

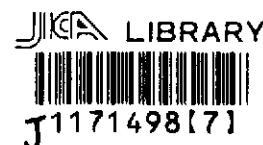
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
REPUBLIC OF THE PHILIPPINES**

**THE DETAILED DESIGN STUDY
ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(PLARIDEL, CABANATUAN AND SAN JOSE BYPASSES)**

FINAL REPORT

**CABANATUAN BYPASS - CONTRACT PACKAGE II
(ULTIMATE STAGE)
STA. 109+920.000 TO STA. 119+000.000**



December 2002

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

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GENERAL

INDEX OF DRAWINGS

THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY

CABANATUAN BYPASS - PACKAGE II




(ULTIMATE STAGE)

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	GENERAL				
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		RM-14	LAYOUT PLAN, STA. 115 + 600.000 TO STA. 117 + 000.000	DC-09	DRAINAGE CROSS-SECTION, STA. 115 + 640.000 TO STA. 116 + 050.000
				DC-10	DRAINAGE CROSS-SECTION, STA. 116 + 340.000 TO STA. 116 + 955.000

 JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIO ENGINEERING CO., LTD.	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)	SCALE : FULL SIZE A1	SHEET CONTENTS : INDEX OF DRAWINGS (ULTIMATE STAGE) Sheet 1 of 3	SHEET NO. : GC-01	
	DESIGNED							PJHL - PMO
	CHECKED							BUREAU OF DESIGN
	SUBMITTED							OFFICE OF THE SECRETARY
			Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:	
			DANILLO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OC, Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary	






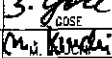


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CABANATUAN BYPASS - PACKAGE II
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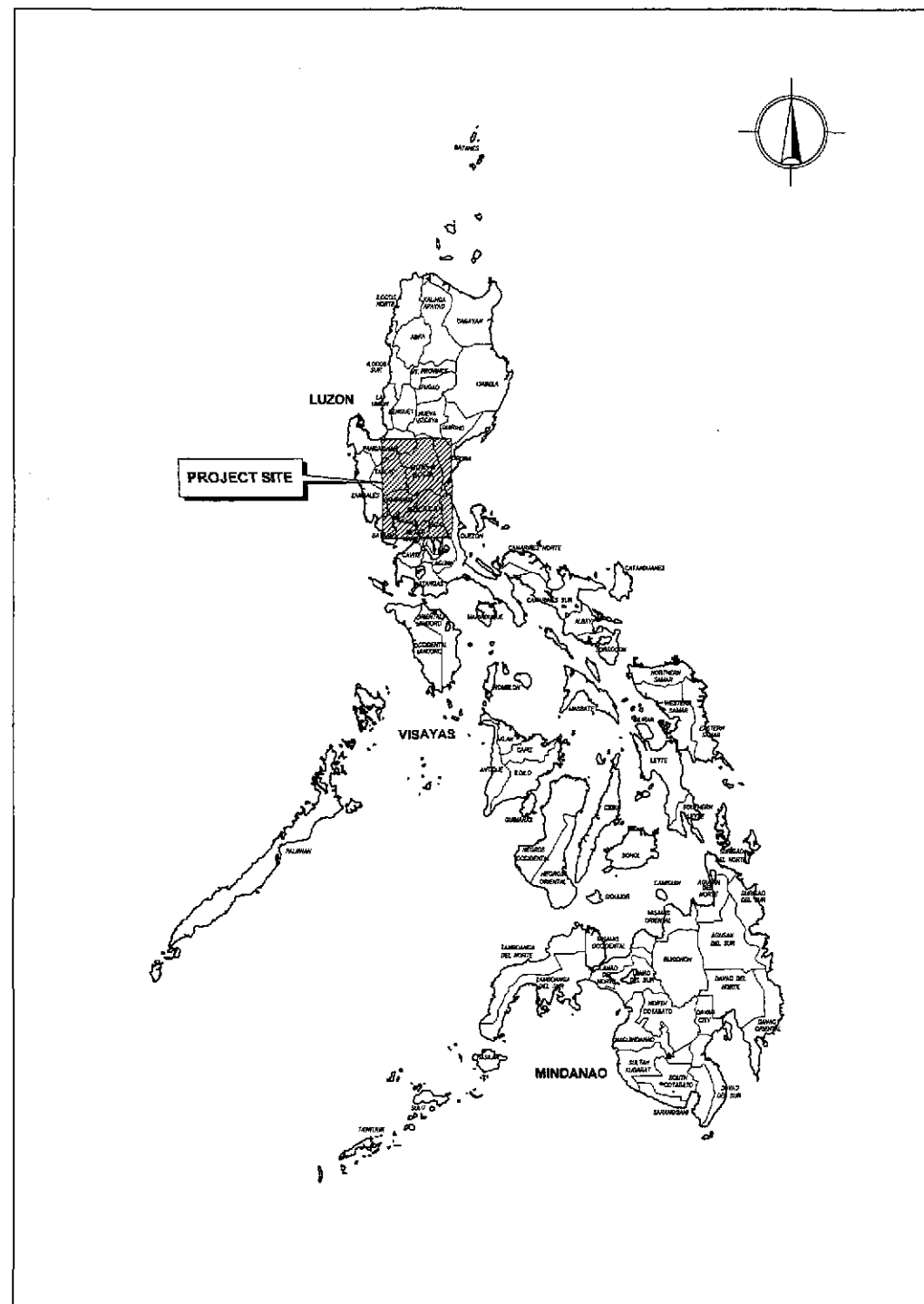
SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING
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 JAPAN INTERNATIONAL COOPERATION AGENCY	DESIGNED	DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :				SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/16/17	A. ADACIO		THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)				FULL SIZE A1	INDEX OF DRAWINGS (ULTIMATE STAGE) Sheet 2 of 3	GC-02
	SUBMITTED	10/18/17	M. KUNDI		CABANATUAN BYPASS - CONTRACT PACKAGE II						
 KATAHIRA & ENGINEERS INTERNATIONAL	Submitted By:		DANILO C. TRAJANO Project Director	Reviewed By:		JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary		
	YEC		YACHIYO ENGINEERING CO., LTD.								

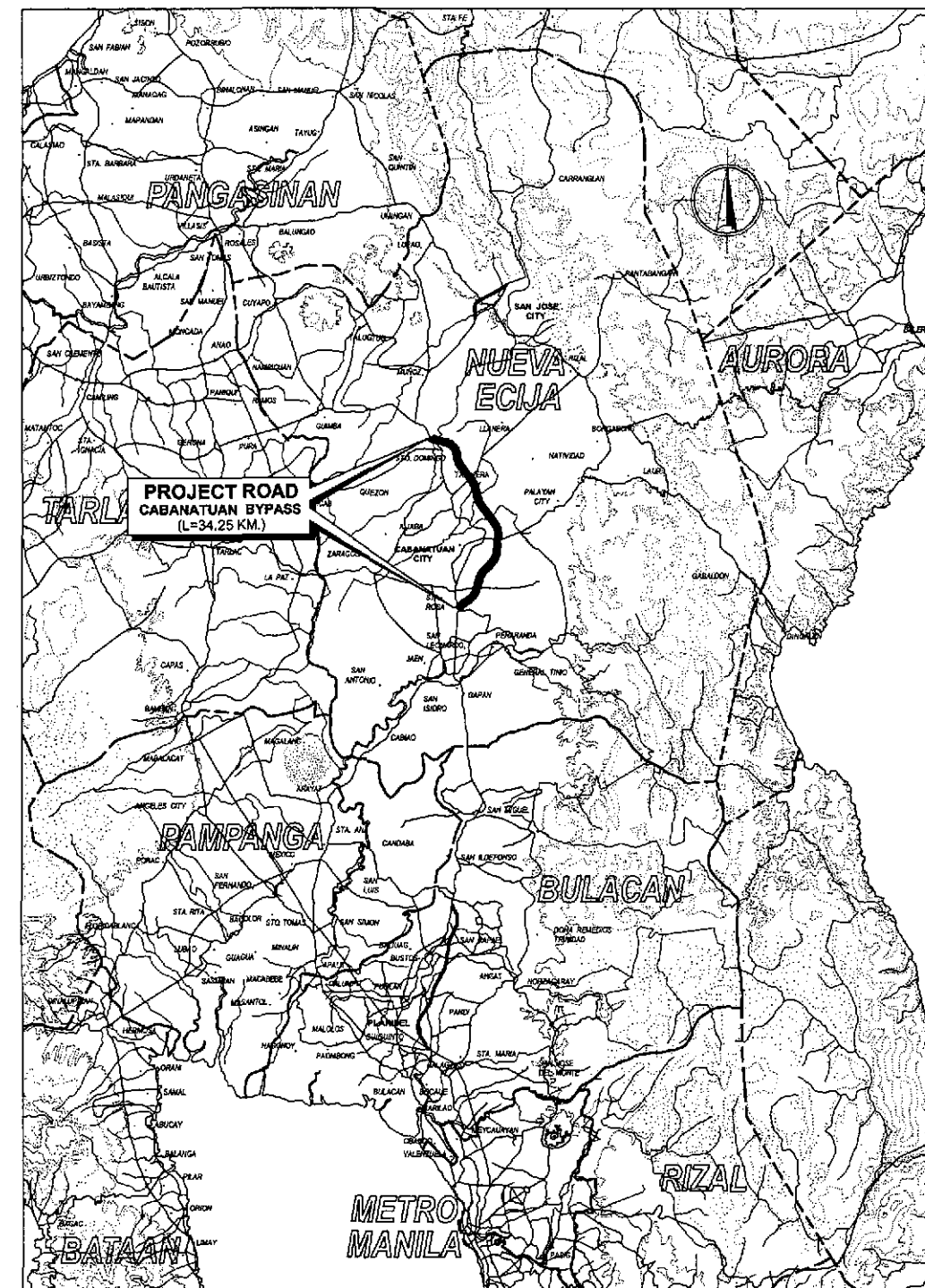
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CABANATUAN BYPASS - PACKAGE II
(ULTIMATE STAGE)

SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING
B6-20	BRIDGE NO. 6 (LEFT FRONTAGE) DECK FRAMING PLAN AND SECTIONS (SAME AS B6-11)	B8-14	AASHTO TYPE IV-B GIRDER	EI-01	ROADWAY LIGHTING LAYOUT FOR INTERSECTION LAYOUT PLAN AND LOAD SCHEDULE, INTERSECTION A-14 (STA 111+100.000)
B6-21	AASHTO TYPE IV-B GIRDER (SAME AS B6-12)	B8-15	CONCRETE POURING SEQUENCE AND DIAPHRAGM DETAILS	EI-02	LAYOUT PLAN AND LOAD SCHEDULE, INTERSECTION A-15 (STA 111+961.357)
B6-22	CONCRETE POURING SEQUENCE AND DIAPHRAGM DETAILS (SAME AS B6-13)	B8-16	ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS	EI-03	LAYOUT PLAN AND LOAD SCHEDULE, INTERSECTION A-18 (STA 115+980.256)
B6-23	ABUTMENT A1 & A2 MAINWALL REINFORCEMENT DETAILS	B8-17	ABUTMENT A1 WINGWALL REINFORCEMENT DETAILS	EI-04	LAYOUT PLAN AND LOAD SCHEDULE, INTERSECTION A-19 (STA 118+010.000)
B6-24	ABUTMENT A1 & A2 WINGWALL REINFORCEMENT DETAILS	B8-18	ABUTMENT A2 MAINWALL REINFORCEMENT DETAILS		LIGHTING FIXTURE SCHEDULE FOR BOX CULVERT
B6-25	APPROACH SLAB PLAN, SECTIONS AND DETAILS (SAME AS B6-18)	B8-19	ABUTMENT A2 WINGWALL REINFORCEMENT DETAILS	EI-05	UNDERPASS B-7 AND B-8
B6-26	SHEAR KEY & RISER DETAILS AT ABUTMENT (SAME AS B6-19)	B8-20	APPROACH SLAB PLAN, SECTIONS AND DETAILS	EI-06	UNDERPASS B-9 AND B-10
	BRIDGE NO. 7 (STA 115+790.758 TO STA 115+823.418)	B8-21	SHEAR KEY & RISER DETAILS AT ABUTMENT		ENGINEER'S FIELD OFFICE & LIVING QUARTERS
B7-01	GENERAL PLAN		BRIDGE NO. 8 (LEFT FRONTAGE)		ARCHITECTURAL
B7-02	GENERAL ELEVATION AND SECTIONS	B8-22	DECK FRAMING PLAN AND SECTIONS (SAME AS B8-13)	FA-01	PERSPECTIVE AND TABLE OF CONTENTS
B7-03	DECK FRAMING PLAN AND SECTIONS	B8-23	AASHTO TYPE IV GIRDER (SAME AS B8-14)	FA-02	ENGR'S FIELD OFFICE - FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN
B7-04	EDGE REINF. FOR FLAT SLAB ON COLUMN BENT BRIDGE	B8-24	CONCRETE POURING SEQUENCE AND DIAPHRAGM DETAILS (SAME AS B8-15)	FA-03	ENGR'S LIVING QTRS - FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN
B7-05	ABUTMENT A1 & A2 MAINWALL REINFORCEMENT DETAILS	B8-25	ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS	FA-04	ENGR'S FIELD OFFICE / LABORATORY - ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS
B7-06	ABUTMENT A1 & A2 WINGWALL REINFORCEMENT DETAILS	B8-26	ABUTMENT A1 WINGWALL REINFORCEMENT DETAILS	FA-05	ENGR'S LIVING QUARTERS - ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS
B7-07	APPROACH SLAB PLAN, SECTIONS AND DETAILS	B8-27	ABUTMENT A2 MAINWALL REINFORCEMENT DETAILS	FA-06	ENGR'S FIELD OFFICE & LIVING QUARTERS - FOUNDATION PLAN, R.C. RAMP DETAIL, DETAIL OF F-1, P-1, WF1 & DESIGN CRITERIA
B7-08	BEARING PAD, EXP. JOINT, BEARING SLEEVE & ANCHOR BAR	B8-28	ABUTMENT A2 WINGWALL REINFORCEMENT DETAILS	FA-07	ENGR'S FIELD OFFICE / LABORATORY - FRONT & RIGHT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS
B7-09	PIER 1 AND P2 BAR ARRANGEMENT DETAILS	B8-29	APPROACH SLAB PLAN, SECTIONS AND DETAILS (SAME AS B8-20)	FA-08	ENGR'S LIVING QTRS - REAR & LEFT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS
B7-10	ABUTMENT PROTECTION AND SIDE DRAIN DETAILS	B8-30	SHEAR KEY & RISER DETAILS AT ABUTMENT (SAME AS B8-21)	FA-09	ENGR'S FIELD OFFICE - FRONT & RIGHT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS
	BRIDGE NO. 7 (RIGHT FRONTAGE)		BRIDGE NO. 9 (STA 119+534.178 TO STA 119+534.178)	FA-10	ENGR'S LIVING QTRS - REAR & LEFT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS
B7-11	DECK FRAMING PLAN AND SECTIONS	B9-01	GEN. PLAN, ELEVATION AND SECTIONS	FA-11	ENGR'S FIELD OFFICE & LIVING QUARTERS - DETAILS OF CONNECTIONS, DETAILS 1 TO 15
B7-12	EDGE REINF. FOR FLAT SLAB ON COLUMN BENT BRIDGE	B9-02	DECK FRAMING PLAN AND SECTIONS	FA-12	ROOF FRAMING PLAN, SCHEMATIC DIAGRAM, PURLIN CONNECTION AND CROSS BRACING CONNECTION
B7-13	ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS	B9-03	AASHTO TYPE IV GIRDER (EXTERIOR SPAN)		ELECTRICAL
B7-14	ABUTMENT A1 WINGWALL REINFORCEMENT DETAILS	B9-04	AASHTO TYPE IV-B GIRDER (INTERIOR SPAN)	FE-01	ENGR'S FIELD OFFICE / LABORATORY - LIGHTING LAYOUT, POWER LAYOUT & ELECTRICAL SYMBOLS AND GENERAL NOTES
B7-15	APPROACH SLAB PLAN, SECTIONS AND DETAILS	B9-05	CONC. POURING SEQUENCE AND DIAPHRAGM DETAILS	FE-02	ENGR'S LIVING QTRS - LIGHTING LAYOUT, POWER LAYOUT & ELECTRICAL SYMBOLS AND GENERAL NOTES
B7-16	BEARING PAD, JOINT, BEARING SLEEVE AND ANCHOR BAR	B9-06	ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS	FE-03	ENGR'S FIELD OFFICE & LIVING QUARTERS - SCHEDULE OF LOADS AND COMPUTATIONS & ELECTRICAL RISER DIAGRAM
B7-17	PIER 1 AND P2 BAR ARRANGEMENT DETAILS	B9-07	ABUTMENT A1 WINGWALL REINFORCEMENT DETAILS		PLUMBING
	BRIDGE NO. 7 (LEFT FRONTAGE)	B9-08	ABUTMENT A2 MAINWALL REINFORCEMENT DETAILS	FP-01	ENGR'S FIELD OFFICE & LIVING QUARTERS - SEWER AND WATER LINE LAYOUT AND ISOMETRIC DIAGRAM
B7-18	DECK FRAMING PLAN AND SECTIONS (SAME AS B7-11)	B9-09	ABUTMENT A2 WINGWALL REINFORCEMENT DETAILS	FP-02	ENGR'S FIELD OFFICE & LIVING QUARTERS - SEPTIC TANK DETAILS
B7-19	EDGE REINF. FOR FLAT SLAB ON COLUMN BENT BRIDGE (SAME AS B7-12)	B9-10	APPROACH SLAB PLAN, SECTIONS AND DETAILS		EXTERNAL
B7-20	ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS	B9-11	ABUTMENT SHEAR KEY & RISER DETAILS	FX-01	ENGR'S FIELD OFFICE & LIVING QUARTERS - PLOT PLAN, ELEVATION OF FENCE & GATE AND TYPICAL FOUNDATION DETAIL
B7-21	ABUTMENT A1 WINGWALL REINFORCEMENT DETAILS	B9-12	PIER P1 AND P2 BAR ARRANGEMENT		
B7-22	APPROACH SLAB PLAN, SECTIONS AND DETAILS (SAME AS B7-15)	B9-13	PIER SHEAR KEY AND RISER DETAILS		
B7-23	BEARING PAD, JOINT, BEARING SLEEVE AND ANCHOR BAR (SAME AS B7-16)	B9-14	ABUTMENT PROTECTION AND SIDE DRAIN DETAILS		
B7-24	PIER 1 AND P2 BAR ARRANGEMENT DETAILS (SAME AS B7-17)		STANDARD DRAWINGS		
	BRIDGE NO. 8 (STA 115+448.026 TO STA 115+448.026)	BS-01	TYP. BEARING PAD AND EXPANSION JOINT		
B8-01	GENERAL PLAN	BS-01a	TYP. BEARING SLEEVE AND ANCHOR BAR		
B8-02	GENERAL ELEVATION AND SECTIONS	BS-02	TYPICAL SIDEWALK, RAILING AND DRAIN DETAILS		
B8-03	DECK FRAMING PLAN AND SECTIONS	BS-02a	SCHEDULE OF REINFORCEMENT (POST, RAILING AND SIDEWALK)		
B8-04	AASHTO TYPE IV-B GIRDER	BS-03	TYPICAL REINFORCED CONCRETE PILE DETAILS		
B8-05	CONC. POURING SEQUENCE AND DIAPHRAGM DETAILS	BS-04	TYP. BEARING PAD AND EXPANSION JOINT (LEFT AND RIGHT FRONTAGE)		
B8-06	ABUTMENT A1 MAINWALL REINFORCEMENT DETAILS	BS-04a	TYP. BEARING SLEEVE AND ANCHOR BOLT (LEFT AND RIGHT FRONTAGE)		
B8-07	ABUTMENT A1 WINGWALL REINFORCEMENT DETAILS	BS-05	TYPICAL SIDEWALK AND RAILING DETAILS (LEFT AND RIGHT FRONTAGE)		
B8-08	ABUTMENT A2 MAINWALL REINFORCEMENT DETAILS	BS-05a	TYP. DRAIN DET. AND SCHEDULE OF REINF. (LEFT AND RIGHT FRONTAGE)		
B8-09	ABUTMENT A2 WINGWALL REINFORCEMENT DETAILS	BS-06	TYP. REINFORCED CONC. PILE DET. (LEFT AND RIGHT FRONTAGE)		
B8-10	APPROACH SLAB PLAN, SECTIONS AND DETAILS		ELECTRICAL		
B8-11	ABUTMENT SHEAR KEY & RISER DETAILS		ELECTRICAL STANDARD DRAWINGS AND DETAILS		
B8-12	ABUTMENT PROTECTION AND SIDE DRAIN DETAILS	ES-01	NOTES & LEGENDS, SCHEMATIC CONTROL DIAG. & DUCT SECTION		
	BRIDGE NO. 8 (RIGHT FRONTAGE)	ES-02	STREET LIGHT POLE DETAILS		
B8-13	DECK FRAMING PLAN AND SECTIONS				

