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

NO. SSF CR(6)02-158

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

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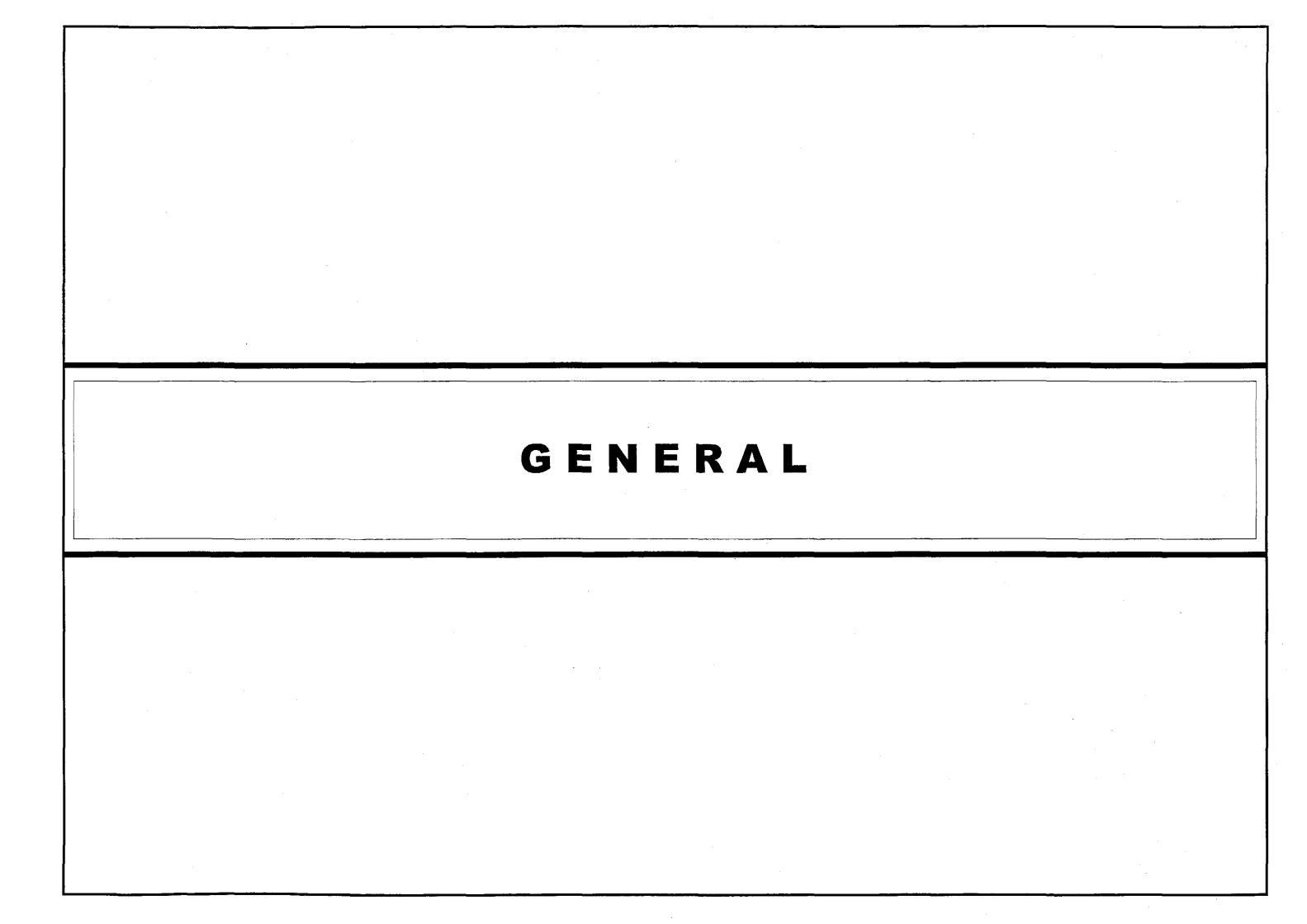
KATAHIRA & ENGINEERS INTERNATIONAL YACHIYO ENGINEERING CO., LTD

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ALONG THE PAN-PHILIPPINE HIGHWAY

SAN JOSE BYPASS

(ULTIMATE STAGE)

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SAN JOSE BYPASS

(ULTIMATE STAGE)

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TITLE OF DRAWING

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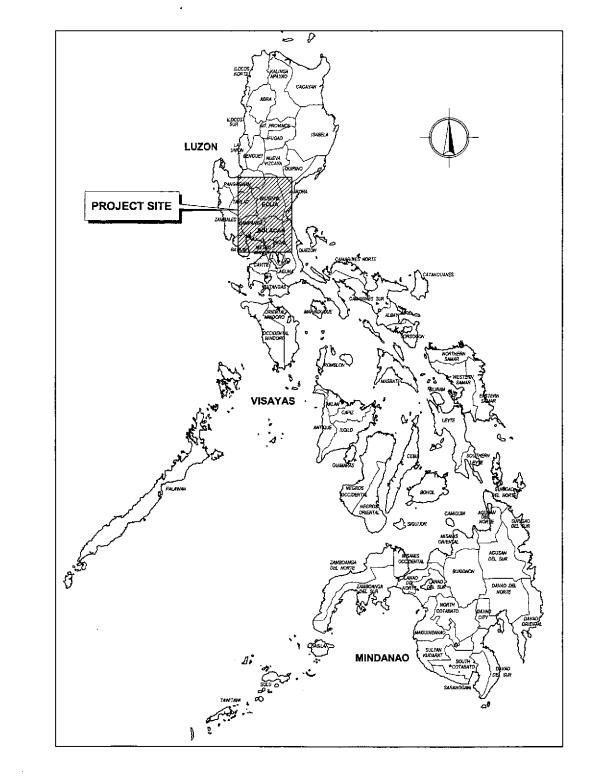
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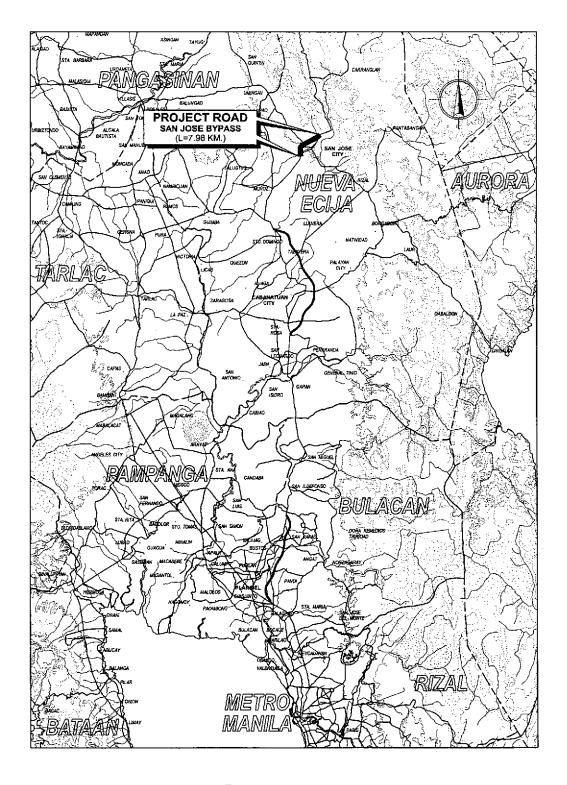
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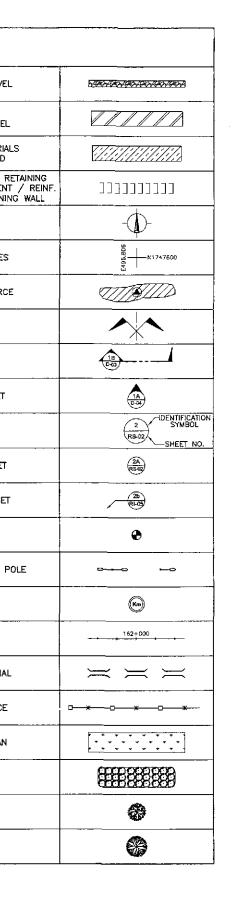
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	CHECKED 9/09/02 5 900	Submitted By: Reviewed By:	Recommended By:	Recommended By: (See cover sheet for	Approved By: (See cover sheet for	ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	NOT TO SCALE	KEY AND VICINITY MAP	GS-03
KEI INTERNATIONAL CO., LTD.	SUBMITTED 7/11/02 TEAM LEADER	DANILO C. TRAJANO JOSEFINA M. AL Project Director Chief, Highwaya D.		Signoture) MANUEL M. BONDAN Dindersecretary	Signature/Approval) SIMEON A, DATUMANONG Secretary	SAN JOSE BYPASS	FULL SIZE A1		

LEGEND AND SYN	IBOLS
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SERVICE OR FRONTAGE ROAD ALONG BYPASS		SECTION IN STRUCTURAL STEEL
CONTOUR		SOFT BED MATERIA TO BE EXCAVATED
RIGHT-OF-WAY LIMIT		STONE MASONRY F WALL / REVETMEN CONCRETE RETAINI
POINT OF INTERSECTION		NORTH SIGN
POINT OF INTERSECTION NO.	PI-00	GRID COORDINATES
E OF PROJECT ROAD		AGGREGATE SOURC
FINISHED GRADE ON PROFILE	<u>g=2.500%</u>	LINE SYMMETRY
BRIDGE	PLAN PROFILE	SECTION TARGET
SINGLE RC PIPE CULVERT		ELEVATION TARGET
DOUBLE RC PIPE CULVERT		TITLE TARGET
BOX CULVERT		SUB-TITLE TARGET
EARTH DITCH FLOW		DETAIL REF TARGE
DIRECTION OF FLOW	<u>-</u>	BOREHOLE
MANHOLE	Ċ	STREET LIGHTING F
GUARDRAIL ON PLAN		KILOMETER POST
GUARDRAIL ON PROFILE		STATION GRID
GROUTED RIPRAP ON SLOPE		LINED IRRIG. CANA
EMBANKMENT		CHAIN LINK FENCE
EXCAVATION		SODDING ON PLAN
SECTION IN WATER		LOW TREES
SECTION IN EARTH		MIDDLE TREE
SECTION IN CONCRETE		HIGH TREE

	DATE	REPUBLIC OF THE	PHILIPPINES	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	DESIGNED 9/9/02 MACACIO		ORKS AND HIGHWAYS	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM			1 1
	CHECKED 9/9/12 3. 35	ubmitted By: Reviewed By: Recommended By:	Recommended By: Approved By: (See cover sheet for (See cover sheet for	ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	NOT TO SCALE	LEGEND AND SYMBOLS	GS-04
KATAHIRA & ENGINEERS YEC YACHIYO ENGINEERING CO., LTD.	SUBMITTED 9/11/02 WI LANDER	DANLO C. TRAJANO JOSEFINA M. ALAGAR GILBERTO S. REYES Project Director Chief, Highways Division OIC, Director M	Signature) Signature/Approvol) MANUEL M. BONDAN SIMEON A. DATUMANONG Undersecretary Secretary	SAN JOSE BYPASS	FULL SIZE A1		



