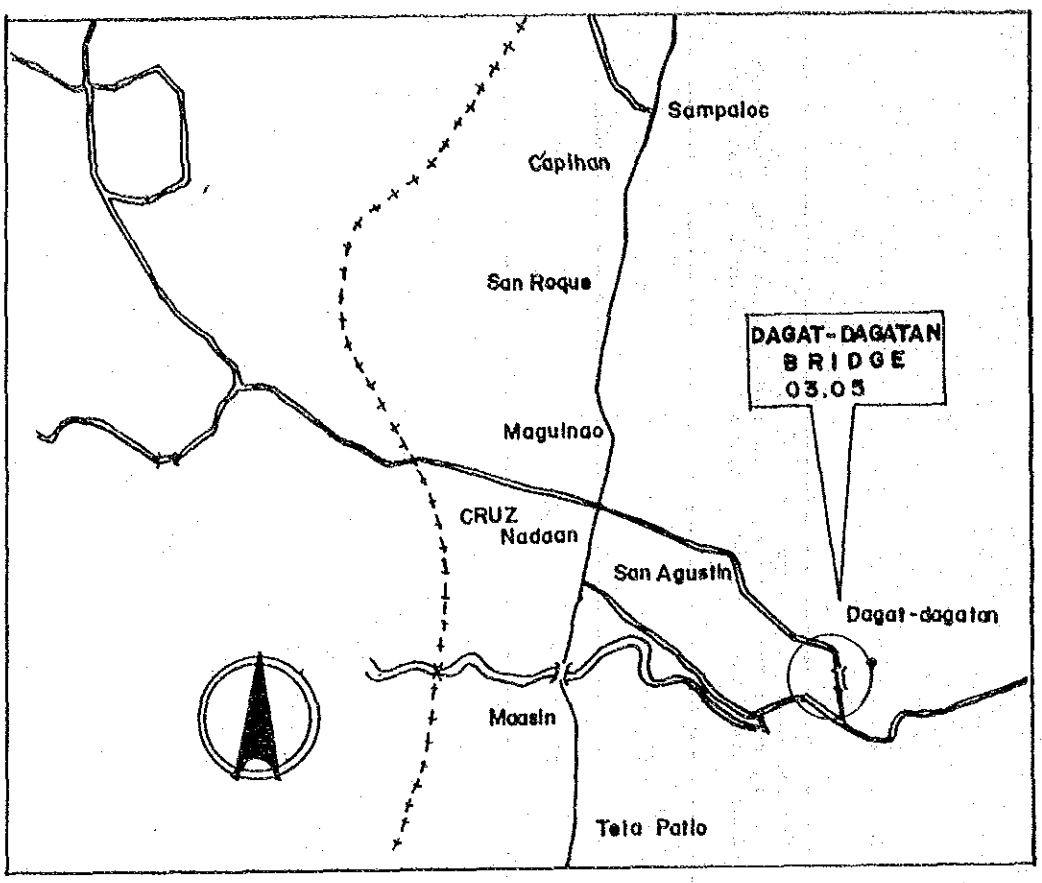
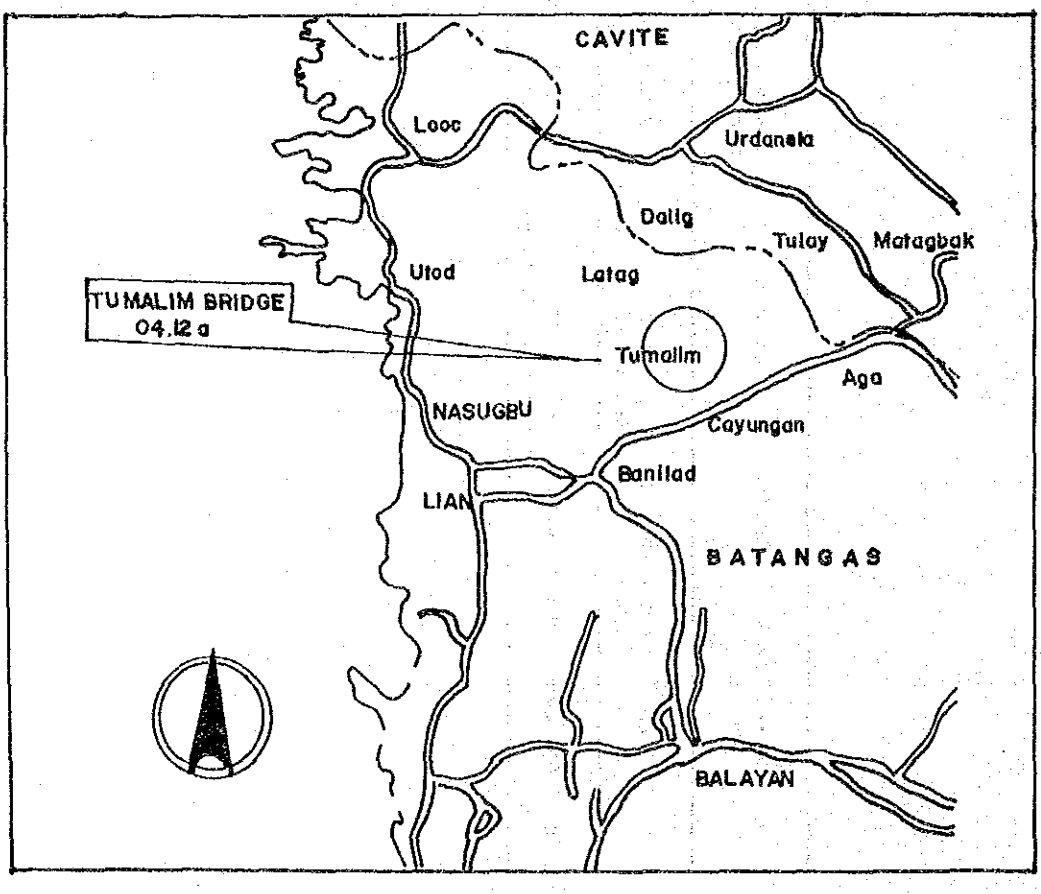
APPENDIX 12

