

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

PLARIDEL BYPASS - CONTRACT PACKAGE II
(INITIAL STAGE)
STA. 39+625.000 TO STA. 47+400.000

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December 2002

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GENERAL

INDEX OF DRAWINGS

THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY PLARIDEL BYPASS - PACKAGE II (INITIAL STAGE)

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RI-03	GEOMETRIC DESIGN LAYOUT	RM-08	LAYOUT PLAN, STA. 41 + 000.000 TO STA. 42 + 400.000		
RI-04	PAVING AND GRADING PLAN	RM-09	LAYOUT PLAN, STA. 42 + 400.000 TO STA. 43 + 800.000		
RI-05	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT	RM-10	LAYOUT PLAN, STA. 43 + 800.000 TO STA. 45 + 200.000		
RI-06	TRAFFIC SIGNAL LIGHT LAYOUT	RM-11	LAYOUT PLAN, STA. 45 + 200.000 TO STA. 46 + 600.000		
		RM-12	LAYOUT PLAN, STA. 46 + 600.000 TO STA. 47 + 400.000		

JICA JAPAN INTERNATIONAL COOPERATION AGENCY		DATE	SIGNATURE	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :			
	DESIGNED	9/18/02	<i>[Signature]</i>		BUREAU OF DESIGN	OFFICE OF THE SECRETARY	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	FULL SIZE A1	INDEX OF DRAWINGS (INITIAL STAGE) Sheet 1 of 3	GP-01	
	CHECKED	9/20/02	<i>[Signature]</i>		Submitted By:	Recommended By:					
	SUBMITTED	9/23/02	<i>[Signature]</i>		DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division					GILBERTO S. REYES OIC, Director IV

INDEX OF DRAWINGS

THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY PLARIDEL BYPASS - PACKAGE II (INITIAL STAGE)

ELECTRICAL








SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING
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PLAN & ELEV., B-6 UNDERPASS (STA. 42+550.000) UP-06 GEN. PLAN & ELEV., B-7 UNDERPASS (STA. 43+470.000) UP-07 GEN. PLAN & ELEV., B-8 UNDERPASS (STA. 45+276.072) UP-08 CONCRETE COVER DETAILS (3.0m) WITH BOX SUPPORT UP-09 CONCRETE COVER DETAILS (6.0m) WITH BOX SUPPORT (RCBC OPENING) UP-10 BOX CULVERT BARREL DETAIL UP-11 BOX CULVERT BARREL BAR SCHEDULE UP-12 WINGWALL DETAIL UP-13 APPROACH SLAB DETAIL</p> <p>BRIDGE</p> <p>GENERAL</p> <p>BG-01 BRIDGE LOCATION MAP BG-02 GENERAL NOTES FOR BRIDGES - 1 OF 2 BG-03 GENERAL NOTES FOR BRIDGES - 2 OF 2 BG-04 SUMMARY OF QUANTITIES BRIDGE (1,2,3 & 4) BG-05 SUMMARY OF QUANTITIES BRIDGE (5,6, & 7)</p> <p>BRIDGE NO. 1 (STA 40+355.300 TO STA 40+391.160)</p> <p>B1-01 GEN. 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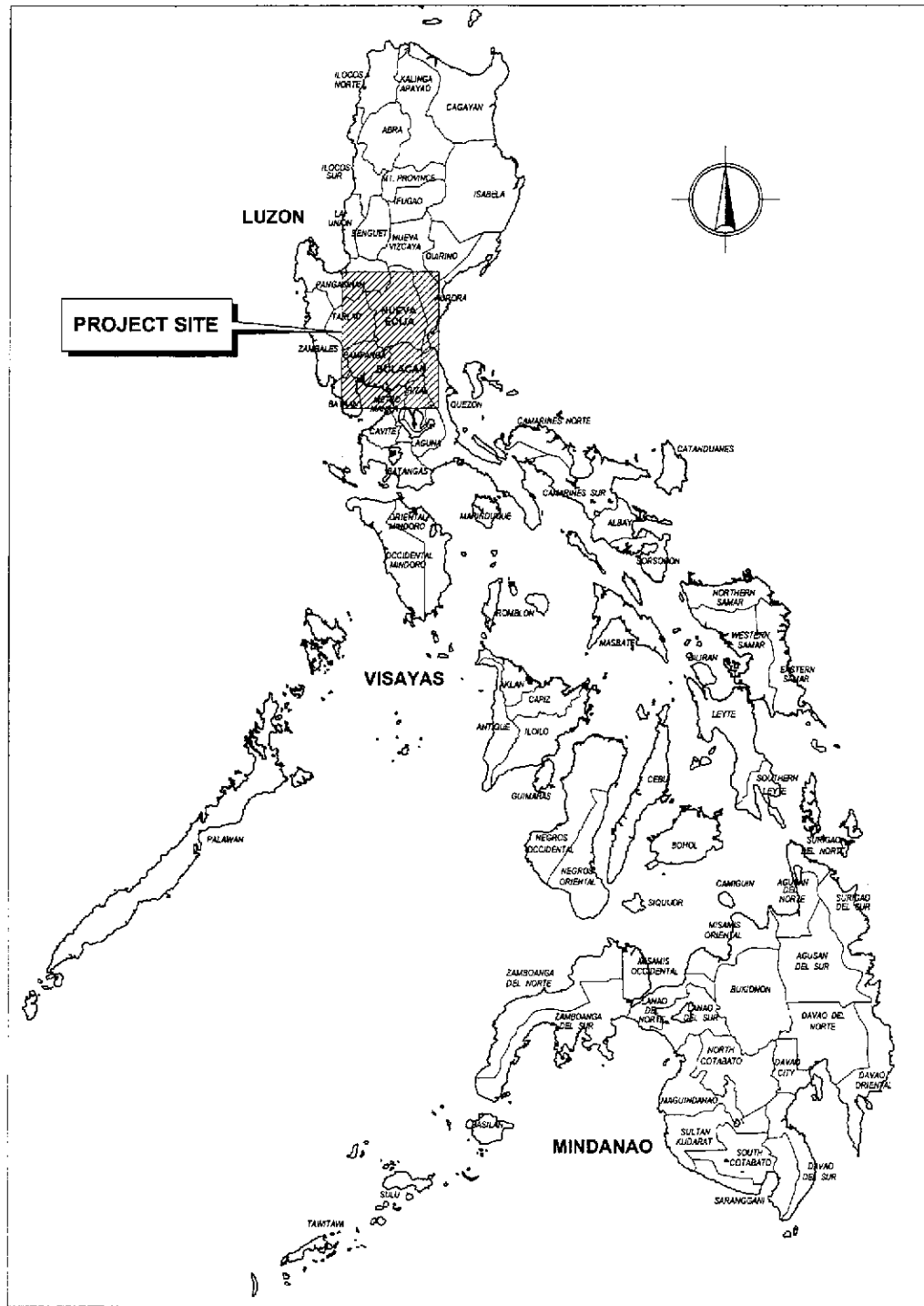
	DESIGNED	DATE	SIGNATURE		PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	7/18/02	<i>[Signature]</i>		BUREAU OF DESIGN Submitted By: PUHL - PWD Reviewed By: JOSEFINA M. ALAGAR Recommended By: GILBERTO S. REYES Recommended By: MANKEL M. BONDAN Approved By: SIMEON A. DATUMANDING	THE 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 (INITIAL STAGE) Sheet 2 of 3	GP-02
	SUBMITTED	7/23/02	<i>[Signature]</i>		OFFICE OF THE SECRETARY Submitted By: DANILO C. TRAJANO Recommended By: JOSEFINA M. ALAGAR Recommended By: GILBERTO S. REYES Approved By: SIMEON A. DATUMANDING	PLARIDEL BYPASS - CONTRACT PACKAGE II			

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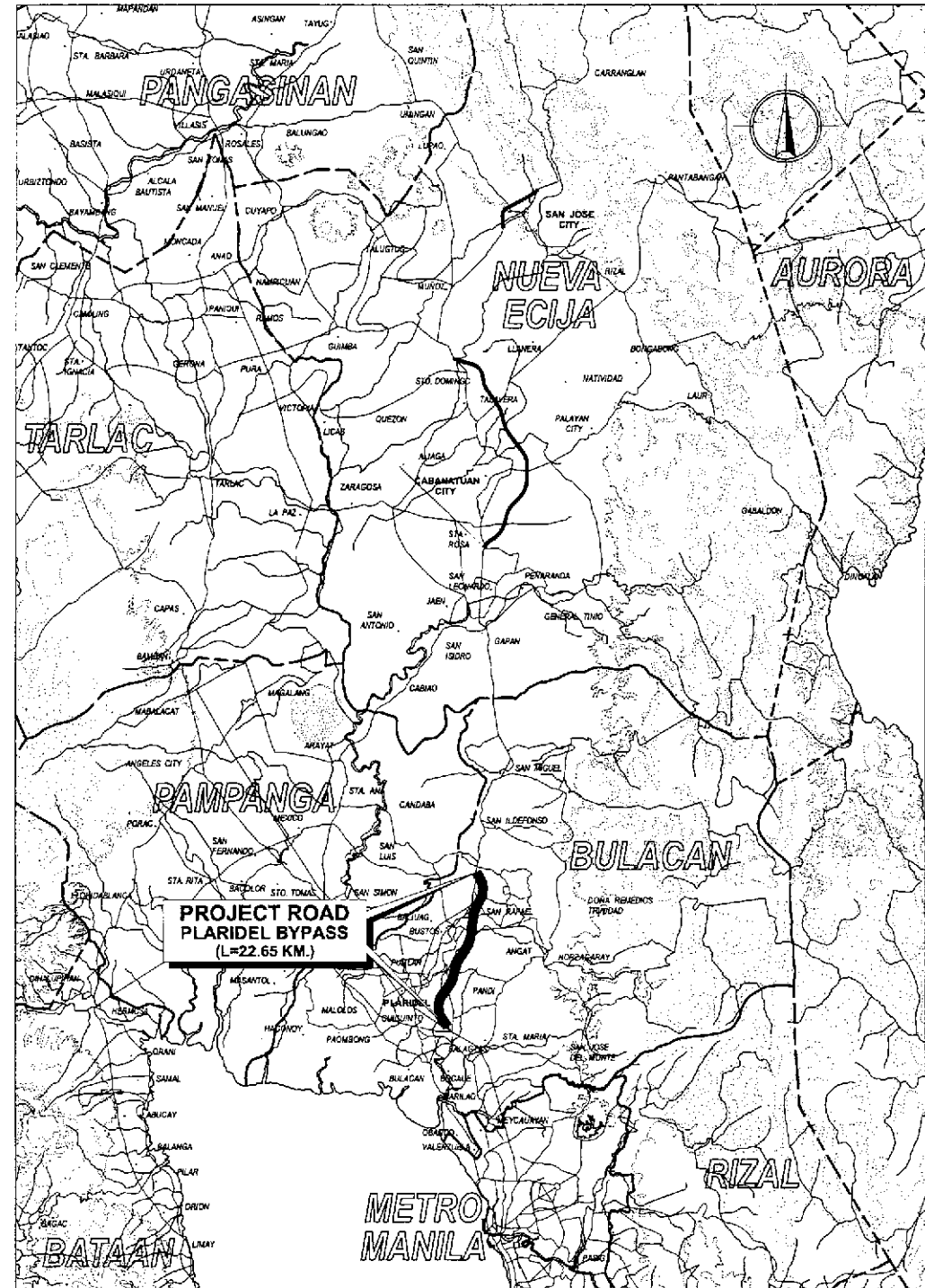
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY PLARIDEL BYPASS - PACKAGE II (INITIAL STAGE)

SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING	SHEET NO.	TITLE OF DRAWING
	ENGINEER'S FIELD OFFICE & LIVING QUARTERS		OTHERS		
	ARCHITECTURAL		ELECTRICAL		
FA-01	PERSPECTIVE AND TABLE OF CONTENTS		UTILITY RELOCATION REFERENCE LAYOUT PLAN		
FA-02	ENGR'S FIELD OFFICE - FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN	OE-01	LAYOUT PLAN, STA. 39 + 625.000 TO STA. 41+ 000.000		
FA-03	ENGR'S LIVING QTRS - FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN	OE-02	LAYOUT PLAN, STA. 41 + 000.000 TO STA. 42+ 400.000		
FA-04	ENGR'S FIELD OFFICE / LABORATORY - ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS	OE-03	LAYOUT PLAN, STA. 42 + 400.000 TO STA. 43+ 800.000		
FA-05	ENGR'S LIVING QUARTERS - ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS	OE-04	LAYOUT PLAN, STA. 43 + 800.000 TO STA. 45+ 200.000		
FA-06	ENGR'S FIELD OFFICE & LIVING QUARTERS - FOUNDATION PLAN, R.C. RAMP DETAIL, DETAIL OF F-1, P-1, WF1 & DESIGN	OE-05	LAYOUT PLAN, STA. 45 + 200.000 TO STA. 46+ 600.000		
FA-07	ENGR'S FIELD OFFICE / LABORATORY - FRONT & RIGHT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS	OE-06	LAYOUT PLAN, STA. 46 + 600.000 TO STA. 47+ 400.000		
FA-08	ENGR'S LIVING QTRS - REAR & LEFT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS				
FA-09	ENGR'S FIELD OFFICE - FRONT & RIGHT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS				
FA-10	ENGR'S LIVING QTRS - REAR & LEFT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS				
FA-11	ENGR'S FIELD OFFICE & LIVING QUARTERS - DETAIL OF CONNECTIONS, DETAILS 1 TO 15				
FA-12	ROOF FRAMING PLAN, SCHEMATIC DIAGRAM, PURLIN CONNECTION AND CROSS BRACING CONNECTION				
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FE-01	ENGR'S FIELD OFFICE / LABORATORY - LIGHTING LAYOUT, POWER LAYOUT & ELECTRICAL SYMBOLS AND GENERAL NOTES	OC-01	PROFILE, STA. 39 + 713.50 - STA. 46+513.00		
FE-02	ENGR'S LIVING QTRS - LIGHTING LAYOUT, POWER LAYOUT & ELECTRICAL SYMBOLS AND GENERAL NOTES				
FE-03	ENGR'S FIELD OFFICE & LIVING QUARTERS - SCHEDULE OF LOADS AND COMPUTATIONS & ELECTRICAL RISER DIAGRAM				
	PLUMBING				
FP-01	ENGR'S FIELD OFFICE & LIVING QUARTERS - SEWER AND WATER LINE LAYOUT AND ISOMETRIC DIAGRAM				
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	EXTERNAL				
FX-01	ENGR'S FIELD OFFICE & LIVING QUARTERS - PLOT PLAN, ELEVATION OF FENCE & GATE AND TYPICAL FOUNDATION DETAIL				

 JAPAN INTERNATIONAL COOPERATION AGENCY  KATAHIRA & ENGINEERS INTERNATIONAL  YACHIYO ENGINEERING CO., LTD.	DATE DESIGNED: 9/18/02 CHECKED: 9/20/02 SUBMITTED: 9/23/02	SIGNATURE   	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : FULL SIZE A1	SHEET CONTENTS : INDEX OF DRAWINGS (INITIAL STAGE) Sheet 3 of 3	SHEET NO. : GP-03	
	P.H.L. - P.M.O. Submitted By:	BUREAU OF DESIGN Reviewed By:	OFFICE OF THE SECRETARY Recommended By:	Approved By:				
	DANILLO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONJAN Undersecretary	SIMEON A. DATUMANONG Secretary			



2 KEY MAP
GP-04 NOT TO SCALE



1 VICINITY MAP
GP-04 NOT TO SCALE

	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : NOT TO SCALE FULL SIZE A1	SHEET CONTENTS : KEY AND VICINITY MAP	SHEET NO. : GP-04
	CHECKED	9/20/02	SIGNATURE							
	SUBMITTED	7/23/02	SIGNATURE	DANILLO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES D/C, Director IV				



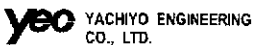

LEGEND AND SYMBOLS

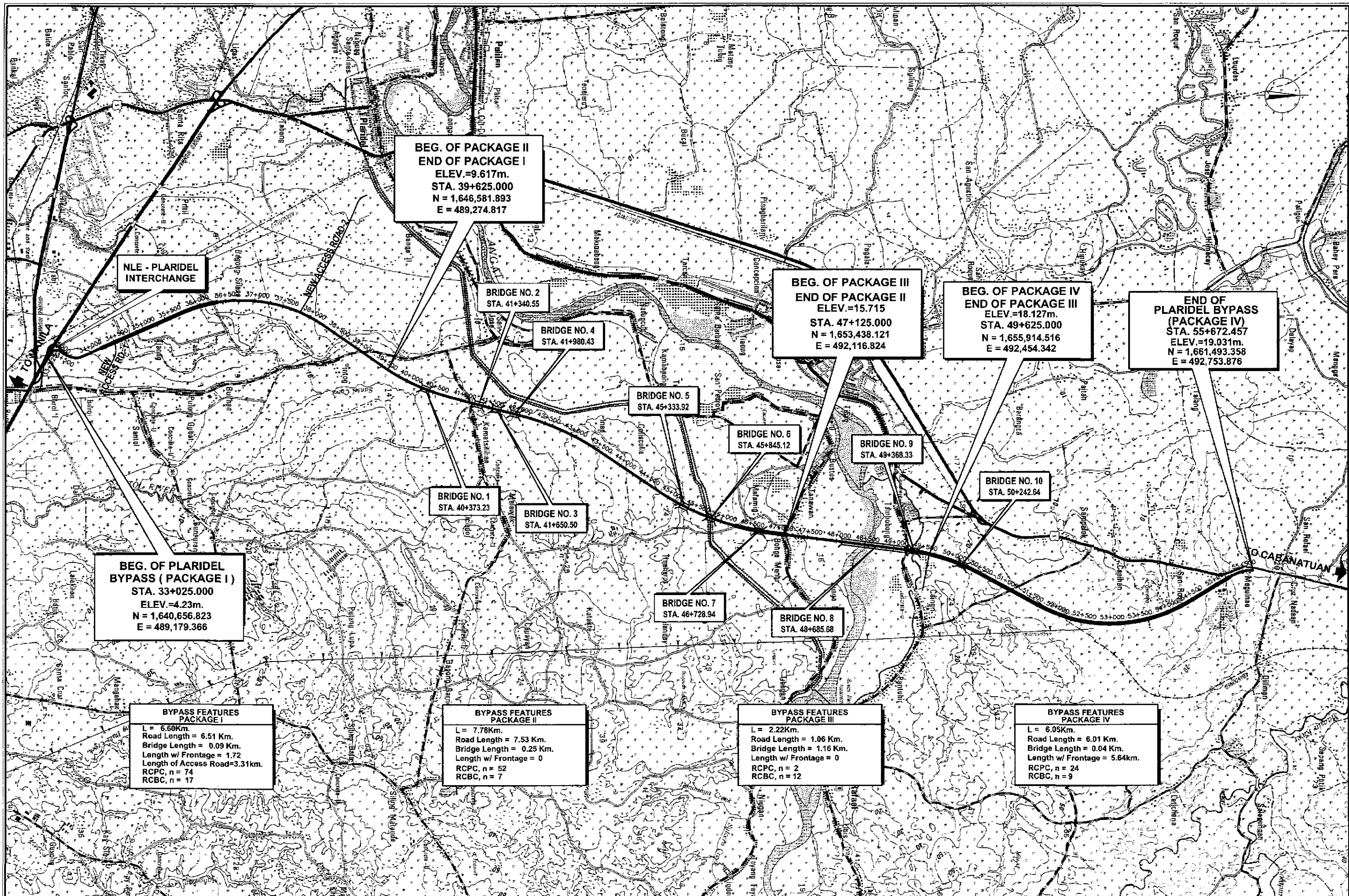
EXISTING FEATURES	
ROAD	
CONTOUR	
ORIGINAL GROUND	
CONCRETE FENCE	
BARBED WIRE FENCE	
HOUSE	
TREES	
BRIDGE	
SINGLE PIPE CULVERT	
DOUBLE PIPE CULVERT	
BOX CULVERT	
DITCH LINE/ IRRIGATION LINE	
IRRIGATION LINE	
RIVER/CREEK	
ELECTRIC POST	
KILOMETER POST	
TRAVERSE STATION POINT	
BENCHMARK	
FISH POND	
NATIONAL 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.	
Ø 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	EASMENT	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 PAVEMENT LEVEL	OD	OUTSIDE DIAMETER	T	TANGENT
BTC/TS	BEGINNING 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	PJHL	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	HOR.	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 CULVERT	⊔	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		
		Lc	LENGTH OF CIRCULAR ARC	RS	RIGHT SIDE		

 JAPAN INTERNATIONAL COOPERATION AGENCY  KATAHIRA & ENGINEERS  YEO YACHIYO ENGINEERING CO., LTD.	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (PLARIDEL, CABANATUAN AND SAN JOSE BYPASSES)	SCALE : NOT TO SCALE	SHEET CONTENTS : ABBREVIATIONS	SHEET NO. : GP-06	
	DESIGNED: 9/18/02 CHECKED: 9/20/02 SUBMITTED: 9/23/02	DATE: 9/18/02 SIGNATURE: [Signature] NAME: ACACIO	BUREAU OF DESIGN Submitted By: DANILLO C. TRAJANO Chief, Highway Division	OFFICE OF THE SECRETARY Recommended By: JOSEFINA M. ALAGAR Chief, Highway Division GILBERTO S. REYES OIC, Director IV MANUEL M. BONGAN Undersecretary SIMEDON A. DATUMANONG Secretary	PROJECT AND LOCATION : PLARIDEL BYPASS - CONTRACT PACKAGE II	FULL SIZE A1
	JICA KATAHIRA & ENGINEERS YEO YACHIYO ENGINEERING CO., LTD.					