ABBREVIATIONS

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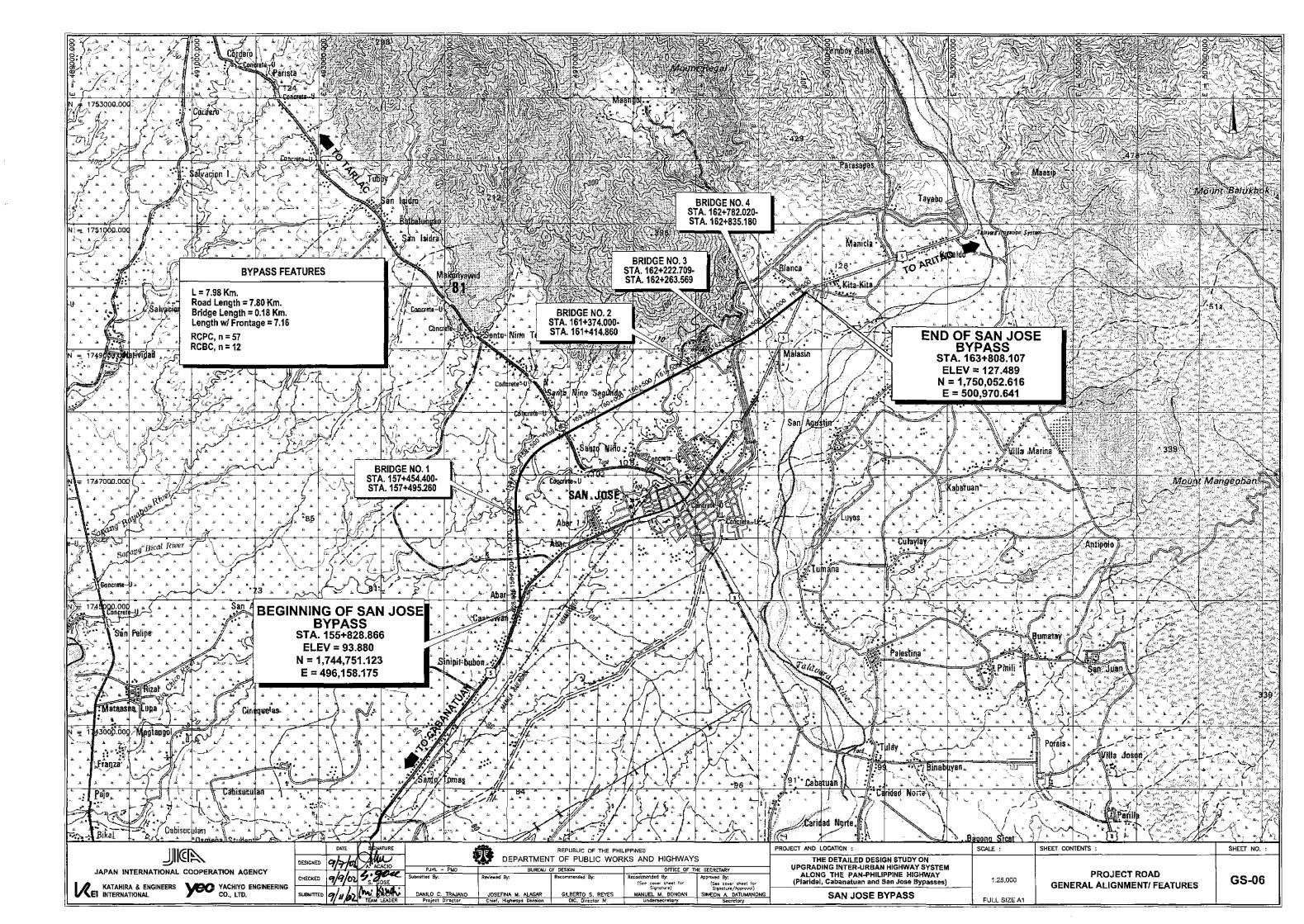
A PARAMETRY (controllo) DBT. DBT.MECE Lo SUPERLIATION (FU-OFT ART ABOUT DWS DWSON LG LDG SUPERLIATION (FU-OFT ART ABOUT DWS/C/WG, DRAWING LV LDG LEX VETTOL. ART ABOUT DWS/C MORENT DWS/C MORENT LL LDG LDG LEX VETTOL. ART ABOUT CASTAGENETE VK DESINE VETTON LDNGT.	
ABT ABUT DWX_VWG. DWX_VWG. DWX_VWG. LUV LUXE LSE VERTIQUE ABT ASTINIST DWX_VWG. DWX_WWG. DWX_WWG. LUXE LUXE STATULE AB ASTINIST DWX_WG. DWX_WG. DWX_WG. DWX_WG. LUXE STATULE AB ASTINIST E DVX_WG. DWX_WG. DWX_WG. LUXE STATULE AB APPROCH E DVX_WG. DWX_WG. DWX_WG. DWX_WG. DWX_WG. AH APPROCH ES DVX_WG. DWX_WG. DWX_WG. DWX_WG. DWX_WG. DWX_WG. DWX_WG. AH APPROCH ES DVX_WG. DWX_WG.	
ABUT ABUTLENT DWA. DWA. DWA. LA LA <td< td=""><td></td></td<>	
AC ASPINAT CONCERTE KR DESCRIPTION LONGT. CHORNAL AG ADDREATE E DATINO JA UNIT. CHORNAL AH ANDO EA DATINO LA UNIT. ES AH ANDO EC/CS/FF END OF CIRCULAR CORRE LT LETT ASPINAT ASPINAT E END OF CIRCULAR CORRE IN METR ASPINA AMERION STANDADO FOR TESTINO & MATERIALS EF EXEMPTION STANDART MATERIAN MANDIM FLOOD EXEL ASRITO AMERICAN STANDARD FOR TESTINO & MATERIALS EF EXEMPTION FLOOD MATERIAN MANDIM FLOOD EXEL ASRITO AMERICAN STANDARD FOR TESTINO & MATERIALS EA EDAVIDE MAX MANDIM FLOOD EXEL ASRITO AMERICAN STANDARD FOR TESTINO & MATERIALS EA EDAVIDE MAX MANDIM FLOOD EXEL ASRITO AMERICAN STANDARD EDAVIDE EDAVIDE EDAVIDE MAX MANDIM FLOOD EXEL BAR BORNARD EXELVEST EDAVIDE EDAVIDE EDAVIDE MAX	
AGG ACORECATE E BCHNO LP LGHT POLE AH MARDO EA BCM LG LGHT POLE APP APPROACH ECC/SS/PF BOID CIRCULAR COURCE LT LGTT APP APPROACH ECC/SS/PF BOID CIRCULAR COURCE LT LGTT ASTN AMERICAN XISSOCUTION OF STATE HIGHWAY E EDER OF CIRCULAR COURCE mm MALLINETER ASTN AMERICAN XISSOCUTION OF STATE HIGHWAY ED EDER OF CIRCULAR MAX MAXIMM ASTN AMERICAN XISSOCUTION OF STATE HIGHWAY EDR EDRE OF CIRCULAR MAX MAXIMM ASTN AMERICAN XISSOCUTION OF STATE HIGHWAY EDRE EDRE OF CIRCULAR MAX MAXIMM ADM ANDREAR DRA EDRAWARCHT MAX MAXIMM MAXIMM ADM ANDREAR DRA EDRAWARCHT MAXIMM MAXIMM MAXIMM BC/S/CPC/P EDRAWARCHT DRAWARCHT MAXIMM MAXIMM MAXIMM ADM ANDREAR DRA EDRAWARCHT MAXIMM MAXIMM MAXIMM BC/S/CPC/P EDRAWARCHT DRAWARCHT DRAWARCHT MAXIMM MAXIMM BC/S EDRAWARCHT DRAWARCHT <td></td>	
AH AHEAD EA DCH LS LLAP SUB_1 LEFT SOE APP APPROACH ECC/CSC/PF EV DCH RULL RULL LT LEFT ASPH ASPHALT E EVCTRIAL RULL T LEFT ASTM AMERICAN ISTANDARD FOR TESTING & MITERALS EF EVCH PCC mm MELTER ASTM AMERICAN ASSOCIATION OF STATE MOHIMAY EQ EDE OF SUTTER MCK MCKUNNUM MCKUNNUM PLOD EVEL AVE ATMASPROTATION OFFICIALS ELEV_LE ELEVATION MCK MCKUNNUM MCKUNNUM <td></td>	
APP APPROACH ECX/SS/FF DD 0F CRRUAR CURVE LT LTT ASPH ASPHALT E DOTESTING & MATERIALS E DOTESTING & MATERIALS mm METER ASH MERICAN STANDARD FOR TESTING & MATERIALS EF DOTE OF CUTTER MAX MAXIMUM DOD WILL DEG OF CUTTER MAX MAXIMUM ASHTO MARENCAN STANDARD FOR TESTING & MATERIALS EV ELEV/EL ELEVITER MAX MAXIMUM DOD WILL DOD WILL MAXIMUM DOD WILL	
ASPH ASPHUT E E EXTERNUL DISTURCE II II METERIA SUBJECT A MATERIALS E F EXAPLE III MARKAN TANANA DE ATTERNA TANANA DE ANTERNALS E F EXAPLE ARE III MARKAN TANANA ASSOCIATION OF STATE HIGHWAY EG EDGE OF GUTTER WAX MAXIMUM A ASSOCIATION OF STATE HIGHWAY EG EDGE OF GUTTER WAX MAXIMUM FLOOD LEVEL A TANKSTORTATION OFFICULS ELEVITON III CONTROL DE EXANTON MET. MAXIMU PLOOD LEVEL A ATTEN A MERICA ASSOCIATION OF STATE HIGHWAY ELEVIL. ELEVATION MILL WAXIMUM FLOOD LEVEL A TANKSTORTATION OFFICULS EN PORTON III CONTROL DE EXANTON MILL WAXIMUM FLOOD MARTE LEVEL. AZM. AZMUTH WARLE EN EN EXANTAN EN PE EDGE OF PARTMENT MILL WAXIMUM FLOOD MARTE LEVEL AZM. AZMUTH WARLE E E EXANTON E EXANT MILL WAXIMUM MARINE E EXANT MILL WAXIMUM FLOOD MARTE LEVEL AZM. AZMUTH WE EXANTAN E E EXANTON MILL E GUATION MILL E GUATION MILL E EXANTON MILL EXANTON E EXANT E E	
ASTM AMERICAN STANDARD FOR TESTING & WITENING & WITENING EF EACH FACE mm MULLIMETER ASHTD AMERICAN ASSOCIATION OF STATE HIGHWAY EG BOE OF GUITER WXX MXXIMUM & TANASPORTATION OFFICIALS ELEV/EL ELEVICI ELATION MFL MXXIMUM ARE AVENUE DME. BUENVELL ELATION MFL MXXIMUM ARE AVENUE DME. BUENVELL ELATION MFL MXXIMUM BCC/SC/FC BEONING OF CIRCULAR CURVE PP BOC OF PAYEMENT MIN. MINIMUM BCC/SC/FC BEONING OF CIRCULAR CURVE EG EQUITON MIS. MECAUNDATE BCG, SEC/SC/FC BEONING OF CIRCULAR CURVE EG EQUITON MO MIDDLE ERDINITE BCG, BEONING EGONING EGAN EQUITON MO MIDDLE ORDINITE BCG, BEONING EGAN EQUITON MO MIDDLE ORDINITE BCG, BEONING EGAN EQUITON MC MCDLE ARCOLL BCG, BEONING EGAN EQUITON MC MCDLE ARCOLL BCG, BEONING EGONING EGAN CURVE MC MCDLE ARCOLL BCG, BCG, BCGNNG EGAN EGANAROY MC MCDLE	
ASHTO ALERICAN, ASSOCIATION OF STATE HORIMAY EG EDDE OF GUTTER MAX MAXIMUM AVE AVENUE ELV,/EL ELEV,/EL ELEV,/EL ELEV,/EL ELEV,/EL MAX MAXIMUM FLOOD LEVEL AVE AVENUE ENGR. BURINNERF MFL MAXIMUM BERY LN BOURDARY UNE ENG BURINNERF MGL MINUM BERY LN BOURDARY UNE ENG BURINNE MGCLAREDUS MGCLAREDUS BERY LN BERY LN BURDARDA ESNT PARENT MFG MEGA PASCUL BERY LN BURDARDA ESNT ESNT MAXIMUM MCDA PASCUL BERY LN BURDARDA ESNT ESNT MEGA PASCUL MGRA PASCUL BERY LNRADA <t< td=""><td></td></t<>	
ASHTO ALERICAN, ASSOCIATION OF STATE HORIMAY EG EDDE OF GUTTER MAX MAXIMUM AVE AVENUE ELV,/EL ELEV,/EL ELEV,/EL ELEV,/EL ELEV,/EL MAX MAXIMUM FLOOD LEVEL AVE AVENUE ENGR. BURINNERF MFL MAXIMUM BERY LN BOURDARY UNE ENG BURINNERF MGL MINUM BERY LN BOURDARY UNE ENG BURINNE MGCLAREDUS MGCLAREDUS BERY LN BERY LN BURDARDA ESNT PARENT MFG MEGA PASCUL BERY LN BURDARDA ESNT ESNT MAXIMUM MCDA PASCUL BERY LN BURDARDA ESNT ESNT MEGA PASCUL MGRA PASCUL BERY LNRADA <t< td=""><td></td></t<>	
* TRANSPORTATION OFFICIALS ELEV./EL ELEV./EL ELEV.TON MFL MAXIMUM FLOOD LEVEL AVE AVELE DBS. EMBANKMENT MFN. MAXIMUM FLOOD LEVEL EVEL. AZIM. AZIMUTH ENGR. ENGREER MH MANHOLE MAXIMUM FLOOD WATEL LEVEL. BCC/SC/PC BEGINING OF CIRCULAR CLIRVE EP EDCE OF PAYEMENT MIN. MINILUM BCC/SC/PC BEGINING OF CIRCULAR CLIRVE EP EDCE OF PAYEMENT MIN. MINILUM BCC/SC/PC BEGINING OF CIRCULAR CLIRVE EP EDCE OF PAYEMENT MIN. MINILUM BCC/SC/PC BEGINING OF CIRCULAR CLIRVE EP EDCE OF PAYEMENT MIN MINILUM BCC BEGINING BEGINING OF CIRCULAR CLIRVE ED EQUATION MO MIDLE ORDING BCT BERNING BEGINING ED ENGR EA/MAY MT METAPOLOL BCT BERNING BCR BACK EXC/SC/SC/SC EXC/MAYCON MC METAPOLICAR CRAVENCES & S BLDG	
AVE AVEN EMB. EMBANKUENT MPM. MAXIMUN FLOOD WATER LEVEL AZM. AZMUTH DNR. ENGNEER MH MANHOUE BCC/SC/PC BEGINNING OF CIRCULAR CURVE EP EDGE OF PAVEMENT MIN. MINIMUM BDIT LN BOURLARY LINE EO EQUITION MISC. MISCELANEOUS BEG. BEGINNING EGN EQUITION MISC. MISCELANEOUS BET. BETMENN ESM ESM. ESM. MISC. MISCELANEOUS BGY, 28607. BARNAGAY ESM. ESM. NG MEGA PASOL BH BORENOLE EW EACH WAY MI METAN SEA LEVEL BLO. BULDING EXX. EXC. EXGNATION DPMIN DEPARTMENT OF PUBLIC WORKS BLO. BULDING EXX. EXC. EXCMATON DPMIN DEPARTMENT OF AVENT BLO. BULDING EXX. EXC. EXCMATON DPMIN DEPARTMENT OF AVENT BLO. BULDING EXX. EXC. EXCMATON DPMIN DEPARTMENT OF AVENT BLO. BULDING EXX. EXX. EXX. EXX. EXX. BLO. BULDING MEAN SEA LEVEL	
AZM. AZMUTH DBGR. ENGINEER MH MMHNUE BCC/SC/PC BEGINNING OF CIRCULAR CURVE EP EDDE OF PAVEMENT MIN. MINIUM BDRY LA BOUNDARY LINE EQ EQUAL; ECUATON MISC. MISC. MISC. BEG. BEGINNING OF CIRCULAR CURVE EQ EQUAL; ECUATON MISC. MISC. MISC. BEG. BETWEEN EGN/RASC EQ EQUAL; ECUATON MO MIDLE ORDINATE BET. BETWEEN BARANGY ETC/ST END OF TRANSTON CURVE MIS. MEAN ASAL LEVEL BH BOREHOLE EW EXC. EXCAVATON MIT METROPOLITAN WARS BLDC. BULLINARD EXC. EXCAVATON MISS. METROPOLITAN WARS METROPOLITAN WARS BLDS. BULEARD EXC. EXCAVATON MIN. MINIMUM MISS. METROPOLITAN WARS BLDS. BULEARD EXC. EXCAVATON MISS. METROPOLITAN WARS METROPOLITAN WARS BLDS. BULEARD EXC. EXCAVATON MINA NOTHAL / WATRWORKS & S S BLDS. BULEARD EXCAVATON MINA NOTHAL / WARDE S <td></td>	
BCC/SC/PC BEDININNO OF CIRCULAR CURVE EP EDDE OF PAYEMENT NIN. MINILUM BDRY LU BOUNDARY LUE EQ EQUATION MISC. MISCELANEOUS BEG. BEDININNO EQUATION MO MIDLE CRININTE BET. BETIMEN EXMINE ESA EQUATION MO MIDLE CRININTE BET. BETIMEN EXMINE ESA EQUATION MO MIDLE CRININTE BH BOREHOLE ESM EAX MAY MET METRIC TON BK BACK EXC. EXCANTON OPMH DEPARTMENT OF PUBLIC WORKS & S BLDC. BULDING EXT. EXTRNO MWSS METRIC TON BK BACK EXC. EXCANTON OPMH DEPARTMENT OF PUBLIC WORKS & S BLDC. BULDING EXTST_EXTS. EXTSTNO MWSS METRIC TON BK BACK MARX EXT. EXTENDER N/A NORTH / NEWTON BW BELOW MARK EXT. EXTENDE N/A NORTH / NEWTON BM BELOW MARK EXT. EXTENDE N/A NORTH / NEWTON BM BELOW MARK EXT. EXTENDE N/A NORTH / NEWTON BM<	
BDRY LN BOUNDARY LINE EQ EQUAL ; EQUATION MISC. MISCELLINEOUS BEG. BERINING EQN. EQUATION MO MIDDLE DRINKTE BET. BETWEEN ESMT EASMERT MPG MEAD APSOL BK BARKAGY ETACPST END OF TRANSTION CURVE MSL MEAN SEA LEVEL BH BOREHOLE EV EACH WAY MT METRO POSIL MEAN SEA LEVEL BK BACK BACK EXC. EXCANTON DPWH DEPARTMENT OF PUBLIC WORKS BLOD. BULDING EXTINCT_ACTIO. EXTINCT MWSS METROPOLTANI WATERWORKS & S BLOD. BULDING EXTINCT_ACTION DPWH DEPARTMENT OF PUBLIC WORKS BLOD. BULDING EXTINCT_ACTION MWSS METROPOLTANI WATERWORKS & S BLOD. BULEVARD EXPANSION BARNING NOTIN MOTA TAPLICABLE BLOD. BULDING FIL EXPANSION BARNING NOTIN MOTA APLICABLE BN BELOW MEAN SEA LEVEL CTIN D	
