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

SAN JOSE BYPASS
(ULTIMATE STAGE)

December 2002

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD

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GENERAL

INDEX OF DRAWINGS

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

	DATE	SIGNATURE
DESIGNED	9/7/02	A. ACACIO
CHECKED	9/9/02	S. JOSE
SUBMITTED	9/11/02	M. ENOCH, 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	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) SAN JOSE BYPASS	NOT TO SCALE FULL SIZE A1	INDEX OF DRAWINGS (ULTIMATE STAGE) Sheet 1 of 2	GS-01

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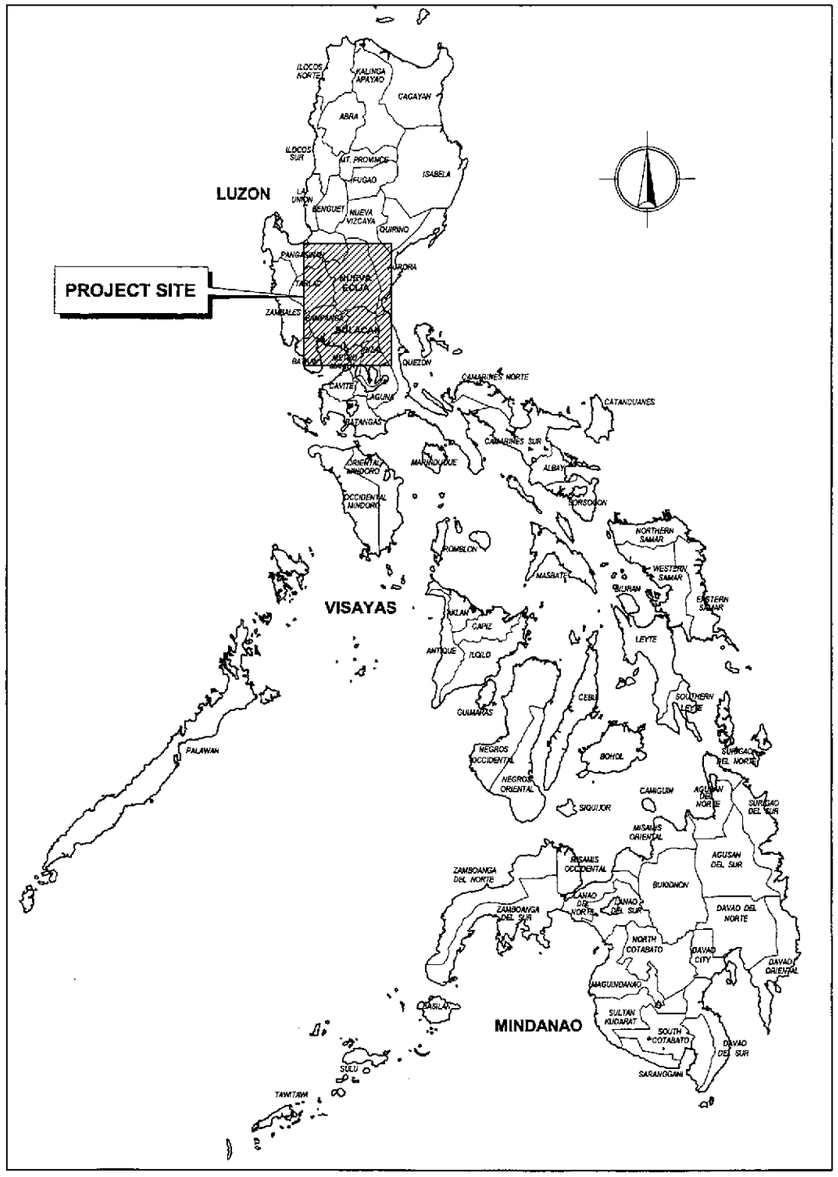

1 GS-03 KEY MAP
NOT TO SCALE

2 GS-03 VICINITY MAP
NOT TO SCALE

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SCALE : NOT TO SCALE
FULL SIZE A1

SHEET CONTENTS : KEY AND VICINITY MAP

SHEET NO. : GS-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	E496,806 N1747600
AGGREGATE SOURCE	
LINE SYMMETRY	
SECTION TARGET	1B C-03
ELEVATION TARGET	1A C-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	

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SHEET CONTENTS : LEGEND AND SYMBOLS

SHEET NO. : GS-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
L	ANGLE SHAPE

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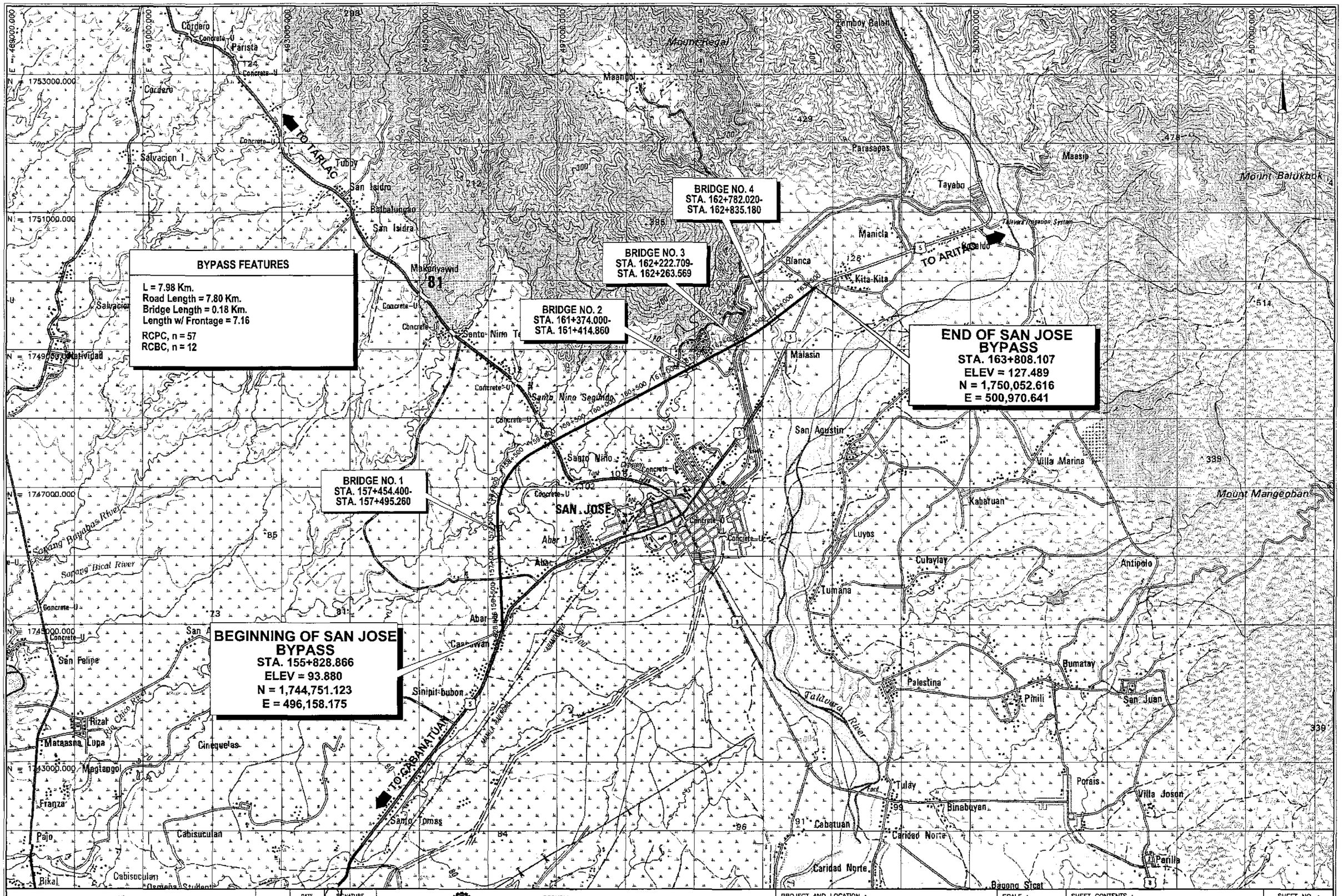

