

BRIDGES

CABANATUAN BYPASS
(ULTIMATE STAGE)

BRIDGE NO. 10

GENERAL

GENERAL NOTES FOR BRIDGES - 1

A. DESIGN CRITERIA

1. DESIGN SPECIFICATION

- A. DPWH DESIGN GUIDELINES CRITERIA AND STANDARDS FOR PUBLIC WORKS AND HIGHWAYS, VOL.II.
- B. NATIONAL STRUCTURAL CODE OF THE PHILIPPINES, VOL. II, 2nd ED. 1997
- C. THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES 16TH EDITION, 1996.
- D. JAPAN ROAD ASSOCIATION SPECIFICATIONS FOR HIGHWAY BRIDGES

2. DESIGN METHODOLOGY

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

3. LOADING

3.1 DEAD LOADS

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

3.2 LIVE LOADS

A. AASHTO MS18 (HS20) TRUCK AND EQUIVALENT LANE LOADING.

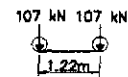
B. SIDEWALK LOAD

$$\text{SPAN} \leq 30.5\text{m} ; 4.07 \text{ kN/m}^2$$

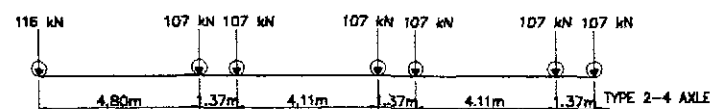
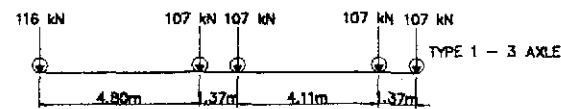
$$\text{SPAN} > 30.5\text{m} ; (1.437 + \frac{43.798}{L})(16.76 - W) \text{ kN/m}^2 < 2.874 \text{ kN/m}^2$$

L : LOADED LENGTH W : SIDEWALK WIDTH

C. ALTERNATE MILITARY LOADING.



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



3.3 IMPACT

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

3.4 SEISMIC LOAD

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

3.5 HYDRAULIC DESIGN DATA

50-YEAR DESIGN DISCHARGE, $Q_{50} = 6,990 \text{ m}^3/\text{sec}$.
DESIGN FLOW VELOCITY, $V_{50} = 1.88 \text{ m/sec}$.
DESIGN FLOOD WATER LEVEL, DFWL = EL + 32.3 m
CATCHMENT AREA, CA = 2,508.6 km²

3.6 TEMPERATURE RANGES

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

3.7 CONSTRUCTION LOADS

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

3.8 OTHER LOADS

IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS, 1996.

3.9 LOAD COMBINATION (LOAD FACTOR DESIGN)

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

B. MATERIALS

1. CONCRETE

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

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

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

2. REINFORCING STEEL

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

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

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

3. PRESTRESSING STEEL

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

4. STRUCTURAL STEEL, BOLTS AND WELDS

MATERIALS	YIELD STRENGTH f_y (MPa)	REFERENCE SPECIFICATIONS
STRUCTURAL STEEL FOR MAIN GIRDERS	345 (SMA 490W / GRADE 50W)	JIS SMA 490W (ATMOSPHERIC CORROSION RESISTANT); AASHTO/ASTM M270 (A709)
STRUCTURAL STEEL OTHER THAN MAIN GIRDER	250 (SMA 400W / GRADE 36W)	JIS SMA 400W (ATMOSPHERIC CORROSION RESISTANT); AASHTO/ASTM M270 (A709)
SHEAR STUD CONNECTORS FOR MAIN BRIDGE	345	ASTM A108 (CORROSION RESISTANT)
HIGH STRENGTH BOLTS FOR MAIN BRIDGE		AASHTO M253, ASTM 490M (CORROSION RESISTANT)
WELDS		LATEST ANSI /AASHTO/AWS D1.5 BRIDGE WELDING CODE FOR CORROSION RESISTANT STEEL

5. ELASTOMERIC BEARING PADS

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

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

C. CONSTRUCTION

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

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

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

1. DIMENSIONS

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

		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 (Pinaridel, Cabanatuan and San Jose Bypasses)		SCALE : AS SHOWN	SHEET CONTENTS : BRIDGE NO. 10 PAMPANGA RIVER BRIDGE GENERAL NOTES (1 OF 3) (ULTIMATE STAGE)	SHEET NO. : B10G-01
DESIGNED	DATE	SIGNATURE	BUREAU OF DESIGN Submitted By: DANILLO C. TRAJANO, Project Director		OFFICE OF THE SECRETARY Recommended By: ADRIANO M. DORCY, Chief, Bridge Division		Approved By: MANUEL M. BONDAN, Undersecretary			
CHECKED			DANILLO C. TRAJANO, Project Director		ADRIANO M. DORCY, Chief, Bridge Division		GILBERTO S. REYES, Director IV (OIC)		MANUEL M. BONDAN, Undersecretary	
SUBMITTED			DANILLO C. TRAJANO, Project Director		ADRIANO M. DORCY, Chief, Bridge Division		GILBERTO S. REYES, Director IV (OIC)		MANUEL M. BONDAN, Undersecretary	

GENERAL NOTES FOR BRIDGES - 2

2. SETTING OUT

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

3. REINFORCED CONCRETE

3.1 CAST IN PLACE CONCRETE SHALL BE CLASS "AA1" OR "AA2" EXCEPT RAILINGS WHICH SHALL BE CLASS "C". UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED EDGES SHALL BE CHAMFERED 20mm EXCEPT RAILINGS AND RE-ENTRANT ANGLES WHICH SHALL BE CHAMFERED AND FILLETED 13mm RESPECTIVELY.

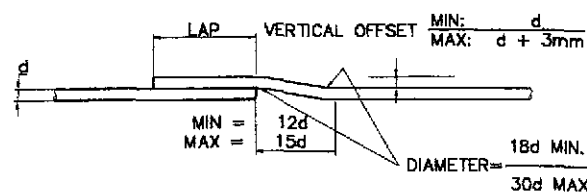
3.2 CONCRETE MIX AND PLACING

- DESIGN OF CONCRETE MIX SHALL MEET THE DESIGN CONCRETE STRENGTH GIVEN UNDER ITEM 1 OF MATERIALS.
- CONCRETE SHALL BE DEPOSITED, VIBRATED AND CURED IN ACCORDANCE WITH THE SPECIFICATION.
- FOR CONCRETE DEPOSITED AGAINST THE GROUND, LEAN CONCRETE WITH A MINIMUM THICKNESS OF 100mm SHALL BE LAID FIRST BEFORE INSTALLING THE REINFORCEMENT. THIS LEAN CONCRETE SHALL NOT BE CONSIDERED IN MEASURING THE STRUCTURAL DEPTH OF CONCRETE SECTION.
- THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL PLACING SEQUENCES FOR ALL CONCRETING WORK.

3.3 BAR BENDING, SPLICING AND PLACING

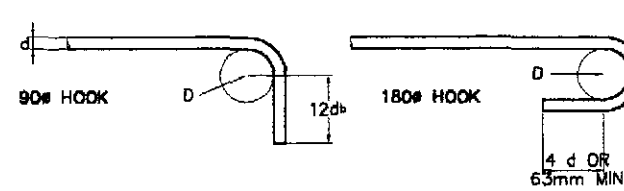
- THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FOR APPROVAL, SHOP DRAWINGS INDICATING THE BENDING, CUTTING, SPLICING AND INSTALLATION OF ALL REINFORCING BARS.
- BARS SHALL BE BENT COLD. BARS PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT UNLESS PERMITTED BY THE ENGINEER.
- BAR SPLICING NOT INDICATED ON DRAWINGS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- WELDED SPLICES, IF APPROVED BY THE ENGINEER, SHALL DEVELOP IN TENSION AT LEAST 125% OF THE SPECIFIED YIELD STRENGTH OF THE BARS.
- NOT MORE THAN 50% OF THE BARS AT ANY ONE SECTION SHALL BE SPLICED.
- 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



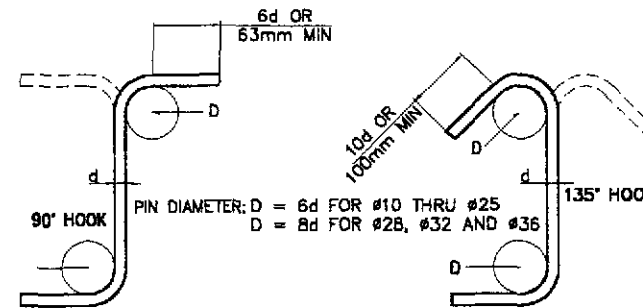
(B) HOOKS AND BENDS

DIMENSIONS OF 90-DEGREE AND 180-DEGREE HOOKS



PIN DIAMETER: D = 6d FOR #10 THRU #25
D = 8d FOR #28, #32 AND #36

DIMENSIONS FOR STIRRUPS AND TIE HOOKS



PIN DIAMETER: D = 6d FOR #10 THRU #25
D = 8d FOR #28, #32 AND #36

3.4 CONCRETE COVER TO REINFORCEMENT

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

3.5 CONSTRUCTION JOINT

- THE POSITION AND FORM OF ANY CONSTRUCTION JOINT SHALL BE AS SHOWN ON DRAWINGS OR AS AGREED WITH THE ENGINEER.
- THE INTERFACE BETWEEN THE FIRST AND SECOND POUR CONCRETE SHALL BE ROUGHENED WITH AN AMPLITUDE OF 6MM MINIMUM.

3.6 FALSEWORK

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

3.7 FORMWORK

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

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

3.8 PROTECTION AND CURING OF CONCRETE

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

4. EMBANKMENT CONSTRUCTION SEQUENCE

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

5. REINFORCED CONCRETE CAST-IN-PLACE BORED PILES

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

PILE DIA.	NORMAL (KN)		ULTIMATE (KN)	
	COMPRESSION	TENSION	COMPRESSION	TENSION
Ø1000	3000	1200	9000	3600
Ø1200	4000	1500	12000	7000
Ø1500	5500	1900	16500	9000

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

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

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

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

6. ADDITIONAL SOIL INVESTIGATION

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

7. CAMBER

7.1 STEEL AND CONCRETE GIRDERS SHALL BE CONSTRUCTED WITH CAMBER INDICATED IN THE DRAWINGS.

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

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

	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	DESIGNED	10/10/02	[Signature]	BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 10 PAMPANGA RIVER BRIDGE GENERAL NOTES (2 OF 3) (ULTIMATE STAGE)	B10G-02
	CHECKED	10/17/02	[Signature]	Submitted By:	Reviewed By:	Recommended By:	Office of the Secretary	FULL SIZE A1			
	SUBMITTED	10/19/02	[Signature]	DANILO C. TRAJANO Project Director	AORIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)	MANUEL M. BONGAON Undersecretary				

GENERAL NOTES FOR BRIDGES - 3

8. STRUCTURAL STEEL

THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS FOR ALL STRUCTURAL STEEL WORK. THESE SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER BEFORE ANY FABRICATION COMMENCES. STRUCTURAL STEEL WORKS SHALL COMPLY WITH THE LATEST ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE AND FABRICATION REQUIREMENTS.

9. SHORING

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

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

10. EXCAVATION

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

11. WATER ELEVATION

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

12. DETOUR

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

13. PRESTRESSED CONCRETE

GIRDER DESIGN GUIDE

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

13.2 CONCRETE FOR GIRDERS SHALL BE A MINIMUM STRENGTH OF 41 N/mm² (5,945 PSI) AT THE AGE OF 28 DAYS.

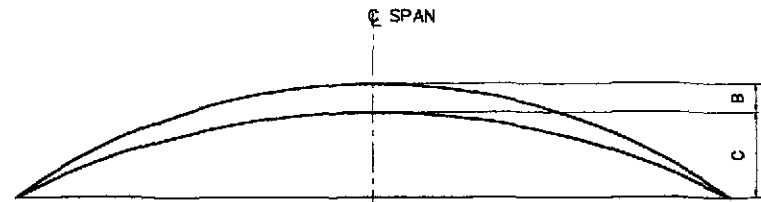
13.3 CONCRETE FOR CAST-IN-PLACE SLAB HAVE A MINIMUM STRENGTH OF 28 N/mm² (4,060 PSI) AT THE AGE OF 28 DAYS.