**BEG. OF PACKAGE II
END OF PACKAGE I**
ELEV.=9.617m.
STA. 39+625.000
N = 1,646,581.893
E = 489,274.817

**NLE - PLARIDEL
INTERCHANGE**

BRIDGE NO. 2
STA. 41+340.55

BRIDGE NO. 4
STA. 41+980.43

**BEG. OF PACKAGE III
END OF PACKAGE II**
ELEV.=15.715
STA. 47+125.000
N = 1,653,438.121
E = 492,116.824

**BEG. OF PACKAGE IV
END OF PACKAGE III**
ELEV.=18.127m.
STA. 49+625.000
N = 1,655,914.516
E = 492,454.342

**END OF
PLARIDEL BYPASS
(PACKAGE IV)**
STA. 55+672.457
ELEV.=19.031m.
N = 1,661,493.358
E = 492,753.876

BRIDGE NO. 5
STA. 45+333.92

BRIDGE NO. 6
STA. 45+845.12

BRIDGE NO. 9
STA. 49+368.33

BRIDGE NO. 10
STA. 50+242.64

BRIDGE NO. 1
STA. 40+373.23

BRIDGE NO. 3
STA. 41+650.50

BRIDGE NO. 7
STA. 46+728.94

BRIDGE NO. 8
STA. 48+685.68

**BEG. OF PLARIDEL
BYPASS (PACKAGE I)**
STA. 33+025.000
ELEV.=4.23m.
N = 1,640,656.823
E = 489,179.366

**BYPASS FEATURES
PACKAGE I**
L = 6.60Km.
Road Length = 6.51 Km.
Bridge Length = 0.09 Km.
Length w/ Frontage = 1.72
Length of Access Road=3.31km.
RCPC, n = 74
RCBC, n = 17

**BYPASS FEATURES
PACKAGE II**
L = 7.78Km.
Road Length = 7.53 Km.
Bridge Length = 0.25 Km.
Length w/ Frontage = 0
RCPC, n = 52
RCBC, n = 7

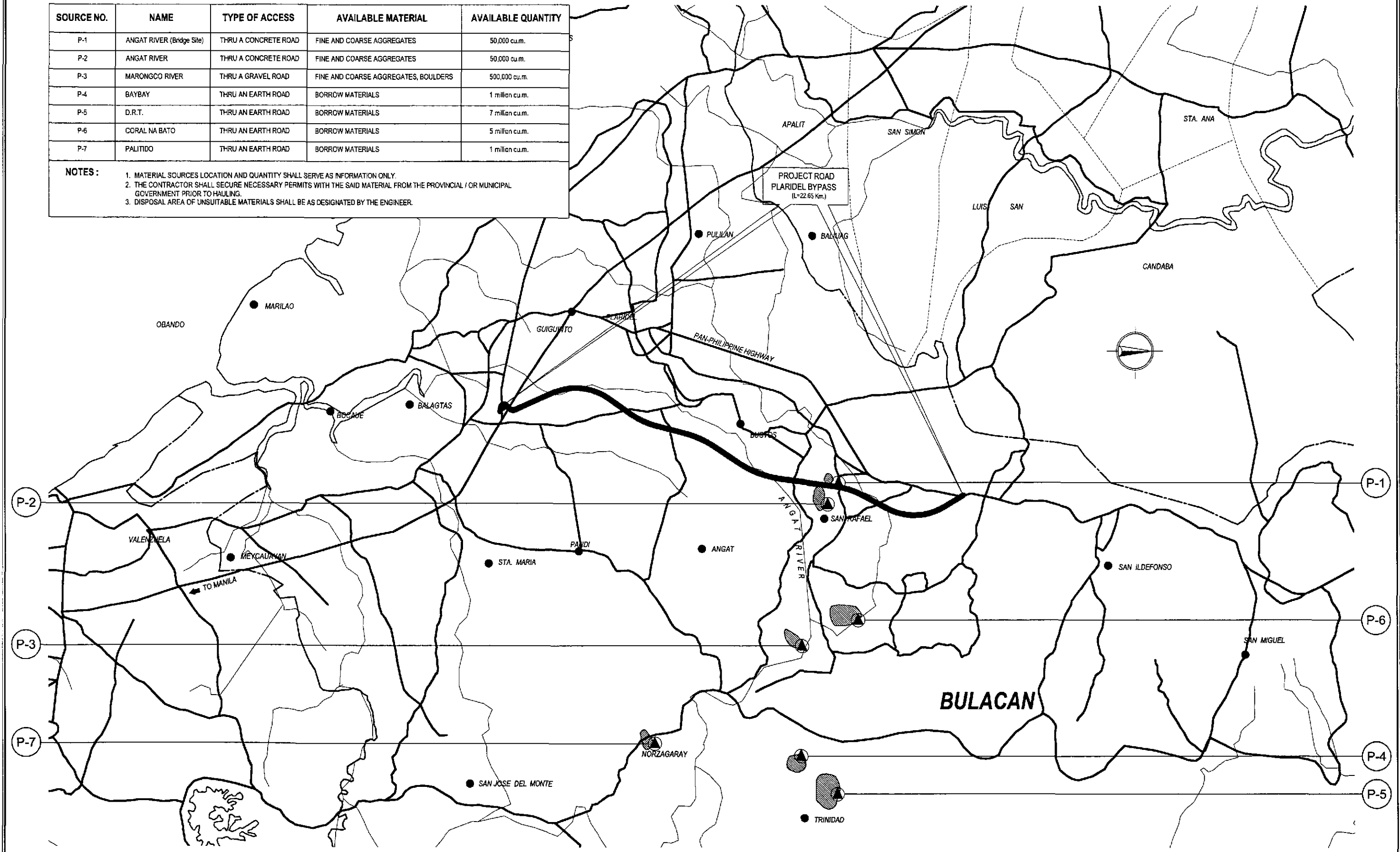
**BYPASS FEATURES
PACKAGE III**
L = 2.22Km.
Road Length = 1.06 Km.
Bridge Length = 1.16 Km.
Length w/ Frontage = 0
RCPC, n = 2
RCBC, n = 12

**BYPASS FEATURES
PACKAGE IV**
L = 6.05Km.
Road Length = 6.01 Km.
Bridge Length = 0.04 Km.
Length w/ Frontage = 5.64km.
RCPC, n = 24
RCBC, n = 9

<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>		<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>		<p>PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)</p>		<p>SCALE : 1:30,000</p>	<p>SHEET CONTENTS : PROJECT ROAD GENERAL ALIGNMENT & FEATURES</p>	<p>SHEET NO. : GP-07</p>
DESIGNED	DATE	SIGNATURE	Submitted By:	Reviewed By:	Recommended By:	Approved By:		
CHECKED	7/20/02	<i>[Signature]</i>	DANILO C. TRAJANO Project Director	JOSEFINA M. ALACAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONONAN Undersecretary		
SUBMITTED	9/23/02	<i>[Signature]</i>			SIMEON A. DATUMANONG Secretary			

SOURCE NO.	NAME	TYPE OF ACCESS	AVAILABLE MATERIAL	AVAILABLE QUANTITY
P-1	ANGAT RIVER (Bridge Site)	THRU A CONCRETE ROAD	FINE AND COARSE AGGREGATES	50,000 cu.m.
P-2	ANGAT RIVER	THRU A CONCRETE ROAD	FINE AND COARSE AGGREGATES	50,000 cu.m.
P-3	MARONGCO RIVER	THRU A GRAVEL ROAD	FINE AND COARSE AGGREGATES, BOULDERS	500,000 cu.m.
P-4	BAYBAY	THRU AN EARTH ROAD	BORROW MATERIALS	1 million cu.m.
P-5	D.R.T.	THRU AN EARTH ROAD	BORROW MATERIALS	7 million cu.m.
P-6	CORAL NA BATO	THRU AN EARTH ROAD	BORROW MATERIALS	5 million cu.m.
P-7	PALITIDO	THRU AN EARTH ROAD	BORROW MATERIALS	1 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.



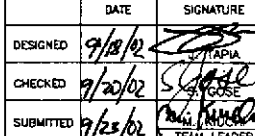


A LOCATION OF MATERIAL SOURCES
GP-09 SCALE AS SHOWN

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : 1:80,000 FULL SIZE A1	SHEET CONTENTS : LOCATION OF MATERIAL SOURCES	SHEET NO. : GP-09	
	CHECKED	9/20/02	<i>S. Gose</i>		Submitted By:	Reviewed By:	Recommended By:					Recommended By:
	SUBMITTED	7/23/02	<i>M. R. R. R.</i>		DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV					MANUEL M. BONCAN Undersecretary

SUMMARY OF QUANTITIES (INITIAL STAGE)

ITEM NO	DESCRIPTION	UNIT	QUANTITY(HIGHWAY AND DRAINAGE)													QUANTITY(BRIDGE)							TOTAL QUANTITY	REMARKS	
			BYPASS	RCBC	A-8	A-9	B-4	A-10	A-11	A-12	A-13	A-14	A-15	A-16	BRIDGE No. 1	BRIDGE No. 2	BRIDGE No. 3	BRIDGE No. 4	BRIDGE No. 5	BRIDGE No. 6	BRIDGE No. 7				
PART G - DRAINAGE AND SLOPE PROTECTION STRUCTURES																									
500(1)c4	RCPC Extra Strength (32MPa), Ø 810mm (24")	m	-	-	7.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.00			
500(1)c6	RCPC Extra Strength (32MPa), Ø 910mm (36")	m	1,106.00	-	-	-	-	-	7.00	-	14.00	-	12.00	-	-	-	-	-	-	-	-	1,139.00			
500(1)c7	RCPC Extra Strength (32MPa), Ø 1070mm (42")	m	171.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	171.00			
500(1)c8	RCPC Extra Strength (32MPa), Ø 1220mm (48")	m	97.00	-	-	-	-	-	8.00	-	-	-	-	-	-	-	-	-	-	-	-	105.00			
500(1)c9	RCPC Extra Strength (32MPa), Ø 1520mm (60")	m	69.00	-	-	-	-	-	11.00	-	-	-	-	-	-	-	-	-	-	-	-	80.00			
502(7)a	Trapezoidal Lined Ditch B=450mm, H=500mm, 1:1.00	m	590.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	590.00			
502(7)b	Trapezoidal Lined Ditch B=1000mm, H=500mm, 1:1.00	m	44.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.00			
504(5)	Grouted Riprap Class A	m3	1,330.12	-	-	-	-	-	-	-	-	-	-	-	-	-	60.00	56.00	174.00	46.00	222.00	145.00	185.00	2,219.00	
506(1)	Hand Laid Rock Apron (Loose Boulder Apron)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116.00	121.00	-	114.00	123.00	-	112.00	586.00	
507(2)b	Steel Sheet Piles (400x85x6mm), furnished & driven	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	826.00	-	-	826.00		
510(1)	Rubble Concrete Slope Protection	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	111.00	132.00	-	120.00	-	-	-	363.00	
PART H - MISCELLANEOUS STRUCTURES																									
600(3)a	Combination Concrete Curb & Gutter/Side Strip, Type A (675x364mm)	m	1,166.46	-	-	103.52	-	-	-	-	-	-	-	-	-	92.74	-	-	-	-	-	-	1,363.00		
602(1)	Right-of-Way Concrete Monuments	each	450.00	-	8.00	17.00	13.00	12.00	4.00	8.00	4.00	15.00	9.00	22.00	-	-	-	-	-	-	-	-	562.00		
602(2)	Maintenance Marker Posts for Drainage Structure	each	98.00	-	2.00	-	-	2.00	4.00	-	4.00	-	2.00	-	-	-	-	-	-	-	-	-	112.00		
602(3)	Kilometer Posts	each	8.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.00		
603(3)a	Metal Guardrails (Metal Beam) Type A (Embedded in soil)	m	4,019.00	-	-	-	-	-	-	-	-	244.00	-	-	-	-	-	-	-	-	-	-	4,263.00		
604(1)	Fencing (Barbed Wire)	m	579.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	580.00		
605(1)a	Warning Signs (Triangular 900mm)	each	19.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.00		
605(2)b	Regulatory Signs (Octagonal 600mm)	each	-	-	-	-	2.00	-	2.00	-	-	-	2.00	-	-	-	-	-	-	-	-	-	8.00		
605(2)c	Regulatory Signs (Circular Ø 600mm)	each	18.00	-	-	2.00	-	-	-	-	-	-	2.00	-	-	-	-	-	-	-	-	-	22.00		
605(2)d	Regulatory Signs (Rectangular 450x750mm)	each	4.00	-	-	-	2.00	-	1.00	-	-	-	1.00	-	-	-	-	-	-	-	-	-	8.00		
605(3)c	Informatory Signs (Type B, double post)	each	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00		
605(3)d	Informatory Signs (Type C, double post)	each	2.00	-	-	2.00	-	-	-	-	-	-	-	2.00	-	-	-	-	-	-	-	-	6.00		
607(2)b	ReflectORIZED Pavement Studs (Raised Profile Type, two faces reflective)	each	112.00	-	-	14.00	-	-	-	-	-	-	-	14.00	-	-	-	-	-	-	-	-	140.00		
607(3)	Chatter Bars (one face reflective)	each	194.00	-	-	34.00	-	-	-	-	-	-	-	28.00	-	-	-	-	-	-	-	-	256.00		
608(1)	Furnishing and Placing Top Soil	m3	20,665.07	-	88.52	131.24	105.82	194.49	127.71	212.29	44.60	387.12	103.99	60.76	-	-	-	-	-	-	-	-	22,122.00		
610(1)	Sodding	m2	103,325.35	-	442.58	656.22	629.08	972.43	638.57	1,061.43	223.02	1,935.60	519.97	303.78	-	-	-	-	-	-	-	-	110,609.00		
611(1)c	Trees (Furnishing and Transplanting) High Tree (Young Tree) 1.5m < H < 3.0m	each	706.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	706.00		
612(1)a	ReflectORIZED Thermoplastic Pavement Markings (White)	m2	2,919.45	-	-	91.78	-	-	-	-	-	-	67.10	77.39	-	-	-	-	-	-	-	-	3,156.00		
612(1)b	ReflectORIZED Thermoplastic Pavement Markings (Yellow)	m2	193.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	194.00		
SPL 620(1)a	Traffic Signal Pole Type A (Mast Arm Post H=6.7m)	each	2.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.00		
SPL 620(1)c	Traffic Signal Pole Type B (Ø 114.3mm x 4.2m)	each	8.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.00		
SPL 620(1)d	Traffic Signal Pole Type C (Ø 114.3mm x 3.4m)	each	8.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.00		
SPL 620(1)e	Traffic Signal Pole Type D (Ø 114.3mm x 3.0m)	each	6.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.00		
SPL 620(2)a	Traffic Signal Lamps Type A (8 vehicle lamps)	each	7.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.00		
SPL 620(2)b	Traffic Signal Lamps Type B (3 vehicle lamps)	each	19.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.00		
SPL 620(2)c	Traffic Signal Lamps Type C (2 pedestrian lamps)	each	12.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.00		
SPL 620(4)a	Street Lighting Poles (Single Lamp)	each	-	-	-	3.00	-	-	-	-	-	-	-	4.00	-	-	-	-	-	-	-	-	7.00		
SPL 620(4)b	Street Lighting Poles (Dual Lamp)	each	22.00	-	-	3.00	-	-	-	-	-	-	-	2.00	-	-	-	-	-	-	-	-	27.00		
SPL 620(4)d	Street Lighting Service Pole with Panel	each	-	-	-	1.00	-	-	-	-	-	-	-	1.00	-	-	-	-	-	-	-	-	2.00		
SPL 620(4)e	Fluorescent Lighting for Underpass Culverts	each	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.00		

	 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 : NOT TO SCALE FULL SIZE A1	SHEET CONTENTS : SUMMARY OF QUANTITIES (INITIAL STAGE) (2 of 2)	SHEET NO. : GP-11
	BUREAU OF DESIGN Submitted By: DANLO C. TRAJANO, Project Director Reviewed By: JOSEFINA M. ALACAR, Chief, Highways Division Recommended By: GILBERTO S. REYES, D.C., Director IV		OFFICE OF THE SECRETARY Recommended By: MANUEL M. BONDAN, Undersecretary Approved By: SIMEON A. DATUMANGONG, Secretary					
	DESIGNED: 9/18/02 CHECKED: 9/20/02 SUBMITTED: 9/25/02		DATE: 9/25/02 SIGNATURE: 					

R O A D W A Y

GENERAL NOTES

HIGHWAY / CIVIL AND DRAINAGE NOTES

1.0 DESIGN STANDARDS / SPECIFICATIONS

- 1.1 ALL GEOMETRIC DESIGN STANDARDS SHALL COMPLY WITH THE VALUES PRESCRIBED IN "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS", 1994 EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAYS AND TRANSPORTATION OFFICIALS (AASHTO), AND "DESIGN GUIDELINES CRITERIA AND STANDARDS" ISSUED BY THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS (DPWH).
- 1.2 ALL WORKS SHALL COMPLY WITH THE DPWH STANDARD SPECIFICATIONS, 1985 EDITION, VOLUME II, HIGHWAYS, BRIDGES, AND AIRPORTS, AND THE SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS FOR THIS PROJECT.

2.0 SURVEY CONTROLS AND REFERENCES

- 2.1 HORIZONTAL CONTROL IS BASED THROUGH GLOBAL POSITIONING SYSTEM (GPS) ESTABLISHED BY THE ACRE SURVEYING. CORRESPONDING GPS STATIONS ARE AS FOLLOWS:

GPS STA.	NORTHING	EASTING	ELEVATIONS	DESCRIPTION
BLG-1	1640535.729	489225.487	8.931	LOCATED AT THE LEFT GUARDRAIL GOING TO TABANG EXIT. DRILLED ON TOP OF THE GUARDRAIL IS AN IRON STEEL 1/4"x2" ABOUT 40m. FROM THE LAST APPROACH OF THE BRIDGE.
BLG-2	1640592.279	489340.024	10.635	LOCATED AT THE WALL RAILING AT THE END OF THE BRIDGE'S FIRST APPROACH. DRILLED ON TOP OF THE WALL RAILING IS AN IRON STEEL 1/4"x 2".
BLG-2A	1643045.047	487830.179	3.777	LOCATED IN BGY. DAUNGAN, GUIQUINTO, BULACAN. IT IS EMBEDDED BESIDE AN IRRIGATION CANAL, ABOUT 150m. FROM INTERSECTION, ABOUT 15m. FROM AN ELECT. POST 50m. FROM BBM 16 AND ABOUT 15m. FROM THE FENCE OF THE HOUSE ON THE OTHER SIDE OF THE ROAD.
BLG-3	1646381.832	488957.118	8.646	LOCATED IN BGY. MATAAS, SAMPALOK, BULIHAN, PLARIDEL BULACAN. IT IS ON THE HEAD OF AN IRRIGATION CHECK VALVE, OUTSIDE THE COLEGIO DE IMMACULADA CONCEPCION, ABOUT 10m. FROM THE SHED AND 4.00m. FROM ROAD CENTERLINE.
BLG-4	1652474.952	492013.344	16.125	LOCATED IN BGY. MALAMIG, BUSTOS, BULACAN. IT IS ON THE SIDE OF IRRIG. CANAL, ABOUT 5m. FROM THE ROAD CENTERLINE 150m. FROM FORK, AND ABOUT 5m. FROM THE NEW HOUSE.
BLG-4B	1655132.400	492583.981	9.310	LOCATED IN BGY. TAMBOBONG, SAN RAFAEL, BULACAN. IT IS EMBEDDED ON A ROAD GROUND ABOUT 600m. FROM INTERSECTION, 20m. FROM THE HOUSE.
BLG-5	1657566.872	493155.992	22.017	LOCATED IN BGY. SAMPALOK, SAN RAFAEL, BULACAN. IT IS EMBEDDED ON THE RIGHT SIDE OF THE ROAD GOING TO ROYAL NORTHWOODS 30m. FROM THE INTERSECTION.
BLG-5A	1659619.893	493753.421	29.185	LOCATED IN BGY. SAN ROQUE, HULO, SAN RAFAEL BULACAN. IT IS EMBEDDED ON THE RICE PADDY DIKE 20m. FROM THE DIRT ROAD CENTERLINE.

- 2.2 VERTICAL CONTROL IS REFERRED TO BM BL-12 ESTABLISHED BY THE BLS WITH ELEVATION 14.935m. ABOVE MEAN SEA LEVEL LOCATED IN BARIO SABANG, PLARIDEL BULACAN. ALONG NATIONAL HIGHWAY NO.5 ABOUT 120m. NORTH OF KM POST NO 52. IT IS EMBEDDED IN A HOLE DRILLED ON TOP OF THE SOUTH SIDE OF THE FOOTING OF THE MARIANO PONCE MONUMENT. ABOUT 18m. NORTH OF THE CENTERLINE OF THE NATIONAL HIGHWAY, INSIDE THE SABANG ELEMENTARY SCHOOL GROUNDS. MARKED PC & GS BL 12, 1952, ELEV.=14.935.

3.0 ALIGNMENT CONTROLS AND REFERENCES

- 3.1 PROJECT IMPLEMENTATION OF ALL BYPASSES SHALL BE DONE IN TWO(2) CONSTRUCTION STAGES, THE FIRST STAGE IS THE INITIAL STAGE THAT CONSIST OF CONSTRUCTING TWO LANE-TWO WAY HIGHWAY (NORTHBOUND), GRAVEL SURFACE FRONTAGE ROAD AND GRAVEL SURFACE SERVICE ROAD AS SHOWN IN THE TYPICAL SECTIONS. IN THE SECTION WITH FRONTAGE ROAD, A GRAVEL SURFACE FRONTAGE ROAD WILL BE INITIALLY CONSTRUCTED EACH SIDE OF THE HIGHWAY. GRAVEL SURFACE SERVICE ROAD WILL BE PROVIDED IN THE SECTION WITHOUT FRONTAGE ROAD. THE SECOND STAGE IS THE ULTIMATE STAGE THAT INVOLVES THE CONSTRUCTION OF THE TWO LANE PAVEMENT (SOUTH BOUND) CONCRETING OF FRONTAGE ROADS AND CONSTRUCTION OF MEDIAN ISLAND AND OTHER HIGHWAY FACILITIES NOT INCLUDED IN THE INITIAL STAGE.
- 3.2 THE FOLLOWING MAJOR POINTS CONTROLLED THE DESIGN OF HORIZONTAL AND VERTICAL ALIGNMENT:
- 3.2.3 ALONG PLARIDEL BYPASS
- NORTH LUZON EXPRESSWAY AND BUROL INTECHANGE AT START OF BYPASS.
 - CONSTRUCTION OF AN 18 HECTARE SUBDIVISION (LEFT SIDE OF STA.35+000.00 CENTERLINE.)
 - FLOODED SECTION AT INTERSECTION WITH SAN JOSE-CAMACHILIHAN ROAD (STA. 41+166.00 CENTERLINE).
 - A NEWLY BUILT CHURCH AT INTERSECTION WITH BALIUAG-SAN RAFAEL ROAD.
- 3.3 SIMPLE CIRCULAR CURVES, THREE-CENTERED CIRCULAR CURVES AND CLOTHOID CURVES WERE USED FOR HORIZONTAL CURVATURES, AND PARABOLIC CURVES WERE USED TO SMOOTHEN GRADE BREAKS.
- 3.4 DESIGN OF VERTICAL ALIGNMENT WAS CONTROLLED BY THE DESIGN MAXIMUM FLOODLEVEL, 25-YEAR RETURN PERIOD FOR EMBANKMENT. 50-YEAR RETURN PERIOD FOR BRIDGE AND DRAINAGE STRUCTURES MINIMUM COVERING AS INDICATED IN THE PROFILES.
- 3.5 EXISTING PAVEMENT GRADES OF PAN-PHILIPPINE HIGHWAY.

