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 I

(ULTIMATE STAGE)
STA. 34+000.000 TO STA. 39+625.000

December 2002

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD

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 I
(ULTIMATE STAGE)
STA. 34+000.000 TO STA. 39+625.000

December 2002

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD

GENERAL

INDEX OF DRAWINGS

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

PLARIDEL BYPASS - PACKAGE I

(ULTIMATE STAGE)

SHEET NO.	TITLE OF DRAWING
	GENERAL
GP-01	INDEX OF DRAWINGS - 1 OF 2
GP-02	INDEX OF DRAWINGS - 2 OF 2
GP-03	KEY AND VICINITY MAP
GP-04	LEGEND & SYMBOLS
GP-05	ABBREVIATIONS
GP-06	PROJECT ROAD GENERAL ALIGNMENT & FEATURES
GP-07	HORIZONTAL AND VERTICAL CONTROL MONUMENTS
GP-08	LOCATION OF MATERIAL SOURCES
GP-09	SUMMARY OF QUANTITIES
	ROADWAY
	GENERAL ROADWAY
RG-01	GENERAL NOTES (HIGHWAY / CIVIL & DRAINAGE)
RG-02	ALIGNMENT TECHNICAL DESCRIPTION
RG-03	LOCATION OF INTERSECTIONS
RG-04	SCHEDULE OF TRAFFIC SIGNS, RELOCATION OF GUARDRAILS AND PLANTINGS.
RG-05	SCHEDULE OF PAVEMENT MARKINGS
	PLAN AND PROFILE
	ALONG BYPASS
RP-01	PLAN AND PROFILE STA. 34 + 000.000 TO STA. 34 + 700.000
RP-02	PLAN AND PROFILE, STA. 34 + 700.000 TO STA. 35 + 400.000
RP-03	PLAN AND PROFILE, STA. 35 + 400.000 TO STA. 36 + 100.000
RP-04	PLAN AND PROFILE, STA. 36 + 100.000 TO STA. 36 + 800.000
RP-05	PLAN AND PROFILE, STA. 36 + 800.000 TO STA. 37 + 500.000
RP-06	PLAN AND PROFILE STA. 37 + 500.000 TO STA. 38 + 200.000
RP-07	PLAN AND PROFILE, STA. 38 + 200.000 TO STA. 38 + 900.000
RP-08	PLAN AND PROFILE, STA. 38 + 900.000 TO STA. 39 + 600.000
RP-09	PLAN AND PROFILE, STA. 39 + 600.000 TO STA. 39 + 625.000
RP-10	TYPICAL ROADWAY SECTIONS - 1 OF 4
RP-11	TYPICAL ROADWAY SECTIONS - 2 OF 4
RP-12	TYPICAL ROADWAY SECTIONS - 3 OF 4
RP-13	TYPICAL ROADWAY SECTIONS - 4 OF 4
	INTERSECTION DETAILS
	INTERSECTION A-1 (STA. 34+413.681)
RI-01	GEOMETRIC DESIGN LAYOUT
RI-02	PAVING AND GRADING PLAN
RI-03	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
RI-04	TRAFFIC SIGNAL LIGHT LAYOUT

SHEET NO.	TITLE OF DRAWING
	INTERSECTION A-2 (STA. 34+804.257)
RI-05	GEOMETRIC DESIGN LAYOUT
RI-16	PAVING AND GRADING PLAN
RI-07	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
	INTERSECTION A-3 (STA. 36+271.676)
RI-08	GEOMETRIC DESIGN LAYOUT
RI-09	PAVING AND GRADING PLAN
RI-10	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
	INTERSECTION A-4 (STA. 37+233.648)
RI-11	GEOMETRIC DESIGN LAYOUT
RI-12	PAVING AND GRADING PLAN
RI-13	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
	INTERSECTION A-5 (STA. 38+115.240)
RI-14	GEOMETRIC DESIGN LAYOUT - 1 OF 2
RI-15	GEOMETRIC DESIGN LAYOUT - 2 OF 2
RI-16	PAVING AND GRADING PLAN - 1 OF 2
RI-17	PAVING AND GRADING PLAN - 2 OF 2
RI-18	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT - 1 OF 2
RI-19	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT - 2 OF 2
RI-20	TRAFFIC SIGNAL LIGHT LAYOUT
	INTERSECTIONS A-7 (STA. 39+133.681) & A-7a (STA. 39+233.681)
RI-21	GEOMETRIC DESIGN LAYOUT - 1 OF 2
RI-22	GEOMETRIC DESIGN LAYOUT - 2 OF 2
RI-23	PAVING AND GRADING PLAN - 1 OF 2
RI-24	PAVING AND GRADING PLAN - 2 OF 2
RI-25	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
RI-26	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
RI-27	TRAFFIC SIGNAL LIGHT LAYOUT
	ROADWAY MISCELLANEOUS DRAWINGS
	TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT
	ALONG BYPASS
RM-01	LAYOUT PLAN, STA. 34 + 100.000 TO STA. 35 + 400.000
RM-02	LAYOUT PLAN, STA. 35 + 400.000 TO STA. 36 + 800.000
RM-03	LAYOUT PLAN, STA. 36 + 800.000 TO STA. 38 + 200.000
RM-04	LAYOUT PLAN, STA. 38 + 200.000 TO STA. 39 + 600.000
RM-05	LAYOUT PLAN, STA. 39 + 600.000 TO STA. 39 + 625.000

SHEET NO.	TITLE OF DRAWING
	PLANTING, GUARDRAIL AND KILOMETER POST LAYOUT PLAN
RM-06	LAYOUT PLAN, STA. 34 + 100.000 TO STA. 35 + 400.000
RM-07	LAYOUT PLAN, STA. 35 + 400.000 TO STA. 36 + 800.000
RM-08	LAYOUT PLAN, STA. 36 + 800.000 TO STA. 38 + 200.000
RM-09	LAYOUT PLAN, STA. 38 + 200.000 TO STA. 39 + 600.000
RM-10	LAYOUT PLAN, STA. 39 + 600.000 TO STA. 39 + 625.000
	ROADWAY STANDARD DRAWINGS AND DETAILS
RS-01	*GEOMETRIC DESIGN STANDARD-1 (HOR. ALIGNMENT/CURVE EASEMENTS)*
RS-02	GEOMETRIC DESIGN STANDARD-2 (HORIZONTAL AND VERTICAL CURVES)
RS-03	GEOMETRIC DESIGN STANDARD-3 (SUPERELEVATION ATTAINMENT)
RS-04	STANDARD PORTLAND CEMENT CONCRETE PAVEMENT DETAILS
RS-05	CONCRETE CURB AND GUTTER DETAILS
RS-06	CURB-CUT RAMP DETAILS (FOR THE PHYSICALLY HANDICAPPED)
RS-07	STANDARD KILOMETER POST AND RIGHT-OF-WAY MARKERS
RS-08	STANDARD STEEL BEAM GUARDRAIL
RS-09	EMBANKMENT PROTECTION WALLS AND MASONRY RETAINING WALLS
RS-10	SIDE ROAD APPROACHES AND PRIVATE DRIVEWAY ACCESS
RS-11	STANDARD ROAD WORK SIGN AND PROJECT SIGN BOARD DETAILS
RS-12	STANDARD TRAFFIC SIGNS
RS-13	ADVANCED DIRECTION SIGN DETAILS - 1 OF 2
RS-14	ADVANCED DIRECTION SIGN DETAILS - 2 OF 2
RS-15	MOUNTING/SUPPORT FOR ROAD SIGN - TYP. SIGN MOUNTING DETAILS - 1 OF 2
RS-16	MOUNTING/SUPPORT FOR ROAD SIGN - TYP. SIGN MOUNTING DETAILS - 2 OF 2
RS-17	STANDARD PAVEMENT MARKINGS - 1 OF 2
RS-18	STANDARD PAVEMENT MARKINGS - 2 OF 2
RS-19	REFLECTIVE ROAD STUDS FOR CONCRETE CHATTER BAR AND DETAILS
RS-20	TRAFFIC SIGNAL POLE TYPE A & FOUNDATION DETAILS
RS-21	TRAFFIC SIGNAL POLE TYPE B, C & D
RS-22	TRAFFIC SIGNAL POLE FOUNDATION DETAILS (TYPE B, C & D)
RS-23	TYPICAL PLANTING LAYOUT WITH FRONTAGE ROAD - 1 OF 2
RS-24	TYPICAL PLANTING LAYOUT WITHOUT FRONTAGE ROAD - 2 OF 2
RS-25	TYPES OF PLANTING FORMS & OTHER DETAILS
	DRAINAGE
	GENERAL DRAINAGE
DG-01	SURFACE DRAINAGE SCHEDULE - 1 OF 3
DG-02	SURFACE DRAINAGE SCHEDULE - 2 OF 3
DG-03	SURFACE DRAINAGE SCHEDULE - 3 OF 3
	DRAINAGE CROSS-SECTIONS
	ALONG BYPASS
DC-01	DRAINAGE CROSS-SECTION, STA. 34 + 200.000 TO STA. 34 + 555.000
DC-02	DRAINAGE CROSS-SECTION, STA. 34 + 635.000 TO STA. 34 + 900.000
DC-03	DRAINAGE CROSS-SECTION, STA. 35 + 135.000 TO STA. 35 + 670.000
DC-04	DRAINAGE CROSS-SECTION, STA. 35 + 825.000 TO STA. 36 + 075.000
DC-05	DRAINAGE CROSS-SECTION, STA. 36 + 125.000 TO STA. 36 + 365.000
DC-06	DRAINAGE CROSS-SECTION, STA. 36 + 445.000 TO STA. 36 + 660.000
DC-07	DRAINAGE CROSS-SECTION, STA. 36 + 890.000 TO STA. 37 + 244.000

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL — YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ALCAZID
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	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)
PLARIDEL BYPASS - CONTRACT PACKAGE I

SCALE : FULL SIZE A1

SHEET CONTENTS : INDEX OF DRAWINGS (ULTIMATE STAGE) Sheet 1 of 2

SHEET NO. : GP-01

INDEX OF DRAWINGS

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

PLARIDEL BYPASS - PACKAGE I

(ULTIMATE STAGE)

SHEET NO.	TITLE OF DRAWING
DC-08	DRAINAGE CROSS-SECTION, STA. 37 + 335.000 TO STA. 37 + 728.000
DC-09	DRAINAGE CROSS-SECTION, STA. 37 + 852.000 TO STA. 38 + 195.000
DC-10	DRAINAGE CROSS-SECTION, STA. 38 + 414.000 TO STA. 38 + 720.000
DC-11	DRAINAGE CROSS-SECTION, STA. 38 + 862.000 TO STA. 39 + 190.000
DC-12	DRAINAGE CROSS-SECTION, STA. 39 + 365.000 TO STA. 39 + 595.000
	SURFACE DRAINAGE PLAN AND PROFILE
	PLAN AND PROFILE
DP-01	PLAN AND PROFILE, STA. 34 + 000.000 TO STA. 34 + 700.000
DP-02	PLAN AND PROFILE, STA. 34 + 700.000 TO STA. 35 + 400.000
DP-03	PLAN AND PROFILE, STA. 35 + 400.000 TO STA. 36 + 100.000
DP-04	PLAN AND PROFILE, STA. 36 + 100.000 TO STA. 36 + 800.000
DP-05	PLAN AND PROFILE, STA. 36 + 800.000 TO STA. 37 + 500.000
DP-06	PLAN AND PROFILE, STA. 37 + 500.000 TO STA. 38 + 200.000
DP-07	PLAN AND PROFILE, STA. 38 + 200.000 TO STA. 38 + 900.000
DP-08	PLAN AND PROFILE, STA. 38 + 900.000 TO STA. 39 + 600.000
DP-09	PLAN AND PROFILE, STA. 38 + 600.000 TO STA. 39 + 625.000
	DRAINAGE STANDARD DRAWINGS AND DETAILS
DS-01	STANDARD DETAILS OF REINFORCED CONCRETE BOX CULVERT (RCBC)
DS-02	STANDARD DETAILS OF REINFORCED CONCRETE BOX CULVERT (RCBC) BARRELS
DS-03	STANDARD DETAILS OF RCBC WINGWALLS
DS-04	STANDARD LOW DEPTH TYPE BOX CULVERT - 1 OF 2
DS-05	STANDARD LOW DEPTH TYPE BOX CULVERT - 2 OF 2
DS-06	STD RCPC, METHOD OF PIPE INSTALL. & TYP. BEDDING FOR CONDUITS
DS-07	STANDARD REINFORCED CONCRETE HEADWALL FOR RCPC
DS-08	STANDARD DRAINAGE DITCHES
DS-09	STANDARD COMBINATION CURB INLET MANHOLE
DS-10	SPECIAL JUNCTION BOX MANHOLE
DS-11	STANDARD REINFORCED CONCRETE CATCH BASIN FOR RCPC
DS-12	TYPICAL DRAINAGE CROSS-SECTIONS
	UNDERPASS CROSSING (BOX CULVERT)
UP-01	SITE DEVELOPMENT PLAN - UNDERPASSES ALONG BYPASS
UP-02	GENERAL PLAN, ELEVATION & SECTION - B-1 UNDERPASS (STA. 36+700.000)
UP-03	GENERAL PLAN, ELEVATION & SECTION - B-2 UNDERPASS (STA. 37+690.000)
UP-04	SPECIAL RCBC UNDERPASS (BARREL DETAILS, BAR SCHEDULE & QUANTITIES)
UP-05	SPECIAL RCBC UNDERPASS (WINGWALL DETAILS)
UP-06	APPROACH SLAB DETAILS
	ELECTRICAL
	ELECTRICAL STANDARD DRAWINGS AND DETAILS
ES-01	NOTES & LEGENDS, SCHEMATIC CONTROL DIAG. & DUCT SECTION
ES-02	STREET LIGHT POLE DETAILS

SHEET NO.	TITLE OF DRAWING
	ROADWAY LIGHTING PLAN AND LOAD SCHEDULE
EI-01	LAYOUT PLAN & LOAD SCHEDULE, INTERSECTION A-1 & C-1L
EI-02	LAYOUT PLAN & LOAD SCHEDULE, INTERSECTION A-5
EI-03	LAYOUT PLAN & LOAD SCHEDULE, INTERSECTION A-7
	ENGINEER'S FIELD OFFICE & LIVING QUARTERS
	ARCHITECTURAL
FA-01	PERSPECTIVE AND TABLE OF CONTENTS
FA-02	ENGR'S FIELD OFFICE - FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN
FA-03	ENGR'S LIVING QTRS - FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN
FA-04	ENGR'S FIELD OFFICE / LABORATORY - ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS
FA-05	ENGR'S LIVING QUARTERS - ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS
FA-06	ENGR'S FIELD OFFICE & LIVING QUATERS - FOUNDATION PLAN, R.C. RAMP DETAIL, DETAIL OF F-1, P-1, WF-1 & DESIGN
FA-07	ENGR'S FIELD OFFICE / LABORATORY - FRONT & RIGHT SIDE ELEVATION OF STEEL STUD FRAMES AND SCHEMATIC DIAGRAMS
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
	ELECTRICAL
FE-01	ENGR'S FIELD OFFICE / LABORATORY - LIGHTING LAYOUT, POWER LAYOUT & ELECTRICAL SYMBOLS AND GENERAL NOTES
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
FP-02	ENGR'S FIELD OFFICE & LIVING QUARTERS - SEPTIC TANK DETAILS
	EXTERNAL
FX-01	ENGR'S FIELD OFFICE & LIVING QUARTERS - PLOT PLAN, ELEVATION OF FENCE & GATE AND TYPICALFOUNDATION DETAIL

SHEET NO.	TITLE OF DRAWING

JAPAN INTERNATIONAL COOPERATION AGENCY

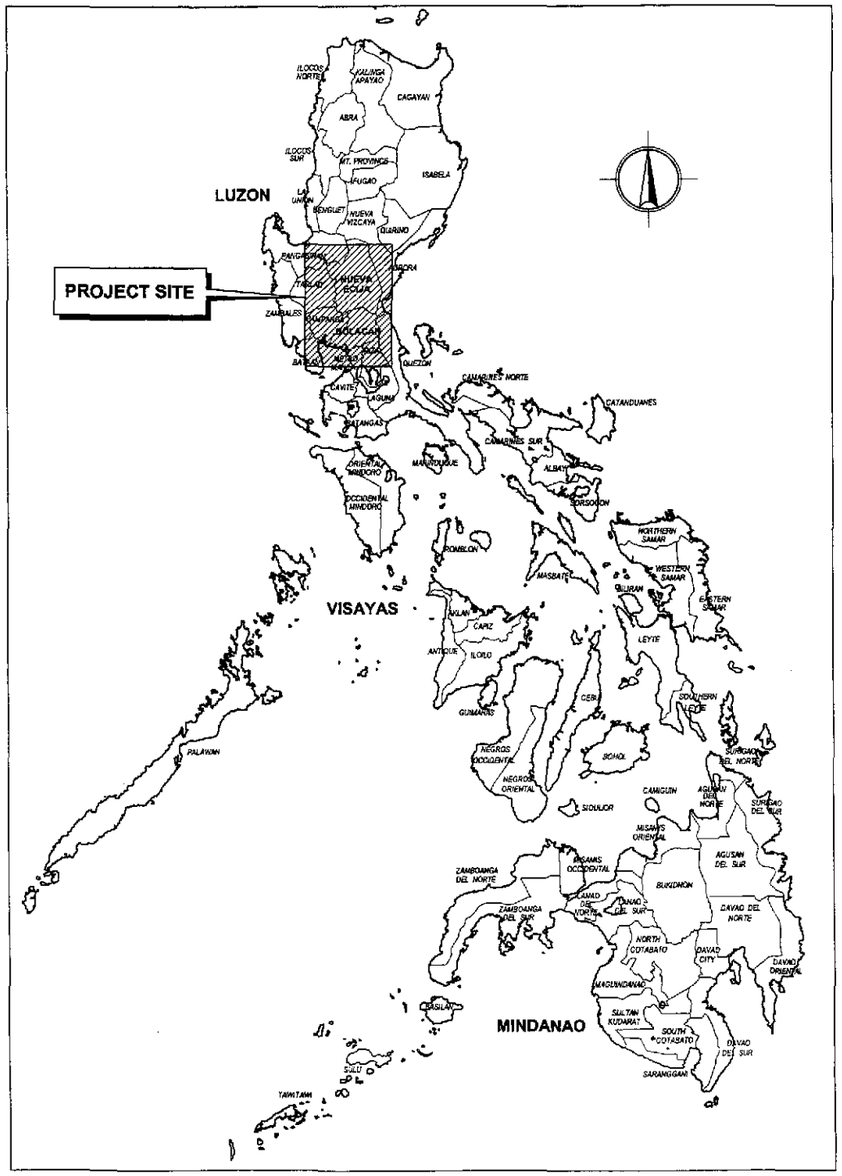
KATAHIRA & ENGINEERS INTERNATIONAL — YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	A. BONOAN
CHECKED	9/21/02	S. CRUZ
SUBMITTED	9/23/02	M. TSUCHIYA TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL ← PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	DIC, Director IV	Undersecretary	Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
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 I	FULL SIZE A1	INDEX OF DRAWINGS (ULTIMATE STAGE) Sheet 2 of 2	GP-02



1 GP-03 KEY MAP
NOT TO SCALE

2 GP-03 VICINITY MAP
NOT TO SCALE

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/19/12	A. ACACIO
CHECKED	9/21/12	S. GOSE
SUBMITTED	9/22/12	M. KIKUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	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)
PLARIDEL BYPASS - CONTRACT PACKAGE I

SCALE :
NOT TO SCALE
FULL SIZE A1

SHEET CONTENTS :
KEY AND VICINITY MAP

SHEET NO. :
GP-03

LEGEND AND SYMBOLS

EXISTING FEATURES

ROAD	BARANGAY ROAD
CONTOUR	5 6 7 6 5
ORIGINAL GROUND	
CONCRETE FENCE	
BARBED WIRE FENCE	
HOUSE	
TREES	
BRIDGE	PLAN PROFILE
SINGLE PIPE CULVERT	PLAN PROFILE
DOUBLE PIPE CULVERT	PLAN PROFILE
BOX CULVERT	PLAN PROFILE
DITCH LINE/ IRRIGATION LINE	
IRRIGATION LINE	
RIVER/CREEK	
ELECTRIC POST	TP CEP WEP
KILOMETER POST	KM 156
TRAVERSE STATION POINT	
BENCHMARK	
FISH POND	FP
NATIONAL POWER CORP. TRANSMISSION LINE	NPC TOWER

NEW DESIGN FEATURES

PROJECT ROAD	
SERVICE OR FRONTAGE ROAD ALONG BYPASS	
CONTOUR	5 6 7 6 5
RIGHT-OF-WAY LIMIT	
POINT OF INTERSECTION	
POINT OF INTERSECTION NO.	PI-00
℄ OF PROJECT ROAD	
FINISHED GRADE ON PROFILE	g=2.500%
BRIDGE	PLAN PROFILE
SINGLE RC PIPE CULVERT	PLAN PROFILE
DOUBLE RC PIPE CULVERT	PLAN PROFILE
BOX CULVERT	PLAN PROFILE
EARTH DITCH FLOW	
DIRECTION OF FLOW	
MANHOLE	
GUARDRAIL ON PLAN	
GUARDRAIL ON PROFILE	LEFT RIGHT
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	E498,805 N1747800
AGGREGATE SOURCE	
LINE SYMMETRY	
SECTION TARGET	1B 0-03
ELEVATION TARGET	1A 0-04
TITLE TARGET	2 RS-02 — IDENTIFICATION SYMBOL — SHEET NO.
SUB-TITLE TARGET	2A RS-02
DETAIL REF TARGET	2b RI-05
BOREHOLE	
STREET LIGHTING POLE	
KILOMETER POST	Km
STATION GRID	162+000
LINED IRRIG. CANAL	
CHAIN LINK FENCE	
SODDING ON PLAN	
LOW TREES	
MIDDLE TREE	
HIGH TREE	

JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ACACIO
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	M. KUDEN TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	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)
PLARIDEL BYPASS - CONTRACT PACKAGE II

