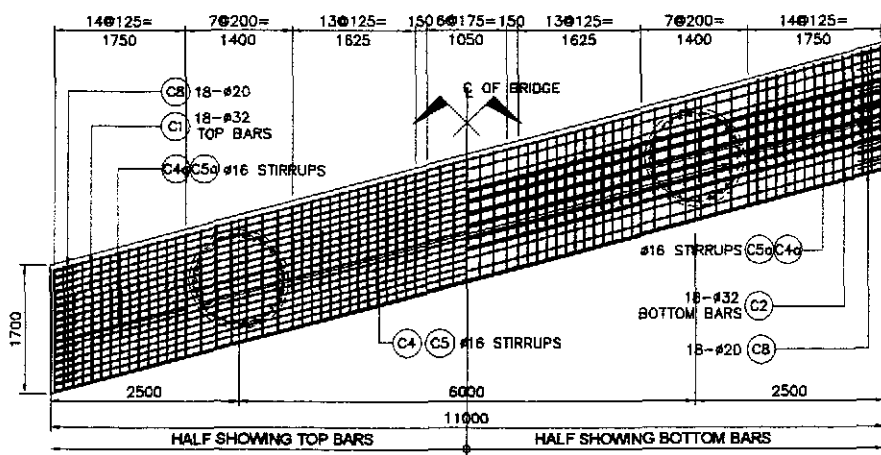
8 DETAIL OF ADDITIONAL REINFORCEMENT @ PIER
SCALE 1:20



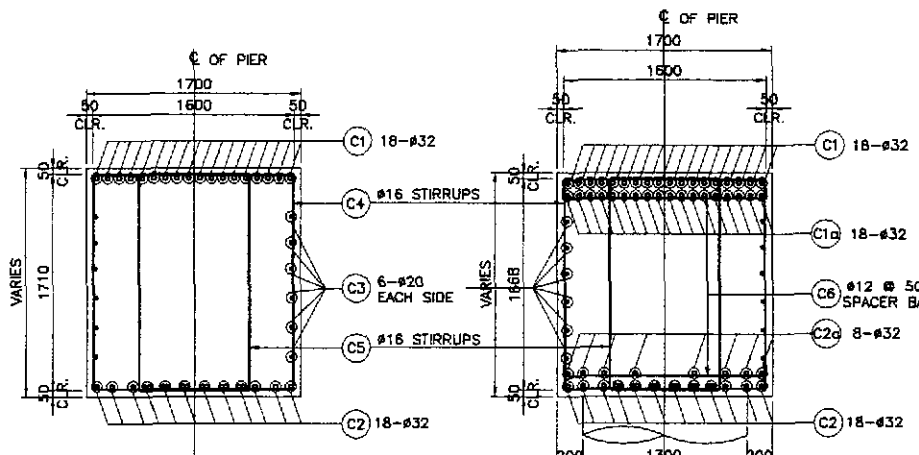
SCHEDULE OF REINFORCEMENT FOR ONE PIER															
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	TOTAL WEIGHT (kg)	REBAR RATIO (kg/m ³)
							a	b	c	d					
COPING	31.3	C1	32	18	AS SHOWN	(A)	11300	-	-	-	11300	203.40	6.313	1285	203.26
		C1a	32	36	AS SHOWN	(A)	4650	-	-	-	4650	167.40	6.313	1057	
		C2	32	18	AS SHOWN	(D)	2076	7550	-	-	11700	201.60	6.313	1330	
		C2a	32	16	AS SHOWN	(I)	1875	3325	-	-	5200	83.20	6.313	526	
		C3	20	6	AS SHOWN	(A)	11300	-	-	-	11300	67.80	2.466	168	
		C3a	20	6	AS SHOWN	(A)	9850	-	-	-	9850	58.10	2.466	146	
		C4	16	49	125	(E)	1600	1725	150	-	6950	340.55	1.579	538	
		C4a	16	28	125	(E)	1600	1425	150	-	6350	177.80	1.579	281	
		C5	16	49	125	(E)	900	1725	150	-	5550	271.95	1.579	430	
		C5a	16	28	125	(E)	900	1425	150	-	4950	138.60	1.579	219	
		C6	12	40	500	(B)	150	1600	-	-	1800	78.00	0.888	68	
		C7	20	36	AS SHOWN	(C)	350	900	350	-	1600	57.60	2.466	143	
		C8a	16	24	400	(B)	330	1700	-	-	2380	56.64	1.579	90	
		C8b	16	20	400	(B)	430	1700	-	-	2560	51.20	1.579	81	
COLUMN	9.43	P1	36	28	AS SHOWN	(B)	600	6150	-	-	7350	205.80	7.991	1645	497.46
		P1a	36	24	AS SHOWN	(C)	600	6150	-	-	7350	176.40	7.991	1410	
		P2	20	140	100	(H)	1200	100	-	-	3770	527.79	2.466	1302	
FOOTING	81.90	F1	25	58	200	(B)	925	4850	-	-	6700	395.30	3.854	1524	98.39
		F2	32	58	200	(B)	925	4850	-	-	6700	395.30	6.313	2498	
		F3	25	25	200	(B)	925	11950	-	-	13800	345.00	3.854	1330	
		F4	28	25	200	(B)	925	11950	-	-	13800	345.00	4.833	1668	
		F5	16	2	AS SHOWN	(A)	11950	-	-	-	11950	23.90	1.579	38	
		F6	16	2	AS SHOWN	(A)	4850	-	-	-	4850	9.70	1.579	16	
		F7	16	390	400	(F)	200	1250	150	-	1600	624.00	1.579	986	
TOTAL	122.63														

GRADE 40 TOTAL = 2,747 kgs.
GRADE 60 TOTAL = 16,365 kgs.