DATA OF TOPOGRAPHIC SURVEY

DATA OF TOPOGRAPHIC SURVEY

No.	Bridge No.	Name of Bridge	Location	Centerline Survey (m)	Profile Survey (m)	Cross-section Survey along the Road (section)	Cross-section Survey along the River (section)	Monumenting (Point)	Topographic Map (Sheet)
1	03.05	DAGAT-DAGATAN BRIDGE	Km. 61+100 San Rafael, Bulacan	260.0	260.0	12	10	2	1
2	04.12a	TUMALIM BRIDGE	Km. 91+750 Nasugbu, Batangas	440.0	440.0	20	10	2	1


Sampaloc
Capihan
San Roque
DAGAT-DAGATAN
BRIDGE
03.05
Maguinao
CRUZ
Nadaan
San Agustin
Dagat-dagatan
Maasin
Tala Patio

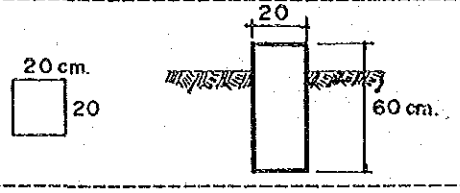

CAVITE
Looc
Urdaneta
Dalig
Tulay
Matagbak
Utod
Latag
TUMALIM BRIDGE
04.12 a
Tumalim
Aga
NASUGBU
Cayungan
Banilad
LIAN
BATANGAS
BALAYAN

DESCRIPTION OF TRAVERSE STATION AND BENCHMARK

03.05 DAGAT-DAGATAN BRIDGE

STATION NO.	:	BM-1 TO BM-2
MUNICIPALITY	:	San Rafael, Bulacan
DATE ESTABLISHED	:	September 21, 1991
SIZE OF MONUMENT	:	