SCALE : NOT TO SCALE FULL SIZE A1

SHEET CONTENTS : LEGEND AND SYMBOLS

SHEET NO. : GP-04

ABBREVIATIONS

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

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

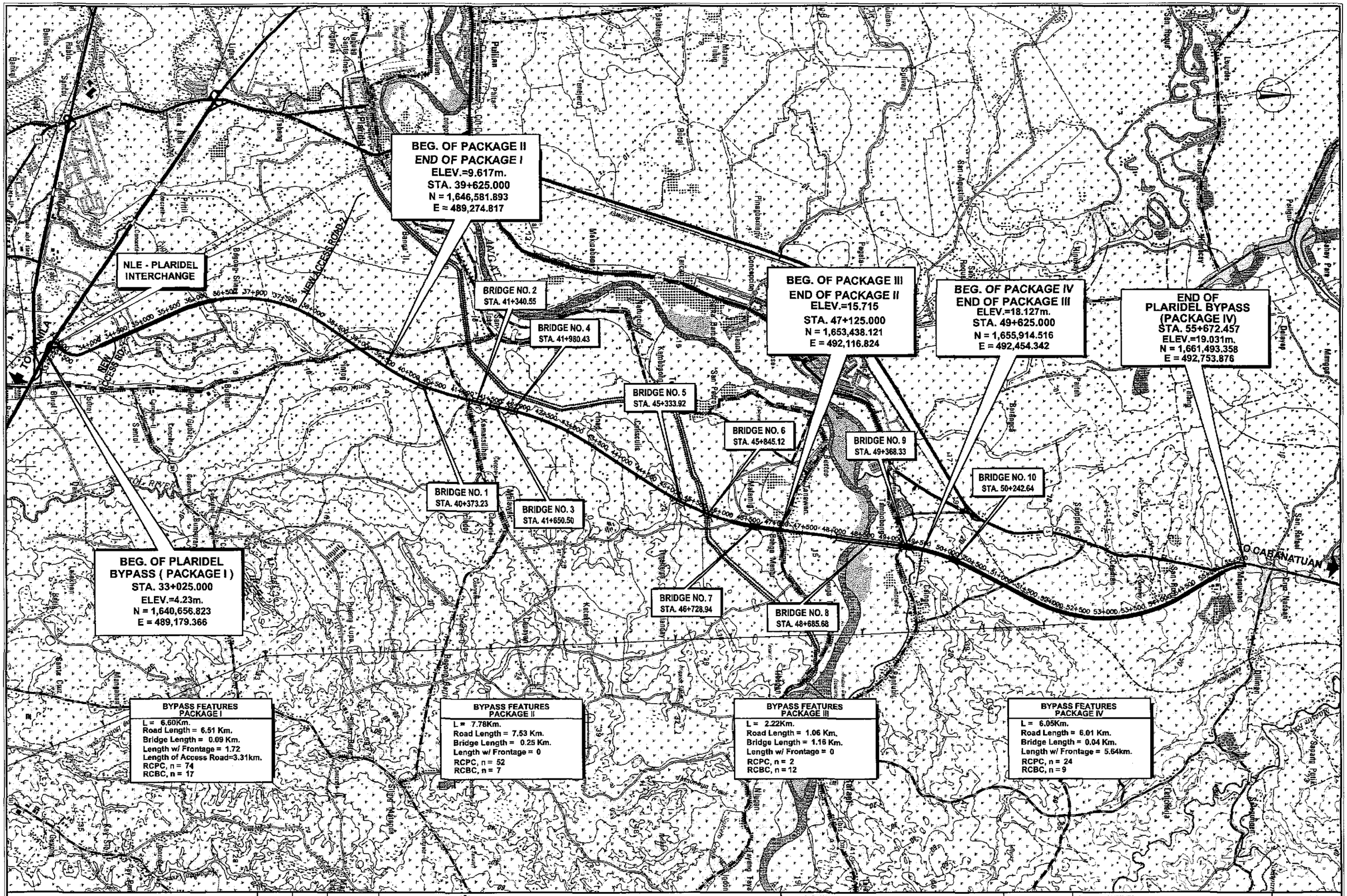
KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ACADIO
CHECKED	9/21/02	S. JOSE
SUBMITTED	9/23/02	M. KIUCHI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	JOSEFINA M. ALAGAR, Chief, Highways Division	GILBERTO S. REYES, DIC, Director IV	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	NOT TO SCALE	ABBREVIATIONS	GP-05
PLARIDEL BYPASS - CONTRACT PACKAGE I	FULL SIZE A1		



JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	K. ACACIO
CHECKED	9/21/02	S. JOSE
SUBMITTED	9/23/02	K. KUSUI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	JOSEFINA M. ALAGAR, Chief, Highways Division	GILBERTO S. REYES, OIC, Director IV	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE I	1:30,000 FULL SIZE A1	PROJECT ROAD GENERAL ALIGNMENT & FEATURES	GP-06

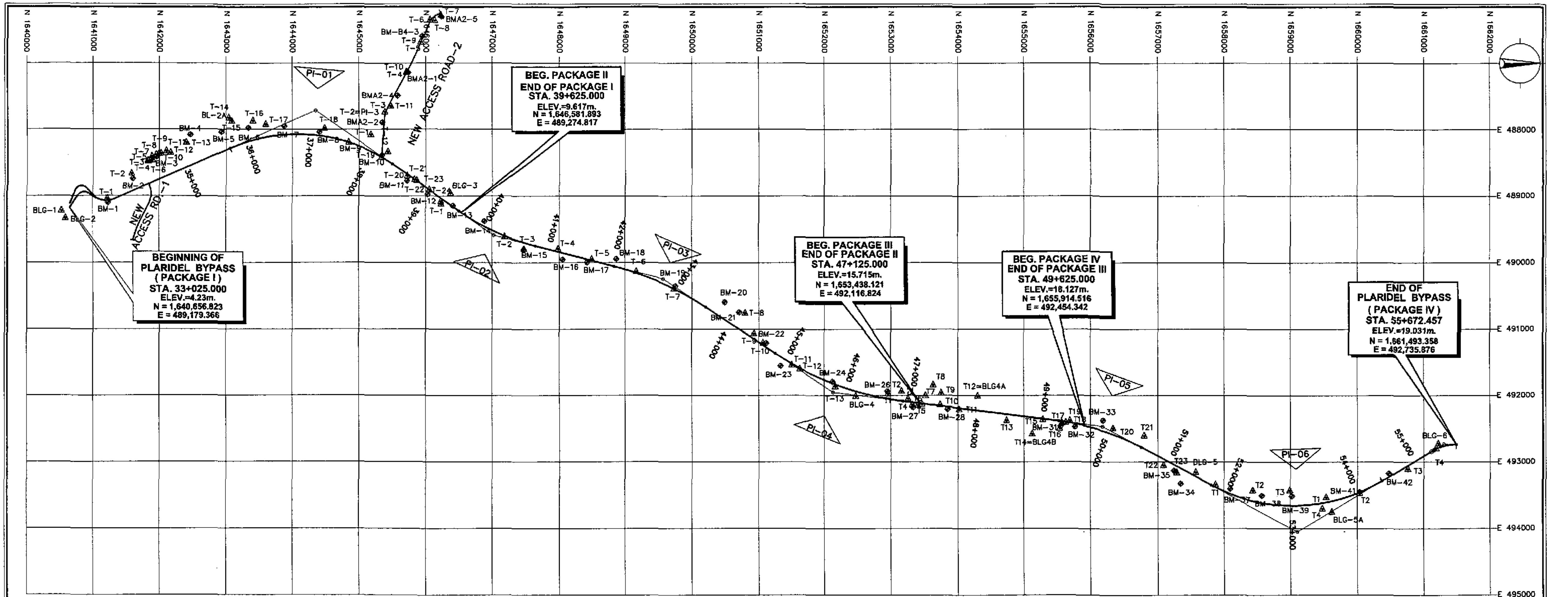


TABLE OF HORIZONTAL AND VERTICAL CONTROL

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.	REMARKS
BM-1	1,641,232.641	489,100.464	3.537	It is loc. on a rice paddy int. on left of the alignment in Bgy. Burol 2, Guiguinto, Bulacan. It is 20m. from end of dirt rd.
BM-2	1,641,598.386	488,743.032	3.855	It is loc. on a rice paddy intersection on the left of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-3	1,641,958.977	488,414.108	5.523	It is loc. on top of intersection of a rice paddy dike on left side of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-4	1,642,460.780	488,080.530	2.686	It is loc. on the intersection of a rice paddy dike on the left side of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-5	1,642,929.376	488,037.023	3.065	It is loc. on the rice paddy dike on the left side of the alignment in Bgy. Cueteo, Plaridel.
BM-6	1,643,338.598	487,976.161	3.339	It is loc. on the side of a concrete road near an electric post in Bgy. Cueteo, Plaridel.
BM-7	1,643,883.348	487,952.887	3.883	It is loc. on top of the intersection of a rice paddy dike on the left side of the alignment in Bgy. Cueteo, Plaridel.
BM-8	1,644,402.499	488,039.520	5.178	It is loc. on a rice paddy dike on the left side of the alignment in Bgy. Bulihan, Plaridel.
BM-9	1,644,847.404	488,197.025	6.382	It is loc. on a rice paddy dike along the alignment in Bgy. Bulihan, Plaridel.
BM-10	1,645,345.307	488,388.233	6.802	It is loc. on the side of a dirt road near a fence concrete post on left side of the align. in Bgy. Bulihan, Plaridel.
BM-11	1,645,714.384	488,771.939	8.317	It is loc. on the dike of a fishpond on the right side of the alignment in Bgy. Bulihan, Plaridel.
BM-12	1,646,032.378	488,878.695	8.415	It is loc. on the side of the prov'l road on the right side of align. near the corner of a wall in Bgy. Bulihan, Plaridel,
BM-13	1,646,415.622	489,145.127	7.659	It is loc. on the back of a college on the left side of the alignment in Bgy. Bulihan, Plaridel.
BM-14	1,646,892.978	489,377.904	8.484	It is loc. on a rice paddy dike on the left side of the align. surrounded by banana in Bgy. Bulihan, Plaridel.
BM-15	1,647,487.925	489,802.574	8.801	It is loc. on the center of a dirt road on the right side of the alignment in Bgy. San Jose, Baliwag.
BM-16	1,648,054.174	489,953.321	10.601	It is loc. on the int. of the bgy. road & the prov'l road on the left side of the align. in Bgy. San Jose, Baliwag.
BM-17	1,648,424.838	489,994.453	10.582	It is loc. on the side of the dirt road where an irr. canal is on the right side of the align. in Bgy. San Jose, Baliwag.
BM-18	1,648,870.652	489,943.569	10.265	It is loc. under a tree on the side of a creek on the left side of the alignment in Bgy. San Jose, Baliwag.
BM-19	1,649,757.184	490,350.187	11.391	It is loc. under a tree on the side of the road where an irr. canal is on the left side of align. in Bgy. Malamig, Bustos.
BM-20	1,650,493.060	490,591.189	11.615	It is loc. under a tree near an unfinished house on the left side of the alignment in Bgy. Malamig, Bustos.
BM-21	1,650,705.071	490,746.236	12.246	It is loc. on the side of the rd. near a culvert about a meter from the int. on the left side of the alignment in Bustos.
BM-22	1,651,121.786	491,211.136	12.593	It is loc. on the side of the road near an irrigation draft on the left side of the alignment in Bgy. Malamig, Bustos.
BM-23	1,651,339.258	491,553.289	18.706	It is loc. on the side of the road near an elect. post on the right side of the alignment in Bgy. Malamig, Bustos.
BM-24	1,652,126.811	491,790.544	14.480	It is loc.on the side on a wall on a fishpond dike about 40m. from the road on the lef side of the align. in Bustos.
BM-26	1,652,951.730	491,935.264	17.018	It is loc. on the side of the dirt road near a coconut tree on the left side of the align. in Bgy. Malamig, Bustos.
BM-27	1,653,336.791	492,180.066	16.372	It is loc. on the side of the rd. opposite the cor. of a wall nr. an elect. post on the left side of the align. in Bustos.
BM-28	1,653,845.433	492,207.423	12.908	It is loc. on a rice paddy dike on the right side of the alignment in Bgy. Bonga Menor, Bustos.
BM-31	1,655,556.301	492,461.715	17.903	It is loc. on the side of the prov'l road under an acacia tree on the right side of the align. in Bgy. Tambobong.
BM-32	1,655,771.206	492,471.912	17.367	It is loc. on the side of a dirt road near an elect. post on the right side of the align. In Bgy. Tambobong, San Rafael.

TABLE OF HORIZONTAL AND VERTICAL CONTROL

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.	REMARKS
BM-33	1,656,166.911	492,373.317	16.036	It is loc. under an acacia tree on a private lot on the left side of the alignment in Bgy. Tambobong, San Rafael.
BM-34	1,657,343.337	493,325.087	16.228	It is loc. on top of a rice paddy dike on the left side of the alignment in San Rafael, Bulacan.
BM-35	1,657,239.065	493,124.978	19.935	It is loc. on a rice paddy dike near the intersection on the left side of the alignment in San Rafael, Bulacan.
BM-37	1,658,097.133	493,462.756	25.474	It is loc. on the intersection of the rice paddy dike on the left side of the alignment in San Rafael, Bulacan.
BM-38	1,658,577.840	493,506.635	25.298	It is loc. on a rice paddy int. near a fence concrete post on the right side of the align. in Sn Rafael, Bulacan.
BM-39	1,659,026.390	493,512.322	25.137	It is loc. on the side of a dirt road on the right side of the alignment in San Rafael, Bulacan.
BM-41	1,660,037.271	493,451.999	28.680	It is loc. on the rice paddy intersection on the right side of the alignment in San Rafael, Bulacan.
BM-42	1,660,472.819	493,175.599	18.805	It is loc. on a rice paddy dike on the right side of the alignment in San Rafael, Bulacan.
BM A2-1	1,646,237.686	486,306.250	6.524	It is loc. on the right side of road under acacia tree near a concrete elec. post 30m. from dirt road in Plaridel.
BM A2-2	1,645,946.661	486,593.542	6.120	It is located on side of concrete road bet. two guavas 70m. from end of conc. wall of Oratex Comp. Plaridel
BM A2-3	1,645,739.141	487,142.838	7.237	It is loc. under a coconut tree on backyard about 3m. from house, 70m. from conc. road in Plaridel.
BM A2-4	1,645,578.226	487,490.381	5.555	It is loc. near an abondoned elec. post at rice paddy int. outside the fence of property, Bulihan, Plaridel.
BM A2-5	1,645,351.778	487,893.272	4.749	It is loc. beside the foot of an elec. tower, about 10m. from CL of a dirt road in Brgy. Bulihan, Plaridel.

TABLE OF GPS STATION POINTS

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.	REMARKS
BLG-1	1,640,535.729	489,225.487	6.831	Loc. at the left guardrail going to Tabang Exit. Drilled on top of the guardrail is an iron steel 1/4x2" about 40 m. from the last approach of the bridge.
BLG-2	1,640,592.279	489,340.024	10.635	Loc. at the wall railing at the bridge's first approach. Drilled on top of the wall railing is an iron steel 1/4" x 2".
BLG-2A	1,643,045.047	487,830.179	3.777	Loc. in Bgy. Daungan, Guiguinto, Bulacan. It is embedded beside an irr. canal, about 150 m. from inter., about 15 m. from an elect. post, 50 m. from BBM 16 and about 15 m. from the fence of the house on the other side of the road.
BLG-3	1,646,381.832	488,957.118	8.646	Loc. in Bgy. Mataas, Sampaloc, Bulihan, Plaridel, Bulacan. It is on the head of an irrigation check valve, outside the Colegio de Immaculada Concepcion, about 10 m. from the shed and 4 m. from road centerline.
BLG-4	1,652,474.952	492,013.344	16.125	Loc. in Bgy. Malamig, Bustos, Bulacan. It is on the side of an irrigation canal, about 5 m. from the road centerline, 150 m. from a rd. fork, and about 5 m. from the new house.
BLG-4B	1,655,132.400	492,583,.981	9.310	Loc. in Bgy. Tambobong, San Rafael, Bulacan. It is emb. on the grd. about 600 m. from inter., 20 m. from the house.
BLG-5	1,657,566.872	493,155.992	22.517	Loc. in Bgy. Samp., Sn. Rfl, Bulacan. It is emb. on rt. side of the rd. going to Royal Northwoods 30 m. from the inter.
BLG-5A	1,659,619.893	493.753.421	29.685	Loc. in Bgy. San Roque, Hulo, San Rafael, Bulacan. It is embedded on the paddy dike 20 m. from the dirt road centerline.

TABLE OF TRAVERSE STATION POINTS

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.
T-1	1,641,225.254	489,045.710	3.350
T-2	1,641,583.179	488,669.897	4.030
T-3	1,641,830.464	488,477.696	4.930
T-4	1,641,839.883	488,483.095	5.050
T-5	1,641,867.818	488,474.488	5.120
T-6	1,641,901.421	488,463.363	5.360
T-7	1,641,892.449	488,410.158	5.540
T-8	1,641,957.997	488,384.675	5.080
T-9	1,642,000.969	488,371.561	4.660
T-10	1,642,028.410	488,367.580	5.150
T-11	1,642,108.886	488,330.691	4.630
T-12	1,642.173.014	488,355.198	4.970
T-13	1,642,403.861	488,200.615	4.000
T-14	1,643,045.237	487,829.752	3.700
T-15	1,643,090.558	487,878.132	3.470
T-16	1,643,408.710	487,873.117	2.580
T-17	1,643,604.945	487,925.855	2.930
T-18	1,644,483.188	487,984.415	5.410
T-19	1,645,338.877	488,419.155	6.970
T-20	1,645,721.458	488,700.217	8.030
T-21	1,645,829.207	488,757.963	7.980
T-22	1,645,865.037	488,769.278	8.350
T-23	1,646,058.318	488,913.983	8.080
T-24	1,646,234.573	489,081.303	8.050
T-1	1,646,237.677	489,119.664	7.800
T-2	1,647,190.511	489,613.241	8.530
T-3	1,647,472.147	489,797.550	9.160
T-4	1,647,987.901	489,794.855	9.910
T-5	1,648,499.124	489,951.678	10.960

TABLE OF TRAVERSE STATION POINTS

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.
T-6	1,649,171.515	490,135.688	10.900
T-7	1,649,736.908	490,395.363	11.280
T-8	1,650,793.468	490,761.338	12.560
T-9	1,650,932.296	491,070.927	14.880
T-10	1,651,073.140	491,213.182	13.180
T-11	1,651,511.858	491,544.594	18.790
T-12	1,651,834.116	491,604.256	16.560
T-13	1,652,171.172	491,865.395	15.670
T1	1,652,963.172	491,975.061	17.150
T2	1,653,166.711	491,937.097	16.340
T3	1,653,264.574	492,049.167	16.440
T4	1,653,327.487	492,142.734	18.240
T5	1,653,411.651	492,150.335	18.680
T6	1,653,472.407	492,130.939	17.350
T7	1,653,525.530	492,004.044	17.430
T8	1,653,637.260	491,842.625	15.430
T9	1,653,754.181	491,964.051	12.460
T10	1,653,739.630	494,141.877	14.840
T11	1,654,020.437	492,214.607	14.240
T13	1,654,737.523	492,379.170	11.600
T15	1,655,293.248	492,388.349	9.550
T16	1,655,545.515	492,498.513	17.830
T17	1,655,576.842	492,417.335	18.020
T18	1,655,635.552	492,409.403	17.620
T19	1,655,697.300	492,385.162	17.490
T20	1,656,337.537	492,498.250	15.870
T21	1,656,799.655	492,608.090	20.950
T22	1,657,085.568	493,052.405	19.510
T23	1,657,280.628	493,163.137	19.630

TABLE OF TRAVERSE STATION POINTS

CONTROL POINT	COORDINATES NORTHING	EASTING	ELEV.
T1	1,657,875.550	493,344.564	25.030
T2	1,658,442.470	493,433.175	25.310
T3	1,658,998.440	493,432.436	25.400
T4	1,659,478.800	493,706.043	26.820
T1	1,659,535.000	493,536.664	25.000
T2	1,660,040.390	493,471.255	28.680
T3	1,660,764.170	493,109.355	12.960
T4	1,661,191.210	492,796.889	13.460
T-1	1,645,182.514	488,080.020	6.740
T-2=PI-3	1,645,382.699	487,741.560	4.900
T-3	1,645,474.603	487,648.548	5.950
T-4	1,645,710.343	487,137.423	7.460
T-5	1,645,931.256	486,882.762	6.100
T-6	1,646,065.278	486,350.560	7.130
T-7	1,646,230.317	486,282.965	8.960
T-8	1,646,137.594	486,360.509	7.750
T-9	1,645,932.065	486,685.036	6.280
T-10	1,645,718.320	487,138.070	7.500
T-11	1,645,478.867	487,651.111	6.040
T-12	1,645,434.836	488,340.248	7.060

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ACACIO
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	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)
PLARIDEL BYPASS - CONTRACT PACKAGE I

SCALE : 1:30,000
FULL SIZE A1

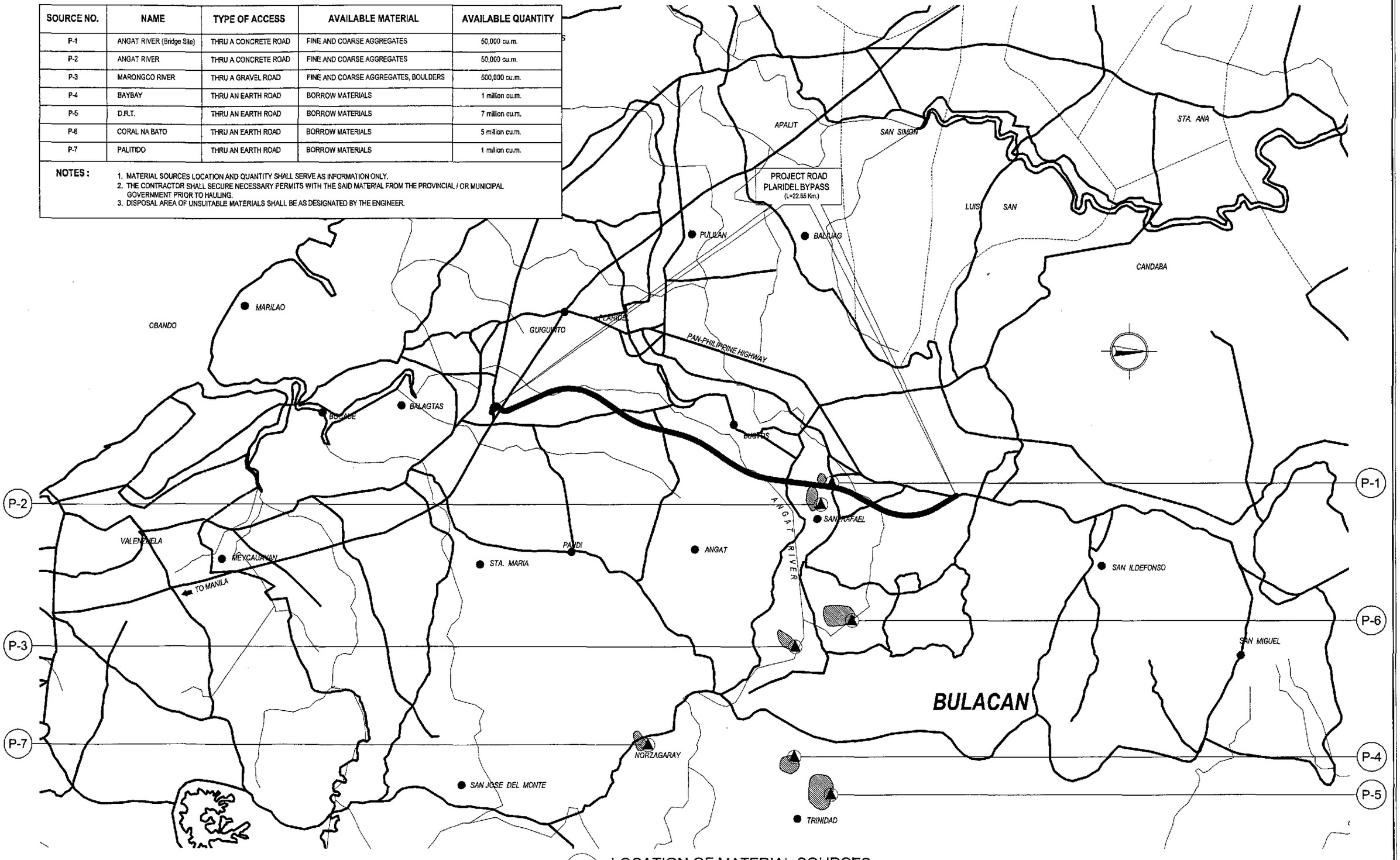
SHEET CONTENTS : HORIZONTAL AND VERTICAL CONTROL MONUMENT

SHEET NO. : GP-07

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 GP-08 LOCATION OF MATERIAL SOURCES
SCALE AS SHOWN

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL — YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/21/02	A. ACACIO
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONDAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
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 I	1:80,000 FULL SIZE A1	LOCATION OF MATERIAL SOURCES	GP-08