BEG, BEGINNING EQN. EQN. EQN. EQN. MO MIDDLE ORDINATE BET. BETREEN ESNT EXAMENT MP MEGA PASQL BH BORRHOLE EW EACH WAY MT METRIC TON BK BACK EW EACH WAY MT METRIC TON BK BACK EW EACH WAY MT METRIC TON BLDD. BULDING EXIST_/EXIG. EXIST_/EXIG. EXIST_/EXIG. MMSS METROPOLITAN BLVD. BULDING EXIST_/EXIG. EXIST_/EXIG. EXIST./EXIG. MMSS METROPOLITAN WEINDON SUF S BLVD. BULDING EXIST_/EXIG. EXIST./EXIG. EXIST./EXIG. NOT MISS. METROPOLITAN WEINDON SUF BLVD. BOULEWARD EXIST_/EXIG. EXIST./EXIG. EXIST./EXIST. EXIST./EXIST. MISS. MEROPOLITAN WAY MISS. METROPOLITAN WAY MISS. METROPOLITAN WAY MISS. METROPOLITAN WAY MISS. MISS. MISS.///////////////////////////////////	
BET, BETWEEN ESNT EASMENT MPa MEGA PASCAL BGY_MERCY, BRANNARY ETC/ST END OF TRANSTION CURVE MSL METN SEA LEVEL BH BOREHOLE EW EACH WAY MT METRIG TON BK BACK EXC. EXCAVATION DPWH DEPARTMENT OF PUBLIC WORKS BLOG. BULDING EXT_ZEXTG. EXST_ZEXTG. EXST_MENT OF PUBLIC WORKS BLOG. BULDING EXT_ZEXTG. EXST_ZEXTG. EXST_ZEXTG. BM BORCH MARK EXT. EXTRENSION BEARING N NORTH / NEWTON BM BELOW MEAN SEA LEVEL EXT. EXTRENSION NOR NORTH / NEWTON BMSL BELOW MEAN SEA LEVEL EXT. EXTRENSION NC NORTH / NEWTON BOTT/MONT BOTTOM FF FAR FUL/FAR FAGE NF NEAR FAGE BRG BEARING FG FINL/FAR FAGE NS. NUMBER BRG BEARING FR FINL/FAR FAGE NO./No. NUMBER BRG BEARING FN FINL/FAR FAGE OD OUTSTOE DAWTER BRG BEARING FN FINL/FAR FAGE NF NEAR FAGE BRG BEARING F	
B6Y,/BRGY, BARANGAY ETG/ST END OF TRANSITION CURVE MSL MEAN SEA LEVEL BH BOREHOLE EW EACH WAY MT METRIC TON BK BACK EXC. EXCANATION DPWH DEPARTMENT OF PUBLIC WORKS BLDG. BULDING EXIST./EXTG. EXISTING MWSS METROPOLITAN WATERWORKS & S BLDD. BOULEVARD EXR. EXCANATION DPWH DEPARTMENT OF PUBLIC WORKS BLND. BOULEVARD EXR. EXCIN EXRING N NORTH / NEWTON BM BEXCH MARK EXR. EXRING N NORTH / NEWTON BMS BELOW MEAN SEA LEVEL EXR. EXRING N NORTH / NEWTON BMS BELOW MEAN SEA LEVEL EXR. EXRING N NORTH / NEWTON BMS BACK STATION : BOTH BOTH FF FAR FALL/FAR FACE NF NEAR FACE BR BRORDE FF FAR FALL/FAR FACE NF NEAR FACE NO NO./NO. NUMBER BR BACK STATION : BOTH SIDES FPL FINISHED AVENENT OD OD OD OUTISTO EDMANTER BR BACK STATION : BOTH SIDES FPL FINISHED AVENENT OT N/A<	
BH BOREHOLE EW EACH WAY MT METRIC TON BK BACK BACK EXC. EXCANATON DPWH DEPARTMENT ON BLDG. BULDING EXIST,/EXTG. EXISTING MWKS METRIC TON BLDD. BOULEVARD EXIST,/EXTG. EXISTING MWKS METRIC TON BLDD. BOULEVARD EXIST,/EXTG. EXISTING MWKS MIT MERWORKS & S BMD. BOULEVARD EXIST,/EXISTING MKS MIT NORTH / NEWTON BM BERCH MARK EXIST, EXTENSION BEARING N NORTH / NEWTON BMSL BELOW MARN SEA LEVEL EXIST, EXTENSION NC NORAL CROWN BMSL BELOW MARN SEA LEVEL EXIST, EXTENSION NC NORAL CROWN BMSL BELOW MARN SEA LEVEL EXIST, EXISTING NC NORAL CROWN BMSL BELOW MARN SEA LEVEL EXISTING NF NEAR FACE BWS BEROF BARING FI FAR FILL/FAR FACE NF NEAR FACE BR BRACK STATION ; BOTH SIDES FI FINISHED GADADE NO/No. NUMBER BRG BEAGING GF TRANSITION CURVE FI FIE HYDRANT OUT	
BK BACK EXC. EXCAVATION DPWH DEPARTMENT OF PUBLIC WORKS BLOG. BULDING EXIST_/EXIG. EXIST_/EXIG. EXIST_/EXIG. EXIST_/EXIG. WWSS METROPOLITAN WATERWORKS & S BLVD. BOULEVARD BOULEVARD EXIST_/EXIG. EXIST_/EXIG. EXIST_/EXIG. WWSS METROPOLITAN WATERWORKS & S BLVD. BOULEVARD EXIST_/EXIG. EXIST_/EXIG. EXIST_/EXIG. EXIST_/EXIG. NORTH / NEWTON NORTH / NEWTON BM BENCH MARK EXIST_/EXIG. EXIST_/EXIG. EXIST_/EXIG. N/A NORTH / NEWTON AN ANORTH / NEWTON BMS. BELOW MEAN SEA LEVEL EXIST_/EXIG. EXIST_/EXIG. EXIST_/EXIG. N/A NORTH / NEWTON BMS. BETOM BAT. EXIST_/EXIG. EXIST_/EXIG. N/A NORTH / NEWTON BMS. BETOM BAT. EXIST_/EXIST. EXIST_/EXIST. N/A NORTH / NEWTON BRG. BEANNE BEANNE FIL FINSHED GADE N/A NO/No. NUMBER BST BITUMIOUS SURFACE TREATMENT FIL FINSHED GADE OV OUTSIDE LORMENTER BST BITUMIOUS SURFACE TREATMENT FIL FIRE HYDRANT OUT INV. OUTLET INVERT	
BK BACK EXC. EXCAVATION DPWH DEPARTMENT OF PUBLIC WORKS BLDG. BULDING EXIST_/EXIG. EXIST_/EXIG. EXIST_K MWSS METROPO_ITAN WATERWORKS & S BLVD. BOULEVARD BOULEVARD EXIST_/EXIG. EXIST_/EXIG. EXIST_/EXIG. MWSS METROPO_ITAN WATERWORKS & S BM BENCH MARK EXIST_/EXIG. EXIST_/EXIG. EXIST_/EXIG. N/A NOT APPLICABLE BMAL BLOW MEAN SEA LEVEL EXIST_/EXIST. EXTENSION N/A NOT APPLICABLE BMAL BLOW MEAN SEA LEVEL EXIST_/EXIST. EXIST_/EXIST. EXIST_/EXIST. N/A NOT APPLICABLE BMAL BLOW MEAN SEA LEVEL EXIST_/EXIST. EXIST_/EXIST. EXIST_/EXIST. N/A NOT APPLICABLE BMAL BLOW MEAN SEA LEVEL EXIST_/EXIST. EXIST_/EXIST. EXIST_/EXIST. N/A NOT APPLICABLE BMAL BLOW MEAN SEA LEVEL EXIST_/EXIST. EXIST_/EXIST. EXIST_/EXIST. EXIST_/EXIST. N/A NOT APPLICABLE BMAL BLOW MEAN SEA LEVEL EXIST_/EXIST. EXIST_/EXIST. EXIST_/EXIST. N/A N/A N/A BRG BEARING FIL FINISHED GRADE N/F N/A N/A N/A	
BLDG. BUILDING EXIST./EXTG. EXIST./EXTG. EXIST./EXTG. EXIST.NECTOR Newss METROPOLITAN WATERWORKS & S BLVD. BOULEVARD EXP. EXPANSION BEARING N NORT AP / NEWTON BM BENCM MARK EXP. EXTR. EXTR. EXTR. EXTR. EXTR. NORT AP / NEWTON BMSL BELOW MEAN SEA LEVEL EXTN. EXTR. EXTR. EXTR. NORTAP / NEWTON NORMAL CROWN B0T,260TT BOTTOM FF FAR FILL/FAR FACE NF NEAR FACE BR. BRIDDE BOTTOM FF FAR FILL/FAR FACE NO./No. NUMBER BR. BRIDDE BRIDDE FG FINISHED PAVEMENT LEVEL 00 OUTSIGNAL GROUND LEVEL BST BITUMINOUS SURFACE TREATMENT FTG. FOOTING ONT INV. OUTLINT INVERT BW BOTHWAYS TREATMENT FUL FINISHED PAVEMENT LEVEL OWL ORDINARY WATER LEVEL C C CURVE G GRADIENT IN PERCENT OUTLINT INVERT C C CURVE PL PREMOLIDE DAVETER <	AND HIGHWAYS
BLVD. BOULEVARD EXP. EXPANSION BEARING N NORTH / NEWTON BM BENCH MARK EXT. EXTERIOR N/A NOT APPLICABLE BMSL BELOW MEAN SEA LEVEL EXT. EXTERIOR NC NORMAL CROWN BMSL BELOW MEAN SEA LEVEL EXT. EXTENSION NC NORMAL CROWN BOT./BOTT BOTTOM FA FIL/FAR FACE NF NR FACE BR SRIDGE FG FINISHED GRADE NO./No. NUMBER BR BRRG BEARING FIN. FINISHED AVENENT LEVEL OD OUT COLOR OUT EXTER BS BACK STATION ; BOTH SIDES FPL FINISHED PAVEMENT LEVEL OD OUT INV. OUT EXTER BS BS BEGINING OF TRANSTION CURVE FH FIRE HYDRANT OUT INV. INV. BREARING	
BMBENCH MARKEXT.DATERIORN/ANOT APPLICABLEBMSLBELOW MEAN SEA LEVELEXTN.EXTENSIONNCNORMAL CROWNBOT,BOTTBOTTOMFFFAR FILL/FAR FACENFNEAR FACEBR.BIDDEFGFINSHED GRADENO./No.NUMBERBRGBEARINGFRFINSHED GRADEOC/O.C.ON CENTERBSBACK STATION ; BOTH SIDESFPLFINSHED PAVEMENT LEVELODOUTSIDE DAMETERBSTBITUMINOUS SURFACE TREATMENTFTG.FOOTINGOGLORDINARY WATER LEVELBTC/TSBEGINING OF TRANSITION CURVEFHFILC HYDRANTOUT INV.OUTLET INVERTBWBOTHWAYSQGRADENT IN PERCENTPCCPORTANDY CEMENT CONCRETECABCRUSHED AGGREGATE BASEGALV.GALVANIZED IRON PIPEPLPHEMULPPINE(S)CBCATCH BASINGIPGALVANIZED IRON PIPEPIPOINT OF INTERSECTIONCBCATCH BASINGIPGLOBAL POSITIONNING SYSTEMPLHLPHILPPINE-JAPAN HIGHWAY LOANCEMCEMENTCONCRETE LECTRIC POSTGR.GRADEPLPROMEUTIVEL PLATECCMCEMITETRGLOBAL POSITIONING LEVELPLPROMEUTIVEL PANAGEMENT OFFICECU M/m ³ CUBIC METERHOWLHEADWALLPLOTPHILPPINE-JAPAN HIGHWAY LOAN	STRANGE STRIEM
BMSL BELOW MEAN SEA LEVEL EXTN. EXTENSION NC NORMAL CROWN BOT,/BOTT BOTTOM FF FAR FLL/FAR FACE NF NEAR FACE BR. BRIDGE FG FINISHED GRADE NO./No. NUMBER BRG BEARING FIN. FINISHED GRADE NO./No. NUMBER BS BACK STATION ; BOTH SIDES FPL FINISHED PAVEMENT LEVEL OD OUTSIDE DIAMETER BST BITUMINOUS SURFACE TREATMENT FTG. FOOTING OGL ORIGINAL GROUND LEVEL BTC/TS BEGINING OF TRANSITION CURVE FH FIRE HYDRANT OUT INV. OUTLET INVERT C CURVE Q GRADIENT IN PERCENT OVI ON CRONARY WATER LEVEL C CURVE Q GRADIENT IN PERCENT PCC PORTLAND CEMENT CONCRETE CAB CRUSHED AGGREGATE BASE GALV. GALVANIZED PIN PHILPPINE(S) CALC. CALCHLATED GEN. GENERAL PHIL PHILPPINE(S) CALC. CALTHER GEN. GENERAL PHIL PHILPPINE_JAPAN HIGHWAY LOAN <t< td=""><td></td></t<>	
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Cu M/m ³ CUBIC METER HFL HIGH FLOOD LEVEL POC POINT ON CURVE	
CHB CONCRETE HOLLOW BLOCK HDR. HORIZONTAL POT POINT OF TANGENT	
CIM CURB INLET MANHOLE HSE HOUSE PP POWER POLE	
CI CURB INLET HT. HEIGHT PR PROJECT ROAD	
CL CENTERLINE HTL HIGH TIDE LEVEL PRC POINT OF REVERSE CURVE	
CLR CLEAR HWL/HW HIGH WATER LEVEL/HIGH WATER PROJ. PROJECT	
COL(S) COLUMN(S) HWY. HIGHWAY PROP. PROPOSED	
COMB. CONC. COMBINE CONCRETE I INTERSECTION ANGLE PVC POLYVINYL, CHLORIDE	
CONC. CONCRETE ID INSIDE DIAMETER PV! POINT OF VERTICAL INTERSECTION	N
CONC. MON. CONCRETE MONUMENT IN. INCHES PVMT. PAVEMENT	
CONST. CONSTRUCTION INC. INCORPORATED QTY QUANTITY	
CONST. JT. CONSTRUCTION JOINT IN. INV. INLET INVERT R RADIUS	
CONT. CONTINUOUS INT. INTERIOR RC REINFORCED CONCRETE	
CORP. CORPORATION INTERM. INTERMEDIATE RCBC REINFORCED CONCRETE BOX CUI	LVER
CP CROSS PIPE IRRIG, IRRIGATION RCBG REINFORCED CONCRETE BOX GIR	DER
C & G CURB AND GUTTER JT. JOINT RCDG REINFORCED CONCRETE DECK GI	IRDER
CULV. CULVERT kg. KILOGRAM RCPC REINFORCED CONCRETE PIPE CU	LVERT
C/WAY CARRIAGEWAY KN KILO NEWTON RD ROAD	
CYL. CYLINDRICAL KPg KILO PASCAL RDWY, ROADWAY	
DEPT. DEPARTMENT KM KILOMETER REP RELOCATED ELECTRIC POST	
DET. DETAIL KPH KILOMETER PER HOUR RET. WALL RETAINING WALL	
DIA./DIAM DIAMETER L LENGTH ROW RIGHT-OF-WAY	
DIAPH. DIAPHRAGM LC LENGTH OF CIRCULAR ARC RS RIGHT SIDE	
HILCO DATE SUMMURE REPUBLIC OF THE PHILIPPINES PROJECT AND LOCATION :	· · · · ·
	STUDY ON
JAPAN INTERNATIONAL COOPERATION AGENCY UPSIGN OFFICE OF THE SECRETARY UPGRADING INTER-URBAN H	IGHWAY SYSTEM
CHECKED 9/9/8) Score Submitted By: Recommended By: Approved By: Planted Checked Planted Checked By: Planted By: Planted Checked By: Planted By: Planted Checked By: Pl	
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CO., LTD. SUBMITTED 9/11/92 V D. RUBCH DANILO C. TRAJANO JOSEFINA M. ALAGAR GILGERTO S. REYES MANUEL M. BONDAN SIMEON A. DATUMANONG SAN JOSE BY	1433