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	CHECKED	10/14/02			BUREAU OF DESIGN				CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1	INDEX OF DRAWINGS (ULTIMATE STAGE) Sheet 3 of 3	GC-03
	SUBMITTED		10/16/02			OFFICE OF THE SECRETARY						
	SUBMITTED		10/16/02			OFFICE OF THE SECRETARY						
Submitted By:		DANLO C. TRAJANO Project Director		Reviewed By:	JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By:	GILBERTO S. REYES D/C, Director IV	Approved By:	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONGS Secretary		



1 KEY MAP
GC-04 NOT TO SCALE



2 VICINITY MAP
GC-04 NOT TO SCALE

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KEI KATAHIRA & ENGINEERS INTERNATIONAL	yec YACHIYO ENGINEERING CO., LTD.	DESIGNED 10/09/02 A. ACACIO	CHECKED 10/10/02 S. GOSE	SUBMITTED 10/18/02 M. KIRCH	PUHL - PMO Submitted By:	BUREAU OF DESIGN Reviewed By:	OFFICE OF THE SECRETARY Recommended By:	OFFICE OF THE SECRETARY Approved By:
		DANILLO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary		
				CABANATUAN BYPASS - CONTRACT PACKAGE II		FULL SIZE A1		





LEGEND AND SYMBOLS

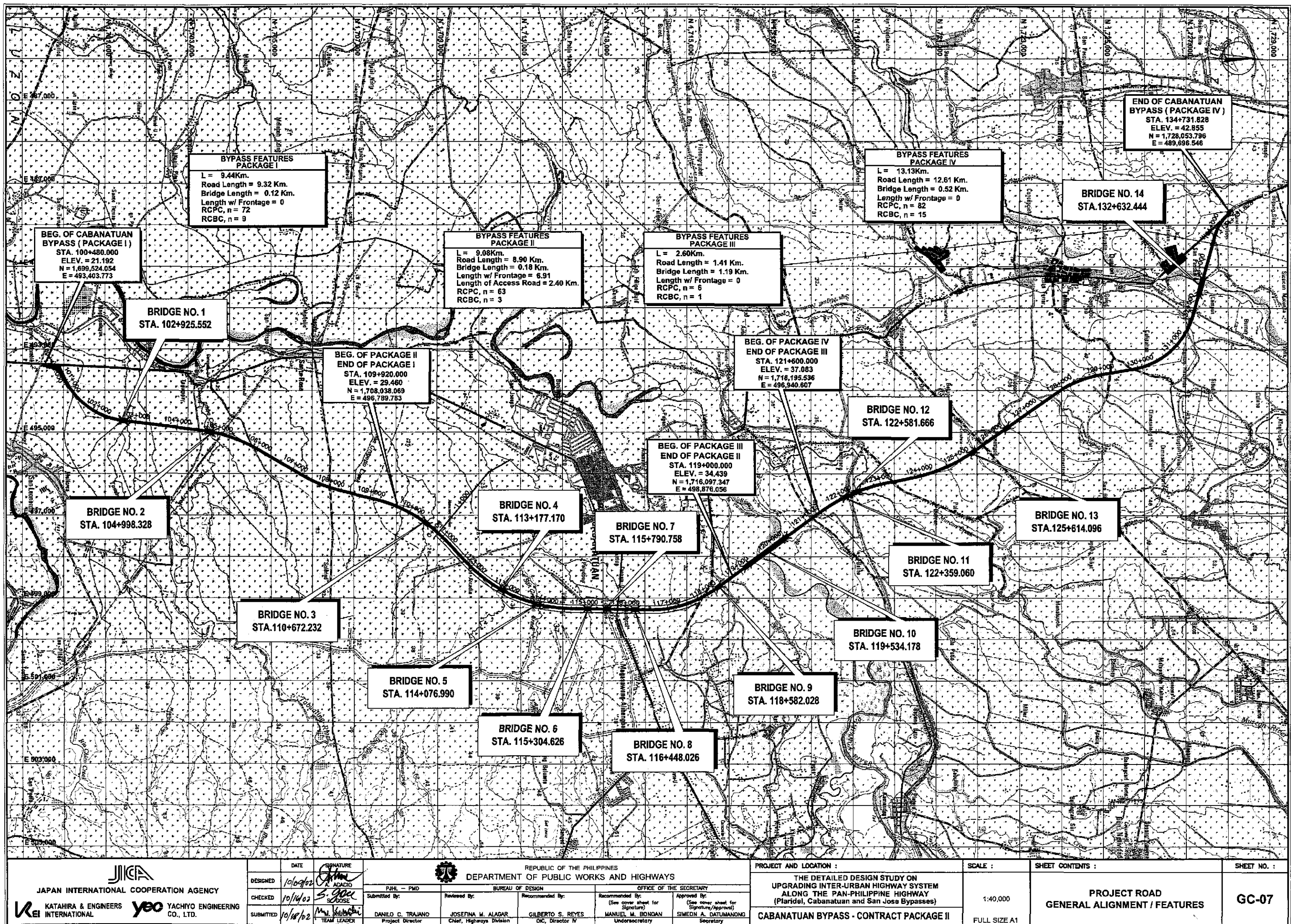
EXISTING FEATURES	
ROAD	
CONTOUR	
ORIGINAL GROUND	
CONCRETE FENCE	
BARBED WIRE FENCE	
HOUSE	
TREES	
BRIDGE	
SINGLE PIPE CULVERT	
DOUBLE PIPE CULVERT	
BOX CULVERT	
DITCH LINE/ IRRIGATION LINE	
IRRIGATION LINE	
RIVER/CREEK	
ELECTRIC POST	
KILOMETER POST	
TRAVERSE STATION POINT	
BENCHMARK	
FISH POND	
NATIONAL POWER CORP. TRANSMISSION LINE	

NEW DESIGN FEATURES	
PROJECT ROAD	
SERVICE OR FRONTAGE ROAD ALONG BYPASS	
CONTOUR	
RIGHT-OF-WAY LIMIT	
POINT OF INTERSECTION	
POINT OF INTERSECTION NO.	
℄ OF PROJECT ROAD	
FINISHED GRADE ON PROFILE	
BRIDGE	
SINGLE RC PIPE CULVERT	
DOUBLE RC PIPE CULVERT	
BOX CULVERT	
EARTH DITCH FLOW	
DIRECTION OF FLOW	
MANHOLE	
GUARDRAIL ON PLAN	
GUARDRAIL ON PROFILE	
GROUTED RIPRAP ON SLOPE	
EMBANKMENT	
EXCAVATION	
SECTION IN WATER	
SECTION IN EARTH	
SECTION IN CONCRETE	
SECTION IN GRAVEL	
SECTION IN STRUCTURAL STEEL	
SOFT BED MATERIALS TO BE EXCAVATED	
STONE MASONRY RETAINING WALL / REVETMENT / REINF. CONCRETE RETAINING WALL	
NORTH SIGN	
GRID COORDINATES	
AGGREGATE SOURCE	
LINE SYMMETRY	
SECTION TARGET	
ELEVATION TARGET	
TITLE TARGET	
SUB-TITLE TARGET	
DETAIL REF TARGET	
BOREHOLE	
STREET LIGHTING POLE	
KILOMETER POST	
STATION GRID	
LINED IRRIG. CANAL	
CHAIN LINK FENCE	
SODDING ON PLAN	
LOW TREES	
MIDDLE TREE	
HIGH TREE	

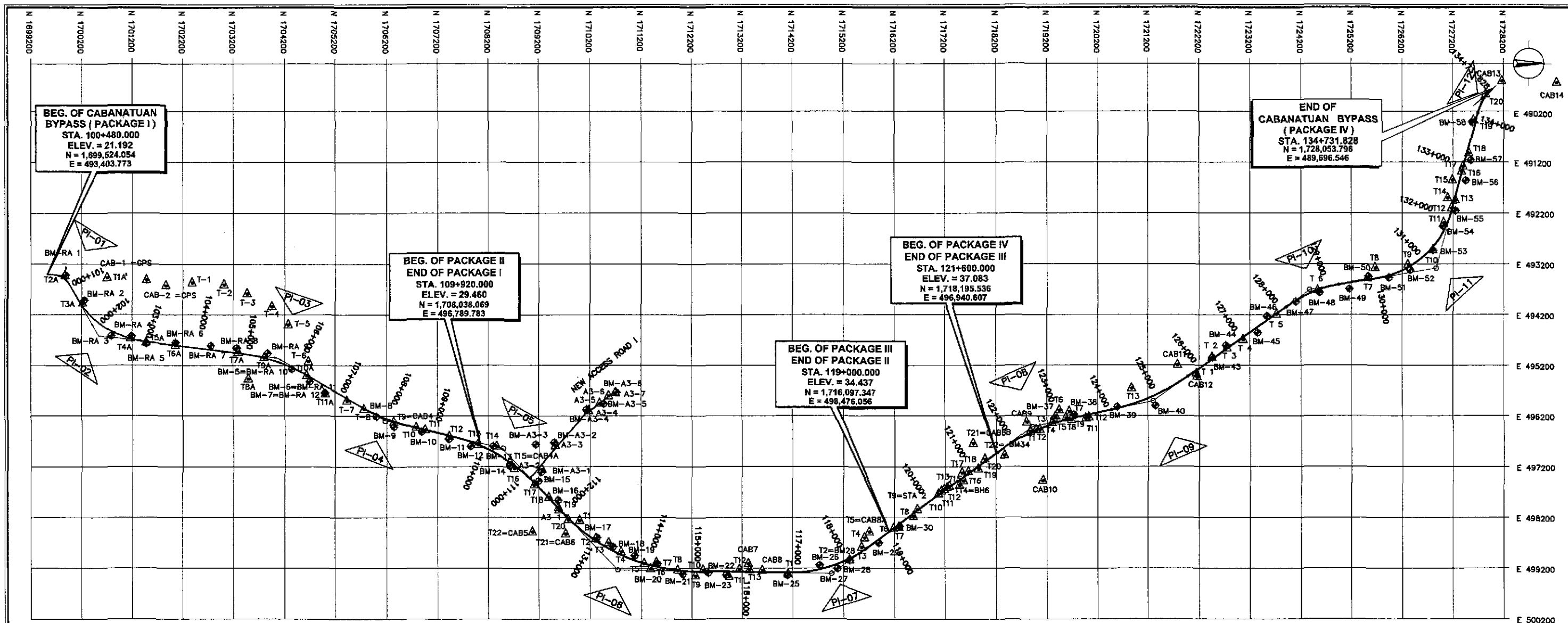
ABBREVIATIONS

A	PARAMETER (CLOTHOID)	DIST.	DISTANCE	Lo	SUPERELEVATION RUN-OFF	NIC	NOT INCLUDED IN CONTRACT
ABAN	ABANDON	DIV.	DIVISION	LG	LONG	MPa	MEGA PASCAL
ABT	ABOUT	DRWG./DWG.	DRAWING	LLV	LONG LEG VERTICAL	MC	MANHOLE COVER
ABUT	ABUTMENT	DWY.	DRIVEWAY	LM	LINEAR METER	RP	REFERENCE POINT
AC	ASPHALT CONCRETE	e%	DESIGN SUPERELEVATION	LONGIT.	LONGITUDINAL	RSP	ROCK SLOPE PROTECTION
AGG	AGGREGATE	E	EASTING	LP	LIGHT POLE	RT.	RIGHT
AH	AHEAD	EA	EACH	LS	LUMP SUM ; LEFT SIDE	S	SOUTH
APP	APPROACH	ECC/CS/PF	END OF CIRCULAR CURVE	LT	LEFT	SECT.	SECTION
ASPH	ASPHALT	E	EXTERNAL DISTANCE	m	METER	SDWK.	SIDEWALK
ASTM	AMERICAN STANDARD FOR TESTING & MATERIALS	EF	EACH FACE	mm	MILLIMETER	SHT.	SHEET
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS	EG	EDGE OF GUTTER	MAX	MAXIMUM	SL	SLOPE
AVE	AVENUE	ELEV./EL	ELEVATION	MFL	MAXIMUM FLOOD LEVEL	SQ.M./m ²	SQUARE METER
AZIM.	AZIMUTH	EMB.	EMBANKMENT	MFWL	MAXIMUM FLOOD WATER LEVEL	SMH	SEWER MANHOLE
BCC/SC/PC	BEGINNING OF CIRCULAR CURVE	ENGR.	ENGINEER	MH	MANHOLE	SP	SPIRAL
BDRY LN	BOUNDARY LINE	EP	EDGE OF PAVEMENT	MIN.	MINIMUM	SPCD.	SPACED
BEG.	BEGINNING	EQ	EQUAL ; EQUATION	MISC.	MISCELLANEOUS	SPCS.	SPACES
BET.	BETWEEN	EQN.	EQUATION	MO	MIDDLE ORDINATE	SPL	SPECIAL
BGY./BRGY.	BARANGAY	ESMT	EASEMENT	MPa	MEGA PASCAL	SPECS.	SPECIFICATIONS
BH	BOREHOLE	ETC/ST	END OF TRANSITION CURVE	MSL	MEAN SEA LEVEL	SQ.	SQUARE
BK	BACK	EW	EACH WAY	MT	METRIC TON	ST.	STREET
BLDG.	BUILDING	EXC.	EXCAVATION	DPWH	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	STA.	STATION
BLVD.	BOULEVARD	EXIST./EXTG.	EXISTING	MWSS	METROPOLITAN WATERWORKS & SEWERAGE SYSTEM	STD.	STANDARD
BM	BENCH MARK	EXP.	EXPANSION BEARING	N	NORTH / NEWTON	STIFF.	STIFFENERS
BMSL	BELOW MEAN SEA LEVEL	EXT.	EXTERIOR	N/A	NOT APPLICABLE	STIRR./STIR	STIRRUP(S)
BOT./BOTT	BOTTOM	EXTN.	EXTENSION	NC	NORMAL CROWN	STR.	STRAIGHT
BR.	BRIDGE	FF	FAR FILL/FAR FACE	NF	NEAR FACE	STRUC./STRUCT	STRUCTURAL
BRG	BEARING	FG	FINISHED GRADE	NO./No.	NUMBER	SURVY.	SURVEY
BS	BACK STATION ; BOTH SIDES	FIN.	FINISHED	OC/O.C.	ON CENTER	SYMM.	SYMMETRY
BST	BITUMINOUS SURFACE TREATMENT	FPL	FINISHED PAYEMENT LEVEL	OD	OUTSIDE DIAMETER	T	TANGENT
BTC/TS	BEGINING OF TRANSITION CURVE	FTG.	FOOTING	OGL	ORIGINAL GROUND LEVEL	TBM	TEMPORARY BENCHMARK
BW	BOTHWAYS	FH	FIRE HYDRANT	OUT INV.	OUTLET INVERT	TEMP.	TEMPORARY
C	CURVE	FWL	FLOOD WATER LEVEL	OWL	ORDINARY WATER LEVEL	THK.	THICK
CAB	CRUSHED AGGREGATE BASE	g	GRADIENT IN PERCENT	PCC	PORTLAND CEMENT CONCRETE	Tk	SHORT TANGENT OF SPIRAL
CALC.	CALCULATED	GALV.	GALVANIZED	PEJ	PREMOULDED EXPANSION JOINT	TL	LONG TANGENT OF SPIRAL
CB	CATCH BASIN	GEN.	GENERAL	PHIL.	PHILIPPINE(S)	TRANS.	TRANSVERSE
c / c	CENTER TO CENTER	GIP	GALVANIZED IRON PIPE	PI	POINT OF INTERSECTION	Ts	TOTAL TANGENT DISTANCE
CEM	CEMENT	GPS	GLOBAL POSITIONING SYSTEM	PUHL	PHILIPPINE-JAPAN HIGHWAY LOAN	TYP.	TYPICAL OR TYPE
CEP	CONCRETE ELECTRIC POST	GL	GROUND LEVEL	PL	PROPERTY LINE/ PLATE	V	DESIGN SPEED
cm.	CENTIMETER	GRD.	GRADE	PLDT	PHILIPPINE LONG DISTANCE TELEPHONE COMPANY	VAR.	VARIABLE/VARIES
Cu M/m ³	CUBIC METER	HDWL	HEADWALL	PMO	PROJECT MANAGEMENT OFFICE	VC	VERTICAL CURVE
CHB	CONCRETE HOLLOW BLOCK	HFL	HIGH FLOOD LEVEL	POC	POINT ON CURVE	VER.	VERIFIED
CIM	CURB INLET MANHOLE	MOR.	HORIZONTAL	POT	POINT OF TANGENT	VERT.	VERTICAL
CI	CURB INLET	HSE	HOUSE	PP	POWER POLE	VOL	VOLUME
CL	CENTERLINE	HT.	HEIGHT	PR	PROJECT ROAD	W	WIDENING
CLR	CLEAR	HTL	HIGH TIDE LEVEL	PRC	POINT OF REVERSE CURVE	w	WIDTH
COL(S)	COLUMN(S)	HWL/HW	HIGH WATER LEVEL/HIGH WATER	PROJ.	PROJECT	W/	WITH
COMB. CONC.	COMBINE CONCRETE	HWY.	HIGHWAY	PROP.	PROPOSED	W/o	WITHOUT
CONC.	CONCRETE	I	INTERSECTION ANGLE	PVC	POLYVINYL CHLORIDE	WEP	WOODEN ELECTRIC POST
CONC. MON.	CONCRETE MONUMENT	ID	INSIDE DIAMETER	PVI	POINT OF VERTICAL INTERSECTION	WK	WALK
CONST.	CONSTRUCTION	IN.	INCHES	PVMT.	PAVEMENT	WT	WATER TANK
CONST. JT.	CONSTRUCTION JOINT	INC.	INCORPORATED	QTY	QUANTITY	X,Y	COORDINATE OF BCC AND ECC WITH RESPECT TO TANGENT
CONT.	CONTINUOUS	IN. INV.	INLET INVERT	R	RADIUS	&	AND
CORP.	CORPORATION	INT.	INTERIOR	RC	REINFORCED CONCRETE	⊙	AT
CP	CROSS PIPE	INTERM.	INTERMEDIATE	RCBC	REINFORCED CONCRETE BOX CULVER	⊔	BASELINE
C & G	CURB AND GUTTER	IRRIG.	IRRIGATION	RCBG	REINFORCED CONCRETE BOX GIRDER	⌒	CENTERLINE
CULV.	CULVERT	JT.	JOINT	RCDG	REINFORCED CONCRETE DECK GIRDER	∞	INFINITY
C/WAY	CARRIAGEWAY	kg.	KILOGRAM	RCPC	REINFORCED CONCRETE PIPE CULVERT	%	PERCENT
CYL	CYLINDRICAL	KN	KILO NEWTON	RD	ROAD	+/-	PLUS / MINUS
CTR	CENTER	KPa	KILO PASCAL	RDWY.	ROADWAY	∅	DIAMETER
DEPT.	DEPARTMENT	FIX	FIX BEARING	REINF.	REINFORCED	⊘	SQUARE
DET.	DETAIL	KM	KILOMETER	REP	RELOCATED ELECTRIC POST	CP	CONTROL POINT
DIA./DIAM	DIAMETER	KPH	KILOMETER PER HOUR	RET. WALL	RETAINING WALL	L	ANGLE SHAPE
DIAPH.	DIAPHRAGM	L	LENGTH	ROW	RIGHT-OF-WAY		
		Lo	LENGTH OF CIRCULAR ARC	RS	RIGHT SIDE		