<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>		<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>		<p>PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)</p>		<p>SCALE : AS SHOWN</p>		<p>SHEET CONTENTS : BRIDGE NO. 12 PIER P1 AND PIER P3 BAR ARRANGEMENT (INITIAL STAGE)</p>		<p>SHEET NO. : B12-13</p>	
<p>DESIGNED : 10/12/02</p> <p>CHECKED : 10/17/02</p> <p>SUBMITTED : 10/21/02</p>	<p>SIGNATURE : [Signature]</p> <p>DATE : 10/21/02</p>	<p>PROJECT DIRECTOR : DANILO C. TRAJANO</p> <p>CHIEF, BRIDGES DIVISION : ADRIANO M. DOROY</p> <p>DIRECTOR IV (CC) : GILBERTO S. REYES</p>	<p>RECOMMENDED BY : MANUEL M. BONDAN</p> <p>UNDERSecretary</p>	<p>OFFICE OF THE SECRETARY</p> <p>APPROVED BY : SIMEON A. DATUMANONG</p> <p>Secretary</p>	<p>CABANATUAN BYPASS - CONTRACT PACKAGE IV</p>		<p>FULL SIZE A1</p>				

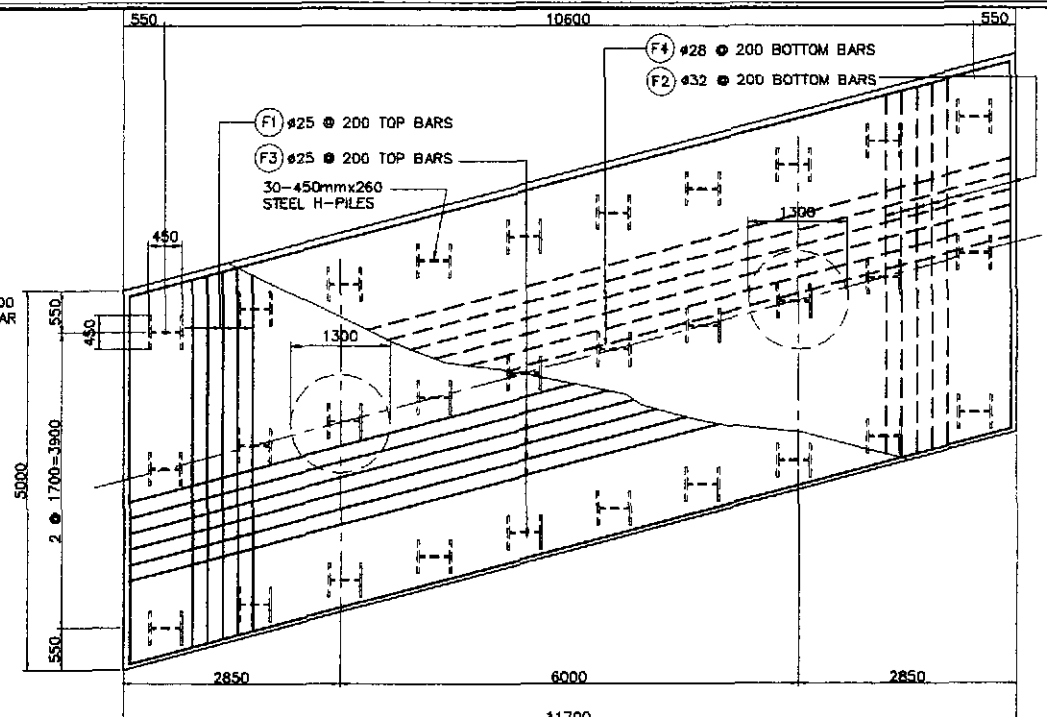


1 COPING PLAN
SCALE 1:50

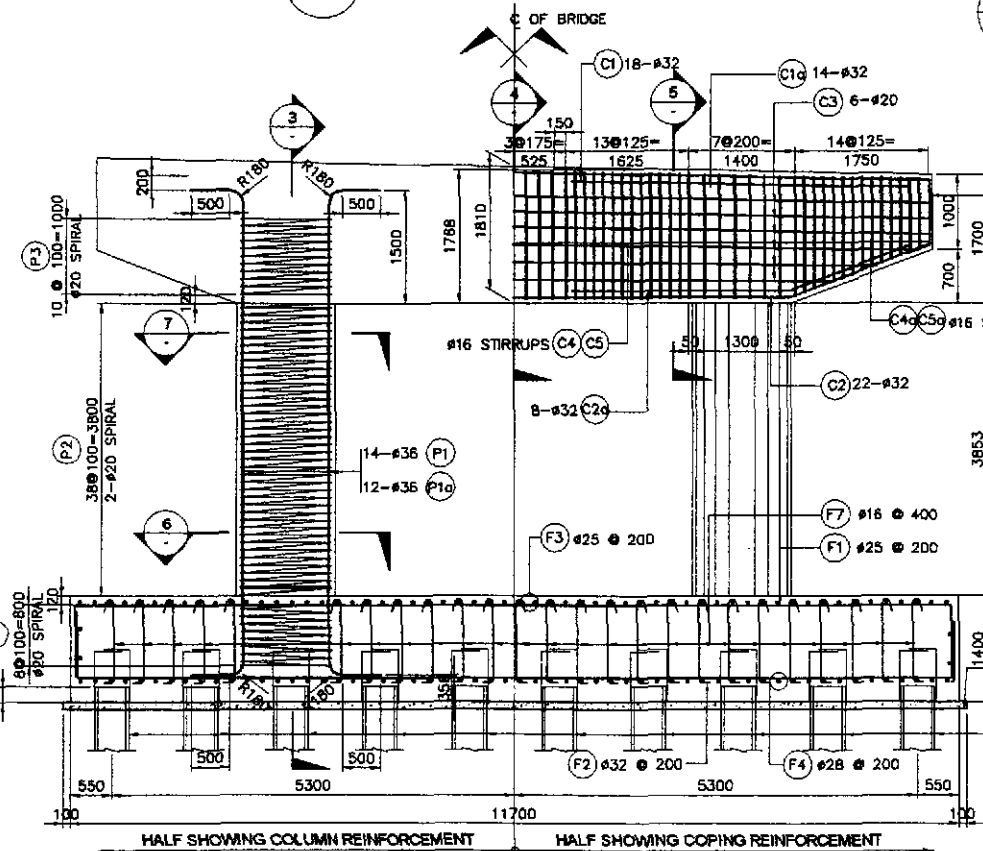


4 SECTION
SCALE 1:30

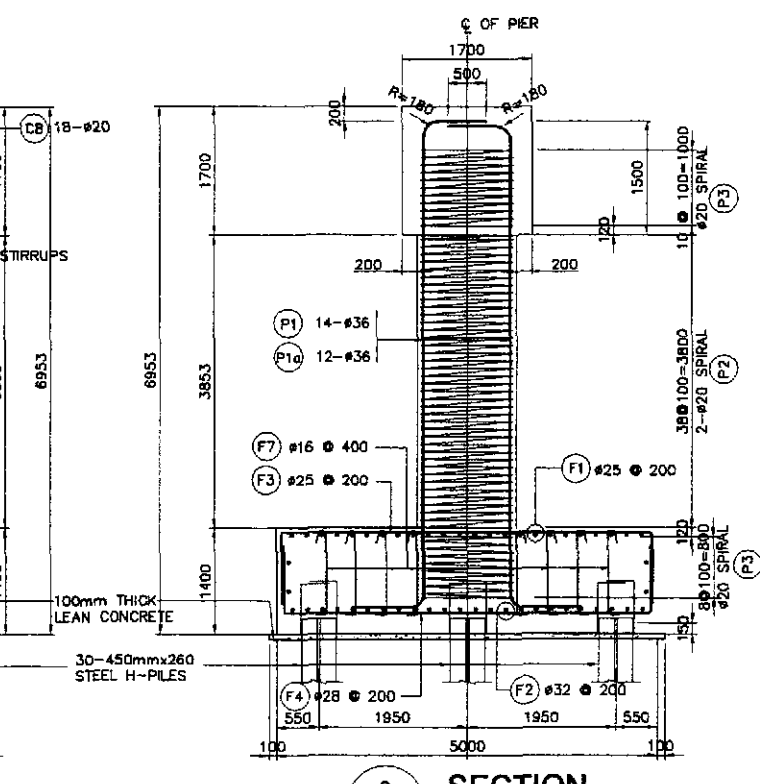
5 SECTION
SCALE 1:30



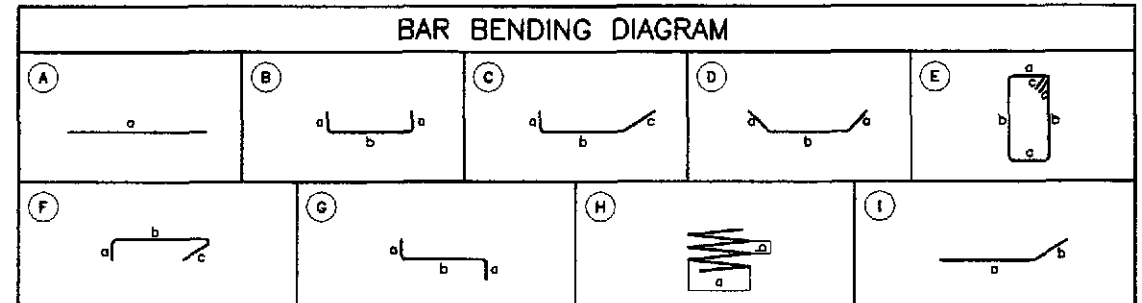