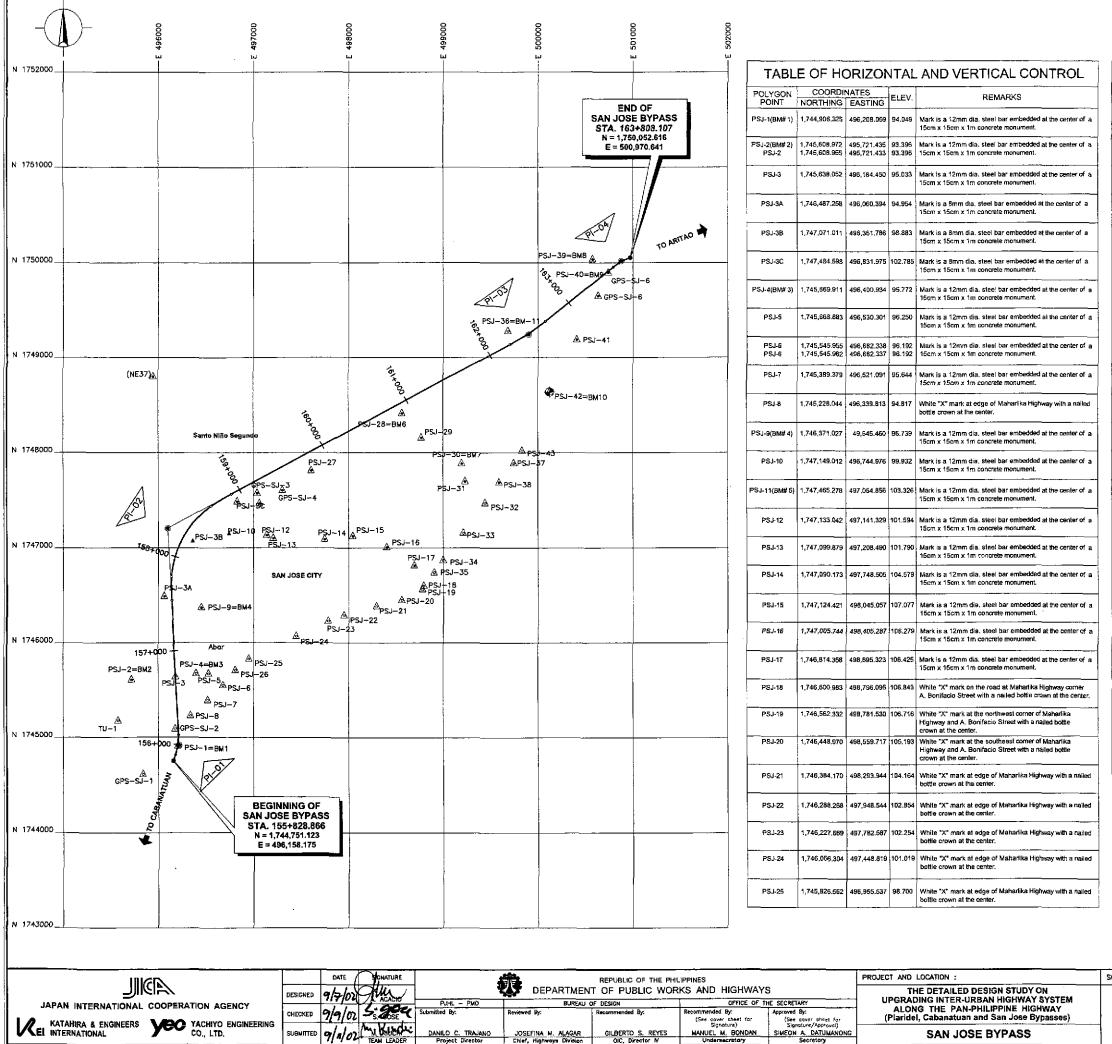
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	NIC		NOT INCLUDED IN CONTRACT	
	MP		MEGA PASCAL	
	MC		MANHOLE COVER	
	RP RS		REFERENCE POINT ROCK SLOPE PROTECTION	
	RT.		RIGHT	
	S S		SOUTH	
	SE	37.	SECTION	
		₩K.	SIDEWALK	
	SH	T.	SHEET	
	SL.		SLOPE	
	SQ	.M./m ²	SQUARE METER	
	SM	н	SEWER MANHOLE	
	SP		SPIRAL	
		CD.	SPACED	
			SPACES	
	SP	L ECS,	SPECIAL	
	SQ		SPECIFICATIONS SQUARE	
	ST.		STREET	
	ST/		STATION	
	STL		STANDARD	
		FF.	STIFFENERS	
	ទា	RR./STIR	STIRRUP(S)	
	ST	•	STRAIGHT	
	ST	RUC./STRUCT	STRUCTURAL	
	SU	RVY.	SURVEY	
		MM.	SYMMETRY	
	T		TANGENT	
	TBI		TEMPORARY BENCHMARK	
	TEN		TEMPORARY	
	THI Tk	ς.		
	TL		SHORT TANGENT OF SPIRAL LONG TANGENT OF SPIRAL	
		NS.	TRANSVERSE	
	Ts		TOTAL, TANGENT DISTANCE	
	TY		TYPICAL OR TYPE	
	v		DESIGN SPEED	
	VAI	ર .	VARIABLE/VARIES	
	VC		VERTICAL CURVE	
	VE	२.	VERIFIED	
	VE		VERTICAL	
	VO	<u>L</u>	VOLUME	
	₩		WIDENING	
	* */		WIDTH	
	*/ */		with Without	
	WE		WOODEN ELECTRIC POST	
	WK		WALK	
	WT		WATER TANK	
	X,Y	,	COORDINATE OF BCC AND ECC WIT	н
			RESPECT TO TANGENT	
	đ		AND	
	0		AT	
	臣		BASELINE	
	ę		CENTERLINE	
	ۍ ۲		INFINITY	
	~ +/	_	Percent Plus / Minus	
	+/ ø		DIAMETER	
	Ø		SQUARE	
	CP		CONTROL POINT	
	L		ANGLE SHAPE	
		·		
	SCALE ;	SHEET CONTE	NTS 1	SHEET NO. :
	NOT TO SCALE		ABBREVIATIONS	GS-05
_		1		