4.0 DIMENSIONS

- 4.1 DISTANCES AND ELEVATIONS SHOWN ON THE PLANS ARE IN METERS (m) AND IN MILLIMETERS (mm) UNLESS OTHERWISE SPECIFIED. OTHER UNITS OF MEASUREMENT ARE EXPRESSED IN THE MORE APPROPRIATE UNITS OF THE S.I. SYSTEM AS ADOPTED IN THE DPWH STANDARD SPECIFICATIONS, 1995 (VOLUME II).

5.0 STATIONINGS

- 5.1 CENTERLINE STATIONINGS OF THE PROJECT WERE BASED FROM THE NEAREST KILOMETER STATION ALONG THE NORTH LUZON EXPRESSWAY WHICH IS KM 33.
- 5.2 ROAD STATIONS AND ELEMENTS OF CURVE, BOTH HORIZONTAL AND VERTICAL ALIGNMENTS, ARE RELATIVE TO THE ROAD CENTERLINE/BASELINE UNLESS OTHERWISE INDICATED ON PLANS.

6.0 ELEVATION AND GRADES

- 6.1 ELEVATIONS AND GRADES AS DESCRIBED IN THE PROFILE GRADE ARE TOP OF CROWN ALONG THE CENTERLINE. FINISHED GRADE AS SHOWN WILL BE REFERRED BASE FROM PAVEMENT SLOPE

7.0 HORIZONTAL TRANSITIONS

- 7.1 HORIZONTAL TRANSITIONS FOR ROADWAY TAPERINGS/WIDENINGS ARE DESIGNED TO BE STAKED OUT BY THE OFFSETS FROM THE BASELINE INCREASING OR DECREASING ALONG THE DIRECTION OF TRAFFIC.

8.0 UTILIZATION OF GRAVEL MATERIALS

- 8.1 GRAVEL MATERIALS ALONG THE GRAVEL CROSS ROAD IN THE INITIAL STAGE SHALL BE EXCAVATED AND RECONSTRUCTED AS SUBBASE MATERIALS TO THICKNESS AS SHOWN AND INDICATED ON THE TYPICAL SECTIONS FOR THE ULTIMATE STAGE, RECONSTRUCTION OF THE SUBBASE MENTIONED SHALL BE DONE, FOLLOWING THE NORMAL REQUIREMENT IN SUBGRADE PREPARATION.

9.0 REMOVAL OF EXISTING STRUCTURES AND OBSTRUCTIONS

- 9.1 ARTICLE 4.7 OF THE "GENERAL REQUIREMENTS AND COVENANTS" IS HEREBY AMENDED AS FOLLOWS:
- THE REMOVAL OF BUILDINGS, HOUSES, FENCES, UTILITY POLES AND OTHER PUBLIC UTILITIES WILL NOT BE THE RESPONSIBILITY OF THE CONTRACTOR BUT WILL BE REMOVED BY THE RESPECTIVE OWNERS, OR THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS PRIOR TO CONSTRUCTION.

10.0 ROAD CONNECTIONS AND PRIVATE ENTRANCES

- 10.1 OPENINGS FOR DRIVEWAYS OR PRIVATE ENTRANCES SHALL BE CONSTRUCTED ONLY ALONG SECTIONS OF THE PROJECT ROAD WHERE FRONTAGE ROADS AND/OR TURNOUTS ARE TO BE PROVIDED. SUCH CONNECTIONS SHALL BE DETERMINED BY THE ENGINEER AND SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO INSURE PROPER CONNECTION AND RIDING QUALITY.
- 10.2 ROAD CONNECTIONS SHALL BE CONSTRUCTED AS SHOWN ON PLANS. THE ROAD STRUCTURE OF EACH CONNECTION SHALL BE AS RECOMMENDED IN THE DRAWING.
- 10.3 THE INTERSECTIONS NOT SHOWN ON THE DRAWINGS SHALL REQUIRE PLANS SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTIONS.
- 10.4 THE LIMIT OF CONSTRUCTION FOR ROAD CONNECTIONS AND PRIVATE ENTRANCES SHALL BE AS SHOWN IN THE DRAWING OR AS INDICATED BY THE ENGINEER.

11.0 DRAINAGE STRUCTURES

- 11.1 EXACT LOCATIONS, SLOPES, OUTFALLS, AND INVERT ELEVATIONS OF DRAINAGE STRUCTURES SHALL BE CHECKED IN THE FIELD BY THE ENGINEER. MINOR ADJUSTMENTS MAY BE MADE TO SUIT ACTUAL FIELD CONDITIONS UPON APPROVAL OF THE ENGINEER.
- 11.2 EXISTING DRAINAGE STRUCTURES THAT ARE FAULTY, BROKEN DOWN, OR NOT IN GOOD WORKING CONDITION SHALL BE DETERMINED IN THE FIELD. RECONSTRUCTION, REPAIR AND/OR REPLACEMENT OF SAME SHALL BE DIRECTED BY THE ENGINEER, AND SHALL CONFORM TO THE STANDARDS AS SHOWN IN THE DRAWINGS.
- 11.3 EXISTING DRAINAGE STRUCTURES OR PARTS THEREOF REMOVED BY THE CONTRACTOR THAT ARE STILL SERVICEABLE SHALL BE TURNED OVER TO THE GOVERNMENT AND SHALL BE DEPOSITED AT A PLACE DESIGNATED BY THE ENGINEER WITHOUT ANY COMPENSATION. EXTREME PRECAUTIONS SHALL BE EXERCISED BY THE CONTRACTOR NOT TO DAMAGE THESE MATERIALS DURING THE REMOVAL AND HANDLING OPERATION.
- 11.4 THE CLEANING, UNBLOCKING AND/OR RELAYING OF REINFORCED CONCRETE PIPES, CONSTRUCTION OF CHANNELS AND DITCHES AS DIRECTED BY THE ENGINEER TO ENSURE AN OPERATIONAL TEMPORARY DRAINAGE SYSTEM DURING THE CONSTRUCTION PERIOD SHALL BE UNDERTAKEN BY THE CONTRACTOR WITHOUT ANY COMPENSATION.

12.0 ACCESSIBILITY LAW:







- 12.1 STRICT COMPLIANCE WITH BATAS PAMBANSA BILANG 344 AND ITS IMPLEMENTING RULES AND REGULATIONS SHALL BE IMPOSED.

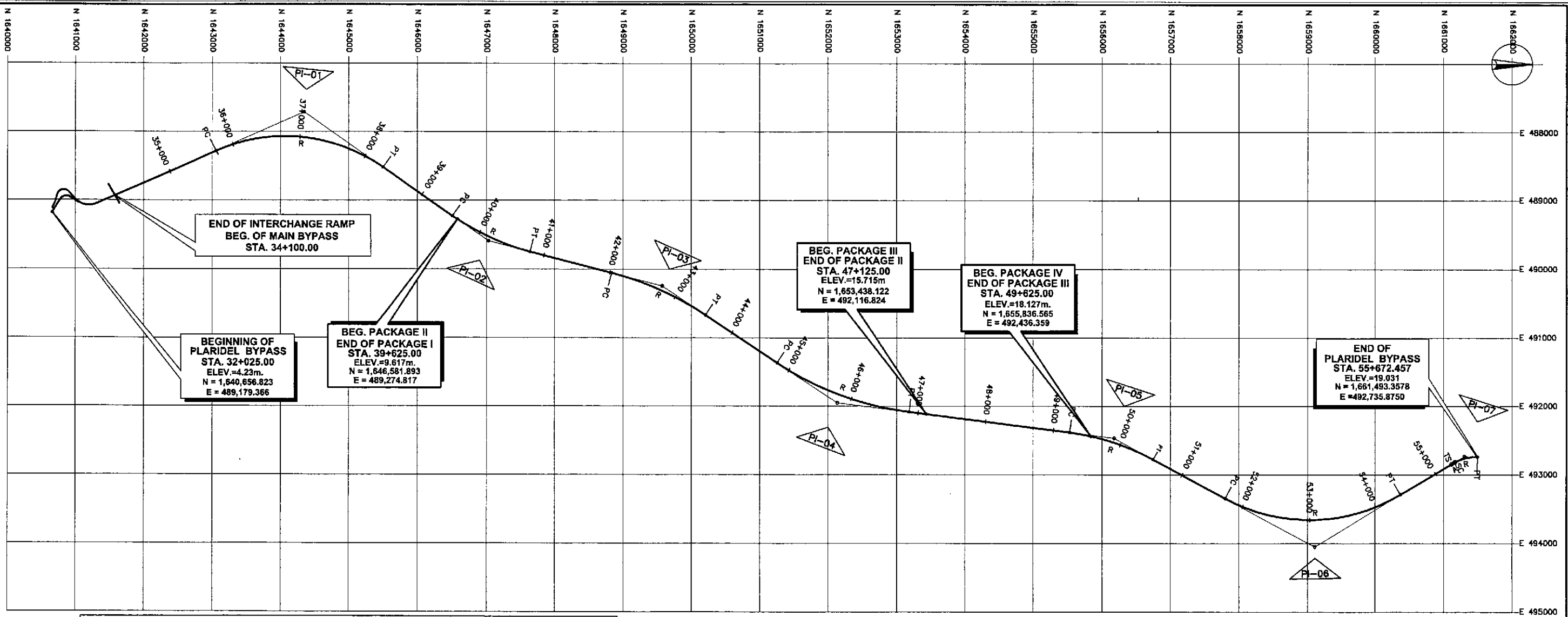
13.0 TREE PLANTING ALONG NATIONAL ROADS

- 13.1 DPWH DEPARTMENT ORDER NO. 15, SERIES OF 2000 AND ITS REQUIREMENTS SHALL BE IMPOSED. THE PLANTING OF TREES ALONG NATIONAL ROADS SHALL BE MADE A STANDARD COMPONENT OF ALL ROAD CONSTRUCTION AND IMPROVEMENT PROJECTS TO ENHANCE QUALITY OF ENVIRONMENT.

14.0 DESIGN DATA / REFERENCES

- 14.1 REPORTS
- FEASIBILITY STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHIL. HIGHWAY (PLARIDEL, CABANATUAN AND SAN JOSE BYPASSES), FINAL REPORT, NOVEMBER 1999.
 - DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY, BASIC DESIGN REPORT, SEPTEMBER 2001.
- 14.2 DRAWINGS
- FEASIBILITY STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHIL. HIGHWAY (PLARIDEL, CABANATUAN AND SAN JOSE BYPASSES).
 - DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY, BASIC DESIGN DRAWINGS, SEPTEMBER 2001.

 JAPAN INTERNATIONAL COOPERATION AGENCY  KATAHIRA & ENGINEERS INTERNATIONAL  YACHIYO ENGINEERING CO., LTD.	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	DESIGNED	9/19/02		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)			
	CHECKED	9/20/02		Submitted By:	Reviewed By:	Recommended By:	Approved By:	GENERAL NOTES (HIGHWAY AND DRAINAGE)			
SUBMITTED	9/23/02		DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES DIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANDONG Secretary	PLARIDEL BYPASS - CONTRACT PACKAGE II		RG-01	



ELEMENTS OF CURVES

P.I. No.	STATION	DISTANCE	AZIMUTH	TANGENT	DEFLECTION	A	Ls	Lc	STATION
				Θ_a	ANGLE				
BEG.	34+100.00								
01	37+150.085	3,050.085	156°12'23"	1,405.822	58°41'37"	2,500.000	2,580.893		PC=35+744.463
		3,270.517	214°54'01"	631.471				PT=38+305.456	
02	40+170.351	2,627.362	194°28'44"	782.281	20°27'17"	3,500.000	1,248.501		PC=39+538.880
		3,079.936	213°40'26"	1,055.870				PT=40+788.381	
03	42+784.272	3,079.936	213°40'26"	1,055.870	19°13'42"	4,500.000	1,510.187		PC=42+022.011
		4,078.071	187°15'51"	653.242				PT=43+532.197	
04	45+848.871	4,078.071	187°15'51"	653.242	26°24'35"	4,500.000	2,074.218		PC=44+784.002
		3,324.430	208°24'30"	1,481.484				PT=46+868.219	
05	48+888.421	3,324.430	208°24'30"	1,481.484	21°08'38"	3,500.000	1,281.623		PC=48+235.179
		2,583.432	149°03'33"	217.897				PT=50+528.802	
06	53+187.990	2,583.432	149°03'33"	217.897	59°20'57"	2,800.000	2,693.177		PC=51+716.508
		191.336	02°23'54"	217.897				PT=54+408.683	
07	55+481.831	191.336	02°23'54"	217.897	32°44'53"	850.000	344.305		TS=55+273.735
								SC=55+328.152	
END	55+872.457								PT=55+872.457

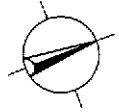
TABLE OF COORDINATES

P.I. No.	NORTHING	EASTING	NORTHING	EASTING
BEG.	1,641,555.403	488,947.023		
01	1,644,348.248	487,716.493	PC	1,643,060.098 488,283.579
			PT	1,645,498.089 488,520.712
02	1,647,028.564	489,587.713	PC	1,646,510.682 489,228.418
			PT	1,647,840.071 489,745.240
03	1,648,572.882	490,243.134	PC	1,648,834.700 490,052.961
			PT	1,650,207.221 490,685.781
04	1,652,135.007	491,950.849	PC	1,651,257.304 491,385.407
			PT	1,653,183.402 492,084.358
05	1,656,178.303	492,468.239	PC	1,655,531.384 492,383.841
			PT	1,656,753.942 492,777.019

TABLE OF COORDINATES

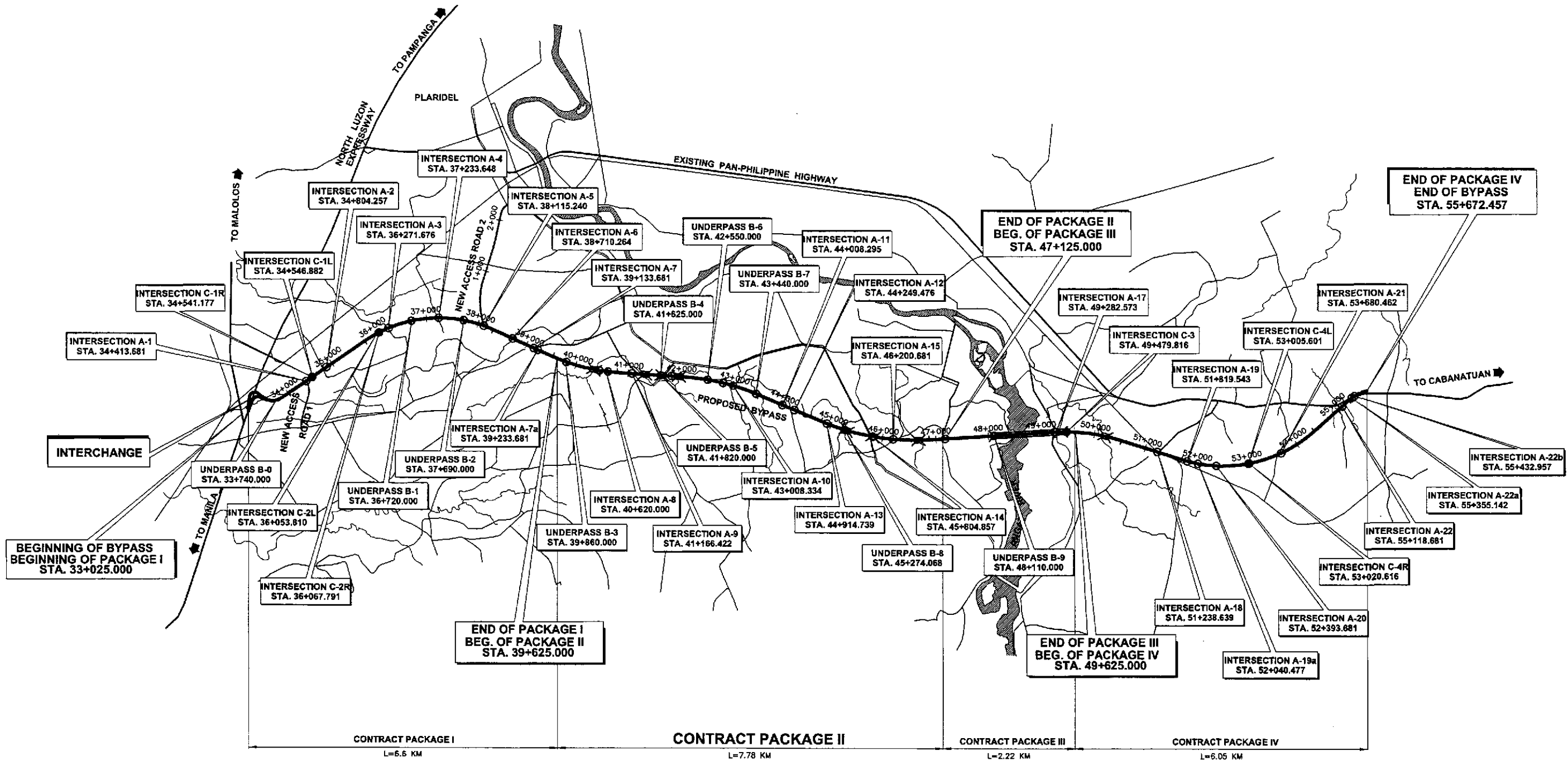
P.I. No.	NORTHING	EASTING	NORTHING	EASTING
06	1,659,103.488	494,047.839	PC	1,657,800.382 493,343.022
			PT	1,660,374.132 493,286.129
07	1,661,302.117	492,729.842	TS	1,661,115.228 492,841.874
			SC	1,661,162.283 492,814.552
			PT	1,661,493.358 492,735.878
END	1,661,493.358	492,735.878		

	DATE	9/20/02	DESIGNED	[Signature]		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : 1:30,000 FULL SIZE A1	SHEET CONTENTS : ALIGNMENT TECHNICAL DESCRIPTION	SHEET NO. : RG-02	
	SUBMITTED	9/23/02	CHECKED	[Signature]									
	Submitted By:		Reviewed By:			Recommended By:		Approved By:					
	DANILO C. TRAJANO Project Director		JOSEFINA M. ALAGAR Chief, Highways Division			GILBERTO S. REYES OIC, Director IV		MANUEL M. BONDAN Undersecretary					



LEGEND:

- Intersection Type A (At grade)
- ⊕ Intersection Type B (Underpass)
- Intersection Type C (Only access to frontage roads)
- ⌌ Bridge



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

	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : 1:40,000 FULL SIZE A1	SHEET CONTENTS : LOCATION OF INTERSECTIONS ALONG BYPASS	SHEET NO. : RG-03	
	DESIGNED	9/19/02	ACACIO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY					
	CHECKED	9/30/02	S. G. G. G.	Submitted By:	Reviewed By:	Recommended By:					Approved By:
	SUBMITTED	9/25/02	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OC, Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary				

SCHEDULE OF TRAFFIC SIGNS
CONTRACT PACKAGE II (INITIAL STAGE)

SCHEDULE OF GUARDRAIL, ROADSIDE PLANTING, GROUTED RIPRAP,
AND UNSUITABLE EXCAVATION
CONTRACT PACKAGE II (INITIAL STAGE)