9 FOOTING PLAN
SCALE 1:50



2 ELEVATION
SCALE 1:50



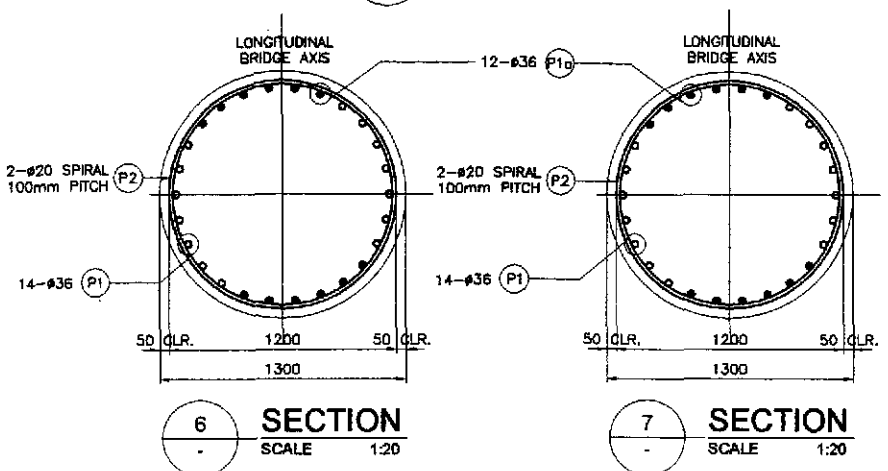
3 SECTION
SCALE 1:50



BAR BENDING DIAGRAM

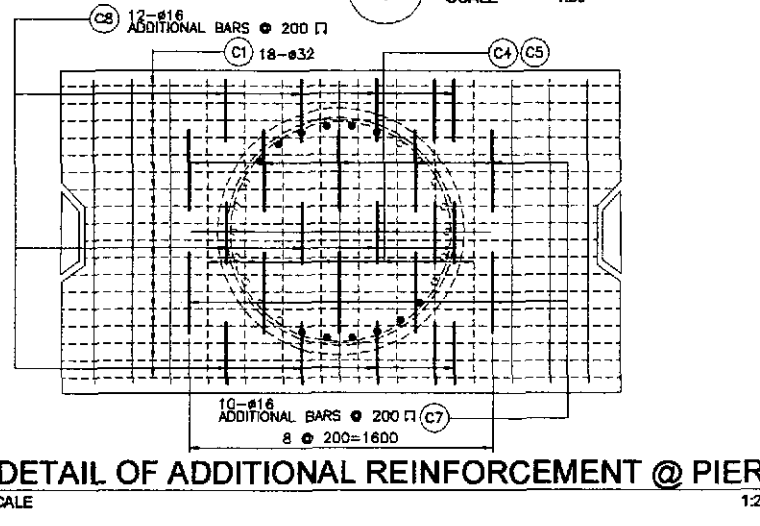
SCHEDULE OF REINFORCEMENT FOR ONE PIER															
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	TOTAL WEIGHT (kg)	REBAR RATIO (kg/m ³)
							a	b	c	d					
COPING	31.30	C1	32	18	AS SHOWN	(A)	11300	-	-	-	11300	203.40	6.313	1285	203.26
		C1a	32	36	AS SHOWN	(A)	4650	-	-	-	4650	167.40	6.313	1057	
		C2	32	18	AS SHOWN	(D)	2075	7550	-	-	11700	201.60	6.313	1330	
		C2a	32	16	AS SHOWN	(I)	1875	3325	-	-	5200	83.20	6.313	526	
		C3	20	6	AS SHOWN	(A)	11300	-	-	-	11300	67.80	2.466	168	
		C3a	20	6	AS SHOWN	(A)	9850	-	-	-	9850	59.10	2.466	146	
		C4	16	49	125	(E)	1600	1725	150	-	6950	340.55	1.579	538	
		C4a	16	28	125	(E)	1600	1425	150	-	6350	177.80	1.579	281	
		C5	16	49	125	(E)	900	1725	150	-	5550	271.95	1.579	430	
		C5a	16	28	125	(E)	900	1425	150	-	4950	138.60	1.579	219	
COLUMN	10.23	C6	12	40	500	(B)	150	1600	-	-	1900	76.00	0.888	88	481.90