FULL SIZE A1



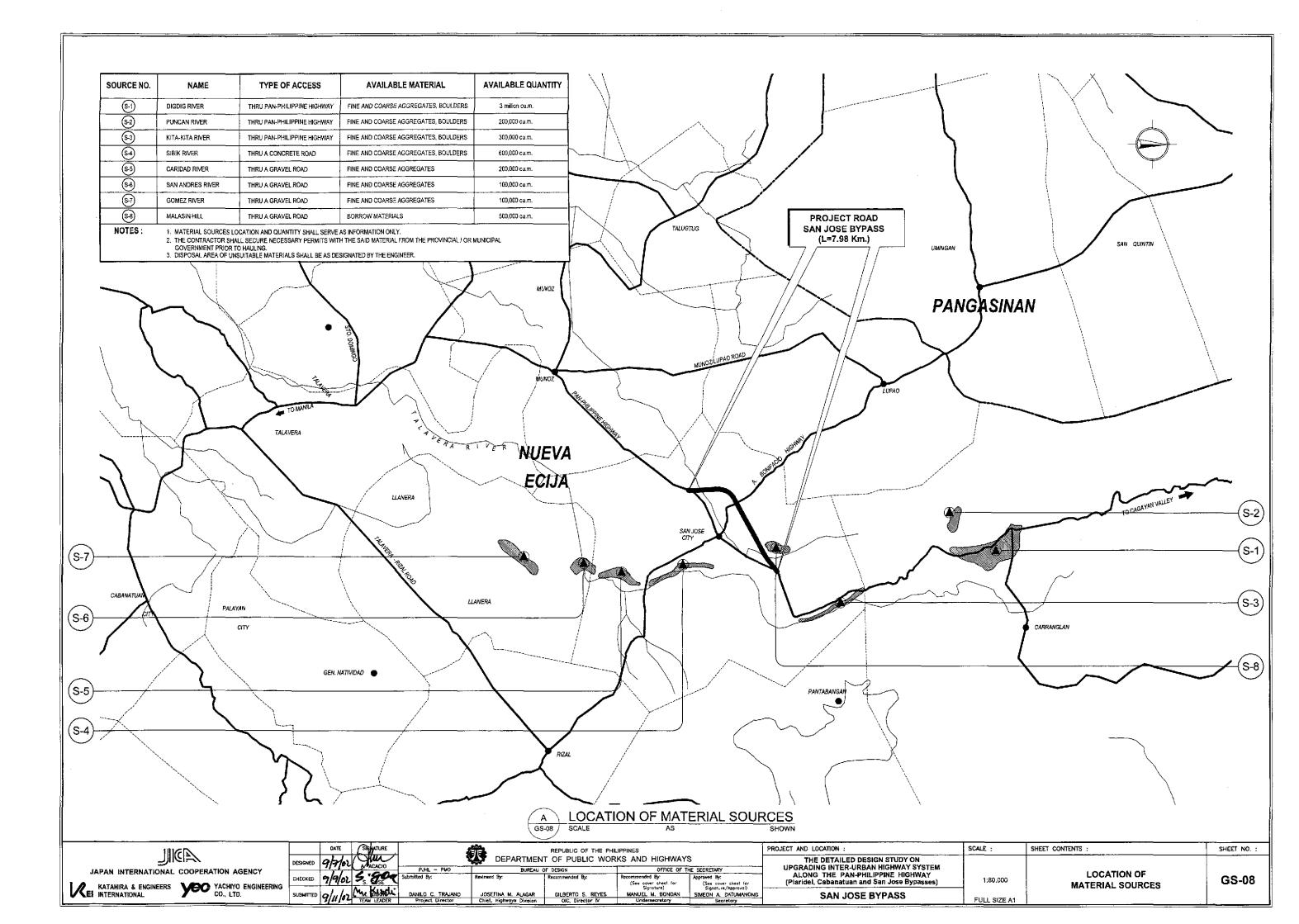


TABL			ITAL	AND VERTICAL CONTROL
POLYGON POINT	COORDII NORTHING	ATES EASTING	ELEV.	REMARKS
PSJ-26	1,745,704.868	496,813.299	97.618	White "X" mark at edge of Mahariika Highway with a nailed bottle crown at the center .
PSJ-27	1,747,810.894	497,609.704	106.480	Mark is a 12mm dia, steel bar embedded at the center of a 15cm x 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 $15 \text{ cm} \times 15 \text{ cm} \times 1 \text{ m}$ cancrete 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 1m concrete monument.
PSJ-30(8M# 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	106.619	White "X" mark on the pavement of Maharlika Highway with a nailed bottle crown at the center.
PSJ-34	1,746,869.849	499,001.100	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	While "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.
P\$J-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 1 m 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 $15cm \times 15cm \times 1m$ concrete monument.
PSJ-42(BM# 10)	1,748,637.031	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 Maharilka Highway with a nailed bottle crown at the center.
PSJ-3A	1,745,618.594	496,288.749	95.170	Mark is a 8mm dia, steel bar embedded at the center of a $20 \text{ cm} \times 20 \text{ cm} \times 1 \text{ m}$ concrete monument.
PSJ-38	1,745,634.627	496,361.324	95.670	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	COORDI	NATES	ELEV.	REMARKS
POINT	NORTHING	EASTING	CLEV.	KEMARKS
SJ-1	1,744,609.148	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 foct 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 lihe left from the road.
SJ-3	1,747,572.469	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 proy. hell, 57m from the centerline. It is embedded in front of Venturina's residence 22m from the road centerline.

CALE :	SHEET CONTENTS :	SHEET NO. :
1:20,000	HORIZONTAL AND VERTICAL CONTROL MONUMENT	GS-07
FULL SIZE A1		



SUMMARY OF QUANTITIES (ULTIMATE STAGE)

| DESCRIPTION KS ng and Grubbing val of Existing Structures and Obstructions val of Existing Guardrails | UNIT | | | | | | _

 | | BC. | AD CROSSIN

 | GS | QUANTITY

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 | ROAD CROSS | INGS
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| ng and Grubbing
val of Existing Structures and Obstructions | | Main
Bypass | 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. 3(RT)
 | No. 4(LT&RT) | TOTAL | |
| val of Existing Structures and Obstructions | T | <u></u> | | | | | Г