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

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

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

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



DEAD LOAD CAMBER DIAGRAM

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

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

C = FINAL CAMBER

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

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

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

14. PRECAST CONCRETE DECK PANELS

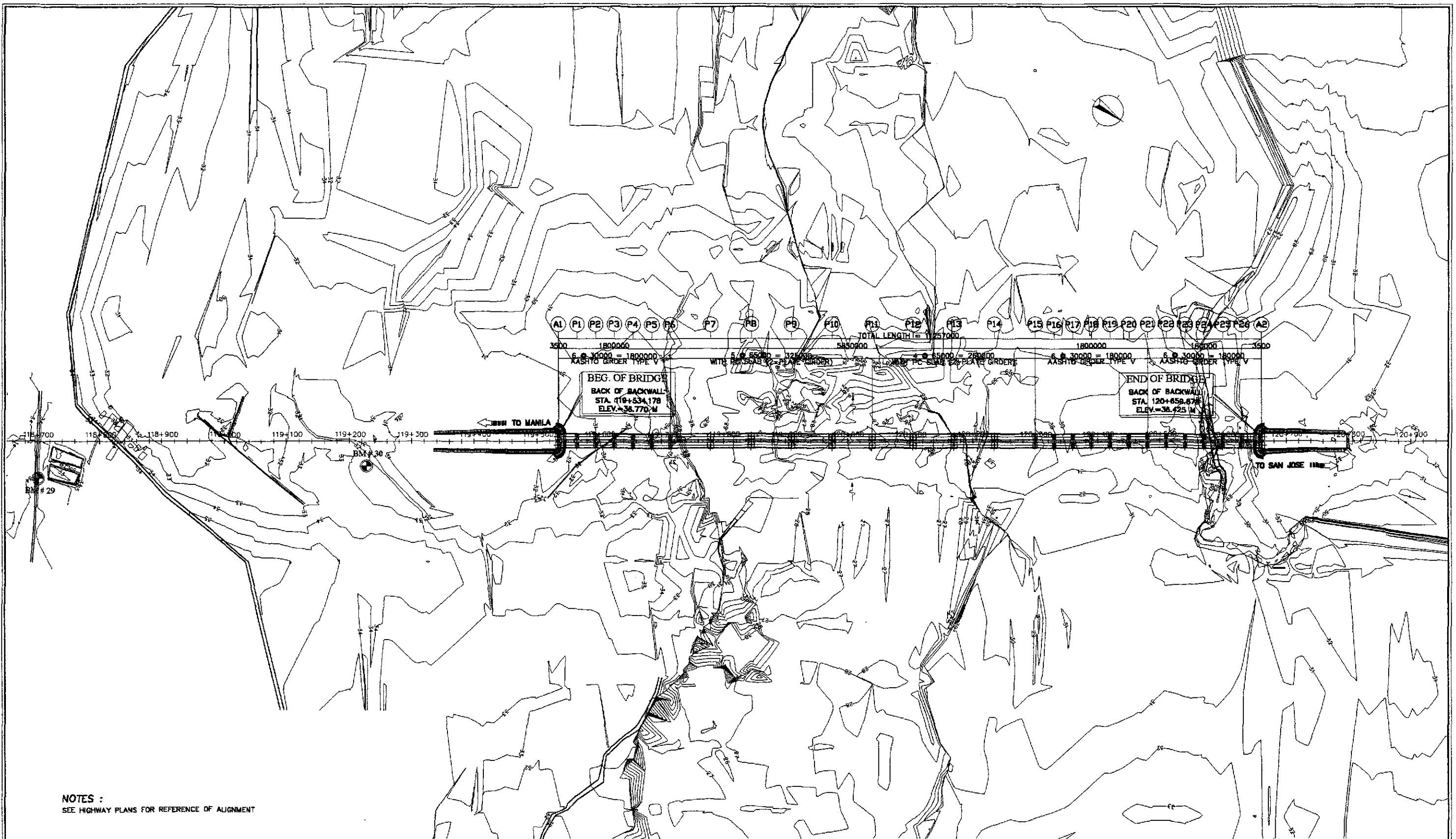
14.1 PRIOR TO START OF DECK PANEL FABRICATION, A REPORT SHALL BE PREPARED AND SUBMITTED TO THE ENGINEER FOR REVIEW OUTLINING THE COMPLETE FABRICATION AND ERECTION PROCESS FOR THE DECK PANEL. ALL ASPECTS AND STAGES OF THE CONSTRUCTION PROCESS SHALL BE FULLY DESCRIBED INCLUDING BUT NOT LIMITED TO CONCRETE PRODUCTION, PLACEMENT, CURING, TRANSVERSE PRESTRESSING, HANDLING, STORAGE, TRANSPORT, ERECTION, GEOMETRY CONTROL, INFILL CONCRETE SECTIONS, INFILL OF SHEAR STUD BLOCKOUTS, LEVELING GROUTS, ETC.

14.2 DECK PANELS SHALL BE CAST HORIZONTALLY.

14.3 FORMED LENGTH SHALL BE AS INDICATED IN THE DRAWINGS.

14.4 THE RUBBED FINISH APPLIED TO THE PRECAST CONCRETE SLAB SHALL PRODUCE A UNIFORM AND HOMOGENOUS APPEARANCE ACROSS ADJACENT PANELS.

	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	F. H. SALAS	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. 10 PAMPANGA RIVER BRIDGE GENERAL NOTES (3 OF 3) (ULTIMATE STAGE)	B10G-03
	SUBMITTED	10/19/02	J. SANTOS	Submitted By:	Reviewed By:	Recommended By:	Approved By:				

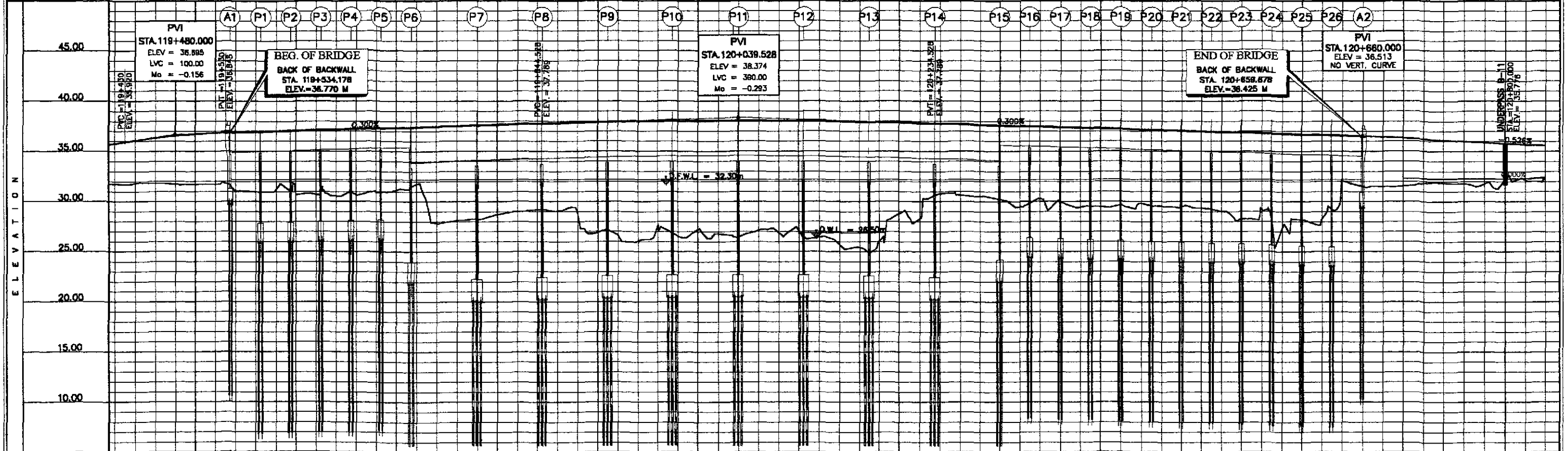
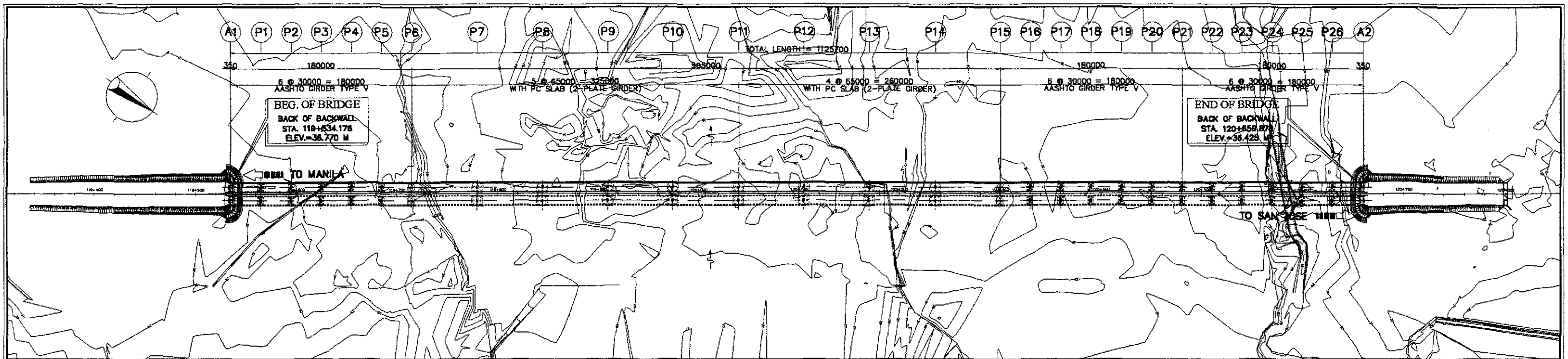


NOTES :
SEE HIGHWAY PLANS FOR REFERENCE OF ALIGNMENT

B.M. NO.	COORDINATES		DESCRIPTION
	NORTHING	EASTING	
29	1,715,891.768	498,699.775	IT IS LOCATED ON THE RIGHT SIDE OF THE ALIGNMENT PLACED ON THE RIGHT SIDE OF A BARANGAY ROAD UNDER AN ACACIA TREE 1.00 M AWAY FROM ITS CENTERLINE BRGY. CRUZ ROJA.
30	1,716,304.852	498,373.638	IT IS LOCATED ON THE RIGHT SIDE OF THE ALIGNMENT PLACED ON THE UPPERMOST TOP BANK OF A CANAL AT THE SIDE OF A NIPA HUT IN BRGY. OBRERO, CABANATUAN CITY.
34	1,718,360.331	496,980.373	IT IS LOCATED ON THE RIGHT SIDE OF THE ALIGN. PLACED ON THE SIDE OF A DIRT ROAD 1.50 M AWAY FROM ITS CL BET. 2 CAMACHILE TREE IN BRGY. SAPANG, CAB. CITY 3 M AWAY FROM AN IRRIG. CANAL'S TOP BANK.

(A) HORIZONTAL & VERTICAL CONTROL MONUMENTS
SCALE 1:3000

 JAPAN INTERNATIONAL COOPERATION AGENCY		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE III	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 10 PAMPANGA RIVER BRIDGE HORIZONTAL & VERTICAL CONTROL MONUMENTS (ULTIMATE STAGE)	SHEET NO. : B10G-04
DESIGNED	DATE: 10/14/07	SIGNATURE: F. M. SALAS	BUREAU OF DESIGN		OFFICE OF THE SECRETARY					
CHECKED	DATE: 10/17/07	SIGNATURE: J. SANTOS	Submitted By: DANILLO C. TRAJANO	Reviewed By: ADRIANO M. DOROY	Recommended By: GILBERTO S. REYES	Recommended By: MANUEL M. BONGAN	Approved By: SIMEON A. DATUMANONG			
SUBMITTED	DATE: 10/19/07	SIGNATURE: M. RUCHA	DANILLO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridge Division	GILBERTO S. REYES Director IV (CIC)	MANUEL M. BONGAN Undersecretary	SIMEON A. DATUMANONG Secretary			



STATION	119+500	+600	+700	+800	+900	120+000	+100	+200	+300	+400	120+500	+600	+700	+800
FINISHED GRADE @ BYPASS ALIGNMENT														
FINISHED GRADE @ BRIDGE CENTERLINE														
FINISHED ELEV./STATION @ BRIDGE PIER CENTERLINE	354.178	36.770	36.847	36.925	37.002	37.079	37.156	37.233	37.310	37.387	37.464	37.541	37.618	37.695
ORIGINAL GROUND ELEVATION	31.862	31.832	31.757	31.653	31.533	31.402	31.263	31.118	30.970	30.820	30.668	30.515	30.362	30.210
HORIZONTAL CURVATURE	R = ∞													
VERTICAL CURVATURE	L = 100, Mo = -0.156, a = +0.300%				L = 390, Mo = -0.293, a = -0.300%				NO VERTICAL CURVE, a = -0.526%					
SUPERELEVATION	NC													

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

K&E 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

Submitted By: **DANILO C. TRAJANO** (Project Director)
Reviewed By: **ADRIANO M. DORAY** (Chief, Bridges Division)
Recommended By: **GILBERTO S. REYES** (Director - N (CIC))
Approved By: **MARUCEL M. BONDAN** (Undersecretary)
SIMEON A. DATUMANONG (Secretary)