		C7	20	36	AS SHOWN	(C)	350	900	350	-	1600	57.60	2.466	143	
		C8a	16	24	400	(B)	330	1700	-	-	2360	56.64	1.579	90	
		C8b	16	20	400	(B)	430	1700	-	-	2560	51.20	1.579	81	
		P1	36	28	AS SHOWN	(B)	600	6450	-	-	7650	214.20	7.991	1712	
		P1a	36	24	AS SHOWN	(B)	600	6450	-	-	7650	183.60	7.991	1468	
		P2	20	152	100	(H)	1200	100	-	-	3770	573.03	2.466	1414	
		P3	20	36	100	(H)	1200	100	-	-	3770	135.72	2.466	335	
FOOTING	81.90	F1	25	59	200	(B)	925	4850	-	-	6700	395.30	3.854	1524	98.39
		F2	32	59	200	(B)	925	4850	-	-	6700	395.30	6.313	2496	
		F3	25	25	200	(B)	925	11950	-	-	13800	345.00	3.854	1330	
		F4	28	25	200	(B)	925	11950	-	-	13800	345.00	4.833	1668	
		F5	16	2	AS SHOWN	(A)	11950	-	-	-	11950	23.90	1.579	38	
		F6	16	2	AS SHOWN	(A)	4850	-	-	-	4850	9.70	1.579	18	
		F7	16	390	400	(F)	200	1250	150	-	1600	624.00	1.579	986	
TOTAL	123.43														

GRADE 40 TOTAL = 2,747 kgs.
GRADE 80 TOTAL = 16,602 kgs.



6 SECTION
SCALE 1:20

7 SECTION
SCALE 1:20



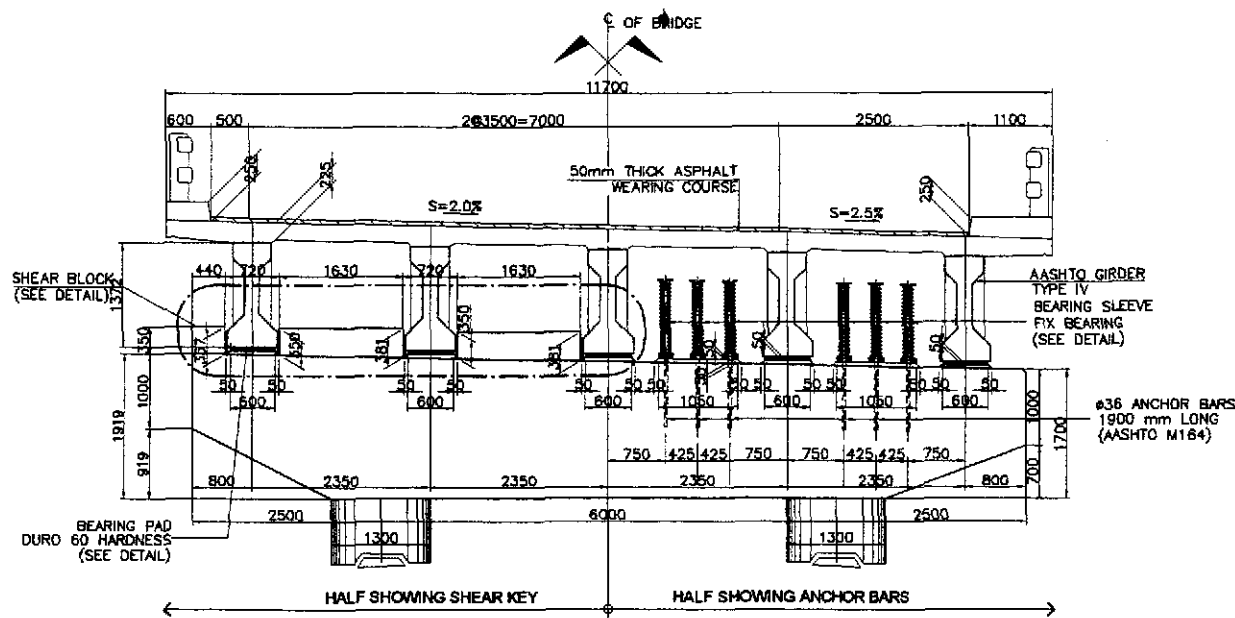
8 DETAIL OF ADDITIONAL REINFORCEMENT @ PIER
SCALE 1:20