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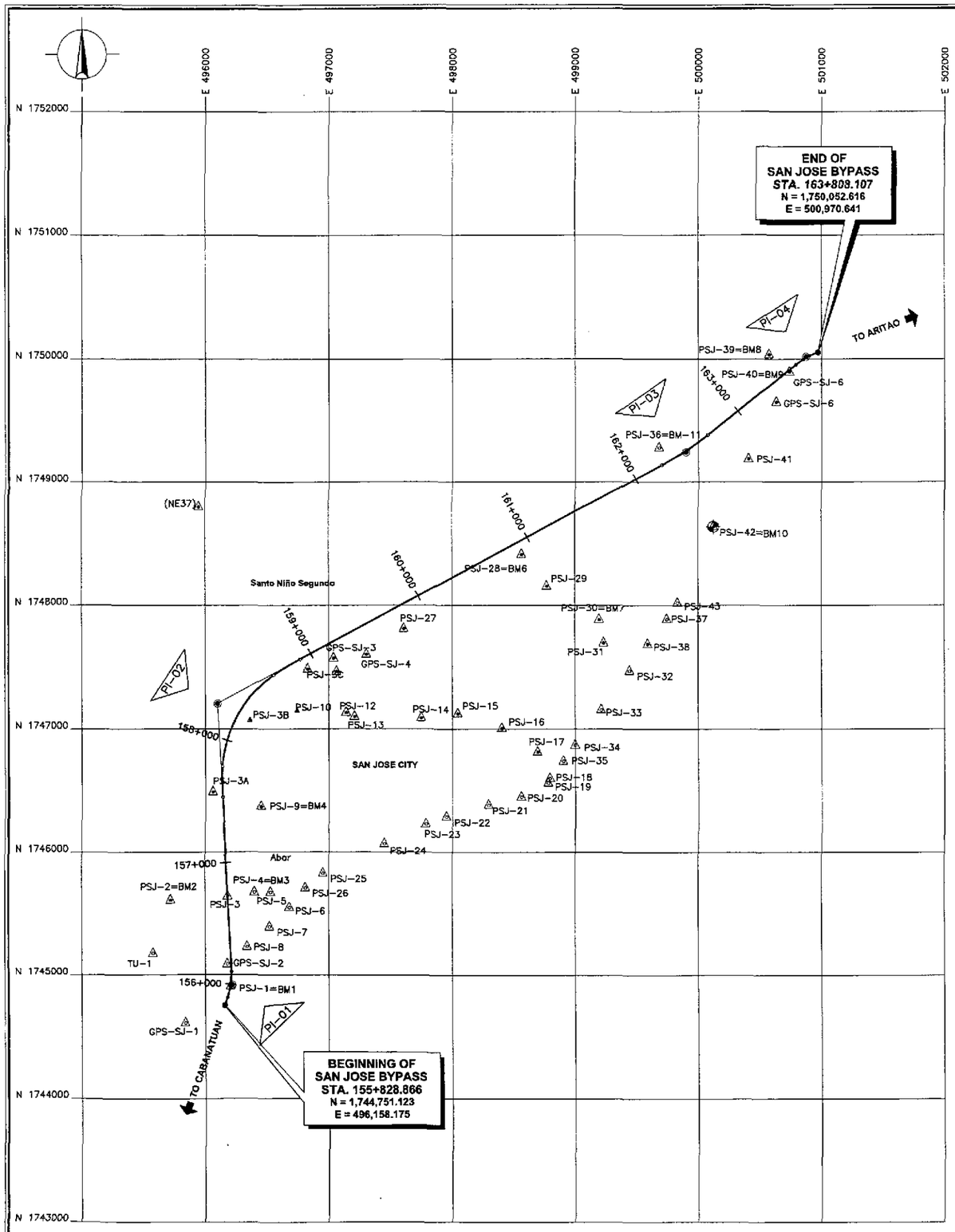

TABLE OF HORIZONTAL AND VERTICAL CONTROL

POLYGON POINT	COORDINATES NORTHING	COORDINATES EASTING	ELEV.	REMARKS
PSJ-1(BM# 1)	1,744,906.325	496,208.059	94.049	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-2(BM# 2)	1,745,608.972	495,721.435	93.396	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-2	1,745,608.955	495,721.433	93.396	
PSJ-3	1,745,638.052	496,184.450	95.033	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-3A	1,746,487.258	496,060.394	94.954	Mark is a 8mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-3B	1,747,071.011	496,361.786	98.883	Mark is a 8mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-3C	1,747,484.598	496,831.975	102.785	Mark is a 8mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-4(BM# 3)	1,745,869.911	496,400.934	95.772	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-5	1,745,668.883	496,530.301	96.250	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-6	1,745,545.955	496,682.338	96.192	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-6	1,745,545.962	496,682.337	96.192	
PSJ-7	1,745,389.379	496,521.091	95.644	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-8	1,745,228.044	496,339.813	94.817	White "X" mark at edge of Maharlika Highway with a nailed bottle crown at the center.
PSJ-9(BM# 4)	1,746,371.027	49,645.460	96.739	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-10	1,747,149.012	496,744.976	99.932	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-11(BM# 5)	1,747,465.278	497,064.856	103.326	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-12	1,747,133.042	497,141.329	101.594	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-13	1,747,099.879	497,208.490	101.790	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-14	1,747,090.173	497,748.505	104.579	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-15	1,747,124.421	498,045.057	107.077	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-16	1,747,005.744	498,405.287	106.279	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-17	1,746,814.358	498,695.323	106.425	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-18	1,746,600.983	498,796.095	106.843	White "X" mark on the road at Maharlika Highway corner A. Bonifacio Street with a nailed bottle crown at the center.
PSJ-19	1,746,562.332	498,781.530	106.716	White "X" mark at the northwest corner of Maharlika Highway and A. Bonifacio Street with a nailed bottle crown at the center.
PSJ-20	1,746,448.970	498,559.717	105.193	White "X" mark at the southeast corner of Maharlika Highway and A. Bonifacio Street with a nailed bottle crown at the center.
PSJ-21	1,746,384.170	498,293.944	104.164	White "X" mark at edge of Maharlika Highway with a nailed bottle crown at the center.
PSJ-22	1,746,288.268	497,948.544	102.854	White "X" mark at edge of Maharlika Highway with a nailed bottle crown at the center.
PSJ-23	1,746,227.669	497,782.587	102.254	White "X" mark at edge of Maharlika Highway with a nailed bottle crown at the center.
PSJ-24	1,746,066.304	497,448.819	101.019	White "X" mark at edge of Maharlika Highway with a nailed bottle crown at the center.
PSJ-25	1,745,826.562	496,955.537	98.700	White "X" mark at edge of Maharlika Highway with a nailed bottle crown at the center.

TABLE OF HORIZONTAL AND VERTICAL CONTROL

POLYGON POINT	COORDINATES NORTHING	COORDINATES EASTING	ELEV.	REMARKS
PSJ-26	1,745,704.868	496,813.299	97.618	White "X" mark at edge of Maharlika Highway with a nailed bottle crown at the center.
PSJ-27	1,747,810.894	497,609.704	106.480	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-28(BM# 6)	1,748,413.129	498,566.434	113.320	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-29	1,748,155.024	498,772.777	112.216	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-30(BM# 7)	1,747,873.324	499,208.984	109.561	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-31	1,747,695.786	499,230.878	108.039	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-32	1,747,470.534	499,442.879	109.238	White "X" mark on the pavement of Maharlika Highway with a nailed bottle crown at the center.
PSJ-33	1,747,154.549	499,210.017	106.618	White "X" mark on the pavement of Maharlika Highway with a nailed bottle crown at the center.
PSJ-34	1,746,869.849	499,091.100	105.712	White "X" mark on the pavement of Maharlika Highway with a nailed bottle crown at the center.
PSJ-35	1,746,739.455	498,905.226	106.249	White "X" mark on the pavement of Maharlika Highway with a nailed bottle crown at the center.
PSJ-36(BM# 11)	1,749,278.714	499,682.109	157.873	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-37	1,747,885.172	499,748.098	112.347	White "X" mark on the pavement of Maharlika Highway with a nailed bottle crown at the center.
PSJ-38	1,747,686.102	499,592.108	110.591	White "X" mark beside Maharlika Highway with a nailed bottle crown at the center.
PSJ-39(BM# 8)	1,750,026.594	500,545.032	130.659	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-40(BM# 9)	1,749,894.067	500,741.504	128.209	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-41	1,749,187.254	500,405.422	123.111	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-42(BM# 10)	1,748,837.031	500,125.994	119.240	Mark is a 12mm dia. steel bar embedded at the center of a 15cm x 15cm x 1m concrete monument.
PSJ-43	1,748,017.556	499,835.397	114.190	White "X" mark on the pavement of Maharlika Highway with a nailed bottle crown at the center.
PSJ-3A	1,745,818.594	496,288.749	95.170	Mark is a 8mm dia. steel bar embedded at the center of a 20cm x 20cm x 1m concrete monument.
PSJ-3B	1,745,634.627	496,361.324	95.870	Mark is a 8mm dia. steel bar embedded at the center of a 20cm x 20cm x 1m concrete monument.