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DATE	SIGNATURE											
DESIGNED	10/09/02											
CHECKED	10/14/02	5. GOSCE										
SUBMITTED	10/18/02											
		TEAM LEADER										
		DANILLO C. TRAJANO Project Director		JOSEFINA M. ALAGAR Chief, Highway Division		GILBERTO S. REYES OIC, Director IV		MANUEL M. BONCAN Undersecretary		Approved By: (See cover sheet for Signatures/Approvals) SIMEON A. DATUMANONG Secretary		



 JAPAN INTERNATIONAL COOPERATION AGENCY		 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		SCALE : 1:40,000 FULL SIZE A1	SHEET CONTENTS : PROJECT ROAD GENERAL ALIGNMENT / FEATURES	SHEET NO. : GC-07
DESIGNED 10/09/02 S. ACACIO	CHECKED 10/14/02 S. ACACIO	SUBMITTED 10/18/02 M. K. L.	PJHL - PMD Submitted By: DANILLO C. TRAJANO Project Director	BUREAU OF DESIGN Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES OIC, Director IV	Approved By: (See cover sheet for Signature/Approval) MANUEL M. BONJAN Undersecretary	Approved By: (See cover sheet for Signature/Approval) SIMEON A. DATUMANONG Secretary	
 KATAHIRA & ENGINEERS INTERNATIONAL		 YACHIYO ENGINEERING CO., LTD.		CABANATUAN BYPASS - CONTRACT PACKAGE II				



POLYGON POINT	COORDINATES		ELEV.	REMARKS
	NORTHING	EASTING		
CAB-1=GPS	1,701,482.713	493,518.261	23.777	Located in Brgy. Tagumpay, San Leonardo, Nueva Ecija. It is drilled on the left side of the 'Lombo Bridge's first approach about 0.05 cm. above the bridge's concrete sidewalk.
CAB-2=GPS	1,701,899.365	493,628.461	22.525	Located in Brgy. Tagumpay, San Leonardo, Nueva Ecija. It is embedded in an open space 80 m. from Highway, 15 m. from dirt road going to an estero, about 40cm x 40cm & 0.05cm above the ground.
CAB-3=GPS	1,706,316.913	495,963.410	25.984	Located in Brgy. Soledad, Sta. Rosa, Nueva Ecija. It is embedded on a 40cm x 40cm conc. masonry, beside an irrigation canal about 8m from rd. CL & 3 km. from the highway intersection of Fort Magway & Cabanatuan City.
T9=CAB4	1,706,340.784	496,322.453	28.299	Located in Brgy. Soledad, Sta. Rosa, Nueva Ecija. It is embedded on a 40 cm x 40 cm conc. masonry on the left side of the rd. going to Fort Magway & about 370 m. from GPS Sta. CAB-3, about 4 m. from rd. CL.
T15=CAB4A	1,708,634.191	497,109.919	27.917	Located in Brgy. Tagumpay, Sta. Rosa, Nueva Ecija on Diaz property. From the highway northbound take a right turn on Mabini extension, on Mercury Drugstore going to Brgy. Sta. Arcadia, 4.8 km. from the highway take a right turn on the intersection of the dirt road after the one-way bridge with a water pipe rd. It is 1.4 km. from the intersection beside an irrigation canal on the left side.
T21=CAB5	1,709,079.199	498,487.150	31.478	Located in Brgy. Sta. Arcadia, Cabanatuan, Nueva Ecija. From the highway northbound take a right turn on Mabini extension, Mercury Drugstore going to Brgy. Sta. Arcadia, 3.9 km. from the intersection highway, take a left turn to a dirt road it is embedded on the right side of the road 200 m. from the Mabini extension road centerline.
T22=CAB6	1,709,731.929	498,528.334	31.285	Located in Brgy. Sta. Arcadia, Cabanatuan, Nueva Ecija. From the highway northbound take a right turn on Mabini extension, Mercury Drugstore going to Brgy. Sta. Arcadia, 3.2 km. from the intersection highway, take a left turn to a dirt road it is embedded on the left side of the road near an irrigation dike 500 m. from the Mabini extension road centerline.
CAB7	1,713,329.137	499,115.491	33.346	Located in Brgy. San Isidro, Cabanatuan, Nueva Ecija. It is embedded on the sidewalk of the DPWH 3rd Engineering District driveway, about 20 m. from the centerline of the road.
CAB8	1,713,603.208	499,247.649	33.467	Located in Urban Poor Housing Project, San Isidro, Cabanatuan, Nueva Ecija. Going to Palayan City take a left turn to the dirt road beside the DPWH compound leading to the site of the housing project, then take a right turn. It is embedded on the right side of the dirt road near the electric post 400 m. from the centerline of the highway.
T6=CAB8A	1,715,705.803	498,487.077	34.234	Located in Brgy. Roa, Cabanatuan, Nueva Ecija. From Cabanatuan City proper take a right turn on Maharlika highway to a road before the Valdehue bridge, 3 km. from the highway, turn left to a bridge.
T21=CAB8B	1,717,749.623	496,746.948	34.436	Location in Brgy. Sapang, Cabanatuan, Nueva Ecija. From Cabanatuan City proper take a rt. turn on Maharlika highway after the Valdehue bridge to a road going to Brgy. Sapang. It is emb. on the left side of the road.
CAB9	1,718,905.446	496,330.000	37.709	Located in Brgy. Buiran, Cabanatuan, Nueva Ecija. From Cabanatuan City proper take a right turn on Maharlika highway after the Valdehue bridge to a road going to Brgy. Dolompong, 2.5 km. from the highway taking the left fork turn right at the intersection to a dirt road leading to Brgy. Balite. It is embedded near an irrigation dike 800 m. from the bridge.
CAB10	1,719,118.959	497,481.612	37.713	Located in Brgy. Dolompong, Cabanatuan, Nueva Ecija. From Cabanatuan City proper take a right turn on Maharlika highway after the Valdehue bridge to a road going to Brgy. Dolompong, 2.5 km. from the highway taking the left fork turn right at the intersection to a dirt road leading to Brgy. Balite. It is embedded near an irrigation dike on the right side, 1.9 km. from the bridge.
CAB11	1,721,785.245	495,194.632	39.469	Located in Homestead I, Talavera, Nueva Ecija. Taking the Maharlika highway to Muñoz, turn right on Pinagpangan intersection to the highway going to Pantabangan, 4.3 km. from the intersection turn right to a dirt road. It is embedded on the right side beside an irrigation canal 70 m. from the centerline of the highway.
CAB12	1,722,164.049	495,433.809	37.949	Located in Homestead I, Talavera, Nueva Ecija. Taking the Maharlika highway to Muñoz, turn right on Pinagpangan intersection to the highway going to Pantabangan, 4.8 km. from the intersection on the right side 50 m. from the centerline of the highway.
CAB13	1,718,173.536	489,601.897	44.230	Located in Brgy. San Pascual, Talavera, Nueva Ecija. It is embedded on the right side of the bridge 2.3 km. from San Pascual market going to San Jose.
CAB14	1,728,259.352	489,626.465	43.627	Located in Brgy. Bagang Silang, Talavera, Nueva Ecija. Take a right turn 3.4 km. from San Pascual market going to San Jose to a dirt road. It is embedded on a rice paddy dike on the right side of the road 500 m. from the highway.

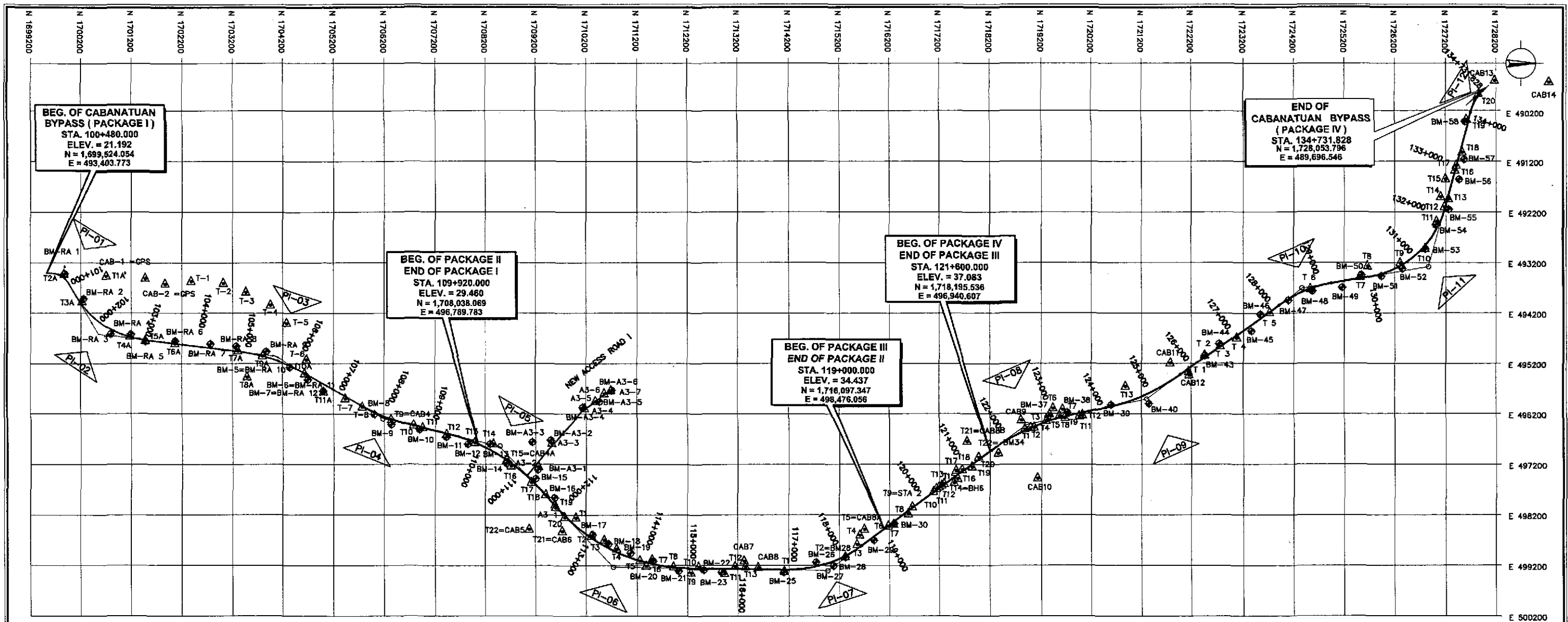
POLYGON POINT	COORDINATES		ELEV.
	NORTHING	EASTING	
T-1	1,702,384.687	493,573.021	24.120
T-2	1,703,019.008	493,611.093	25.138
T-3	1,703,468.521	493,784.646	25.158
T-4	1,703,958.942	494,041.357	23.064
T-5	1,704,279.497	494,398.825	24.467
T-6	1,704,678.169	495,126.982	24.858
T-7	1,705,433.273	495,901.932	26.581
T-8	1,705,767.749	498,069.357	25.809
T-10	1,706,773.219	496,434.404	26.138
T-11	1,706,952.708	496,479.420	26.405
T-12	1,707,425.044	496,615.719	27.154
T-13	1,707,989.215	496,773.054	26.251
T-14	1,708,364.430	496,806.236	26.328
T-16	1,708,712.024	497,235.901	26.873
T-17	1,709,113.730	497,562.109	28.882
T-18	1,709,405.603	497,811.684	28.874
T-19	1,709,594.615	498,010.441	29.779
T-20	1,709,784.151	498,252.284	30.803
T-1	1,710,085.112	498,263.122	30.560
T-2	1,710,312.116	498,622.485	31.125
T-3	1,710,565.810	498,702.707	30.008
T-4	1,710,812.097	498,879.255	31.231
T-5	1,711,258.554	499,111.169	31.166
T-6	1,711,382.787	499,215.210	30.671
T-7	1,711,497.776	499,088.057	31.048
T-8	1,711,921.739	499,233.113	32.252

POLYGON POINT	COORDINATES		ELEV.
	NORTHING	EASTING	
T9	1,712,273.907	499,348.863	32.889
T10	1,712,426.453	499,228.114	31.587
T11	1,712,945.026	499,366.723	31.508
T12	1,713,152.194	498,228.016	32.291
T13	1,713,350.716	499,234.593	32.273
T1	1,714,114.133	498,323.114	34.149
T2=BM28	1,715,321.664	499,037.069	34.467
T3	1,715,558.979	498,787.732	33.774
T4	1,715,613.303	498,602.331	33.848
T6	1,716,185.824	498,423.235	32.543
T7	1,716,296.557	498,393.392	32.834
T8	1,716,587.270	498,183.256	31.879
T9=STA 2	1,716,668.328	498,048.549	31.202
T10	1,717,083.859	497,743.553	30.319
T11	1,717,142.345	497,687.576	29.731
T12	1,717,194.108	497,657.056	29.770
T13	1,717,249.207	497,618.454	29.818
T14=BM6	1,717,282.610	497,589.139	29.351
T15	1,717,492.542	497,567.432	31.652
T16	1,717,565.385	497,485.342	31.662
T17	1,717,532.758	497,327.722	31.782
T18	1,717,656.358	497,304.011	32.472
T19	1,717,849.166	497,254.912	32.957
T20	1,717,977.354	497,061.014	35.155
T22=BM34	1,718,360.331	496,980.373	35.518
T1	1,718,871.960	496,509.328	38.125

POLYGON POINT	COORDINATES		ELEV.
	NORTHING	EASTING	
T2	1,718,982.811	496,484.723	37.303
T3	1,719,054.242	496,476.454	38.039
T4	1,719,293.514	496,344.148	37.628
T5	1,719,371.611	496,212.892	36.581
T6	1,719,441.686	496,095.508	36.377
T7	1,719,634.286	496,119.715	36.135
T8	1,719,568.716	496,246.851	36.718
T9	1,719,673.577	496,284.730	36.732
T10	1,719,757.857	496,199.702	36.226
T11	1,719,963.319	496,252.503	36.847
T12	1,720,028.818	496,233.536	37.259
T13	1,720,886.498	495,657.578	35.285
T 1	1,722,152.498	495,368.651	40.547
T 2	1,722,462.939	495,042.525	38.470
T 3	1,722,757.770	494,860.054	37.788
T 4	1,723,072.308	494,693.817	39.520
T 5	1,723,722.544	494,191.279	39.407
T 6	1,724,530.996	493,726.864	41.610
T7	1,725,515.859	493,486.477	43.192
T8	1,726,864.133	493,279.741	41.739
T9	1,726,312.522	493,216.325	42.257
T10	1,726,804.440	492,931.296	42.526
T11	1,727,019.693	492,394.752	43.547
T12	1,727,173.457	492,109.850	44.051
T13	1,727,252.558	491,953.012	45.106
T14	1,727,099.751	491,908.990	44.528

POLYGON POINT	COORDINATES		ELEV.
	NORTHING	EASTING	
T15	1,727,194.658	491,558.623	42.159
T16	1,727,379.509	491,385.263	41.621
T17	1,727,406.036	491,287.074	44.865
T18	1,727,520.276	491,028.906	44.649
T19	1,727,612.767	490,382.069	43.759
T20	1,717,856.316	489,865.741	42.999
T1A	1,700,706.584	493,470.328	21.763
T2A	1,699,872.437	493,429.951	21.248
T3A	1,700,225.955	493,971.425	21.778
T4A	1,701,172.767	494,669.142	22.334
T5A	1,701,480.491	494,751.688	21.417
T6A	1,702,058.314	494,809.178	23.519
T7A	1,703,307.889	494,952.040	23.664
T8A	1,703,499.259	495,470.561	23.820
T9A	1,703,804.341	495,051.975	24.100
T10A	1,704,643.472	495,403.742	25.612
T11A	1,705,012.234	495,771.069	26.653
A3-1	1,709,604.105	498,057.325	30.283
A3-2	1,709,258.422	497,255.095	27.497
A3-3	1,709,521.785	496,792.013	27.906
A3-4	1,710,182.293	496,102.911	26.914
A3-5	1,710,393.491	495,956.847	26.810
A3-6	1,710,571.283	495,803.951	27.141
A3-7	1,710,701.618	495,743.236	27.061