ITEM 605 (1) WARNING SIGNS (TRIANGULAR 900mm)			ITEM 605 (2)d REGULATORY SIGNS (CIRCULAR 600mm DIA.)			SCHEDULE OF GUARDRAILS				A. ROADSIDE PLANTING (HIGH TREE)			
STATION	REF. NO.	REMARKS	STATION	REF. NO.	REMARKS	STATION		LENGTH (m)	LOCATION	STATION		LENGTH (L.M.)	
						FROM	TO			FROM	TO	LEFT	RIGHT
41+041	W3-1	RIGHTSIDE MAIN BYPASS	40+350	R6-4	RIGHTSIDE MAIN BYPASS	39+800.00	39+910.00	110.00	LEFT SIDE OF BYPASS	39 + 625	40 + 300	675	675
41+045	W1-4(L)	CENTER ISLAND MAIN BYPASS	40+395	R6-4	LEFT SIDE MAIN BYPASS	39+790.00	39+910.00	120.00	RIGHT SIDE OF BYPASS	40 + 300	41 + 000	640	640
41+260	W3-1	LEFT SIDE MAIN BYPASS	41+144	R3-15	CENTER ISLAND MAIN BYPASS	40+200.00	40+351.66	151.00	LEFT SIDE OF BYPASS	41 + 700	42 + 400	620	620
41+389	W1-4R	LEFT SIDE MAIN BYPASS	41+188	R3-15	CENTER ISLAND MAIN BYPASS	40+187.66	40+351.66	164.00	RIGHT SIDE OF BYPASS	42 + 400	43 + 100	660	660
41+501	W2-8	RIGHTSIDE MAIN BYPASS	41+320	R6-4	RIGHTSIDE MAIN BYPASS	BRIDGE NO. 1				43 + 100	43 + 800	700	700
41+754	W2-8	LEFT SIDE MAIN BYPASS	41+361	R6-4	LEFT SIDE MAIN BYPASS	40+394.16	40+514.16	120.00	LEFT SIDE OF BYPASS	43 + 800	44 + 500	640	620
42+851	W2-8	RIGHTSIDE MAIN BYPASS	41+630	R6-4	RIGHTSIDE MAIN BYPASS	40+394.16	40+514.16	120.00	RIGHT SIDE OF BYPASS	44 + 500	45 + 200	680	680
43+167	W2-8	LEFT SIDE MAIN BYPASS	41+672	R6-4	LEFT SIDE MAIN BYPASS	41+182.15	41+318.15	136.00	LEFT SIDE OF BYPASS	45 + 200	45 + 900	460	460
44+102	W2-8	RIGHTSIDE MAIN BYPASS	41+966	R6-4	RIGHTSIDE MAIN BYPASS	41+201.19	41+321.19	120.00	RIGHT SIDE OF BYPASS	45 + 900	46 + 600	660	660
44+400	W2-8	LEFT SIDE MAIN BYPASS	41+998	R6-4	LEFT SIDE MAIN BYPASS	BRIDGE NO. 2				46 + 800	47 + 300	560	560
44+800	W2-8	RIGHTSIDE MAIN BYPASS	45+314	R6-4	RIGHTSIDE MAIN BYPASS	41+360.64	41+632.64	272.00	LEFT SIDE OF BYPASS	47 + 300	47 + 400	100	100
45+010	W2-8	LEFT SIDE MAIN BYPASS	45+354	R6-4	LEFT SIDE MAIN BYPASS	41+362.78	41+630.78	268.00	RIGHT SIDE OF BYPASS	SCHEDULE GROUTED RIPRAP, CLASS 'A'			
45+701	W2-8	RIGHTSIDE MAIN BYPASS	45+824	R6-4	RIGHTSIDE MAIN BYPASS	BRIDGE NO. 3				STATION		VOLUME (m³)	LENGTH (m)
45+908	W2-8	LEFT SIDE MAIN BYPASS	45+870	R6-4	LEFT SIDE MAIN BYPASS	41+672.41	41+964.41	292.00	LEFT SIDE OF BYPASS	FROM	TO		
46+045	W2-8	RIGHTSIDE MAIN BYPASS	46+706	R6-4	RIGHTSIDE MAIN BYPASS	41+657.55	41+963.55	296.00	RIGHT SIDE OF BYPASS	LEFT SIDE			
46+363	W2-8	LEFT SIDE MAIN BYPASS	46+754	R6-4	LEFT SIDE MAIN BYPASS	BRIDGE NO. 4				41+260	41+318.37	58.37	75.30
46+997	W3-1	RIGHTSIDE MAIN BYPASS	47+155	R3-15	CENTER ISLAND MAIN BYPASS	41+997.26	42+129.26	132.00	LEFT SIDE OF BYPASS	41+362.73	41+400.00	37.27	46.96
47+065	W1-4(L)	CENTER ISLAND MAIN BYPASS	47+186	R3-15	CENTER ISLAND MAIN BYPASS	41+995.19	42+131.19	136.00	RIGHT SIDE OF BYPASS	41+940.00	41+963.10	23.10	19.75
47+301	W3-1	LEFT SIDE MAIN BYPASS	00+978	R3-15	CENTER ISLAND OF INTERSECTION A-9	42+490.00	42+550.00	60.00	RIGHT SIDE OF BYPASS	41+997.96	42+040.00	42.04	30.90
			01+031	R3-15	CENTER ISLAND OF INTERSECTION A-9	43+410.00	43+522.00	112.00	RIGHT SIDE OF BYPASS	SUB TOTAL			172.91
			01+082	R3-15	CENTER ISLAND OF INTERSECTION A-16	45+228.00	45+272.00	44.00	LEFT SIDE OF BYPASS	RIGHT SIDE			
			01+018	R3-15	CENTER ISLAND OF INTERSECTION A-16	45+190.00	45+286.00	76.00	RIGHT SIDE OF BYPASS	40+300.00	40+355.00	55.00	68.00
						45+279.92	45+311.92	32.00	LEFT SIDE OF BYPASS	40+396.16	40+450.00	53.84	64.51
						45+275.10	45+315.10	40.00	RIGHT SIDE OF BYPASS	41+362.73	41+400.00	37.27	46.96
						BRIDGE NO. 5				41+670.93	41+963.10	292.17	298.02
						45+352.76	45+520.76	168.00	LEFT SIDE OF BYPASS	41+997.96	42+070.00	72.04	55.11
						45+355.72	45+520.79	165.04	RIGHT SIDE OF BYPASS	42+940.00	43+070.00	130.00	125.97
						45+682.65	45+802.65	120.00	LEFT SIDE OF BYPASS	45+275.00	45+311.74	36.74	29.76
						45+685.08	45+805.08	120.00	RIGHT SIDE OF BYPASS	45+356.10	45+430.00	73.90	90.89
						45+807.04	45+819.04	12.00	LEFT SIDE OF BYPASS	47+100.00	47+170.00	70.00	75.60
						45+810.02	45+822.02	12.00	RIGHT SIDE OF BYPASS	47+180.00	47+260.00	80.00	146.40
						1+012.65	1+072.65	60.00	RIGHT OF ACCESS RD. A-14	SCHEDULE UNSUITABLE EXCAVATION			
						1+011.68	1+071.68	60.00	RIGHT OF ACCESS RD. A-14	STATION	DEPTH (m)	STATION	DEPTH (m)
						1+110.00	1+130.00	20.00	RIGHT OF ACCESS RD. A-14	39+513.68	0.30	43+513.68	0.30
						00+892	0+968.82	32.00	LEFT OF ACCESS RD. A-14	39+713.68	0.30	43+813.68	0.30
						01+103	0+890.00	20.00	LEFT OF ACCESS RD. A-14	39+913.68	0.30	44+043.68	0.30
						00+960	0+948.00	52.00	LEFT OF ACCESS RD. A-14	40+113.68	0.30	44+463.68	0.30
						01+030	0+948.00	52.00	LEFT OF ACCESS RD. A-14	40+313.68	0.30	44+713.68	0.30
						BRIDGE NO. 6				40+524.68	0.30	44+913.68	0.30
						45+868.29	45+940.29	72.00	LEFT SIDE OF BYPASS	40+883.68	0.50	45+113.68	0.30
						45+871.39	45+939.39	68.00	RIGHT SIDE OF BYPASS	41+513.68	0.50	45+343.68	0.30
						46+589.24	46+701.24	112.00	LEFT SIDE OF BYPASS	41+713.68	0.50	45+513.68	0.30
						46+588.36	46+704.36	116.00	RIGHT SIDE OF BYPASS	42+113.68	0.20		
						BRIDGE NO. 7				42+313.68	0.20		
						46+753.49	46+861.49	108.00	LEFT SIDE OF BYPASS	42+513.68	0.20		
						46+756.57	46+860.57	104.00	RIGHT SIDE OF BYPASS	42+713.68	0.20		
										42+913.68	0.30		
										42+113.68	0.30		
										43+313.68	0.30		

<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p> <p>KATAHIRA & ENGINEERS YEO YACHIYO ENGINEERING CO., LTD.</p>	DESIGNED	9/18/02	SIGNATURE	[Signature]	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p> <p>BUREAU OF DESIGN</p> <p>Submitted By: DANILLO C. TRAJANO Project Director</p> <p>Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division</p> <p>Recommended By: GILBERTO S. REYES OIC, Director IV</p> <p>MANUE. M. BONGAON Undersecretary</p> <p>SIMEON A. DATUMANONG Secretary</p>	<p>PROJECT AND LOCATION :</p> <p>THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)</p> <p>PLARIDEL BYPASS - CONTRACT PACKAGE II</p>	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	9/20/02	[Signature]							
	SUBMITTED	9/23/02	[Signature]							

SCHEDULE OF TRAFFIC SIGNS,
GUARDRAILS, GROUTED RIPRAP,
ROADSIDE PLANTING AND
UNSUITABLE EXCAVATION

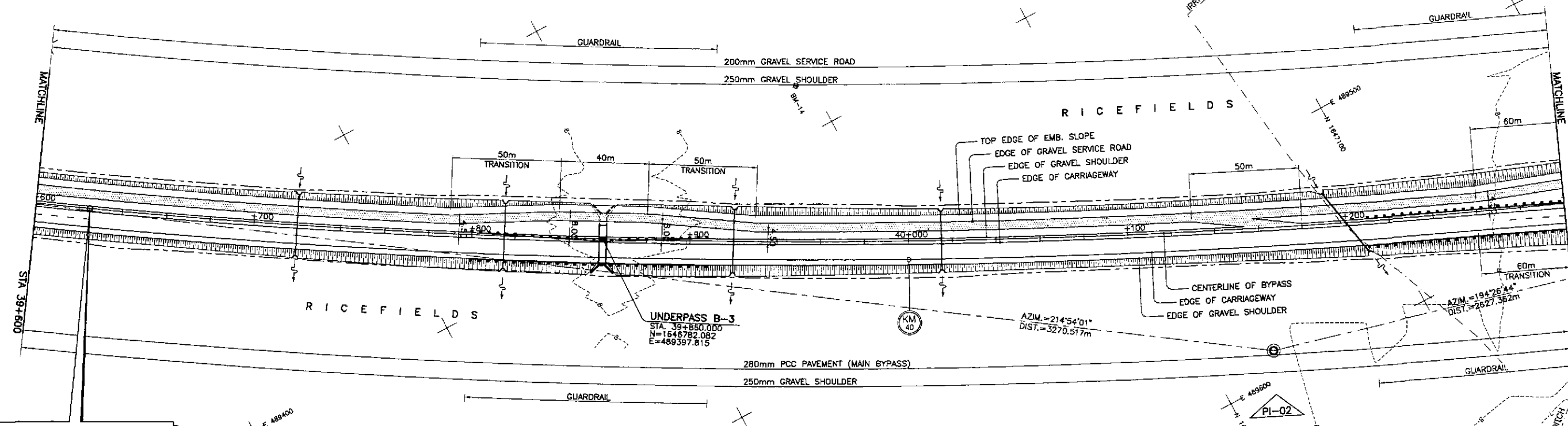
RG-04

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

1.0 CENTER LINE				2.2 LEFT SIDE, INNER EDGE				3.0 LANE LINES				6.0 BARRIER LINES			
STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS	STATION		LENGTH (m)	REMARKS
FROM	TO			FROM	TO			FROM	TO			FROM	TO		
39+525.00	40+731.98	1106.98	150mm x 3.0m @ 9.0m GAP	40+980.00	41+146.98	156.98	APPROACH TO A-9	41+086.94	41+116.97	30.03	(RS)LANE LINE 150mmx3.0m @ 4.50m GAP	40+731.98	40+941.98	210.00	RIGHT SIDE
40+731.98	40+941.98	210.00	150mm x 3.0m @ 4.50m GAP	41+184.37	41+286.51	102.14	APPROACH TO A-9	41+116.97	41+146.97	30.00	(RS) LANE LINE 150mm UNBROKEN	41+314.37	41+524.37	210.00	LEFT SIDE
41+314.37	41+524.37	210.00	150mm x 3.0m @ 4.50m GAP	46+987.91	47+160.42	172.51	APPROACH TO A-16	41+184.37	41+214.37	30.00	(LS) LANE LINE 150mm UNBROKEN	42+637.16	42+847.16	210.00	RIGHT SIDE
41+524.37	42+637.16	1112.79	150mm x 3.0m @ 9.0m GAP	47+180.00	47+352.55	172.55	APPROACH TO A-16	41+214.37	41+244.37	30.00	(LS)LANE LINE 150mmx3.0m @ 4.50m GAP	43+170.34	43+380.34	210.00	LEFT SIDE
42+637.16	42+847.16	210.00	150mm x 3.0m @ 4.50m GAP	00+957.33	00+984.49	27.16	INTERSECTION A-9	42+952.08	42+992.08	40.00	(RS) LANE LINE 150mm UNBROKEN	43+877.26	44+087.26	210.00	RIGHT SIDE
42+847.16	42+992.08	144.92	200mm UNBROKEN LINE	01+015.50	01+042.65	27.15	INTERSECTION A-9	43+025.27	43+065.27	40.00	(LS) LANE LINE 150mm UNBROKEN	44+411.69	44+621.69	210.00	LEFT SIDE
42+992.08	43+065.27	77.19	200mm UNBROKEN LINE	00+963.25	00+985.58	22.33	INTERSECTION A-16	44+192.20	44+232.20	40.00	(RS) LANE LINE 150mm UNBROKEN	45+829.45	46+039.45	210.00	RIGHT SIDE
43+065.27	43+380.34	315.07	150mm x 3.0m @ 4.50m GAP	01+014.82	01+037.08	22.26	INTERSECTION A-16	44+266.75	44+306.75	40.00	(LS) LANE LINE 150mm UNBROKEN	46+361.60	46+571.60	210.00	LEFT SIDE
43+380.34	43+877.26	496.92	150mm x 3.0m @ 9.0m GAP					45+144.51	46+184.51	40.00	(RS) LANE LINE 150mm UNBROKEN	46+706.11	46+950.72	244.61	RIGHT SIDE
43+877.26	44+087.26	210.00	150mm x 3.0m @ 4.50m GAP					46+216.60	46+256.60	40.00	(LS) LANE LINE 150mm UNBROKEN	47+389.53	47+400.00	10.47	LEFT SIDE
44+087.26	44+232.20	144.94	200mm UNBROKEN LINE					47+095.96	47+124.46	28.50	(RS)LANE LINE 150mmx3.0m @ 4.50m GAP				
44+232.20	44+306.75	74.55	200mm UNBROKEN LINE					47+124.46	47+154.46	30.00	(RS) LANE LINE 150mm UNBROKEN				
44+306.75	44+621.69	314.94	150mm x 3.0m @ 4.50m GAP					47+154.46	47+216.03	61.57	(LS) LANE LINE 150mm UNBROKEN				
44+621.69	45+829.45	1207.76	150mm x 3.0m @ 9.0m GAP					47+216.03	47+244.53	28.50	(LS)LANE LINE 150mmx3.0m @ 4.50m GAP				
45+829.45	46+039.45	210.00	150mm x 3.0m @ 4.50m GAP					00+952.82	00+972.82	20.00	(RS) LANE LINE 100mm UNBROKEN(A-9)				
46+039.45	46+184.51	144.96	200mm UNBROKEN LINE					01+032.01	01+052.01	20.00	(LS) LANE LINE 100mm UNBROKEN(A-9)				
46+184.51	46+256.60	72.09	200mm UNBROKEN LINE					00+960.43	00+980.43	20.00	(RS) LANE LINE 100mm UNBROKEN(A-16)				
46+256.60	46+571.60	314.94	150mm x 3.0m @ 4.50m GAP					01+018.92	01+038.92	20.00	(LS) LANE LINE 100mm UNBROKEN(A-16)				
46+571.60	46+706.11	134.51	150mm x 3.0m @ 9.0m GAP												
46+706.11	46+950.72	244.61	150mm x 3.0m @ 4.50m GAP												
47+389.53	47+400.00	10.47	150mm x 3.0m @ 4.50m GAP												
00+880.00	00+920.00	40.00	A-9: 100mm x 3.0m @ 4.5m GAP												
01+078.36	01+130.00	51.64	A-9: 100mm x 3.0m @ 4.5m GAP												
00+810.00	00+946.62	136.62	A-15: 100mm x 3.0m @ 4.5m GAP												
00+946.62	00+976.62	30.00	A-15: 100mm UNBROKEN LINE												
01+021.66	01+051.66	30.00	A-15: 100mm UNBROKEN LINE												
01+051.66	01+110.00	58.34	A-15: 100mm x 3.0m @ 4.5m GAP												
00+910.00	00+934.85	24.85	A-16: 100mm x 3.0m @ 4.5m GAP												
01+066.62	01+100.00	33.38	A-16: 100mm x 3.0m @ 4.5m GAP												

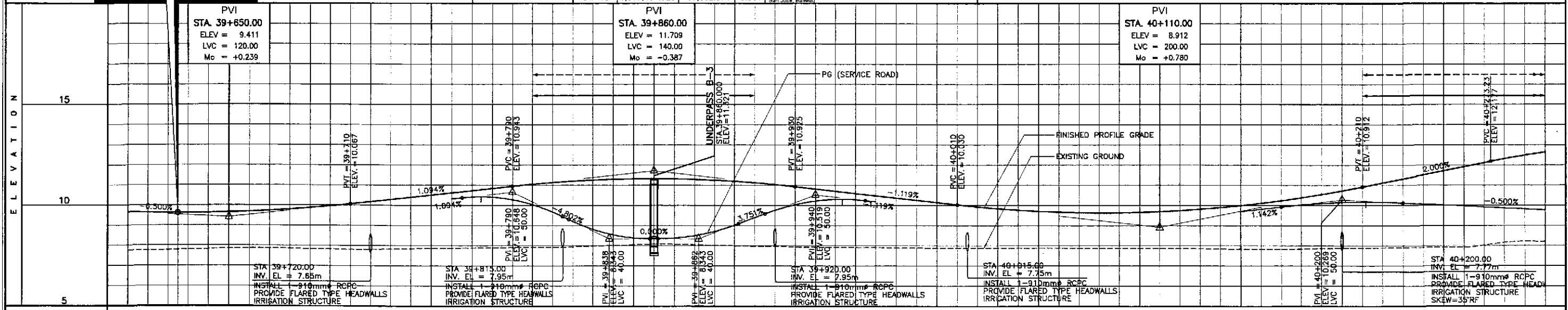
 JAPAN INTERNATIONAL COOPERATION AGENCY		DATE: 9/19/02 SIGNATURE: [Signature]		 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		SCALE : FULL SIZE A1		SHEET CONTENTS : SCHEDULE OF PAVEMENT MARKINGS AND TRAFFIC SIGNS		SHEET NO. : RG-05	
 KATAHIRA & ENGINEERS INTERNATIONAL		 YACHIYO ENGINEERING CO., LTD.		SUBMITTED BY: [Signature] TEAM LEADER		REVIEWED BY: [Signature] PROJECT DIRECTOR		RECOMMENDED BY: [Signature] CHIEF, HIGHWAYS DIVISION		APPROVED BY: [Signature] UNDERSECRETARY		APPROVED BY: [Signature] SECRETARY	

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-02	40+170.351	1,647,028.584	489,587.713	20°27'17"R	3,500.000	631.471	1,249.501	56.509	-	-	80



**PLARIDEL BYPASS
BEG. OF PACKAGE II
END OF PACKAGE I**
 STA. 39+625.00
 ELEV. = 9.617
 N = 1,646,581.893
 E = 489,274.817

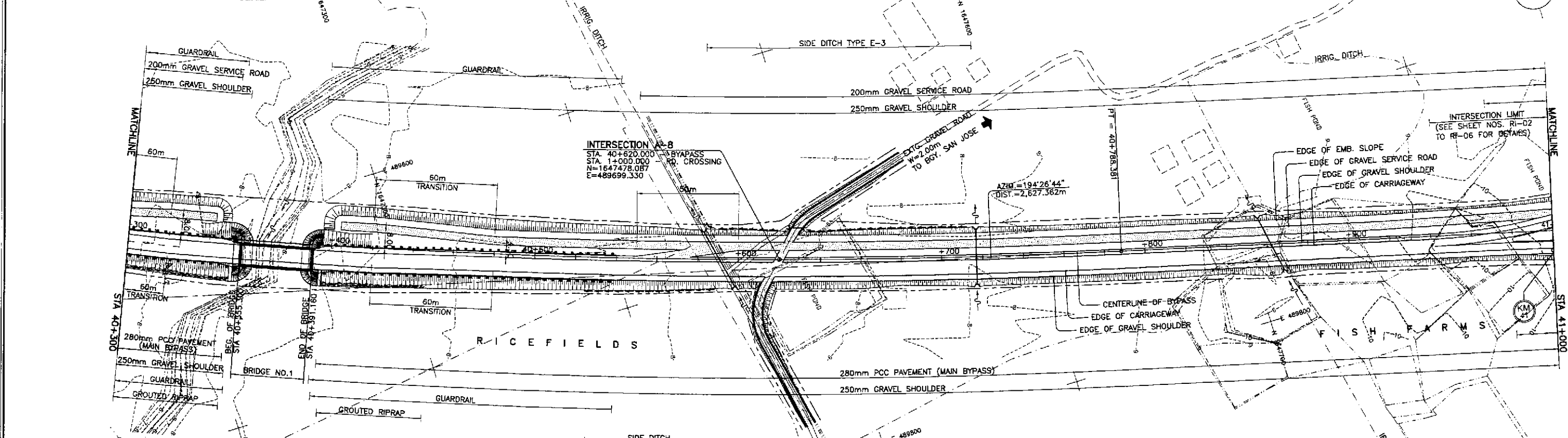
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-13	1,646,415.622	489,145.127	7.659	It is located on the back of a college on the left side of the alignment in Bay, Bulacan, Pinarol.
BM-14	1,546,892.978	489,377.904	8.484	It is located on a rice paddy dike on the left side of the alignment surrounded by banana in Bay, Bulacan, Pinarol.
BM-15	1,547,467.925	489,802.574	8.801	It is located on the center of a dirt road on the right side of the alignment in Bay, San Jose, Bulacan.