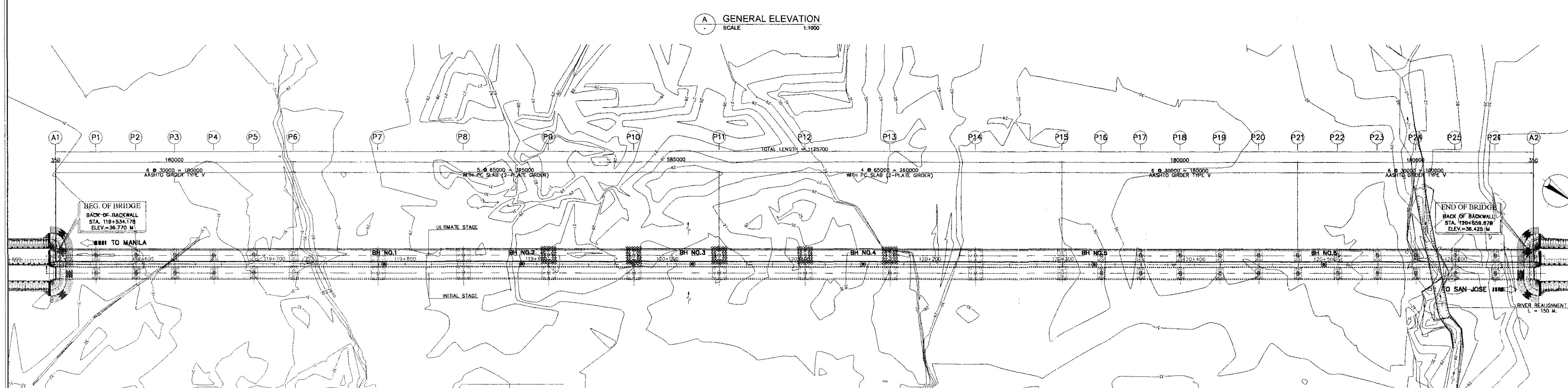
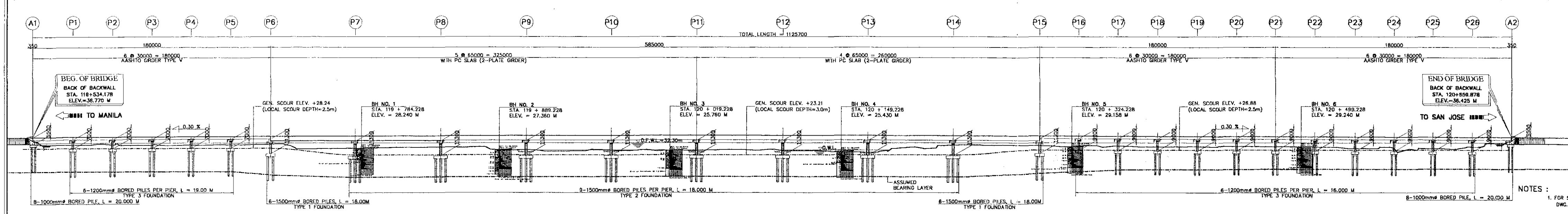
PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)

CABANATUAN BYPASS - CONTRACT PACKAGE III

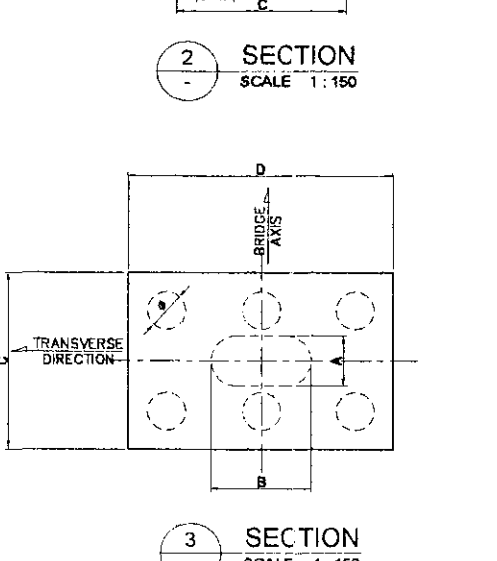
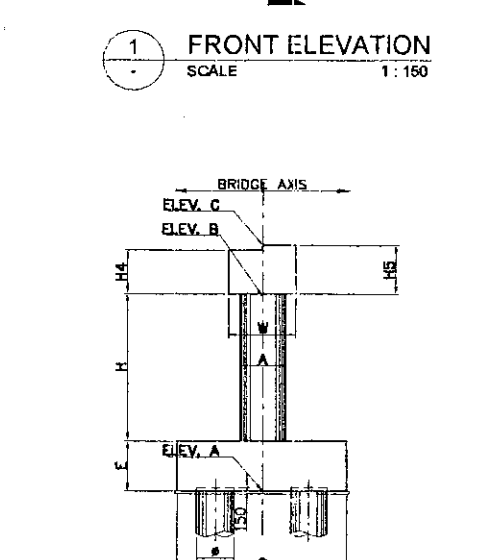
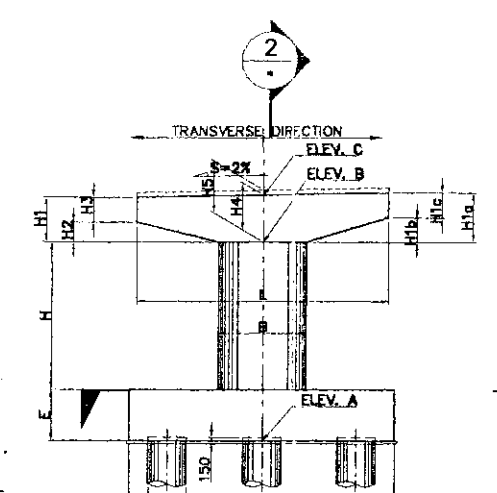
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 10 PAMPANGA RIVER BRIDGE
PLAN AND PROFILE
(ULTIMATE STAGE)

SHEET NO. :
B10G-05



HYDRAULIC DATA	
50-YEAR DESIGN DISCHARGE, Q_{50}	6,990 cu. m./sec.
DESIGN FLOW VELOCITY, V_{50}	1.88 m/sec.
DESIGN FLOOD WATER LEVEL, DFWL	EL. + 32.30 m
CATCHMENT AREA, CA	2,538.6 km ²



PERFECTO L. ZAPLAN, JR.
Sr. Chief, Hydraulic Division, BDO

PIER NO.	STATION	INITIAL STAGE				ULTIMATE STAGE			
		COLUMN		PILE CAP		COLUMN		PILE CAP	
		NORTHINGS	EASTINGS	NORTHINGS	EASTINGS	NORTHINGS	EASTINGS	NORTHINGS	EASTINGS
ABUT. 1	119 + 534.178	-	-	-	-	-	-	-	-
PIER 1	119 + 564.528	1716556.905	498148.117	1716556.905	498148.117	1716548.933	498137.223	1716548.933	498137.223
PIER 2	119 + 594.528	1716581.115	498130.400	1716581.115	498130.400	1716573.143	498119.506	1716573.143	498119.506
PIER 3	119 + 624.528	1716605.325	498112.684	1716605.325	498112.684	1716597.352	498101.789	1716597.352	498101.789
PIER 4	119 + 654.528	1716629.535	498094.967	1716629.535	498094.967	1716621.562	498084.072	1716621.562	498084.072
PIER 5	119 + 684.528	1716653.745	498077.250	1716653.745	498077.250	1716645.772	498066.356	1716645.772	498066.356
PIER 6	119 + 714.528	1716677.955	498059.533	1716677.955	498059.533	1716669.982	498048.639	1716669.982	498048.639
PIER 7	119 + 744.528	1716702.165	498041.817	1716702.165	498041.817	1716694.192	498030.923	1716694.192	498030.923
PIER 8	119 + 774.528	1716726.375	498024.101	1716726.375	498024.101	1716718.402	498013.207	1716718.402	498013.207
PIER 9	119 + 804.528	1716750.585	498006.385	1716750.585	498006.385	1716742.612	498000.500	1716742.612	498000.500
PIER 10	119 + 834.528	1716774.795	497988.669	1716774.795	497988.669	1716766.822	497987.801	1716766.822	497987.801
PIER 11	120 + 038.528	1716799.005	497971.953	1716799.005	497971.953	1716791.032	497956.708	1716791.032	497956.708
PIER 12	120 + 068.528	1716813.215	497955.247	1716813.215	497955.247	1716816.242	497940.002	1716816.242	497940.002
PIER 13	120 + 098.528	1716827.425	497938.541	1716827.425	497938.541	1716841.452	497923.296	1716841.452	497923.296
PIER 14	120 + 128.528	1716841.635	497921.835	1716841.635	497921.835	1716866.662	497906.590	1716866.662	497906.590
PIER 15	120 + 158.528	1716855.845	497905.129	1716855.845	497905.129	1716891.872	497889.884	1716891.872	497889.884
PIER 16	120 + 188.528	1716870.055	497888.423	1716870.055	497888.423	1716916.082	497873.178	1716916.082	497873.178
PIER 17	120 + 218.528	1716884.265	497871.717	1716884.265	497871.717	1716941.292	497856.472	1716941.292	497856.472
PIER 18	120 + 248.528	1716898.475	497855.011	1716898.475	497855.011	1716966.502	497839.766	1716966.502	497839.766
PIER 19	120 + 278.528	1716902.685	497838.305	1716902.685	497838.305	1716991.712	497823.060	1716991.712	497823.060
PIER 20	120 + 308.528	1716916.895	497821.599	1716916.895	497821.599	1717016.922	497806.354	1717016.922	497806.354
PIER 21	120 + 338.528	1716931.105	497804.893	1716931.105	497804.893	1717042.132	497789.648	1717042.132	497789.648
PIER 22	120 + 368.528	1716945.315	497788.187	1716945.315	497788.187	1717067.342	497772.942	1717067.342	497772.942
PIER 23	120 + 398.528	1716959.525	497771.481	1716959.525	497771.481	1717092.552	497756.236	1717092.552	497756.236
PIER 24	120 + 428.528	1716973.735	497754.775	1716973.735	497754.775	1717117.762	497739.530	1717117.762	497739.530
PIER 25	120 + 458.528	1716987.945	497738.069	1716987.945	497738.069	1717142.972	497722.824	1717142.972	497722.824
PIER 26	120 + 488.528	1717002.155	497721.363	1717002.155	497721.363	1717168.182	497706.118	1717168.182	497706.118
ABUT. 2	120 + 658.878	-	-	-	-	-	-	-	-

PIER NO.	COLUMN										PILE CAP										COPING										PILES	
	A (mm)	B (mm)	H (mm)	ELEV. C (mm)	ELEV. D (mm)	E (mm)	L (mm)	W (mm)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	H5 (mm)	H6 (mm)	H7 (mm)	H8 (mm)	H9 (mm)	H10 (mm)	ELEV. C (mm)	ELEV. D (mm)	DIAM. (mm)	LENGTH (m)	NUMBER	GROUP								
ABUT. 1	1500	9950	-	-	9000	9950	1500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	20000	8						
PIER 1	1500	3000	5250	32,983	5650	8900	1800	25,933	8950	2500	1750	750	1000	1850	1850	1949	949	1000	34,833	1200	19000	6	-	-								
PIER 2	1500	3000	5250	33,083	5650	8900	1800	26,033	8950	2500	1750	750	1000	1850	1850	1949	949	1000	34,933	1200	19000	6	-	-								
PIER 3	1500	3000	5250	33,183	5650	8900	1800	26,133	8950	2500	1750	750	1000	1850	1850	1949	949	1000	35,033	1200	19000	6	-	-								
PIER 4	1500	3000	5250	33,283	5650	8900	1800	26,233	8950	2500	1750	750	1000	1850	1850	1949	949	1000	35,133	1200	19000	6	-	-								
PIER 5	1500	3000	5250	33,383	5650	8900	1800	26,333	8950	2500	1750	750	1000	1850	1850	1949	949	1000	35,233	1200	19000	6	-	-								
PIER 6	2000	4000	7287	31,314	6750	10500	2250	21,777	9950	3000	2000	750	1250	2000	4013	2000	1500	35,327	1500	18000	6	-	-									
PIER 7	2500	4000	8800	30,866	10500	10500	2250	19,916	9950	3000	2500	750	1750	2500	2500	2500	750	1750	33,658	1500	18000	9	-	-								
PIER 8	2500	4000	8800	31,224	10500	10500	2250	20,174	9950	3000	2500	750	1750	2500	2500	2500	750	1750	33,274	1500	18000	9	-	-								
PIER 9	2500	4000	8800	31,387	10500	10500	2250	20,337	9950	3000	2500	750	1750	2500	2500	2500	750	1750	33,887	1500	18000	9	-	-								
PIER 10	2500	4000	8800	31,421	10500	10500	2250	20,371	9950	3000	2500	750	1750	2500	2500	2500	750	1750	33,921	1500	18000	9	-	-								
PIER 11	2500	4000	8800	31,494	10500	10500	2250	20,444	9950	3000	2500	750	1750	2500	2500	2500	750	1750	33,998	1500	18000	9	-	-								
PIER 12	2500	4000	8800	31,421	10500	10500	2250	20,371	9950	3000	2500	750	1750	2500	2500	2500	750	1750	33,921	1500	18000	9	-	-								
PIER 13	2500	4000	8800	31,387	10500	10500	2250	20,337	9950	3000	2500	750	1750	2500	2500	2500	750	1750	33,887	1500	18000	9	-	-								
PIER 14	2500	4000	8800	31,161	10500	10500	2250	20,111	9950	3000	2500	750	1750	2500	2500	2500	750	1750	33,661	1500	18000	9	-	-								
PIER 15	2000	4000	7287	31,509	6750	10500	2250	21,972	9950	3000	2000	750	1250	2000	4013	2000	750	1250	35,522	1500	18000	6	-	-								
PIER 16	1500	3000	7250	33,538	5650	8900	1800	24,488	9950	2500	1750	750	1000	1850	1850	1949	949	1000	35,288	1200	16000	6	-	-								
PIER 17	1500	3000	7250	33,448	5650	8900	1800	24,398	9950	2500	1750	750	1000	1850	1850	1949	949	1000	35,298	1200	16000	6	-	-								
PIER 18	1500	3000	7250	33,358	5650	8900	1800	24,308	9950	2500	1750	750	1000	1850	1850	1949	949	1000	35,208	1200	16000	6	-	-								
PIER 19	1500	3000	7250	33,268	5650	8900	1800	24,218	9950	2500	1750	750	1000	1850	1850	1949	949	1000	35,118	1200	16000	6	-	-								
PIER 20	1500	3000	7250	33,178	5650	8900	1800	24,128	9950	2500	1750	750	1000	1850	1850	1949	949	1000	35,028	1200	16000	6	-	-								
PIER 21	1500	3000	7250	33,088	5650	8900	1800	24,038	9950	2500	1750	750	1000	1850	1850	1949	949	1000	34,938	1200	16000	6	-	-								
PIER 22	1500	3000	7250	32,998	5650	8900	1800	23,948	9950	2500	1750	750	1000	1850	1850	1949	949	1000	34,848	1200	16000	6	-	-								
PIER 23	1500	3000	7250	32,908	5650	8900	1800	23,858	9950	2500	1750	750	1000	1850	1850	1949	949	1000	34,758	1200	16000	6	-	-								
PIER 24	1500	3000	7250	32,818	5650	8900	1800	23,768	9950	2500	1750	750	1000	1850	1850	1949	949	1000	34,668	1200	16000	6	-	-								
PIER 25	1500	3000	7250	32,728	5650	8900	1800	23,678	9950	2500	1750	750	1000	1850	1850	1949	949	1000	34,578	1200	16000	6	-	-								
PIER 26	1500	3000	7250	32,638	5650	8900	1800	23,588	9950	2500	1750	750	1000	1850	1850	1949	949	1000	34,488	1200	16000	6	-	-								
ABUT. 2	1500	9950	-	-	9000	9950	1500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	20000	8						