TABLE OF GPS STATION

POLYGON POINT	COORDINATES NORTHING	COORDINATES EASTING	ELEV.	REMARKS
SJ-1	1,744,809.148	495,838.819	97.410	Located in Brgy. Tanawan. It is embedded beside an irrigation pump about 200m from the highway and about about 80M from the foot of a transmission tower.
SJ-2	1,745,086.656	496,178.856	99.115	Located in Brgy. Abar. From Cabanatuan to San Jose take a left turn to a concrete road. It is 97m from the highway and 5m on the left from the road.
SJ-3	1,747,572.468	497,041.304	110.268	Located in Brgy. Sto. Nino. It is embedded on the ground in the middle of the rice field near a water pump.
SJ-4	1,747,603.872	497,305.904	110.649	Located in Brgy. Sto. Nino. It is embedded on the middle of the field near a small creek.
SJ-5	1,749,648.826	500,632.894	133.225	Located in Brgy. Kita-Kita. It is embedded in front of Oblate Apostles of the Two Hearts of Jesus and Mary Church beside the highway.
SJ-6	1,750,035.698	500,574.838	137.364	Located in Brgy. Kita-Kita. From the church take a left turn on a concrete road before the brgy. hall, 57m from the centerline. It is embedded in front of Venturina's residence 22m from the road centerline.

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JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/7/02	M. ACACIO
CHECKED	9/9/02	S. JOSE
SUBMITTED	9/11/02	M. DUCUSIN 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. BONDAN	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)
SAN JOSE BYPASS

SCALE : 1:20,000 FULL SIZE A1

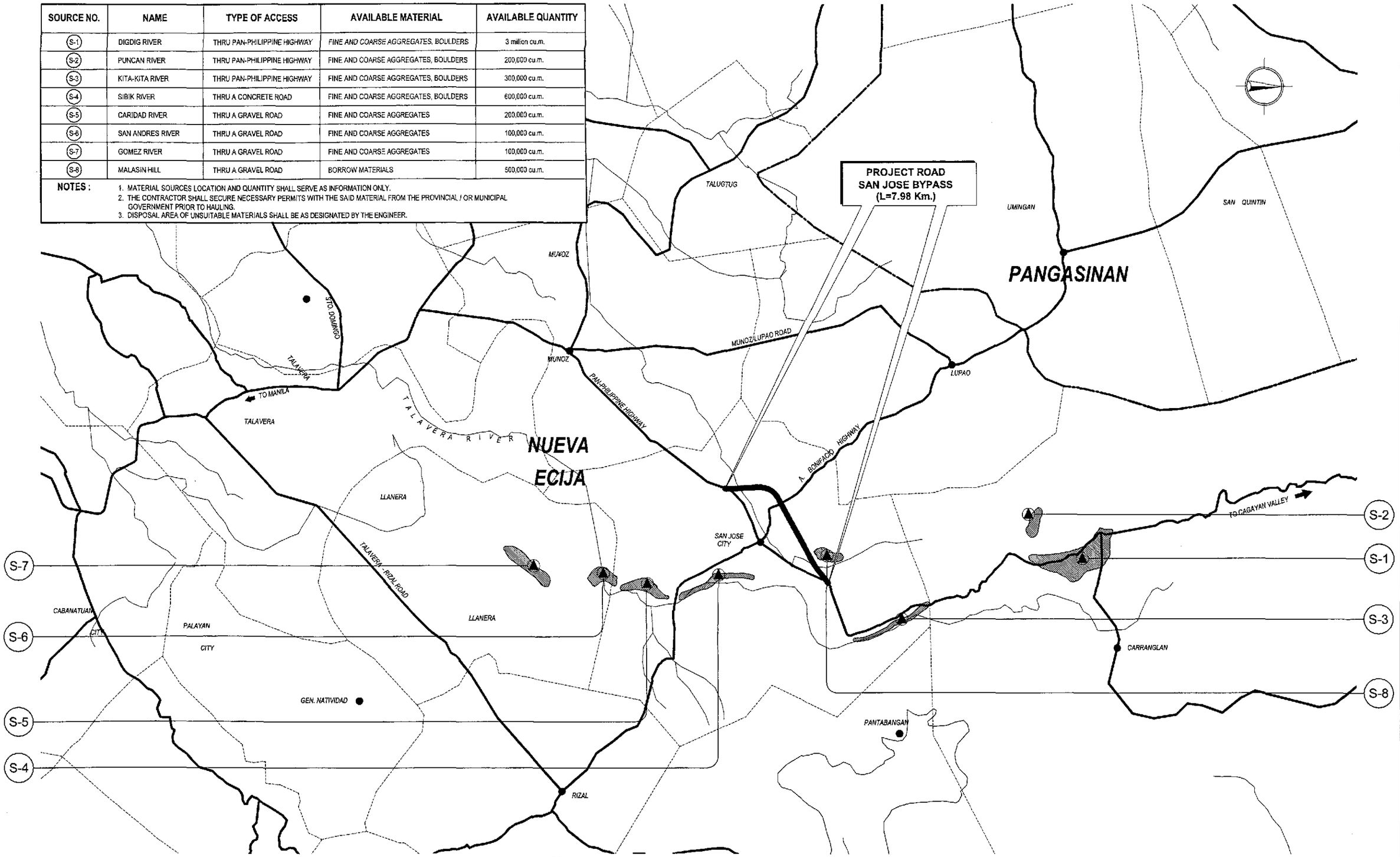
SHEET CONTENTS : HORIZONTAL AND VERTICAL CONTROL MONUMENT

SHEET NO. : GS-07

SOURCE NO.	NAME	TYPE OF ACCESS	AVAILABLE MATERIAL	AVAILABLE QUANTITY
S-1	DIGDIG RIVER	THRU PAN-PHILIPPINE HIGHWAY	FINE AND COARSE AGGREGATES, BOULDERS	3 million cu.m.
S-2	PUNCAN RIVER	THRU PAN-PHILIPPINE HIGHWAY	FINE AND COARSE AGGREGATES, BOULDERS	200,000 cu.m.
S-3	KITA-KITA RIVER	THRU PAN-PHILIPPINE HIGHWAY	FINE AND COARSE AGGREGATES, BOULDERS	300,000 cu.m.
S-4	SIBIK RIVER	THRU A CONCRETE ROAD	FINE AND COARSE AGGREGATES, BOULDERS	600,000 cu.m.
S-5	CARIDAD RIVER	THRU A GRAVEL ROAD	FINE AND COARSE AGGREGATES	200,000 cu.m.
S-6	SAN ANDRES RIVER	THRU A GRAVEL ROAD	FINE AND COARSE AGGREGATES	100,000 cu.m.
S-7	GOMEZ RIVER	THRU A GRAVEL ROAD	FINE AND COARSE AGGREGATES	100,000 cu.m.
S-8	MALASIN HILL	THRU A GRAVEL ROAD	BORROW MATERIALS	500,000 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 GS-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	9/7/02	A. PACACIO
CHECKED	9/9/02	S. JOSE
SUBMITTED	9/11/02	M. KUNDI 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)
SAN JOSE BYPASS