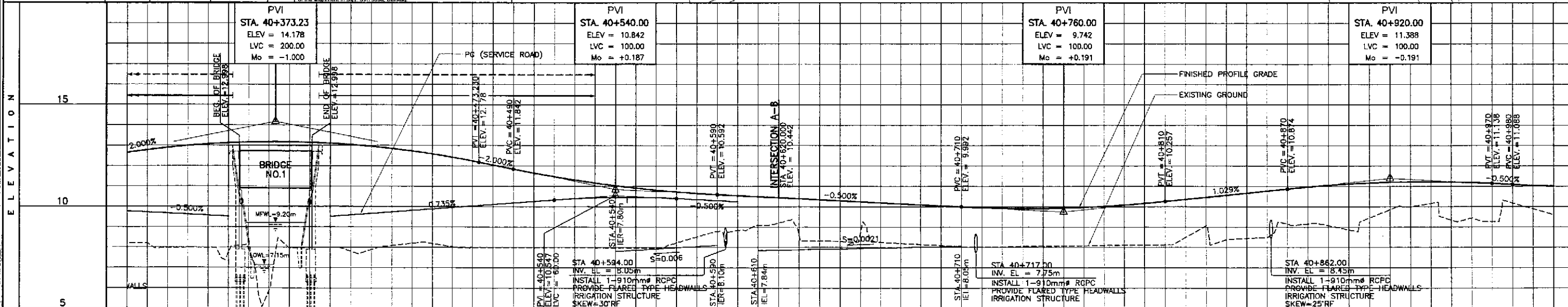
STATION	+800	+700	+800	+900	40+000	+100	+200	+300																																																																		
FINISHED PROFILE GRADE BYPASS SERVICE ROAD	7.746	9.668	7.775	9.621	7.788	9.617	7.823	9.627	7.871	9.688	7.854	9.799	7.822	9.955	7.810	10.177	7.842	10.396	7.874	10.615	7.893	10.833	7.909	11.044	7.942	11.200	8.010	11.282	8.077	11.321	8.047	11.287	7.995	11.190	7.953	11.029	7.928	10.814	7.905	10.592	7.894	10.366	7.885	10.142	7.880	9.926	7.880	9.785	7.880	9.656	7.873	9.629	7.865	9.655	7.855	9.743	7.839	9.894	7.823	10.107	7.843	10.382	7.871	10.149	7.895	11.112	7.911	11.513	7.927	11.913	8.159	12.308	8.195	12.641
EXISTING GROUND BYPASS	7.746	9.668	7.775	9.621	7.788	9.617	7.823	9.627	7.871	9.688	7.854	9.799	7.822	9.955	7.810	10.177	7.842	10.396	7.874	10.615	7.893	10.833	7.909	11.044	7.942	11.200	8.010	11.282	8.077	11.321	8.047	11.287	7.995	11.190	7.953	11.029	7.928	10.814	7.905	10.592	7.894	10.366	7.885	10.142	7.880	9.926	7.880	9.785	7.880	9.656	7.873	9.629	7.865	9.655	7.855	9.743	7.839	9.894	7.823	10.107	7.843	10.382	7.871	10.149	7.895	11.112	7.911	11.513	7.927	11.913	8.159	12.308	8.195	12.641
HORIZONTAL CURVATURE	R = 3500																																																																									
VERTICAL CURVATURE	L=120 Mo = +0.239							q = 1.094%							L=140 Mo = -0.387							q = -1.119%							L=200 Mo = +0.780							q = 2.000%																																						
SUPERELEVATION	NC																																																																									

								PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II		SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1		SHEET CONTENTS : PLAN AND PROFILE ALONG BYPASS (IN ITIAL STAGE) STA. 39+625 - STA. 40+300		SHEET NO. : RP-01	
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ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-02	40+170.351	1,647,028.564	489,587.713	20°27'17"R	3,500.000	631.471	1,249.501	56.509	-	-	80

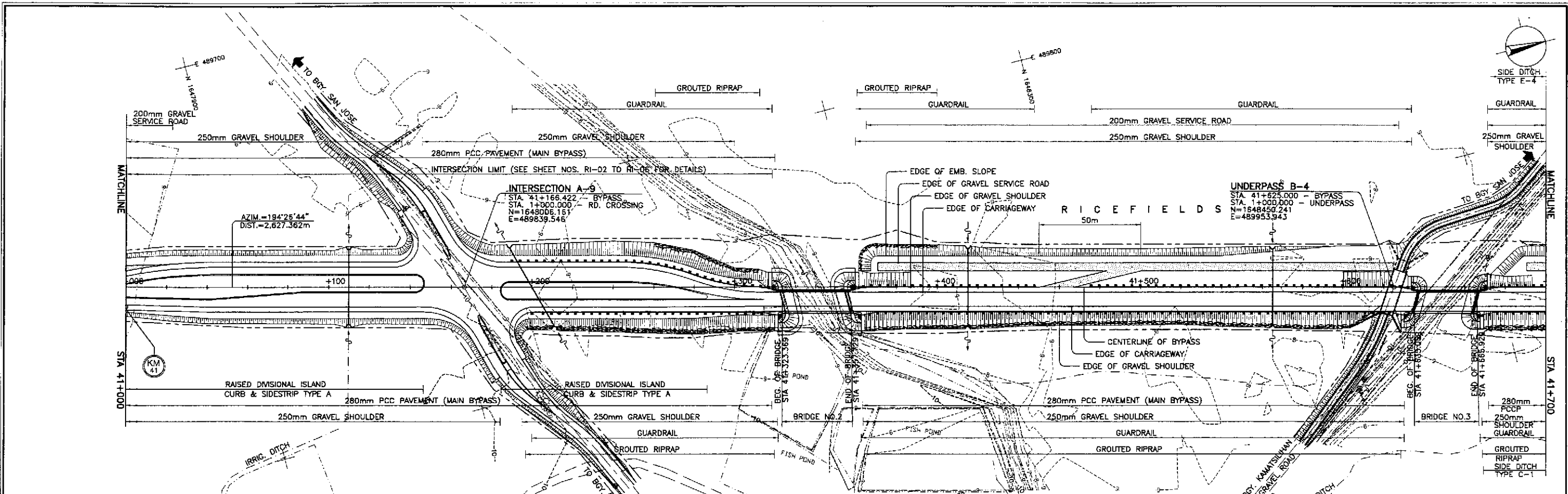


REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-14	1,646,892.978	489,377.904	8.484	It is located on a non-sandy dike on the left side of the alignment surrounded by banana in Bay, Bulkan, Pindol.
BM-15	1,647,467.925	489,802.574	8.801	It is located on the center of a dirt road on the right side of the alignment in Bay, San Jose, Balawan.
BM-16	1,648,054.174	489,953.321	10.801	It is located on the intersection of the by-pass road & the provincial road on the side of the alignment in Bay, San Jose, Balawan.

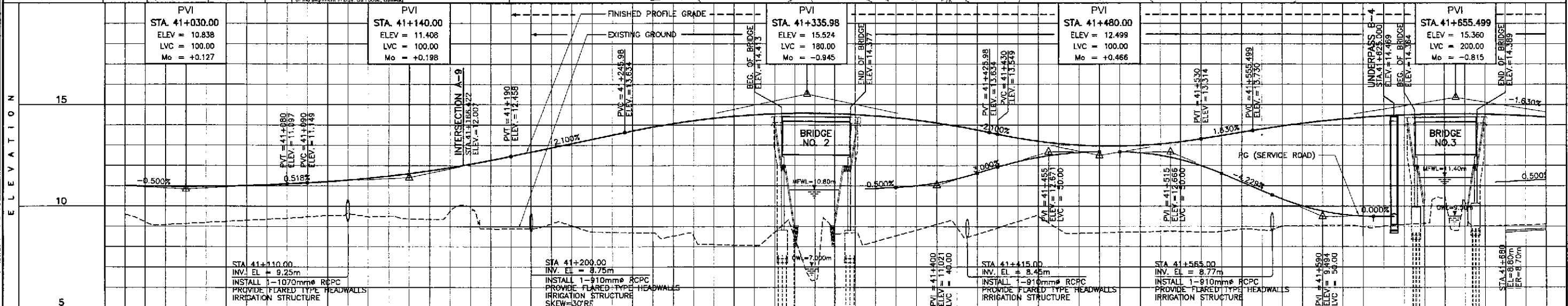


STATION	+300	+400	40+500	+600	+700	+800	+900	41+000																										
FINISHED PROFILE GRADE BYPASS / SERVICE ROAD	12.841 9.769	12.894 9.669	13.067 9.569	13.180 9.569	13.123 9.666	12.959 9.612	12.732 9.612	12.425 9.569	12.042 10.106	11.650 10.253	11.310 10.390	11.030 10.455	10.810 10.437	10.650 10.347	10.542 10.247	10.442 10.247	10.342 10.242	10.142 10.142	10.042 10.042	9.950 9.950	9.911 9.911	9.833 9.833	10.017 10.017	10.161 10.161	10.359 10.359	10.565 10.565	10.771 10.771	10.989 10.989	11.114 11.114	11.197 11.197	11.219 11.219	11.181 11.181	11.068 11.068	11.009 11.009
EXISTING GROUND BYPASS	8.195	7.957	7.975	7.991	7.944	7.993	7.985	8.199	8.026	7.976	7.984	7.985	8.513	8.832	9.197	8.310	8.709	8.194	8.088	8.018	8.042	8.066	8.090	8.114	8.489	8.376	8.490	9.159	8.868	9.851	10.160	9.447	10.177	9.603
HORIZONTAL CURVATURE	R = 3500																																	
VERTICAL CURVATURE	L=200 Mo=-1.000		g=-2.000%			L=100 Mo=+0.187			g=-0.500%			L=100 Mo=+0.191			g=1.029%			L=100 Mo=-0.191			g=-0.500%													
SUPERELEVATION	NC																																	

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 40+300 - STA. 41+000	SHEET NO. : RP-02
	CHECKED	9/20/02	<i>[Signature]</i>		Submitted By:	Reviewed By:	Recommended By:	Approved By:				
	SUBMITTED	9/20/02	<i>[Signature]</i>		DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary				



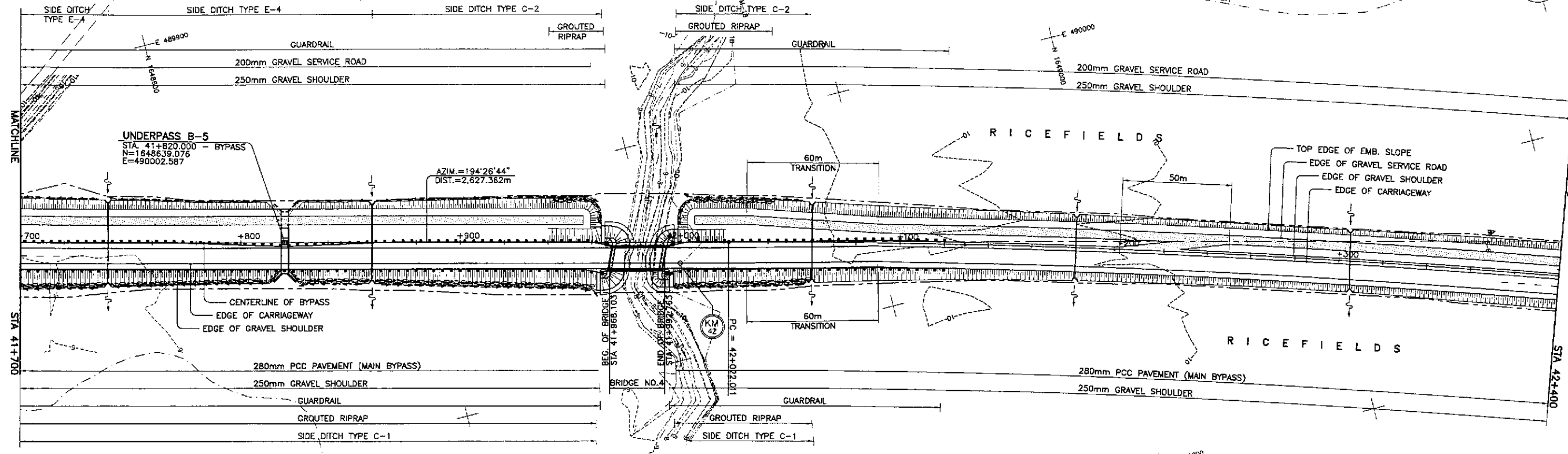
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-15	1,647,467.925	489,802.574	B.801	It is located on the center of a dirt road on the right side of the alignment in Bgy. San Jose, Bataan.
BM-16	1,648,054.174	489,953.321	10.601	It is located on the intersection of the bgy. road & the provincial road on the side of the alignment in Bgy. San Jose, Bataan.
BM-17	1,648,424.838	489,994.453	10.582	It is located on the side of the dirt road where an irrigation canal is on the right side of the alignment in Bgy. San Jose, Bataan.



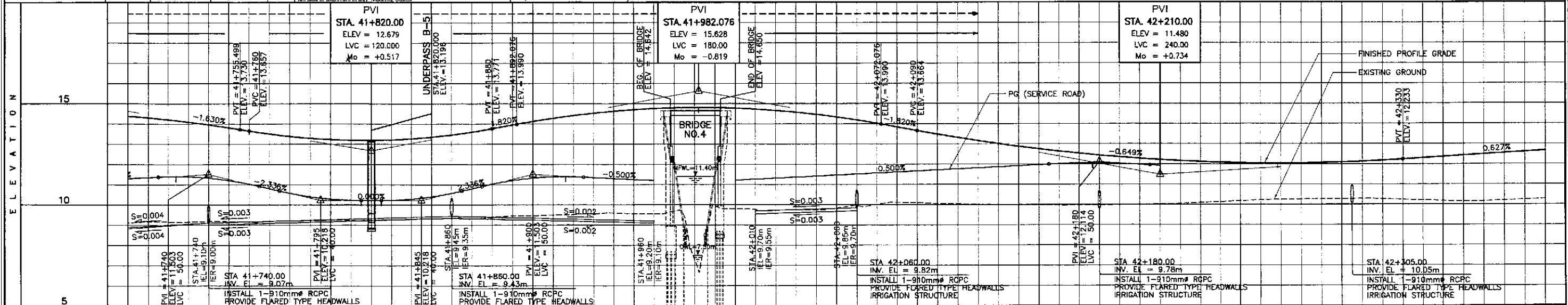
STATION	41+000	+100	+200	+300	+400	41+500	+600	+700																																												
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	9.603	10.970	10.972	11.014	11.097	11.208	11.376	11.606	11.899	12.256	12.668	13.088	13.508	13.905	14.213	14.428	14.549	14.577	14.512	14.353	14.921	14.101	11.146	13.755	11.621	13.358	12.191	13.087	12.551	12.966	12.671	12.983	12.624	13.170	12.285	13.477	11.609	13.602	10.783	14.081	10.012	14.294	9.589	14.442	9.454	14.528	10.191	14.543	14.468	11.280	14.386	9.107
EXISTING GROUND BYPASS	9.603	9.084	10.972	9.300	11.097	11.208	11.376	11.606	11.899	12.256	12.668	13.088	13.508	13.905	14.213	14.428	14.549	14.577	14.512	14.353	14.921	14.101	11.146	13.755	11.621	13.358	12.191	13.087	12.551	12.966	12.671	12.983	12.624	13.170	12.285	13.477	11.609	13.602	10.783	14.081	10.012	14.294	9.589	14.442	9.454	14.528	10.191	14.543	14.468	11.280	14.386	9.107
HORIZONTAL CURVATURE	R=∞																																																			
VERTICAL CURVATURE	L=100 Mo=+0.127		g=0.518%		L=100 Mo=+0.198		g=2.100%		L=180 Mo=-0.945		g=2.100%		L=100 Mo=+0.455		g=1.630%		L=200 Mo=-0.815																																			
SUPERELEVATION	NC																																																			

	DESIGNED	9/19/02	ACACIO		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :														
	CHECKED	9/20/02	S. GARCIA		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)				HORIZONTAL 1:1000	PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 41+000 - STA. 41+700	RP-03											
	SUBMITTED	9/23/02	CR. BARRERA		Submitted By:	Reviewed By:	Recommended By:	Approved By:	PLARIDEL BYPASS - CONTRACT PACKAGE II				VERTICAL 1:100													
			DANILO C. TRAJANO Project Director				JOSEFINA M. ALAGAR Chief, Highways Division				GILBERTO S. REYES OC, Director IV				MANUEL M. BONJAN Undersecretary				SIMEON A. DATUMANONG Secretary				FULL SIZE A1			

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-03	42+784.272	1,649,572.862	490,243.134	19°13'42"R	4,500.000	762.261	1,510.187	64.104	-	-	80



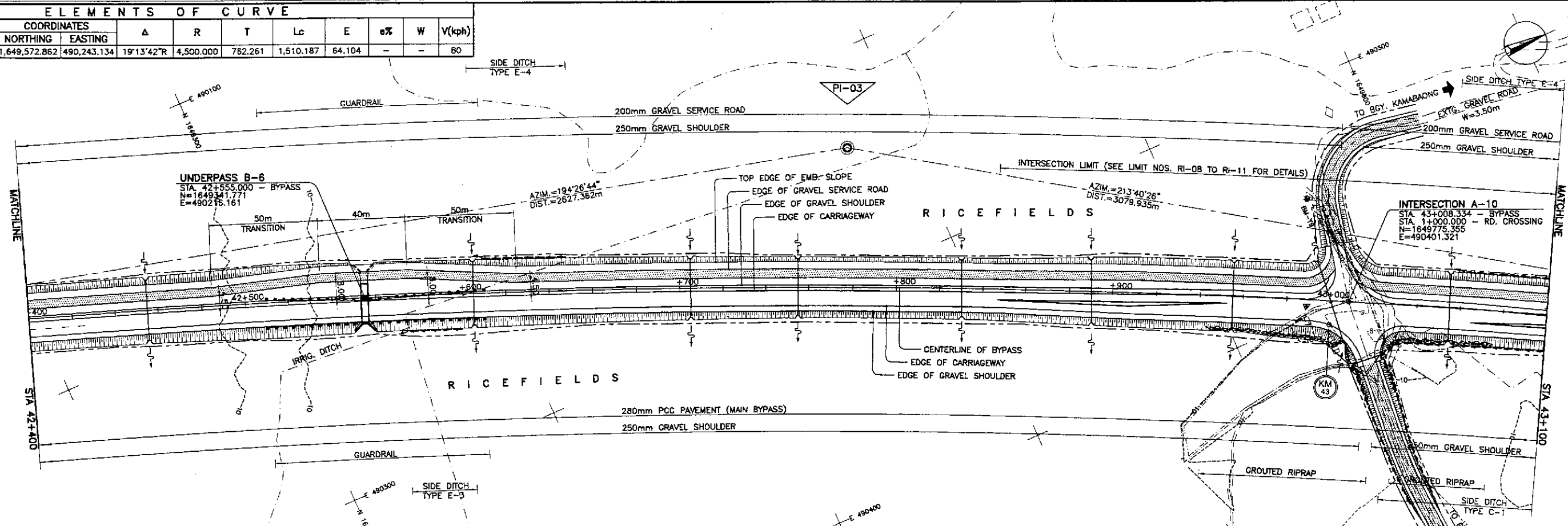
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-17	1,648,424.838	489,994.453	10.582	It is located on the side of the dirt road where an irrigation canal is on the right side of the alignment in Bay, San Jose, Bawags.
BM-18	1,648,870.652	489,943.559	10.265	It is located under a tree on the side of a creek on the left side of the alignment in Bay, San Jose, Bawags.
BM-19	1,649,757.184	490,350.187	11.391	It is located under a tree on the side of the road where an irrigation canal is on the left side of alignment in Bay, Malung, Bawags.



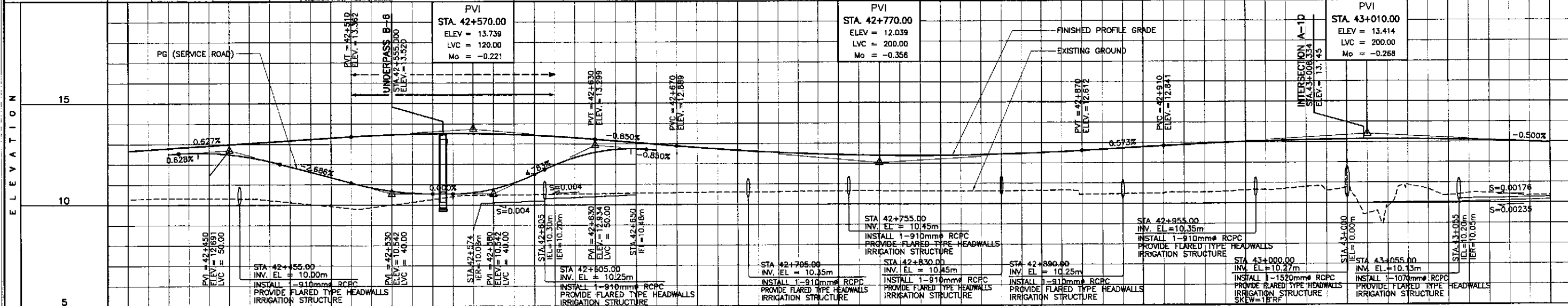
STATION	+700	+800	+900	42+000	+100	+200	+300	+400																								
FINISHED PROFILE GRADE BYPASS / SERVICE ROAD	14.384 11.303	14.208 11.386	13.657 11.029	13.188 10.576	12.273 10.284	11.428 11.326	10.420 11.303	9.548 11.203	7.275 14.809	9.798 11.214	9.718 11.314	9.751 11.414	9.858 11.514	10.118 11.614	10.081 11.714	10.072 11.814	9.988 11.914	9.964 12.014	9.980 12.114	10.003 12.219	10.067 12.319	10.136 12.421	10.223 12.521	10.255 12.621	10.276 12.721	10.271 12.821	10.211 12.921	10.150 13.021	10.202 13.121	10.278 13.221		
EXISTING GROUND BYPASS	9.107	9.147	9.186	9.208	9.250	9.246	9.299	9.350	9.385	9.473	9.529	9.594	9.648	9.751	9.858	10.118	10.081	10.072	9.988	9.964	9.980	10.003	10.067	10.136	10.223	10.255	10.276	10.271	10.211	10.150	10.202	10.278
HORIZONTAL CURVATURE	R=∞																R = 4500 42 + 022.011															
VERTICAL CURVATURE	g = -1.630%			L = 120 Mo = +0.517			g = -1.820%			L = 180 Mo = -0.819			g = -1.820%			L = 240 Mo = +0.734			g = 0.627%													
SUPERELEVATION	NC																															

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 41+700 - STA. 42+400	SHEET NO. : RP-04
	CHECKED	9/12/02	<i>[Signature]</i>		Submitted By:	Reviewed By:	Recommended By:	Approved By:				
	SUBMITTED	9/12/02	<i>[Signature]</i>		DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES D/C, Director IV	MANUEL M. BONOAN Undersecretary				

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-03	42+784.272	1,649,572.862	490,243.134	19°13'42"R	4,500.000	762.261	1,510.187	64.104	-	-	60



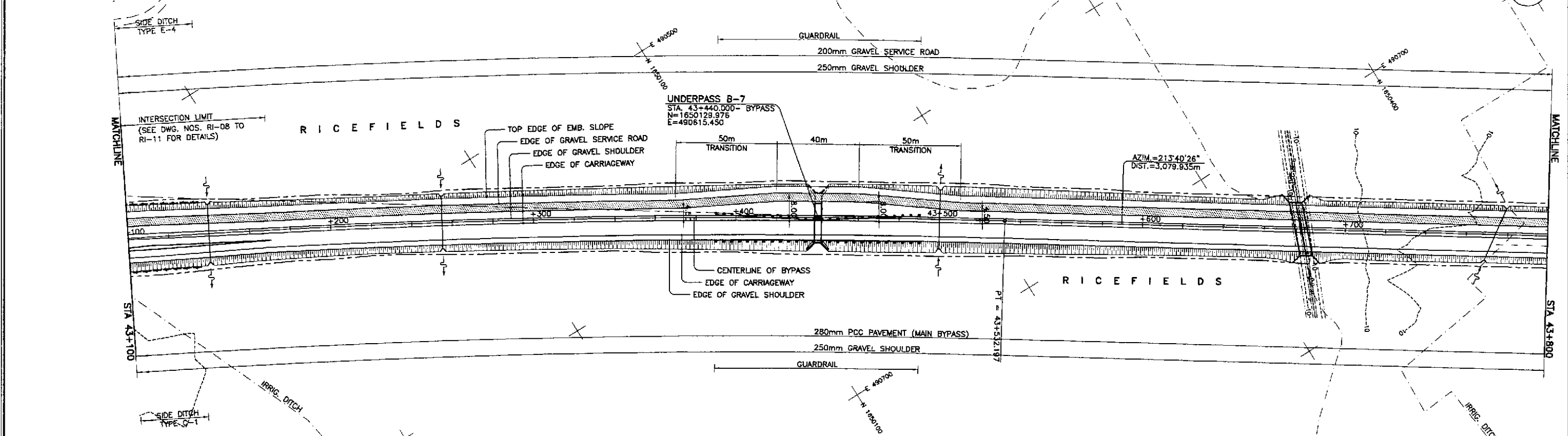
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-18	1,648,870.652	489,943.559	10.265	It is located under a tree on the side of a creek on the left side of the alignment in Bay, San Jose, Bataan.
BM-19	1,649,757.184	490,350.187	11.391	It is located under a tree on the side of the road where an irrigation canal is on the left side of alignment, in Bay, Malabon, Bataan.
BM-20	1,650,493.060	490,591.189	11.615	It is located under a tree near an unfinished house on the left side of the alignment in Bay, Malabon, Bataan.