SUMMARY OF QUANTITIES
ULTIMATE STAGE)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY													
			BYPASS	A-1	C-1R	C-1L	A-2	C-2L	C-2R	A-3	A-4	A-5	A-6	A-7	A-7a	TOTAL
PART C - EARTHWORKS																
100(1)	Clearing and Grubbing	ha	7.58	-	-	-	-	-	-	-	-	-	-	-	-	8.00
101(1)	Removal of Existing Structures and Obstruction	L.S.	1.00	-	-	-	-	-	-	-	-	-	-	-	-	1.00
101(3)a	Removal of Existing PCC Pavement	m2	3,626.15	-	-	-	-	-	-	-	-	-	-	-	-	3,627.00
101(5)b	Relocation of Existing Guardrails	m	100.00	-	-	-	-	-	-	-	-	-	-	-	-	100.00
101(11)	Removal of Existing Combination Concrete Curb & Gutter and Side Strip	m	1,430.78	-	-	-	-	-	-	-	-	-	-	-	-	1,431.00
101(12)	Relocation of Existing Road Signs	each	17.00	3.00	-	-	4.00	-	-	4.00	-	-	-	2.00	-	30.00
101(13)	Removal of Existing Road Signs	each	4.00	-	-	-	-	-	-	-	1.00	-	-	-	-	5.00
103(1)	Structure Excavation	m3	50.62	-	-	-	-	-	-	-	-	-	-	-	-	51.00
103(3)a	Gravel Foundation Fill	m3	9.60	-	-	-	-	-	-	-	-	-	-	-	-	10.00
103(6)	Pipe Culverts and Drain Excavation	m3	8,952.84	-	-	-	-	-	-	-	-	-	-	-	-	8,953.00
103(7)	Granular Backfill for Pipe Culvert	m3	4,741.78	-	-	-	-	-	-	-	-	-	-	-	-	4,742.00
104(1)	Embankment from Roadway Excavation	m3	6,250.97	-	-	-	-	-	-	-	-	-	-	-	-	6,251.00
104(3)	Embankment from Borrow Pit	m3	16,842.38	-	-	-	-	-	-	-	-	-	-	-	-	16,843.00
105(1)	Subgrade Preparation (Common Soil)	m2	51,064.22	-	-	-	-	-	-	-	-	-	-	-	-	51,065.00
PART D - BASE AND SUBBASE COURSE																
200(1)	Aggregate Subbase Course	m3	21,431.33	-	-	-	-	-	-	-	-	-	-	-	-	21,432.00
PART E - SURFACE COURSES																
300(1)	Gravel Surface Course	m3	13.96	-	-	-	-	-	-	-	-	-	-	-	-	14.00
311(1)a	PCC Pavement (Plain), t=280mm	m2	40,567.25	-	-	-	-	-	-	-	-	-	-	-	-	40,568.00
311(1)c	PCC Pavement (Plain), t=230mm	m2	21,825.22	-	-	-	-	-	-	-	-	-	-	-	-	21,826.00
311(1)d	PCC Pavement (Plain), t=180mm	m2	22,954.97	-	-	-	-	-	-	-	-	-	-	-	-	22,955.00
311(2)	PCC Pavement (Reinforced) t=300mm Approach Slab	m2	152.00	-	-	-	-	-	-	-	-	-	-	-	-	152.00
PART F - BRIDGE CONSTRUCTION																
404(2)	Reinforcing Steel (Grade 60)	kg	7,200.00	-	-	-	-	-	-	-	-	-	-	-	-	7,200.00
405(1)a	Structural Concrete Class A (fc'=21MPa, max. aggregate 38mm) for heavily reinforced structures	m3	79.20	-	-	-	-	-	-	-	-	-	-	-	-	80.00
405(2)	Structural Concrete Class B (fc'=17MPa, max. aggregate 50mm) for plain or lightly reinforced structures	m3	1,472.51	-	-	-	-	-	-	-	-	-	-	-	-	1,473.00
405(6)	Lean Concrete (fc'=17MPa, max. aggregate 38mm)	m3	4.80	-	-	-	-	-	-	-	-	-	-	-	-	5.00
PART G - DRAINAGE AND SLOPE PROTECTION STRUCTURES																
500(1)b4	RCPC Standard Strength (32MPa), Ø 610mm (24")	m	2,748.00	-	-	-	-	-	-	-	-	-	-	-	-	2,748.00
500(1)c3	RCPC Extra Strength (32MPa), Ø 460mm (18")	m	841.50	-	-	-	-	-	-	-	-	-	-	-	-	842.00
502(2)a1	Drop Inlet Manhole for RCPC 1-Ø460 x 1-Ø460	each	131.00	-	-	-	-	-	-	-	-	-	-	-	-	131.00
502(2)a2	Drop Inlet Manhole for RCPC 1-Ø610 x 1-Ø460	each	95.00	-	-	-	-	-	-	-	-	-	-	-	-	95.00
502(2)c14	Junction Box Converted to Curb Inlet Manhole for RCPC 1-Ø 910 x 1-Ø 610	each	16.00	-	-	-	-	-	-	-	-	-	-	-	-	16.00
502(2)c15	Junction Box Converted to Curb Inlet Manhole for RCPC 1-Ø 1070 x 1-Ø 610	each	4.00	-	-	-	-	-	-	-	-	-	-	-	-	4.00
502(2)c34	Junction Box Converted to Curb Inlet Manhole for RCPC 2-Ø 910 x 1-Ø 610	each	4.00	-	-	-	-	-	-	-	-	-	-	-	-	4.00
504(5)	Grouted Riprap Class A	m3	64.20	-	-	-	-	-	-	-	-	-	-	-	-	65.00
PART H - MISCELLANEOUS STRUCTURES																
600(1)a	Concrete Curb, Type A (200x450mm)	m	3,313.71	-	-	-	-	-	-	-	-	-	-	-	-	3,314.00
600(3)a	Combination Concrete Curb & Gutter/Side Strip, Type A (675x364mm)	m	13,993.99	27.54	-	-	-	-	-	-	-	98.59	-	151.14	-	14,272.00
600(3)b	Combination Concrete Curb & Gutter/Side Strip, Type B (675x334mm)	m	3,629.68	-	-	-	-	-	-	-	-	-	-	-	-	3,630.00
601(1)	PCC Pavement for Sidewalk (t=100mm)	m2	8,031.67	-	-	-	-	-	-	-	-	-	-	-	-	8,032.00
605(1)a	Warning Signs (Triangular 900mm)	each	6.00	-	-	-	-	-	-	-	-	-	-	-	-	6.00
605(2)a	Regulatory Signs (Triangular 1039mm)	each	7.00	-	-	-	-	-	-	-	-	-	-	-	-	7.00
605(2)c	Regulatory Signs (Circular Ø 600mm)	each	6.00	-	-	-	-	-	-	-	-	-	-	-	-	6.00
605(2)d	Regulatory Signs (Rectangular 450x750mm)	each	6.00	-	-	-	-	-	-	-	-	-	-	-	-	6.00
608(1)	Furnishing and Placing Top Soil	m3	2,448.75	-	-	-	-	-	-	-	-	-	-	-	-	2,449.00
610(1)	Sodding	m2	24,487.50	-	-	-	-	-	-	-	-	-	-	-	-	24,488.00
611(1)a	Trees (Furnishing and Transplanting) Low Tree H < 1.5m	each	50,030.00	-	-	-	-	-	-	-	-	-	-	-	-	50,030.00
611(1)b	Trees (Furnishing and Transplanting) Medium Tree 1.5m < H < 3.0m	each	1,958.00	-	-	-	-	-	-	-	-	-	-	-	-	1,958.00
611(1)c	Trees (Furnishing and Transplanting) High Tree (Young Tree) 1.5m < H < 3.0m	each	31.00	-	-	-	-	-	-	-	-	-	-	-	-	31.00
SPL 611(3)a	Planter Box of CHB (1.00m x 1.00m) for Road Side Plantation	each	341.00	-	-	-	-	-	-	-	-	-	-	-	-	341.00
SPL 611(4)b	Planter Square Type B (0.68mx1.70m) for Road Side Plantation	each	176.00	-	-	-	-	-	-	-	-	-	-	-	-	176.00
612(1)a	Reflectorized Thermoplastic Pavement Markings (White)	m2	3,489.91	22.65	-	-	91.53	-	-	77.41	61.47	34.56	-	42.37	-	3,820.00
SPL 612(2)	Removal of Existing Thermoplastic Pavement Markings	m2	348.10	-	-	-	-	-	-	-	-	-	-	-	-	349.00

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	C. TAPIA
CHECKED	9/21/02	S. COSE
SUBMITTED	9/23/02	M. KIUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	NOT TO SCALE	SUMMARY OF QUANTITIES (ULTIMATE STAGE)	GP-09
PLARIDEL BYPASS - CONTRACT PACKAGE I	FULL SIZE A1		

ROADWAY

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 SPEICIFICATIONS, 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, GUIGUINTO, 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. FORM 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 BLGS 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 CONNCTIONS AND PRIVATE ENTRANCES SHALL BE AS SHOWN IN THE DRAWING OR AS INDICATD 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, UNCLOGGING AND/OR RELAYING OF REINFORCED CONCRETE PIPES, CONSTRUCTION OF CHANNELS AND DITCHES AS DIRECTED BY THE ENGINEER TO ENSURE AN OPERATIONAL TEMORARY DRAINAGE SYSTEM DURING THE CONSTRUCTION PERIOD SHALL BE UNDERTAKEN BY THE CONTRACTOR WITHOUT ANY COMPERSATION.

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.

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

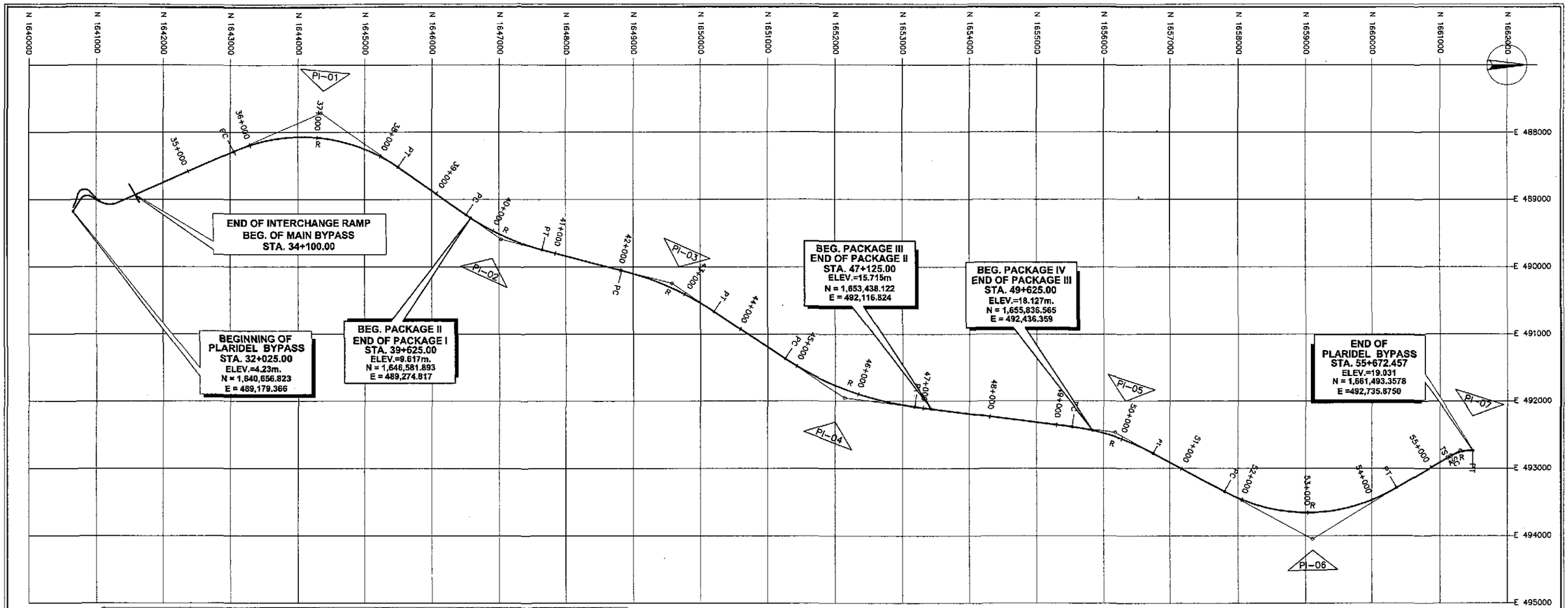
KRI KATAHIRA & ENGINEERS INTERNATIONAL — YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	C. ACACIO
CHECKED	9/21/02	S. GOSOSE
SUBMITTED	9/23/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
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 I	FULL SIZE A1	GENERAL NOTES (HIGHWAY AND DRAINAGE)	RG-01



ELEMENTS OF CURVES

P.I. No.	STATION	DISTANCE	AZIMUTH	TANGENT Θ_s	DEFLECTION ANGLE	A / R	Ls / Lc	STATION
BEG.	34+100.00							
		3,050.085	156°12'23"	1,405.622	58°41'37"			PC=35+744.463
01	37+150.085					2,500.000	2,560.993	PT=38+305.456
		3,270.517	214°54'01"	631.471	20°27'17"			
02	40+170.351					3,500.000	1,249.501	PC=39+538.880
		2,627.362	194°26'44"					PT=40+788.381
03	42+784.272			762.261	19°13'42"			PC=42+022.011
		3,079.935	213°40'26"			4,500.000	1,510.187	PT=43+532.197
				1,055.870	26°24'35"			PC=44+794.002
04	45+849.871	4,076.071	187°15'51"			4,500.000	2,074.218	PT=46+868.219
				653.242	21°08'39"			PC=49+235.179
05	49+888.421	3,324.430	208°24'30"			3,500.000	1,291.623	PT=50+526.802
				1,481.484	59°20'57"			PC=51+716.506
06	53+197.990	2,563.432	149°03'33"			2,600.000	2,693.177	PT=54+409.683
				217.897	32°44'53"	188.072	54.417	TS=55+273.735
07	55+491.631	191.336	02°23'54"	02°23'54"		650.000	344.305	SC=55+328.152
								PT=55+672.457
END	55+672.457							

TABLE OF COORDINATES

P.I. No.	NORTHING	EASTING		NORTHING	EASTING
BEG.	1,641,555.403	488,947.023			
01	1,644,346.248	487,716.493	PC	1,643,060.096	488,283.579
			PT	1,645,499.069	488,520.712
02	1,647,028.564	489,587.713	PC	1,646,510.662	489,226.418
			PT	1,647,640.071	489,745.240
03	1,649,572.882	490,243.134	PC	1,648,834.700	490,052.981
			PT	1,650,207.221	490,665.781
04	1,652,135.007	491,950.849	PC	1,651,257.304	491,365.407
			PT	1,653,183.402	492,084.356
05	1,656,179.303	492,466.239	PC	1,655,531.364	492,383.641
			PT	1,656,753.942	492,777.019

TABLE OF COORDINATES

P.I. No.	NORTHING	EASTING		NORTHING	EASTING
06	1,659,103.466	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	492,735.876
END	1,661,493.358	492,735.876			

JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ACACIO
CHECKED	9/19/02	S. CRUZ
SUBMITTED	9/23/02	M. RILLERA, TEAM LEADER

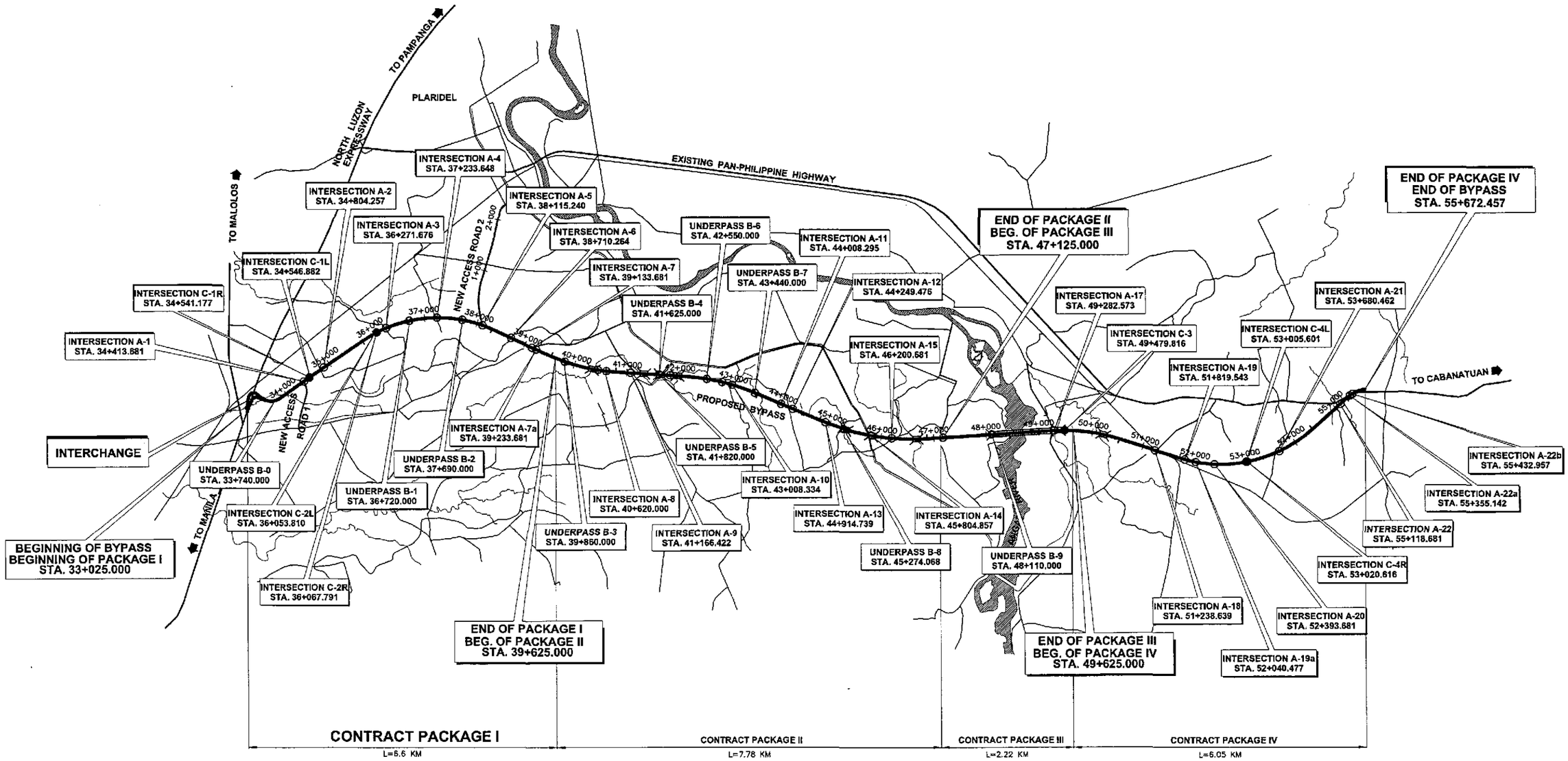
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
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 I	1:30,000 FULL SIZE A1	ALIGNMENT TECHNICAL DESCRIPTION	RG-02

LEGEND:

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



A / RG-03 LOCATION OF PROPOSED INTERSECTIONS ALONG BYPASS

SCALE 1:40,000

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL

YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/12/02	A. ACACIO
CHECKED	9/12/02	S. GOSOE
SUBMITTED	9/23/02	M. KIKUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	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)
PLARIDEL BYPASS - CONTRACT PACKAGE I

SCALE : 1:40,000 FULL SIZE A1

SHEET CONTENTS : LOCATION OF INTERSECTIONS ALONG BYPASS

SHEET NO. : RG-03

SCHEDULE OF TRAFFIC SIGNS
CONTRACT PACKAGE I (ULTIMATE STAGE)

ITEM 605 (1) WARNING SIGNS (TRIAGULAR 900mm)

STATION	REF. NO.	REMARKS
34+219	W3-1	RIGHTSIDE MAIN BYPASS
34+538	W3-1	LEFT SIDE MAIN BYPASS
34+965	W2-8**	LEFT SIDE MAIN BYPASS
36+100	W2-8**	RIGHTSIDE MAIN BYPASS
36+419	W2-8**	LEFT SIDE MAIN BYPASS
37+080	W2-8	RIGHTSIDE MAIN BYPASS
37+389	W2-8**	LEFT SIDE MAIN BYPASS
37+979	W3-1	RIGHTSIDE MAIN BYPASS
38+182	W4-2R*	RIGHTSIDE MAIN BYPASS
38+060	W4-2R*	LEFT SIDE MAIN BYPASS
38+258	W3-1	LEFT SIDE MAIN BYPASS
38+600	W5-10*	RIGHTSIDE MAIN BYPASS
38+820	W5-10*	LEFT SIDE MAIN BYPASS
38+992	W3-1	RIGHTSIDE MAIN BYPASS
39+087	W4-2R*	LEFT SIDE MAIN BYPASS
39+190	W4-2R*	RIGHTSIDE MAIN BYPASS
39+283	W3-1**	LEFT SIDE MAIN BYPASS

ITEM 605 (2)a REGULATORY SIGNS (TRIANGULAR 1039mm)

STATION	REF. NO.	REMARKS
34+398	RI-2*	RIGHTSIDE MAIN BYPASS
34+783	RI-2*	RIGHTSIDE MAIN BYPASS
34+824	RI-2*	LEFT SIDE MAIN BYPASS
38+105	RI-2*	RIGHTSIDE MAIN BYPASS
38+125	RI-2*	LEFT SIDE MAIN BYPASS
39+096	RI-2*	RIGHTSIDE MAIN BYPASS
39+167	RI-2*	LEFT SIDE MAIN BYPASS

ITEM 605 (2)b REGULATORY SIGNS (OCTAGONAL 600mm)

STATION	REF. NO.	REMARKS
00+964	R1-1A**	RIGHT SIDE INTERSECTION A-2
01+036	R1-1A**	LEFT SIDE INTERSECTION A-2
00+977	R1-1A**	RIGHT SIDE INTERSECTION A-3
01+029	R1-1A**	LEFT SIDE INTERSECTION A-3
00+974	R1-1A	RIGHT SIDE INTERSECTION A-4
01+026	R1-1A	LEFT SIDE INTERSECTION A-4

ITEM 605 (2)c REGULATORY SIGNS (RECTANGULAR 450x750mm)

STATION	REF. NO.	REMARKS
34+429	R2-7(L)**	CENTER ISLAND MAIN BYPASS
34+788	R2-7(L)*	CENTER ISLAND MAIN BYPASS
34+821	R2-7(L)*	CENTER ISLAND MAIN BYPASS
36+257	R2-7(L)*	CENTER ISLAND MAIN BYPASS
36+286	R2-7(L)*	CENTER ISLAND MAIN BYPASS
37+217	R2-7(L)*	CENTER ISLAND MAIN BYPASS
37+250	R2-7(L)*	CENTER ISLAND MAIN BYPASS
38+096	R2-7(L)**	CENTER ISLAND MAIN BYPASS
38+135	R2-7(L)**	CENTER ISLAND MAIN BYPASS

ITEM 605 (2)c REGULATORY SIGNS (RECTANGULAR 450x750mm)

STATION	REF. NO.	REMARKS
39+112	R2-7(L)**	CENTER ISLAND MAIN BYPASS
39+156	R2-7(L)**	CENTER ISLAND MAIN BYPASS
00+048	R3-6P**	RIGHT SIDE INTERSECTION A-1
00+964	R3-6P**	RIGHT SIDE INTERSECTION A-2
01+036	R3-6P**	LEFT SIDE INTERSECTION A-2
00+977	R3-6P**	RIGHT SIDE INTERSECTION A-3

ITEM 605 (2)d REGULATORY SIGNS (CIRCULAR 600mm DIA.)