SCALE : 1:80,000 FULL SIZE A1

SHEET CONTENTS : LOCATION OF MATERIAL SOURCES

SHEET NO. : GS-08

SUMMARY OF QUANTITIES
(ULTIMATE STAGE)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY																				REMARKS
			Main Bypass	ROAD CROSSINGS														ROAD CROSSINGS					TOTAL	
				A-1	A-1a	A-1-2	A-2	A-3	A-3a	A-4	A-5	A-6	A-7	A-8	A-9	A-9a	C-1	C-2	No. 1(LT&RT)	No. 2LT&RT)	No. 3(LT)	No. 3(RT)	No. 4(LT&RT)		
Part C - EARTHWORKS																								
100(1)	Clearing and Grubbing	ha	7.65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						8.00	
101(1)	*Removal of Existing Structures and Obstructions*	*L.S.*	*1.00*																					*1.00*	
101(5)a	Removal of Existing Guardrails	m	124.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						124.00	
101(5)b	Relocation of Existing Guardrails	m	2,228.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						2,228.00	
101(7)	Removal of Existing Slope Protection	m3																	136.00	136.00	7.00	57.00	232.00	568.00	
101(8)	Removal of Existing Slope Protection (Hand-laid Rock)	m3																					114.00	114.00	
101(14)	Removal of Existing Concrete Revetment	L.S.																				1.00		1.00	
102(2)	Surplus Common Excavation	m3	13,388.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						13,389.00	
103(2)a	Bridge Excavation above OWL (Common Soil)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			53.00	49.00	326.00	428.00	
103(2)c	Bridge Excavation below OWL (Common Soil)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				546.00	474.00	1,020.00	
103(6)	Pipe Culverts and Drain Excavation	m3	32,715.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						32,716.00	
103(7)	Granular Backfill for Pipe Culvert	m3	17,377.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						17,378.00	
104(1)	Embankment from Roadway Excavation	m3	6,525.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						6,526.00	
104(3)	Embankment from Borrow Pit	m3																	544.00	544.00	55.00	36.00	146.00	1,325.00	
104(4)	Embankment from Borrow (Selected Granular Material) for Bridge	m3																	420.00	420.00	94.00	61.00	176.00	1,171.00	
105(1)	Subgrade Preparation (Common Soil)	m2	79,031.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						79,032.00	
105(2)	*Subgrade Preparation (Existing Gravel Surface)*	m2	-	-	-	-	-	-	-	-	1,789.37	-	2,661.46	1,615.00	-	-	-	-						6,066.00	
Part D - SUBBASE AND BASE COURSE																									
200(1)	Aggregate Subbase Course	m3	20,977.85	-	-	-	-	-	-	-	570.70	-	211.93	-	-	-	-	-	36.00	36.00	18.00	18.00	36.00	21,905.00	
Part E - SURFACE COURSES																									
311(1)c	PCC Pavement (Plain), t=230mm	m2	48,003.34	-	-	-	-	-	-	-	1,175.23	-	-	958.76	-	-	-	-						50,138.00	
311(1)d	PCC Pavement (Plain), t=180mm	m2	277.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						278.00	
311(2)	PCC Pavement (Reinforced) t=300mm Approach Slab	m2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	108.00	108.00	54.00	54.00	128.00	452.00	
Part G - BRIDGE CONSTRUCTION																									
400(4)a	*Precast Concrete Piles (400mmx400mm), furnished*	*m*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					*1,472.00*	*1,472.00*	
400(15)a	Test Piles (Concrete Pile 400mmx400mm), furnished & driven	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					182.00	182.00	
400(13)a	Precast Concrete Piles (400mmx400mm), driven	m																					1,380.00	1,380.00	
400(15)d	Cast in place Concrete Bored Pile(800mm dia.)	m																	144.00	144.00	72.00	48.00		408.00	
SPL 400(23)c	High Strain Dynamic Pile Test for 800mm Bored Piles	each																	2.00	2.00	1.00	1.00		6.00	
400(19)a	Pile shoes for 400mmx400mm Piles	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					80.00	80.00	
SPL 400(24)	Pile Integrity Test for Bored Piles of various diameter	each																	4.00	4.00	2.00	2.00		12.00	
401(1)a	Concrete Railing Type A (Concrete Posts and Precast Beams)	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160.00	160.00	80.00	108.00	210.00	718.00	
404(1)	Reinforcing Steel (Grade 40)	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29,740.00	29,740.00	15,220.00	27,073.00	57,368.00	159,141.00	
404(2)	Reinforcing Steel (Grade 60)	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6,206.00	6,206.00	3,167.00	39,815.00	78,350.00	133,844.00	
405(1)b	Structural Concrete Class A (fc'=21MPa, max. aggregate 38mm) for small & medium bridges substructures	m3																	104.00	104.00	54.00	214.00	448.00	924.00	
405(1)c	Structural Concrete Class A1 (fc'=21MPa, max. aggregate 20mm) for small & medium bridges RCDG superstructures	*m3*																				166.00	322.00	490.00	
405(1)d	Structural Concrete Class A1 (fc'=21MPa, max. aggregate 20mm) for small & medium bridges PCDG superstructures	m3																	156.00	156.00	78.00	-	-	390.00	
405(2)	Structural Concrete Class B (fc'=17MPa, max. aggregate 50mm) for plain or lightly reinforced structures	m3	5,430.57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						5,431.00	
405(3)	Structural Concrete Class C (fc'=21MPa, max. aggregate 12mm) for thin reinforced members	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45.00	45.00	35.00	42.00	86.00	253.00	
405(6)	*Lean Concrete (fc'=17MPa, max. aggregate 38mm)*	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.00	8.00	4.00	12.00	70.00	102.00	
406(1)n	Precast Prestressed Structural Concrete Member (AASHTO Girder Type VI modified L=40m)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.00	6.00	3.00			15.00	
407(1)a	Elastomeric Bearing Pad, Duro 60 (400x300x50mm)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				*6.00*	*12.00*	18.00	
407(1)c	Elastomeric Bearing Pad, Duro 60 (600x350x50mm)	each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.00	12.00	6.00			30.00	
407(2)a	Expansion Joint, (± 40mm Movement)	m																	16.00	16.00	8.00	8.00	16.00	64.00	
407(2)g	*Expansion Joint, 30mm for bridge sidewalk*	*m*																	12.00	12.00	6.00	6.00	10.00	46.00	
407(4)	G.I. Drain Pipe 6150mm for Bridge Drainage	m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.00	6.00	3.00	5.00	10.00	30.00	

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

	DATE	SIGNATURE
DESIGNED	9/7/02	J. TAPIA
CHECKED	9/9/02	S. JOSE
SUBMITTED	9/11/02	M. KIUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PJHL – PWO	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 :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
SAN JOSE BYPASS

SCALE : NOT TO SCALE FULL SIZE A1

SHEET CONTENTS : SUMMARY OF QUANTITIES ULTIMATE STAGE (1 of 2)