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PERFECTO L. ZAPLAN, JR.
Sr. Chief, Hydraulic Division, BDO

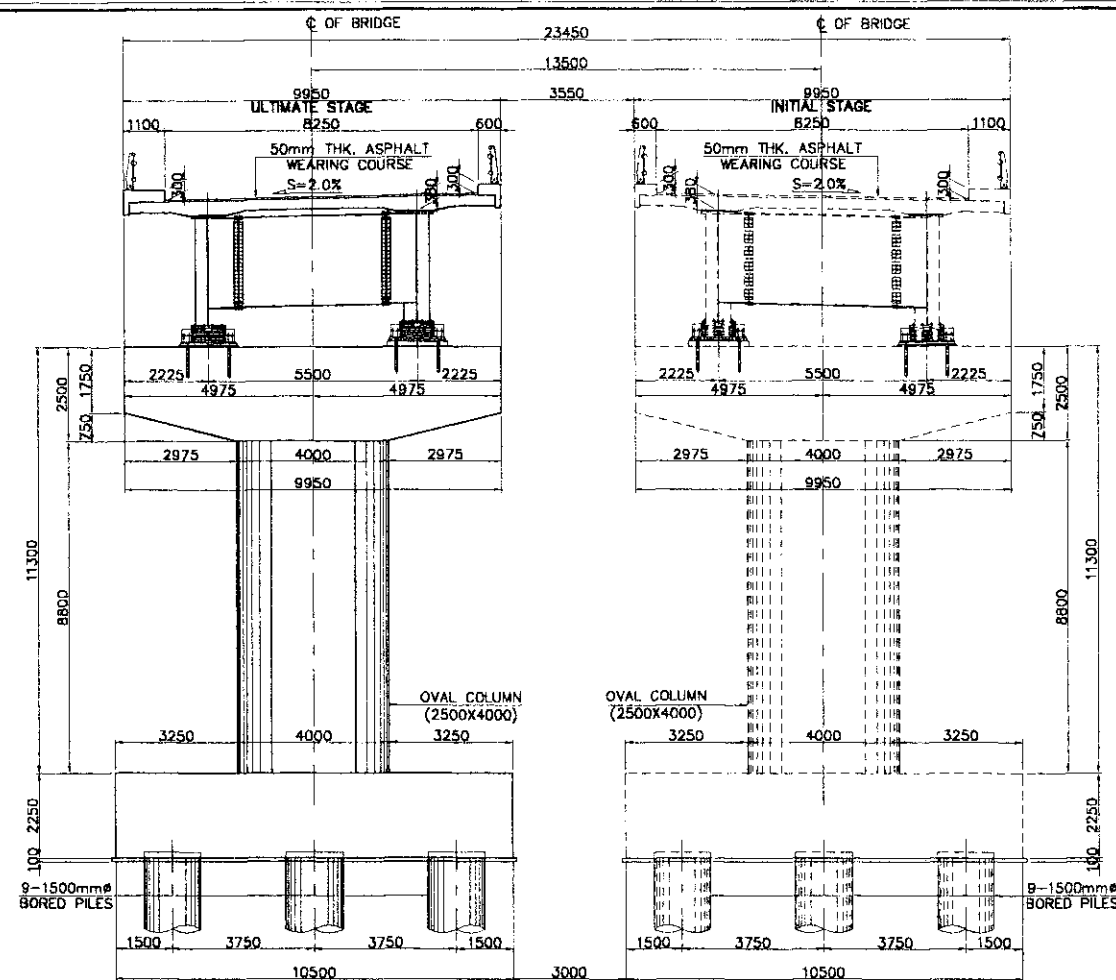
PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Parídel, Cabanatuan and San Jose Bypasses)

CABANATUAN BYPASS - CONTRACT PACKAGE III

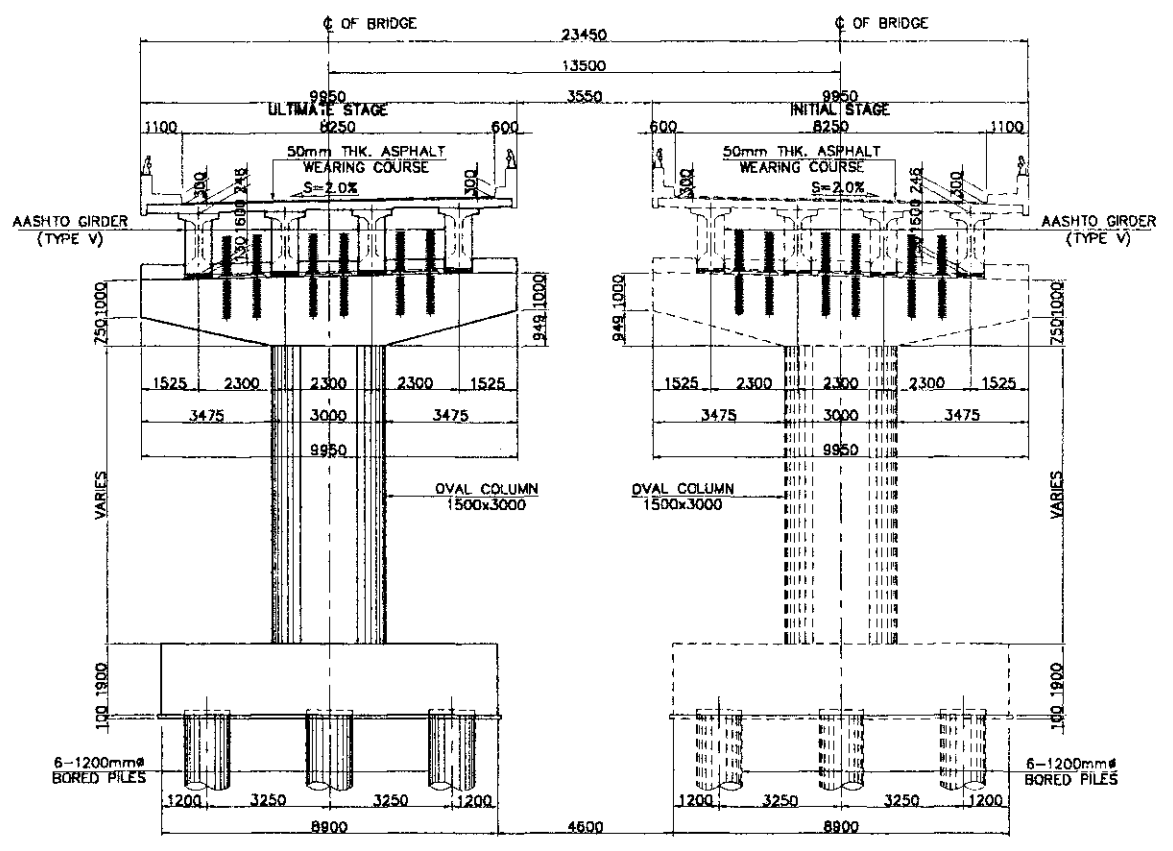
SCALE : AS SHOWN

SHEET CONTENTS : GENERAL PLAN, ELEVATION AND SECTIONS (1 of 2) (ULTIMATE STAGE)

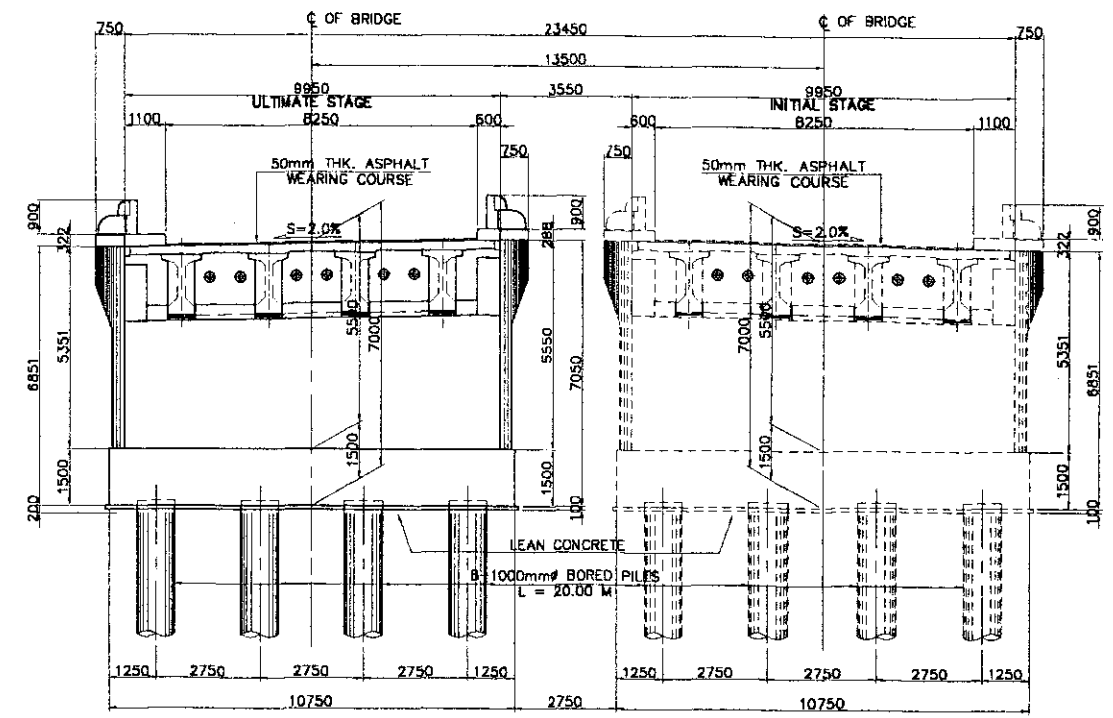
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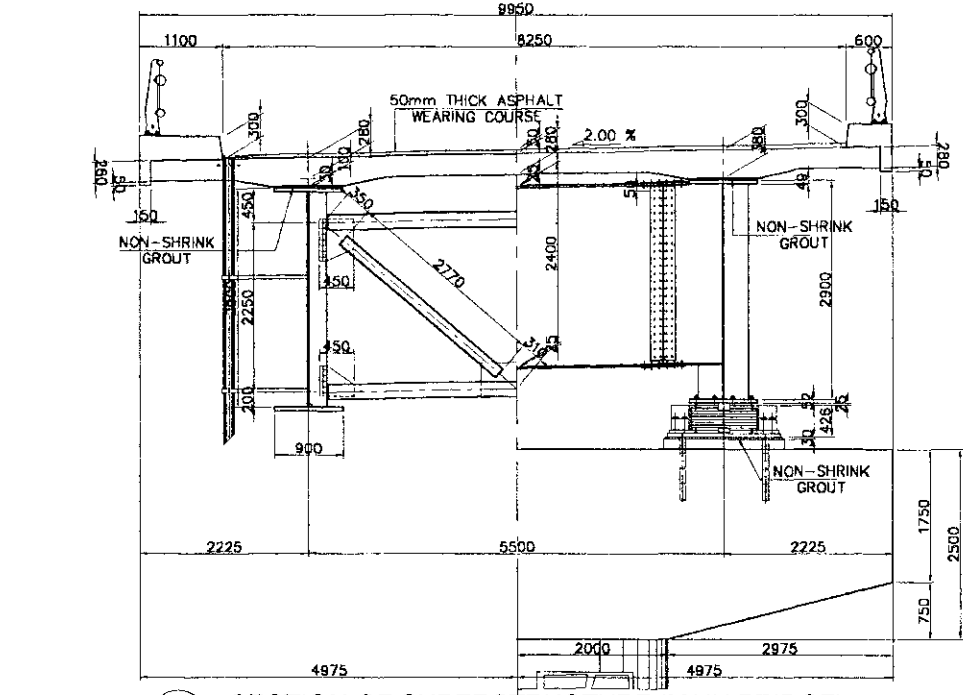
A SECTION @ MAIN BRIDGE
SCALE 1:100