 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 (Paridul, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II		SCALE : 1:40,000 FULL SIZE A1	SHEET CONTENTS : HORIZONTAL AND VERTICAL CONTROL MONUMENTS Sheet 1 of 2	SHEET NO. : GC-08
DESIGNED 10/09/02 CHECKED 10/16/02 SUBMITTED 10/18/02 	DATE 10/09/02 SIGNATURE 	DESIGNED 10/09/02 CHECKED 10/16/02 SUBMITTED 10/18/02 	DATE 10/09/02 SIGNATURE 	DESIGNED 10/09/02 CHECKED 10/16/02 SUBMITTED 10/18/02 	DATE 10/09/02 SIGNATURE 	DESIGNED 10/09/02 CHECKED 10/16/02 SUBMITTED 10/18/02 	DATE 10/09/02 SIGNATURE 	



POLYGON POINT	NORTHING	EASTING	ELEV.	REMARKS
BM-RA 1	1,699,880.470	493,418.310	21.773	It is located on the left side of the national highway going north at the beginning of the bypass re-alignment under an acacia tree near the steel fence corner of a building in San Leonardo.
BM-RA 2	1,700,254.842	493,913.436	21.932	It is located on the left side of the road alignment placed on the side of a road (dirt) 1.50 m. from its centerline and approximately 3 m. away from the top bank of an irrigation canal beside an acacia tree.
BM-RA 3	1,700,792.820	494,617.824	22.451	It is located on the right side of the bypass alignment placed on top of a rice paddy intersection in the middle of a ricefield.
BM-RA 4	1,701,192.044	494,624.849	22.845	It is located on the left side of the alignment placed on the top bank of a fishpond underneath two acacia trees in Bay, Tagumay, San Leonardo.
BM-RA 5	1,701,481.927	494,766.231	21.587	It is located on the left side of the alignment placed in the middle of a ricefield beside a nipa hut in Bay, Tagumay, San Leonardo.
BM-RA 6	1,702,062.462	494,751.855	22.910	It is located on the left side of the road alignment placed on the side of a road 2 m. from its centerline beside an electric post in Bay, Tagumay, San Leonardo.
BM-RA 7	1,702,761.108	494,810.381	22.874	It is located on the right side of the road alignment placed on the top bank of a creek 3.50 m. from its centerline and under a durian tree in Bay, Tagumay, San Leonardo.
BM-RA 8	1,703,271.267	494,855.750	23.741	It is located on the left side of the alignment placed on the side of a road (gravel) 2 m. away from the centerline and 4 m. from the top bank of an irrigation canal in Bay, Tagumay, San Leonardo.
BM-RA 9	1,703,867.668	494,960.590	23.977	It is located on the left side of the alignment placed on the side of a road 1.70 m. away from the centerline.
BM-RA 10	1,704,562.828	495,238.110	25.505	It is located on the left side of the alignment placed on the side of a dirt road 1.50 m. away from its centerline and 60 cm. from the toe of an irrigation canal.
BM-RA 11	1,704,703.014	495,521.310	25.723	It is located on the left side of the alignment placed on top of a rice paddy intersection in the middle of a ricefield in Bay, Tagumay, San Leonardo.
BM-RA 12	1,705,058.152	495,590.387	27.032	It is located on the right side of the alignment placed on top of a check gate of an irrigation canal in Bay, Soledad, Sta. Rosa.
BM-8	1,705,401.838	496,021.555	26.111	It is located on the right side of the alignment placed on top of a rice paddy intersection in the middle of a ricefield in Bay, Soledad, Sta. Rosa.
BM-9	1,706,337.897	496,411.792	27.188	It is located on the right side of the alignment placed on the side of the concrete road 3 m. away from its centerline in Bay, Soledad, Sta. Rosa.
BM-10	1,706,881.482	496,511.230	26.538	It is located on the right side of the alignment placed on the intersection of a rice paddy in the middle of a ricefield in Bay, Soledad, Sta. Rosa.
BM-11	1,707,413.404	496,659.842	27.220	It is located on the right side of the road alignment placed on the top bank of irrigation canal 1.20 m. from its centerline under the shade of an acacia tree in Bay, Soledad, Sta. Rosa.
BM-12	1,707,844.454	496,802.502	27.148	It is located on the right side of the alignment placed on the side of a ricefield owned by Mr. Ajo Villalob in Bay, Tagumay, Sta. Rosa.
BM-13	1,708,291.751	496,799.903	26.856	It is located on the right side of the alignment placed on the side of a ricefield under a phoenix of trees in Bay, Tagumay, Sta. Rosa.
BM-14	1,708,620.284	497,180.515	28.714	It is located on the right side of the road alignment placed on the top bank of irrigation canal 1.50 m. from its centerline and 3 m. away the side of a road in Bay, Tagumay, Sta. Rosa.
BM-15	1,709,200.415	497,484.887	28.688	It is located on the right side of the alignment placed on the side of a dirt road 1.50 m. away from the centerline in Bay, Sta. Arcadia, Cabanatuan City.
BM-16	1,709,584.212	497,862.962	29.530	It is located on the right side of the alignment placed on the side of a dirt road 1.50 m. away from the centerline in Bay, Sta. Arcadia, Cabanatuan City.
BM-17	1,710,336.115	498,592.643	31.009	It is located on the left side of the alignment placed on the side of road (gravel) 1.80 m. away from its centerline in Bay, Sta. Arcadia.
BM-18	1,710,649.187	498,773.128	30.565	It is located on the left side of the alignment placed on the intersection of rice paddy in the middle of a ricefield in the side of Bay, Valle Cruz.
BM-19	1,711,076.165	498,651.653	31.218	It is located on the left side of the alignment placed on the side of a ricefield underneath two mango trees in Bay, Valle Cruz.

POLYGON POINT	NORTHING	EASTING	ELEV.	REMARKS
BM-20	1,711,512.317	499,109.898	31.388	It is located on the left side of the alignment placed on a rice paddy intersection in the middle of a ricefield in Bay, Valle Cruz.
BM-21	1,712,021.897	499,309.940	32.657	It is located on the right side of the alignment placed on the side of a road 1.80 m. away from its centerline and approximately 3.50 m. away from the top bank of an irrigation canal in Bay, Valle Cruz.
BM-22	1,712,529.312	499,291.424	32.692	It is located on the right side of the alignment placed on the higher portion on the side of a dirt road 4 m. away from its centerline in Bay, Valle Cruz.
BM-23	1,712,881.168	499,335.852	32.786	It is located on the right side of the alignment placed on a bank of a creek approximately 3 m. away from its top bank in Bay, San Isidro, Cabanatuan City.
BM-25	1,714,097.795	499,338.845	34.013	It is located on the right side of the alignment placed on the side of a road (dirt) 1.50 m. away from its centerline and approximately 3 m. from the top bank of an irrigation canal in Bay, San Isidro.
BM-26	1,714,739.658	499,138.544	33.408	It is located on the left side of the alignment placed on the side of a road intersection 2 m. away from its centerline adjacent to a subdivision known as Grand Victoria Estate, Bay, Cruz Roja.
BM-27	1,715,085.051	499,202.403	33.926	It is located on the right side of the alignment placed on the intersection of a rice paddy in the middle of a ricefield in Bay, Cruz Roja.
BM-28	1,715,321.664	499,037.069	34.467	It is located on the right side of the alignment placed on the side of the barangay road 2 m. away from its centerline in Bay, Cruz Roja at the side of an electric post.
BM-29	1,715,891.768	498,699.775	34.622	It is located on the right side of the alignment placed on the side of a barangay road under an acacia tree 1.50 m. away from its centerline in Bay, Cruz Roja.
BM-30	1,716,304.852	498,373.638	32.783	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 Bay, Obispo, Cabanatuan City.
BM-34	1,718,360.331	496,980.373	35.518	It is located on the right side of the alignment placed on the side of a dirt road 1.50 m. away from its centerline and about 1/2 m. away from an irrigation canal's top bank at Bay, Pula, Cabanatuan City.
BM-36	-	-	37.133	It is located on the left side of the alignment placed underneath a mango tree in the middle of a vegetable plantation at Bay, Pula, Cabanatuan City.
BM-37	1,719,342.545	496,251.877	37.437	It is located on the left side of the alignment placed on the side of a ricefield underneath a mango tree near a house at Bay, Pula, Cabanatuan City.
BM-38	1,719,727.496	496,175.032	36.238	It is located on the left side of the alignment placed on the side of a dirt road 1.50 m. away from its centerline and about 1/2 m. away from an irrigation canal's top bank at Bay, Pula, Cabanatuan City.
BM-39	1,720,695.956	496,023.421	36.396	It is located on the left side of the alignment placed on the intersection of a rice paddy in the middle of a ricefield at Bay, Pula, Cabanatuan City.
BM-40	1,721,353.720	495,998.525	36.993	It is located on the right side of the alignment placed underneath a group of coconut trees in the middle of a ricefield at Bay, Hornstead, Talavera.
BM-43	1,722,462.948	495,042.545	38.534	It is located on the left side of the alignment placed on the side of a road (dirt) 1.50 m. away from its centerline beside a concrete pole with a nipa hut at Bay, Paludod, Talavera.
BM-44	1,722,735.654	494,806.172	38.406	It is located on the left side of the alignment placed on the side of a dirt road 1.50 m. away from its centerline beside a barangay signboard Bay, Paludod, Talavera.
BM-45	1,723,356.627	494,554.149	40.327	It is located on the right side of the alignment placed on the side of a dirt road 1.50 m. away from its centerline beside a nipa hut at Bay, Paludod, Talavera.
BM-46	1,723,535.448	494,225.815	39.229	It is located on the left side of the alignment placed on the side of a road 2 m. away from its centerline beside a corniche tree.
BM-47	1,724,094.093	493,940.197	39.500	It is located on the right side of the alignment placed on the intersection of a rice paddy in the middle of a ricefield and about 50 m. away from the top bank of a creek at Bay, Dimaslang Sur, Talavera.
BM-48	1,724,565.996	493,762.388	42.043	It is located on the right side of the alignment placed on the side of a dirt road 2 m. away from its centerline and 4 m. away from the top bank of an irrigation canal, Bay, Dimaslang Sur, Talavera.
BM-49	1,725,167.190	493,693.946	42.110	It is located on the right side of the alignment placed on the side of a road 3 m. away from its centerline and 1 m. away from a canal, Bay, Guad, Talavera.
BM-50	1,725,535.580	493,447.698	43.895	It is located on the left side of the alignment placed on the side of a road 8 m. away from its centerline beside an electric post, Bay, Guad, Talavera.

POLYGON POINT	NORTHING	EASTING	ELEV.	REMARKS
BM-51	1,725,936.648	493,468.459	43.274	It is located on the right side of the alignment placed in the intersection of a rice paddy in the middle of a ricefield 150 m. away from the centerline of a concrete barangay road, Bay, Guad, Talavera.
BM-52	1,726,352.052	493,319.807	43.317	It is located on the right side of the alignment placed on the side of a dirt road 1.5 m. away from the centerline of the dirt road of Bay, Bantug, Hacienda, Talavera.
BM-53	1,726,804.440	492,931.296	42.900	It is located on the right side of the alignment placed in the middle of a ricefield at the side of a well placed in the rice paddy intersection.
BM-54	1,727,002.842	492,456.434	43.780	It is located on the left side of the alignment 3 m. away from the dirt road centerline and 6 m. away from the toe of an irrigation canal beneath a corniche tree.
BM-55	1,727,251.355	492,153.048	44.219	It is located on the right side of the alignment near the corner of concrete wall/fence. It is 3 m. away from the centerline of an existing road 5 m. wide at Bay, Compos, Talavera.
BM-56	1,727,456.793	491,560.117	42.069	It is located on the left side of the alignment 70 m. away underneath a mango tree in Bay, Compos, Talavera.
BM-57	1,727,557.279	491,163.484	45.294	It is located on the right side of the alignment placed on the toe of a ricefield near the side of a road under a coconut tree in Bay, Compos, Talavera.
BM-58	1,727,578.123	490,416.550	43.530	It is located on the right side of the alignment placed on the side of a ricefield under a row of coconut trees in Bay, Compos, Talavera.

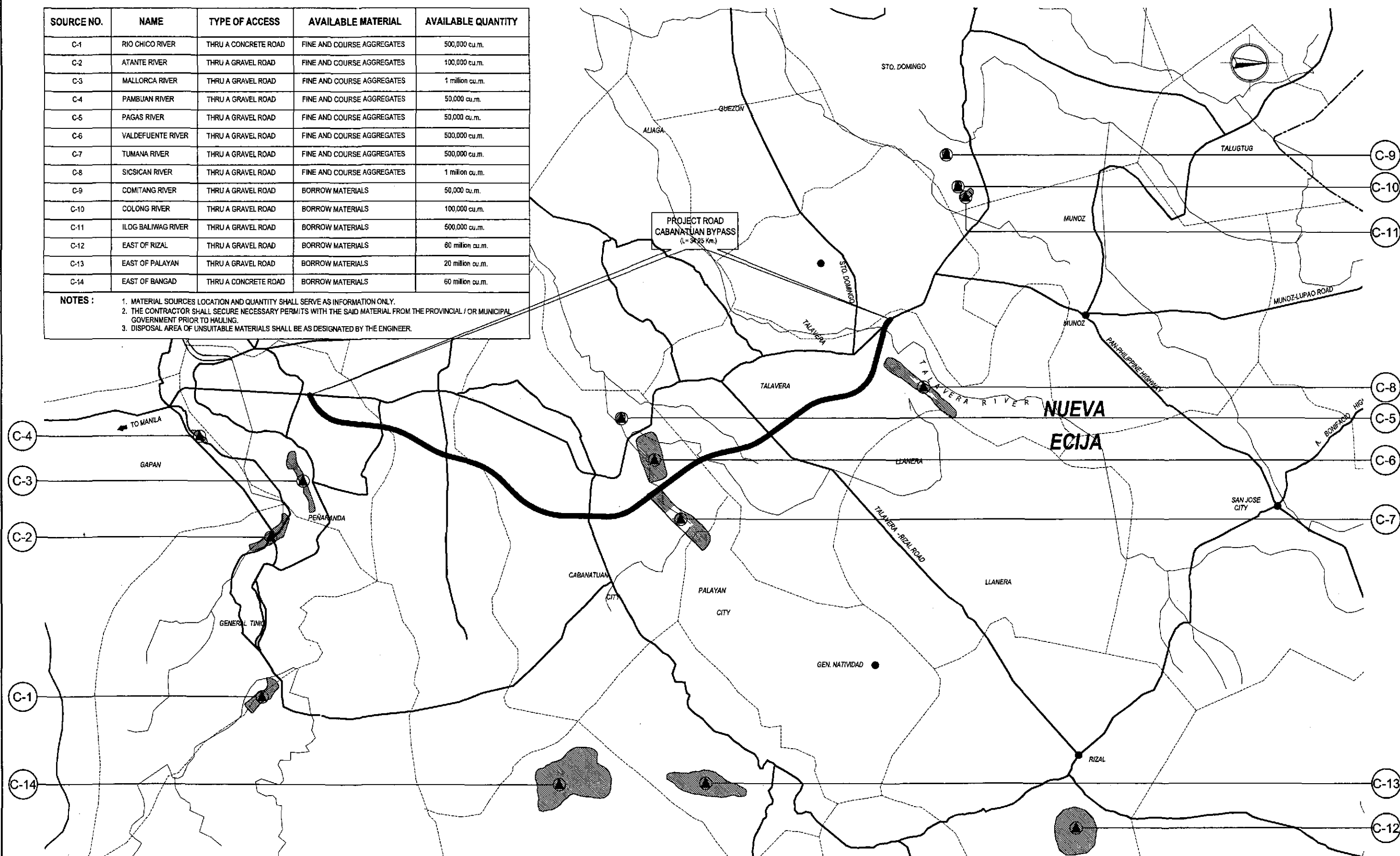
POLYGON POINT	NORTHING	EASTING	ELEV.	REMARKS
BM-A3-1	1,709,244.996	497,307.583	27.574	It is located on the right side of the access road placed on the side of the access road 60 m. away from its centerline between 2 coconut trees along edge farm road in Bay, Sta. Arcadia, Cabanatuan City.
BM-A3-2	1,709,500.218	496,724.144	26.740	It is located on the left side of the access road placed on the side of a narra tree 5 m. away from existing irrigation road near a house in Bay, Sta. Arcadia, Cabanatuan City.
BM-A3-3	1,709,133.419	496,759.539	26.389	It is located on the right side of the access road placed on the top bank of an irrigation canal beside an irrigation canal in Bay, Sta. Arcadia, Cabanatuan City.
BM-A3-4	1,710,138.779	498,074.308	26.389	It is located on the left side of the access road alignment beside an acacia tree placed on the side of a dirt road 4 m. away from its centerline in Bay, Sta. Arcadia, Cabanatuan City.
BM-A3-5	1,710,471.747	495,959.612	26.096	It is located on the right side of the access road alignment placed on the intersection of a rice paddy near a barbed wire fence 30 m. away from the centerline of a dirt road in Bay.
BM-A3-6	1,710,716.368	495,728.826	26.896	It is located on the right side of the road alignment near Bato bridge on its gutter 15 m. away from its left approach in Bay.

 JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL		YACHIO ENGINEERING CO., LTD.		DESIGNED: 10/04/02 CHECKED: 10/10/02 SUBMITTED: 10/18/02				DATE: 10/04/02 SIGNATURE: [Signature] P.M. - P.M.O. Submitted By: [Signature] DANILLO C. TRAJANO Project Director				DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN Reviewed By: [Signature] JOSEFINA M. ALAGAR Chief, Highways Division				OFFICE OF THE SECRETARY Recommended By: [Signature] GILBERTO S. REYES OIC, Director IV				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pariel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II				SCALE : 1:40,000 FULL SIZE A1		SHEET CONTENTS : HORIZONTAL AND VERTICAL CONTROL MONUMENTS Sheet 2 of 2		SHEET NO. : GC-09	
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SOURCE NO.	NAME	TYPE OF ACCESS	AVAILABLE MATERIAL	AVAILABLE QUANTITY
C-1	RIO CHICO RIVER	THRU A CONCRETE ROAD	FINE AND COURSE AGGREGATES	500,000 cu.m.
C-2	ATANTE RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	100,000 cu.m.
C-3	MALLORCA RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	1 million cu.m.
C-4	PAMBUAN RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	50,000 cu.m.
C-5	PAGAS RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	50,000 cu.m.
C-6	VALDEFUENTE RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	500,000 cu.m.
C-7	TUMANA RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	500,000 cu.m.
C-8	SICSICAN RIVER	THRU A GRAVEL ROAD	FINE AND COURSE AGGREGATES	1 million cu.m.
C-9	COMITANG RIVER	THRU A GRAVEL ROAD	BORROW MATERIALS	50,000 cu.m.
C-10	COLONG RIVER	THRU A GRAVEL ROAD	BORROW MATERIALS	100,000 cu.m.
C-11	ILOG BALIWAG RIVER	THRU A GRAVEL ROAD	BORROW MATERIALS	500,000 cu.m.
C-12	EAST OF RIZAL	THRU A GRAVEL ROAD	BORROW MATERIALS	60 million cu.m.
C-13	EAST OF PALAYAN	THRU A GRAVEL ROAD	BORROW MATERIALS	20 million cu.m.
C-14	EAST OF BANGAD	THRU A CONCRETE ROAD	BORROW MATERIALS	60 million cu.m.