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| | vement (Plain), t=230mm vement (Plain), t=180mm vement (Reinforced) I=300mm Approach Stab STRUCTION <i>Concrete Piles (400mmx400mm), fumished</i> es (Concrete Piles (400mmx400mm), fumished & driven Concrete Class A (for 800mm Bared Piles es for 400mmx400mm Piles grifty Test for Bored Piles of various diameter e Railing Type A (Concrete Posts and Precast Beams) ing Steel (Grade 40) class A (for=21MPa, max, aggregate 20mm) for medium bridges RCDG superstructures al Concrete Class A (for=21MPa, max, aggregate 20mm) for medium bridges PCDG superstructures al Concrete Class B (for=11MPa, max, aggregate 10mm) for forced members concrete (for=11MPa, max, aggregate 12mm) for forced members concrete (for=11MPa, max, aggregate 12mm) for forced for members concrete (for=11MPa, max, aggregate 12mm) for forced members concrete for the formation of the formation bridges concrete Class Concrete Cl | Excavation below OWL (Common Soli) m3 Aiverts and Drain Excavation m3 ar Backfill for Pipe Culvert m3 sment from Roadway Excavation m3 sment from Borrow (Pil m3 sment from Borrow (Selected Granular Matenal) for Bridge m3 de Preparation (Common Soli) m2 de Preparation (Existing Gravel Surface) m2 D BASE COURSE m3 uverent (Plain), t=230mm m2 D BASE COURSE m3 verenet (Plain), t=180mm m2 STRUCTION m2 Concrete Plies (400mmx400mm), fumished m sc Concrete Plies (400mmx400mm), fumished & driven m paratic Plies (400mmx400mm), fumished & driven m concrete Plies (400mmx400mm), fumished & driven m ain Dynamic Plie Test for 800mm Bored Plies each es for 400mmx400mm Plies gaach grifty Test for Bored Plies of various diameter each e Railing Type A (Concrete Posts and Precast Beams) m al Concrete Class A ((c=21MPa, max. aggregate 20mm) for m3 al Concrete Class A ((c=21MPa, max. aggregate 20mm) for m3 | Excavation below OWL (Common Soli) m3 | Excavation below OWL (Common Soli) m3 32,715.88 virets and Orain Excavation m3 32,715.88 ir Backfill for Pipe Culvert m3 17,377.07 wment from Roadway Excavation m3 17,377.07 orment from Borrow Pit m3 5,525.04 orment from Borrow (Selected Granular Matenat) for Bridge m3 de Preparation (Common Soli) m2 79,031.68 - de Preparation (Existing Gravel Surface) m2 - - D BASE COURSE m3 20,977.85 - URSES vement (Plain), t=230mm m2 48,003.34 - vement (Reinforced) 1=300mm Approach Stab m2 - - STRUCTION Concrete Piles (400mmx400mm), fumished m - - Concrete Piles (400mmx400mm), fumished & driven m - - - ain Dynamic Pile Test for 800mm Bord Piles each - - - - ain Dynamic Pile Test for 800mm Bord Piles each - - - - - | Excavation below OWL (Common Soli) m3 . . ir Backfill for Pipe Culent m3 32,715.88 . ir Backfill for Pipe Culent m3 17,377.07 . ment from Roadway Excavation m3 6,525.04 . ament from Borrow Pil m3 . . ament from Borrow (Selected Granular Matenal) for Bridge m3 . . ament from Borrow Pil m3 . . . ament from Borrow (Selected Granular Matenal) for Bridge m3 . . . ament from Borrow (Selected Granular Matenal) for Bridge m3 ament from Borrow Pil m2 79.031.66 be Preparation (Common Solit) m2 | Excertation below OWL (Common Soli) m3 - - - iverte and Orain Excertation m3 32,215.88 - - ir Backfill for Pipe Culvert m3 17,377.07 - - ornent from Roardwy Excavation m3 6,525.04 - - ornent from Borrow (Redeted Granular Matona) for Bridge m3 - - - de Preparation (Cististing Gravel Surface) m2 79.031.88 - - - de Preparation (Cististing Gravel Surface) m2 2.0.977.85 - - - DE ASES COURSE - - - - - - - Versent (Paint), H230mm m2 48,003.34 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - | Excertation below ONL (Common Soli) m3 32,715,88 - - Invertis and Orain Excertation m3 32,715,88 - - Internation Common Soli m3 17,377,07 - - Internation Excervation Scattal Association m3 - - Internation Excervation (Stated Scattalan Material) for Bridge m3 - - - Internation Excervation m2 79,031.66 - - - Internation Excervation m2 1,037.765 - - - DRASE COURSE - - - - - - UNRSES - - - - - - - - - - - - - - - - </td <td>Excavation below ONL (Common Sol) m3 </td> <td>Excession below OWL (Common Sol) m3 m3</td> <td>Extragetion below OW, (Commo Sol) n3 20.2715.88 <td>Standard Scher OWL (Common Sch) n3 <</td><td>Dispansion of bolds M1 M2 M1 M1 M2 M1 M2 M1 M2 M1 M2 M2 M1 M2 M1 M2 M2 M2 M1 M2 M2 M2<td>Storegins (Second Second) n3 <!--</td--><td>Display no. no.</td><td>Decomposition (Ording Ording Ording</td><td>Discreption biologyninininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininininin</td><td>Discription Control Solver (Legen (Solver) One of the Control Legen (Solver) One of the Control Legen</td><td>biospice / M. 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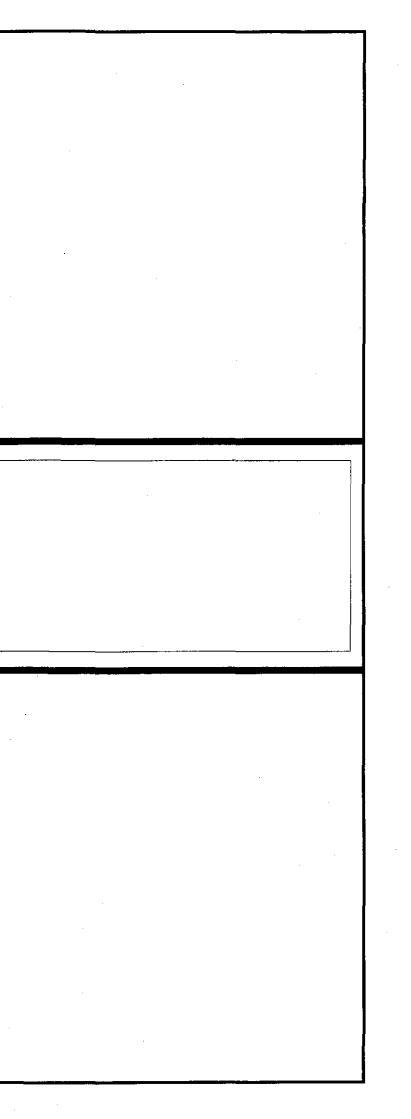
			DATE	SIGNATURE		<i>a</i>	REPUBLIC OF THE PH	ILIPPINES		PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
		DESIGNED	9/7/0-		<u> </u>	4.4.4		RKS AND HIGHWAY		THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM			
Ű.	JAPAN INTERNATIONAL COOPERATION AGENCY	CHECKED	alal	Sale	Submitted By:	BUREAU Reviewed By:	OF DESIGN Recommended By:	Recommended By:	THE SECRETARY	ALONG THE PAN-PHILIPPINE HIGHWAY		SUMMARY OF QUANTITIES	00.00
	KATAHIRA & ENGINEERS. YOO YACHIYO ENGINEERING INTERNATIONAL YOO CO., LTD.		11-110	M LINCA	-			(See cover sheel for Signature)	(See cover sheet for Signature/Approval)	(Plaridel, Cabanatuan and San Jose Bypasses)	NOT TO SCALE	ULTIMATE STAGE (1 of 2)	GS-09
	CO., LTD.	SUBMITTE	9/11/0	2 TEAM LEADER	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director M	MANUEL M. BONDAN Undersecratory	SIMEON A. DATUMANONG Secretory	SAN JOSE BYPASS	FULL SIZE A1	(10/2)	

SUMMARY OF QUANTITIES (ULTIMATE STAGE)

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NO.	DESCRIPTION		Main								ROAD CROSSIN			• • • • • •					No. 44 TONT: 5		DAD CROSS			TOTAL	REMARKS
	NAGE AND SLOPE PROTECTION STRUCTURES	4	Bypass	A-1	A-1a	A-1-2	A-2	A-3	<u> A-3a</u>	A-4	A-5	A-6	A-7	A-8	A-9	A-9a	C-1	Ç-2	1NO. 1(LT&RT)]	No. 2LT&RT)	NO. 3(LT)	NO. 3(RT)	NO. 4(LT&RT)		L
	RCPC Standard Strength (32MPa), #510mm (24")	m	10,843.00	-	-			-		-		- 1	-	-	<u> </u>									10,843.00	
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502(2)a2		each	376.00	-				-	· · · · · · · · · · · · · · · · · · ·				- 1	-				-						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)	Gabiens	m3		-	-	-		-	-		-		-	-				-					144.00	144.00	
	Rubble Concrete Slope Protection	m3	<u> </u>	-	-		- (-	<u> </u>	-	-	·		44.00			78.00	122.00	
+	ELLANEOUS STRUCTURES						<u> </u>																		
600(1)a	Concrete Curb, Type A (200x450mm) Combination Concrete Curb & Gutter/Side Strip, Type A		13,715,24	-	<u>-</u>		· · · · · · · · · · · · · · · · · · ·	-		_+				-	······	-		-						13,716.00	
600(3)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 (075x334mm)	m	13,715,24	-			-	-	-	-	-		-	-	•	-	-	-						13,716.00	
601(1)	PCC Pavement for Sidewalk (t=100mm)		29,466,98	37.60		252.54			<u> </u>			- 1			·	-	-	·				_ _		29,758.00	
607(2)b	Reflectorized Pavement Studs (Raised Profile Type, two faces	each			-				<u> </u>		5.00			_			<u> </u>	·						5.00	
	reflective)										-													20.00	
607(3) 608(1)	Chatter Bars (one face reflective) Furnishing and Placing Top Soli	each m3	9,022.09	-		<u> </u>	-		·					-	- <u>-</u>	-		-					———	9,023.00	
608(1) 610(1)	Sodding	- m3 m2	18,044.16	-	-	······		-																18,045.00	
611(1)a		each	24,986,00										-	-			-							24,986.00	
611(1)b			1,201.00													·								1,201.00	
	Planter Square Type 8 (0.68mx1.70m) for Road Side Plantation	each	692.00	-	-		-	-	-	-	-	-	-	-		-	-	-						692.00	
	Reflectorized Thermoplastic Pavement Markings (White)	m2	2,776.95		-	-	-	-	-	-	64.55	-	75.76	43.56	-	-	-	-						2,961.00	
	·																								
			DATE	SIGNATURE	Τ			 R	REPUBLIC OF	THE PHILIPPIN				PROJECT A	ND LOCATION	:			SCALE :	SHEET	CONTENTS :		. <u>.</u>		SHEET NO. :
	PAN INTERNATIONAL COOPERATION AGENCY ATAHIRA & ENGINEERS YEC YACHIYO ENGINEERING NTERNATIONAL YEC , LTD.	DESIGNED CHECKED	alala	J. TAPIA S. GOSE	Submitted By:		DEPA	RTMENT (OF PUBLI		AND HIGHW/	F THE SECRETARY		AL	Rading int	'ER-URBAN I PAN-PHILIPI	N STUDY ON HIGHWAY SYS PINE HIGHWA In Jose Bypas	Y		ALE		ARY OF QUA LTIMATE STA (2 of 2)			GS-10

SCALE :	SHEET CONTENTS :	SHEET NO. :
NOT TO SCALE	SUMMARY OF QUANTITIES ULTIMATE STAGE (2 of 2)	GS-10

R O A D W A Y



GENERAL NOTES HIGHWAY / CIVIL AND DRAINAGE NOTES

1.0 DESIGN STANDARDS / SPECIFICATIONS

- 1.1 ALL GEOMETRIC DESIGN STANDARDS SHALL COMPLY WITH THE VALUES PRESCRIBED IN * A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS ", 1994 EDITION OF THE 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	496178.856	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.
SJ3	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. NIÃO. IT IS EMBEDDED ON THE MIDDLE OF THE FIELD NEAR A SWALL 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 ECHA, 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.
- PROJECT AND LOCATION : SC REPUBLIC OF THE PHILIPPINES ADIL DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY OFFICE OF THE SECRETAR JAPAN INTERNATIONAL COOPERATION AGENCY 5.900 (See cover shart for Signature) CHECKED (Plaridel, Cabanatuan and San Jose Bypasses) (See ci Signat KATAHIRA & ENGINEERS YEE YACHIYO ENGINEERING ni. Klicht 9/11/02 MANUEL M. BONGAN SIMEON A. DATUMANO GILBERTO S. REYES SAN JOSE BYPASS

6.0 ELEVATIONS AND GRADES

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 :
 - 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
- 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
- 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
- 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 THE REMOVAL AND HANDLING OPERATION
- 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. IMPROVEMENT PROJECTS TO ENHANCE QUALITY OF ENVIRONMENT.

14.0 DESIGN DATA / REFERENCES

- 14.1 REPORTS
 - AND SAN JOSE BYPASSES), FINAL REPORT, NOVEMBER 1999.
 - BASIC DESIGN REPORT. SEPTEMBER 2001.

14.2 DRAWINGS

- AND SAN JOSE BYPASSES).
- DESIGN DRAWINGS, SEPTEMBER 2001.

6.1 ELEVATIONS AND GRADES AS DESCRIBED IN THE ROAD PROFILES ARE TOP OF FINISHED PAVEMENT ALONG THE CENTERLINE

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

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

10.4 THE LIMIT OF CONSTRUCTION FOR ROAD CONNECTIONS AND PRIVATE ENTRANCES SHALL BE AS SHOWN IN THE DRAWING OR AS

BY THE ENGINEER, MINOR ADJUSTMENTS MAY BE MADE TO SUIT ACTUAL FIELD CONDITIONS UPON APPROVAL OF THE ENGINEER.