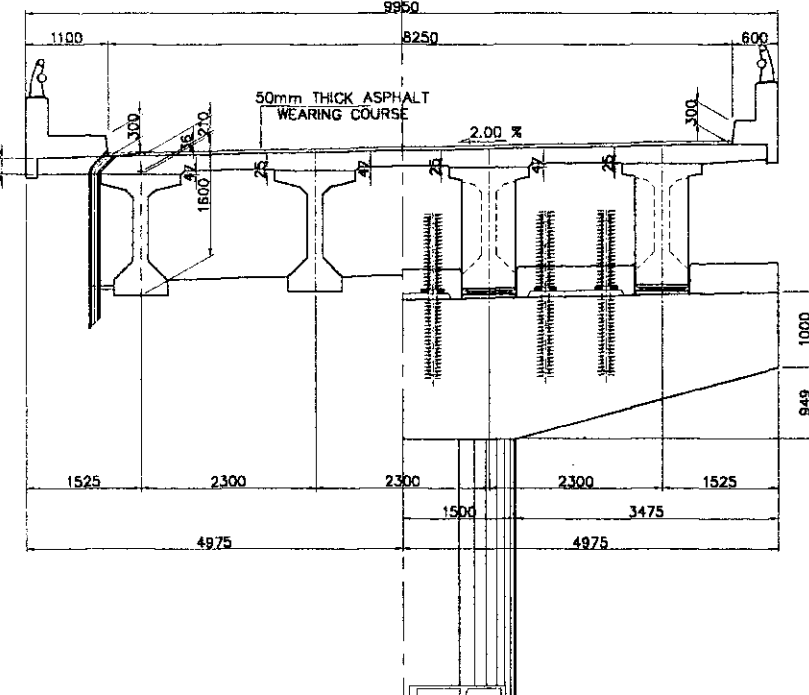
B SECTION @ APPROACH BRIDGE
SCALE 1:100



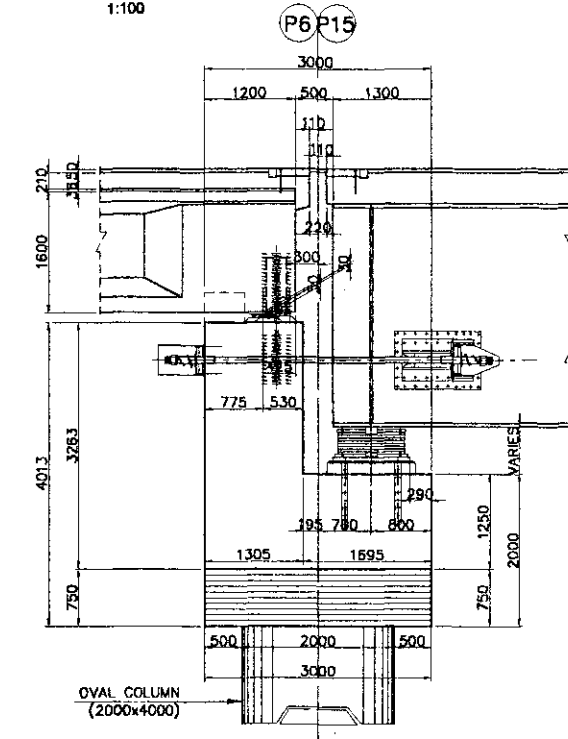
C SECTION @ ABUTMENT
SCALE 1:100



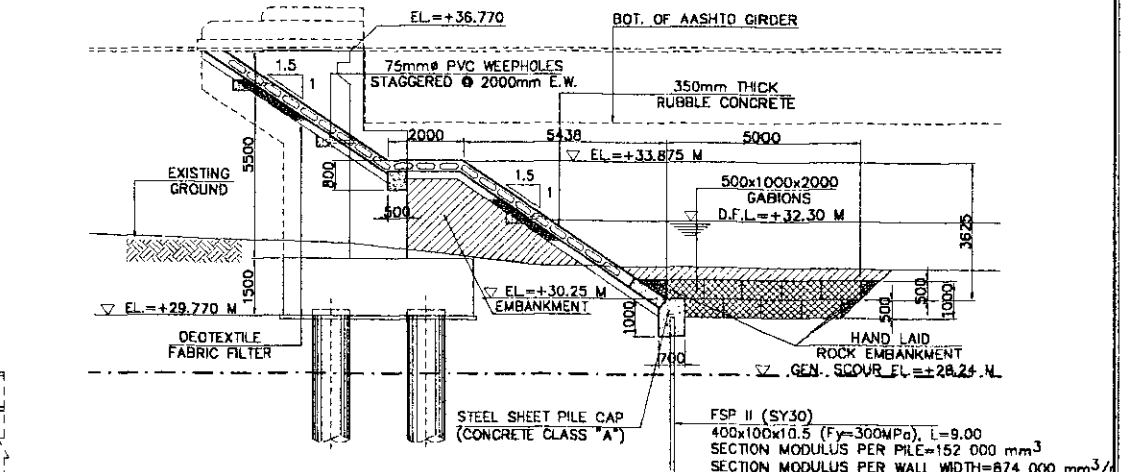
D SECTION OF SUPERSTRUCTURE (MAIN BRIDGE)
SCALE 1:50



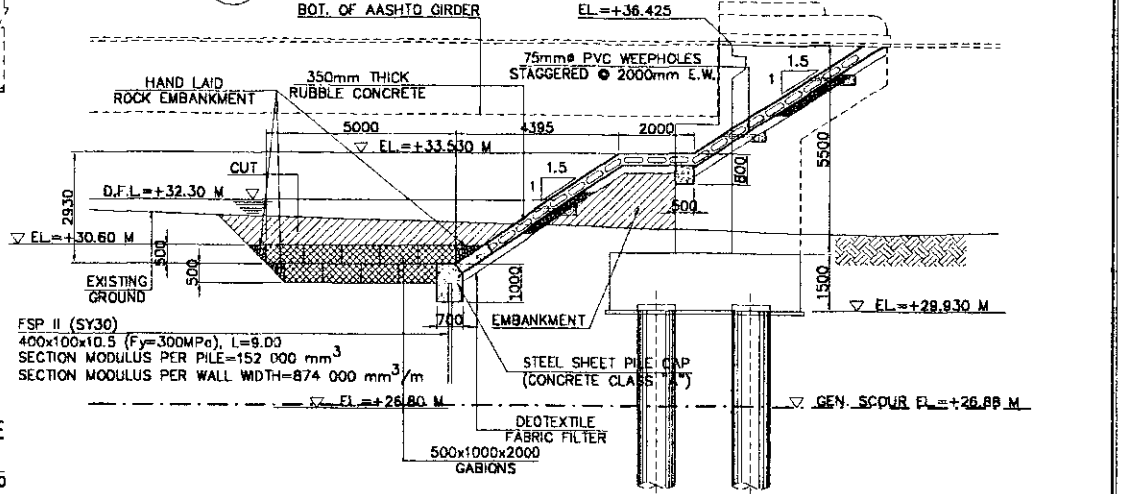
D SECTION OF SUPERSTRUCTURE (APPROACH BRIDGE)
SCALE 1:50



E MAIN BRIDGE/APPROACH BRIDGE CONNECTION DETAILS
SCALE 1:50



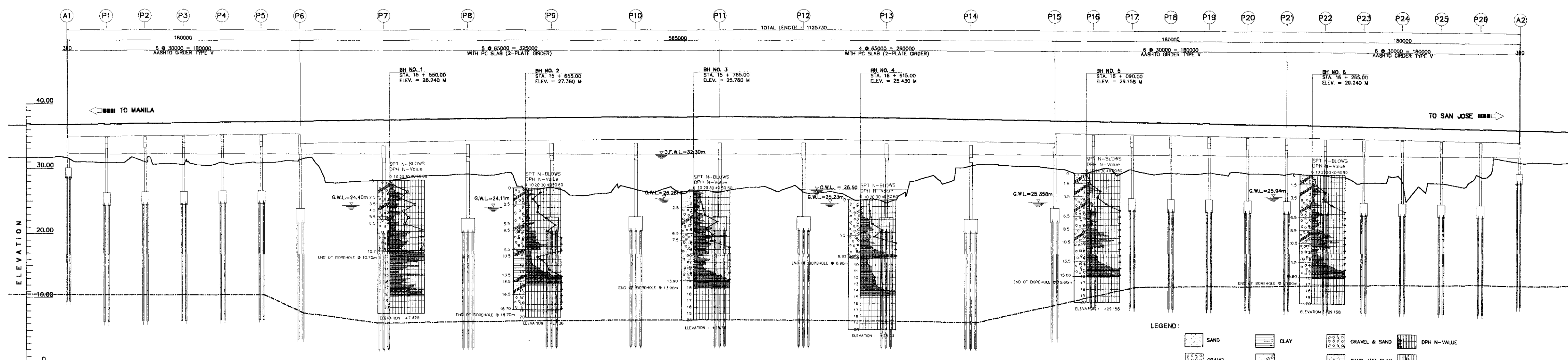
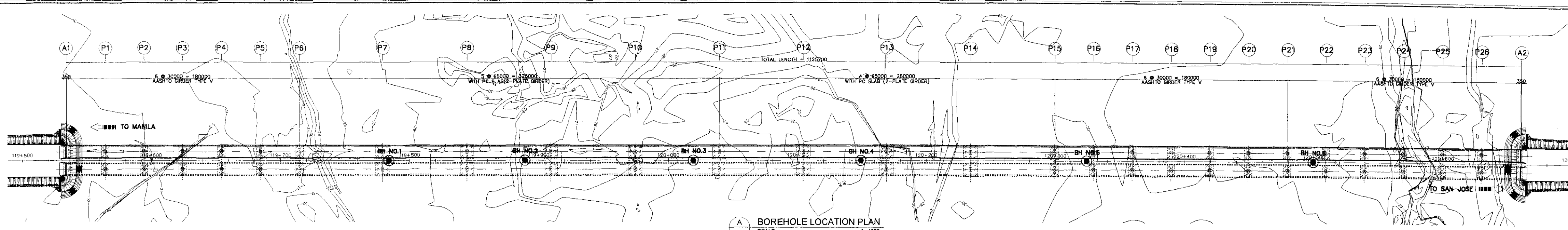
F ABUTMENT A1 SLOPE PROTECTION DETAILS
SCALE 1:100



G ABUTMENT A2 SLOPE PROTECTION DETAILS
SCALE 1:100

1 GENERAL PLAN, ELEVATION AND SECTIONS - 2 of 2
SCALE AS SHOWN

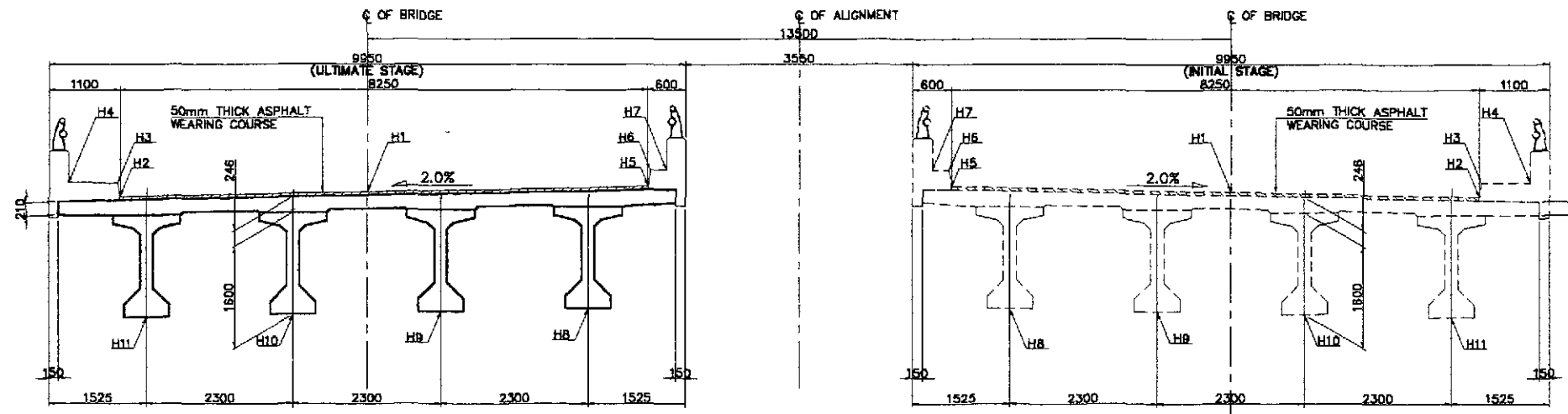
				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE III		SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 10 PAMPANGA RIVER BRIDGE GENERAL PLAN, ELEVATION AND SECTIONS (2 of 2) (ULTIMATE STAGE)	SHEET NO. : B10G-07		
DESIGNED : 10/10/07 F. M. SALAS	CHECKED : 10/17/07 J. C. SANTOS	SUBMITTED : 10/19/07 M. M. BONGAN	DATE : 10/19/07	SIGNATURE : F. M. SALAS J. C. SANTOS M. M. BONGAN	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY	DESIGNED BY : DANIL C. TRAJANO Project Director	REVIEWED BY : ADRIANO M. DORAY Chief, Bridge Division	RECOMMENDED BY : GILBERTO S. REYES Director IV (OIC)	APPROVED BY : MANUEL M. BONGAN Undersecretary	APPROVED BY : SIMEON A. DATUMANONG Secretary