NOTES :

1. MATERIAL SOURCES LOCATION AND QUANTITY SHALL SERVE AS INFORMATION ONLY.
2. THE CONTRACTOR SHALL SECURE NECESSARY PERMITS WITH THE SAID MATERIAL FROM THE PROVINCIAL / OR MUNICIPAL GOVERNMENT PRIOR TO HAULING.
3. DISPOSAL AREA OF UNSUITABLE MATERIALS SHALL BE AS DESIGNATED BY THE ENGINEER.



A LOCATION OF MATERIAL SOURCES
GC-10 SCALE 1:80,000

JICA JAPAN INTERNATIONAL COOPERATION AGENCY K KATAHIRA & ENGINEERS INTERNATIONAL yeo YACHIYO ENGINEERING CO., LTD.		DESIGNED: 10/09/02 CHECKED: 10/16/02 SUBMITTED: 10/18/02	DATE: 10/09/02 SIGNATURE: [Signature] 5. [Signature] TEAM LEADER	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 II	SCALE : 1:80,000 FULL SIZE A1	SHEET CONTENTS : LOCATION OF MATERIAL SOURCES	SHEET NO. : GC-10
		Submitted By: DANILO C. TRAJANO Project Director		Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By: GILBERTO S. REYES O.C. Director IV	Recommended By: MANUEL M. BONDAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary				




SUMMARY OF QUANTITIES (ULTIMATE STAGE)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY (HIGHWAY AND DRAINAGE)																	REMARKS
			BYPASS	A-13	A-14	A-14a	A-15a	A-15	C-1L	C-1R	A-16	A-17	B-8	A-18	B-9	A-19	A-20	SUBTOTAL (HIGHWAY)		
PART C - EARTHWORKS																				
100(1)	Clearing and Grubbing	ha	20.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.00		
101(1)	Removal of Existing Structures and Obstructions	L.S.	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00		
101(3)a	Removal of Existing PCC Pavement	m2	5,181.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,181.00		
101(5)b	Relocation of Existing Guardrails	m	2,760.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,760.00		
101(7)	Removal of Existing Slope Protection	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
101(8)	Removal of Existing Slope Protection (Hand-laid Rock)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
101(9)	Removal of Existing Gabion	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
101(11)	Removal of Existing Combination Concrete Curb & Gutter/Side Strip	m	2,586.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,586.00		
101(12)	Relocation of Existing Road Signs	each	39.00	-	-	-	-	1.00	-	-	2.00	2.00	-	-	-	-	3.00	47.00		
101(13)	Removal of Existing Road Signs	each	9.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.00		
103(1)	Structure Excavation	m3	140.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	141.00		
103(2)a	Bridge Excavation above OWL (Common Soil)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
103(2)c	Bridge Excavation below OWL (Common Soil)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
103(3)a	Gravel Foundation Fill	m3	23.34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.00		
103(6)	Pipe Culverts and Drain Excavation	m3	25,438.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25,439.00		
103(7)	Granular Backfill for Pipe Culvert	m3	13,772.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,773.00		
104(1)	Embankment from Roadway Excavation	m3	14,308.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,307.00		
104(3)	Embankment from Borrow Pit	m3	110,128.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110,129.00		
104(4)	Embankment from Borrow (Selected Granular Material) for Bridge	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
105(1)	Subgrade Preparation (Common Soil)	m2	100,825.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100,826.00		
PART D - BASE AND SUBBASE COURSE																				
200(1)	Aggregate Subbase Course	m3	51,590.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51,590.00		
PART E - SURFACE COURSES																				
300(1)	Gravel Surface Course	m3	42.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43.00		
311(1)b	PCC Pavement (Plain), t=250mm	m2	88,022.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88,023.00		
311(1)c	PCC Pavement (Plain), t=230mm	m2	80,465.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80,466.00		
311(1)d	PCC Pavement (Plain), t=180mm	m2	34,593.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34,594.00		
311(2)	PCC Pavement (Reinforced) t=300mm Approach Slab	m2	323.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	324.00		
PART F - BRIDGE CONSTRUCTION																				
400(4)a	Precast Concrete Piles (400mmx400mm), furnished	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
400(4)b	Precast Concrete Piles (450mmx450mm), furnished	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
400(13)a	Precast Concrete Piles (400mmx400mm), driven	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
400(13)b	Precast Concrete Piles (450mmx450mm), driven	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
400(15)a	Test Piles (Conc. Pile 400mmx400mm), furnished & driven	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
400(15)b	Test Piles (Conc. Pile 450mmx450mm), furnished & driven	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
400(19)a	Pile shoes for 400mmx400mm Piles	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
400(19)b	Pile shoes for 450mmx450mm Piles	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
401(1)a	Concrete Railing Type A (Concrete Posts and Precast Beams)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
404(1)	Reinforcing Steel (Grade 40)	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
404(2)	Reinforcing Steel (Grade 60)	kg	23,122.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23,122.00		
405(1)a	Structural Concrete Class A (f'c=21MPa, max. aggregate 38mm) for heavily reinforced structures	m3	231.42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	232.00		
405(1)b	Structural Concrete Class A (f'c=21MPa, max. aggregate 38mm) for small & medium bridges substructures	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
405(1)c	Structural Concrete Class A1 (f'c=21MPa, max. aggregate 20mm) for small & medium bridges RCDG superstructures	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
405(1)d	Structural Concrete Class A1 (f'c=21MPa, max. aggregate 20mm) for small & medium bridges PCDG superstructures	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
405(2)	Structural Concrete Class B (f'c=17MPa, max. aggregate 50mm) for plain or lightly reinforced structures	m3	4,310.27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,311.00		
405(3)	Structural Concrete Class C (f'c=21MPa, max. aggregate 12mm) for thin reinforced members	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
405(6)	Lean Concrete (f'c=17MPa, max. aggregate 38mm)	m3	11.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.00		
406(1)a	Precast Prestressed Structural Concrete Member (AASHTO Girder Type IV L=20m)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
406(1)c	Precast Prestressed Structural Concrete Member (AASHTO Girder Type IV L=24m)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
406(1)f	Precast Prestressed Structural Concrete Member (AASHTO Girder Type IV-B L=31m)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
406(1)j	Precast Prestressed Structural Concrete Member (AASHTO Girder Type VI L=35m)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
407(1)g	Elastomeric Bearing Pad, Duro 60 (550x300x50mm)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
407(1)c	Elastomeric Bearing Pad, Duro 60 (600x350x50mm)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
407(2)a	Expansion Joint, (±40mm Movement)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
407(2)g	Expansion Joint, 30mm for bridge sidewalk	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
407(4)	G.I. Drain Pipe Ø 150mm for Bridge Drainage	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

 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 (Pilarid, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II		SCALE : FULL SIZE A1	SHEET CONTENTS : SUMMARY OF QUANTITIES (ULTIMATE STAGE) 1 of 4	SHEET NO. : GC-11
DESIGNED 10/09/02 CHECKED 10/16/02 SUBMITTED 10/18/02	DATE SIGNATURE DATE SIGNATURE DATE SIGNATURE DATE SIGNATURE DATE SIGNATURE 	REVIEWED BY: Submitted By: DANILO C. TRAJANO (Project Director) Reviewed By: JOSEFINA M. ALAGAR (Chief, Highways Division) Recommended By: GILBERTO S. REYES (OIC, Director IV) Recommended By: MANUEL M. BONOAN (Undersecretary) Approved By: SIMEON A. DATUMANONG (Secretary)		PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pilarid, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II				





SUMMARY OF QUANTITIES (ULTIMATE STAGE)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY (BRIDGE)																		SUBTOTAL (BRIDGE)	TOTAL (HIGHWAY AND BRIDGE)	REMARKS
			BRIDGE #3	BRIDGE #4	BRIDGE #4 (LT)	BRIDGE #4 (RT)	BRIDGE #5	BRIDGE #5 (LT)	BRIDGE #5 (RT)	BRIDGE #6	BRIDGE #6 (LT)	BRIDGE #6 (RT)	BRIDGE #7	BRIDGE #7 (LT)	BRIDGE #7 (RT)	BRIDGE #8	BRIDGE #8 (LT)	BRIDGE #8 (RT)	BRIDGE #9				
PART C - EARTHWORKS																							
100(1)	Clearing and Grubbing	ha	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.00		
101(1)	Removal of Existing Structures and Obstructions	L.S.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00		
101(3)a	Removal of Existing PCC Pavement	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,181.00		
101(5)b	Relocation of Existing Guardrails	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,760.00		
101(7)	Removal of Existing Slope Protection	m3	72.00	64.00		64.00	66.00		66.00	79.00		80.00	62.00		62.00	82.00		82.00	101.00	880.00	880.00		
101(8)	Removal of Existing Slope Protection (Hand-laid Rock)	m3	39.00				38.00		38.00	41.00		42.00			42.00			42.00	48.00	330.00	330.00		
101(9)	Removal of Existing Gabion	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.00	24.00	24.00		
101(11)	Removal of Existing Combination Concrete Curb & Gutter/Side Strip	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,586.00		
101(12)	Relocation of Existing Road Signs	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47.00		
101(13)	Removal of Existing Road Signs	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.00		
103(1)	Structure Excavation	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	141.00		
103(2)a	Bridge Excavation above OWL (Common Soil)	m3	229.00	182.00	144.00	154.00	186.00	151.00	151.00	213.00	186.00	182.00	144.00	126.00	126.00	233.00	199.00	235.00	258.00	3,099.00	3,099.00		
103(2)c	Bridge Excavation below OWL (Common Soil)	m3	-	-	-	-	-	-	-	-	-	-	132.00	118.00	118.00	-	-	-	374.00	742.00	742.00		
103(3)a	Gravel Foundation Fill	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.00		
103(6)	Pipe Culverts and Drain Excavation	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25,439.00		
103(7)	Granular Backfill for Pipe Culvert	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,773.00		
104(1)	Embankment from Roadway Excavation	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,307.00		
104(3)	Embankment from Borrow Pit	m3	494.00	652.00	263.00	383.00	448.00	258.00	417.00	763.00	423.00	641.00	496.00	254.00	404.00	778.00	451.00	650.00	984.00	8,659.00	118,788.00		
104(4)	Embankment from Borrow (Selected Granular Material) for Bridge	m3	487.00	443.00	328.00	310.00	382.00	364.00	364.00	500.00	364.00	392.00	432.00	322.00	328.00	495.00	400.00	409.00	673.00	7,003.00	7,003.00		
105(1)	Subgrade Preparation (Common Soil)	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100,826.00		
PART D - BASE AND SUBBASE COURSE																							
200(1)	Aggregate Subbase Course	m3	30.00	28.00	24.00	24.00	24.00	24.00	24.00	28.00	24.00	25.00	28.00	24.00	24.00	28.00	24.00	24.00	30.00	437.00	52,027.00		
PART E - SURFACE COURSES																							
300(1)	Gravel Surface Course	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43.00		
311(1)b	PCC Pavement (Plain), t=250mm	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88,023.00		
311(1)c	PCC Pavement (Plain), t=230mm	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80,466.00		
311(1)d	PCC Pavement (Plain), t=180mm	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34,594.00		
311(2)	PCC Pavement (Reinforced) t=300mm Approach Slab	m2	118.00	118.00	80.00	80.00	118.00	80.00	80.00	118.00	80.00	81.00	116.00	78.00	78.00	118.00	80.00	80.00	118.00	1,621.00	1,945.00		
PART F - BRIDGE CONSTRUCTION																							
400(4)a	Precast Concrete Piles (400mmx400mm), furnished	m	-	-	-	-	-	-	-	-	-	-	666.00	528.00	528.00	-	-	-	-	1,722.00	1,722.00		
400(4)b	Precast Concrete Piles (450mmx450mm), furnished	m	904.00	264.00	192.00	192.00	276.00	204.00	204.00	364.00	266.00	247.00	-	-	-	438.00	339.00	347.00	1,032.00	5,097.00	5,806.00		
400(13)a	Precast Concrete Piles (400mmx400mm), driven	m	-	-	-	-	-	-	-	-	-	-	578.00	458.00	458.00	-	-	-	-	1,494.00	1,494.00		
400(13)b	Precast Concrete Piles (450mmx450mm), driven	m	904.00	264.00	192.00	192.00	276.00	204.00	204.00	364.00	266.00	247.00	-	-	-	371.00	287.00	294.00	895.00	4,960.00	4,960.00		
400(15)a	Test Piles (Conc. Pile 400mmx400mm), furnished & driven	m	-	-	-	-	-	-	-	-	-	-	47.00	47.00	47.00	-	-	-	-	141.00	141.00		
400(15)b	Test Piles (Conc. Pile 450mmx450mm), furnished & driven	m	40.50	18.50	18.50	18.50	18.50	18.50	18.50	20.50	20.50	19.50	-	-	-	20.50	20.50	20.50	45.00	319.00	319.00		
400(19)a	Pile shoes for 400mmx400mm Piles	each	-	-	-	-	-	-	-	-	-	-	72.00	58.00	58.00	-	-	-	-	188.00	188.00		
400(19)b	Pile shoes for 450mmx450mm Piles	each	55.00	47.00	34.00	34.00	48.00	36.00	36.00	54.00	40.00	40.00	-	-	-	55.00	43.00	44.00	117.00	683.00	683.00		
401(1)a	Concrete Railing Type A (Concrete Posts and Precast Beams)	m	70.00	48.00	48.00	48.00	48.00	48.00	48.00	62.00	62.00	62.00	64.00	64.00	64.00	62.00	62.00	62.00	123.00	1,045.00	1,045.00		
404(1)	Reinforcing Steel (Grade 40)	kg	24,738.00	18,492.00	16,047.00	16,104.00	18,338.00	16,111.00	15,935.00	22,774.00	19,897.00	19,844.00	16,133.00	13,166.00	13,214.00	22,934.00	21,603.00	20,501.00	44,121.00	339,953.00	339,953.00		
404(2)	Reinforcing Steel (Grade 60)	kg	17,630.00	15,507.00	11,561.00	11,699.00	15,945.00	12,439.00	12,327.00	17,642.00	14,007.00	14,625.00	42,033.00	35,322.00	35,370.00	17,964.00	15,526.00	15,909.00	60,066.00	365,472.00	388,594.00		
405(1)a	Structural Concrete Class A (fc=21MPa, max. aggregate 38mm) for heavily reinforced structures	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	232.00		
405(1)b	Structural Concrete Class A (fc=21MPa, max. aggregate 38mm) for small & medium bridges substructures	m3	283.00	238.00	172.00	174.00	244.00	188.00	187.00	286.00	212.00	214.00	280.00	236.00	238.00	288.00	245.00	253.00	635.00	4,373.00	4,373.00		
405(1)c	Structural Concrete Class A1 (fc=21MPa, max. aggregate 20mm) for small & medium bridges RCDD superstructures	m3	-	-	-	-	-	-	-	-	-	-	192.00	150.00	150.00	-	-	-	-	492.00	492.00		
405(1)d	Structural Concrete Class A1 (fc=21MPa, max. aggregate 20mm) for small & medium bridges PCDD superstructures	m3	118.00	74.44	59.00	59.00	75.00	59.00	59.00	97.95	78.00	78.00	-	-	-	98.00	78.00	78.00	208.00	1,220.39	1,221.00		
405(2)	Structural Concrete Class B (fc=17MPa, max. aggregate 50mm) for plain or lightly reinforced structures	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,311.00		
405(3)	Structural Concrete Class C (fc=21MPa, max. aggregate 12mm) for thin reinforced members	m3	25.00	15.20	25.00	25.00	16.00	25.00	25.00	17.30	29.00	30.00	14.00	26.00	26.00	18.00	29.00	29.00	35.00	409.50	410.00		
405(6)	Lean Concrete (fc=17MPa, max. aggregate 38mm)	m3	41.00	29.00	30.00	33.00	12.00	10.00	10.00	24.00	34.00	38.00	16.00	12.00	12.00	31.00	35.00	39.00	61.00	467.00	479.00		
406(1)a	Precast Prestressed Structural Concrete Member (AASHTO Girder Type IV L=20m)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.00	15.00	15.00		
406(1)c	Precast Prestressed Structural Concrete Member (AASHTO Girder Type IV L=24m)	each	-	5.00	4.00	4.00	5.00	4.00	4.00	-	-	-	-	-	-	-	-	-	-	26.00	26.00		
406(1)f	Precast Prestressed Structural Concrete Member (AASHTO Girder Type IV-B L=31m)	each	-	-	-	-	-	-	-	5.00	4.00	4.00	-	-	-	5.00	4.00	4.00	-	26.00	26.00		
406(1)g	Precast Prestressed Structural Concrete Member (AASHTO Girder Type VI L=35m)	each	5.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.00	5.00		
407(1)g	Elastomeric Bearing Pad, Duro 60 (550x300x50mm)	each	-	-	-	-	-	-	-	-	-	-	6.00	6.00	6.00	-	-	-	-	18.00	18.00		
407(1)c	Elastomeric Bearing Pad, Duro 60 (600x350x50mm)	each	10.00	10.00	8.00	8.00	10.00	8.00	8.00	10.00	8.00	8.00	-	-	-	10.00	8.00	8.00	30.00	144.00	144.00		
407(2)a	Expansion Joint, 40mm Movement	m	20.00	20.00	14.00	14.00	20.00	14.00	14.00	20.00	14.00	14.00	20.00	20.00	20.00	20.00	14.00	14.00	20.00	292.00	292.00		
407(2)g	Expansion Joint, 30mm for bridge sidewalk	m	4.00	4.00	6.00	6.00	4.00	6.00	6.00	4.00	6.00	7.00	4.00	6.00	6.00	4.00	6.00	6.00	4.00	89.00	89.00		
407(4)	G.I. Drain Pipe 150mm for Bridge Drainage	m	3.00	2.25	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	5.00	53.25	54.00		