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

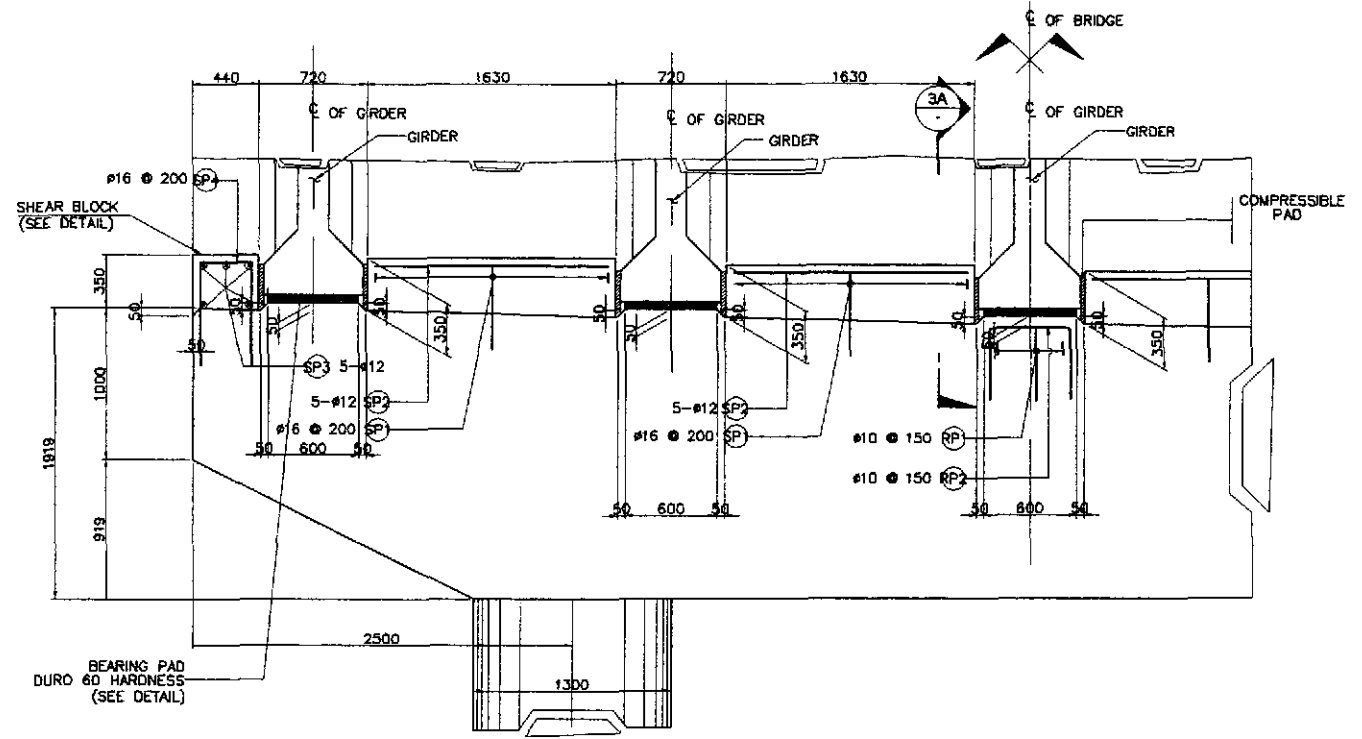
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
OFFICE OF THE SECRETARY
DESIGNED: 10/12/02
CHECKED: 10/14/02
SUBMITTED: 10/21/02
PROJECT DIRECTOR: DANILLO C. TRAJANO
CHIEF, BRIDGE DIVISION: ADRIANO M. DOROY
DIRECTOR IV (CIC): GILBERTO S. REYES
UNDERSECRETARY: MANUEL M. BONOAN
SECRETARY: SIMON 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)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

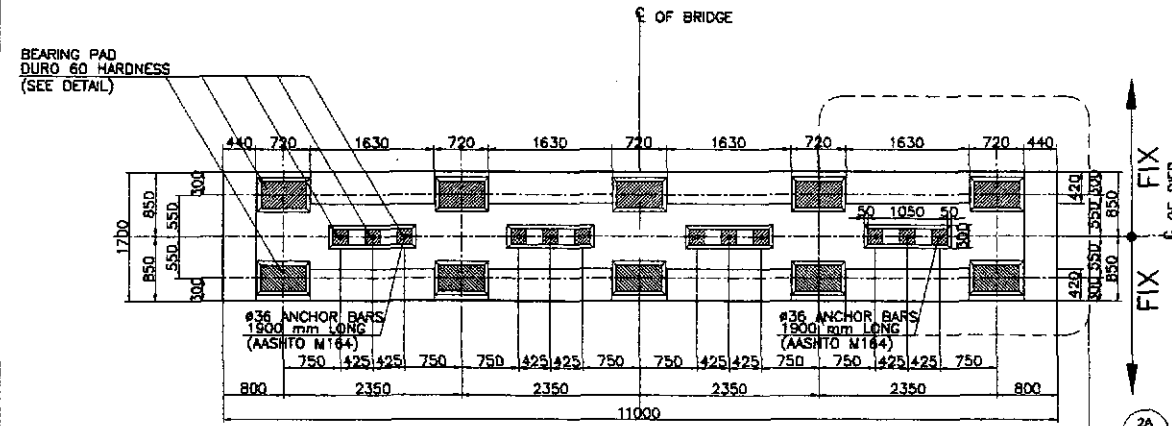
SCALE : AS SHOWN
FULL SIZE A1
SHEET CONTENTS : BRIDGE NO. 12
PIER P2
BAR ARRANGEMENT
(INITIAL STAGE)
SHEET NO. : B12-14