SHEET NO. : GS-09

SUMMARY OF QUANTITIES
(ULTIMATE STAGE)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY																					TOTAL	REMARKS
			Main Bypass	ROAD CROSSINGS														ROAD CROSSINGS							
				A-1	A-1a	A-1-2	A-2	A-3	A-3a	A-4	A-5	A-6	A-7	A-8	A-9	A-9a	C-1	C-2	No. 1(LT&RT)	No. 2LT&RT)	No. 3(LT)	No. 3(RT)	No. 4(LT&RT)		
Part G - DRAINAGE AND SLOPE PROTECTION STRUCTURES																									
500(1)b4	RCPC Standard Strength (32MPa), ϕ610mm (24")	m	10,843.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						10,843.00	
500(1)c3	RCPC Extra Strength (32MPa), ϕ460mm (18")	m	2,108.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						2,108.00	
502(2)a1	Drop Inlet Manhole for RCPC 1-ϕ460 x 1-ϕ460	each	405.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						405.00	
502(2)a2	Drop Inlet Manhole for RCPC 1-ϕ610 x 1-ϕ460	each	376.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						376.00	
504(5)	Grouted Riprap Class A	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92.00	52.00	31.00	32.00	62.00	269.00	
506(1)	Hand Laid Rock Apron (Loose Boulder Apron)	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					114.00	114.00	
507(2)b	Steel Sheet Piles (400x85x8mm), furnished & driven	m																					814.00	814.00	
509(1)	Gabions	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					144.00	144.00	
510(1)	Rubble Concrete Slope Protection	m3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		44.00			78.00	122.00	
Part H - MISCELLANEOUS STRUCTURES																									
600(1)a	Concrete Curb, Type A (200x450mm)	m	13,716.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						13,716.00	
600(3)a	Combination Concrete Curb & Gutter/Side Strip, Type A (675x364mm)	m	14,582.43	8.32	-	126.27	-	-	-	-	74.50	-	-	-	-	-	-	-						14,792.00	
600(3)b	Combination Concrete Curb & Gutter/Side Strip, Type B (675x334mm)	m	13,716.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						13,716.00	
601(1)	PCC Pavement for Sidewalk (t=100mm)	m2	29,466.98	37.80	-	252.54	-	-	-	-	-	-	-	-	-	-	-	-						29,758.00	
607(2)b	Reflectorized Pavement Studs (Raised Profile Type, two faces reflective)	each	-	-	-	-	-	-	-	-	5.00	-	-	-	-	-	-	-						5.00	
607(3)	Chatter Bars (one face reflective)	each	-	-	-	-	-	-	-	-	20.00	-	-	-	-	-	-	-						20.00	
608(1)	Furnishing and Placing Top Soil	m3	9,022.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						9,023.00	
610(1)	Sodding	m2	18,044.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						18,045.00	
611(1)a	Trees (Furnishing and Transplanting) Low Tree H = 1.5m	each	24,986.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						24,986.00	
611(1)b	Trees (Furnishing and Transplanting) Medium Tree 1.5m < H = 3.0m	each	1,201.00																					1,201.00	
SPL 611(4)b	Planter Square Type B (0.68mx1.70m) for Road Side Plantation	each	692.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						692.00	
612(1)a	Reflectorized Thermoplastic Pavement Markings (White)	m2	2,776.95	-	-	-	-	-	-	-	64.55	-	75.76	43.56	-	-	-	-						2,961.00	

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YEC YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
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CHECKED	9/9/02	S. GOSE
SUBMITTED	9/11/02	M. KIUCHI 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 :	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 (2 of 2)	GS-10
SAN JOSE BYPASS	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 AMERICAL 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, 1995 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 GEODESY SERVICES, INC. CORRESPONDING GPS STATIONS ARE AS FOLLOWS:

GPS STA.	NORTHING	EASTING	ELEVATIONS	DESCRIPTION
SJ-1	1744609.148	495838.819	97.410	LOCATED IN BGY. TANAWAN. IT IS EMBEDDED BESIDE AN IRRIGATION PUMP ABOUT 200m. FROM THE HIGHWAY AND ABOUT 80m. FROM THE FOOT OF A TRANSMISSION TOWER.
SJ-2	1745086.656	496178.858	99.115	LOCATED IN BGY. ABAR. FROM CABANATUAN TO SAN JOSE TAKE A LEFT TURN TO A CONCRETE ROAD. IT IS 97m. FROM THE HIGHWAY AND 5m. ON THE LEFT FROM THE ROAD.
SJ-3	1747572.469	497041.304	110.268	LOCATED IN BGY. STO. NIÑO. IT IS EMBEDDED ON THE GROUND IN THE MIDDLE OF THE RICEFIELD NEAR A WATER PUMP.
SJ-4	1747603.872	497305.904	110.649	LOCATED IN BGY. STO. NIÑO. IT IS EMBEDDED ON THE MIDDLE OF THE FIELD NEAR A SMALL CREEK.
SJ-5	1749648.826	500632.894	133.226	LOCATED IN BGY. KITA-KITA. IT IS EMBEDDED IN FRONT OF OBLATE APOSTLES OF THE TWO HEARTS OF JESUS AND MARY CHURCH BESIDE THE HIGHWAY.
SJ-6	1750035.698	500574.838	137.364	LOCATED IN BGY. KITA-KITA. FROM THE CHURCH TAKE A LEFT TURN ON A CONCRETE ROAD BEFORE THE BARANGAY HALL, 57m. FROM THE CENTERLINE. IT IS EMBEDDED IN FRONT OF VENTURINA'S RESIDENCE 22m. FROM THE ROAD CENTERLINE.

2.2 VERTICAL CONTROL IS REFERRED TO BM NJ-92 ESTABLISHED BY THE SJ'S WITH ELEVATION 105.668m. ABOVE MEAN SEA LEVEL LOCATED IN THE PROVINCE OF NUEVA ECIJA, TOWN OF SAN JOSE, ALONG THE NATIONAL HIGHWAY NO. 5, AND AT THE TOWN PLAZA. IT IS EMBEDDED IN A HOLE DRILLED ON TOP OF THE BASE OF RIZAL MONUMENT, ABOUT 45m. N OF CENTERLINE OF THE HIGHWAY, ABOUT 45m. W OF THE CATHOLIC CHURCH, ABOUT 50m. S OF THE ST. JOSEPH'S COLLEGE, 0.1m S OF THE N EDGE OF THE CONCRETE BASE, AND 0.72m. ABOVE THE GROUND. MARK IS PC ; GS NJ 92 1952

3.0 ALIGNMENT CONTROLS AND REFERENCES

3.1 PROJECT IMPLEMENTATION OF ALL BYPASSES SHALL BE DONE IN STAGE CONSTRUCTION. INITIAL STAGE CONSISTS OF CONSTRUCTING TWO LANE-TWO WAY HIGHWAY AS SHOWN IN THE TYPICAL SECTIONS, SERVICE FRONTAGE ROADS PROVIDED AT EACH SIDE OF THE HIGHWAY SHALL BE CONSTRUCTED WITH GRAVEL SURFACE ONLY. ULTIMATE STAGE SHALL BE THE CONCRETING OF TRICYCLE/BIKE FRONTAGE ROADS WITH OTHER ROADSIDE FACILITIES NOT YET INCLUDED DURING THE INITIAL STAGE.

3.2 THE FOLLOWING MAJOR POINTS CONTROLLED THE DESIGN OF HORIZONTAL AND VERTICAL ALIGNMENT:
- 3.2.1 ALONG SAN JOSE BYPASS
  - SWAMPY AREA/IRRIGATION RESERVOIR (LEFT SIDE OF STA. 157+000.00 CENTERLINE)
  - PANLASIAN CREEK (LEFT SIDE OF STA. 157+900.00 CENTERLINE)
  - NATIONAL POWER CORPORATION TRANSMISSION TOWER (LEFT SIDE OF STA. 161+040.00)
  - SWAMPY AREA (RIGHT SIDE OF STA. 161+700.00 CENTERLINE)
  - IRRIGATION SLUICE GATE (LEFT SIDE OF STA. 162+250.00 CENTERLINE)

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 FLOOD LEVEL, 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 PAN-PHILIPPINE HIGHWAY WHICH IS KM.156 NEAR THE START OF BYPASS.

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 ELEVATIONS AND GRADES

6.1 ELEVATIONS AND GRADES AS DESCRIBED IN THE ROAD PROFILES ARE TOP OF FINISHED PAVEMENT ALONG THE CENTERLINE AND/OR REFERENCE LINE INDICATED IN THE TYPICAL ROADWAY SECTIONS.

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 ALONG TRICYCLE AND GRAVEL CROSS ROADS

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

9.0 REMOVAL OF EXISTING STRUCTURES AND OBSTRUCTIONS

9.1 ARTICLE 4.7 OF THE " GENERAL REQUIREMENTS AND COVENANTS " IS HEREBY AMENDED AS FOLLOWS :

THE REMOVAL OF BUILDINGS, HOUSES, FENCES, UTILITY POLES AND OTHER PUBLIC UTILITIES WILL NOT BE THE RESPONSIBILITY OF THE CONTRACTOR BUT WILL BE REMOVED BY THE RESPECTIVE OWNERS, OR THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS PRIOR TO CONSTRUCTION.