STATION	REF. NO.	REMARKS
34+407	R3-15	CENTER ISLAND MAIN BYPASS
34+429	R3-15**	CENTER ISLAND MAIN BYPASS
34+660	R2-4A*	RIGHT SIDE MAIN BYPASS
34+788	R3-15*	CENTER ISLAND MAIN BYPASS
34+821	R3-15*	CENTER ISLAND MAIN BYPASS
36+257	R3-15*	CENTER ISLAND MAIN BYPASS
36+286	R3-15*	CENTER ISLAND MAIN BYPASS
37+217	R3-15*	CENTER ISLAND MAIN BYPASS
37+250	R3-15*	CENTER ISLAND MAIN BYPASS
38+096	R3-15**	CENTER ISLAND MAIN BYPASS
38+135	R3-15**	CENTER ISLAND MAIN BYPASS
39+112	R3-15**	CENTER ISLAND MAIN BYPASS
39+156	R3-15**	CENTER ISLAND MAIN BYPASS
00+018	R3-15**	CENTER ISLAND OF INTERSECTION A-1
00+976	R3-15	CENTER ISLAND OF INTERSECTION A-5
01+020	R3-15	CENTER ISLAND OF INTERSECTION A-5
00+981	R3-15**	CENTER ISLAND OF INTERSECTION A-7
01+019	R3-15**	CENTER ISLAND OF INTERSECTION A-7

ITEM 605 (3) INFORMATORY SIGNS

STATION	REF. NO.	REMARKS
a. 2472 x 1380mm		
00+030	GS-15**	RIGHT SIDE INTERSECTION A-1
b. 2472 x 1110mm		
01+122	GS-2	RIGHT SIDE INTERSECTION A-5
01+067	GS-1	LEFT SIDE INTERSECTION A-5
00+955	GS-2	RIGHT SIDE INTERSECTION A-7
01+062	GS-1	LEFT SIDE INTERSECTION A-7
c. 2140 x 1380mm		
34+600	GS-15**	LEFT SIDE MAIN BYPASS
d. 2574 x 1380mm		
37+935	GS-4	RIGHTSIDE MAIN BYPASS
e. 2421 x 1380mm		
38+350	GS-3	LEFT SIDE MAIN BYPASS
f. 1069 x 1110mm		
34+100	GE7-2	LEFT SIDE MAIN BYPASS
g. 1285 x 900mm		
34+300	GE6-2	LEFT SIDE MAIN BYPASS
h. 850 x 750mm		
34+660	S2-11	RIGHT SIDE MAIN BYPASS
i. 1534 x 690mm		
34+660	GE7-3	LEFT SIDE MAIN BYPASS

SCHEDULE OF RELOCATION OF GUARDRAILS AND PLANTINGS
CONTRACT PACKAGE I (ULTIMATE STAGE)

1.) SIDEWALK PLANTING (MIDDLE TREE)

STATION FROM	STATION TO	LENGTH (L.M.) LEFT	LENGTH (L.M.) RIGHT
34+100	34+700	140	220
34+700	35+400	680	660
35+400	36+100	680	680
36+100	36+800	140	180

2.) OUTER SEPARATION PLANTING(LEFT SIDE)

STATION FROM	STATION TO	LENGTH (L.M.) 1-B(3)	1-B(4)	1-B(5)	1-B(6)	1-B(7)	1-B(8)
34+100	34+700	0	0	0	162	0	0
34+700	35+400	0	0	70	538	0	0
35+400	36+100	0	0	0	700	0	0
36+100	36+800	0	0	30	61	14	0

3.) OUTER SEPARATION PLANTING (RIGHT SIDE)

STATION FROM	STATION TO	LENGTH (L.M.) 1-B(3)	1-B(4)	1-B(5)	1-B(6)	1-B(7)	1-B(8)
34+100	34+700	0	0	0	176	0	0
34+700	35+400	0	0	88	545	11	0
35+400	36+100	0	0	0	700	0	0
36+100	36+800	0	0	51	61	0	0

4.) CENTER MEDIAN PLANTING

STATION FROM	STATION TO	LENGTH (L.M.) 1-A(3)	1-A(4)	1-A(5)	1-A(6)	1-A(7)	1-A(8)
34+700	35+400	70	25	0	543	0	29
35+400	36+100	0	0	0	700	0	0
36+100	36+800	70	24	0	638	0	38
36+800	37+500	70	25	0	523	0	39
37+500	38+200	70	56	0	493	0	43
38+200	38+900	0	0	70	600	0	24
38+900	39+600	70	66	0	460	0	61
39+600	40+300	0	0	0	25	0	0

RELOCATION OF EXISTING GUARDRAILS

STATION FROM	STATION TO	LENGTH (m)	LOCATION
37+660.00	37+732.00	72.00	LEFT SIDE

NOTE:
* – NEW SIGNS
** – EXISTING AND TO BE RELOCATED
UNMARKED – EXISTING AND TO REMAIN

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

	DATE	SIGNATURE
DESIGNED	9/19/02	S. TAPIA
CHECKED	9/21/02	S. JOSE
SUBMITTED	9/23/02	K. KUCHI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO, Project Director	JOSEFINA M. ALAGAR, Chief, Highways Division	GILBERTO S. REYES, OIC, Director IV	MANUEL M. BONOAN, Undersecretary	SIMEON A. DATUMANONG, Secretary

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

SCALE : FULL SIZE A1

SHEET CONTENTS :
SCHEDULE OF TRAFFIC SIGNS, RELOCATION OF GUARDRAILS AND PLANTINGS

SHEET NO. :
RG-04

SCHEDULE OF PAVEMENT MARKINGS

CONTRACT PACKAGE I (ULTIMATE STAGE)

ITEM 612(1) - REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS

1.0 CENTER LINE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
00+140.00	00+911.99	771.99 *	A-1: 100mm x 3.0m @ 4.50m GAP
00+910.00	00+953.32	43.32 *	A-2: 100mm x 3.0m @ 4.50m GAP
00+953.32	00+983.32	30.00	A-2: 100mm UNBROKEN LINE
01+017.06	01+047.06	30.00	A-2: 100mm UNBROKEN LINE
01+047.06	01+090.00	42.94 *	A-2: 100mm x 3.0m @ 4.50m GAP
00+900.00	00+948.23	48.23 *	A-3: 100mm x 3.0m @ 4.50m GAP
00+948.23	00+978.23	30.00	A-3: 100mm UNBROKEN LINE
01+028.56	01+058.56	30.00	A-3: 100mm UNBROKEN LINE
01+058.56	01+120.00	61.44 *	A-3: 100mm x 3.0m @ 4.50m GAP
00+870.00	00+945.24	75.24 *	A-4: 100mm x 3.0m @ 4.50m GAP
00+945.24	00+975.24	30.00	A-4: 100mm UNBROKEN LINE
01+024.92	01+054.92	30.00	A-4: 100mm UNBROKEN LINE
01+054.92	01+100.00	45.08 *	A-4: 100mm x 3.0m @ 4.50m GAP
00+900.00	00+942.37	42.37 *	A-5: 100mm x 3.0m @ 4.50m GAP
01+082.04	03+402.89	2320.85 *	A-5: 100mm x 3.0m @ 4.50m GAP
01+101.27	01+210.00	108.73 *	A-7: 100mm x 3.0m @ 4.50m GAP

2.0 EDGE LINES

2.1 LEFT SIDE, OUTER EDGE OF MAIN BYPASS

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+100.00	34+533.68	433.68 *	MAIN BYPASS
34+533.68	34+794.01	260.33	MAIN BYPASS
34+794.01	00+982.94	13.34	MAIN BYPASS TO RT OF A-2
00+977.51	00+989.75	12.24	LEFT OF A-2
34+808.74	34+905.06	96.32	MAIN BYPASS
34+965.67	35+112.61	1146.94	MAIN BYPASS
35+172.60	36+265.66	93.06	MAIN BYPASS
00+974.76	00+988.98	14.22	RIGHT OF A-3
00+900.00	00+979.60	79.60	LEFT OF A-3
00+979.80	36+283.00	19.19	LEFT OF A-3 TO MAIN BYPASS
36+283.00	37+212.66	929.66	MAIN BYPASS
37+212.66	00+974.63	17.07	MAIN BYPASS TO RT OF A-4
00+870.00	00+974.63	104.63	RIGHT OF A-4
00+870.00	00+977.92	107.92	LEFT OF A-4
00+977.92	37+245.14	22.70	LEFT OF A-4 TO MAIN BYPASS
37+245.14	38+074.25	829.11	MAIN BYPASS
38+074.25	01+044.83	34.39	MAIN BYPASS TO LT OF A-5
01+044.83	03+402.89	2358.06 *	LEFT OF A-5
01+034.13	03+402.89	2368.76 *	RIGHT OF A-5
01+034.13	38+139.79	41.80	RIGHT OF A-5 TO MAIN BYPASS
38+139.79	39+104.09	984.30	MAIN BYPASS
39+104.09	00+960.45	52.41	MAIN BYPASS TO RT OF A-7
00+850.00	00+960.45	110.45 *	RIGHT OF A-7
00+850.00	00+955.26	105.26 *	LEFT OF A-7
00+955.26	39+175.11	31.52	LEFT OF A-7 TO MAIN BYPASS
39+175.11	39+625.00	449.89	MAIN BYPASS

2.2 LEFT SIDE, INNER EDGE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+100.00	34+408.13	308.13 *	MAIN BYPASS
34+427.38	34+789.11	361.73	MAIN BYPASS
34+819.40	36+258.90	1439.50	MAIN BYPASS
36+284.45	37+218.83	934.38	MAIN BYPASS
37+248.71	38+099.21	850.50	MAIN BYPASS
38+132.67	38+708.34	575.67	MAIN BYPASS
38+712.17	39+113.94	401.77	MAIN BYPASS
39+153.77	39+625.00	471.23	MAIN BYPASS
00+016.21	00+078.48	62.27 *	INTERSECTION A-1
00+956.62	00+983.07	26.45 *	INTERSECTION A-5
01+016.93	01+040.39	23.46 *	INTERSECTION A-5
00+924.25	00+982.05	57.80 *	INTERSECTION A-7
01+017.95	01+062.24	44.29 *	INTERSECTION A-7

2.3 LEFT SIDE, RIGHT EDGE OF FRONTAGE ROAD

STATION FROM	STATION TO	LENGTH (m)	REMARKS
00+100.00	34+562.81	139.63	RT OF C-1L TO FRONTAGE ROAD
34+562.81	34+791.07	228.26	FRONTAGE ROAD
34+791.07	00+982.94	13.63	FRONTAGE ROAD TO RT OF A-2
00+977.51	34+827.57	19.89	LT OF A-2 TO FRONTAGE ROAD
34+827.57	34+905.06	77.49	FRONTAGE ROAD
34+965.67	35+112.61	1146.94	FRONTAGE ROAD
35+172.60	36+244.39	71.79	FRONTAGE ROAD
36+244.39	00+974.76	21.18	FRONTAGE ROAD TO RT OF A-3

2.4 LEFT SIDE, LEFT EDGE OF FRONTAGE ROAD

STATION FROM	STATION TO	LENGTH (m)	REMARKS
00+100.00	34+562.81	109.34	LT OF C-1L TO FRONTAGE ROAD
34+562.81	34+791.07	228.26	FRONTAGE ROAD
34+791.07	00+968.31	21.41	FRONTAGE ROAD TO RT OF A-2
00+910.00	00+968.31	58.31	RIGHT OF A-2
00+910.00	00+962.94	52.94	LEFT OF A-2
00+962.94	34+827.57	25.87	LT OF A-2 TO FRONTAGE ROAD
34+827.57	36+244.39	1416.82	FRONTAGE ROAD
36+244.39	00+960.82	26.01	FRONTAGE ROAD TO RT OF A-3
00+900.00	00+960.82	60.82	RIGHT OF A-3

2.5 RIGHT SIDE, OUTER EDGE OF MAIN BYPASS

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+100.00	34+385.18	285.18	MAIN BYPASS
34+385.18	00+037.75	39.35	MAIN BYPASS TO RT OF A-1
00+037.75	00+911.99	874.24 *	RIGHT OF A-1
34+397.03	34+410.23	13.20	MAIN BYPASS
34+419.63	34+452.07	32.44	MAIN BYPASS
34+512.29	34+687.64	175.35 *	MAIN BYPASS
34+748.00	34+799.78	51.78	MAIN BYPASS
01+010.25	01+022.49	12.24	RIGHT OF A-2
01+017.06	34+814.51	13.34	LT OF A-2 TO MAIN BYPASS
34+814.51	36+000.00	1185.49 *	MAIN BYPASS
36+000.00	36+112.61	112.61	MAIN BYPASS
36+172.57	36+271.45	98.88 *	MAIN BYPASS
01+009.23	01+017.36	8.13	RIGHT OF A-3
36+294.13	01+027.32	22.55 *	MAIN BYPASS TO LT OF A-3
01+027.32	01+120.00	92.68 *	LEFT OF A-3
36+294.13	37+221.90	927.77 *	MAIN BYPASS
37+221.90	01+022.14	22.89 *	MAIN BYPASS TO RT OF A-4
01+022.14	01+100.00	77.86 *	RIGHT OF A-4
37+255.03	01+025.57	17.21 *	MAIN BYPASS TO LT OF A-4
01+025.57	01+100.00	74.43 *	LEFT OF A-4
37+255.03	37+980.00	724.97 *	MAIN BYPASS
37+980.00	38+089.31	109.31	MAIN BYPASS
38+089.31	00+968.65	40.44	MAIN BYPASS TO LT OF A-5
00+900.00	00+968.65	68.65 *	LEFT OF A-5
38+127.91	38+140.81	12.90	MAIN BYPASS
00+900.00	00+957.20	57.20 *	RIGHT OF A-5
00+957.20	38+152.08	28.81	RT OF A-5 TO MAIN BYPASS
38+152.08	38+300.00	147.92	MAIN BYPASS
38+300.00	39+000.00	700.00 *	MAIN BYPASS
39+000.00	39+085.20	85.20	MAIN BYPASS
39+085.20	01+061.53	41.71	MAIN BYPASS TO RT OF A-7
01+061.53	01+210.00	148.47 *	RIGHT OF A-7
39+102.09	39+120.00	17.91	MAIN BYPASS
39+136.11	39+145.50	9.39	MAIN BYPASS
01+035.60	01+210.00	174.40 *	LEFT OF A-7
01+035.60	39+162.92	48.78	LT OF A-7 TO MAIN BYPASS
39+162.92	39+320.00	157.08	MAIN BYPASS
39+320.00	39+625.00	305.00 *	MAIN BYPASS

2.6 RIGHT SIDE, INNER EDGE OF MAIN BYPASS

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+100.00	34+408.13	308.13 *	MAIN BYPASS
34+427.38	34+789.11	361.73	MAIN BYPASS
34+819.40	35+000.00	180.60	MAIN BYPASS
35+100.00	36+100.00	1100.00 *	MAIN BYPASS
36+100.00	36+258.90	158.90	MAIN BYPASS
36+284.45	36+440.00	155.55	MAIN BYPASS
36+440.00	37+060.00	620.00 *	MAIN BYPASS
37+060.00	37+218.83	158.83	MAIN BYPASS
37+400.00	37+900.00	500.00 *	MAIN BYPASS
37+248.71	37+400.00	151.29	MAIN BYPASS
37+900.00	38+099.21	199.21	MAIN BYPASS
38+132.67	38+360.00	227.33	MAIN BYPASS
38+360.00	38+708.34	348.34 *	MAIN BYPASS
38+712.17	38+900.00	187.83 *	MAIN BYPASS
38+900.00	39+113.94	213.94	MAIN BYPASS
39+153.77	39+360.00	206.23	MAIN BYPASS
39+360.00	39+625.00	265.00 *	MAIN BYPASS
00+016.21	00+078.48	62.27 *	INTERSECTION A-1
00+956.62	00+983.07	26.45 *	INTERSECTION A-5
01+016.93	01+040.39	23.46 *	INTERSECTION A-5
00+924.25	00+982.05	57.80 *	INTERSECTION A-7
01+017.95	01+062.24	44.29 *	INTERSECTION A-7

2.7 RIGHT SIDE, LEFT EDGE OF FRONTAGE ROAD

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+512.29	34+687.64	175.35	FRONTAGE ROAD
34+748.00	34+780.94	32.94	FRONTAGE ROAD
34+780.94	01+022.49	21.34	FRONTAGE ROAD TO RT OF A-2
01+017.06	34+817.44	13.63	LT OF A-2 TO FRONTAGE ROAD
34+817.44	36+112.61	1295.17	FRONTAGE ROAD
36+172.57	36+259.12	86.55	FRONTAGE ROAD
36+259.12	01+017.36	15.49	FRONTAGE ROAD TO RT OF A-3

2.8 RIGHT SIDE, RIGHT EDGE OF FRONTAGE ROAD

STATION FROM	STATION TO	LENGTH (m)	REMARKS
00+048.13	00+140.00	91.87	LEFT OF A-1
00+048.13	34+452.60	46.53	LT OF A-1 TO FRONTAGE ROAD
00+140.00	00+911.99	771.99	LEFT OF A-1
34+452.60	34+780.94	328.34	FRONTAGE ROAD
34+780.94	01+037.06	25.78	FRONTAGE ROAD TO RT OF A-2
01+037.06	01+090.00	52.94 *	RIGHT OF A-2
01+031.69	01+090.00	58.31 *	LEFT OF A-2
01+031.69	34+817.44	21.41	LT OF A-2 TO FRONTAGE ROAD
34+817.44	36+259.12	1441.68	FRONTAGE ROAD
36+259.12	01+033.84	25.76	RT OF FRONTAGE ROAD TO RT OF A-3
01+033.84	01+120.00	86.16 *	RIGHT OF A-3

3.0 LANE LINES

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+100.00	34+407.49	307.49 *	(LS)LANE LINE 150mmx3.0m @ 4.50m GAP
34+100.00	34+377.49	277.49 *	(RS)LANE LINE 150mmx3.0m @ 4.50m GAP
34+377.49	34+407.49	30.00	(RS) INNER LANE LINE 150mm UNBROKEN
34+287.29	34+377.49	90.20	(RS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
34+377.49	34+397.03	19.54	(RS) OUTER LANE LINE 150mm UNBROKEN
34+428.68	34+458.68	30.00	(LS) OUTER LANE LINE 150mm UNBROKEN
34+458.68	34+787.84	329.16	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
34+428.68	34+458.68	30.00	(LS) INNER LANE LINE 150mm UNBROKEN
34+458.68	34+488.68	30.00	(LS)INNER LANE LINE 150mmx3.0m @ 4.50m GAP
34+428.68	34+747.84	319.16	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
34+747.84	34+787.84	40.00	(RS) 2- LANE LINE 150mm UNBROKEN
34+820.68	34+860.68	40.00	(LS) 2- LANE LINE 150mm UNBROKEN
34+860.68	35+020.68	160.00	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
35+020.68	36+056.11	1035.43 *	(LS) LANE LINE 150mmx3.0m @ 9.0m GAP
36+056.11	36+256.11	200.00	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
34+820.68	35+020.68	200.00	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
35+020.68	36+056.11	1035.43	(RS) LANE LINE 150mmx3.0m @ 9.0m GAP
36+056.11	36+216.11	160.00	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
36+216.11	36+256.11	40.00	(RS) 2- LANE LINE 150mm UNBROKEN
36+285.75	36+325.75	40.00	(LS) 2- LANE LINE 150mm UNBROKEN
36+325.75	37+212.22	886.47	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
36+285.75	37+172.22	886.47	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
37+172.22	37+212.22	40.00	(RS) 2- LANE LINE 150mm UNBROKEN
37+249.67	37+289.67	40.00	(LS) 2- LANE LINE 150mm UNBROKEN
37+289.67	38+096.53	806.86	(LS)INNER LANE LINE 150mmx3.0m @ 4.50m GAP
37+973.95	38+085.33	111.38	(LS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
37+249.67	38+056.53	806.86	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
38+056.53	38+096.53	40.00	(RS) 3- LANE LINE 150mm UNBROKEN
38+036.53	38+056.53	20.00	(RS)INNER LANE LINE 150mmx3.0m @ 4.50m GAP
38+036.53	38+056.53	20.00	(RS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
38+134.68	38+174.68	40.00	(LS) 3- LANE LINE 150mm UNBROKEN
38+174.68	39+111.97	937.29	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
38+174.68	38+194.81	20.13	(LS)INNER LANE LINE 150mmx3.0m @ 4.50m GAP
38+174.68	38+194.81	20.13	(LS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
39+003.98	39+111.97	107.99	(LS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
38+134.68	39+081.97	947.29	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
38+140.81	38+251.98	111.17	(RS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
39+051.97	39+081.97	30.00	(RS)INNER LANE LINE 150mmx3.0m @ 4.50m GAP
39+051.97	39+097.02	45.05	(RS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
39+081.97	39+111.97	30.00	(RS) 2- LANE LINE 150mm UNBROKEN
39+154.87	39+184.87	30.00	(LS) 2- LANE LINE 150mm UNBROKEN
39+154.87	39+354.87	200.00	(RS) LANE LINE 150mmx3.0m @ 4.50m GAP
39+154.87	39+263.08	108.21	(RS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
39+165.49	39+215.39	49.90	(LS)OUTER LANE LINE 150mmx3.0m @ 4.50m GAP
39+184.87	39+215.39	30.52	(LS)INNER LANE LINE 150mmx3.0m @ 4.50m GAP
39+184.87	39+354.87	170.00	(LS) LANE LINE 150mmx3.0m @ 4.50m GAP
39+354.87	39+625.00	270.13	(LS) LANE LINE 150mmx3.0m @ 9.0m GAP
39+354.87	39+625.00	270.13 *	(RS) LANE LINE 150mmx3.0m @ 9.0m GAP
00+034.64	00+078.12	43.48	(LS)LANE LINE 100mmx3.0m @ 4.50m GAP(A-1)
00+959.60	00+979.60	20.00	(RS) LANE LINE 100mm UNBROKEN (A-5)
01+020.29	01+040.29	20.00	(LS) LANE LINE 100mm UNBROKEN (A-5)
00+952.05	00+982.05	30.00	(RS) LANE LINE 100mm UNBROKEN (A-7)
01+017.95	01+047.95	30.00	(LS) LANE LINE 100mm UNBROKEN (A-7)

NOTE:

* - INITIAL STAGE PAVEMENT MARKINGS TO BE RETAIN

4.0 CONTINUITY LINE

STATION FROM	STATION TO	LENGTH (m)	REMARKS
34+227.29	34+287.29	60.00	(RS) 150mm x 1.0m @ 3.0m GAP
34+488.68	34+533.68	45.00	(LS) 150mm x 1.0m @ 3.0m GAP
34+702.84	34+747.84	45.00	(RS) 150mm x 1.0m @ 3.0m GAP
34+860.68	34+904.68	44.00	(LS) 150mm x 1.0m @ 3.0m GAP
36+172.57	36+216.11	43.54	(RS) 150mm x 1.0m @ 3.0m GAP
36+325.75	36+370.75	45.00	(LS) 150mm x 1.0m @ 3.0m GAP
37+127.22	37+172.22	45.00	(RS) 150mm x 1.0m @ 3.0m GAP
37+289.67	37+340.52	50.85	(LS) 150mm x 1.0m @ 3.0m GAP
37+929.11	37+973.95	44.84	(LS) 150mm x 1.0m @ 3.0m GAP
37+991.53	38+036.53	45.00	(RS) 2 - 150mm x 1.0m @ 3.0m GAP
38+194.81	38+240.00	45.19	(LS) 2 - 150mm x 1.0m @ 3.0m GAP
38+958.98	39+003.98	45.00	(LS) 150mm x 1.0m @ 3.0m GAP
38+251.98	38+296.92	44.94	(RS) 150mm x 1.0m @ 3.0m GAP
39+007.01	39+051.97	44.96	(RS) 2 - 150mm x 1.0m @ 3.0m GAP
39+215.39	39+260.39	45.00	(LS) 2 - 150mm x 1.0m @ 3.0m GAP

5.0 CHEVRON

STATION FROM	STATION TO	LENGTH (m)	REMARKS
00+078.13	00+140.00	61.87 *	CENTER OF A-1
34+452.60	34+481.88	29.28	RIGHT OF MAIN BYPASS
34+482.52	34+512.29	29.77	RIGHT OF MAIN BYPASS
34+687.64	34+717.50	29.86	RIGHT OF MAIN BYPASS
34+718.14	34+748.00	29.86	RIGHT OF MAIN BYPASS
34+905.06	34+966.90	61.84	LEFT OF MAIN BYPASS
34+944.34	34+966.90	22.56	LEFT OF MAIN BYPASS
35+112.61	35+131.84	19.23	RIGHT OF MAIN BYPASS
35+111.04	35+172.57	61.53	RIGHT OF MAIN BYPASS
35+112.61	35+131.84	19.23	LEFT OF MAIN BYPASS
35+111.04	35+172.57	61.53	LEFT OF MAIN BYPASS
00+942.37	00+956.62	14.25 *	CENTER OF A-5
01+040.39	01+082.04	41.65 *	CENTER OF A-5
00+870.36	00+924.25	53.89 *	CENTER OF A-7
01+062.24	01+101.27	39.03 *	CENTER OF A-7