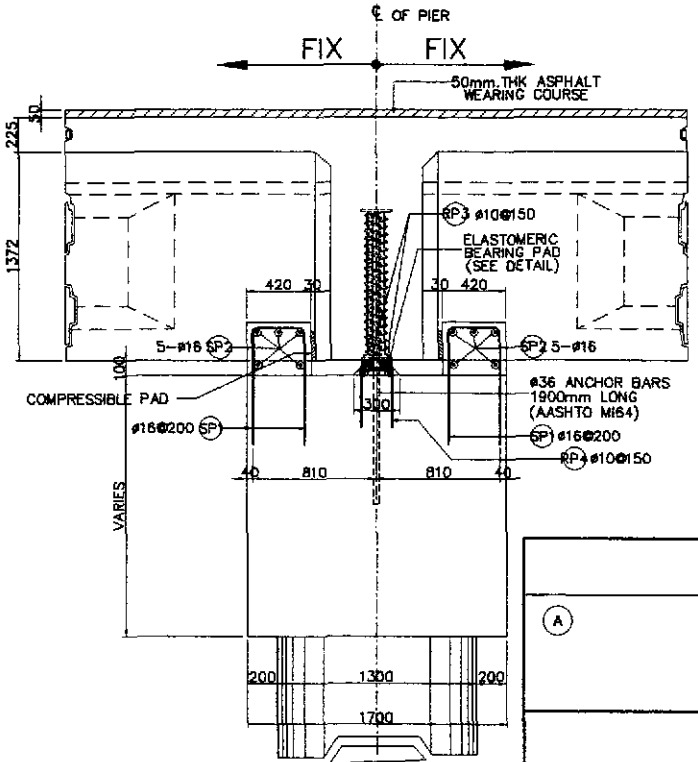
1 SECTION AT PIER
SCALE 1:50



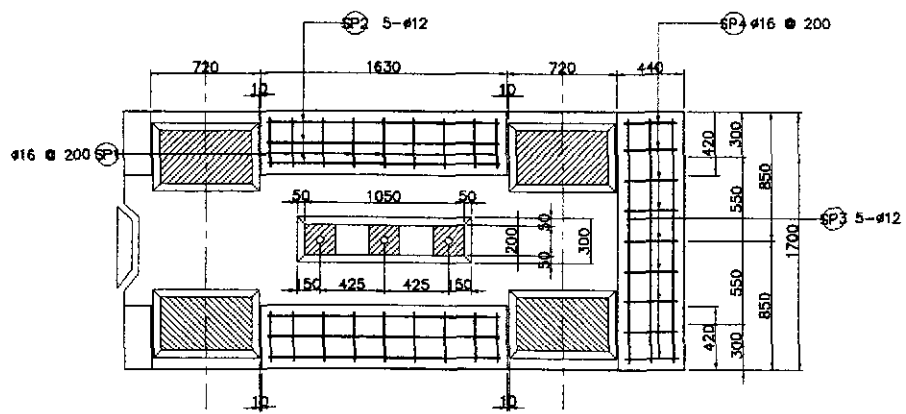
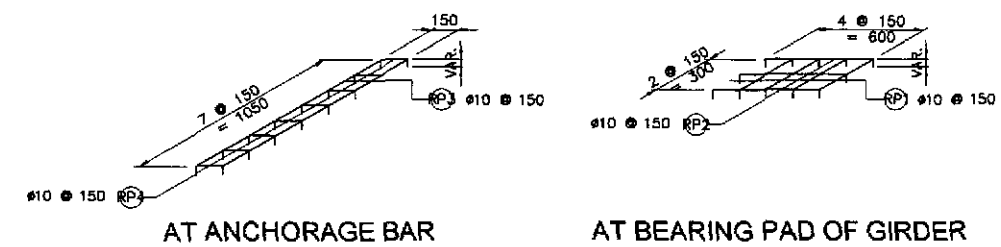
3 SHEAR BLOCK DETAIL AT PIER
SCALE 1:25



2 PLAN AT PIER
SCALE 1:50



4 RISER REINFORCEMENT
NOT TO SCALE



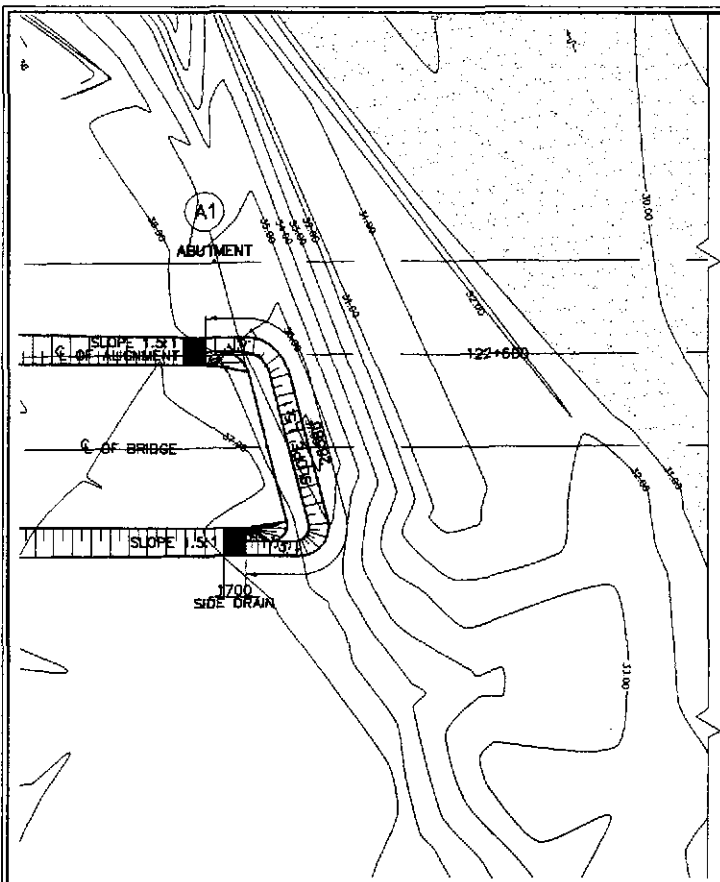
2A DETAIL
SCALE 1:25

3A SECTION
SCALE 1:25

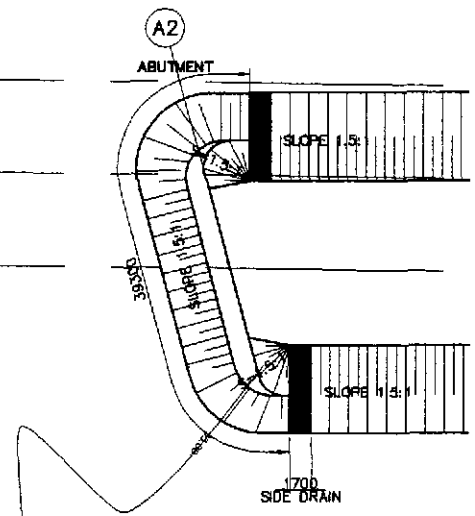
BAR BENDING DIAGRAM																
A						B										
a						a' b c										
SCHEDULE OF REINFORCEMENT (FOR ONE PIER ONLY)																
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION (mm) OUT TO OUT				LENGTH EACH BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)	
SHEAR KEY & RISER	2.65	SP1	16	72	200	(B)	560	340	560			1460	105.12	1.579	186	147.55
		SP2	12	40	AS SHOWN	(A)	1610					1610	64.40	0.888	58	
		SP3	12	10	AS SHOWN	(A)	1620					1620	16.20	0.888	15	
		SP4	16	18	200	(B)	560	375	560			1485	26.91	1.579	43	
		RP1	10	50	150	(B)	500	620	500			1620	81.00	0.616	50	
		RP2	10	30	150	(B)	500	300	500			1300	39.00	0.616	25	
		RP3	10	8	150	(B)	500	1090	500			2090	16.72	0.616	11	
		RP4	10	32	150	(B)	500	150	500			1150	36.80	0.616	23	
TOTAL	2.85															GRADE 40 TOTAL = 391 kgs.