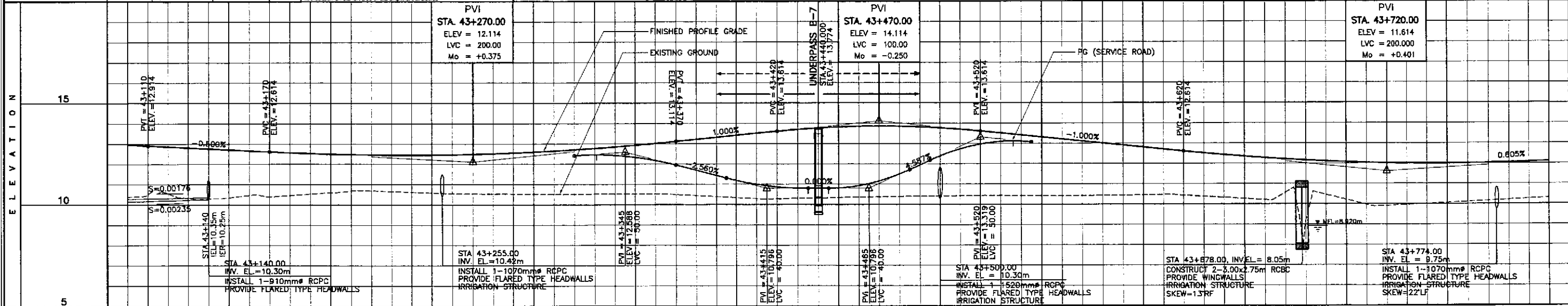
STATION	+400	42+500	+600	+700	+800	+900	43+000	+1000																							
FINISHED PROFILE GRADE BYPASS & SERVICE ROAD	10.278	10.326	10.314	10.302	10.130	9.922	9.866	10.138	10.409	10.479	10.504	10.528	10.552	10.576	10.580	10.602	10.616	10.636	10.643	10.653	10.616	10.636	10.657	10.655	10.801	10.788	9.801	10.677	10.474	10.407	10.382
EXISTING GROUND BYPASS	10.278	10.326	10.314	10.302	10.130	9.922	9.866	10.138	10.409	10.479	10.504	10.528	10.552	10.576	10.580	10.602	10.616	10.636	10.643	10.653	10.616	10.636	10.657	10.655	10.801	10.788	9.801	10.677	10.474	10.407	10.382
HORIZONTAL CURVATURE	R = 4500																														
VERTICAL CURVATURE	q=0.627%				L=120 Mo=-0.221				q=-0.850%				L=200 Mo=-0.356				q=0.573%				L=200 Mo=-0.268										
SUPERELEVATION	NC																														

	DESIGNED	9/18/02		<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	PROJECT AND LOCATION :				SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/20/02			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)				HORIZONTAL 1:1000		
	SUBMITTED	9/23/02			PLARIDEL BYPASS - CONTRACT PACKAGE II				VERTICAL 1:100		
					<p>Submitted By: DANIELO C. TRAJANO (Project Director)</p> <p>Reviewed By: JOSEFINA M. ALAGAR (Chief, Highways Division)</p> <p>Recommended By: GILBERTO S. REYES (GIC, Director IV)</p> <p>Approved By: MANUEL M. BONDAN (Undersecretary)</p> <p>Approved By: SIMEDN A. DATUMANONG (Secretary)</p>				FULL SIZE A1		

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-03	42+784.272	1,649,572.862	490,243.134	19°13'42"R	4,500.000	762.261	1,510.187	64.104	-	-	80

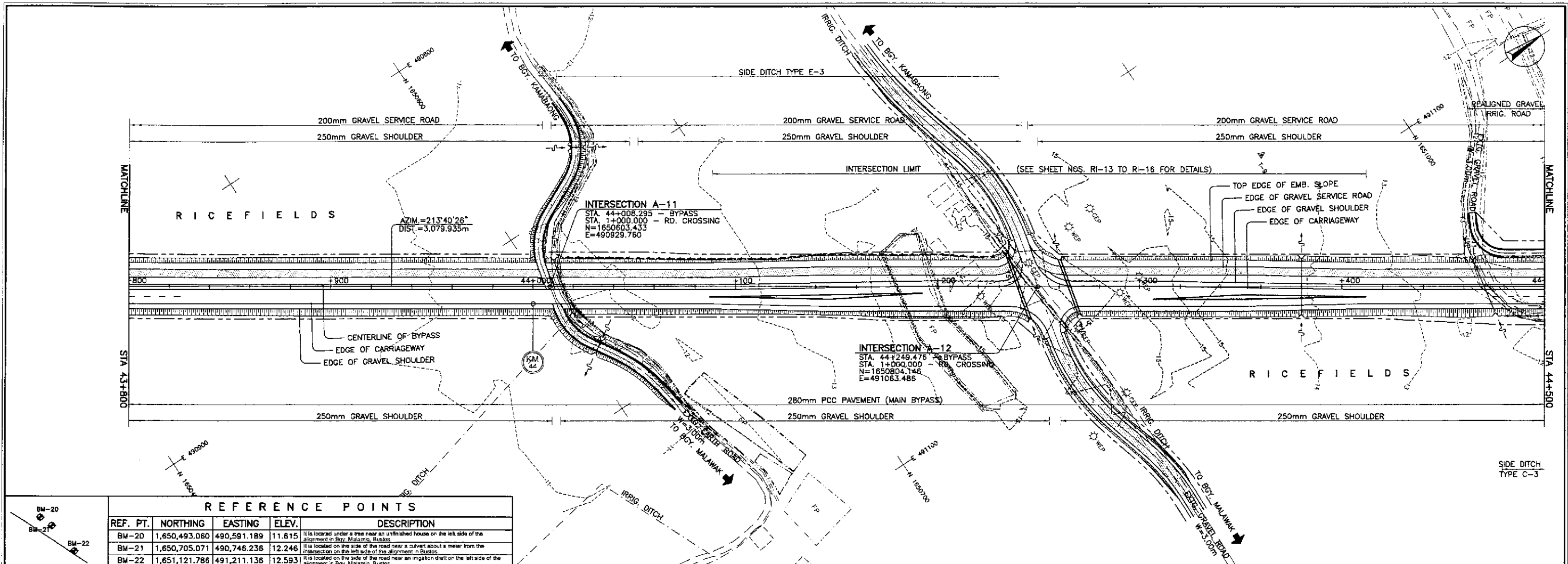


REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-19	1,649,757.184	490,350.187	11.391	It is located under a tree on the side of the road where an irrigation canal is on the left side of alignment in Bay, Malabang, Butos.
BM-20	1,650,493.060	490,591.189	11.615	It is located under a tree near an unfinished house on the left side of the alignment in Bay, Malabang, Butos.
BM-21	1,650,705.071	490,746.236	12.246	It is located on the side of the road near a culvert about a meter from the intersection on the left side of the alignment in Butos.

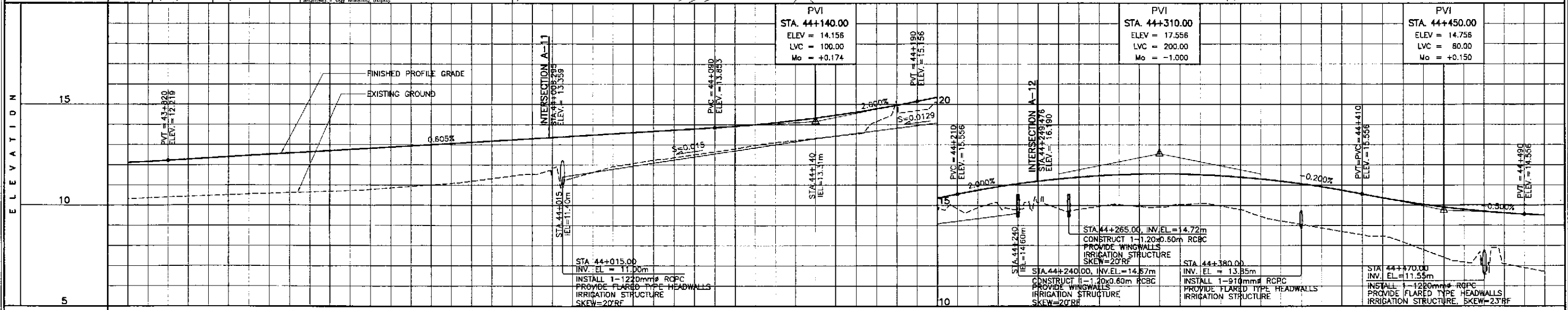


STATION	+100	+200	+300	+400	43+500	+600	+700	+800
FINISHED PROFILE GRADE BYPASS/SERVICE ROAD	10.382	10.554	10.726	10.898	11.070	11.242	11.414	11.586
EXISTING GROUND BYPASS	10.382	10.554	10.726	10.898	11.070	11.242	11.414	11.586
HORIZONTAL CURVATURE	R = 4500							
VERTICAL CURVATURE	g = -0.500%		L=200 Mo = +0.375		g = 1.000%		L=100 Mo = -0.250	
SUPERELEVATION	NC							

	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 43+100 - STA. 43+800	SHEET NO. : RP-06
	CHECKED	9/20/02	<i>[Signature]</i>	BUREAU OF DESIGN						
	SUBMITTED	9/23/02	<i>[Signature]</i>	Submitted By:	Reviewed By:	Recommended By:				
				DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV				



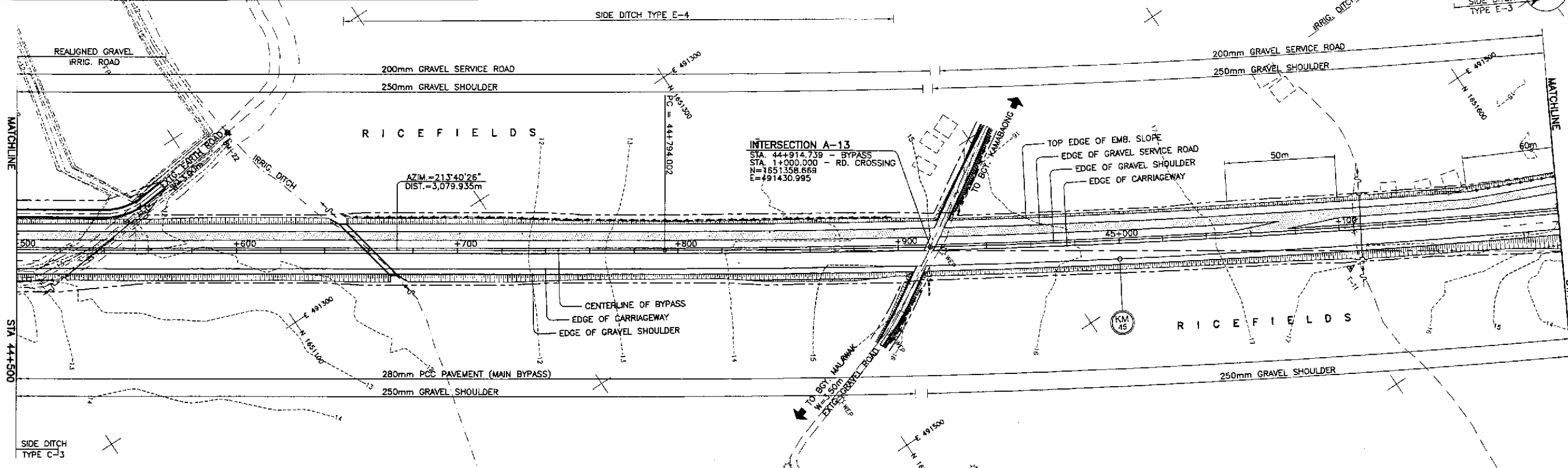
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-20	1,650,493.060	490,591.189	11.615	It is located under a tree near an unfinished house on the left side of the alignment in Bay Malambo, Bussos.
BM-21	1,650,705.071	490,746.236	12.246	It is located on the side of the road near a culvert about a meter from the intersection on the left side of the alignment in Bussos.
BM-22	1,651,121.786	491,211.136	12.593	It is located on the side of the road near an irrigation ditch on the left side of the alignment in Bay Malambo, Bussos.



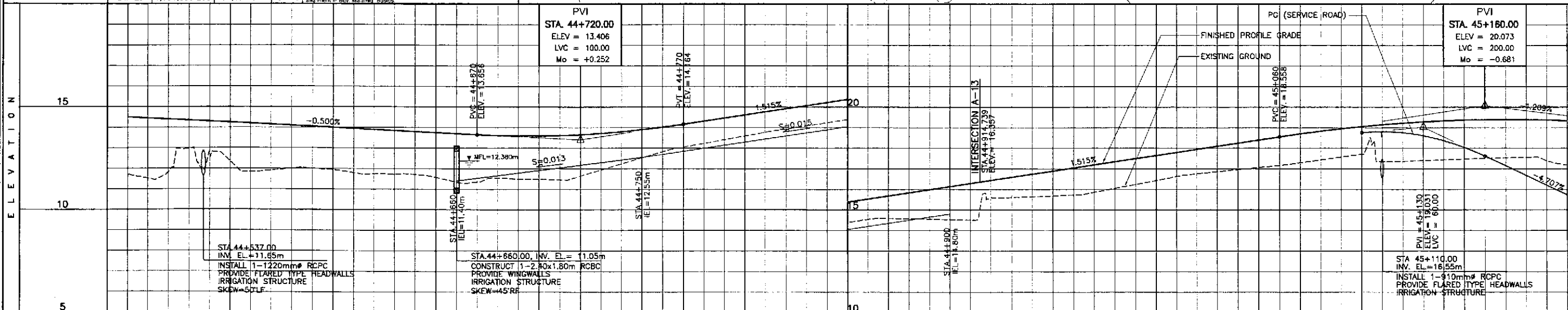
STATION	+800	+900	44+000	+100	+200	+300	+400	44+500
FINISHED PROFILE GRADE BYPASS	12.114	12.219	12.340	12.461	12.582	12.703	12.824	12.946
EXISTING GROUND BYPASS	10.309	10.403	10.475	10.547	10.616	10.684	10.778	10.830
HORIZONTAL CURVATURE	R=∞							
VERTICAL CURVATURE	g=0.605%		L=100, Mo=+0.174		g=2.000%		L=200, Mo=-1.000	
SUPERELEVATION	NC							

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/18/02	<i>[Signature]</i>		BUREAU OF DESIGN			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	HORIZONTAL 1:1000	PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 43+800 - STA. 44+500	RP-07
	SUBMITTED	9/20/02	<i>[Signature]</i>		Submitted By: DANILLO C. TRAJANO Project Director	Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By: GILBERTO S. REYES OIC, Director IV	Office of the Secretary	VERTICAL 1:100		

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-04	45+849.871	1,652,136.007	491,950.849	28°24'35"R	4,500.000	1,055.870	2,074.218	122.214	-	-	80



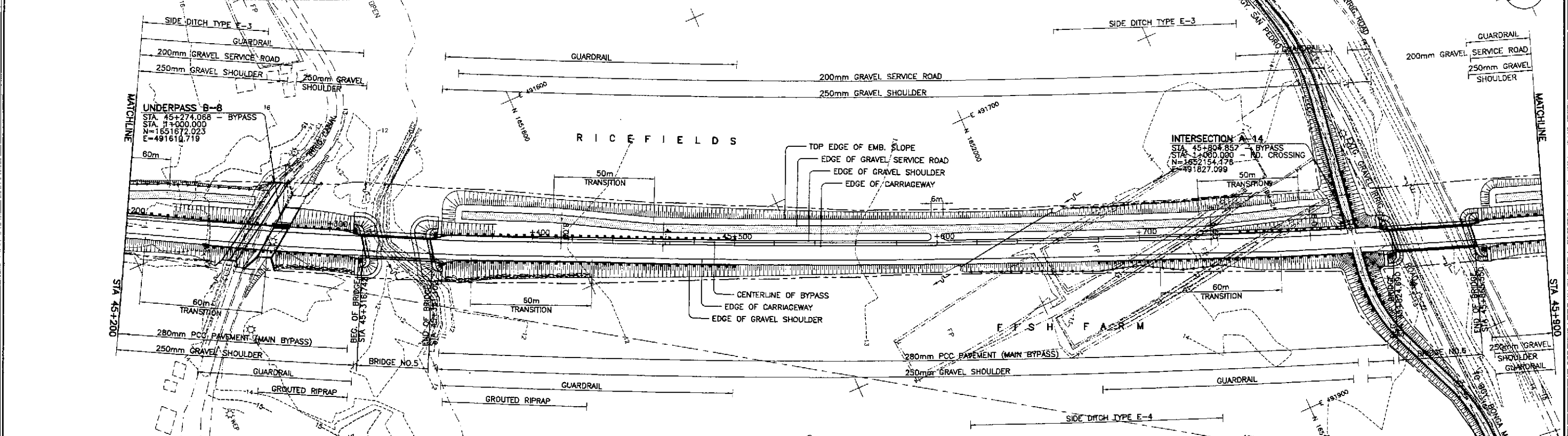
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-21	1,650,705.071	490,746.236	12.246	It is located on the side of the road near a culvert about a meter from the intersection on the left side of the alignment in Bypass.
BM-22	1,651,121.785	491,211.136	12.593	It is located on the side of the road near an irrigation draft on the left side of the alignment in Boy Malank Bypass.
BM-23	1,651,339.258	491,553.289	18.705	It is located on the side of the road near an electric post on the right side of the alignment in Boy Malank Bypass.



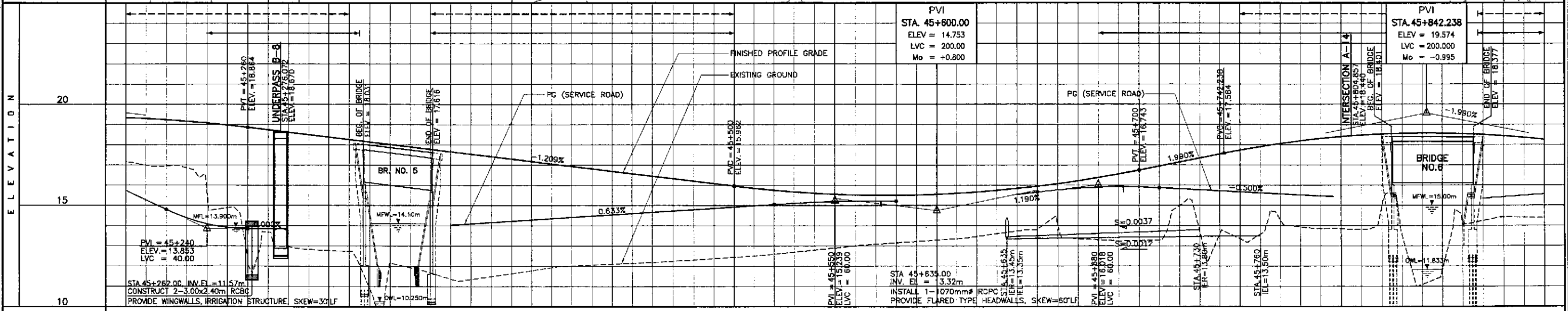
STATION	44+500	+600	+700	+800	+900	45+000	+100	+200
FINISHED PROFILE GRADE BYPASS SERVICE ROAD	11.709	11.821	12.666	11.945	12.002	11.840	11.747	11.713
EXISTING GROUND BYPASS	11.709	11.821	12.666	11.945	12.002	11.840	11.747	11.713
HORIZONTAL CURVATURE	R=∞							
VERTICAL CURVATURE	q=-0.500%		L=100 Mo=+0.252			q=1.515%		
SUPERELEVATION	NC							

	DESIGNED	DATE	SIGNATURE		PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/10/02	<i>[Signature]</i>		PJHL - PMO Reviewed By: JOSEFINA M. ALAGAR Recommended By: GILBERTO S. REYES Recommended By: MANUEL M. BONONAN Approved By: SIMEON A. DATUMANONG	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 44+500 - STA. 45+200

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-04	45+849.871	1,652,136.007	491,950.849	26°24'35"R	4,500.000	1,055.870	2,074.218	122.214	-	-	80



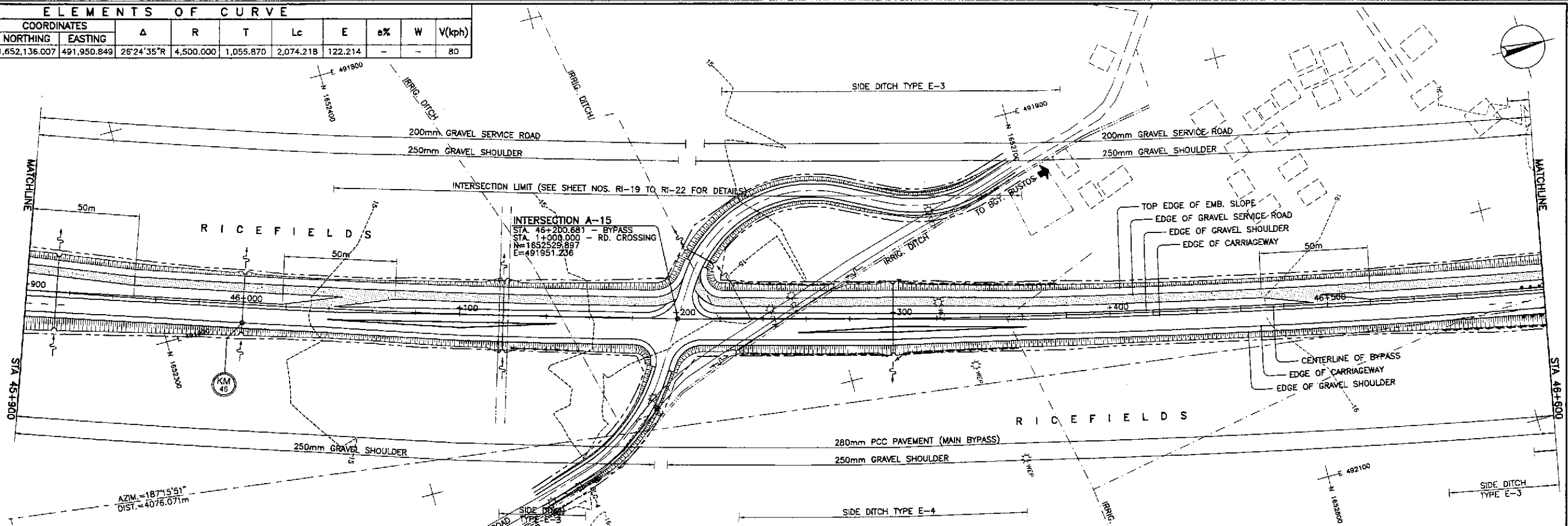
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-23	1,651,339.258	491,553.289	18.705	It is located on the side of the road near an electric post on the right side of the alignment in Bay, Masamban, Bukidnon.
BM-24	1,652,126.811	491,790.544	14.480	It is located on the side of a wall on a Easement disk about 40m. from the road on the left side of the alignment in Bukidnon.