LEGEND:

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

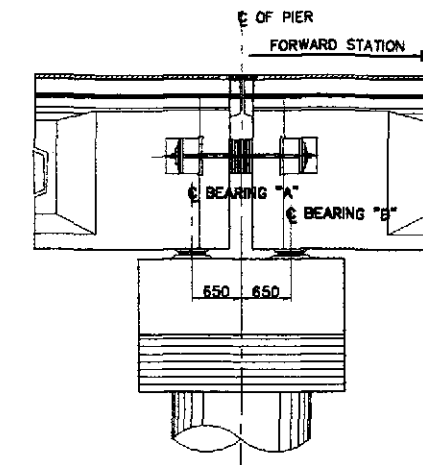
JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS YACHIOYI ENGINEERING CO., LTD.		DATE: 10/10/10 DESIGNED: F. M. SALAS CHECKED: 10/17/10 SUBMITTED: 10/16/10	SIGNATURE: F. M. SALAS PROJECT DIRECTOR	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY	PROJECT AND LOCATION: THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE III	SCALE: AS SHOWN FULL SIZE A1	SHEET CONTENTS: BRIDGE NO. 10 PAMPANGA RIVER BRIDGE BOREHOLE LOCATION PLAN AND SOIL PROFILE (ULTIMATE STAGE)	SHEET NO.: B10G-08
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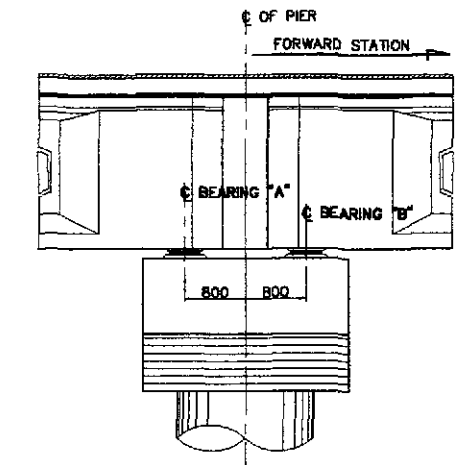
A TYPICAL SECTION @ APPROACH BRIDGE
SCALE 1 : 50

STATION	H1	H2	H3	H4	H5	H6	H7
119+540.000	36.787	36.709	36.859	36.894	36.874	37.124	37.180
119+560.000	36.847	36.769	37.019	36.954	36.934	37.184	37.240
119+580.000	36.907	36.829	37.079	37.014	36.994	37.244	37.300
119+600.000	36.967	36.889	37.139	37.074	37.054	37.304	37.360
119+620.000	37.027	36.949	37.199	37.134	37.114	37.364	37.420
119+640.000	37.087	37.009	37.259	37.194	37.174	37.424	37.480
119+660.000	37.147	37.069	37.319	37.254	37.234	37.484	37.540
119+680.000	37.207	37.129	37.379	37.314	37.294	37.544	37.600
119+700.000	37.267	37.189	37.439	37.374	37.354	37.604	37.660
120+300.000	37.505	37.427	37.677	37.612	37.592	37.842	37.898
120+320.000	37.445	37.367	37.617	37.552	37.532	37.782	37.838
120+340.000	37.385	37.307	37.557	37.492	37.472	37.722	37.778
120+360.000	37.325	37.247	37.497	37.432	37.412	37.662	37.718
120+380.000	37.265	37.187	37.437	37.372	37.352	37.602	37.658
120+400.000	37.205	37.127	37.377	37.312	37.292	37.542	37.598
120+420.000	37.145	37.067	37.317	37.252	37.232	37.482	37.538
120+440.000	37.085	37.007	37.257	37.192	37.172	37.422	37.478
120+460.000	37.025	36.947	37.197	37.132	37.112	37.362	37.418
120+480.000	36.965	36.887	37.137	37.072	37.052	37.302	37.358
120+500.000	36.905	36.827	37.077	37.012	36.992	37.242	37.298
120+520.000	36.845	36.767	37.017	36.952	36.932	37.182	37.238
120+540.000	36.785	36.707	36.957	36.892	36.872	37.122	37.178
120+560.000	36.725	36.647	36.897	36.832	36.812	37.062	37.118
120+580.000	36.665	36.587	36.837	36.772	36.752	37.002	37.058
120+600.000	36.605	36.527	36.777	36.712	36.692	36.942	36.998
120+620.000	36.545	36.467	36.717	36.652	36.632	36.882	36.938
120+640.000	36.485	36.407	36.657	36.592	36.572	36.822	36.878

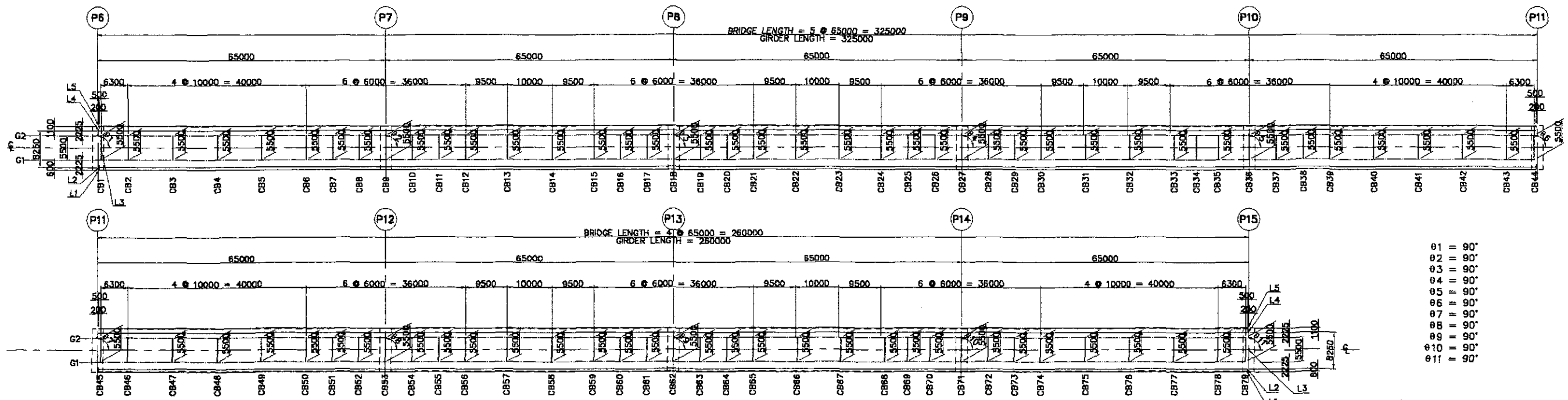
LOCATION	BEARING SIDE	STATION	H8	H9	H10	H11
ABUT. A1	A	119+534.698	34.845	34.899	34.853	34.807
PIER 1	B	119+563.778	35.032	34.986	34.940	34.894
	A	119+565.278	35.036	34.990	34.944	34.898
PIER 2	B	119+593.778	35.122	35.076	35.030	34.984
	A	119+595.278	35.212	35.166	35.120	35.074
PIER 3	B	119+623.778	35.214	35.168	35.122	35.076
	A	119+625.278	35.218	35.170	35.124	35.078
PIER 4	B	119+653.778	35.302	35.256	35.210	35.164
	A	119+655.278	35.306	35.260	35.214	35.168
PIER 5	B	119+683.778	35.392	35.346	35.300	35.254
	A	119+685.278	35.396	35.350	35.304	35.258
PIER 6	B					
PIER 15	A					
	B					
PIER 16	B	120+328.780	35.581	35.545	35.499	35.453
	A	120+330.280	35.587	35.541	35.495	35.449
PIER 17	B	120+358.780	35.503	35.457	35.411	35.365
	A	120+360.280	35.497	35.451	35.405	35.359
PIER 18	B	120+388.780	35.411	35.365	35.319	35.273
	A	120+390.280	35.407	35.361	35.315	35.269
PIER 19	B	120+418.780	35.321	35.275	35.229	35.183
	A	120+420.280	35.317	35.271	35.225	35.179
PIER 20	B	120+448.780	35.231	35.185	35.139	35.093
	A	120+450.280	35.227	35.181	35.135	35.089
PIER 21	B	120+478.905	35.141	35.095	35.049	35.003
	A	120+480.155	35.137	35.091	35.045	34.999
PIER 22	B	120+508.780	35.051	35.005	34.959	34.913
	A	120+510.280	35.047	35.001	34.955	34.909
PIER 23	B	120+538.780	34.961	34.915	34.869	34.823
	A	120+540.280	34.957	34.911	34.865	34.819
PIER 24	B	120+568.780	34.871	34.825	34.779	34.733
	A	120+570.280	34.867	34.821	34.775	34.729
PIER 25	B					
	A					
PIER 26	B	120+628.780	34.681	34.645	34.599	34.553
	A	120+630.280	34.687	34.641	34.595	34.549
ABUT. A2	B	120+659.358	34.800	34.554	34.508	34.462