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

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/14/02	<i>[Signature]</i>		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. 12 SHEAR KEY AND RISER DETAILS AT PIER (INITIAL STAGE)	B12-15	
	SUBMITTED	10/2/02	<i>[Signature]</i>		DANILLO C. TRAJANO Project Director	ADRIANO M. DOROS Chief, Bridges Division	GILBERTO S. REYES Director IV (DC)	MANUEL M. BONDAN Undersecretary	SIMEDON A. DATUMANONG Secretary	FULL SIZE A1	CABANATUAN BYPASS - CONTRACT PACKAGE IV

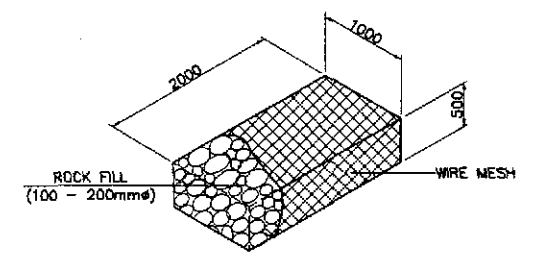


1A PLAN SCALE 1:300

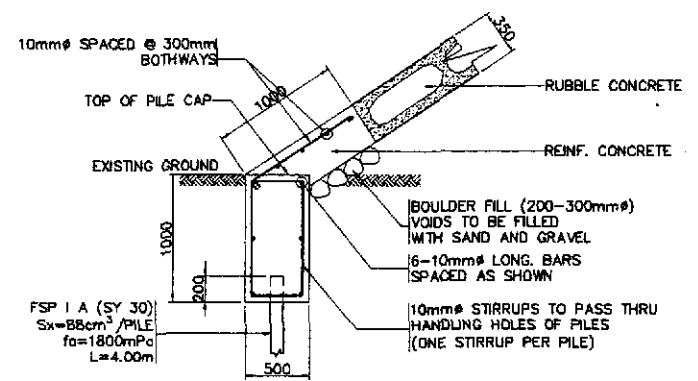


GENERAL NOTES:

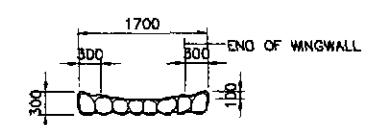
- GROUTED RIPRAP (250mm-300mm DIA.) SHALL BE USED FOR THE FACING AND SHALL BE CAREFULLY HANDLAID WITH THE LONGEST DIMENSIONS PERPENDICULAR TO THE SLOPE AND FIRMLY BEDDED INTO THE SLOPE AND ADJACENT TO THE ADJOINING BOULDERS SPACED BETWEEN THE BOULDERS. THE SPACE BETWEEN THE BOULDERS SHALL BE COMPLETELY FILLED WITH MORTAR. THE OUTSIDE SURFACE OF THE BOULDERS SHALL BE LEFT EXPOSED AND THE SURFACE OF THE MORTAR SHALL BE SWEEP WITH A STIFF BROOM.
- WIRE MESH GABIONS/MATRESSES
 - 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 0.0929m² OF UNCOATED WIRE SURFACES AS DETERMINED BY TEST CONDUCTED IN ACCORDANCE WITH AASHTO T85.
 - 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./m³. 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.
 - GEOTEXTILE THE FOLLOWING SPECIFICATIONS ARE REQUIRED:
 - POLYESTER OR POLYPROPYLENE - 100%
 - MECHANICALLY BONDED/HEAT BONDED
 - NON-WOVEN
 - EFFECTIVE OPENING SIZE - 110 MICRONS (MAX.)
 - THICKNESS UNDER PRESSURE - 0.80mm (MIN.)
 - WEIGHT - 200g./sq. m. (MIN.)
 - CBR PUNCTURE STRENGTH - 400N (MIN.)
 - MULTI-DIRECTIONAL TENSILE STRENGTH - 13KN/m
- GRAVEL FILTER SHALL BE COARSE AGGREGATES MATERIALS WHICH SATISFY THE REQUIREMENTS FOR ITEM 405, STRUCTURAL CONCRETE, GRADING B OF TABLE 405.1 AS REVISED.
- RUBBLE CONCRETE SHALL BE CLASS "B" (1:2.5:5) MIX CONCRETE WITH BOULDERS EMBEDDED THEREIN. BOULDERS 250-300mm SHALL BE CAREFULLY HAND-LAID WITHIN THE CONCRETE SECTION. THE BOULDERS SHALL BE THOROUGHLY INCORPORATED INTO THE CONCRETE MASS WITH A COVER OF 30mm AND NOT LESS THAN 30mm APART. THE RUBBLE CONCRETE SHALL BE COMPOSED OF 40% CLASS "B" CONCRETE AND 60% BOULDERS.
- NO CONCRETING UNDER WATER SHALL BE PERMITTED.
- PROVIDE 1.0 m. BERM WHEN HEIGHT (H) IS > 4.0 m.



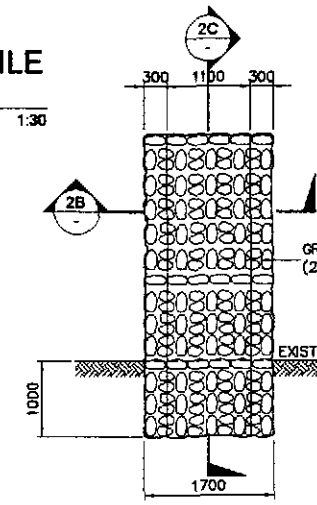
4 GABION MATRESSES SCALE 1:50



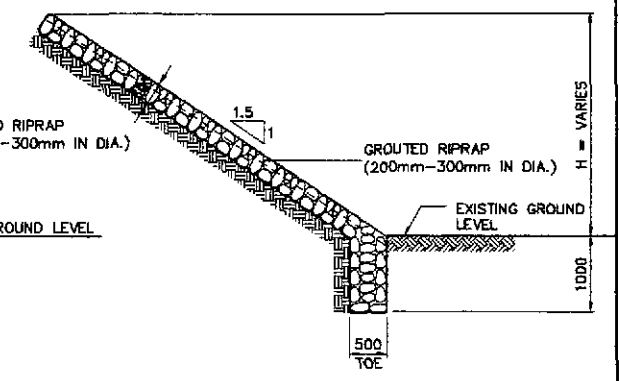
3 CAPPING AND SHEET PILE CONNECTIONS SCALE 1:30