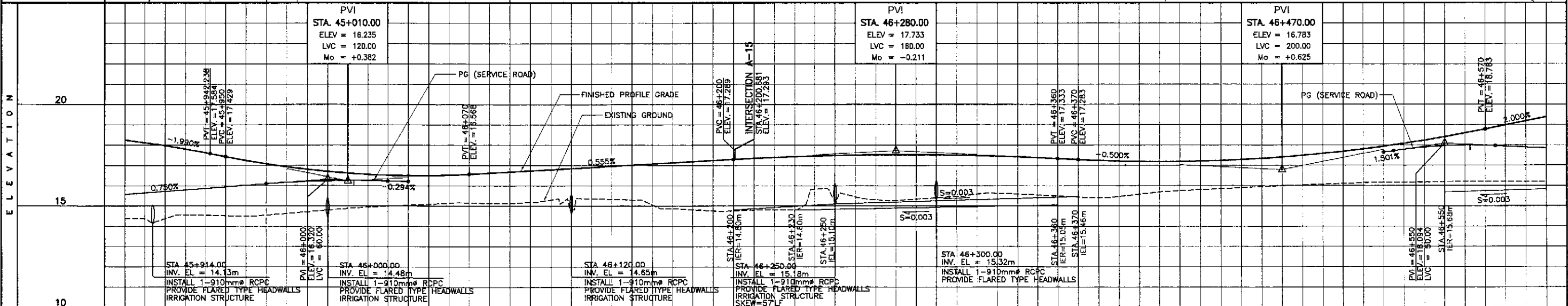
STATION	+200	+300	+400	45+500	+600	+700	+800	+900
FINISHED PROFILE GRADE BYPASS SERVICE ROAD	17.172	18.344	18.736	19.239	19.794	20.000	20.000	20.000
EXISTING GROUND BYPASS	16.943	17.413	17.897	18.385	18.882	19.377	19.871	20.364
HORIZONTAL CURVATURE	R = 4500							
VERTICAL CURVATURE	g = -1.209%			L = 200 Mo = +0.800			g = 1.990%	
SUPERELEVATION	NC							

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	SHEET CONTENTS : PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 45+200 - STA. 45+900	SHEET NO. : RP-09
	CHECKED	9/20/02	S. G. JOSE		Submitted By:	Reviewed By:	Recommended By:				
	SUBMITTED	9/23/02	M. B. B. B.		DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES DIC, Director IV				
					MANUEL M. BONGAON Undersecretary	SIMEON A. DATUMANONG Secretary					

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-04	45+849.871	1,652,136.007	491,950.849	26°24'35"R	4,500.000	1,055.870	2,074.218	122.214	-	-	80



REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-24	1,652,126.811	491,790.544	14.480	It is located on the side of a wall on a topographic dike about 40m. from the road on the left side of the alignment in Buzos.
BM-26	1,652,951.730	491,935.264	17.018	It is located on the side of the dirt road near a coconut tree on the left side of the alignment in Bay, Malaming, Buzos.

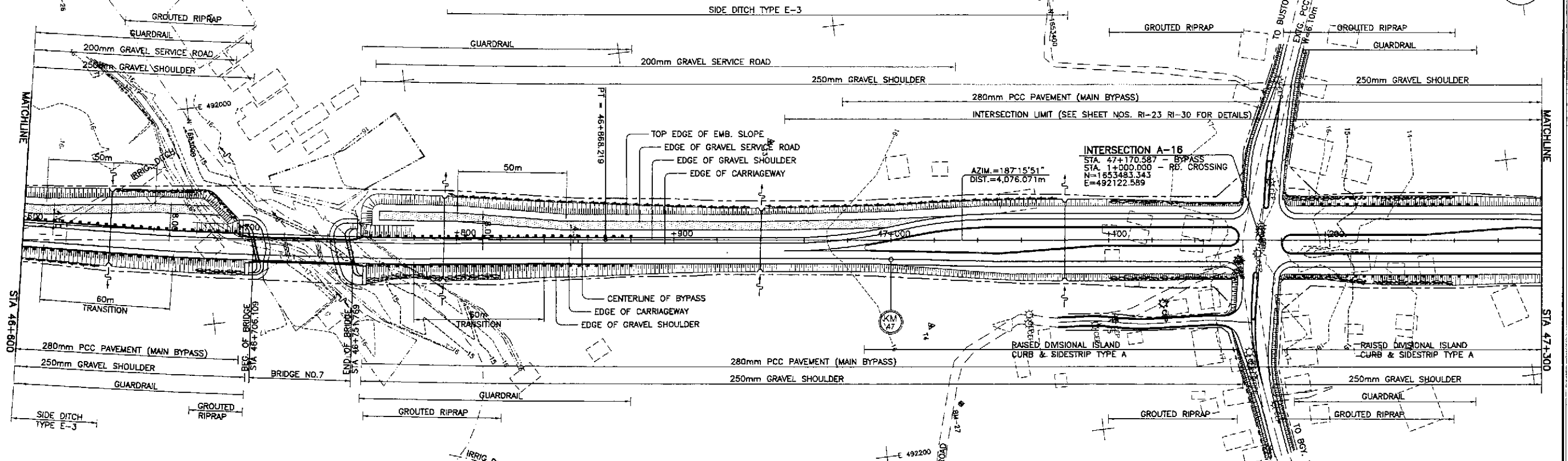


STATION	+900	46+000										+100	+200										+300	+400										46+500	+600
FINISHED PROFILE GRADE BYPASS \ SERVICE ROAD	14.390	14.370	14.540	14.498	14.827	14.795	14.942	15.042	15.142	15.129	15.177	14.822	15.338	15.053	14.817	14.760	14.813	15.830	15.453	15.273	15.402	15.496	15.394	15.578	15.752	15.852	16.029	16.101	16.157	16.176	16.196	16.198	16.189		
EXISTING GROUND BYPASS	14.390	14.370	14.540	14.498	14.827	14.795	14.942	15.042	15.142	15.129	15.177	14.822	15.338	15.053	14.817	14.760	14.813	15.830	15.453	15.273	15.402	15.496	15.394	15.578	15.752	15.852	16.029	16.101	16.157	16.176	16.196	16.198	16.189		

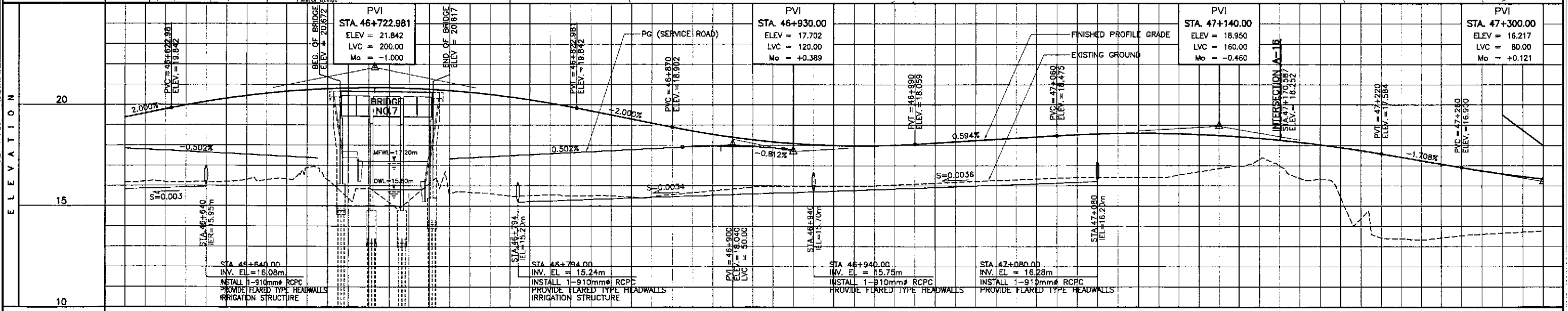
HORIZONTAL CURVATURE	R = 4500																															
VERTICAL CURVATURE	g = -1.990% L=120 Mo = +0.382										g = 0.555% L=160 Mo = -0.211										g = 0.500% L=200 Mo = +0.625										g = 2.000%	
SUPERELEVATION	RC																															

	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	DESIGNED	9/18/02	[Signature]	BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabatuan and San Jose Bypasses)	HORIZONTAL 1:1000	PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 45+900 - STA. 46+600	RP-10
	CHECKED	9/20/02	[Signature]	Submitted By:	Reviewed By:	Recommended By:	Office of the Secretary	VERTICAL 1:100			
SUBMITTED	9/23/02	[Signature]	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES DC, Director IV	MANUEL M. BONJAN Undersecretary	SIMEON A. DATUMANONG Secretary	FULL SIZE A1			

ELEMENTS OF CURVE											
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-04	45+849.871	1,652,136.007	491,950.849	26°24'35"R	4,500.000	1,055.870	2,074.218	122.214	-	-	80



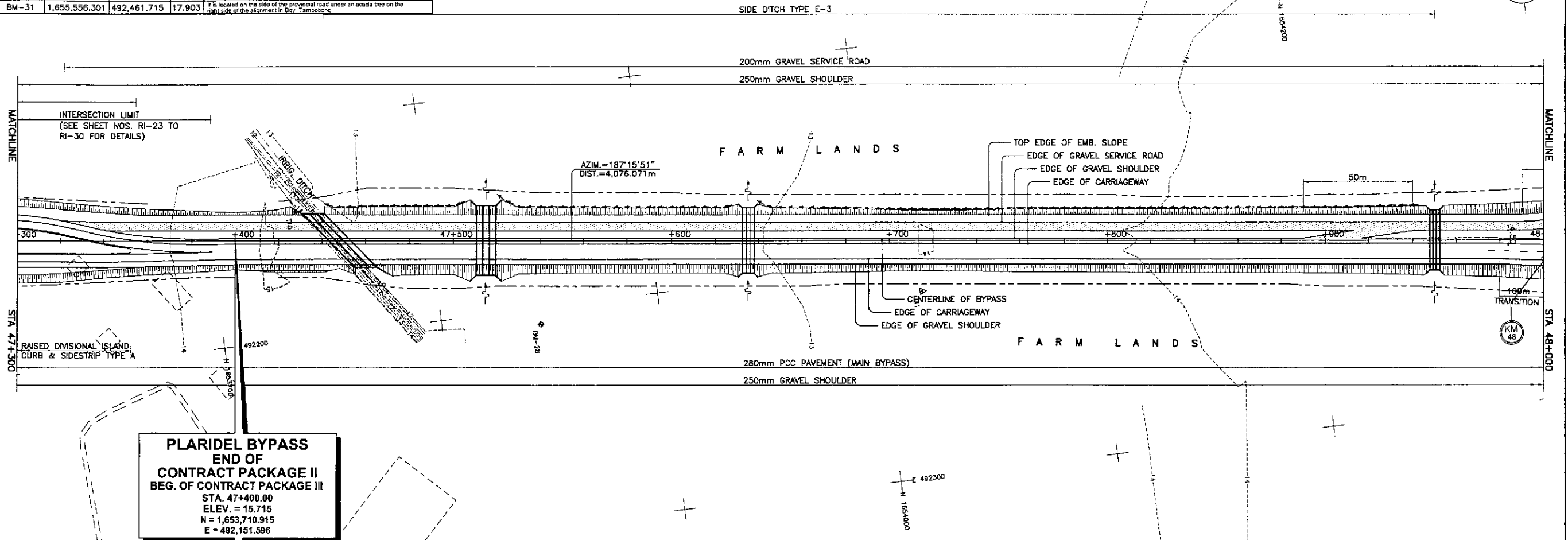
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-26	1,652,951.730	491,935.264	17.018	It is located on the side of the dirt road near a coconut tree on the left side of the alignment in Brgy. Malinao, Bustos.
BM-27	1,653,336.791	492,180.066	16.372	It is located on the side of the road opposite the corner of a wall near an electric post on the left side of the alignment in Bustos.
BM-28	1,653,845.433	492,207.423	12.908	It is located on a rice paddy dike on the right side of the alignment in Brgy. Bonga, Malinao, Bustos.



STATION	+600	+700	+800	+900	47+000	+100	+200	+300
FINISHED PROFILE GRADE BYPASS / SERVICE ROAD	16.189, 17.883, 17.643	16.191, 19.783, 17.743	16.190, 20.154, 17.642	16.292, 20.446, 17.542	16.328, 20.698, 17.441	16.297, 20.790	15.851, 20.842	15.269, 20.613
EXISTING GROUND BYPASS	16.189, 16.189	16.191, 16.191	16.190, 16.190	16.292, 16.292	16.328, 16.328	16.297, 16.297	15.851, 15.851	15.269, 15.269
HORIZONTAL CURVATURE	R = 4500							
VERTICAL CURVATURE	g = 2.000%, L = 200, Mo = -1.000		g = 2.000%, L = 120, Mo = +0.389			g = 0.594%, L = 160, Mo = -0.460		g = -1.708%, L = 80, Mo = +0.121
SUPERELEVATION	NC							

	DESIGNED	DATE	SIGNATURE		PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	9/10/02	S. POPE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 46+600 - STA. 47+300	RP-11
	SUBMITTED	9/23/02	C. B. ...		OFFICE OF THE SECRETARY Submitted By: DANILLO C. TRAJANO (Project Director) Reviewed By: JOSEFINA M. ALAGAR (Chief, Highways Division) Recommended By: GILBERTO S. REYES (DC, Director IV) Recommended By: MANUEL M. BONOAN (Undersecretary) Approved By: SIMEON A. DATUMANONG (Secretary)	PLARIDEL BYPASS - CONTRACT PACKAGE II			

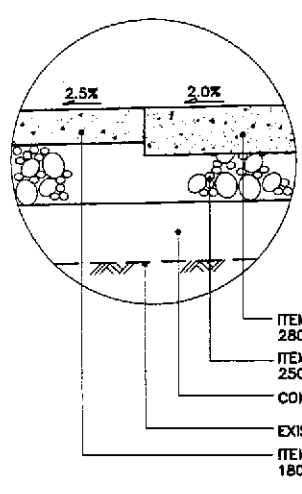
REFERENCE POINTS				
REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-27	1,653,336.791	492,180.066	16.372	It is located on the side of the road opposite the corner of a wall near an electric post on the left side of the alignment in Busay.
BM-28	1,653,845.433	492,207.423	12.908	It is located on a rice paddy dike on the right side of the alignment in Bgy. Borge Mayor, Busay.
BM-31	1,655,556.301	492,461.715	17.903	It is located on the side of the provincial road under an acacia tree on the right side of the alignment in Bgy. "Amocoye".



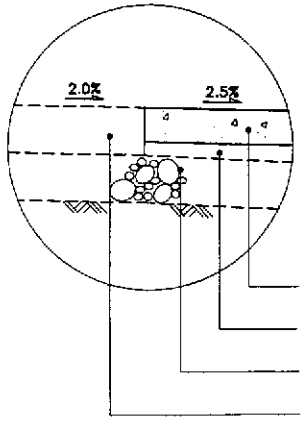
**PLARIDEL BYPASS
END OF
CONTRACT PACKAGE II
BEG. OF CONTRACT PACKAGE III**
STA. 47+400.00
ELEV. = 15.715
N = 1,653,710.915
E = 492,151.596

ELEVATION	PVI STA. 47+300.00 ELEV = 16.217 LVC = 80.00 Mo = +0.121			PVI STA. 47+570 ELEV = 14.861 LVC = 200.00 Mo = +0.254			PVI STA. 47+920.00 ELEV = 16.663 LVC = 80.00 Mo = +0.148																																																																		
	20																																																																								
15																																																																									
10																																																																									
STATION	+300	+400			47+500			+600			+700			+800			+900			48+000																																																					
FINISHED PROFILE GRADE BYPASS SERVICE ROAD	13.766	16.338	13.840	16.147	13.840	16.018	13.840	15.918	14.235	15.815	14.719	15.715	14.979	15.614	14.747	15.514	12.582	15.413	12.560	15.315	12.584	15.235	12.628	15.175	12.718	15.136	12.804	15.117	12.823	15.118	12.827	15.140	12.868	15.182	12.888	15.244	13.108	15.327	13.417	15.427	13.769	15.530	14.000	15.633	13.968	15.736	13.926	15.838	13.953	15.942	13.981	16.045	14.027	16.148	14.111	16.251	14.195	16.354	14.266	16.457	14.334	16.597	14.344	16.811	14.218	17.088	16.803	14.328	17.460	14.372	17.858	14.275	18.256
EXISTING GROUND BYPASS	13.766	16.338	13.840	16.147	13.840	16.018	13.840	15.918	14.235	15.815	14.719	15.715	14.979	15.614	14.747	15.514	12.582	15.413	12.560	15.315	12.584	15.235	12.628	15.175	12.718	15.136	12.804	15.117	12.823	15.118	12.827	15.140	12.868	15.182	12.888	15.244	13.108	15.327	13.417	15.427	13.769	15.530	14.000	15.633	13.968	15.736	13.926	15.838	13.953	15.942	13.981	16.045	14.027	16.148	14.111	16.251	14.195	16.354	14.266	16.457	14.334	16.597	14.344	16.811	14.218	17.088	16.803	14.328	17.460	14.372	17.858	14.275	18.256
HORIZONTAL CURVATURE	R=∞																																																																								
VERTICAL CURVATURE	L=80 Mo=+0.121			g=-0.502%						L=200 Mo=+0.254						g=0.515%						L=80 Mo=+0.148			g=2.000%																																																
SUPERELEVATION	NC																																																																								

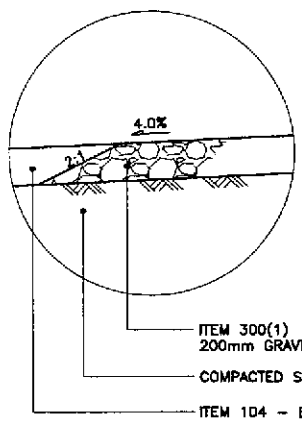
	DESIGNED	9/18/02	SIGNATURE			REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :			
	CHECKED	9/20/02	SIGNATURE			BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)				HORIZONTAL 1:1000	PLAN AND PROFILE ALONG BYPASS (INITIAL STAGE) STA. 47+300 - STA. 47+400	RP-12
	SUBMITTED	9/23/02	SIGNATURE			Submitted By:	Reviewed By:	Recommended By:	Approved By:	PLARIDEL BYPASS - CONTRACT PACKAGE II				VERTICAL 1:100		