 JICA JAPAN INTERNATIONAL COOPERATION AGENCY		 KATAHIRA & ENGINEERS INTERNATIONAL		 YACHIYO ENGINEERING CO., LTD.		DATE: 10/09/18 SIGNATURE: [Signature] DESIGNED: 10/09/18 CHECKED: 10/16/18 SUBMITTED: 10/18/18		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS P.W. - P.W. BUREAU OF DESIGN OFFICE OF THE SECRETARY Submitted By: DANLO C. TRAJANO Reviewed By: JOSEFINA M. ALAGAR Recommended By: GILBERTO S. REYES Recommended By: MANUEL M. BONGAN Approved By: 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 II		SCALE : FULL SIZE A1		SHEET CONTENTS : SUMMARY OF QUANTITIES (ULTIMATE STAGE) 2 of 4		SHEET NO. : GC-12	
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SUMMARY OF QUANTITIES (ULTIMATE STAGE)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY (HIGHWAY AND DRAINAGE)																REMARKS
			BYPASS	A-13	A-14	A-14a	A-15a	A-15	C-1L	C-1R	A-16	A-17	B-8	A-18	B-9	A-19	A-20	SUBTOTAL (HIGHWAY)	
PART G - DRAINAGE AND SLOPE PROTECTION STRUCTURES																			
500(1)b4	RCPC Standard Strength (32MPa), Ø 610mm (24")	m	8,734.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,734.00	
500(1)c3	RCPC Extra Strength (32MPa), Ø 460mm (18")	m	1,493.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,493.00	
502(2)a1	Drop Inlet Manhole for RCPC 1-Ø 460 x 1-Ø 460	each	172.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	172.00	
502(2)a2	Drop Inlet Manhole for RCPC 1-Ø 610 x 1-Ø 460	each	275.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	275.00	
502(2)c14	Junction Box Converted to Curb Inlet Manhole for RCPC 1-Ø 910 x 1-Ø 610	each	67.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67.00	
502(2)c15	Junction Box Converted to Curb Inlet Manhole for RCPC 1-Ø 1070 x 1-Ø 610	each	18.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.00	
502(2)c16	Junction Box Converted to Curb Inlet Manhole for RCPC 1-Ø 1220 x 1-Ø 610	each	12.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.00	
502(2)c17	Junction Box Converted to Curb Inlet Manhole for RCPC 1-Ø 1520 x 1-Ø 610	each	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00	
502(2)c36	Junction Box Converted to Curb Inlet Manhole for RCPC 2-Ø 1220 x 1-Ø 610	each	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00	
504(5)	Grouted Riprap Class A	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
508(1)	Hand Laid Rock Apron (Loose Boulder Apron)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
507(2)b	Steel Sheet Piles (400x85x8mm), furnished & driven	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
509(1)	Gabions	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
510(1)	Rubble Concrete Slope Protection	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
PART H - MISCELLANEOUS STRUCTURES																			
600(1)a	Concrete Curb, Type A (200x450mm)	m	12,478.91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,478.91	
600(3)a	Combination Concrete Curb & Gutter/Side Strip, Type A (Ø75x354mm)	m	30,857.00	-	43.00	-	-	-	-	-	-	-	-	-	-	69.50	-	30,970.00	
600(3)b	Combination Concrete Curb & Gutter/Side Strip, Type B (Ø75x334mm)	m	13,594.73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,595.00	
601(1)	PCC Pavement for Sidewalk (t=100mm)	m2	24,755.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24,756.00	
605(2)a	Regulatory Signs (Triangular 1039mm)	each	11.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.00	
605(2)c	Regulatory Signs (Circular Ø 600mm)	each	36.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36.00	
605(2)d	Regulatory Signs (Rectangular 450x750mm)	each	6.00	-	-	-	-	2.00	-	-	-	-	-	-	-	-	-	8.00	
605(4)d	Special Signs (850x750mm)	each	9.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.00	
608(1)	Furnishing and Placing Top Soil	m3	3,945.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,946.00	
610(1)	Sodding	m2	39,457.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39,458.00	
611(1)a	Trees (Furnishing and Transplanting) Low Tree H = 1.5m	each	93,008.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93,008.00	
611(1)b	Trees (Furnishing and Transplanting) Medium Tree 1.5m < H = 3.0m	each	4,842.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,842.00	
611(1)c	Trees (Furnishing and Transplanting) High Tree (Young Tree) 1.5m < H = 3.0m	each	101.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	101.00	
SPL 611(3)a	Planter Box of CHB (1.00m x 1.00m) for Road Side Plantation	each	1,101.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,101.00	
SPL 611(4)b	Planter Square Type B (0.68mx1.70m) for Road Side Plantation	each	653.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	653.00	
612(1)a	Reflectorized Thermoplastic Pavement Markings (White)	m2	7,680.73	-	10.33	-	-	29.28	-	-	102.09	99.11	-	71.50	-	69.89	42.98	8,107.00	
SPL 612(2)	Removal of Existing Thermoplastic Pavement Markings	m2	385.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	387.00	
SPL 620(4)a	Street Lighting Poles (Single Lamp)	each	61.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61.00	
SPL 620(4)b	Fluorescent Lighting for Underpass Culverts	each	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00	
SPL 620(5)b	Relocation of Street Lighting Poles (Dual Lamp)	each	8.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.00	

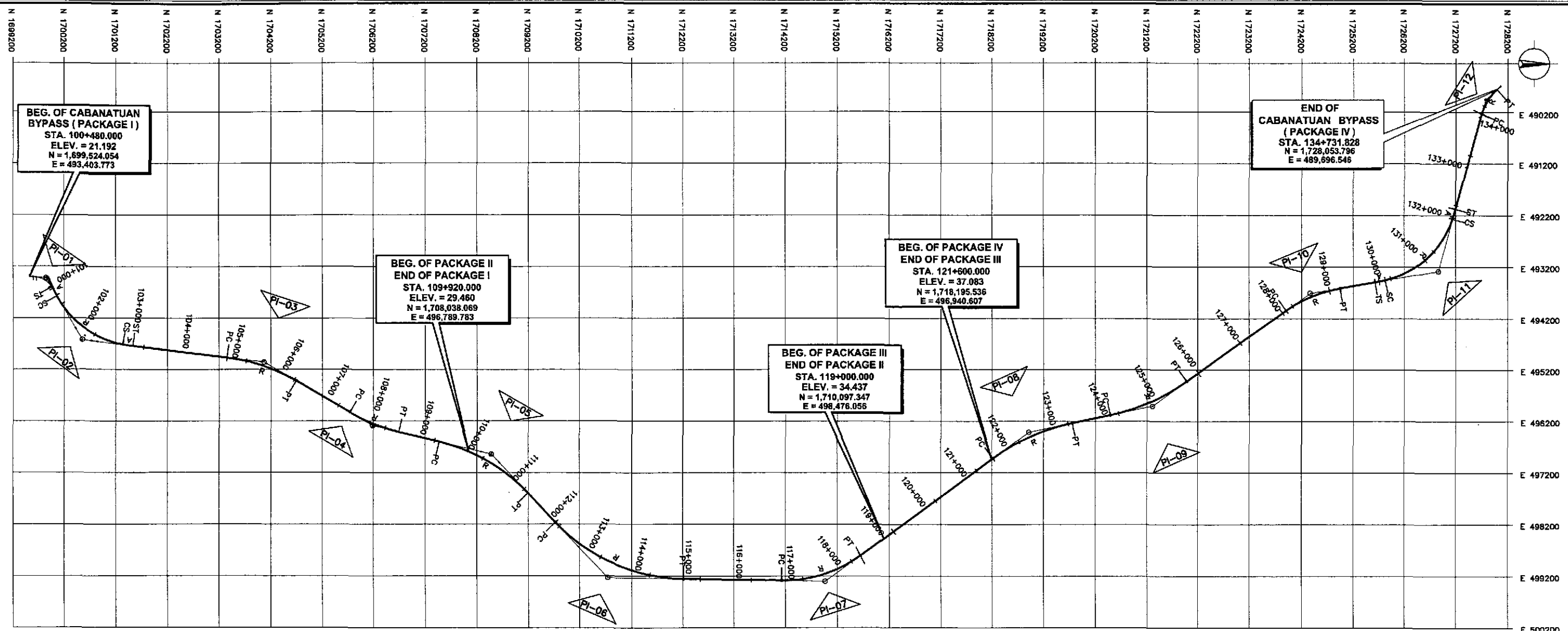
 JAPAN INTERNATIONAL COOPERATION AGENCY		 KATAHIRA & ENGINEERS INTERNATIONAL		 YACHIYO ENGINEERING CO., LTD.		 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS						PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II				SCALE : FULL SIZE A1		SHEET CONTENTS : SUMMARY OF QUANTITIES (ULTIMATE STAGE) 3 of 4		SHEET NO. : GC-13	
DESIGNED	DATE	SIGNATURE	SUBMITTED BY		SUBMITTED BY		SUBMITTED BY		SUBMITTED BY		SUBMITTED BY		SUBMITTED BY		SUBMITTED BY		SUBMITTED BY				
CHECKED	10/16/02	J. TAPIA	DANILO C. TRAJANO		JOSEFINA M. ALAGAR		GILBERTO S. REYES		MANUEL M. BONOAN		SIMEON A. DATUMANONG										
SUBMITTED	10/18/02	TEAM LEADER	Project Director		Chief, Highways Division		OC, Director N		Undersecretary		Secretary										

SUMMARY OF QUANTITIES (ULTIMATE STAGE)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY (BRIDGE)																		SUBTOTAL (BRIDGE)	TOTAL (HIGHWAY AND BRIDGE)	REMARKS
			BRIDGE #3	BRIDGE #4	BRIDGE #4 (LT)	BRIDGE #4 (RT)	BRIDGE #5	BRIDGE #5 (LT)	BRIDGE #5 (RT)	BRIDGE #6	BRIDGE #6 (LT)	BRIDGE #6 (RT)	BRIDGE #7	BRIDGE #7 (LT)	BRIDGE #7 (RT)	BRIDGE #8	BRIDGE #8 (LT)	BRIDGE #8 (RT)	BRIDGE #9				
PART G - DRAINAGE AND SLOPE PROTECTION STRUCTURES																							
500(1)b4	RCPC Standard Strength (32MPa), Ø 610mm (24")	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,734.00		
500(1)c3	RCPC Extra Strength (32MPa), Ø 460mm (18")	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,493.00		
502(2)a1	Drop Inlet Manhole for RCPC 1-Ø 460 x 1-Ø 460	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	172.00		
502(2)a2	Drop Inlet Manhole for RCPC 1-Ø 610 x 1-Ø 460	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	275.00		
502(2)c14	Junction Box Converted to Curb Inlet Manhole for RCPC 1-Ø 910 x 1-Ø 610	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67.00		
502(2)c15	Junction Box Converted to Curb Inlet Manhole for RCPC 1-Ø 1070 x 1-Ø 610	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.00		
502(2)c16	Junction Box Converted to Curb Inlet Manhole for RCPC 1-Ø 1220 x 1-Ø 610	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.00		
502(2)c17	Junction Box Converted to Curb Inlet Manhole for RCPC 1-Ø 1520 x 1-Ø 610	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00		
502(2)c36	Junction Box Converted to Curb Inlet Manhole for RCPC 2-Ø 1220 x 1-Ø 610	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00		
504(5)	Grouted Riprap Class A	m3	38.00	28.00	23.00	33.00	80.00	94.00	116.00	28.00	19.00	32.00	96.00	92.00	111.00	27.00	25.00	37.00	37.00	916.00	916.00		
506(1)	Hand Laid Rock Apron (Loose Boulder Apron)	m3	82.00	52.00	62.00	70.00	46.00	64.00	72.00	52.00	68.00	75.00	-	-	-	52.00	68.00	78.00	92.00	933.00	933.00		
507(2)b	Steel Sheet Piles (400x85x8mm), furnished & driven	m	-	378.00	446.00	503.00	-	-	-	-	-	-	-	-	-	-	-	-	-	1,327.00	1,327.00		
509(1)	Gabions	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	146.00	146.00	146.00		
510(1)	Rubble Concrete Slope Protection	m3	76.00	70.00	56.00	67.00	-	-	-	83.00	75.00	82.00	-	-	-	91.00	77.00	90.00	135.00	902.00	902.00		
PART H - MISCELLANEOUS STRUCTURES																							
600(1)a	Concrete Curb, Type A (200x450mm)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,479.00		
600(3)a	Combination Concrete Curb & Gutter/Side Strip, Type A (675x364mm)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30,970.00		
600(3)b	Combination Concrete Curb & Gutter/Side Strip, Type B (675x334mm)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,595.00		
601(1)	PCC Pavement for Sidewalk (t=100mm)	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24,756.00		
605(2)a	Regulatory Signs (Triangular 1039mm)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.00		
605(2)c	Regulatory Signs (Circular Ø 600mm)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36.00		
605(2)d	Regulatory Signs (Rectangular 450x750mm)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.00		
605(4)d	Special Signs (850x750mm)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.00		
608(1)	Furnishing and Placing Top Soil	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,946.00		
610(1)	Sodding	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39,458.00		
611(1)a	Trees (Furnishing and Transplanting) Low Tree H = 1.5m	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93,008.00		
611(1)b	Trees (Furnishing and Transplanting) Medium Tree 1.5m < H = 3.0m	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,842.00		
611(1)c	Trees (Furnishing and Transplanting) High Tree (Young Tree) 1.5m < H = 3.0m	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	101.00		
SPL 611(3)a	Planter Box of CHB (1.00m x 1.00m) for Road Side Plantation	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,101.00		
SPL 611(4)b	Planter Square Type B (0.68mx1.70m) for Road Side Plantation	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	653.00		
612(1)a	ReflectORIZED Thermoplastic Pavement Markings (White)	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,107.00		
SPL 612(2)	Removal of Existing Thermoplastic Pavement Markings	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	387.00		
SPL 620(4)a	Street Lighting Poles (Single Lamp)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61.00		
SPL 620(4)e	Fluorescent Lighting for Underpass Culverts	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00		
SPL 620(5)b	Relocation of Street Lighting Poles (Dual Lamp)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.00		

JICA JAPAN INTERNATIONAL COOPERATION AGENCY	DESIGNED	DATE	SIGNATURE	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :				SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/09/02			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)				FULL SIZE A1	SUMMARY OF QUANTITIES (ULTIMATE STAGE) 4 of 4	GC-14
	SUBMITTED	10/18/02									
	SUBMITTED BY: DANILO C. TRAJANO (Project Director) REVIEWED BY: JOSEFINA M. ALAGAR (Chief, Highways Division) RECOMMENDED BY: GILBERTO S. REYES (OIC, Director IV) RECOMMENDED BY: MANUEL M. BONGAN (Undersecretary) APPROVED BY: SIMEON A. DATUMANONG (Secretary)				CABANATUAN BYPASS - CONTRACT PACKAGE II						

R O A D W A Y

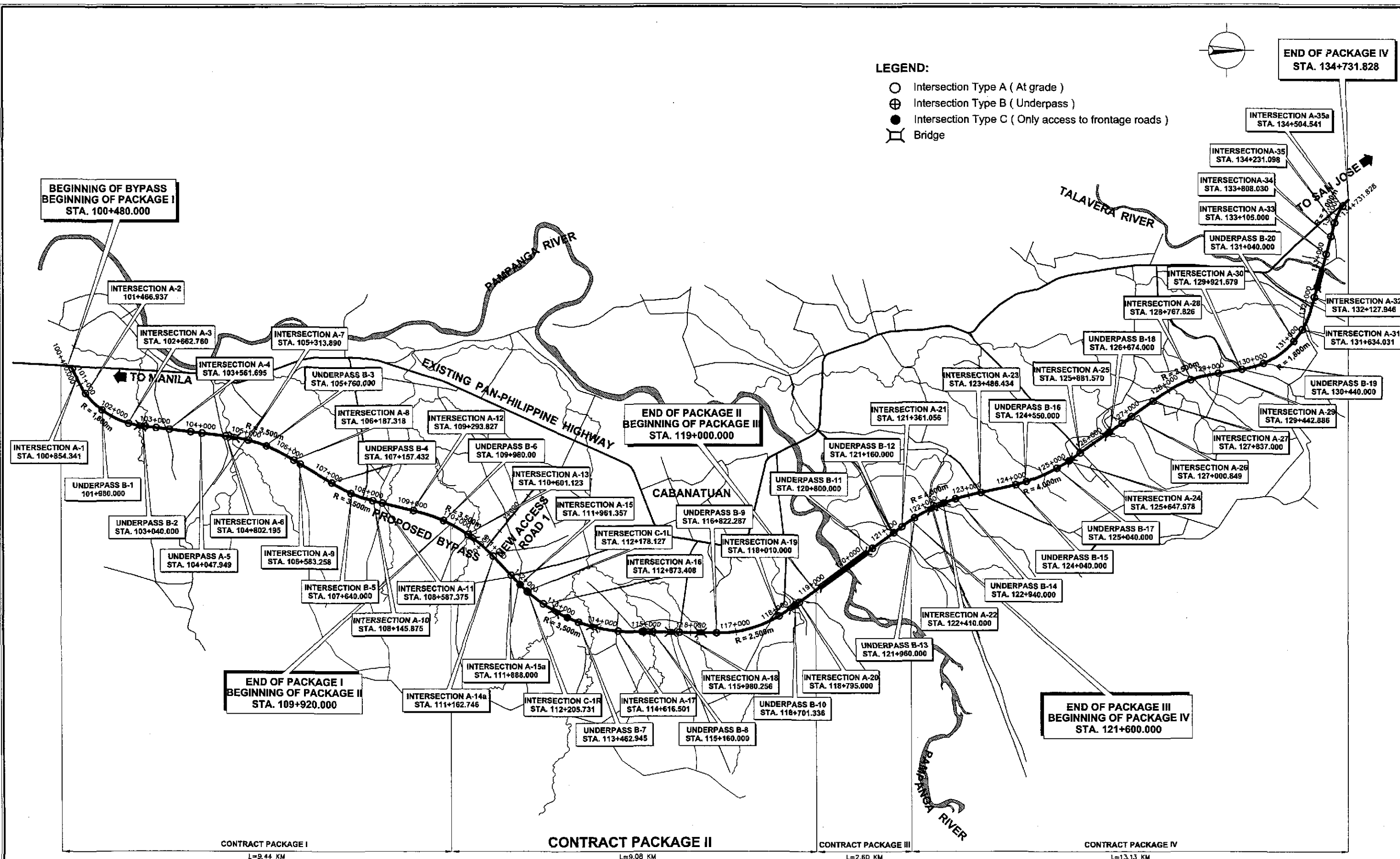


ELEMENTS OF CURVES								
P.I. No.	STATION	DISTANCE	AZIMUTH	TANGENT Ts	DEFLECTION ANGLE	A R	Ls Lc	STATION
BEG.	100+480.00							
01	100+806.146	326.146	183°25'21"	246.146	58°16'36"	180.000	84.000	TS=100+580.000 SC=100+624.000 CS=100+952.888 ST=101+018.888
		1,385.199	239°41'57"	4°35'01"		400.000	328.888	TS=101+164.756 SC=101+384.756
02	102+155.940			147.870	52°39'26"	600.000	200.000	TS=102+819.034 SC=103+019.034
		3,544.720	187°02'31"	3°10'58"		1,800.000	1,454.277	
03	105+572.571			720.109	23°15'08"	-	-	PC=104+852.482 PT=106+272.858
		2,451.020	210°17'38"	-		3,500.000	1,420.387	
04	108+003.789			514.528	16°43'34"	-	-	PC=107+489.241 PT=108+510.979
		2,363.853	193°34'05"	-		3,500.000	1,021.737	
05	110+380.304			1,035.121	32°37'04"	-	-	PC=108+325.183 PT=111+338.048
		3,288.872	226°31'09"	-		3,500.000	2,012.885	
06	113+591.799			1,489.788	45°33'32"	-	-	PC=112+122.011 PT=114+905.046
		4,225.528	180°57'37"	-		3,500.000	2,783.035	
07	117+680.785			840.295	37°09'25"	-	-	PC=116+820.480 PT=118+441.763
		4,885.881	143°48'12"	-		2,500.000	1,621.273	