10.0 ROAD CONNECTIONS AND PRIVATE ENTRANCES

10.1 OPENINGS FOR DRIVEWAYS OR PRIVATE ENTRANCES SHALL BE CONSTRUCTED ONLY ALONG SECTIONS OF THE PROJECT ROAD WHERE FRONTAGE ROADS AND/OR TURNOUTS ARE TO BE PROVIDED. SUCH CONNECTIONS SHALL BE DETERMINED BY THE ENGINEER AND SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO INSURE PROPER CONNECTION AND RIDING QUALITY.

10.2 ROAD CONNECTIONS SHALL BE CONSTRUCTED AS SHOWN ON PLANS. THE ROAD STRUCTURE OF EACH CONNECTION SHALL BE AS RECOMMENDED IN THE DRAWING.

10.3 *THE INTERSECTIONS NOT SHOWN ON THE DRAWINGS SHALL REQUIRE PLANS SUBMITTED TO THE ENGINEER FOR APPROVAL* BEFORE CONSTRUCTIONS.

10.4 THE LIMIT OF CONSTRUCTION FOR ROAD CONNECTIONS AND PRIVATE ENTRANCES SHALL BE AS SHOWN IN THE DRAWING OR AS DETERMINED 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 TEMPORARY DRAINAGE SYSTEM DURING THE CONSTRUCTION PERIOD SHALL BE UNDERTAKEN BY THE CONTRACTOR WITHOUT ANY COMPENSATION.

12.0 ACCESSIBILITY LAW:

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

13.0 TREE PLANTING ALONG NATIONAL ROADS

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

14.0 DESIGN DATA / REFERENCES

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

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

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

	DATE	SIGNATURE
DESIGNED	9/7/02	A. ACACIO
CHECKED	9/9/02	S. GOSE
SUBMITTED	9/11/02	M. KOUCHI, TEAM LEADER

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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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. BONGAN, 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) SAN JOSE BYPASS	NOT TO SCALE FULL SIZE A1	GENERAL NOTES HIGHWAY/ CIVIL AND DRAINAGE	RG-01

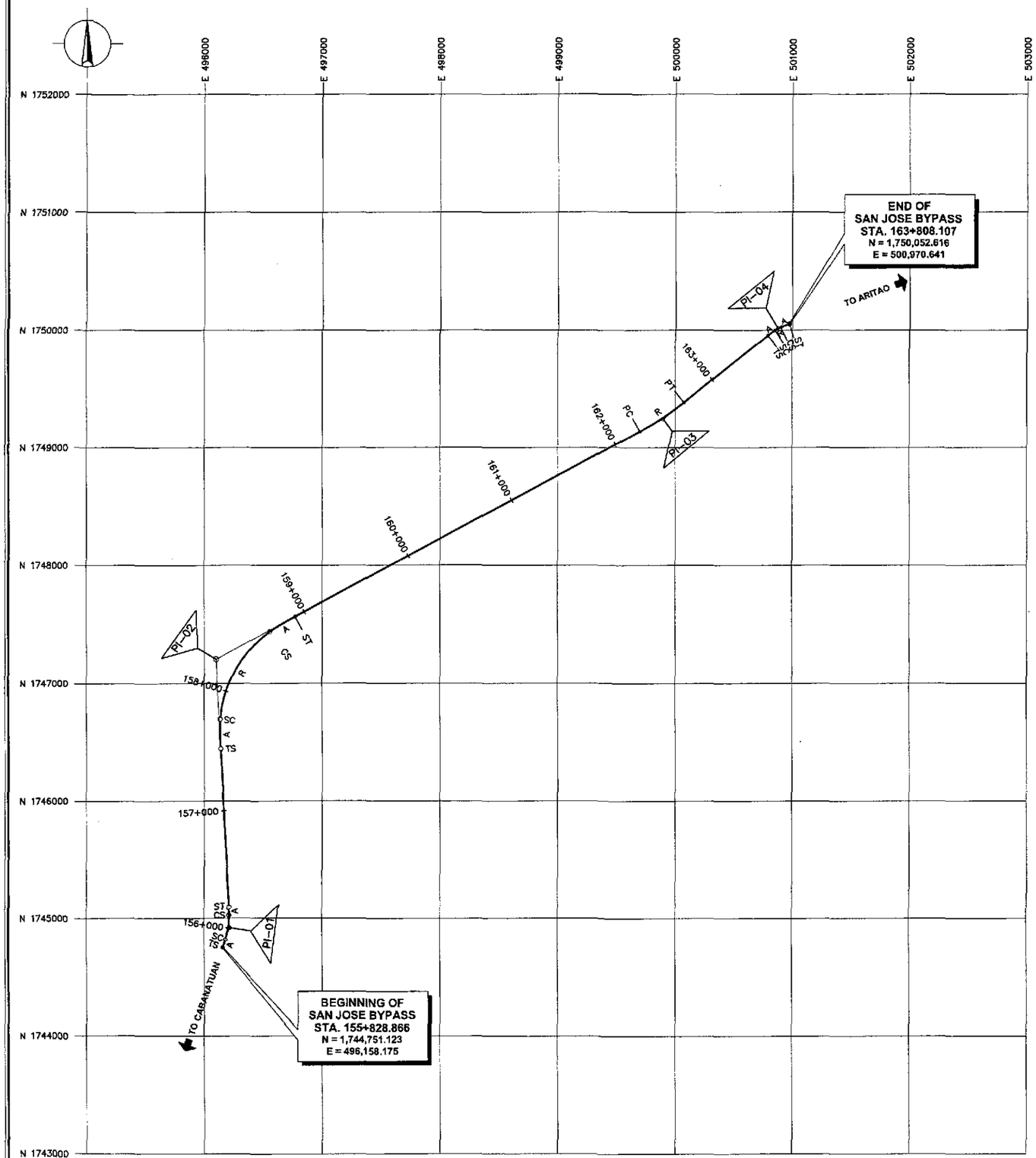

TABLE OF COORDINATES					
P.I. No.	NORTHING	EASTING		NORTHING	EASTING
01	1,744,917.334	496,218.670	TS	1,744,751.123	496,158.175
			SC	1,744,816.470	496,180.748
			CS	1,745,024.881	496,211.943
			ST	1,745,093.972	496,209.493
02	1,747,204.691	496,099.830	TS	1,746,444.966	496,139.302
			SC	1,746,694.780	496,136.742
			CS	1,747,437.151	496,555.170
			ST	1,747,564.316	496,770.210
03	1,749,242.645	499,898.792			
			PC	1,749,136.385	499,700.712
			PT	1,749,382.535	500,074.739
04	1,750,017.577	500,873.471	TS	1,749,953.293	500,792.617
			SC	1,749,998.094	500,852.729
			CS	1,750,024.994	500,900.944
			ST	1,750,052.616	500,970.641

ELEMENTS OF CURVES								
P.I. No.	STATION	DISTANCE	AZIMUTH	TANGENT Θ_S	DEFLECTION ANGLE	A / R	Ls / Lc	STATION
01	156+005.743	176.877	199°59'59"	176.877	22°58'26"	220.000	69.143	TS=155+828.866
								SC=155+898.009
		2,290.443	177°01'33"	02°49'47"		700.000	211.537	CS=156+109.545
								ST=156+178.688
02	158+292.254			760.749	64°45'46"	500.000	250.000	TS=157+531.504
								SC=157+781.504
		4,311.075	241°47'19"	07°09'43"		1,000.000	880.324	CS=158+661.828
								ST=158+911.828
03	162+462.154			224.781	10°16'32"			PC=162+237.372
				–		2,500.000	448.357	PT=162+685.729
		1,245.198	231°30'47"					
04	163+706.146			103.295	18°39'28"	173.205	75.000	TS=163+602.852
								SC=163+677.852
		103.295	250°10'15"	05°22'17"		400.000	55.255	CS=163+733.107
								ST=163+808.107

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

	DATE	SIGNATURE
DESIGNED	9/7/02	N. ACACIO
CHECKED	9/9/02	S. JOSE
SUBMITTED	9/11/02	M. KIKUCHI TEAM LEADER

REPUBLIC OF THE PHILIPPINES
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Project Director	Chief, Highways Division	OIC, Director IV	Undersecretary	Secretary