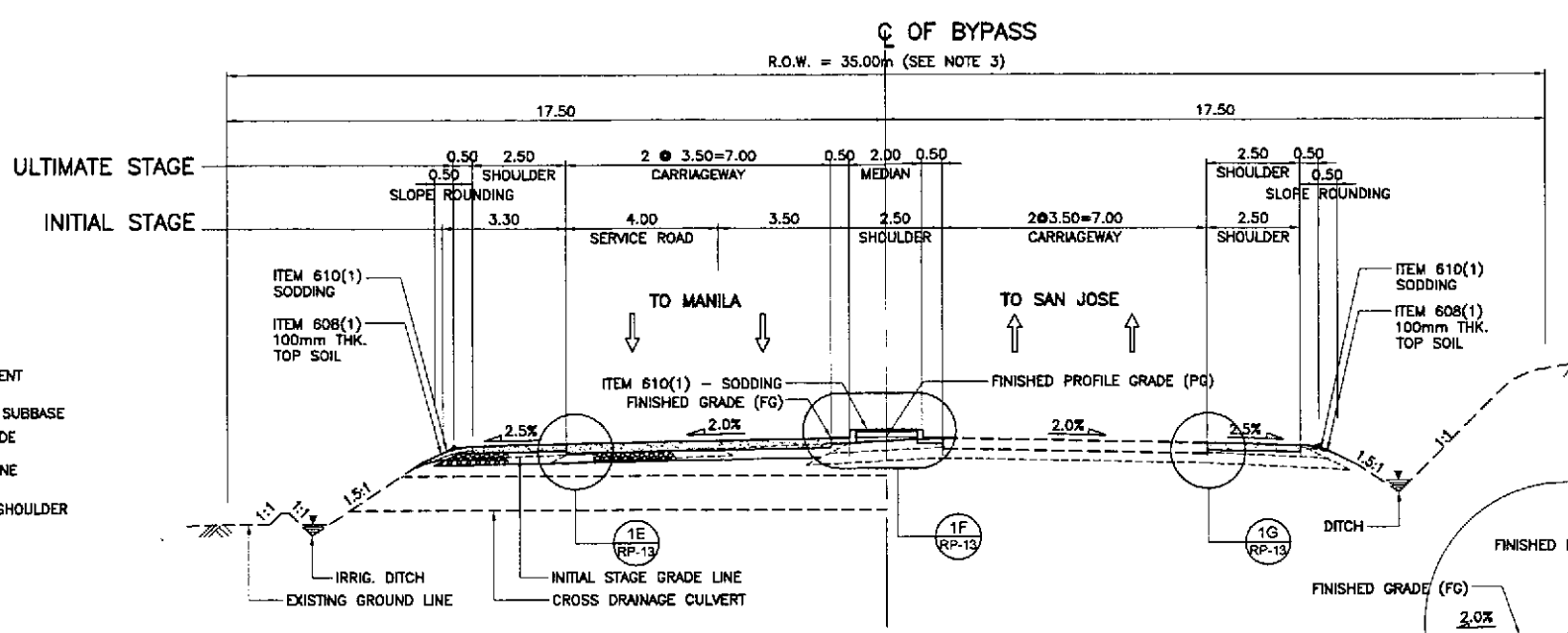
1E DETAIL
RP-13 SCALE 1:20



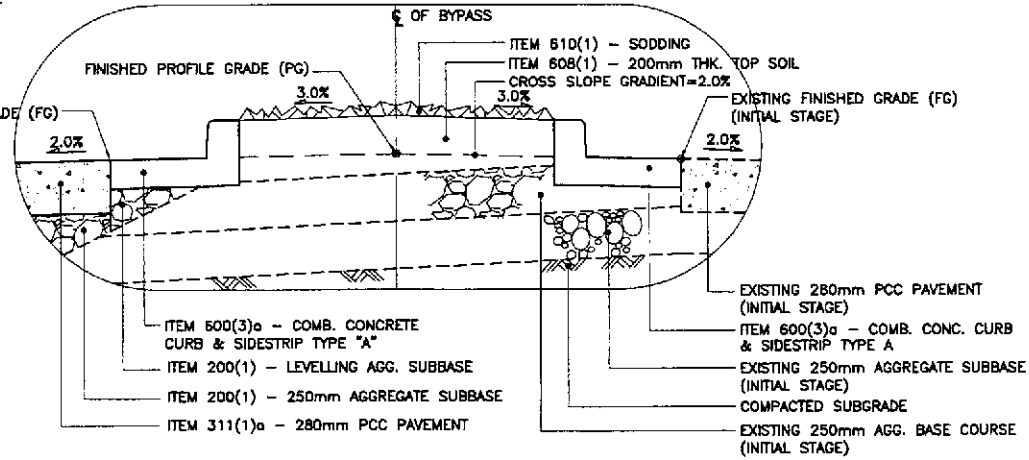
1G DETAIL
RP-13 SCALE 1:20



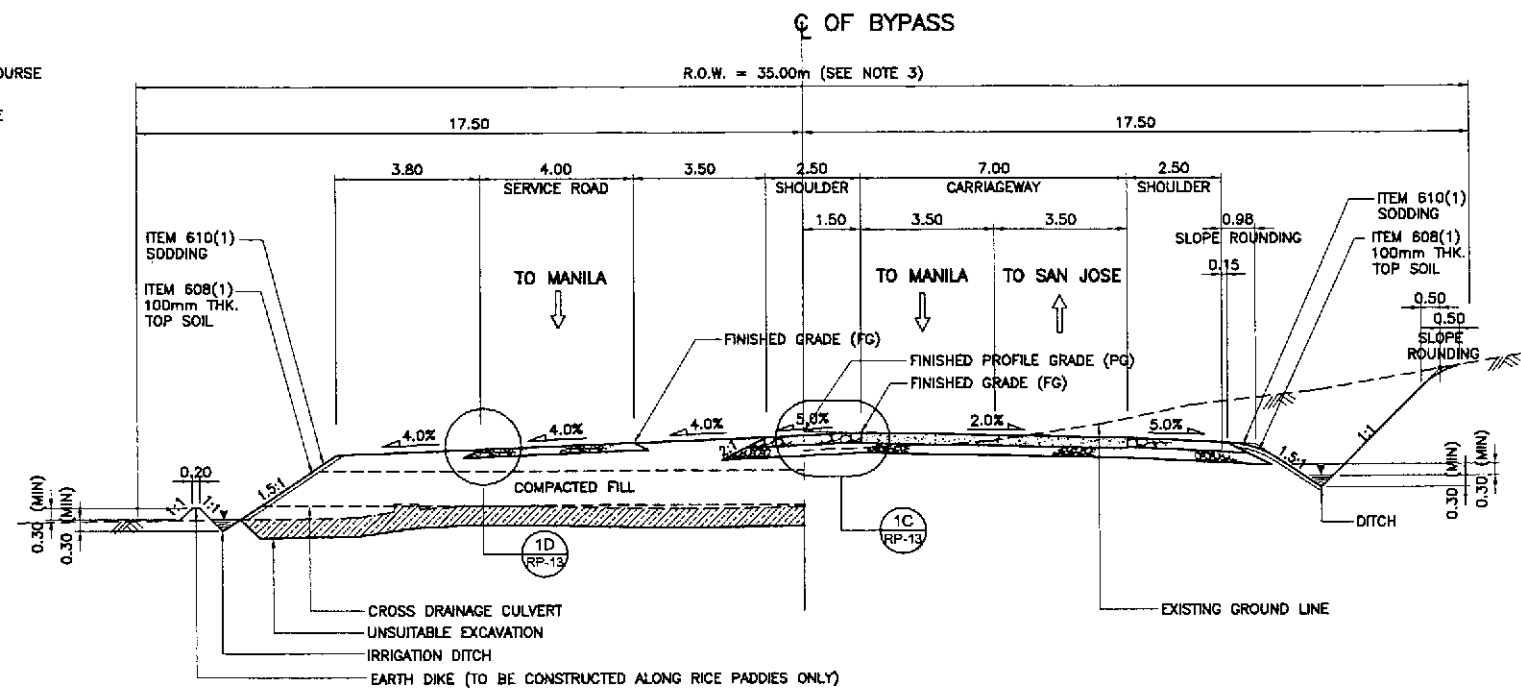
1D DETAIL
RP-13 SCALE 1:20



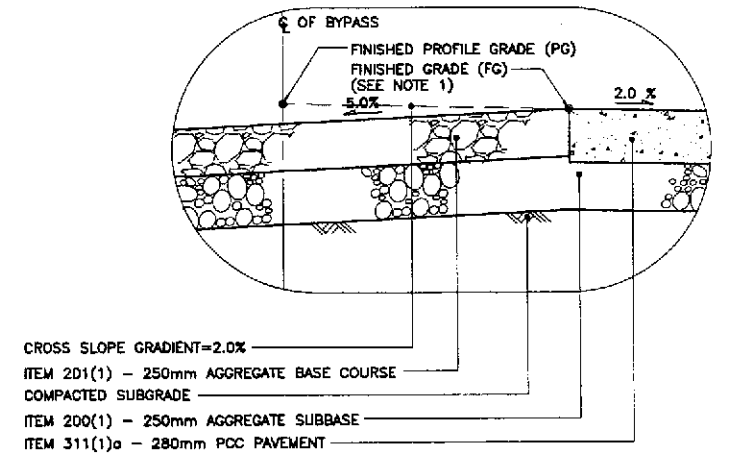
1B NORMAL SECTION - ULTIMATE STAGE
RP-13 SCALE 1:100



1F DETAIL
RP-13 SCALE 1:20



1A NORMAL SECTION - INITIAL STAGE
RP-13 SCALE 1:100

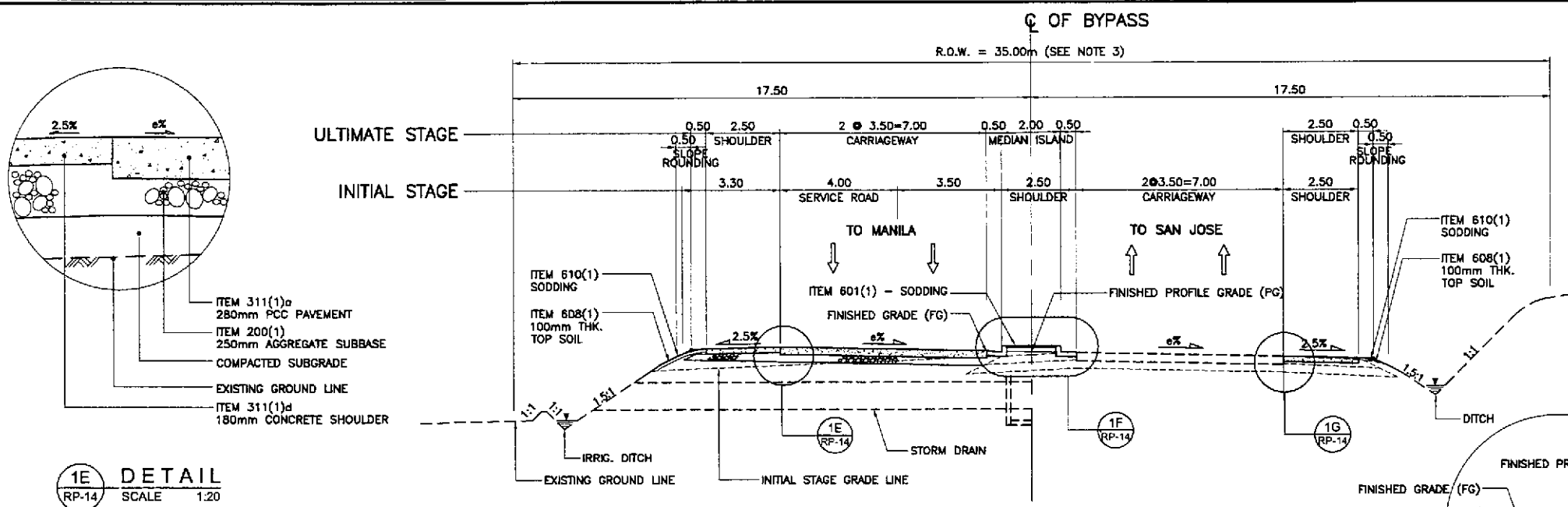


1C DETAIL
RP-13 SCALE 1:20

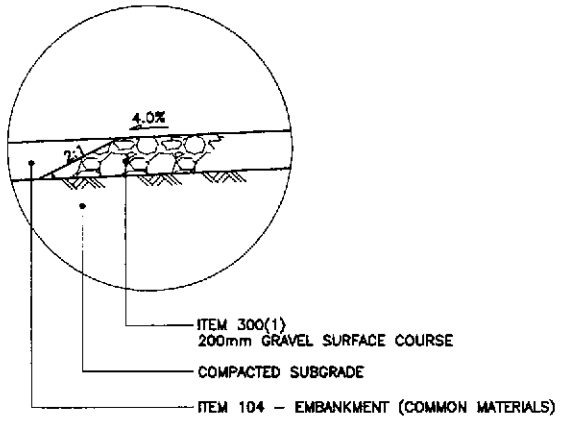
1 TYPICAL ROADWAY SECTIONS - WITHOUT FRONTAGE ROAD
RP-13 SCALE 1:100

- NOTES:
1. FINISHED PROFILE GRADE (PG) ALONG BYPASS IS TAKEN FROM THE CENTERLINE WHEREAS FINISHED GRADE (FG) IS RECKONED FROM THE PROFILE GRADE RELATIVE TO THE PAVEMENT CROSS SLOPE.
 2. FOR SCHEDULE OF QUANTITIES, SEE SHEET NOS. RG-04 TO RG-07.
 3. ROAD RIGHT-OF-WAY (R.O.W.) WIDTH SHALL BE VARIED DUE TO HORIZONTAL TRANSITION OF SERVICE ROAD, MEDIAN/DIVISIONAL ISLANDS, OUTER SEPARATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. R6-06 TO RG-07.
 4. SIDESLOPES OF 1:1 OR FLATTER SHALL BE PROTECTED BY SODDING. SIDESLOPES ALONG AREAS PRONE TO FLOODING SHALL BE PROTECTED BY GROUTED RIPRAP AT 300mm MINIMUM THICKNESS. SIDESLOPES ALONG BUILT-UP AREAS SHALL BE PROTECTED BY STONE MASONRY AND/OR RETAINING WALLS OR AS DIRECTED BY THE ENGINEER.
 5. SEE SHEET NO. RG-04 FOR UNSUITABLE EXCAVATION SCHEDULE.

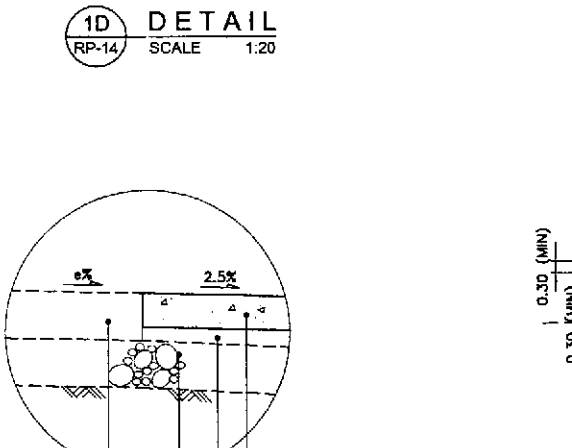
	DESIGNED	DATE	SIGNATURE	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	<p>PROJECT AND LOCATION :</p> <p>THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)</p> <p>PLARIDEL BYPASS - CONTRACT PACKAGE II</p>	SCALE :	<p>SHEET CONTENTS :</p> <p>TYPICAL ROADWAY SECTIONS NORMAL SECTIONS WITHOUT FRONTAGE ROAD (INITIAL AND ULTIMATE STAGE) (1 of 2)</p>	<p>SHEET NO. :</p> <p>RP-13</p>	
	CHECKED	9/20/02	SIGNATURE			<p>BUREAU OF DESIGN</p> <p>Submitted By: DANLO C. TRAJANO Project Director</p>			<p>AS SHOWN</p>
	SUBMITTED	9/23/02	SIGNATURE			<p>OFFICE OF THE SECRETARY</p> <p>Recommended By: JOSEFINA M. ALAGAR Chief, Highways Division</p>			<p>FULL SIZE A1</p>
			SIGNATURE			<p>Approved By: MANUEL M. BONDAN Undersecretary</p> <p>Approved By: SIMEON A. DATUMANONG Secretary</p>			



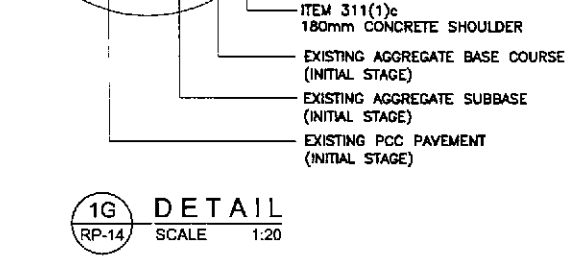
1B SUPERELEVATED SECTION - ULTIMATE STAGE
SCALE 1:100



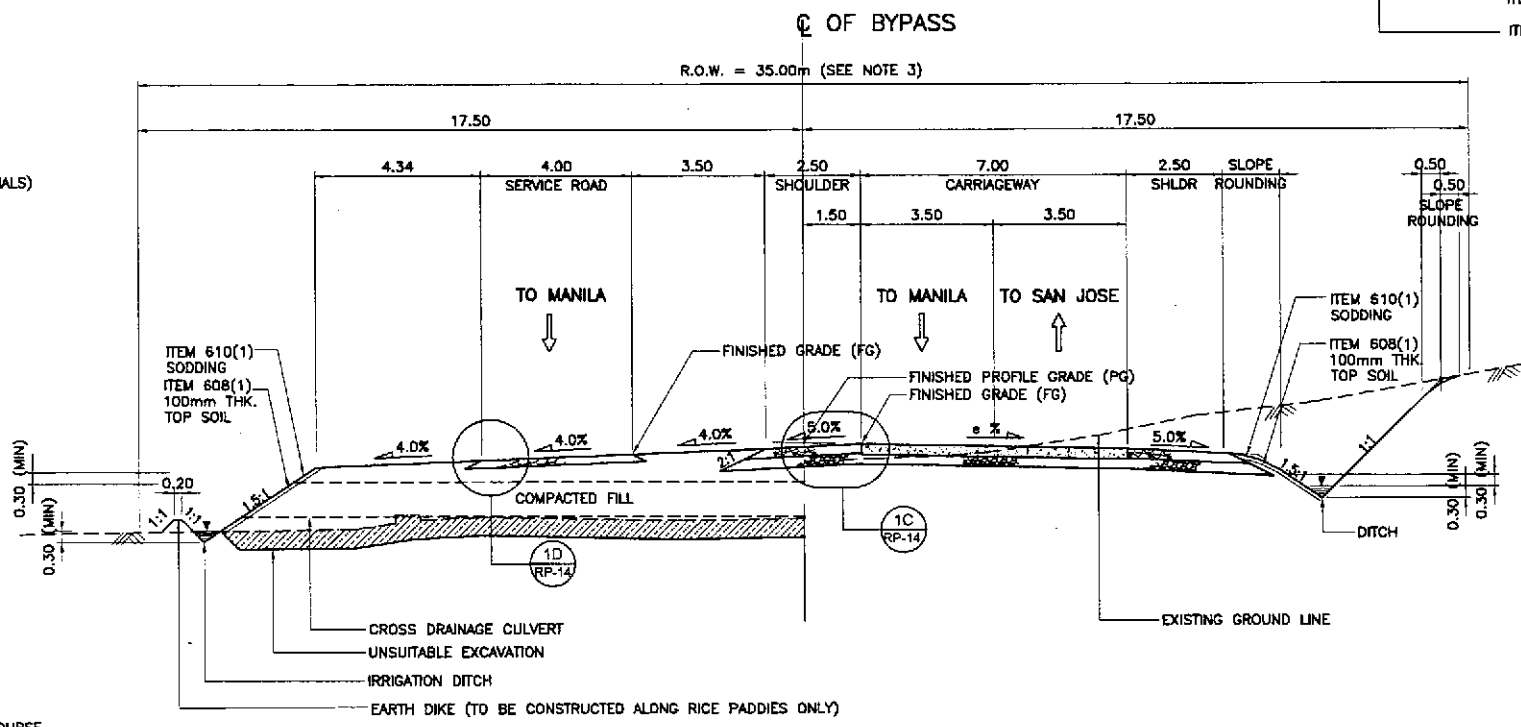
1E DETAIL
SCALE 1:20



1D DETAIL
SCALE 1:20



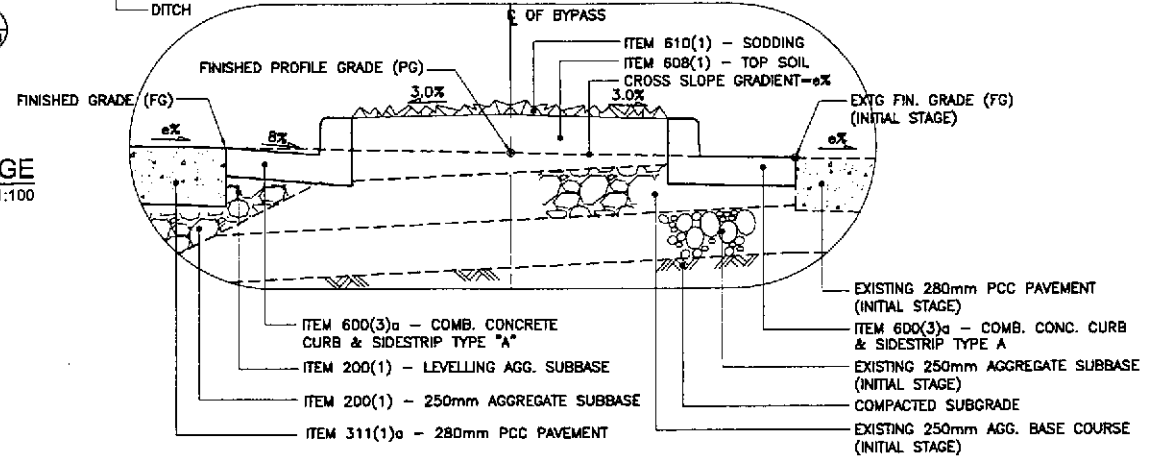
1G DETAIL
SCALE 1:20



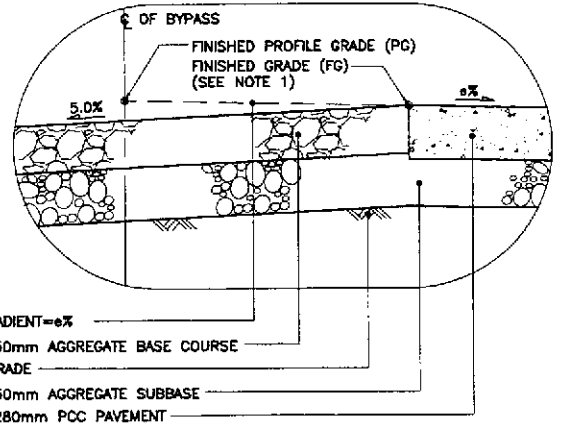
1A SUPERELEVATED SECTION - INITIAL STAGE
SCALE 1:100

1 TYPICAL ROADWAY SECTIONS - WITHOUT FRONTAGE ROAD
SCALE 1:100

PAVEMENT DESIGN PARAMETERS	
	BEFORE ANGAT BRIDGE
1. TRAFFIC (FOR 25 YEARS DESIGN LIFE) DESIGN ESAL	4.40 x 10 ⁶
2. DESIGN CBR SUBGRADE CBR	5.00 %
3. ROADBED RESILIENT MODULUS Mr Esb Ebs	5,500 psi = 37.92 MPa 13,000 psi = 89.64 MPa 23,000 psi = 158.58 MPa
4. PERFORMANCE CRITERIA Δ PSI	2
5. DESIGN RELIABILITY Zr Sq	50 % 0.35
6. DRAINAGE COEFFICIENT RIGID	1
7. LAYER COEFFICIENT a1 (FOR AC) a2 (FOR BASE) a3 (FOR SUBBASE)	0.39 0.105 0.095
8. PAVEMENT CONSTRUCTION THICKNESS PCCP SUBBASE	280mm THK 250mm THK



1F DETAIL
SCALE 1:20



1C DETAIL
SCALE 1:20

- NOTES:
1. FINISHED PROFILE GRADE (PG) ALONG BYPASS IS TAKEN FROM THE CENTERLINE WHEREAS FINISHED GRADE (FG) IS reckoned FROM THE PROFILE GRADE RELATIVE TO THE PAVEMENT CROSS SLOPE.
 2. FOR SCHEDULE OF QUANTITIES, SEE SHEET NOS. RG-04 TO RG-07.
 3. ROAD RIGHT-OF-WAY (R.O.W.) WIDTH SHALL BE VARIED DUE TO HORIZONTAL TRANSITION OF SERVICE ROAD, MEDIAN/DIVISIONAL ISLANDS, OUTER SEPARATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. RG-06 TO RG-07.
 4. SIDESLOPES OF 1:5:1 OR FLATTER SHALL BE PROTECTED BY SODDING. SIDESLOPES ALONG AREAS PRONE TO FLOODING SHALL BE PROTECTED BY GROUTED RIPRAP AT 300mm MINIMUM THICKNESS. SIDESLOPES ALONG BUILT-UP AREAS SHALL BE PROTECTED BY STONE MASONRY AND/OR RETAINING WALLS OR AS DIRECTED BY THE ENGINEER.
 5. SEE SHEET NO. RG-04 FOR UNSUITABLE EXCAVATION SCHEDULE.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE II	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : TYPICAL ROADWAY SECTIONS SUPERELEVATED SECTIONS WITHOUT FRONTAGE ROAD (INITIAL AND ULTIMATE STAGE) (2 of 2)	SHEET NO. : RP-14
	CHECKED	7/20/02	<i>S. Garcia</i>		DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS						
	SUBMITTED	9/12/02	<i>M. Kich</i>		Submitted By: P.H.L. - PMO DANILO C. TRAJANO Project Director	Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By: GILBERTO S. REYES OIC, Director IV				