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

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

THE PLANTING OF TREES ALONG NATIONAL ROADS SHALL BE MADE A STANDARD COMPONENT OF ALL ROAD CONSTRUCTION AND

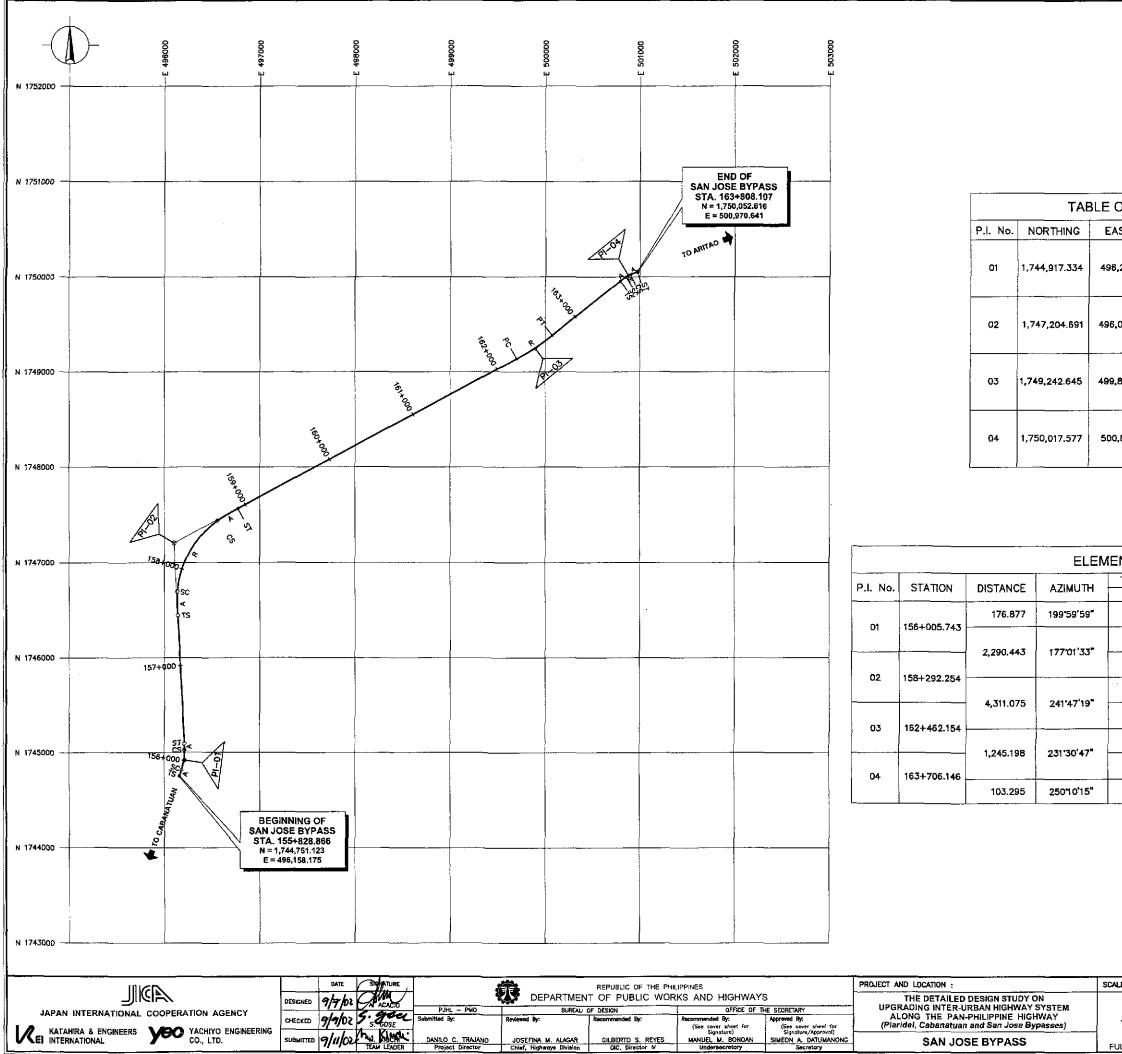
· FEASIBILITY STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHIL. HIGHWAY (PLARIDEL, CABANATUAN

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

· FEASIBILITY STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHIL. HIGHWAY (PLARIDEL, CABANATUAN

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

ALE :	SHEET CONTENTS :	SHEET NO. :
OT TO SCALE	GENERAL NOTES HIGHWAY/ CIVIL AND DRAINAGE	RG-01
ULL SIZE A1		



DANILO C. TRAJANO Project Director

JDSEFINA M. ALAGAR Chief, Highways Division

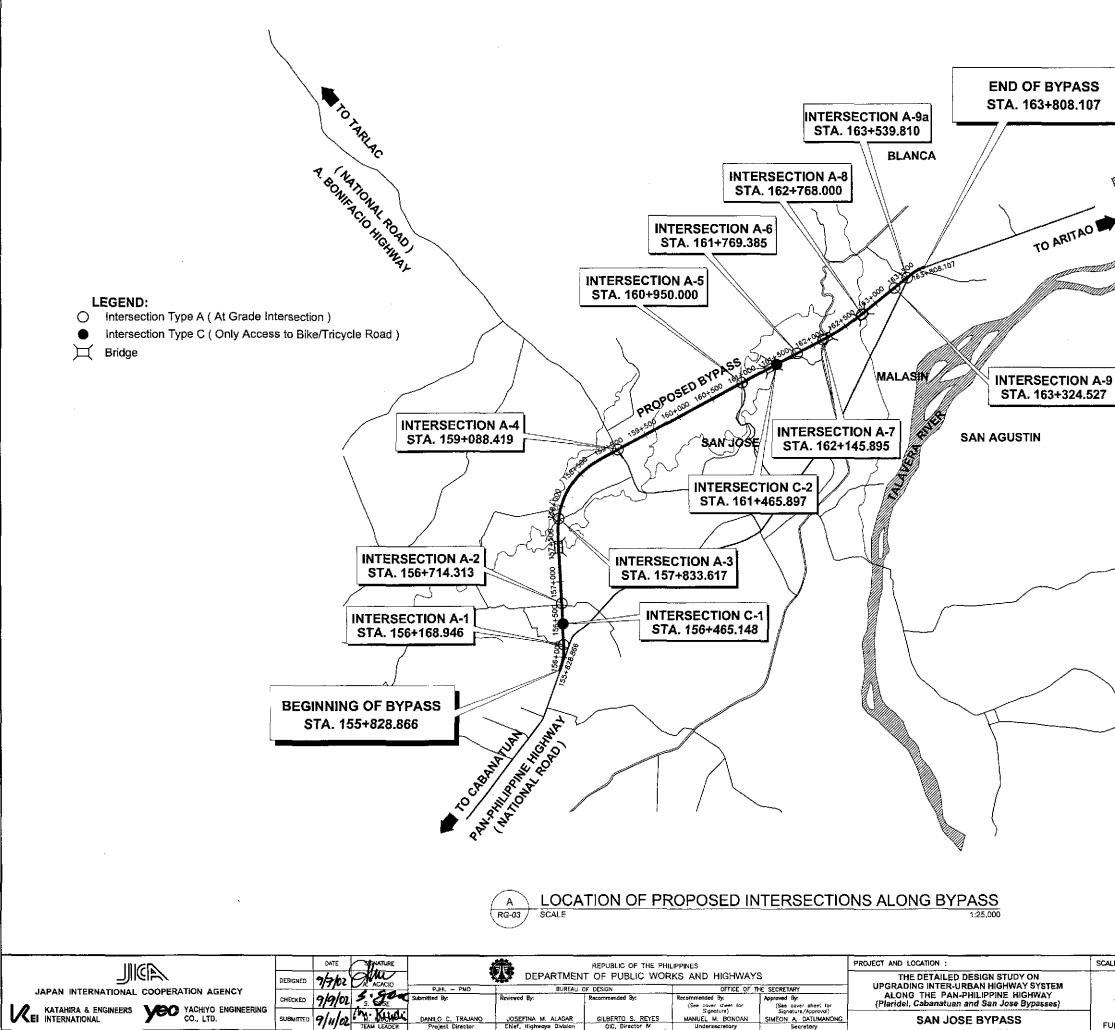
GILBERTO S. REYES

OF CO	ORDI	NATES	
STING		NORTHING	EASTING
	TS	1,744,751.123	496,158.175
,218.670	SC	1,744,816.470	496,180.748
,210.070	CS	1,745,024.881	496,211.943
	ST	1,745,093.972	496,209.493
	TS	1,746,444.966	496,139.302
099.830	SC	1,746,694.780	496,136.742
099.000	CS	1,747,437.151	496,555.170
	ST	1,747,564.316	496,770.210
898.792	PC	1,749,136.385	499,700.712
030.792	PT	1,749,382.535	500,074.739
	TS	1,749,953.293	500,792.617
.873.471	SC	1,749,998.094	500,852.729
,070.47[CS	1,750,024.994	500,900.944
	ST	1,750,052.616	500,970.641

DEFLECTION	A	Ls	STATION
ANGLE	R	Lc	STATION
	220.000	60 143	TS=155+828.866
0050'00	220.000	03,140	SC=155+898.009
22 38 20	700.000	211 537	CS=156+109.54
	,00.000		ST=156+178.68
	500.000	250.000	TS=157+531.504
64'45'46*	500.000	250.000	SC=157+781.504
011010	1 000 000	880.324	CS=158+661.828
	1,000.000		ST=158+911.828
1076'32"			PC=162+237.37
101032	2.500.000	448.357	PT=162+685.72
			TC 407 - 000 DE
	173.205	75.000	TS=163+602.852
18'39'28"		· · · · · · · · · · · · · · · · · · ·	SC=163+677.852
	400.000	55.255	CS=163+733.107 ST=163+808.107
	22"58"26" 64"45"46" 10"16"32"	22'58'26" 220.000 22'58'26" 700.000 64'45'46" 500.000 1,000.000 10'16'32" 2,500.000 18'39'28" 173.205	22'58'26" 220.000 69.143 22'58'26" 700.000 211.537 64'45'46" 500.000 250.000 1,000.000 880.324 2,500.000 10'16'32" 2,500.000 448.357 18'39'28" 173.205 75.000

ALE :	SHEET CONTENTS :	SHEET NO. :
1:20,000 ULL SIZE A1	ALIGNMENT TECHNICAL DESCRIPTION	RG-02

SAN JOSE BYPASS



	-	
//		
E :	SHEET CONTENTS ;	SHEET NO. :
1:25,000	LOCATION OF INTERSECTIONS ALONG BYPASS	RG-03

SCHEDULE OF PAVEMENT SURFACE

(ULTIMATE STAGE)

	STATION LIMIT	QUANTITY PCCP 230mm THICK
FROM	то	
155+828.87	156+327.96	1,051.13
155+327.96	156+547.49	1,536.71
156+547.49	156+881.23	2,312.66
156+881.23	157+449.53	3,942.64
157+449.53	157+\$00,13	0.00
157+500.13	157+665.05	1,154.44
157+665.05	158+002.39	2,271.19
158+002.39	158+906.73	5,330.38
158+906.73	159+268.52	2,391.79
159+268.52	160+783.22	10,602.90
160+783.22	161+116.78	2,285.09
151+116.78	161+369.13	1,756.45
151+369.13	161+419.73	0.00
161+419.73	151+601.54	3,485.45
151+601.54	162+218.73	2,282.66
162+218.73	162+269.37	۵.00
162+259.37	162+781.23	3,397.52
162+781.23	162+844.55	0.00
162+844.55	163+145.13	2,031.89
163+145.13	153+B08.11	1,149.44
	TOTAL	48,003.34
JAPAN INTERNATIONAL COOPERATION AGENCY	DATE STOVATURE REPUBLIC OF THE PHILIPPINES PHIL - PMO BUREAU OF PUBLIC WORKS AI BUREAU OF DESIGN Submitted By: Recommended	AND HIGHWAYS THE DETAILED DESIGN STUDY ON OFFICE OF THE SECRETARY UPGRADING INTER-URBAN HIGHWAY SYSTEM
KATAHIRA & ENGINEERS YOO YACHIYO ENGINEERING CO., LTD.	19/02 S. SOSE Submitted by: Aevenes by: Retuiningen by: (Se 10/02 Mu, Aucha' Danied C. TRAJANO JOSEFINA M. ALAGAR GILBERTO S. REYES MAN TEAM LEADER Project Director Chief, Highways Division OIC, Director M	Intended By: Approved By: Approved By: Approved By: PALONG THE PAN-PHILIPPINE HIGHWAY (See cover sheet for Signature/Approvel) Signature/Approvel Signature/Approvel Simplower/Approvel Simplower/

	REMARKS	
<u>-</u> .	A-1 Intersection	
	TYPICAL	
	A-2 Intersection	
	TYPICAL	
	BRIDGE	
	TYPICAL	
	A-3 Intersection	
-	TYPICAL	
	A-4 Intersection	
	TYPICAL	
	A-5 Intersection	
	TYPICAL	
	BRIDGE	
	TYPICAL	
	A-7 & A-8 Intersection	
	BRIDGE	
	TYPCIAL	
	BRIDGE	
	TYPICAL	
	A~9 intersection	
ALE :	SHEET CONTENTS :	SHEET NO. :
OT TO SCALE	SCHEDULE OF PAVEMENT SURFACE (ULTIMATE STAGE)	RG-04
ULL SIZE A1		