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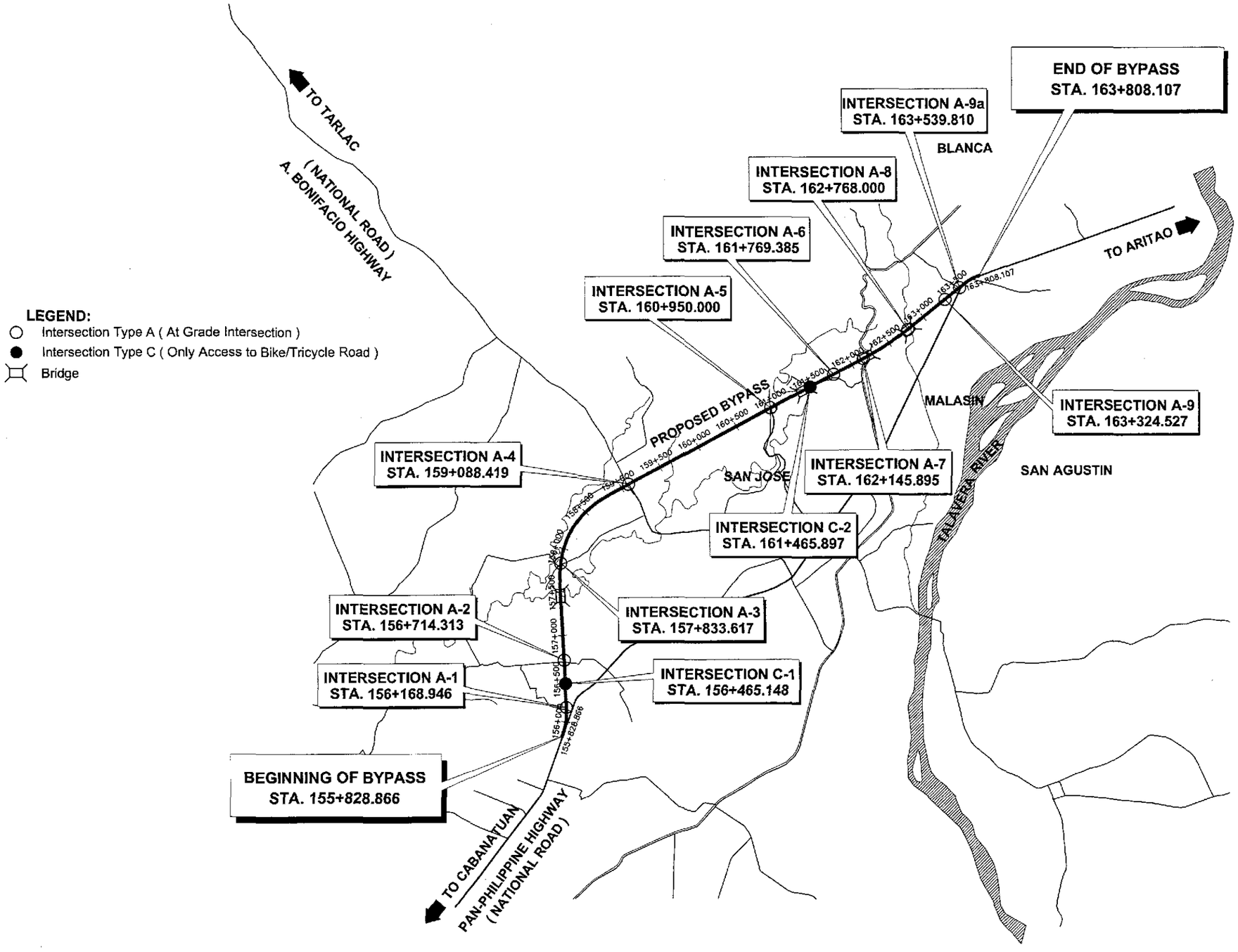
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY *(Plaridel, Cabanatuan and San Jose Bypasses)*	1:20,000	ALIGNMENT TECHNICAL DESCRIPTION	RG-02
SAN JOSE BYPASS	FULL SIZE A1		



A / RG-03 LOCATION OF PROPOSED INTERSECTIONS ALONG BYPASS

SCALE 1:25,000

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

SCALE : 1:25,000 FULL SIZE A1

SHEET CONTENTS : LOCATION OF INTERSECTIONS ALONG BYPASS

SHEET NO. : RG-03

SCHEDULE OF PAVEMENT SURFACE
(ULTIMATE STAGE)

STATION LIMIT		QUANTITY PCCP 230mm THICK	REMARKS
FROM	TO		
155+828.87	156+327.96	1,061.13	A-1 Intersection
155+327.96	156+547.49	1,536.71	TYPICAL
156+547.49	156+881.23	2,312.66	A-2 Intersection
156+881.23	157+449.53	3,942.64	TYPICAL
157+449.53	157+500.13	0.00	BRIDGE
157+500.13	157+665.05	1,154.44	TYPICAL
157+665.05	158+002.39	2,271.19	A-3 Intersection
158+002.39	158+906.73	6,330.38	TYPICAL
158+906.73	159+268.52	2,391.79	A-4 Intersection
159+268.52	160+783.22	10,602.90	TYPICAL
160+783.22	161+116.78	2,285.09	A-5 Intersection
161+116.78	161+369.13	1,766.45	TYPICAL
161+369.13	161+419.73	0.00	BRIDGE
161+419.73	161+601.54	3,488.45	TYPICAL
161+601.54	162+218.73	2,282.66	A-7 & A-8 Intersection
162+218.73	162+269.37	0.00	BRIDGE
162+269.37	162+781.23	3,397.52	TYPICAL
162+781.23	162+844.55	0.00	BRIDGE
162+844.55	163+145.13	2,031.89	TYPICAL
163+145.13	163+808.11	1,149.44	A-9 Intersection
TOTAL		48,003.34	

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	DATE	SIGNATURE
DESIGNED	9/7/02	ACACIO
CHECKED	9/9/02	S. BOSE
SUBMITTED	9/11/02	TEAM LEADER

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SCHEDULE OF PAVEMENT MARKINGS, PLANTINGS AND METAL BEAM GUARDRAILS
(ULTIMATE STAGE)

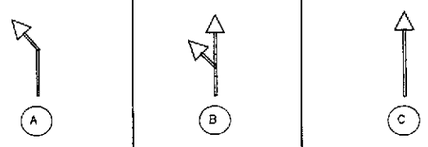
ITEM 612(1) - REFLECTORIZED THERMOPLASTIC PAVEMENT MARKINGS