6.0 ARROWS

ARROW TYPE	NUMBER OF ARROWS	LOCATION
A	4	APPROACHING INTERSECTION A-1
C	8	APPROACHING INTERSECTION A-1
A	2	APPROACHING INTERSECTION A-2
C	4	APPROACHING INTERSECTION A-2
A	2	APPROACHING INTERSECTION A-3
C	4	APPROACHING INTERSECTION A-3
A	2	APPROACHING INTERSECTION A-4
B	2	APPROACHING INTERSECTION A-4
C	2	APPROACHING INTERSECTION A-4
A	6	APPROACHING INTERSECTION A-5
B	2	APPROACHING INTERSECTION A-5
C	4	APPROACHING INTERSECTION A-5
A	6	APPROACHING INTERSECTION A-7
B	2	APPROACHING INTERSECTION A-7
C	4	APPROACHING INTERSECTION A-7

NOTE:

A - LEFT/RIGHT ARROW COMBINATION OF STRAIGHT AND LEFT ARROWS OR

B - STRAIGHT AND RIGHT ARROWS

C - STRAIGHT ARROW

7.0 PEDESTRIAN AND STOP LINES

LOCATION		AREA (m^2) PEDESTRIAN	AREA (m^2) STOP LINE	REMARKS
INT. A-1	MAIN BYPASS	11.64	7.58	SIGNALIZED
	A-1	12.44	1.02	
INT. A-2	MAIN BYPASS	38.52	8.91	UNSIGNALIZED
	A-2	70.12	1.84	
INT. A-3	MAIN BYPASS	38.80	8.91	UNSIGNALIZED
	A-3	53.32	1.81	
INT. A-4	MAIN BYPASS	35.30	9.09	UNSIGNALIZED
	A-4	32.40	1.81	
INT. A-5	MAIN BYPASS	12.98	9.14	SIGNALIZED
	A-5	26.40	4.16	
INT. A-7	MAIN BYPASS	13.44	8.91	SIGNALIZED
	A-7	31.61	4.76	

JICA

JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL

YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	V. TAPIA
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PUHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	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)

PLARIDEL BYPASS - CONTRACT PACKAGE I

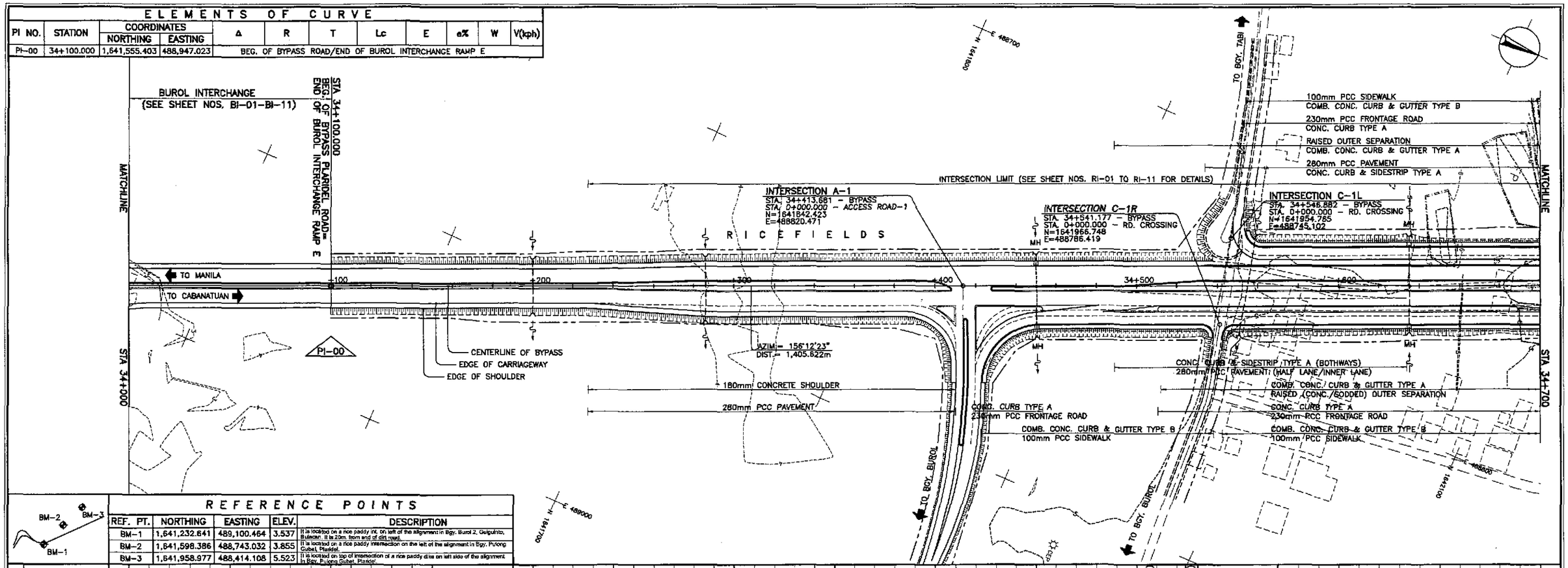
SCALE : FULL SIZE A1

SHEET CONTENTS : SCHEDULE OF PAVEMENT MARKINGS

SHEET NO. : RG-05

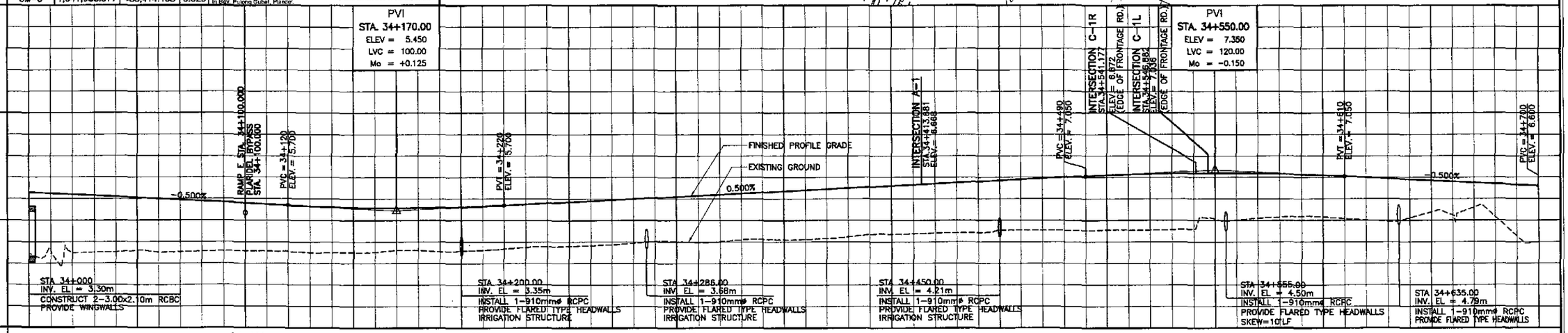
ELEMENTS OF CURVE

PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-00	34+100.000	1,641,555.403	488,947.023	BEG. OF BYPASS ROAD/END OF BUROL INTERCHANGE RAMP E							



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-1	1,641,232.641	489,100.464	3.537	It is located on a rice paddy int. on left of the alignment in Bgy. Burol 2, Guiguinto, Bulacan. It is 20m. from end of dirt road.
BM-2	1,641,598.386	488,743.032	3.855	It is located on a rice paddy intersection on the left of the alignment in Bgy. Putong Gubat, Plaridel.
BM-3	1,641,958.977	488,414.108	5.523	It is located on top of intersection of a rice paddy dike on left side of the alignment in Bgy. Putong Gubat, Plaridel.



STATION	34+100	+200	+300	+400	34+500	+600	+700
FINISHED PROFILE GRADE BYPASS CENTERLINE ROAD	6.300 6.200 6.100 6.000 5.900 5.800	5.700 5.820 5.580 5.580 5.620 5.700	5.800 5.900 6.000 6.100 6.200 6.300	6.400 6.500 6.800 6.700 6.800 6.900	7.000 7.098 7.162 7.196 7.196 7.162	7.098 7.000 6.900 6.800 6.700 6.600	
EXISTING GROUND BYPASS	3.455 3.481 3.529 3.512 3.562 3.569	3.554 3.501 3.525 3.610 3.576 3.674	3.779 3.828 3.941 4.022 4.014 4.117	4.115 4.236 4.352 4.492 4.430 4.537	4.528 4.950 4.543 4.588 5.014 5.152	5.153 5.015 5.114 5.244 5.169 3.987	
HORIZONTAL CURVATURE	BUROL INTERCHANGE (SHEET NOS. BI-09)			R=∞			
VERTICAL CURVATURE	BUROL INTERCHANGE	L=100 Mo=+0.125	g=-0.500%		L=120 Mo=-0.150	g=-0.500%	
SUPERELEVATION	BUROL INTERCHANGE			NC			

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	
CHECKED	9/21/02	
SUBMITTED	9/23/02	TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

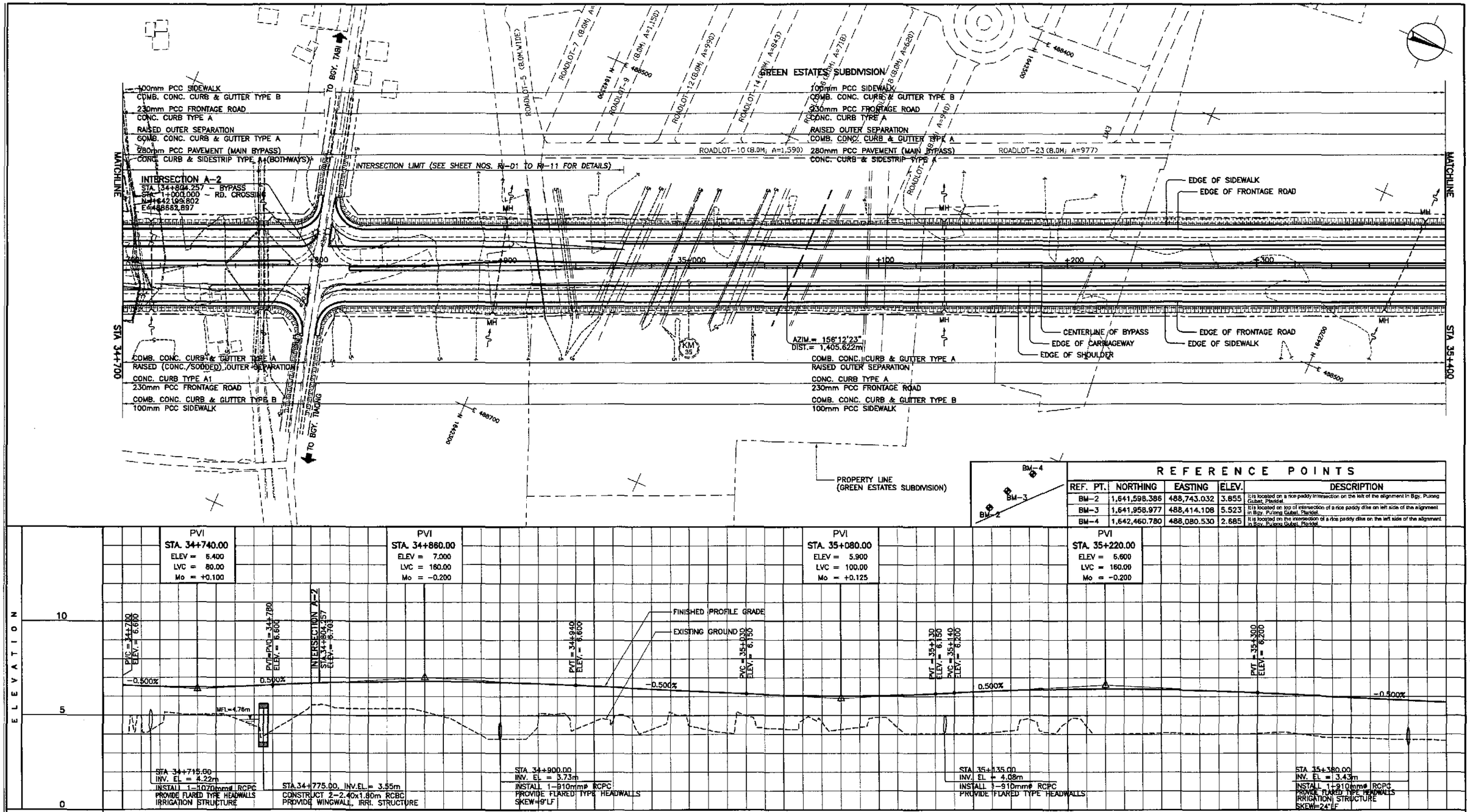
PUHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	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)
PLARIDEL BYPASS - CONTRACT PACKAGE I

SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (ULTIMATE STAGE)
STA.34+100 - STA. 34+700

SHEET NO. :
RP-01



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-2	1,641,598.386	488,743.032	3.855	It is located on a rice paddy intersection on the left of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-3	1,641,958.977	488,414.108	5.523	It is located on top of intersection of a rice paddy dike on left side of the alignment in Bgy. Pulong Gubat, Plaridel.
BM-4	1,642,460.780	488,080.530	2.685	It is located on the intersection of a rice paddy dike on the left side of the alignment in Bgy. Pulong Gubat, Plaridel.

STATION	+700					+800					+900					35+000		
FINISHED PROFILE GRADE BYPASS	6.600	6.525	6.500	6.525	6.600	6.687	6.750	6.787	6.800	6.787	6.750	6.687	6.600	6.500	6.400	6.300	6.200	6.105
EXISTING GROUND BYPASS	3.887	4.509	5.049	4.829	4.179	5.505	5.361	5.360	5.187	4.492	3.757	4.848	4.272	4.807	4.267	4.464	4.072	4.332

STATION			+100					+200					+300					+400
FINISHED PROFILE GRADE BYPASS	6.045	6.025	6.045	6.105	6.200	6.287	6.350	6.387	6.400	6.387	6.350	6.287	6.200	6.100	6.000	5.900	5.800	5.700
EXISTING GROUND BYPASS	4.773	4.251	4.904	4.039	4.035	4.092	4.789	4.594	3.999	4.038	4.057	4.024	4.045	4.040	3.849	3.785	3.725	3.668

HORIZONTAL CURVATURE: R=∞

VERTICAL CURVATURE: L=80 Mo=+0.100 g=0.500% L=160 Mo=-0.200 g=-0.500% L=100 Mo=+0.125 g=0.500% L=160 Mo=-0.200 g=-0.500%

SUPERELEVATION: NC

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL

YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	J. ACACIO
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	M. KIUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

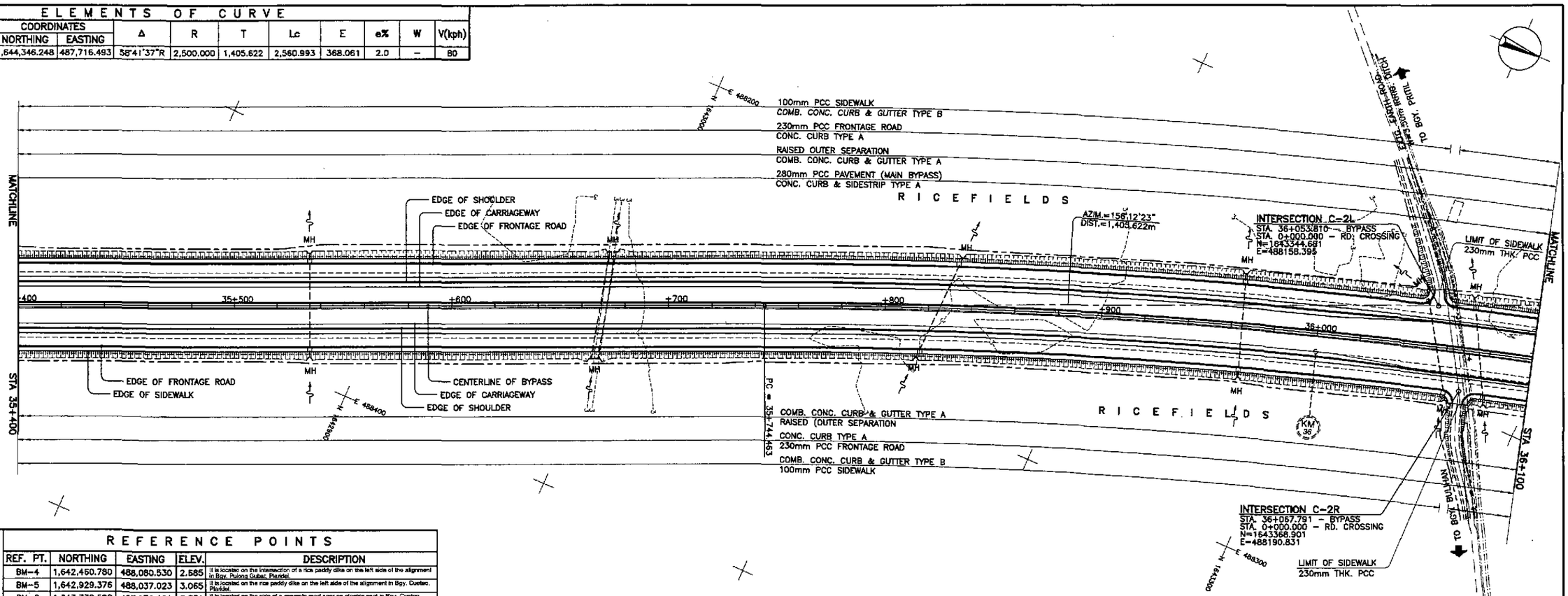
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (ULTIMATE STAGE)
STA.34+700 - STA. 35+400

SHEET NO. : RP-02

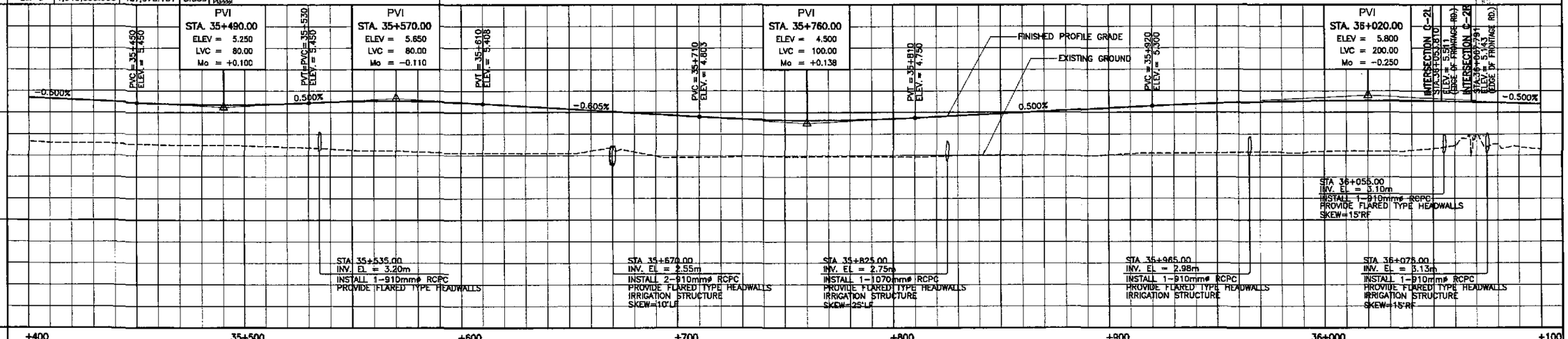
ELEMENTS OF CURVE

PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-01	37+150.085	1,644,346.248	487,716.493	58°41'37"R	2,500.000	1,405.622	2,560.993	368.061	2.0	–	80



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-4	1,642,460.780	488,080.530	2.585	It is located on the intersection of a rice paddy dike on the left side of the alignment in Bgy. Puiong Gubat, Plaridel.
BM-5	1,642,929.376	488,037.023	3.065	It is located on the rice paddy dike on the left side of the alignment in Bgy. Cuetac, Plaridel.
BM-6	1,643,338.598	487,976.161	3.339	It is located on the side of a concrete road near an electric post in Bgy. Cuetac, Plaridel.