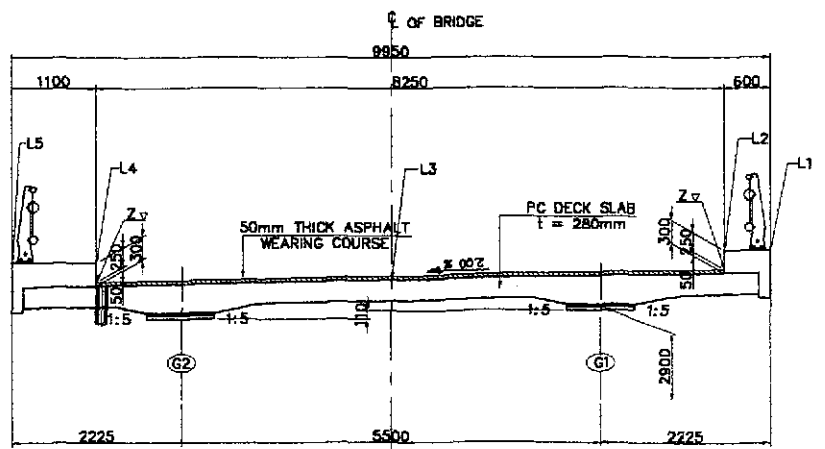
1 AT EXPANSION
SCALE 1 : 50



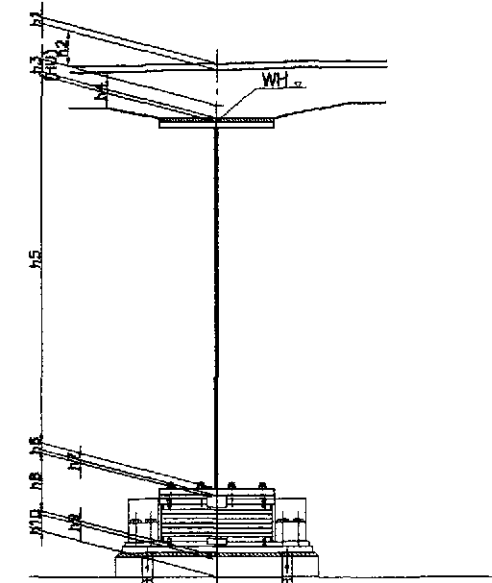
2 AT FIXED
SCALE 1 : 50



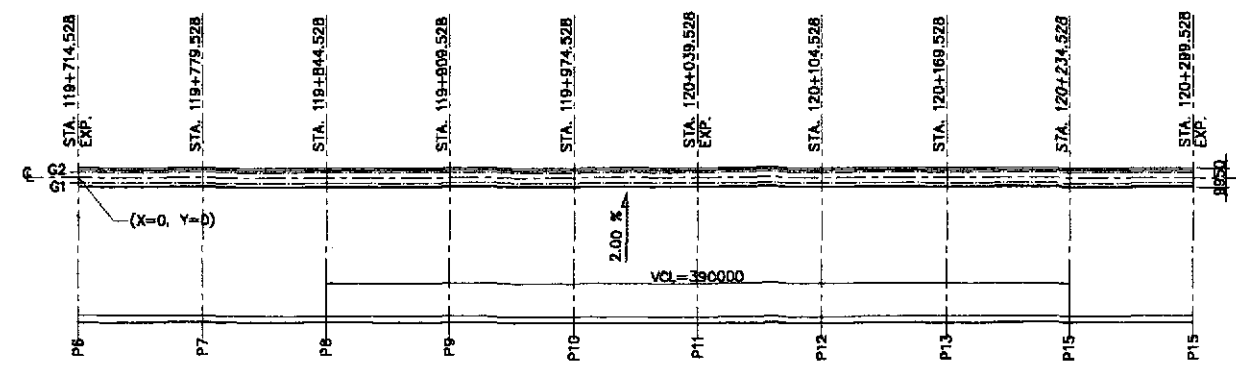
A PLAN
SCALE 1:400



B SECTION
SCALE 1:50



C DETAIL
SCALE 1:25



D PLAN
SCALE 1:1000

		P6		P7		P8		P9		P10		P11		P12		P13		P14		P15	
		G1	G2	G1	G2	G1	G2	G1	G2	G1	G2	G1	G2	G1	G2	G1	G2	G1	G2	G1	G2
ROAD DESIGN ELEV.	Z1	37366	37256	37561	37451	37756	37646	37919	37809	38016	37906	38048	37938	38016	37906	37919	37809	37756	37646	37561	37451
WEARING COURSE	h1	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
SLAB THICKNESS	h2	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280
HAUNCH	h3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LEVELING GROUT	h4	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
GIRDER HEIGHT	h5	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900
BOTTOM FLANGE THK.	h6	47	47	86	86	56	56	56	56	86	86	47	47	86	86	56	56	86	86	47	47
SOLE PLATE THK.	h7	28	28	33	33	33	33	33	33	33	33	28	28	33	33	33	33	33	33	28	28
BEARING HEIGHT	h8	426	426	389.6	389.6	389.6	389.6	389.6	389.6	389.6	389.6	426	426	389.6	389.6	389.6	389.6	389.6	389.6	426	426
LEVELING MORTAR	h9	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
RISER	h10	160.6	50.6	196.8	86.8	163.6	53.6	163.6	53.6	160.6	50.6	196.8	86.8	163.6	53.6	196.8	86.8	163.6	53.6	160.6	50.6
TOTAL HEIGHT	ΣH	4051.6	3941.6	4095.4	3985.4	4032.2	3922.2	4032.2	3922.2	4095.4	3985.4	4051.6	3941.6	4095.4	3985.4	4032.2	3922.2	4095.4	3985.4	4051.6	3941.6
TOP OF COPING ELEV.	Z2	33314.4	33314.4	33465.6	33465.6	33723.8	33723.8	33866.8	33866.8	33920.6	33920.6	33996.4	33996.4	33920.6	33920.6	33866.8	33866.8	33660.6	33660.6	33509.4	33509.4

1 SCHEDULE OF DIMENSIONS (PIER 6 to PIER 15) - 1 of 3
SCALE AS SHOWN

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE III	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 10 PAMPANGA RIVER BRIDGE SCHEDULE OF DIMENSIONS (PIER 6 to PIER 15) - 1 of 3 (ULTIMATE STAGE)	SHEET NO. : B10G-10
	CHECKED				BUREAU OF DESIGN							
	SUBMITTED				Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: ADRIANO M. DOROY Chief, Bridge Division	Recommended By: GILBERTO S. REYES Director IV (D/C)	Office of the Secretary Recommended By: MARCEL M. BONGAN Undersecretary				



		P6	CB1	CB2	CB3	CB4	CB5	CB6	CB7	CB8	CB9(P7)	CB10	CB11	CB12	CB13	CB14	CB15	CB16	CB17	CB18(P8)	CB19	CB20	CB21	CB22	CB23	CB24	CB25	CB26	
L1	X	0.000	0.600	7.000	17.000	27.000	37.000	47.000	53.000	59.000	65.000	71.000	77.000	83.000	89.500	92.500	102.500	112.000	118.000	124.000	130.000	136.000	142.000	148.000	157.500	167.500	177.000	183.000	189.000
	Y	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975
	Z	37.410	37.412	37.431	37.461	37.491	37.521	37.551	37.569	37.587	37.605	37.623	37.641	37.659	37.688	37.718	37.746	37.764	37.782	37.800	37.818	37.835	37.852	37.877	37.902	37.924	37.937	37.950	37.950
L2	X	0.000	0.600	7.000	17.000	27.000	37.000	47.000	53.000	59.000	65.000	71.000	77.000	83.000	89.500	92.500	102.500	112.000	118.000	124.000	130.000	136.000	142.000	148.000	157.500	167.500	177.000	183.000	189.000
	Y	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375
	Z	37.398	37.400	37.419	37.449	37.478	37.509	37.539	37.557	37.575	37.583	37.611	37.629	37.647	37.676	37.706	37.734	37.752	37.770	37.788	37.806	37.823	37.840	37.865	37.890	37.912	37.925	37.938	37.938
G1	X	0.000	0.600	7.000	17.000	27.000	37.000	47.000	53.000	59.000	65.000	71.000	77.000	83.000	89.500	92.500	102.500	112.000	118.000	124.000	130.000	136.000	142.000	148.000	157.500	167.500	177.000	183.000	189.000
	Y	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750
	Z	37.366	37.368	37.387	37.417	37.447	37.477	37.507	37.525	37.543	37.561	37.579	37.597	37.615	37.644	37.674	37.702	37.720	37.738	37.756	37.774	37.791	37.808	37.833	37.858	37.880	37.893	37.906	37.906
L3	X	0.000	0.600	7.000	17.000	27.000	37.000	47.000	53.000	59.000	65.000	71.000	77.000	83.000	89.500	92.500	102.500	112.000	118.000	124.000	130.000	136.000	142.000	148.000	157.500	167.500	177.000	183.000	189.000
	Y	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Z	37.311	37.313	37.332	37.362	37.392	37.422	37.452	37.470	37.488	37.506	37.524	37.542	37.560	37.589	37.619	37.647	37.665	37.683	37.701	37.719	37.736	37.753	37.778	37.803	37.825	37.838	37.851	37.851
G2	X	0.000	0.600	7.000	17.000	27.000	37.000	47.000	53.000	59.000	65.000	71.000	77.000	83.000	89.500	92.500	102.500	112.000	118.000	124.000	130.000	136.000	142.000	148.000	157.500	167.500	177.000	183.000	189.000
	Y	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750
	Z	37.256	37.258	37.277	37.307	37.337	37.367	37.397	37.415	37.433	37.451	37.469	37.487	37.505	37.534	37.564	37.592	37.610	37.628	37.646	37.664	37.681	37.698	37.723	37.748	37.770	37.783	37.796	37.796
L4	X	0.000	0.600	7.000	17.000	27.000	37.000	47.000	53.000	59.000	65.000	71.000	77.000	83.000	89.500	92.500	102.500	112.000	118.000	124.000	130.000	136.000	142.000	148.000	157.500	167.500	177.000	183.000	189.000
	Y	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875
	Z	37.233	37.235	37.254	37.284	37.314	37.344	37.374	37.392	37.410	37.428	37.446	37.464	37.482	37.511	37.541	37.569	37.587	37.605	37.623	37.641	37.658	37.675	37.700	37.725	37.747	37.760	37.773	37.773
L5	X	0.000	0.600	7.000	17.000	27.000	37.000	47.000	53.000	59.000	65.000	71.000	77.000	83.000	89.500	92.500	102.500	112.000	118.000	124.000	130.000	136.000	142.000	148.000	157.500	167.500	177.000	183.000	189.000
	Y	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975
	Z	37.211	37.213	37.232	37.262	37.292	37.322	37.352	37.370	37.388	37.406	37.424	37.442	37.460	37.489	37.519	37.547	37.565	37.583	37.601	37.619	37.636	37.653	37.678	37.703	37.725	37.738	37.751	37.751

		CB27(P9)	CB28	CB29	CB30	CB31	CB32	CB33	CB34	CB35	CB36(P10)	CB37	CB38	CB39	CB40	CB41	CB42	CB43	CB44	P11	SPAN 1	SPAN 2	SPAN 3	SPAN 4	SPAN 5	TOTAL	
L1	X	195.000	201.000	207.000	213.000	222.500	232.500	242.000	248.000	254.000	260.000	266.000	272.000	278.000	288.000	298.000	308.000	318.000	324.400								
	Y	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975		64.400	65.000	65.000	65.000	64.400	323.800	
	Z	37.963	37.974	37.985	37.996	38.012	38.027	38.040	38.047	38.054	38.060	38.066	38.071	38.076	38.082	38.087	38.090	38.093	38.093	38.093							
L2	X	195.000	201.000	207.000	213.000	222.500	232.500	242.000	248.000	254.000	260.000	266.000	272.000	278.000	288.000	298.000	308.000	318.000	324.400								
	Y	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375		64.400	65.000	65.000	65.000	64.400	323.800	
	Z	37.951	37.962	37.973	37.984	38.000	38.015	38.028	38.035	38.042	38.048	38.054	38.059	38.064	38.070	38.075	38.078	38.081	38.081	38.081							
G1	X	195.000	201.000	207.000	213.000	222.500	232.500	242.000	248.000	254.000	260.000	266.000	272.000	278.000	288.000	298.000	308.000	318.000	324.400								
	Y	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750		64.400	65.000	65.000	65.000	64.400	323.800	
	Z	37.919	37.930	37.941	37.952	37.968	37.983	37.996	38.003	38.010	38.016	38.022	38.027	38.032	38.036	38.043	38.046	38.049	38.049	38.049							
L3	X	195.000	201.000	207.000	213.000	222.500	232.500	242.000	248.000	254.000	260.000	266.000	272.000	278.000	288.000	298.000	308.000	318.000	324.400								
	Y	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		64.400	65.000	65.000	65.000	64.400	323.800	
	Z	37.864	37.875	37.886	37.897	37.913	37.928	37.941	37.948	37.955	37.961	37.967	37.972	37.977	37.983	37.988	37.991	37.994	37.994	37.994							
G2	X	195.000	201.000	207.000	213.000	222.500	232.500	242.000	248.000	254.000	260.000	266.000	272.000	278.000	288.000	298.000	308.000	318.000	324.400								
	Y	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750		64.400	65.000	65.000	65.000	64.400	323.800	
	Z	37.809	37.820	37.831	37.842	37.858	37.873	37.886	37.893	37.900	37.906	37.912	37.917	37.922	37.928	37.933	37.936	37.939	37.939	37.939							
L4	X	195.000	201.000	207.000	213.000	222.500	232.500	242.000	248.000	254.000	260.000	266.000	272.000	27													

		P11	CB45	CB46	CB47	CB48	CB49	CB50	CB51	CB52	CB53(P12)	CB54	CB55	CB56	CB57	CB58	CB59	CB60	CB61	CB62(P13)	CB63	CB64
L1	X		325.602	332.002	342.002	352.002	362.002	372.002	378.002	384.002	390.002	396.002	402.002	408.002	417.502	427.502	437.002	443.002	449.002	455.002	461.002	467.002
	Y		-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975
	Z		38.093	38.092	38.090	38.087	38.082	38.076	38.071	38.066	38.060	38.054	38.047	38.040	38.027	38.012	37.996	37.985	37.974	37.963	37.950	37.937
L2	X		325.602	332.002	342.002	352.002	362.002	372.002	378.002	384.002	390.002	396.002	402.002	408.002	417.502	427.502	437.002	443.002	449.002	455.002	461.002	467.002
	Y		-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375
	Z		38.081	38.080	38.078	38.075	38.070	38.064	38.059	38.054	38.048	38.042	38.035	38.028	38.015	38.000	37.984	37.973	37.962	37.951	37.938	37.925
G1	X		325.602	332.002	342.002	352.002	362.002	372.002	378.002	384.002	390.002	396.002	402.002	408.002	417.502	427.502	437.002	443.002	449.002	455.002	461.002	467.002
	Y		-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750
	Z		38.049	38.048	38.046	38.043	38.038	38.032	38.027	38.022	38.016	38.010	38.003	37.996	37.983	37.966	37.952	37.941	37.930	37.919	37.906	37.893
L3	X		325.602	332.002	342.002	352.002	362.002	372.002	378.002	384.002	390.002	396.002	402.002	408.002	417.502	427.502	437.002	443.002	449.002	455.002	461.002	467.002
	Y		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Z		37.994	37.993	37.991	37.988	37.983	37.977	37.972	37.967	37.961	37.955	37.948	37.941	37.928	37.913	37.897	37.886	37.875	37.864	37.851	37.838
G2	X		325.602	332.002	342.002	352.002	362.002	372.002	378.002	384.002	390.002	396.002	402.002	408.002	417.502	427.502	437.002	443.002	449.002	455.002	461.002	467.002
	Y		2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750
	Z		37.939	37.938	37.936	37.933	37.928	37.922	37.917	37.912	37.906	37.900	37.893	37.886	37.873	37.858	37.842	37.831	37.820	37.809	37.796	37.783
L4	X		325.602	332.002	342.002	352.002	362.002	372.002	378.002	384.002	390.002	396.002	402.002	408.002	417.502	427.502	437.002	443.002	449.002	455.002	461.002	467.002
	Y		3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875
	Z		37.916	37.915	37.913	37.910	37.905	37.899	37.894	37.888	37.883	37.877	37.870	37.863	37.850	37.835	37.819	37.808	37.797	37.786	37.773	37.760
L5	X		325.602	332.002	342.002	352.002	362.002	372.002	378.002	384.002	390.002	396.002	402.002	408.002	417.502	427.502	437.002	443.002	449.002	455.002	461.002	467.002
	Y		4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975
	Z		37.894	37.893	37.891	37.888	37.883	37.877	37.872	37.867	37.861	37.855	37.848	37.841	37.828	37.813	37.797	37.786	37.775	37.764	37.751	37.738