STATION FROM	STATION TO	LENGTH (m)	AREA (m)	REMARKS
1.0 EDGE LINES				
1.1 TRICYCLE ROAD, LEFT SIDE				
156 + 176.37	156 + 714.03	1,075.32	107.53	Both Sides, 100mm Unbroken Line
156 + 720.18	157 + 449.53	1,458.70	145.87	Both Sides, 100mm Unbroken Line
157 + 500.13	157 + 824.76	649.26	64.93	Both Sides, 100mm Unbroken Line
157 + 832.60	159 + 072.34	2,479.48	247.95	Both Sides, 100mm Unbroken Line
159 + 092.31	160 + 961.38	3,738.14	373.81	Both Sides, 100mm Unbroken Line
160 + 966.63	161 + 369.13	805.00	80.50	Both Sides, 100mm Unbroken Line
161 + 419.73	161 + 751.87	664.28	66.43	Both Sides, 100mm Unbroken Line
161 + 755.98	162 + 150.56	789.16	78.92	Both Sides, 100mm Unbroken Line
162 + 156.38	162 + 217.84	122.92	12.29	Both Sides, 100mm Unbroken Line
162 + 268.44	162 + 771.89	1,006.90	100.69	Both Sides, 100mm Unbroken Line
162 + 776.94	162 + 777.15	0.42	0.04	Both Sides, 100mm Unbroken Line
162 + 840.05	163 + 300.56	921.02	92.10	Both Sides, 100mm Unbroken Line
1.2 TRICYCLE ROAD, RIGHT SIDE				
156 + 185.38	156 + 708.45	1,046.14	104.61	Both Sides, 100mm Unbroken Line
156 + 714.60	157 + 449.53	1,469.86	146.99	Both Sides, 100mm Unbroken Line
157 + 500.13	157 + 849.49	698.72	69.87	Both Sides, 100mm Unbroken Line
157 + 853.86	159 + 084.56	2,461.40	246.14	Both Sides, 100mm Unbroken Line
159 + 105.35	160 + 929.90	3,649.10	364.91	Both Sides, 100mm Unbroken Line
160 + 942.98	161 + 369.13	852.30	85.23	Both Sides, 100mm Unbroken Line
161 + 419.73	161 + 783.23	727.00	72.70	Both Sides, 100mm Unbroken Line
161 + 786.90	162 + 135.89	697.98	69.80	Both Sides, 100mm Unbroken Line
162 + 141.79	162 + 217.83	152.08	15.21	Both Sides, 100mm Unbroken Line
162 + 268.44	162 + 760.87	984.86	98.49	Both Sides, 100mm Unbroken Line
162 + 765.02	162 + 777.15	24.26	2.43	Both Sides, 100mm Unbroken Line
162 + 840.05	163 + 318.14	956.18	95.62	Both Sides, 100mm Unbroken Line
1.3 A-5 Road Crossing				
0 + 000.00	0 + 066.75	133.50	13.35	Both Sides, 100mm Unbroken Line
0 + 133.22	0 + 220.00	173.57	17.36	Both Sides, 100mm Unbroken Line
1.4 A-7 Road Crossing				
0 + 000.00	0 + 188.23	376.46	37.65	Both Sides, 100mm Unbroken Line
0 + 254.47	0 + 354.17	199.39	19.94	Both Sides, 100mm Unbroken Line
1.5 A-8 Road Crossing				
0 + 895.00	0 + 973.65	157.30	15.73	Both Sides, 100mm Unbroken Line
1 + 024.59	1 + 110.00	170.82	17.08	Both Sides, 100mm Unbroken Line
2.0 CENTERLINES				
2.1 A-5 Road Crossing				
0 + 000.00	0 + 066.75	66.75	4.46	150mm x 3.0m w/ 4.5m gap
0 + 193.44	0 + 220.00	26.56	2.04	150mm x 3.0m w/ 4.5m gap

STATION FROM	STATION TO	LENGTH (m)	AREA (m)	REMARKS
2.2 A-7 Road Crossing				
0 + 000.00	0 + 188.23	188.23	11.74	150mm x 3.0m w/ 4.5m gap
0 + 254.47	0 + 354.17	99.70	6.43	150mm x 3.0m w/ 4.5m gap
2.3 A-8 Road Crossing				
0 + 895.00	0 + 973.65	78.65	5.17	150mm x 3.0m w/ 4.5m gap
1 + 024.59	1 + 110.00	85.41	5.57	150mm x 3.0m w/ 4.5m gap
3.0 CHEVRON				
3.1 A-5 Road Crossing				
0 + 153.44	0 + 193.44	40.00	13.67	Transition 40.0m

ARROW TYPE	AREA/ ARROW	NUMBER OF ARROWS	TOTAL AREA	LOCATION
4.0 ARROWS				
A	1.46	1.00	1.46	Approaching Intersection A-1
A	1.46	2.00	2.92	Approaching Intersection A-2
A	1.46	2.00	2.92	Approaching Intersection A-3
A	1.46	5.00	7.3	Approaching Intersection A-4
C	1.21	1.00	1.21	Approaching Intersection A-4
A	1.46	3.00	4.38	Approaching Intersection A-5
B	2.04	1.00	2.04	Approaching Intersection A-5
A	1.46	2.00	2.92	Approaching Intersection A-6
A	1.46	2.00	2.92	Approaching Intersection A-7
A	1.46	2.00	2.92	Approaching Intersection A-8
A	1.46	2.00	2.92	Approaching Intersection A-9
		TOTAL	33.91	

Arrow Type :



PLANTINGS

1. OUTER SEPARATION PLANTING (LOCATION 1-B)

STATION FROM	STATION TO	LENGTH (m) LEFT SIDE TYPE 5	TYPE 6	TYPE 7	TYPE 8	RIGHT SIDE TYPE 5	TYPE 6	TYPE 7	TYPE 8
155+828.00	156+400.00	0	90	0	0	0	90	0	0
156+400.00	157+100.00	0	407	0	0	0	407	0	0
157+100.00	157+800.00	0	475	0	64	0	475	0	64
157+800.00	158+500.00	0	524	0	0	0	524	0	0
158+500.00	159+200.00	0	426	0	0	0	426	0	0
159+200.00	159+900.00	0	652	0	0	0	652	0	0
159+900.00	160+600.00	0	700	0	0	0	700	0	0
160+600.00	161+300.00	0	402	0	0	0	402	0	0
161+300.00	162+000.00	0	208	0	64	0	208	0	64
162+000.00	162+700.00	0	401	60	32	0	401	65	32
162+700.00	163+400.00	35	310	0	32	35	310	0	32
163+400.00	163+808.11	0	0	0	0	0	0	0	0
TOTAL		35	4595	60	192	35	4595	65	192

2. SIDE WALK PLANTING (MIDDLE TREE) LOCATION 2

STATION FROM	STATION TO	LENGTH (m) LEFT	RIGHT	STATION FROM	STATION TO	LENGTH (m) LEFT	RIGHT
155+828.00	156+400.00	520	300	159+900.00	160+600.00	700	700
156+400.00	157+100.00	650	625	160+600.00	161+300.00	640	640
157+100.00	157+800.00	640	640	161+300.00	162+000.00	560	570
157+800.00	158+500.00	640	640	162+000.00	162+700.00	580	600
158+500.00	159+200.00	640	640	162+700.00	163+400.00	610	525
159+200.00	159+900.00	700	700	163+400.00	163+808.11	150	180
				TOTAL		7,030.00	6,760.00

METAL BEAM GUARDRAIL

STATION FROM	STATION TO	LOCATION	LENGTH (m)
ITEM 603(3)-METAL GUARDRAIL (Metal Beam)			
A. Main Bypass			
157 + 030.00	157 + 070.00	BS	80.00
157 + 307.28	157 + 451.28	BS	288.00
157 + 498.37	157 + 574.37	BS	152.00
157 + 870.00	157 + 990.00	LT	120.00
158 + 410.00	158 + 470.00	RT	60.00
158 + 490.00	158 + 510.00	LT	20.00
158 + 510.00	158 + 650.00	RT	140.00
159 + 610.00	159 + 650.00	RT	40.00
159 + 610.00	159 + 670.00	LT	80.00
159 + 870.00	160 + 042.00	RT	172.00
159 + 880.00	160 + 040.00	LT	160.00
161 + 286.92	161 + 370.92	LT	72.00
161 + 326.92	161 + 370.92	RT	40.00
161 + 417.92	161 + 457.92	LT	36.00
161 + 474.00	161 + 502.00	LT	28.00

STATION FROM	STATION TO	LOCATION	LENGTH (m)
161 + 417.92	161 + 673.92	RT	256.00
161 + 930.00	161 + 950.00	LT	20.00
161 + 920.00	162 + 000.00	RT	80.00
162 + 189.27	162 + 209.27	RT	20.00
162 + 204.38	162 + 224.38	LT	20.00
162 + 271.81	162 + 347.81	LT	76.00
162 + 269.98	162 + 289.98	RT	20.00
162 + 842.22	162 + 862.22	LT	20.00
162 + 836.26	162 + 856.26	RT	20.00
163 + 190.00	163 + 230.00	RT	40.00
B. Road Crossings			
0 + 000.00	0 + 020.00	LT, A-7	20.00
0 + 298.00	0 + 354.00	LT, A-7	56.00
0 + 897.00	0 + 973.00	LT, A-8	76.00
0 + 977.00	0 + 997.00	BS, C-2	40.00
C. Bridge Approach			
8.0m @ Bridge 4 1st Approach, Left Side			8.00

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

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

	DATE	SIGNATURE
DESIGNED	9/7/02	
CHECKED	9/9/02	S. OSE
SUBMITTED	9/11/02	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 :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
SAN JOSE BYPASS

SCALE : FULL SIZE A1

SHEET CONTENTS : SCHEDULE OF PAVEMENT MARKINGS, PLANTINGS, AND METAL BEAM GUARDRAILS RELOCATION

SHEET NO. : **RG-05**