STATION	+400				35+500				+600				+700				+800				+900				36+000				+100
FINISHED PROFILE GRADE BYPASS	5.700	5.600	5.500	5.410	5.360	5.360	5.410	5.493	5.538	5.527	5.462	5.347	5.226	5.105	4.984	4.883	4.748	4.671	4.638	4.650	4.706	4.800	4.900	5.000	5.100	5.200	5.300	5.390	5.460	5.510	5.540	5.550	5.540	5.510	5.460	5.390
EXISTING GROUND BYPASS	3.668	3.577	3.554	3.497	3.473	3.461	3.395	3.304	3.217	3.175	3.116	3.099	3.087	3.208	3.170	2.912	2.933	2.859	2.943	2.948	2.934	2.950	3.012	3.011	2.999	3.012	3.080	3.100	3.140	3.142	3.186	3.203	3.238	3.462	3.350	3.286
HORIZONTAL CURVATURE	R=∝																			R = 2500 35 + 744.463																
VERTICAL CURVATURE	g=-0.500% L=80 Mo=+0.100							g=0.500% L=80 Mo=-0.110						g=-0.605%							L=100 Mo=+0.138				g=0.500%									L=200 Mo=-0.250		
SUPERELEVATION	NC															S=0.005												e=+2.0%								
																35+697.796				35+753.796								e=-2.0%								

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ACACIO
CHECKED	9/24/02	S. ROSE
SUBMITTED	9/25/02	M. KIUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

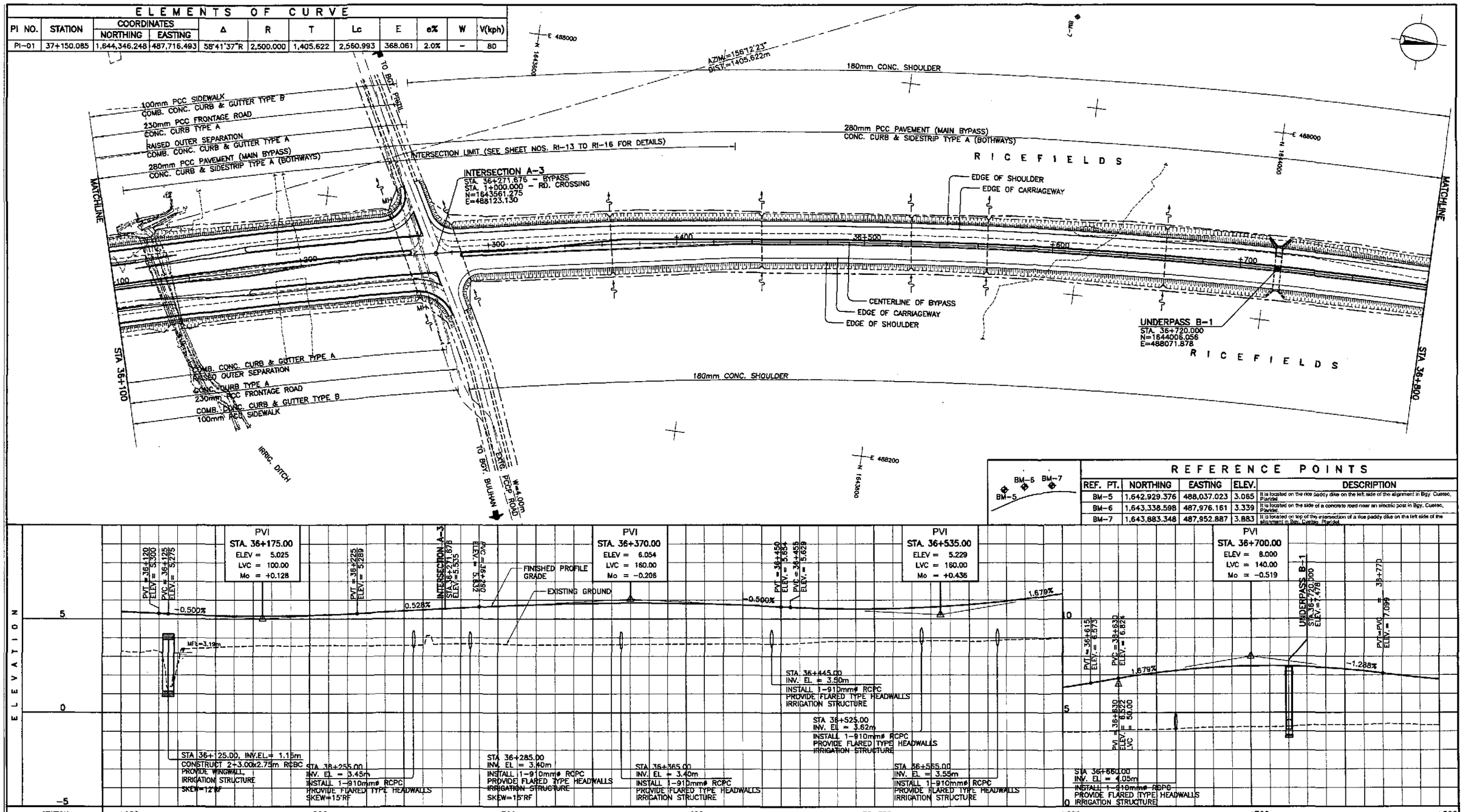
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (ULTIMATE STAGE)
STA. 35+400 - STA. 36+100

SHEET NO. :
RP-03

ELEMENTS OF CURVE

PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-01	37+150.085	1,644,346.248	487,716.493	58°41'37"R	2,500.000	1,405.622	2,560.993	368.061	2.0%	-	80



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-5	1,642,929.376	488,037.023	3.065	It is located on the rice paddy dike on the left side of the alignment in Bgy. Cuenco, Plaridel
BM-6	1,643,338.598	487,976.161	3.339	It is located on the side of a concrete road near an electric post in Bgy. Cuenco, Plaridel
BM-7	1,643,883.348	487,952.887	3.883	It is located on top of the intersection of a rice paddy dike on the left side of the alignment in Bgy. Cuenco, Plaridel

STATION	+100	+200	+300	+400	36+500	+600	+700	+800
FINISHED PROFILE GRADE BYPASS	5.390 5.300 5.212 5.163 5.155 5.189 5.284 5.368 5.474 5.579 5.681 5.761 5.815 5.844 5.847 5.824 5.775 5.701 5.606 5.547 5.542 5.592 5.696 5.855 6.068 6.336 6.656 6.982 7.233 7.399 7.481 7.478 7.380 7.217 6.978 6.772							
EXISTING GROUND BYPASS	3.286 3.279 3.429 3.529 3.582 3.583 3.580 3.563 3.602 3.663 3.662 3.604 3.617 3.633 3.643 3.650 3.558 3.571 3.708 3.796 3.804 3.806 3.828 3.832 3.916 3.954 3.998 4.087 4.132 4.213 4.238 4.266 4.342 4.366 4.395 4.340							
HORIZONTAL CURVATURE	R = 2500							
VERTICAL CURVATURE	g=-0.500% L=100 Mo=+0.128	g=0.528% L=160 Mo=-0.206	g=-0.500% L=160 Mo=+0.436	g=+1.679% L=140 Mo=-0.519	L=140 Mo=+0.327			
SUPERELEVATION	e=+2.0% e=-2.0%							

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ACACIO
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	M. KUSHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

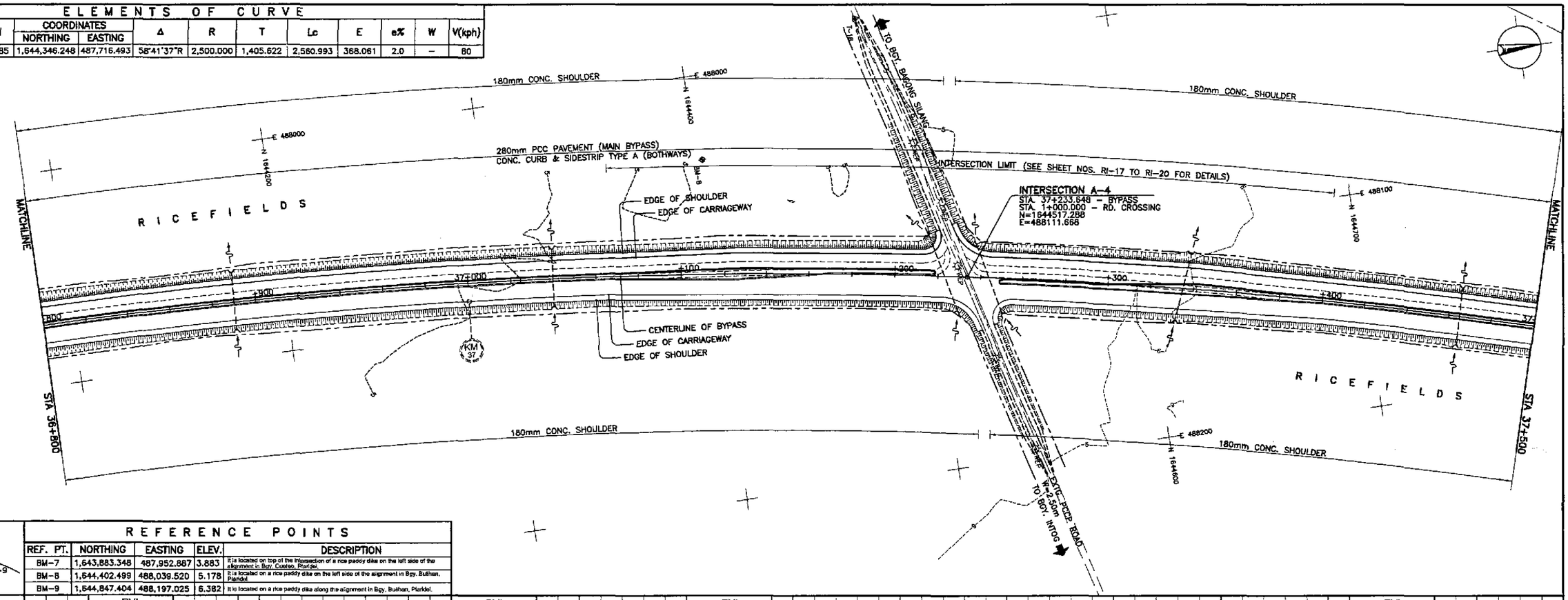
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

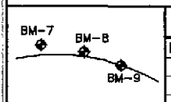
SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (ULTIMATE STAGE)
STA. 36+100 - STA. 36+800

SHEET NO. :
RP-04

ELEMENTS OF CURVE

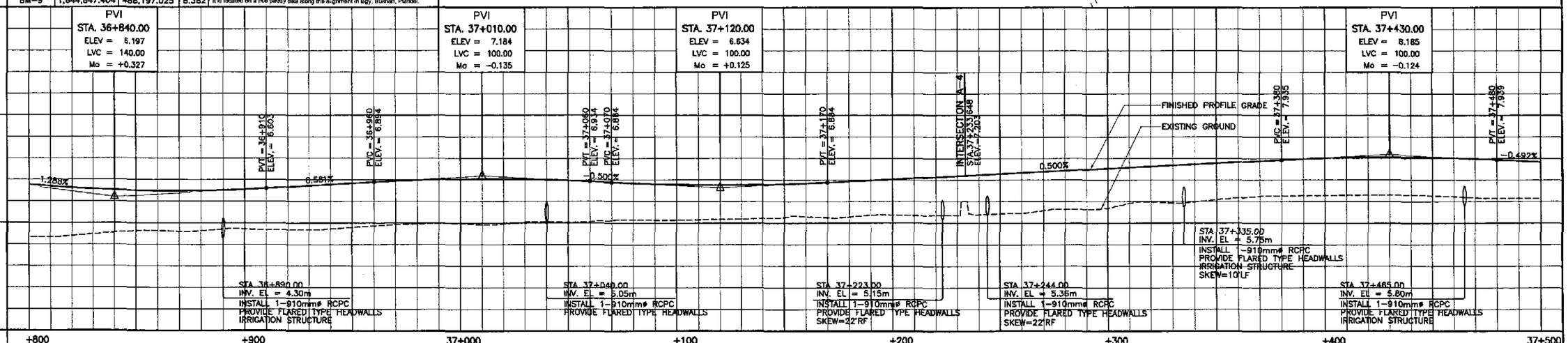
PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-01	37+150.085	1,644,346.248	487,716.493	58°41'37"R	2,500.000	1,405.622	2,560.993	368.061	2.0	–	80





REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-7	1,643,883.348	487,952.887	3.883	It is located on top of the intersection of a rice paddy dike on the left side of the alignment in Bgy. Cuatso, Plaridel.
BM-8	1,644,402.499	488,039.520	5.178	It is located on a rice paddy dike on the left side of the alignment in Bgy. Buhlan, Plaridel.
BM-9	1,644,847.404	488,197.025	6.382	It is located on a rice paddy dike along the alignment in Bgy. Buhlan, Plaridel.



STATION	+800	+900	37+000	+100	+200	+300	+400	37+500
FINISHED PROFILE GRADE BYPASS	6.772 6.621 6.524 6.480 6.489 6.552 6.662 6.778 6.894 6.988 7.040 7.048 7.012 6.934 6.839 6.779 6.759 6.779 6.839 6.934 7.034 7.134 7.234 7.335 7.435 7.535 7.635 7.735 7.835 7.935 8.015 8.056 8.057 8.018 7.939 7.841							
EXISTING GROUND BYPASS	4.340 4.394 4.554 4.829 4.830 4.716 4.671 4.718 4.858 4.956 4.985 4.983 5.058 5.068 5.141 5.133 5.164 5.219 5.299 5.283 5.378 5.356 5.391 5.457 5.833 5.887 5.973 5.983 6.168 6.273 6.275 6.290 6.294 6.226 6.150 6.141							
HORIZONTAL CURVATURE	R = 2500							
VERTICAL CURVATURE	L=140 Mo=+0.327	g=0.581%	L=100 Mo=-0.135	g=-0.500%	L=100 Mo=+0.125	g=0.500%	L=100 Mo=-0.124	g=-0.492%
SUPERELEVATION	e=+2.0%							
	e=-2.0%							

JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ACACIO
CHECKED	9/21/02	S. JOSE
SUBMITTED	9/23/02	M. KIUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	DIC, Director IV	Undersecretary	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)
PLARIDEL BYPASS - CONTRACT PACKAGE I

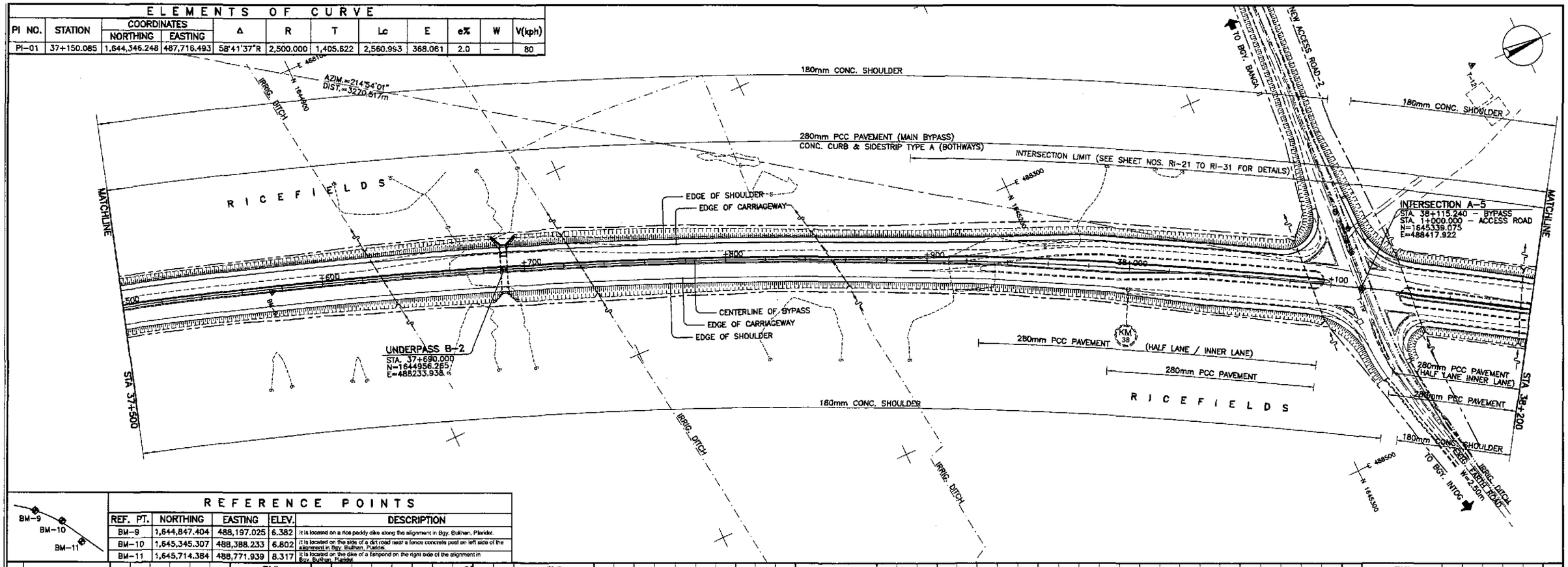
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (ULTIMATE STAGE)
STA. 36+800 - STA. 37+500

SHEET NO. :
RP-05

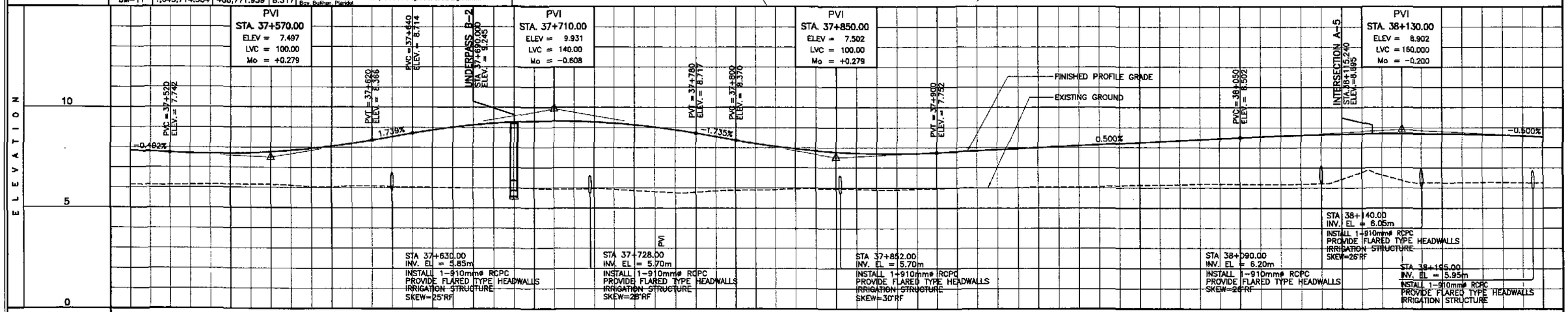
ELEMENTS OF CURVE

PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-01	37+150.085	1,644,346.248	487,716.493	58°41'37"R	2,500.000	1,405.622	2,560.993	368.061	2.0	–	80



REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-9	1,644,847.404	488,197.025	6.382	It is located on a rice paddy dike along the alignment in Bgy. Bulihan, Plaridel.
BM-10	1,645,345.307	488,388.233	6.802	It is located on the side of a dirt road near a fence concrete post on left side of the alignment in Bgy. Bulihan, Plaridel.
BM-11	1,645,714.384	488,771.939	8.317	It is located on the dike of a fishpond on the right side of the alignment in Bgy. Bulihan, Plaridel.



STATION	37+500			+600							+700					+800					+900					38+000					+100					+200
FINISHED PROFILE GRADE BYPASS	7.841	7.742	7.689	7.724	7.849	8.063	8.366	8.714	9.012	9.211	9.311	9.311	9.212	9.014	8.717	8.370	8.067	7.854	7.731	7.697	7.752	7.852	7.952	8.052	8.152	8.252	8.352	8.452	8.549	8.624	8.674	8.699	8.699	8.674	8.624	8.549
EXISTING GROUND BYPASS	6.141	6.126	6.143	6.147	6.103	6.042	6.075	6.031	6.004	5.990	5.971	5.941	5.929	5.808	5.780	5.876	5.917	5.967	5.934	5.911	5.962	6.007	6.013	6.037	6.055	6.119	6.156	6.184	6.170	6.189	6.440	6.841	6.258	6.257	6.264	6.256
HORIZONTAL CURVATURE	R = 2500																																			
VERTICAL CURVATURE	g=−0.492%		L=100 Mo=+0.279		g=1.739%				L=140 Mo=−0.608			g=−1.735%			L=100 Mo=+0.279		g=0.500%															L=160 Mo=−0.200			
SUPERELEVATION	e=±2.0%																																			
	e=−2.0%																																			

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

	DATE	SIGNATURE
DESIGNED	9/19/02	ACACIO
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	M. KUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PUHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (ULTIMATE STAGE)
STA. 37+500 - STA. 38+200

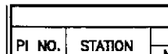
SHEET NO. :
RP-06

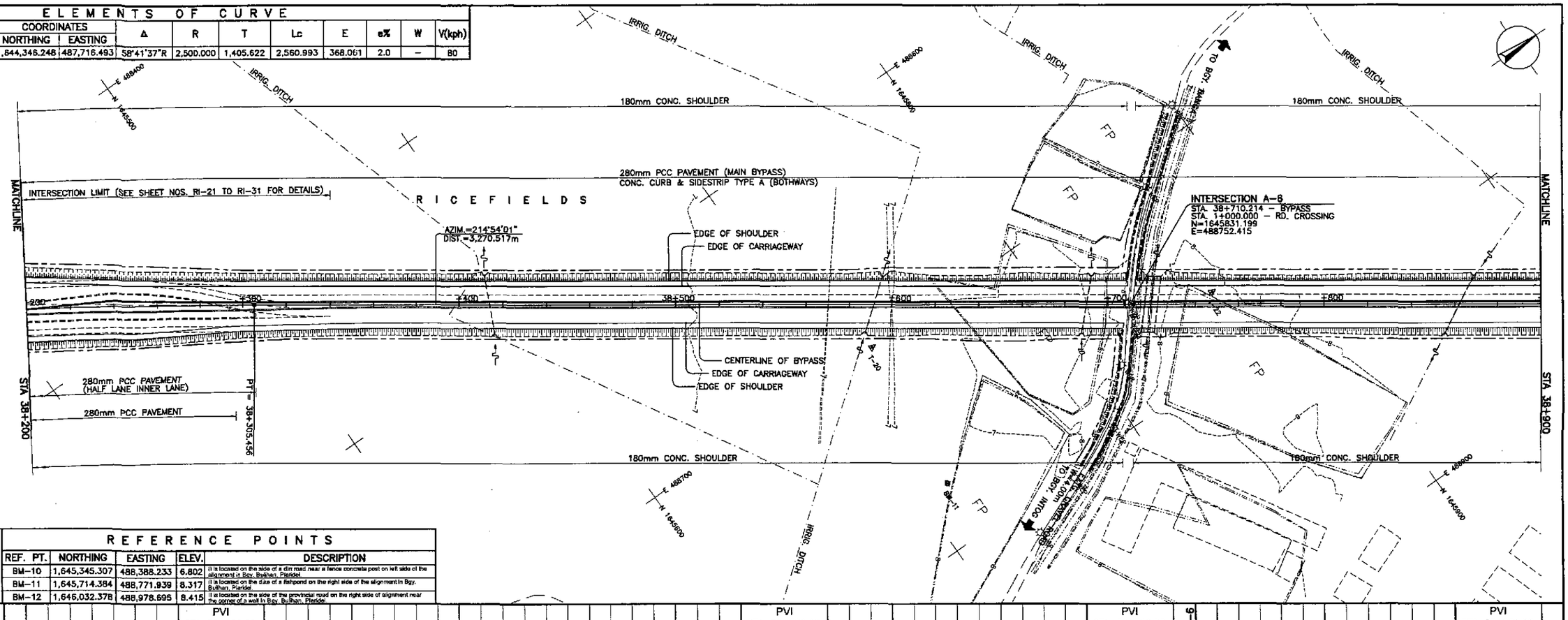
ELEMENTS OF CURVE

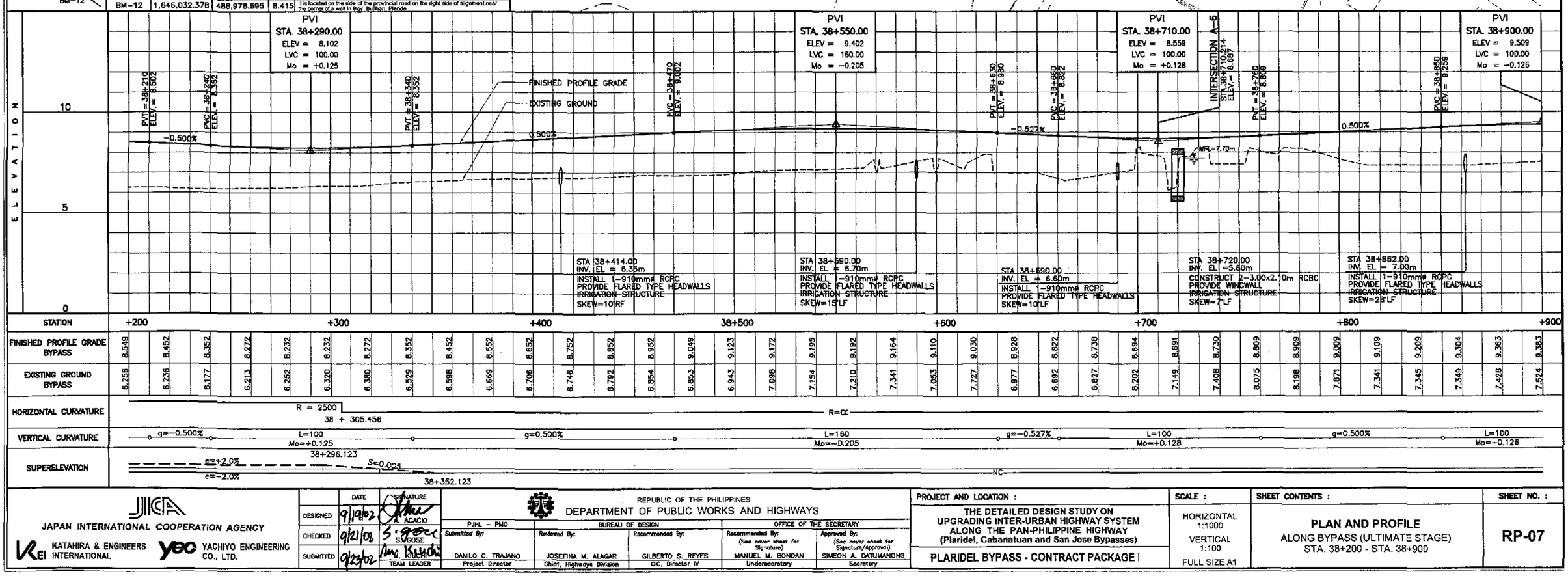
PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-01	37+150.085	1,644,348.248	487,716.493	58°41'37"R	2,500.000	1,405.622	2,560.993	368.061	2.0	–	80

REFERENCE POINTS

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-10	1,645,345.307	488,388.233	6.802	It is located on the side of a dirt road near a fence concrete post on left side of the alignment in Bgy. Bulihan, Plaridel
BM-11	1,645,714.384	488,771.939	8.317	It is located on the side of a flatpond on the right side of the alignment in Bgy. Bulihan, Plaridel
BM-12	1,646,032.378	488,978.695	8.415	It is located on the side of the provincial road on the right side of alignment near the corner of a wall in Bgy. Bulihan, Plaridel