ELEMENTS OF CURVES								
P.I. No.	STATION	DISTANCE	AZIMUTH	TANGENT Ts	DEFLECTION ANGLE	A R	Ls Lc	STATION
08	122+487.348	4,885.881	143°48'12"	856.882	24°11'07"	-	-	PC=121+830.358 PT=123+318.815
		2,447.505	167°59'20"	-		4,000.000	1,688.459	
09	124+808.328			837.385	23°38'52"	-	-	PC=124+071.944 PT=125+722.871
		3,773.512	144°20'28"	-		4,000.000	1,650.927	
10	128+858.998			577.297	28°10'20"	-	-	PC=128+081.701 PT=129+216.405
		2,530.124	170°20'47"	-		2,500.000	1,134.704	
11	131+168.232			1,250.689	85°09'11"	800.000	200.000	TS=128+918.543 SC=130+118.543
		3,450.454	105°11'37"	3°10'59"		1,800.000	1,846.841	CS=131+965.384 ST=132+165.384
12	134+385.149			282.954	32°38'23"	-	-	PC=134+072.198 PT=134+842.155
		382.627	137°50'54"	-		1,000.000	589.960	
END	134+731.823							

TABLE OF COORDINATES				
P.I. No.	NORTHING	EASTING	NORTHING	EASTING
BEG.	1,699,524.054	483,403.773		
01	1,699,849.619	483,423.243	TS 1,699,803.912	483,408.548
			SC 1,699,867.855	483,414.070
			CS 1,699,940.088	483,581.402
			ST 1,699,973.808	483,635.763

TABLE OF COORDINATES				
P.I. No.	NORTHING	EASTING	NORTHING	EASTING
02	1,700,548.505	484,619.209	TS 1,700,048.415	483,763.432
			SC 1,700,182.489	483,934.189
			CS 1,701,334.238	484,712.538
			ST 1,701,532.212	484,740.724
03	1,704,066.486	485,053.779	PC 1,703,351.810	484,985.498
			PT 1,704,888.282	485,417.031
			PC 1,705,738.544	486,030.623
04	1,708,182.811	486,290.171	PT 1,706,882.980	486,410.880
			PC 1,707,474.461	486,601.893
05	1,708,480.693	486,844.734	PT 1,708,192.973	487,595.822
			PC 1,708,732.427	488,184.670
06	1,710,743.806	489,231.154	PT 1,712,213.387	489,255.786
			PC 1,714,128.561	489,287.887
07	1,714,968.738	489,301.970	PT 1,715,846.852	489,805.727
			PC 1,718,220.033	489,922.679
08	1,718,911.622	489,416.576	PT 1,719,749.852	489,238.234
			PC 1,720,488.483	489,081.508
09	1,721,305.544	489,907.244	PT 1,721,985.920	489,419.082
			PC 1,723,902.473	489,043.979
10	1,724,371.527	483,707.438	PT 1,724,940.649	483,610.632
			TS 1,725,832.845	483,492.891
11	1,728,865.824	483,283.164	SC 1,725,829.332	483,455.713
			CS 1,727,137.632	482,288.171
			ST 1,727,193.605	482,078.182
12	1,727,770.121	489,953.318	PC 1,727,893.343	489,238.031
			PT 1,727,987.313	489,756.723
END				





A LOCATION OF PROPOSED INTERSECTIONS / UNDERPASSES ALONG BYPASS
RG-03 SCALE 1:40,000

JICA JAPAN INTERNATIONAL COOPERATION AGENCY		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		SCALE : 1:40,000 FULL SIZE A1	SHEET CONTENTS : LOCATION OF INTERSECTIONS / UNDERPASSES ALONG BYPASS	SHEET NO. : RG-03
KATAMIRA & ENGINEERS INTERNATIONAL		DESIGNED 10/09/02 S. GARCIA	CHECKED 10/16/02 S. GARCIA	SUBMITTED 10/18/02 M. RIVERA	DATE 10/09/02 S. GARCIA	SIGNATURE S. GARCIA	PUHL - PMO Submitted By:	BUREAU OF DESIGN Reviewed By:	OFFICE OF THE SECRETARY Recommended By:	Approved By:
YACHIO ENGINEERING CO., LTD.		DANILLO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE II			

SCHEDULE OF TRAFFIC SIGNS (ULTIMATE STAGE)

SCHEDULE OF GUARDRAIL (ULTIMATE STAGE)

ITEM 605 (1) WARNING SIGNS (TRIANGULAR 900mm)			ITEM 605 (2)d REGULATORY SIGNS (CIRCULAR 600mm DIA.)			ITEM 605 (3) INFORMATORY SIGNS			1.)SIDEWALK PLANTING (MIDDLE TREE)			
STATION	REF. NO.	REMARKS	STATION	REF. NO.	REMARKS	STATION	REF. NO.	REMARKS	STATION	TO	LEFT	RIGHT
110+980	W3-1	RIGHTSIDE MAIN BYPASS	110+662	R6-4	RIGHT SIDE MAIN BYPASS	a. 1984 x 1110			FROM			
111+000	W4-2(R)*	LEFT SIDE MAIN BYPASS	110+715	R6-4**	LEFT SIDE MAIN BYPASS	00+060	GS-2	LEFT SIDE INTERSECTION A-14	109+300	110+000	0	0
111+173	W3-1**	LEFT SIDE MAIN BYPASS	111+089	R3-15**	CENTER ISLAND MAIN BYPASS	b. 2472 x 1380			110+000	110+700	0	0
111+774	W4-2(R)*	LEFT SIDE MAIN BYPASS	111+112	R3-15**	CENTER ISLAND MAIN BYPASS	110+940	GS-8	RIGHT SIDE MAIN BYPASS	110+700	111+400	280	350
111+860	W3-1**	RIGHT SIDE MAIN BYPASS	00+020	R3-15	CENTER ISLAND INTERSECTION A-14	111+370	GS-9**	LEFT SIDE MAIN BYPASS	111+400	112+100	625	640
112+080	W3-1**	LEFT SIDE MAIN BYPASS	111+330	R2-4*	LEFT SIDE MAIN BYPASS	111+620	GS-10**	RIGHT SIDE MAIN BYPASS	112+100	112+800	660	660
112+773	W2-8**	RIGHT SIDE MAIN BYPASS	111+669	R2-4*	RIGHT SIDE MAIN BYPASS	c. 2472 x 1900			112+800	113+500	595	585
112+973	W2-8**	LEFT SIDE MAIN BYPASS	111+940	R3-15**	CENTER ISLAND MAIN BYPASS	112+300	GS-11**	LEFT SIDE MAIN BYPASS	113+500	114+200	640	640
114+515	W2-8**	RIGHT SIDE MAIN BYPASS	111+940	R3-14*	RIGHT SIDE MAIN BYPASS	d. 1984 x 1630			114+200	114+900	640	640
114+717	W2-8**	LEFT SIDE MAIN BYPASS	111+982	R3-14*	LEFT SIDE MAIN BYPASS	00+900	GS-12	RIGHT SIDE INTERSECTION A-15	114+900	115+600	600	600
115+785	W3-1	RIGHT SIDE MAIN BYPASS	111+982	R3-15**	CENTER ISLAND MAIN BYPASS	e. 2442 x 1900			115+600	116+300	620	600
116+100	W3-1**	LEFT SIDE MAIN BYPASS	00+982	R3-15**	CENTER ISLAND INTERSECTION A-15	01+100	GS-13	LEFT SIDE INTERSECTION A-15	116+300	117+000	620	590
117+885	W3-1**	RIGHT SIDE MAIN BYPASS	01+019	R3-15	CENTER ISLAND INTERSECTION A-15	01+100	GS-13	RIGHT SIDE INTERSECTION A-18	117+000	117+700	700	700
118+140	W3-1	LEFT SIDE MAIN BYPASS	112+148	R2-5*	RIGHT SIDE MAIN BYPASS	f. 2560 x 1900			117+700	118+400	280	270
118+680	W2-8	RIGHT SIDE MAIN BYPASS	112+250	R2-4*	LEFT SIDE MAIN BYPASS	115+740	GS-14**	RIGHT SIDE MAIN BYPASS	118+400	119+100	0	0
118+900	W2-8**	LEFT SIDE MAIN BYPASS	112+609	R2-4*	RIGHT SIDE MAIN BYPASS	116+320	GS-15**	LEFT SIDE MAIN BYPASS				
			112+858	R3-15*	CENTER ISLAND MAIN BYPASS	g. 2530 x 1630						
			112+868	R3-14*	RIGHT SIDE MAIN BYPASS	00+900	GS-16	RIGHT SIDE INTERSECTION A-18				
			112+879	R3-14*	LEFT SIDE MAIN BYPASS	00+920	GS-16	RIGHT SIDE INTERSECTION A-19				
			112+889	R3-15*	CENTER ISLAND MAIN BYPASS	h. 2560 x 1630						
			113+153	R2-4*	LEFT SIDE MAIN BYPASS	117+680	GS-17**	RIGHT SIDE MAIN BYPASS				
			113+160	R6-4*	RIGHT SIDE MAIN BYPASS	118+180	GS-18**	LEFT SIDE MAIN BYPASS				
			113+172	R6-4	RIGHT SIDE MAIN BYPASS	i. 2450 x 1630						
			113+220	R6-4**	LEFT SIDE MAIN BYPASS	01+070	GS-19	RIGHT SIDE INTERSECTION A-19				
			113+227	R6-4*	LEFT SIDE MAIN BYPASS	TOTAL NO. OF INFORMATORY SIGNS 15.0 PCS.						
			114+067	R6-4*	RIGHT SIDE MAIN BYPASS	ITEM 605 (4) SPECIAL INSTRUCTION SIGNS						
			114+068	R6-4	RIGHT SIDE MAIN BYPASS	STATION	REF. NO.	REMARKS				
			114+112	R6-4**	LEFT SIDE MAIN BYPASS	111+330	S2-11*	LEFT SIDE MAIN BYPASS				
			114+115	R6-4*	LEFT SIDE MAIN BYPASS	111+669	S2-11*	RIGHT SIDE MAIN BYPASS				
			114+352	R2-4*	RIGHT SIDE MAIN BYPASS	112+250	S2-11*	LEFT SIDE MAIN BYPASS				
			114+600	R3-15*	CENTER ISLAND MAIN BYPASS	112+609	S2-11*	RIGHT SIDE MAIN BYPASS				
			114+612	R3-14*	RIGHT SIDE MAIN BYPASS	113+153	S2-11*	LEFT SIDE MAIN BYPASS				
			114+822	R3-14*	LEFT SIDE MAIN BYPASS	114+352	S2-11*	RIGHT SIDE MAIN BYPASS				
			114+833	R3-15*	CENTER ISLAND MAIN BYPASS	114+880	S2-11*	LEFT SIDE MAIN BYPASS				
			114+880	R2-4*	LEFT SIDE MAIN BYPASS	116+260	S2-11*	LEFT SIDE MAIN BYPASS				
			115+295	R6-4*	RIGHT SIDE MAIN BYPASS	117+720	S2-11*	RIGHT SIDE MAIN BYPASS				
			115+299	R6-4	RIGHT SIDE MAIN BYPASS							
			115+349	R6-4**	LEFT SIDE MAIN BYPASS							
			115+357	R6-4*	LEFT SIDE MAIN BYPASS							
			115+785	R6-4	RIGHT SIDE MAIN BYPASS							
			115+788	R6-4*	RIGHT SIDE MAIN BYPASS							
			115+823	R6-4*	LEFT SIDE MAIN BYPASS							
			115+828	R6-4**	LEFT SIDE MAIN BYPASS							
			115+966	R3-15**	CENTER ISLAND MAIN BYPASS							
			115+966	R3-14*	RIGHT SIDE MAIN BYPASS							
			115+990	R3-14*	LEFT SIDE MAIN BYPASS							
			115+995	R3-15**	CENTER ISLAND MAIN BYPASS							
			00+982	R3-15	CENTER ISLAND INTERSECTION A-18							
			01+020	R3-15	CENTER ISLAND INTERSECTION A-18							
			116+260	R2-4*	LEFT SIDE MAIN BYPASS							
			116+433	R6-4*	RIGHT SIDE MAIN BYPASS							
			116+443	R6-4	RIGHT SIDE MAIN BYPASS							
			116+495	R6-4**	LEFT SIDE MAIN BYPASS							
			116+505	R6-4*	LEFT SIDE MAIN BYPASS							
			117+720	R2-4*	RIGHT SIDE MAIN BYPASS							
			117+991	R3-15**	CENTER ISLAND MAIN BYPASS							
			117+991	R3-14*	RIGHT SIDE MAIN BYPASS							
			118+030	R3-15**	CENTER ISLAND MAIN BYPASS							
			118+030	R3-14*	LEFT SIDE MAIN BYPASS							
			00+978	R3-15	CENTER ISLAND INTERSECTION A-19							
			01+022	R3-15	CENTER ISLAND INTERSECTION A-19							
			118+577	R6-4	RIGHT SIDE MAIN BYPASS							
			118+650	R6-4**	LEFT SIDE MAIN BYPASS							
			118+778	R3-15*	CENTER ISLAND MAIN BYPASS							
			118+818	R3-15*	CENTER ISLAND MAIN BYPASS							

 JAPAN INTERNATIONAL COOPERATION AGENCY		DATE: 10/07/02 DESIGNED: [Signature] CHECKED: 10/16/02 SUBMITTED: 10/18/02		 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		SCALE : FULL SIZE A1		SHEET CONTENTS : SCHEDULE OF PAVEMENT SURFACING, GUARDRAIL, TRAFFIC SIGNS, SLOPE PROTECTION AND ROADWAY PLANTINGS		SHEET NO. : RG-04	
KATAHIRA & ENGINEERS INTERNATIONAL		YACHIO ENGINEERING CO., LTD.		DANILLO C. TRAJANO Project Director		JOSEFINA M. ALAGAR Chief, Highway Division		GILBERTO S. REYES OIC, Director IV		MANUEL M. BONGAN Undersecretary		SIMEON A. DATUMANONG Secretary	

SCHEDULE OF PAVEMENT MARKINGS



CONTRACT PACKAGE II (ULTIMATE STAGE)