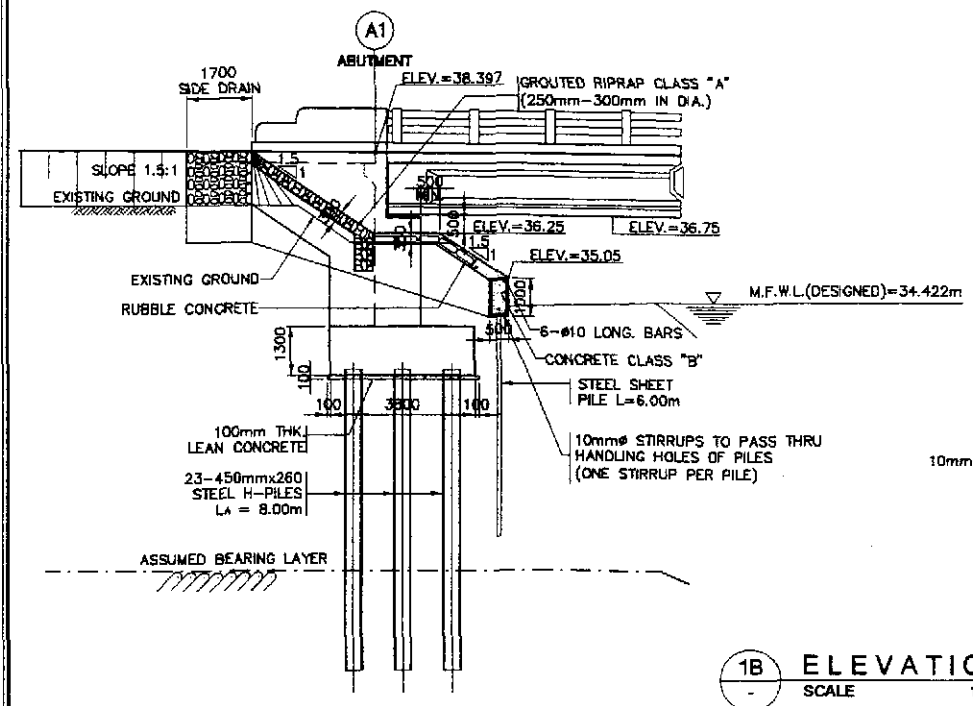
2B SECTION SCALE 1:50



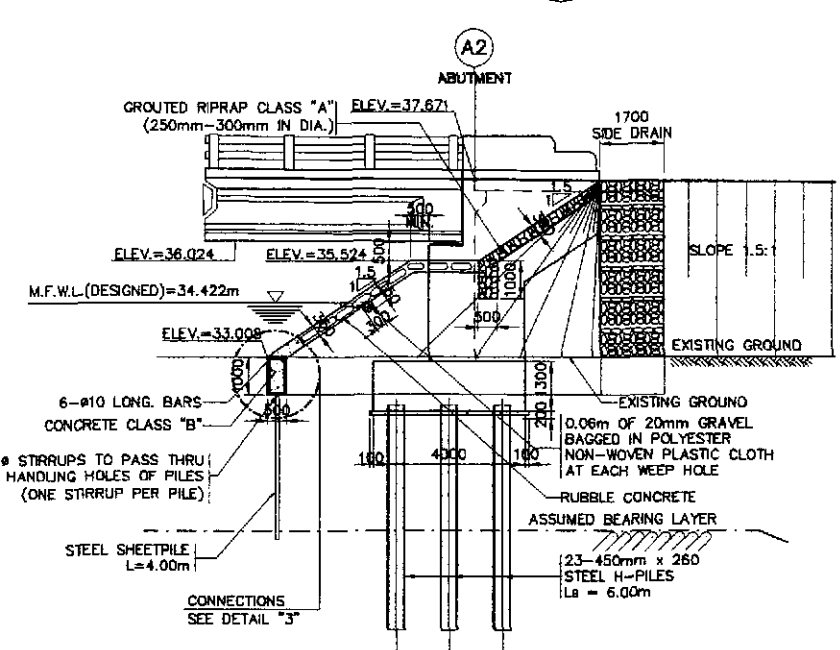
2A ELEVATION SCALE 1:50



2C SECTION SCALE 1:50



1B ELEVATION SCALE 1:100



1 ABUTMENT SLOPE PROTECTION SCALE AS SHOWN

2 TYPICAL SIDE DRAIN DETAIL SCALE AS SHOWN

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

LOCATION	SIZES	QUANTITY	
		ABUT. A1	ABUT. A2
CONC. CLASS "B"	1000 x 500 x LENGTH	12.76 cu. m.	18.42 cu. m.
REBAR	Ø10, GRADE 40	193.00 kgs.	278.00 kgs.
RUBBLE CONCRETE	250mm-300mm IN DIA.	16.21 cu. m.	53.67 cu. m.
SHEET PILE	85 x 400 x 6mm THK.	56.00 pcs.	81.00 pcs.
SIDE DRAIN	200mm-300mm IN DIA.	4.40 cu. m.	10.28 cu. m.
GROUTED RIPRAP	250mm-300mm IN DIA.	5.47 cu. m.	13.18 cu. m.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/12/02	[Signature]		DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	THE DETAILED DESIGN STUDY ON	AS SHOWN	BRIDGE NO.12	B12-16
	SUBMITTED	10/21/02	[Signature]		BUREAU OF DESIGN	UPGRADING INTER-URBAN HIGHWAY SYSTEM	FULL SIZE A1	ABUTMENT PROTECTION AND SIDE DRAIN DETAILS (INITIAL STAGE)	
SUBMITTED BY: DANILLO C. TRAJANO, Project Director REVIEWED BY: PERFECTO L. ZAPLAN JR., Chief, Hydrolics Division (OC) RECOMMENDED BY: GILBERTO S. REYES, Director IV (GC) MANUEL M. BONGUAN, Undersecretary APPROVED BY: SIMON A. DATUMANONG, Secretary				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paritid, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE IV		SHEET CONTENTS : BRIDGE NO.12 ABUTMENT PROTECTION AND SIDE DRAIN DETAILS (INITIAL STAGE)		SHEET NO. : B12-16	