STATION	+200	+300	+400	38+500	+600	+700	+800	+900
FINISHED PROFILE GRADE BYPASS	8.549 8.452 8.352 8.272 9.232 8.232 8.272 8.352 8.452 8.552 8.652 8.752 8.852 8.952 9.049 9.123 9.172 9.195 9.192 9.164 9.110 9.030 8.928 8.822 8.738 8.694 8.691 8.730 8.809 8.909 9.009 9.109 9.209 9.304 9.363 9.383							
EXISTING GROUND BYPASS	6.256 6.236 6.177 6.213 6.252 6.320 6.380 6.529 6.598 6.669 6.706 6.746 6.792 6.854 6.853 6.943 7.088 7.154 7.210 7.341 7.053 7.727 6.977 6.892 6.827 8.202 7.149 7.408 8.075 8.198 7.671 7.341 7.345 7.349 7.428 7.524							
HORIZONTAL CURVATURE	R = 2500			38 + 305.456	R=∞			
VERTICAL CURVATURE	g=−0.500%	L=100 Mo=+0.125	g=0.500%		L=160 Mo=−0.205	g=−0.527%	L=100 Mo=+0.128	g=0.500% L=100 Mo=−0.126
SUPERELEVATION	e=+2.0%	38+296.123 S=0.005				NC		
	e=−2.0%			38+352.123				

JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ACACIO
CHECKED	9/21/02	S.GOSE
SUBMITTED	9/23/02	M. TOCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

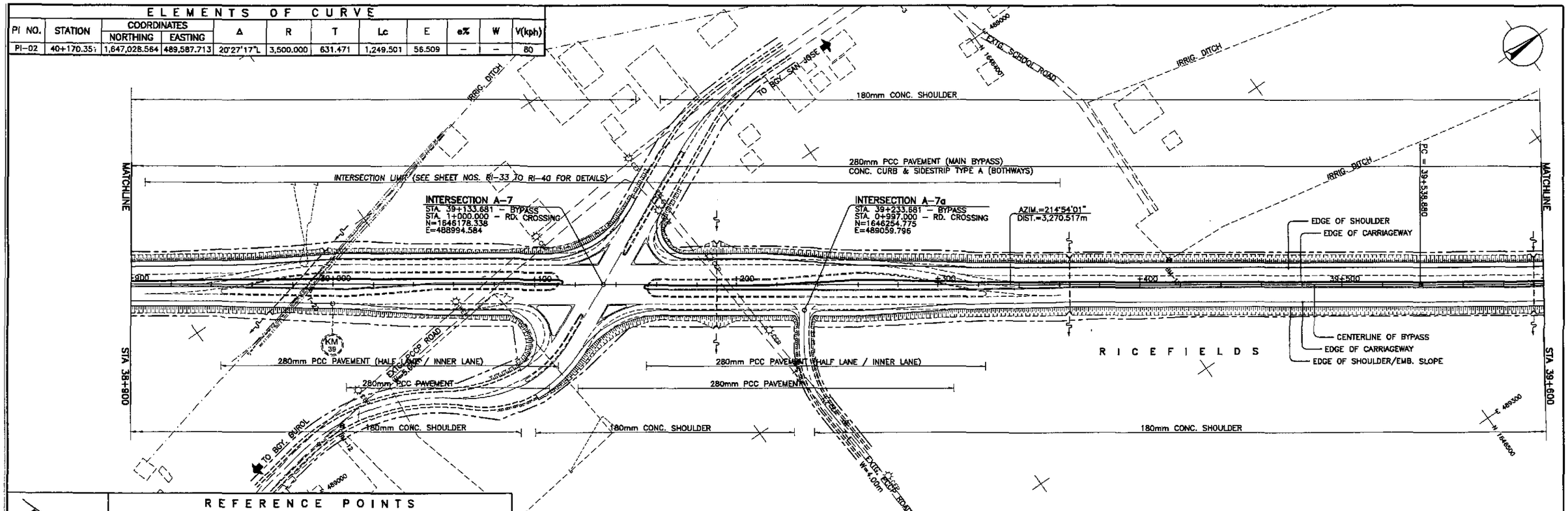
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (ULTIMATE STAGE)
STA. 38+200 - STA. 38+900

SHEET NO. :
RP-07

ELEMENTS OF CURVE

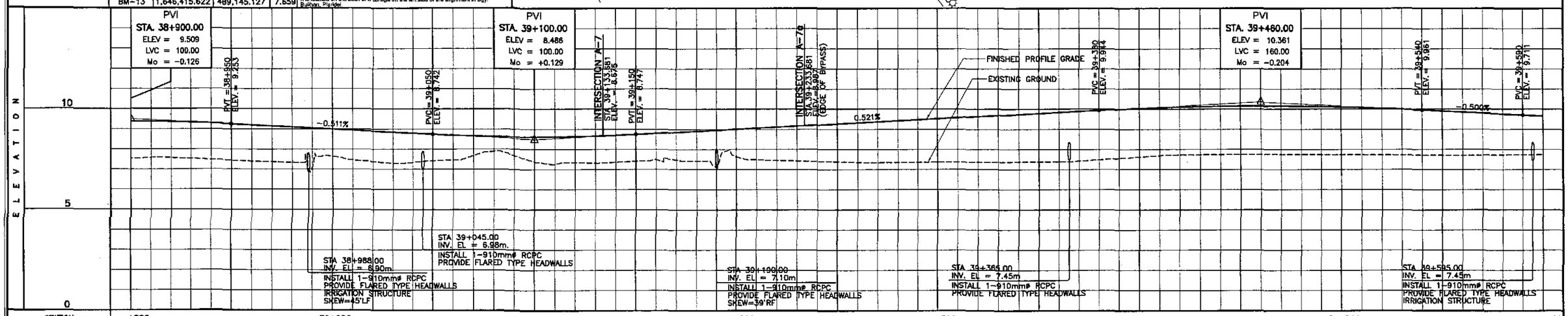
PI NO.	STATION	COORDINATES NORTHING	COORDINATES EASTING	Δ	R	T	Lc	E	e%	W	V(kph)
PI-02	40+170.351	1,647,028.564	489,587.713	20°27'17"L	3,500.000	631.471	1,249.501	56.509	–	–	80



REFERENCE POINTS

BM-11 BM-12 BM-13

REF. PT.	NORTHING	EASTING	ELEV.	DESCRIPTION
BM-11	1,645,714.384	488,771.939	8.317	It is located on the dike of a fishpond on the right side of the alignment in Bgy. Bulihan, Plaridel.
BM-12	1,646,032.378	488,978.695	8.415	It is located on the side of the provl road on the right side of alignment near the corner of a wall in Bgy. Bulihan, Plaridel.
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 Bgy. Bulihan, Plaridel.



STATION	+900	39+000	+100	+200	+300	+400	39+500	+600
FINISHED PROFILE GRADE BYPASS	9.383 9.361 9.299 9.202 9.100 8.988 8.895 8.793 8.698 8.635 8.615 8.637 8.700 8.799 8.903 9.007 9.111 9.215 9.319 9.424 9.528 9.632 9.736 9.840 9.944 10.038 10.102 10.142 10.157 10.148 10.110 10.048 9.961 9.861 9.761 9.668							
EXISTING GROUND BYPASS	7.524 7.563 7.479 7.395 7.337 7.640 7.376 7.335 7.450 7.896 7.375 7.330 7.356 7.483 7.413 7.641 7.445 7.397 7.349 7.347 7.355 7.363 7.371 7.379 7.491 7.827 7.725 7.741 7.757 7.753 7.745 7.736 7.724 7.712 7.726 7.748							
HORIZONTAL CURVATURE	R=∝						39 + 538.880 R = 3500	
VERTICAL CURVATURE	L=100 Mo=−0.126	q=−0.511%	L=100 Mo=+0.129	q=0.521%		L=160 Mo=−0.204	q=−0.500%	
SUPERELEVATION	NC							

JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/19/02	R. ACACIO
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	M. KIUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALADAR Chief, Highways Division	GILBERTO S. REYES DIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

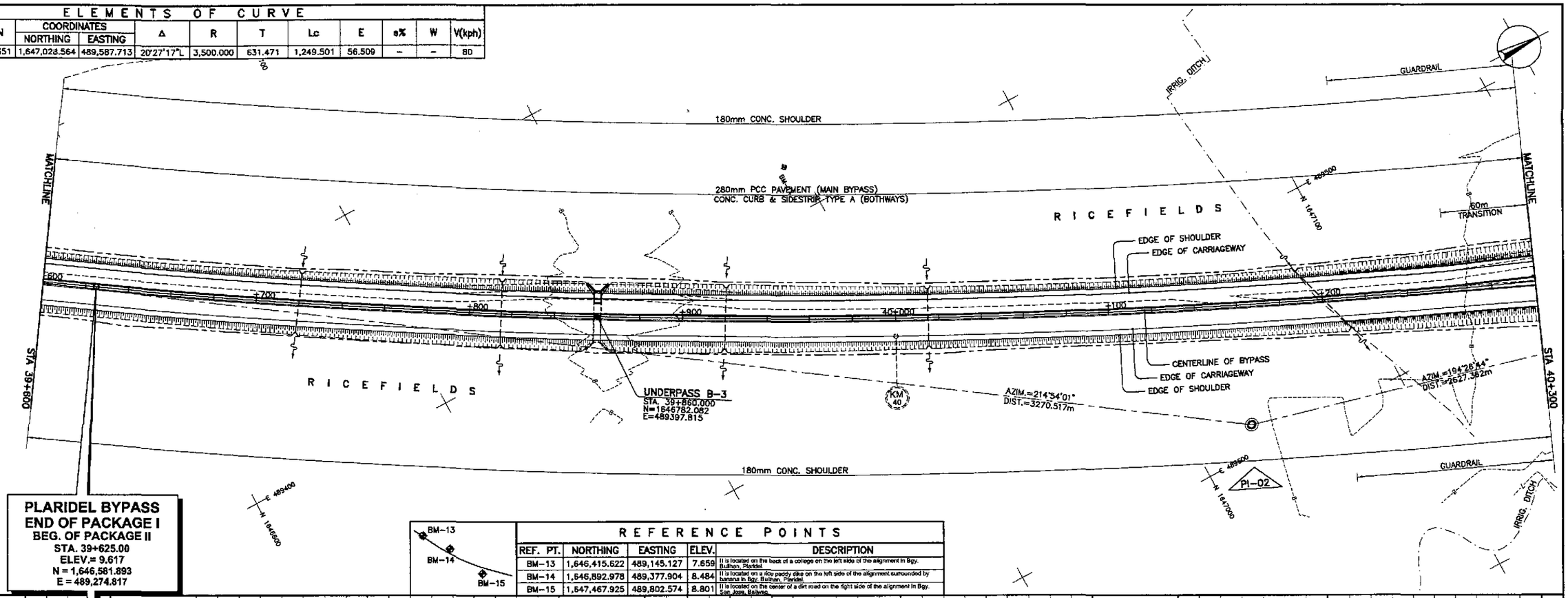
SCALE :
HORIZONTAL 1:1000
VERTICAL 1:100
FULL SIZE A1

SHEET CONTENTS :
PLAN AND PROFILE
ALONG BYPASS (ULTIMATE STAGE)
STA. 38+900 - STA. 39+600

SHEET NO. :
RP-08

ELEMENTS OF CURVE

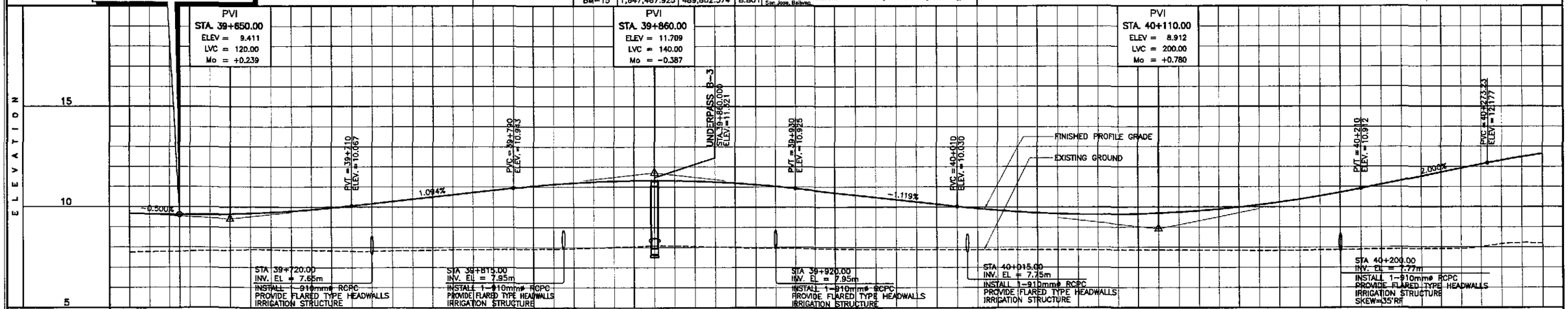
PI NO.	STATION	COORDINATES		Δ	R	T	Lc	E	e%	W	V(kph)
		NORTHING	EASTING								
PI-02	40+170.351	1,647,028.564	489,587.713	20°27'17"L	3,500.000	631.471	1,249.501	56.509	–	–	80



PLARIDEL BYPASS
END OF PACKAGE I
BEG. OF PACKAGE II
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 Bgy. Bulihan, Plaridel.
BM-14	1,646,892.978	489,377.904	8.484	It is located on a rice paddy dike on the left side of the alignment surrounded by banana in Bgy. Bulihan, Plaridel.
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 Bgy. San Jose, Baliwag.



STA 39+720.00
INV. EL = 7.65m
INSTALL 1-910mmø RCPC
PROVIDE FLARED TYPE HEADWALLS
IRRIGATION STRUCTURE

STA 39+815.00
INV. EL = 7.95m
INSTALL 1-910mmø RCPC
PROVIDE FLARED TYPE HEADWALLS
IRRIGATION STRUCTURE

STA 39+920.00
INV. EL = 7.95m
INSTALL 1-910mmø RCPC
PROVIDE FLARED TYPE HEADWALLS
IRRIGATION STRUCTURE

STA 40+015.00
INV. EL = 7.75m
INSTALL 1-910mmø RCPC
PROVIDE FLARED TYPE HEADWALLS
IRRIGATION STRUCTURE

STA 40+200.00
INV. EL = 7.77m
INSTALL 1-910mmø RCPC
PROVIDE FLARED TYPE HEADWALLS
IRRIGATION STRUCTURE
SKEW=35°RF

STATION: +600, +700, +800, +900, 40+000, +100, +200, +300

FINISHED PROFILE GRADE BYPASS	EXISTING GROUND BYPASS
9.668	7.746
9.621	7.775
9.617	7.788
9.627	7.823
9.686	7.871
9.799	7.854
9.965	7.822
10.177	7.810
10.396	7.842
10.615	7.874
10.833	7.893
11.044	7.909
11.200	7.942
11.292	8.010
11.321	8.077
11.287	8.047
11.190	7.995
11.029	7.953
10.814	7.928
10.590	7.905
10.366	7.894
10.142	7.885
9.926	7.880
9.765	7.880
9.666	7.880
9.629	7.873
9.655	7.865
9.743	7.855
9.894	7.839
10.107	7.823
10.382	7.843
10.720	7.871
11.112	7.895
11.513	7.911
11.913	7.927
12.308	8.159
12.641	8.195

HORIZONTAL CURVATURE: R = 3500

VERTICAL CURVATURE: L=120 Mo=+0.239 — g=1.094% — L=140 Mo=-0.387 — g=-1.119% — L=200 Mo=+0.780 — g=2.000%

SUPERELEVATION: NC

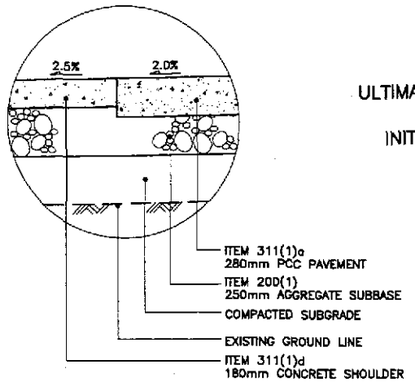
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ACACIO
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	M. Kiuchi M. KIUCHI TEAM LEADER

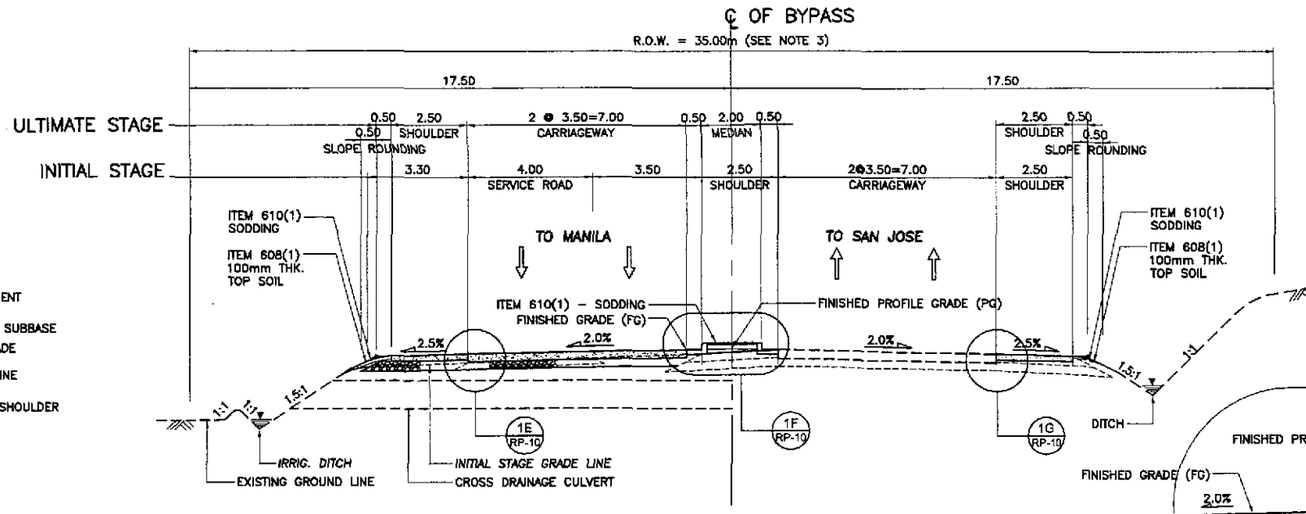
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary

PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE I	HORIZONTAL 1:1000 VERTICAL 1:100 FULL SIZE A1	**PLAN AND PROFILE** ALONG BYPASS (ULTIMATE STAGE) STA. 39+600 - STA. 39+625	**RP-09**



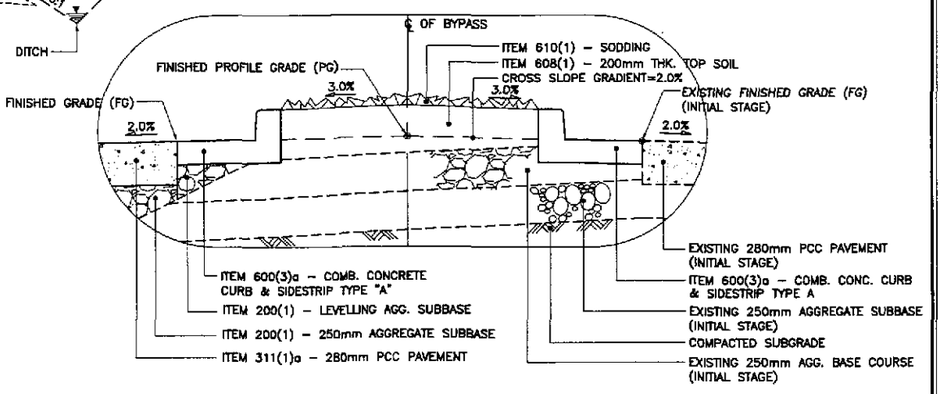
1E RP-10 DETAIL
SCALE 1:20



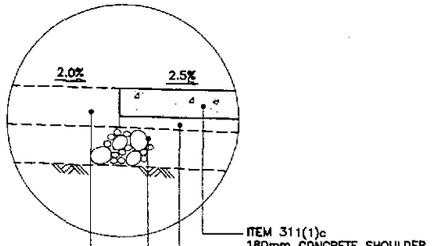
1B RP-10 NORMAL SECTION - ULTIMATE STAGE
SCALE 1:100

NOTES:

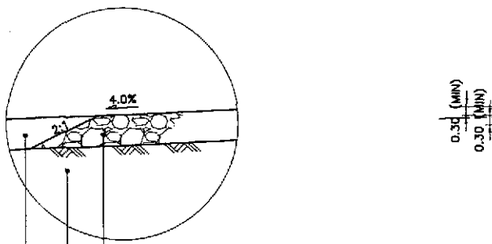
1. FINISHED PROFILE GRADE (PG) ALONG BYPASS IS TAKEN FROM THE CENTERLINE WHEREAS FINISHED GRADE (FG) IS RECKONED FROM THE PROFILE GRADE RELATIVE TO THE PAVEMENT CROSS SLOPE.
2. FOR SCHEDULE OF QUANTITIES, SEE SHEET NOS. RG-04 TO RG-07.
3. ROAD RIGHT-OF-WAY (R.O.W.) WIDTH SHALL BE VARIED DUE TO HORIZONTAL TRANSITION OF SERVICE ROAD, MEDIAN\DIVISIONAL ISLANDS, OUTER SEPERATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. R6-06-R6-07.
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.