ITEM 612(1) - REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS

1.0 CENTER LINE				2.3 LEFT SIDE, RIGHT EDGE OF FRONTAGE ROAD				2.5 RIGHT SIDE, OUTER EDGE OF MAIN BYPASS				2.8 RIGHT SIDE, RIGHT EDGE OF FRONTAGE ROAD			
STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS
FROM	TO			FROM	TO			FROM	TO			FROM	TO		
00+099.02	02+377.19	2278.17	A-14: 100mm x 3.0m @ 4.50m GAP	00+021.00	111+124.82	21.34	RT OF A-14 TO FRONTAGE ROAD	117+884.86	117+996.96	112.10	MAIN BYPASS	01+036.95	01+110.00	73.05	LEFT OF A-18
00+855.00	00+922.39	57.39	A-15: 100mm x 3.0m @ 4.50m GAP	111+124.82	111+173.04	48.22	FRONTAGE ROAD	117+996.96	01+031.36	16.63	MAIN BYPASS TO RT OF A-19	01+036.95	116+004.20	29.81	LT OF A-18 TO FRONTAGE ROAD
01+058.00	01+160.00	92.00	A-15: 100mm x 3.0m @ 4.50m GAP	111+233.04	111+775.76	542.72	FRONTAGE ROAD	01+041.73	01+130.00	88.27	LEFT OF A-19	116+004.20	117+972.70	1988.50	FRONTAGE ROAD
00+900.00	00+952.86	52.86	A-16: 100mm x 3.0m @ 4.50m GAP	111+835.76	111+940.63	104.87	FRONTAGE ROAD	01+041.73	118+040.53	53.49	LT OF A-19 TO MAIN BYPASS	117+972.70	01+043.60	23.28	FRONTAGE ROAD TO RT OF A-19
00+952.86	00+982.96	30.10	A-16: 100mm UNBROKEN LINE	111+940.63	00+981.63	24.67	FRONTAGE ROAD TO RT OF A-15	118+040.53	118+776.90	736.37	MAIN BYPASS	01+043.60	01+130.00	86.40	RIGHT OF A-19
01+016.75	01+046.75	30.00	A-16: 100mm UNBROKEN LINE	00+967.37	112+000.46	22.47	LT OF A-15 TO FRONTAGE ROAD	118+776.90	01+029.70	36.65	MAIN BYPASS TO RT OF A-20	3.0 LANE LINES			
01+046.75	01+100.00	53.25	A-16: 100mm x 3.0m @ 4.50m GAP	112+000.46	112+086.73	86.27	FRONTAGE ROAD	01+029.70	01+170.00	140.30	RIGHT OF A-20				
00+900.00	00+951.34	51.34	A-17: 100mm x 3.0m @ 4.50m GAP	112+146.95	112+855.23	708.28	FRONTAGE ROAD	01+027.74	01+170.00	142.26	LEFT OF A-20	STATION		LENGTH (m)	REMARKS
00+951.34	00+981.34	30.00	A-17: 100mm UNBROKEN LINE	112+855.23	00+982.30	14.43	FRONTAGE ROAD TO RT OF A-16	01+027.74	118+818.87	17.80	LT OF A-20 TO MAIN BYPASS	FROM	TO		
01+018.65	01+048.65	30.00	A-17: 100mm UNBROKEN LINE	00+980.70	112+891.64	15.82	LT OF A-16 TO FRONTAGE ROAD	118+818.87	119+000.00	181.13	MAIN BYPASS	109+920.00	110+889.14	969.14	(LS) LANE LINE 150mm x 3.0m @ 9.0m GAP
01+048.65	01+100.00	51.35	A-17: 100mm x 3.0m @ 4.50m GAP	112+891.64	112+973.21	81.57	FRONTAGE ROAD	2.6 RIGHT SIDE, INNER EDGE OF MAIN BYPASS				110+889.14	111+089.14	200.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
00+740.00	00+906.76	166.76	A-18: 100mm x 3.0m @ 4.50m GAP	113+033.41	114+591.36	1557.95	FRONTAGE ROAD					110+967.98	111+089.14	121.16	(LS) OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
01+081.73	01+130.00	48.27	A-18: 100mm x 3.0m @ 4.50m GAP	114+591.36	00+976.64	23.91	FRONTAGE ROAD TO RT OF A-17	STATION		LENGTH (m)	REMARKS	109+920.00	110+889.14	969.14	(RS) LANE LINE 150mm x 3.0m @ 9.0m GAP
00+890.00	00+944.13	54.13	A-20: 100mm x 3.0m @ 4.50m GAP	00+976.64	114+638.03	21.79	LT OF A-17 TO FRONTAGE ROAD	FROM	TO			110+889.14	111+059.14	170.00	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
00+944.13	00+974.13	30.00	A-20: 100mm UNBROKEN LINE	114+638.03	114+716.94	78.91	FRONTAGE ROAD	109+920.00	110+599.06	679.06	MAIN BYPASS	111+029.14	111+059.14	30.00	(RS) INNER LANE LINE 150mmx3.0m @ 4.50m GAP
01+025.52	01+045.52	20.00	A-20: 100mm UNBROKEN LINE	114+716.94	115+910.00	1132.86	FRONTAGE ROAD	110+603.18	111+089.92	486.74	MAIN BYPASS	111+059.14	111+089.14	60.00	(RS) 2- LANE LINE 150mm UNBROKEN
01+045.52	01+170.00	124.48	A-20: 100mm x 3.0m @ 4.50m GAP	115+910.00	115+956.43	6.43	FRONTAGE ROAD	111+106.33	111+943.19	836.86	MAIN BYPASS	111+113.04	111+143.04	30.00	(LS) LANE LINE 150mm UNBROKEN
2.0 EDGE LINES				115+956.43	00+978.16	20.73	FRONTAGE ROAD TO RT OF A-18	111+979.52	112+860.00	880.48	MAIN BYPASS	111+143.04	111+940.76	797.72	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
				00+978.16	116+010.49	24.91	LT OF A-18 TO FRONTAGE ROAD	112+860.00	114+601.97	1714.81	MAIN BYPASS	111+940.76	111+760.76	45.00	(LS) OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
2.1 LEFT SIDE, OUTER EDGE OF MAIN BYPASS				116+010.49	116+099.51	89.02	FRONTAGE ROAD	114+601.97	115+967.24	1336.35	MAIN BYPASS	111+760.76	111+775.76	15.00	(LS) LANE LINE 150mm UNBROKEN
				116+099.51	117+824.87	1665.36	FRONTAGE ROAD	115+967.24	117+992.43	1999.17	MAIN BYPASS	111+775.76	111+910.76	767.72	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS
FROM	TO			FROM	TO			FROM	TO			FROM	TO		
109+920.00	111+067.97	1147.97	MAIN BYPASS	2.4 LEFT SIDE, LEFT EDGE OF FRONTAGE ROAD				118+027.89	118+779.26	751.37	MAIN BYPASS	111+910.76	111+940.76	60.00	(RS) 2- LANE LINE 150mm UNBROKEN
111+067.97	00+038.16	38.67	MAIN BYPASS TO LT OF A-14					118+779.26	119+000.00	189.27	MAIN BYPASS	111+940.76	111+760.76	45.00	(RS) OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
00+038.16	02+377.19	2339.03	LEFT OF A-14	STATION		LENGTH (m)	REMARKS	00+012.72	00+059.02	46.30	INTERSECTION A-14	111+760.76	111+775.76	15.00	(RS) LANE LINE 150mm UNBROKEN
00+021.00	111+106.51	11.59	RIGHT OF A-14 TO MAIN BYPASS	FROM	TO			00+961.99	00+983.45	21.46	INTERSECTION A-15	111+981.95	112+011.95	60.00	(LS) 2- LANE LINE 150mm UNBROKEN
111+106.51	111+173.04	66.53	MAIN BYPASS	00+037.62	02+377.19	2339.57	RIGHT OF A-14	01+016.55	01+038.00	21.45	INTERSECTION A-15	112+011.95	112+041.25	29.30	(LS) INNER LANE LINE 150mmx3.0m @ 4.50m GAP
111+173.04	111+775.76	542.72	MAIN BYPASS	00+037.62	111+124.82	30.28	RT OF A-14 TO FRONTAGE ROAD	00+942.50	00+983.75	41.25	INTERSECTION A-18	112+041.25	112+856.95	845.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
111+775.76	111+835.76	123.00	MAIN BYPASS	111+124.82	111+940.63	815.81	FRONTAGE ROAD	01+016.55	01+057.50	41.25	INTERSECTION A-18	112+856.95	112+206.95	60.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
111+835.76	111+958.76	123.00	MAIN BYPASS	00+940.63	00+961.99	106.99	RIGHT OF A-15	00+958.43	00+979.23	20.80	INTERSECTION A-19	112+206.95	112+815.95	835.00	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP
111+958.76	00+981.63	11.10	MAIN BYPASS TO RIGHT OF A-15	00+961.99	00+982.30	97.93	LEFT OF A-15	01+020.48	01+041.73	21.25	INTERSECTION A-19	112+815.95	112+856.95	80.00	(RS) 2- LANE LINE 150mm UNBROKEN
00+981.63	111+974.76	17.78	LEFT OF A-15 TO MAIN BYPASS	111+940.63	00+961.99	40.16	FRONTAGE ROAD TO RT OF A-15	2.7 RIGHT SIDE, LEFT EDGE OF FRONTAGE ROAD				112+856.95	112+206.95	60.00	(RS) OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
111+974.76	112+086.73	111.97	MAIN BYPASS	00+982.30	00+961.99	106.99	RIGHT OF A-15					112+206.95	112+698.60	45.19	(RS) OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
112+086.73	112+855.23	708.28	MAIN BYPASS	00+982.30	00+952.93	97.93	LEFT OF A-15	STATION		LENGTH (m)	REMARKS	112+698.60	112+713.60	15.00	(RS) OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
112+855.23	00+982.30	16.30	MAIN BYPASS TO RIGHT OF A-16	00+952.93	112+000.46	24.97	LT OF A-15 TO FRONTAGE ROAD	FROM	TO			112+713.60	112+928.41	80.00	(LS) 2- LANE LINE 150mm UNBROKEN
00+982.30	112+875.46	9.60	LEFT OF A-16 TO MAIN BYPASS	112+000.46	112+855.18	854.72	FRONTAGE ROAD	111+106.60	111+775.76	669.16	FRONTAGE ROAD	112+928.41	113+088.41	160.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
112+875.46	112+973.21	96.75	MAIN BYPASS	112+855.18	00+956.00	23.64	FRONTAGE ROAD TO RT OF A-16	111+775.76	111+923.24	87.48	FRONTAGE ROAD	113+088.41	114+400.72	1312.31	(LS) LANE LINE 150mm x 3.0m @ 9.0m GAP
112+973.21	114+597.16	1563.75	MAIN BYPASS	00+956.00	00+956.00	66.00	RIGHT OF A-16	111+923.24	01+031.59	21.34	FRONTAGE ROAD TO RT OF A-15	114+400.72	114+600.72	200.00	(LS) LANE LINE 150mm x 3.0m @ 4.50m GAP
114+597.16	00+976.64	22.02	MAIN BYPASS TO RIGHT OF A-17	00+956.00	00+966.00	66.00	LEFT OF A-16	01+031.59	111+982.39	25.22	LT OF A-15 TO FRONTAGE ROAD	114+600.72	113+048.41	15.00	(LS) OUTER LANE LINE 150mm UNBROKEN
00+976.64	114+619.12	11.82	LEFT OF A-17 TO MAIN BYPASS	00+966.00	112+891.64	23.64	LT OF A-16 TO FRONTAGE ROAD	111+982.39	112+086.73	104.34	FRONTAGE ROAD	113+048.41	113+093.41	45.00	(LS) OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
114+619.12	114+716.94	97.82	MAIN BYPASS	112+891.64	114+591.36										

SCHEDULE OF PAVEMENT MARKINGS
CONTRACT PACKAGE II (ULTIMATE STAGE)
ITEM 612(1) - REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS

3.0 LANE LINES				5.0 CHEVRON				6.0 ARROWS				
STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS	ARROW TYPE	NUMBER OF ARROWS	LOCATION		
FROM	TO			FROM	TO							
118+060.16	118+090.32	30.16	(LS) INNER LANE LINE 150mmx3.0m @ 4.50m GAP	111+047.83	111+068.99	21.16	RIGHT SIDE MAIN BYPASS	A	3	APPROACHING INTERSECTION A-14		
118+030.16	118+738.47	708.31	(RS) LANE LINE 150mm x 3.0m @ 4.50m GAP	111+173.04	111+233.04	60.00	LEFT SIDE MAIN BYPASS	C	4	APPROACHING INTERSECTION A-14		
118+738.47	118+778.47	80.00	(RS) 2~ LANE LINE 150mm UNBROKEN	111+211.44	111+233.04	21.60	LEFT SIDE MAIN BYPASS	A	4	APPROACHING INTERSECTION A-15		
118+030.16	118+135.32	105.16	(RS) OUTER LANE LINE 150mmx3.0m @ 4.50m GAP	111+775.76	111+795.76	20.00	LEFT SIDE MAIN BYPASS	B	2	APPROACHING INTERSECTION A-15		
118+817.43	118+857.43	80.00	(LS) 2~ LANE LINE 150mm UNBROKEN	111+775.76	111+835.76	60.00	LEFT SIDE MAIN BYPASS	C	4	APPROACHING INTERSECTION A-15		
4.0 CONTINUITY LINE				111+775.76	111+795.76	20.00	RIGHT SIDE MAIN BYPASS	A	2	APPROACHING INTERSECTION A-16		
				111+775.76	111+835.76	60.00	RIGHT SIDE MAIN BYPASS	C	4	APPROACHING INTERSECTION A-16		
STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS	ARROW TYPE	NUMBER OF ARROWS	LOCATION		
FROM	TO			FROM	TO							
110+922.90	110+967.97	45.07	(LS) 150mm x 1.0m @ 3.0m GAP	112+086.73	112+146.95	60.22	LEFT SIDE MAIN BYPASS	A	2	APPROACHING INTERSECTION A-17		
110+984.13	111+029.13	45.00	(RS) 150mm x 1.0m @ 3.0m GAP	112+127.95	112+146.95	19.00	LEFT SIDE MAIN BYPASS	C	4	APPROACHING INTERSECTION A-17		
111+670.76	111+715.76	90.00	(BS) 150mm x 1.0m @ 3.0m GAP	112+086.73	112+146.95	60.22	RIGHT SIDE MAIN BYPASS	A	4	APPROACHING INTERSECTION A-18		
111+835.76	111+880.76	45.00	(RS) 150mm x 1.0m @ 3.0m GAP	112+127.95	112+146.95	19.00	RIGHT SIDE MAIN BYPASS	B	2	APPROACHING INTERSECTION A-18		
112+041.95	112+086.73	44.78	(LS) 150mm x 1.0m @ 3.0m GAP	112+713.41	112+735.01	21.60	LEFT SIDE MAIN BYPASS	C	4	APPROACHING INTERSECTION A-18		
112+206.95	112+250.50	87.10	(BS) 150mm x 1.0m @ 3.0m GAP	112+713.41	112+773.27	59.86	LEFT SIDE MAIN BYPASS	A	4	APPROACHING INTERSECTION A-19		
112+609.00	112+653.41	44.41	(RS) 150mm x 1.0m @ 3.0m GAP	112+973.96	113+033.41	59.45	LEFT SIDE MAIN BYPASS	B	2	APPROACHING INTERSECTION A-19		
112+773.27	112+818.41	45.14	(RS) 150mm x 1.0m @ 3.0m GAP	113+014.88	113+033.41	18.53	LEFT SIDE MAIN BYPASS	C	4	APPROACHING INTERSECTION A-19		
112+928.41	112+973.41	45.00	(LS) 150mm x 1.0m @ 3.0m GAP	114+455.72	114+477.32	21.60	RIGHT SIDE MAIN BYPASS	A	2	APPROACHING INTERSECTION A-20		
113+093.41	113+153.41	60.00	(LS) 150mm x 1.0m @ 3.0m GAP	114+455.72	114+515.72	60.00	RIGHT SIDE MAIN BYPASS	B	2	APPROACHING INTERSECTION A-20		
114+352.32	114+395.72	43.40	(RS) 150mm x 1.0m @ 3.0m GAP	114+716.94	114+777.14	60.20	LEFT SIDE MAIN BYPASS	C	2	APPROACHING INTERSECTION A-20		
114+515.72	114+560.72	45.00	(RS) 150mm x 1.0m @ 3.0m GAP	114+758.62	114+777.14	18.52	LEFT SIDE MAIN BYPASS					
114+672.14	114+716.94	44.80	(LS) 150mm x 1.0m @ 3.0m GAP	115+910.00	115+950.00	40.00	RIGHT SIDE MAIN BYPASS	NOTE:				
114+837.14	114+882.14	45.00	(LS) 150mm x 1.0m @ 3.0m GAP	115+910.00	115+950.00	40.00	LEFT SIDE MAIN BYPASS	A -- LEFT/RIGHT ARROW				
115+820.00	115+865.00	90.00	(BS) 150mm x 1.0m @ 3.0m GAP	116+099.51	116+159.51	60.00	LEFT SIDE MAIN BYPASS	COMBINATION OF STRAIGHT AND LEFT ARROWS OR				
115+865.00	115+910.00	45.00	(RS) 150mm x 1.0m @ 3.0m GAP	116+139.51	116+159.51	20.00	LEFT SIDE MAIN BYPASS	B -- STRAIGHT AND RIGHT ARROWS				
116+054.51	116+099.51	45.00	(LS) 150mm x 1.0m @ 3.0m GAP	116+099.51	116+159.51	60.00	RIGHT SIDE MAIN BYPASS	C -- STRAIGHT ARROW				
116+219.51	116+264.51	90.00	(BS) 150mm x 1.0m @ 3.0m GAP	116+139.51	116+159.51	20.00	RIGHT SIDE MAIN BYPASS	7.0 PEDESTRIAN AND STOP LINES				
117+719.86	117+764.86	90.00	(BS) 150mm x 1.0m @ 3.0m GAP	117+824.87	117+842.87	18.00	LEFT SIDE MAIN BYPASS					
117+884.87	117+929.87	45.00	(RS) 150mm x 1.0m @ 3.0m GAP	117+824.87	117+842.87	18.00	RIGHT SIDE MAIN BYPASS	LOCATION				
118+090.32	118+135.32	90.00	(LS) 2 - 150mm x 1.0m @ 3.0m GAP	117+824.87	117+842.87	60.00	RIGHT SIDE MAIN BYPASS					
118+135.32	118+195.32	60.00	(RS) 150mm x 1.0m @ 3.0m GAP	00+059.02	00+099.02	40.00	CENTER OF A-14	INT. A-14	MAIN BYPASS	AREA (m ²)		REMARKS
118+693.47	118+738.47	45.00	(RS) 150mm x 1.0m @ 3.0m GAP	00+922.39	00+961.99	39.60	CENTER OF A-15			PEDESTRIAN	STOP LINE	
118+857.43	118+902.43	45.00	(LS) 150mm x 1.0m @ 3.0m GAP	01+038.00	01+068.00	30.00	CENTER OF A-15	INT. A-15	MAIN BYPASS	19.96	8.04	SIGNALIZED
00+059.02	00+099.02	40.00	(LS) 100mmx1.0m@3.0mGAP(A-14)	00+912.50	00+942.50	30.00	CENTER OF A-18			25.68	9.00	
00+922.39	00+962.16	39.77	(RS) 100mmx1.0m@3.0mGAP(A-15)	01+057.50	01+087.50	30.00	CENTER OF A-18	INT. A-16	MAIN BYPASS	18.20	4.58	UNSIGNALIZED
01+048.00	01+088.00	20.00	(LS) 100mmx1.0m@3.0mGAP(A-15)	00+906.76	00+958.43	51.67	CENTER OF A-19			40.42	9.00	
00+912.50	00+942.50	30.00	(RS) 100mmx1.0m@3.0mGAP(A-18)	01+041.73	01+081.73	40.00	CENTER OF A-19	INT. A-17	MAIN BYPASS	92.92	3.16	UNSIGNALIZED
01+057.50	01+087.50	30.00	(LS) 100mmx1.0m@3.0mGAP(A-18)							INT. A-18	MAIN BYPASS	
00+906.76	00+958.03	51.27	(RS) 100mmx1.0m@3.0mGAP(A-19)					INT. A-19	MAIN BYPASS			90.28
01+039.48	01+081.73	42.25	(LS) 100mmx1.0m@3.0mGAP(A-19)							INT. A-20	MAIN BYPASS	11.70
								INT. A-20	MAIN BYPASS			60.00
										INT. A-20	MAIN BYPASS	13.27
								INT. A-20	MAIN BYPASS			59.00
										INT. A-20	MAIN BYPASS	42.64
								INT. A-20	MAIN BYPASS			36.00

 JAPAN INTERNATIONAL COOPERATION AGENCY		DATE: 10/12/02 SIGNATURE: [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 (Pilar del, Cabanatuan and San Jose Bypasses)		SCALE : FULL SIZE A1		SHEET CONTENTS : SCHEDULE OF PAVEMENT MARKINGS Sheet 2 of 2		SHEET NO. : RG-06	
DESIGNED: 10/12/02 CHECKED: 10/12/02 SUBMITTED: 10/12/02		PUHL - PMO Submitted By: DANILLO C. TRAJANO Project Director		BUREAU OF DESIGN Reviewed By: JOSEFINA M. ALAGAR Chief, Highway Division		OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES OIC, Director IV Approved By: MANUEL M. BONDAN Undersecretary SIMEON A. DATUMANONG Secretary		CABANATUAN BYPASS - CONTRACT PACKAGE II					