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

OT N					·······		1			1 OUTER SEPAR	ATION PLANTING (
		LENGTH (m)	AREA	REMARKS		<u>_</u>	LENGTH (m)	AREA (m)	REMARKS			
FROM	TO	(111)	(m)		FROM	TO	(11)	(11)			TION	
1.0 EDGE LIN				· · · · · · · · · · · · · · · · · · ·	2.2 A-7 Road		+00.07	11.74	150	FROM		
	ROAD, LEFT SI					0 + 188.23	188.23	11.74	150mm x 3.0m w/ 4.5m gap		156+400.00	TYPE 5
	156 + 714.03	1,075.32	107.53	Both Sides, 100mm Unbroken Line		0 + 354.17	99.70	6.43	150mm x 3.0m w/ 4.5m gap	155+828.00		0
	157 + 449.53	1,458.70	145.87	Both Sides, 100mm Unbroken Line		<u> </u>				156+400.00	157+100.00	0
157 + 500.13	157 + 824.75	649.26	64.93	Both Sides, 100mm Unbroken Line				.	150	157+100.00	157+800.00	0
157 + 832.60	159 + 072.34	2,479.48	247.95	Both Sides, 100mm Unbroken Line		0 + 973.65	78.65	5.17	150mm x 3.0m w/ 4.5m gap	157+800.00	158+500.00	0
159 + 092.31	150 + 961.38	3,738.14	373.81	Both Sides, 100mm Unbroken Line	1 + 024.59	1 + 110.00	85.41	5.57	150mm x 3.0m w/ 4.5m gap	158+500.00	159+200.00	0
160 + 966.63	161 + 369.13	805.00	80.50	Both Sides, 100mm Unbroken Line	-				l	159+200.00	159+900.00	0
161 + 419.73	161 + 751.87	664.28	66.43	Both Sides, 100mm Unbroken Line						159+900.00	160+600.00	0
161 + 755.98	162 + 150.56	789.16	78.92	Both Sides, 100mm Unbroken Line			······		r	160+600.00	151+300.00	0
162 + 156.38	162 + 217.84	122.92	12.29	Both Sides, 100mm Unbroken Line	0 + 153.44	0 + 193.44	40.00	13.67	Transition 40.0m	161+300.00	162+000.00	0
162 + 268.44	162 + 771.89	1,006.90	100_69	Both Sides, 100mm Unbroken Line						162+000.00	162+700.00	0
162 + 776.94	162 + 777.15	0.42	D.04	Both Sides, 100mm Unbraken Line			L			162+700.00	153+400.00	35
162 + 840.05	163 + 300.56	921.02	92.10	Both Sides, 100mm Unbroken Line						163+400.00	163+808.11	D
								,			AL	35
1.2 TRICYCLE	ROAD, RIGHT S	IDE		·	ARROW	AREA/	NUMBER OF		LOCATION	2. SIDE WALK PL	ANTING (MIDDLE 1	REE) LOCATION
156 + 185.38	156 + 708.45	1,046.14	104.61	Both Sides, 100mm Unbroken Line	TYPE	ARROW	ARROWS	AREA		STA		LENG
156 + 714.60	157 + 449.53	1,469.86	146.99	Both Sides, 100mm Unbroken Line	4.0 ARROWS		T			FROM	то	LEFT
157 + 5D0.13	157 + 849.49	698.72	69.87	Both Sides, 100mm Unbroken Line	Α	1.46	1.00	1.46	Approaching intersection A-1	155+828.00	156+400,00	520
157 + 853.86	159 + 084.56	2,461.40	246.14	Both Sides, 100mm Unbroken Line	A	1.46	2.00	2.92	Approaching Intersection A-2	156+400.00	157+100.00	650
159 + 105.35	160 + 929.90	3,649.10	354.91	Both Sides, 100mm Unbroken Line	A	1.46	2.00	2.92	Approaching Intersection A-3	157+100.00	157+800.00	640
160 + 942.98	161 + 369.13	852.30	B5.23	Both Sides, 100mm Unbroken Line	A	1.46	5.00	7.3	Approaching Intersection A-4	157+800.00	158+500.00	640
161 + 419.73	161 + 783.23	727.00	72.70	Both Sides, 100mm Unbroken Line	с	1.21	1.00	1.21	Approaching Intersection A-4	158+500.00	159+200.00	540
151 + 786.90	162 + 135.89	697.98	69.80	Both Sides, 100mm Unbroken Line	A	1.46	3,00	4.38	Approaching Intersection A-5	159+200.00	159+900.00	700
162 + 141.79	162 + 217.83	152.08	15.21	Both Sides, 100mm Unbroken Line	B	2.04	1.00	2.04	Approaching Intersection A~5			
162 + 268.44	162 + 750.87	984.86	98.49	Both Sides, 100mm Unbroken Line	A	1.45	2.00	2.92	Approaching intersection A-6			ME
162 + 765.02	162 + 777.15	24.26	2.43	Both Sides, 100mm Unbroken Line	A	1.46	2.00	2.92	Approaching Intersection A-7	STA		LOCATION
162 + B40.05	163 + 318.14	956.18	95.62	Both Sides, 100mm Unbroken Line	A	1.46	2.00	2.92	Approaching Intersection A-8	FROM	то	
					A	1.46	2.00	2.92	Approaching Intersection A-9	ITEM 603(3)-METAL	GUARDRAIL (Metal B	eam)
1.3 A-5 Road C	rossing						TOTAL	33.91		A. Main Bypass		
0 + 000.00	0 + 066,75	133.50	13.35	Both Sides, 100mm Unbroken Line	Аптом Туре	:		•		157 + 030.00	157 + 070.00	BS
0 + 133.22	0 + 220.00	173.57	17.36	Both Sides, 100mm Unbroken Line	-					157 + 307.28	157 + 451.2B	BS
					7	>			↓	157 + 498.37	157 + 574,37	BS
1.4 A-7 Road (Crossing		<u> </u>				R			157 + 870.00	157 + 990.00	LT
0 + 000.00	0 + 188.23	376.45	37.65	Both Sides, 100mm Unbroken Line	2					158 + 410.00	158 + 470.00	RT
0 + 254.47	0 + 354.17	199.39	19.94	Both Sides, 100mm Unbroken Line	2		В)	Ô	158 + 490.00	158 + 510.00	LT
					-	\odot		/		158 + 510.00	158 + 650.00	RT
1.5 A-8 Road	Crossing	L	4		1					159 + 610.00	159 + 650.00	RT
0 + 895.00	0 + 973.65	157.30	15.73	Both Sides, 100mm Unbroken Line	5					159 + 610.00	159 + 670,00	LT
1 + 024.59	1 + 110.00	170.82	17.0B	Both Sides, 100mm Unbroken Line	*					159 + 870.00	160 + 042.00	RT
			<u> </u>		-					159 + 880.00	160 + 040.00	LT
2.0 CENTERL	INES	I	L	· · · · · · · · · · · · · · · · · · ·	1					161 + 286.92	161 + 370.92	LT
2.1 A-5 Road	Crossing				1					161 + 326.92	151 + 370.92	RT
0 + 000.00	0 + 066.75	66.75	4.46	150mm x 3.0m w/ 4.5m gap	4					161 + 417.92	161 + 457.92	LT
0 + 193.44	0 + 220.00	26.56	2.04	150mm x 3.0m w/ 4.5m gap	1					161 + 474.00	161 + 502.00	LT
	1	I	L	DATE	STEMATURE		<u>2</u>	·····			PROJECT AND LOCAT	ION :
	=	JICA		DESIGNED 9/7/02	Alle	~ 			OF PUBLIC WORKS AND HIG			TAILED DESIGN STUD
	I INTERNATION			CHECKED 9/9 02	S. COSE	PJHL — PNO lubmitted By:	Reviewed By:	BUREALI O	F DESIGN OF Recommended By: Recommended By: (See cover she	FICE OF THE SECRETARY Approved By: (See cover sheet for	ALONG TH	E PAN-PHILIPPINE H anatuan and San Jose
	Ahira & Enginee Rnational	rs yec	YACHIYO E CO., LTD.		M: Kulich	DANILO C. TRAJANI	O JOSEFINA		GILSERTO S. REYES MANUEL M. B	Signoture/Approvol) DNDAN SIMEDN A. DATUMANO		N JOSE BYPASS
<u> </u>					TEAM LEADER	Project Director	Chief, Highw	roys Division	OIC, Director N Undersecret	ary Secretary		

STATION то LEFT SIDE TYPE 5 TYPE 6 TYPE 7 156+400.00 0 o 90 157+100.00 407 0 0 157+800.00 0 475 0 158+500.00 0 524 0 159+200.00 426 0 0 159+900.00 0 652 D 160+600.00 0 700 D 151+300.00 ٥ σ 402 162+000.00 0 0 208 162+700.00 0 401 60 D 153+400.00 35 310 163+808.11 D D 0 TOTAL 35 4595 60 PLANTING (MIDDLE TREE) LOCATION 2 STATION LENGTH (m) то LEFT RIGHT 156+400.00 520 300 157+100.00 650 625 157+B00.00 640 640 158+500.00 640 640 159+200.00 640 640

700

						L	7,030.00	6,760.00
		ME	TAL BEAM	GUARDRAI	L	•		
STATION				STATION			(
FROM	то	LUCATION	LENGTH (m)	FROM		то	LOCATION	LENGTH (m
ITEM 603(3)-METAL C	UARDRAIL (Metal Bear	n)		161 + 417.	.92	161 + 673.92	RT	256.00
A. Main Bypass				161 + 930.	.00	161 + 950.00	LT	20.00
157 + 030.00	157 + 070.00	BS	80.00	161 + 920.	.00	162 + 000.00	RT	80.00
157 + 307.28	157 + 4\$1.2B	BS	288.DD	162 + 189.	.27	162 + 209.27	RT	20.00
157 + 498.37	157 + 574,37	85	152.00	162 + 204.	.38	162 + 224.38	LT	20.00
157 + 870.00	157 + 990.00	LT	120.00	162 + 271.	.81	162 + 347.81	LT	75.00
158 + 410.00	15B + 470.00	RT	60.00	162 + 269.	98	162 + 289.98	RT	20.00
158 + 490.00	158 + 510.00	LT	20.00	162 + 842.	.22	162 + 862.22	υ	20.00
158 + 510.00	158 + 650.00	RT	140.00	162 + 836	.26	162 + 856.26	RT	20.00
159 + 610.00	159 + 650.00	RT	40.00	163 + 190.	.00	163 + 230.00	RŤ	40.00
159 + 610.00	159 + 670,00	LT	80.00	B. Road Crossings	s			
159 + 870.00	160 + 042.00	RT	172.00	0 + 000.	.00	0 + 020.00	LT, A-7	20.00
159 + 880.00	160 + 040.00	LT	160.00	0 + 298.	.00	0 + 354.00	LT, A-7	56.00
161 + 286.92	161 + 370.92	LT	72.00	0 + 897.	.00	0 + 973.00	LT, A-B	76.00
161 + 326.92	161 + 370.92	RT	40.00	0 + 977	.00	0 + 997.00	85, C2	40.00
161 + 417.92	161 + 457.92	LT	36,00	C. Bridge Approac	sh			
161 + 474.00	161 + 502.00	L T	28.00	8.0m 🛛 Bridg	ge 4 1st /	Approach, Left Side		B.00
PROJECT AND LOCATION :		· · · · · · · · · · · · · · · · · · ·	:		SCALE : SHEET CONTENTS :		•	SHEET NO.
OF THE SECRETARY Approved By: (See cover sheet for Signolure/Approved)	UPGRADING INT	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)			SCHEDULE OF PAVEMENT MARKIN PLANTINGS, AND METAL BEAM			RG-05
DAN SIMEON A DATUMANON Secretary		JOSE BYPASS	\$	GUARDRAILS RELOCATION			-	

PLANTINGS

	LENGTH (m)								
		RIGHT SIDE							
t	TYPE 8	TYPE 5	TYPE 6	TYPE 7	TYPE 8				
	D	0	90	0	o				
	D	o	407	0	0				
	64	٥	475	0	64				
	0	0	524	O	. 0				
	0	٥	425	0	0				
	0	0	652	D	o				
	0	0	700	D	0				
	0	0	402	D	c				
	64	0	208	0	64				
	32	0	401	65	32				
	32	35	310	D	32				
	0	٥	0	٥	۵				
	192	35	4595	65	192				

ST	ATION	LENGTH (m)			
FROM	то	LEFT	RIGHT		
159+900.00	160+600.00	700	700		
150+600.00	161+300.00	640	640		
161+300.00	162+000.00	560	570		
162+000.00	162+700.00	580	600		
162+700.00	163+400,00	610	525		
163+400.00	163+80B.11	150	180		
тот	AL	7,030.00	6,760.00		