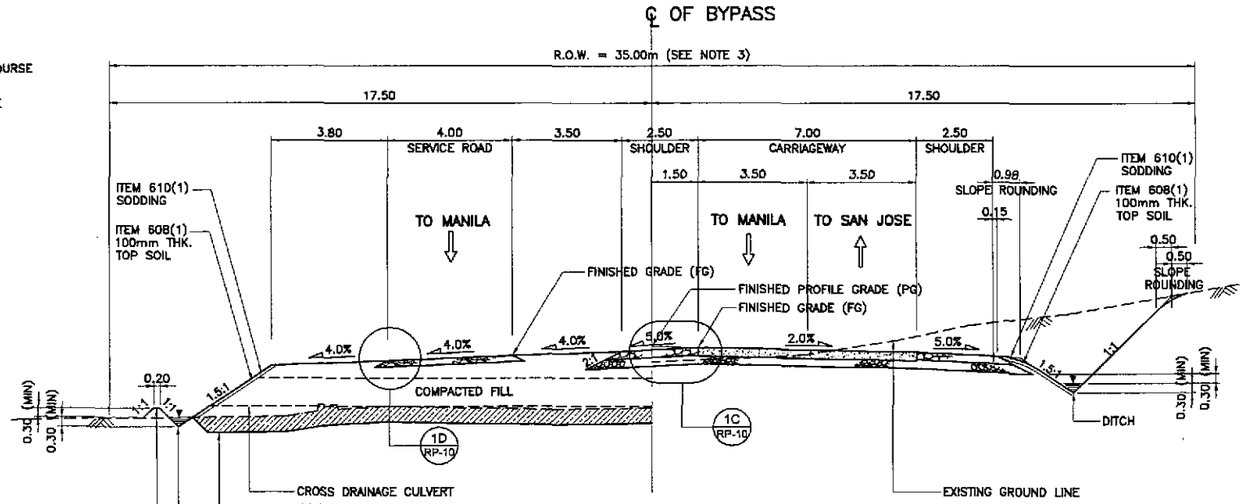
1F RP-10 DETAIL
SCALE 1:20



1G RP-10 DETAIL
SCALE 1:20

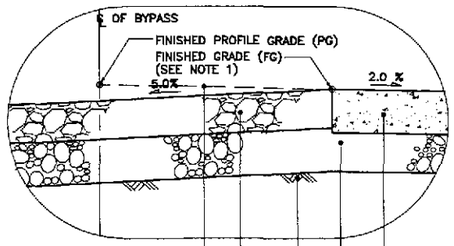


1D RP-10 DETAIL
SCALE 1:20



EMBANKMENT SECTION

CUT SECTION



1C RP-10 DETAIL
SCALE 1:20

1A RP-10 NORMAL SECTION - INITIAL STAGE
SCALE 1:100

1 RP-10 TYPICAL ROADWAY SECTIONS - WITHOUT FRONTAGE ROAD
SCALE 1:100

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/10/02	A. ACACIO
CHECKED	9/21/02	S. GOSE
SUBMITTED	9/23/02	M. KIUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

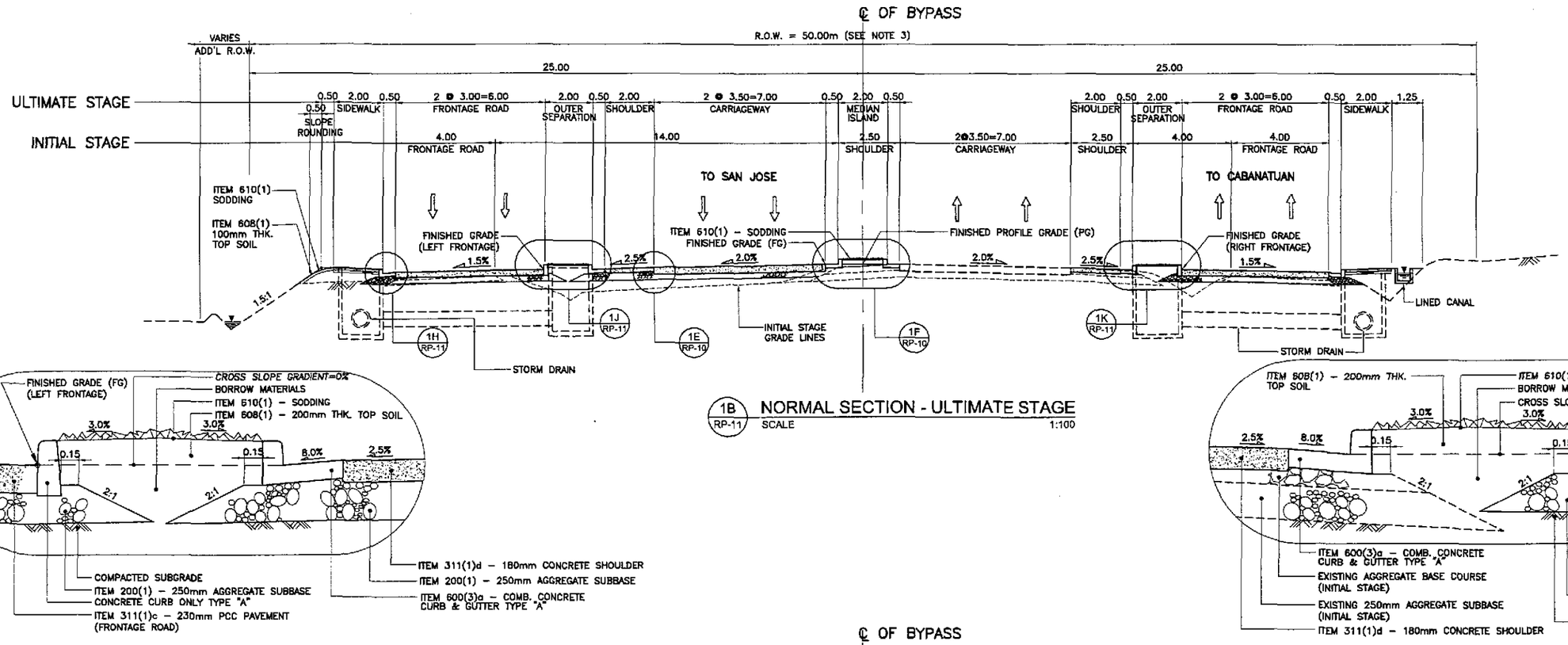
PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

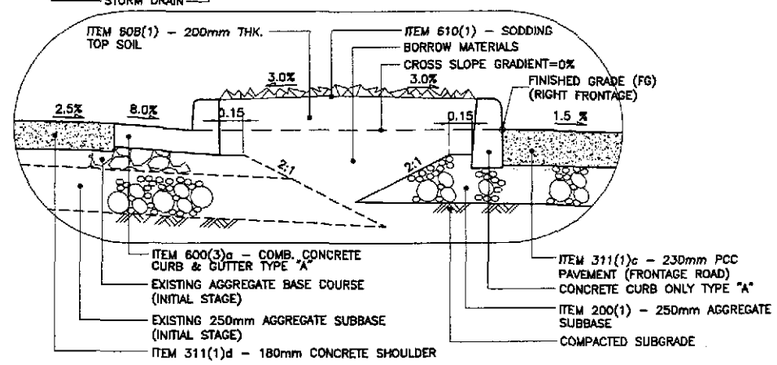
SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
TYPICAL ROADWAY SECTIONS
NORMAL SECTIONS
WITHOUT FRONTAGE ROAD
(INITIAL AND ULTIMATE STAGE)
(1 of 4)

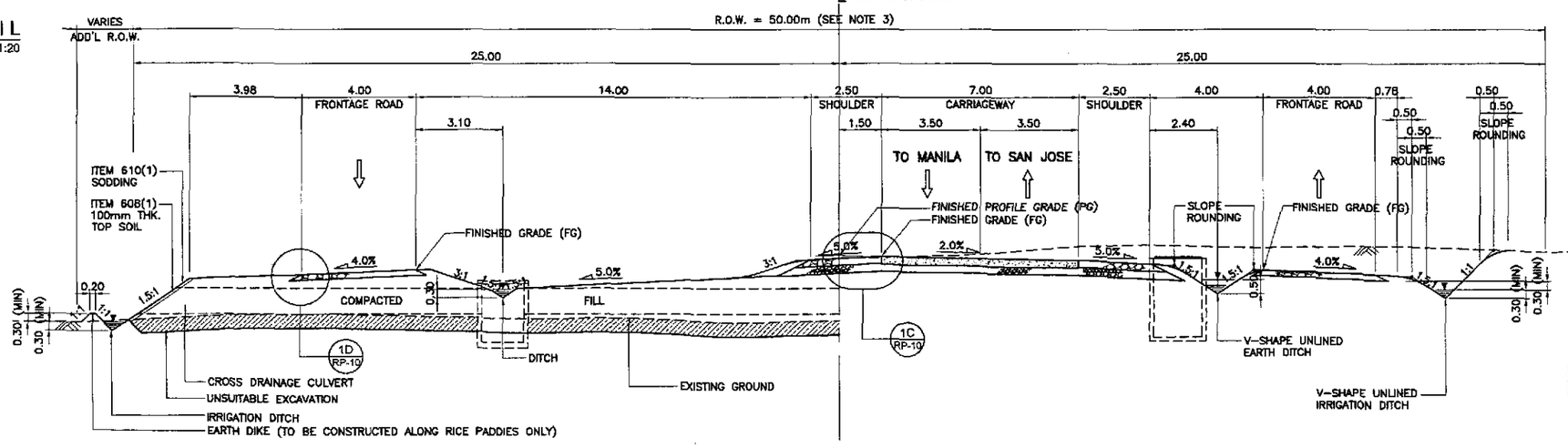
SHEET NO. : RP-10



1B RP-11 NORMAL SECTION - ULTIMATE STAGE
SCALE 1:100



1J RP-11 DETAIL
SCALE 1:20



1K RP-11 DETAIL
SCALE 1:20

NOTES:

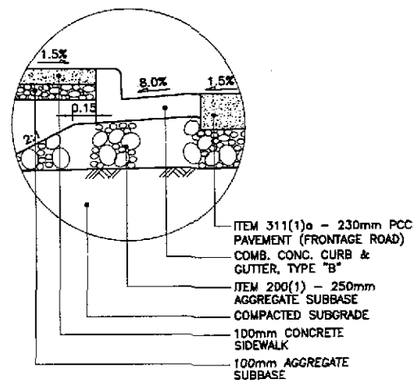
1. FINISHED PROFILE GRADE (PG) ALONG BYPASS IS TAKEN FROM THE CENTERLINE WHEREAS FINISHED GRADE (FG) IS RECKONED FROM THE PROFILE GRADE RELATIVE TO THE PAVEMENT CROSS SLOPE.
2. FOR SCHEDULE OF QUANTITIES, SEE SHEET NOS. RG-04 TO RG-07.
3. ROAD RIGHT-OF-WAY (R.O.W.) WIDTH SHALL BE VARIED DUE TO HORIZONTAL TRANSITION OF SERVICE ROAD, MEDIAN\DIMISIONAL ISLANDS, OUTER SEPERATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. R6-05-R6-07.
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.

EMBANKMENT SECTION

CUT SECTION

1A RP-11 NORMAL SECTION - INITIAL STAGE
SCALE 1:100

1 RP-11 TYPICAL ROADWAY SECTIONS - WITH FRONTAGE ROAD
SCALE 1:100



1H RP-11 DETAIL
SCALE 1:20

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/9/02	A. PALACIO
CHECKED	9/12/02	S. GROSE
SUBMITTED	9/13/02	M. MUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

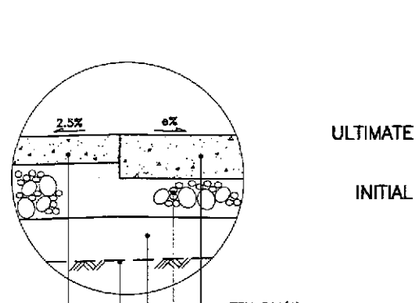
PJHL – PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONOAN Undersecretary	SIMEON A. DATUMANONG Secretary

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

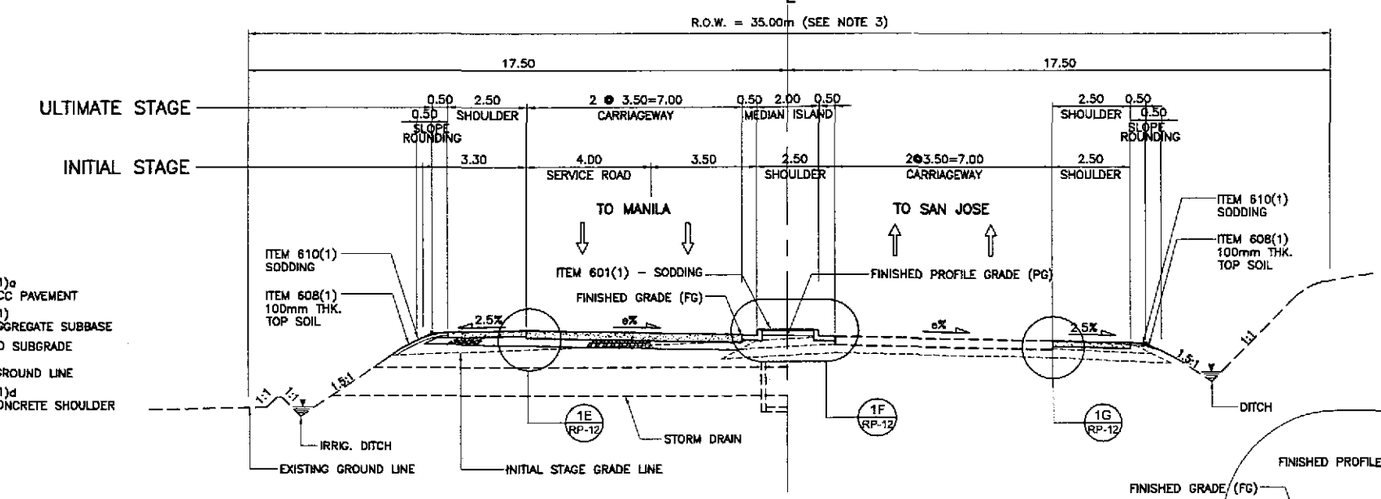
SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
TYPICAL ROADWAY SECTIONS
NORMAL SECTIONS WITH FRONTAGE ROAD (INITIAL AND ULTIMATE STAGE)
(2 of 4)

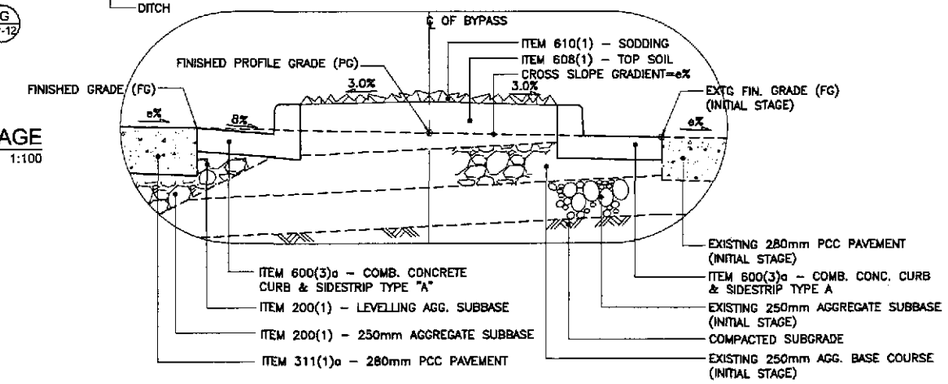
SHEET NO. : RP-11



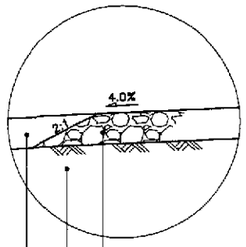
1E RP-10 DETAIL
SCALE 1:20



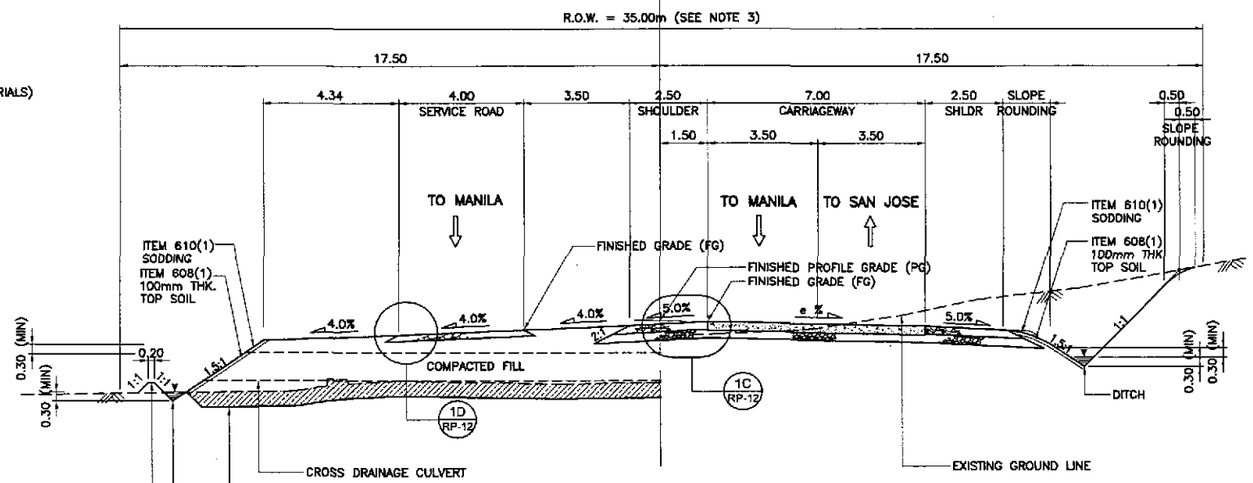
1B RP-12 SUPERELEVATED SECTION - ULTIMATE STAGE
SCALE 1:100

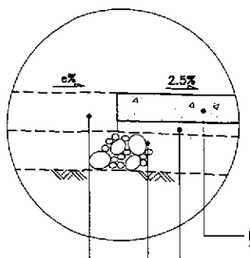


1F RP-10 DETAIL
SCALE 1:20



1D RP-10 DETAIL
SCALE 1:20



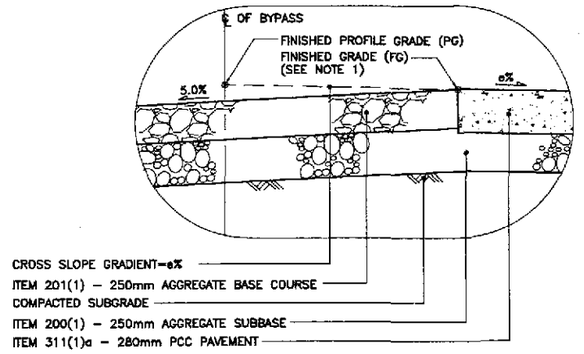


1G RP-10 DETAIL
SCALE 1:20

EMBANKMENT SECTION CUT SECTION

1A RP-12 SUPERELEVATED SECTION - INITIAL STAGE
SCALE 1:100

1 RP-12 TYPICAL ROADWAY SECTIONS - WITHOUT FRONTAGE ROAD
SCALE 1:100



1C RP-10 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 SEPERATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. R6-05-R6-07.
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.

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

	DATE	SIGNATURE
DESIGNED	9/12/02	A. ACACIO
CHECKED	9/12/02	S. JOSE
SUBMITTED	9/23/02	M. IKEUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

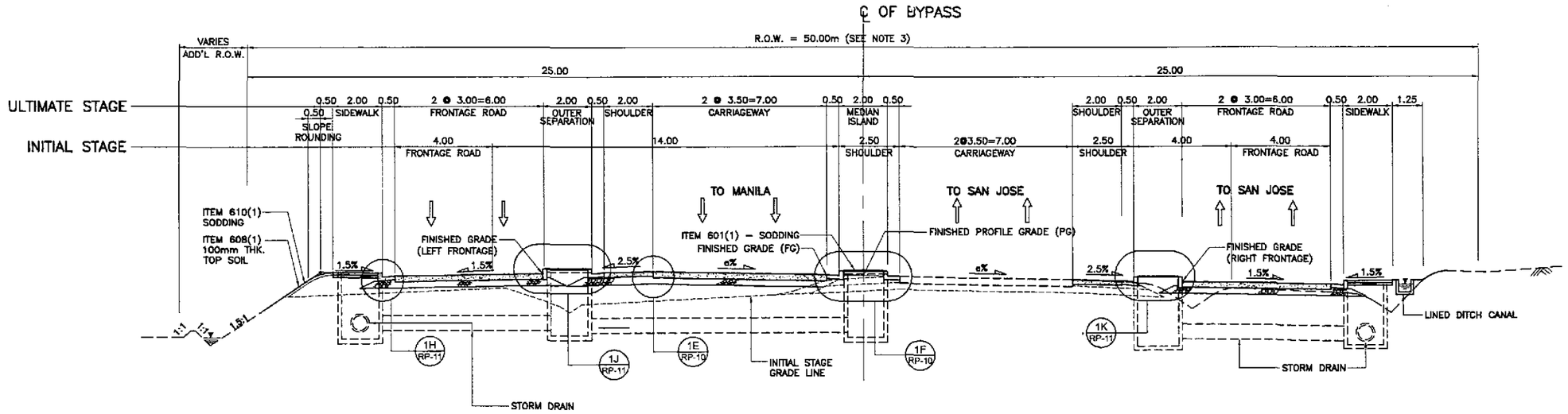
PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	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)
PLARIDEL BYPASS - CONTRACT PACKAGE I

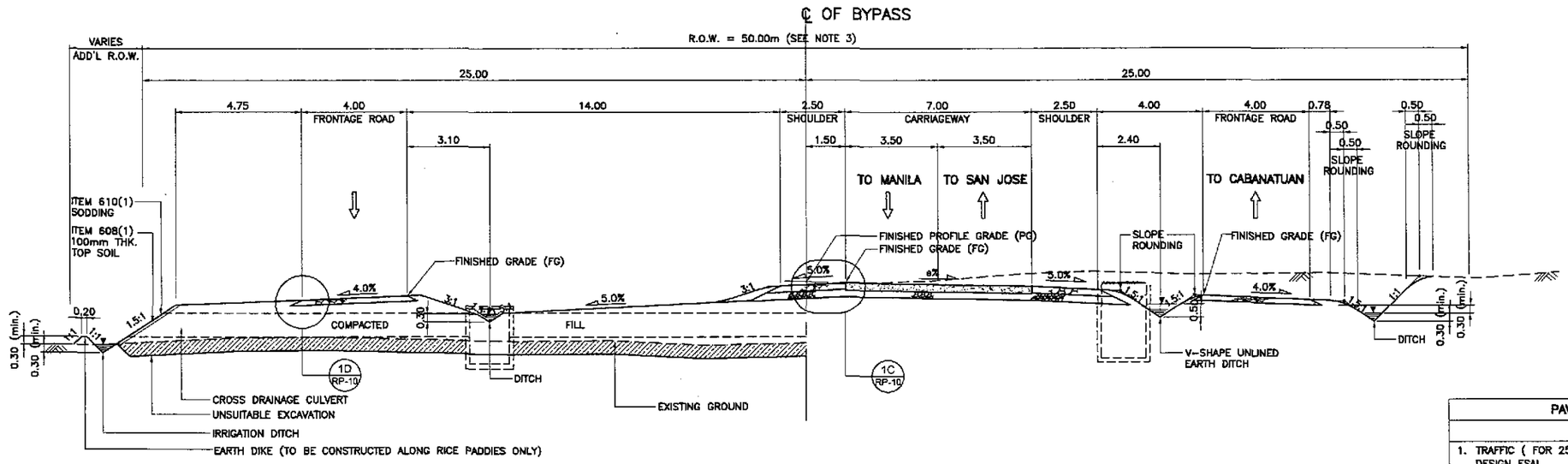
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
TYPICAL ROADWAY SECTIONS
SUPERELEVATED SECTIONS
WITHOUT FRONTAGE ROAD
(INITIAL AND ULTIMATE STAGE)
(3 of 4)

SHEET NO. : RP-12



1B / RP-13 SUPERELEVATED SECTION - ULTIMATE STAGE
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 SEPERATIONS AND DUE TO HEIGHT OF EMBANKMENT. SEE SCHEDULE OF R.O.W. SHTS. NOS. R6-06-R6-07.
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.*

EMBANKMENT SECTION

CUT SECTION

1A / RP-13 SUPERELEVATED SECTION - INITIAL STAGE
SCALE 1:100

1 / RP-13 TYPICAL ROADWAY SECTIONS - WITH FRONTAGE ROAD
SCALE 1:100

PAVEMENT DESIGN PARAMETERS	
	BEFORE ANGAT BRIDGE
1. TRAFFIC (FOR 25 YEARS DESIGN LIFE) DESIGN ESAL	4.40×10^6
2. DESIGN CBR SUBGRADE CBR	5.00 %
3. ROADBED RESILIENT MODULUS M_R / E_{SB} / E_{BS}	5,500 psi = 37.92 MPa 13,000 psi = 89.64 MPa 23,000 psi = 158.58 MPa
4. PERFORAMNCE CRITERIA Δ PSI	2
5. DESIGN RELIABILITY Z_R / S_O	50 % 0.35
6. DRAINAGE COEFFICIENT RIGID	1
7. LAYER COEFFICIENT a_1 (FOR AC) / a_2 (FOR BASE) / a_3 (FOR SUBBASE)	0.39 0.105 0.095
8. PAVEMENT CONSTRUCTION THIKNESS PCCP / SUBBASE	280mm THK 250mm THK

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

	DATE	SIGNATURE
DESIGNED	9/19/02	A. ACACIO
CHECKED	9/24/02	S. JOSE
SUBMITTED	9/23/02	M. KUSUDA TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL - PMO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY	
Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)
DANILO C. TRAJANO	JOSEFINA M. ALAGAR	GILBERTO S. REYES	MANUEL M. BONOAN	SIMEON A. DATUMANONG
Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	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)
PLARIDEL BYPASS - CONTRACT PACKAGE I

SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
TYPICAL ROADWAY SECTIONS
SUPERELEVATED SECTIONS WITH FRONTAGE ROAD (INITIAL AND ULTIMATE STAGE)
(4 of 4)

SHEET NO. : RP-13