		CB85	CB86	CB87	CB88	CB89	CB90	CB91(P14)	CB92	CB93	CB94	CB95	CB96	CB97	CB98	CB99	P15	SPAN 1	SPAN 2	SPAN 3	SPAN 4	TOTAL
L1	X	473.002	482.502	492.502	502.002	508.002	514.002	520.002	526.002	532.002	538.002	544.002	558.002	568.002	578.002	584.402	585.002	64.400	65.000	65.000	64.400	258.800
	Y	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975	-4.975					
	Z	37.924	37.902	37.877	37.852	37.835	37.818	37.800	37.782	37.764	37.746	37.716	37.686	37.656	37.626	37.607	37.605					
L2	X	473.002	482.502	492.502	502.002	508.002	514.002	520.002	526.002	532.002	538.002	544.002	558.002	568.002	578.002	584.402	585.002	64.400	65.000	65.000	64.400	258.800
	Y	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375	-4.375					
	Z	37.912	37.890	37.865	37.840	37.823	37.806	37.788	37.770	37.752	37.734	37.704	37.674	37.644	37.614	37.595	37.593					
G1	X	473.002	482.502	492.502	502.002	508.002	514.002	520.002	526.002	532.002	538.002	544.002	558.002	568.002	578.002	584.402	585.002	64.400	65.000	65.000	64.400	258.800
	Y	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750	-2.750					
	Z	37.890	37.868	37.833	37.808	37.791	37.774	37.756	37.738	37.720	37.702	37.672	37.642	37.612	37.582	37.563	37.561					
L3	X	473.002	482.502	492.502	502.002	508.002	514.002	520.002	526.002	532.002	538.002	544.002	558.002	568.002	578.002	584.402	585.002	64.400	65.000	65.000	64.400	258.800
	Y	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000					
	Z	37.825	37.803	37.778	37.753	37.736	37.719	37.701	37.683	37.665	37.647	37.617	37.587	37.557	37.527	37.508	37.506					
G2	X	473.002	482.502	492.502	502.002	508.002	514.002	520.002	526.002	532.002	538.002	544.002	558.002	568.002	578.002	584.402	585.002	64.400	65.000	65.000	64.400	258.800
	Y	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750	2.750					
	Z	37.770	37.748	37.723	37.698	37.681	37.664	37.646	37.628	37.610	37.592	37.562	37.532	37.502	37.472	37.453	37.451					
L4	X	473.002	482.502	492.502	502.002	508.002	514.002	520.002	526.002	532.002	538.002	544.002	558.002	568.002	578.002	584.402	585.002	64.400	65.000	65.000	64.400	258.800
	Y	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875					
	Z	37.747	37.725	37.700	37.675	37.658	37.641	37.623	37.605	37.587	37.569	37.539	37.509	37.479	37.449	37.430	37.428					
L5	X	473.002	482.502	492.502	502.002	508.002	514.002	520.002	526.002	532.002	538.002	544.002	558.002	568.002	578.002	584.402	585.002	64.400	65.000	65.000	64.400	258.800
	Y	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975	4.975					
	Z	37.725	37.703	37.678	37.653	37.636	37.619	37.601	37.583	37.565	37.547	37.517	37.487	37.457	37.427	37.408	37.406					

1 SCHEDULE OF DIMENSIONS (PIER 6 to PIER 15) - 3 of 3
SCALE AS SHOWN

 JAPAN INTERNATIONAL COOPERATION AGENCY		 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE III		SCALE : AS SHOWN FULL SIZE A1		SHEET CONTENTS : BRIDGE NO. 10 PAMPANGA RIVER BRIDGE SCHEDULE OF DIMENSIONS (PIER 6 to PIER 15) 3 of 3 (ULTIMATE STAGE)		SHEET NO. : B10G-12	
DESIGNED [Signature]	DATE 10/10/10	SIGNATURE [Signature]	DESIGNED [Signature]	DATE 10/10/10	DESIGNED [Signature]	DATE 10/10/10	DESIGNED [Signature]	DATE 10/10/10	DESIGNED [Signature]	DATE 10/10/10	DESIGNED [Signature]
YUKI KATAHIRA & ENGINEERS INTERNATIONAL YEO YACHYO ENGINEERING CO., LTD.		DAIHO C. TRAJANO Project Director		ADRIANO M. DOROY Chief, Bridge Division		GILBERTO S. REYES Director IV (CIC)		MANUEL M. BONDAN Undersecretary		SIMEON A. DATUMANONG Secretary	

SUMMARY OF QUANTITIES

PAMPANGA RIVER BRIDGE CROSSING (BRIDGE NO. 10)

ITEM NO.	DESCRIPTION	UNIT	QUANTITIES			REMARKS
			APPROACH	MAIN	TOTAL	
PART F BRIDGE CONSTRUCTION						
I SUPERSTRUCTURE						
310(2)	Asphalt Mixture Wearing Course (t=50mm) Incl. Tack Coat	m ²	4,455.00	4,826.25	9,281.25	
401(2)a	Steel Rolling Type A for (Angat, Talavera and approach of Pampanga Bridge)	m	1,080.00	-	1,080.00	
401(2)b	Steel Rolling Type B for Pampanga Main Bridge	m	-	1,170.00	1,170.00	
SPL 401(3)b	Bridge Name Plate, 1000 x 600 for Pampanga Bridge	ea.	2	-	2	
403(3)	Structural Steel, furnished and fabricated	kg.	-	1,707,861.88	1,707,861.88	
403(5)	Structural Steel, erected	kg.	-	1,707,861.88	1,707,861.88	
403(8)a	Bearing Shoe for Steel Plate Girder Type 1 (max. R=250t)	ea.	-	8	8	
403(8)b	Bearing Shoe for Steel Plate Girder Type 2 (max. R=650t)	ea.	-	8	8	
403(8)c	Bearing Shoe for Steel Plate Girder Type 3 (max. R=650t)	ea.	-	6	6	
404(1)	Reinforcing Steel (Grade 40)	kg.	308,907.64	37,003.00	345,910.64	
404(2)	Reinforcing Steel (Grade 60)	kg.	114,227.82	-	114,227.82	
405(1)f	Structural Concrete Class AA2 (f _c =28 Mpa, max. aggregate 20mm) for Long Bridge Superstructures	m ³	1,535.15	8.20	1,543.35	
405(3)	Structural Concrete Class C (f _c =21 Mpa, max. aggregate 12mm) for Thin Reinforced Members	m ³	473.04	349.25	822.29	
406(1)g	Precast Prestressed Structural Concrete Member (AASHTO Girder Type V, L=29.4m)	ea.	48	-	48	
406(1)h	Precast Prestressed Structural Concrete Member (AASHTO Girder Type V, L=29.55m)	ea.	24	-	24	
406(1)p	Precast Prestressed Structural Concrete (PC Deck slab, 280 x 2000 x 9650)	m ²	-	5,643.32	5,643.32	
407(1)b	Elastomeric Bearing Pad (600x300x50mm)	ea.	136	8	144	
407(2)b	Expansion Joint, Multiflex M100 (Elastomeric) ±50mm movement	m	20.00	-	20.00	
407(2)c	Expansion Joint, Multiflex M140 (Elastomeric) ±70mm movement	m	10.00	-	10.00	
407(2)f	Expansion Joint Multiflex M330 (Elastomeric) ±165mm movement	m	-	30.00	30.00	
407(4)	G.I Drain Pipe Ø150mm for Bridge Drainage	m	191.25	361.35	552.60	
SPL 310(3)	Waterproofing Layer for Pampanga Deck Slab	m ²	-	4,826.25	4,826.25	
SPL 407(3)a	Restraining Bar Ø32mm x 1485mm	ea.	12	-	12	
SPL 407(3)b	Restraining Bar Ø32mm x 1900mm	ea.	6	-	6	
SPL 407(3)c	Restraining Cable Ø65mm x 4121mm (PC 7- Ø15)	set	-	8	8	
SPL 407(3)d	Restraining Cable Ø65mm x 4224mm (PC 7- Ø15)	set	-	4	4	
II SUBSTRUCTURE						
103(2)a	Bridge Excavation above OWL (Common Soil)	m ³	3,864.42	1,658.29	5,522.71	
103(2)c	Bridge Excavation below OWL (Common Soil)	m ³	2,334.40	7,511.58	9,845.98	
104(4)	Embankment from Borrow (Selected Granular Material) for Bridge	m ³	597.34	-	597.34	
200(1)	Aggregate Subbase Course	m ³	25.76	-	25.76	
400(15)a	Cast-in-place Concrete Bored Piles Ø 1000mm	m	320.00	-	320.00	
400(15)b	Cast-in-place Concrete Bored Piles Ø 1200mm	m	1,826.00	-	1,826.00	
400(15)c	Cast-in-place Concrete Bored Piles Ø 1500mm	m	-	1,512.00	1,512.00	
400(21)	Static Pile Load Test for Ø1500mm Bored Piles	ea.	-	2	2	
404(1)	Reinforcing Steel (Grade 40)	kg.	37,907.77	12,890.48	50,798.25	
404(2)	Reinforcing Steel (Grade 60)	kg.	596,072.81	667,774.14	1,263,846.95	
405(1)e	Structural Concrete Class AA1 (f _c =28 Mpa, max. aggregate 20mm) for Long Bridge Substructures	m ³	2,899.21	3,741.56	6,640.77	
405(6)	Lean Concrete (f _c =17 Mpa max. aggregate 38mm)	m ³	98.56	106.47	205.03	
SPL 311(2)	PCC Pavement (Reinforced) t=300mm Approach Slab	m ²	91.04	-	91.04	
SPL 400(23)a	High Strain Dynamic Pile Test for Ø1000mm Bored Piles	ea.	1	-	1	
SPL 400(23)b	High Strain Dynamic Pile Test for Ø1200mm Bored Piles	ea.	2	-	2	
SPL 400(24)	Pile Integrity Test for Bored Piles of Various Diameter	ea.	66	-	66	
SPL 900(3)	Provisional Sum for Geotechnical Investigation	i.s.	-	-	1	
III REVETMENT (RIVERBANK PROTECTION)						
101(7)	Removal of Existing Slope Protection	m ²	97.27	-	97.27	
101(8)	Removal of Existing Slope Protection (Hand-Laid Rock)	m ²	42.65	-	42.65	
101(9)	Removal of Existing Gabion	m ²	189.00	-	189.00	
103(1)	Structure Excavation	m ²	787.50	-	787.50	
104(3)	Embankment from borrow pit	m ²	508.62	-	508.62	
405(1)a	Structural Concrete Class A (f _c =21 Mpa, max. aggregate 38mm) for Heavily Reinf. Structures	m ³	42.88	-	42.88	
405(2)	Structural Concrete Class B (f _c =17 Mpa, max. aggregate 50mm) for Plain or Lightly Reinf. Structures	m ³	12.00	-	12.00	
504(5)	Grouted Riprap Class A	m ²	14.16	-	14.16	
506(1)	Hand Laid Rock Apron (Loose Boulder Apron)	m ²	30.15	-	30.15	
507(2)b	Steel Sheet Piles (400mmx85mm), furnish & driven	m	1,286.00	-	1,286.00	
509(1)	Gabions, (2.0 x 1.0 x 0.50)	m ³	301.50	-	301.50	
510(1)	Rubble Concrete Slope Protection	m ²	171.63	-	171.63	
SPL 407(5)b	Pier Protection Concrete Blocks for Pampanga Bridge	m ²	-	840.00	840.00	
IV TEMPORARY WORKS						
SPL 420(2)	Realignment of River/Stream	i.s.	1	-	1	
SPL 420(4)b	Temporary Craneway for Pampanga Bridge Construction	m	-	320.00	320.00	
SPL 420(5)b	Temporary Access Road (Causeway) for Pampanga Bridge Construction	m	880.00	-	880.00	
SPL 420(6)c	Temporary Cofferdam for Pier Construction (Pampanga Bridge)	ea.	-	5	5	
V ELECTRICAL WORKS						
SPL 620(4)c	Bridge Lighting Poles (Single Lamp)	ea.	18	19	37	
SPL 620(4)d	Street Lighting Service Pole with Panel	ea.	-	-	2	