20 X 20 X 60 cm.

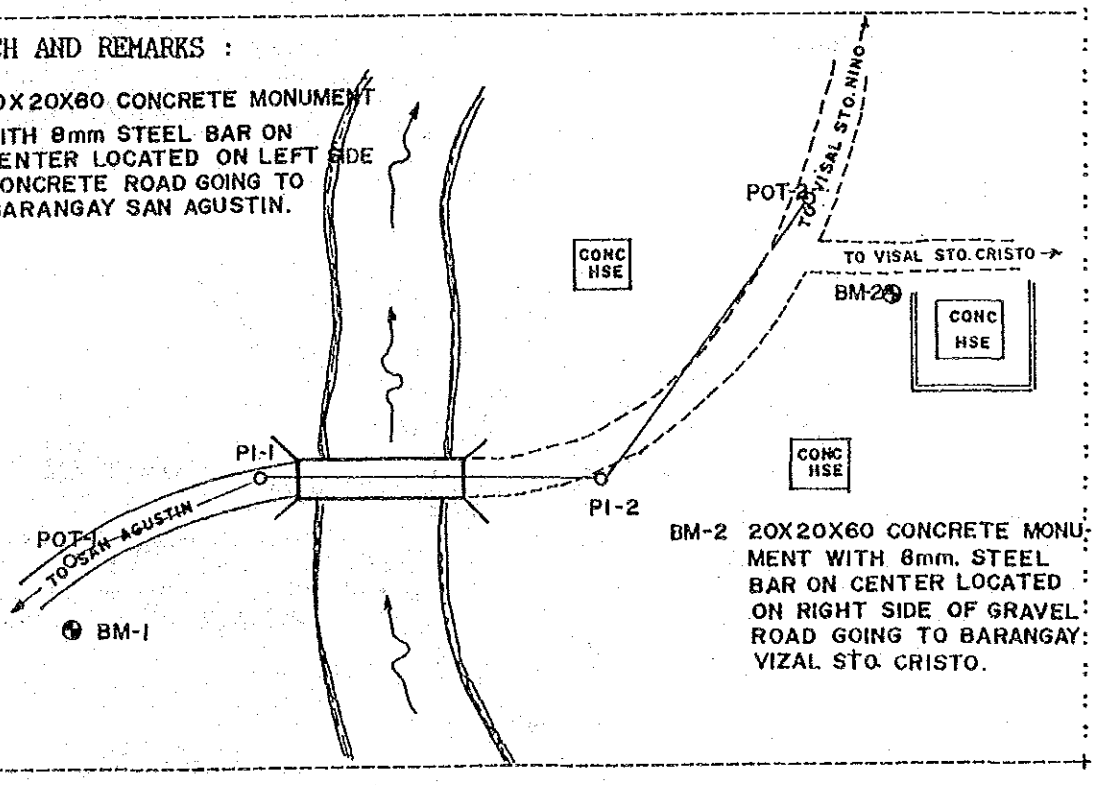


COORDINATES AND ELEVATION

STATION	NORTHING	EASTING	ELEVATION	REMARKS
BM-1	20000.00	20000.00	10.000	CONC. MON.
BM-2	20092.46	19777.29	10.371	CONC. MON.
POT-1	19999.19	19981.50	10.320	SPIKE
PI-1	20021.81	19889.52	10.750	SPIKE
PI-2	20078.36	19849.82	9.850	SPIKE
POT-2	20065.18	19753.38	9.880	SPIKE

SKETCH AND REMARKS :

BM-1 20X20X60 CONCRETE MONUMENT WITH 8mm STEEL BAR ON CENTER LOCATED ON LEFT SIDE CONCRETE ROAD GOING TO BARANGAY SAN AGUSTIN.



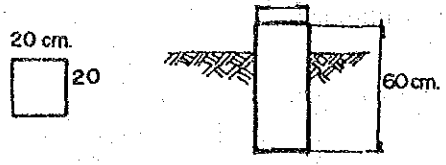
BM-2 20X20X60 CONCRETE MONUMENT WITH 8mm. STEEL BAR ON CENTER LOCATED ON RIGHT SIDE OF GRAVEL ROAD GOING TO BARANGAY VIZAL STO. CRISTO.

DESCRIPTION OF TRAVERSE STATION AND BENCHMARK

03.05 DAGAT-DAGATAN BRIDGE

STATION NO.	:	BM-1 TO BM-2
MUNICIPALITY	:	San Rafael, Bulacan
DATE ESTABLISHED	:	September 21, 1991
SIZE OF MONUMENT	:	

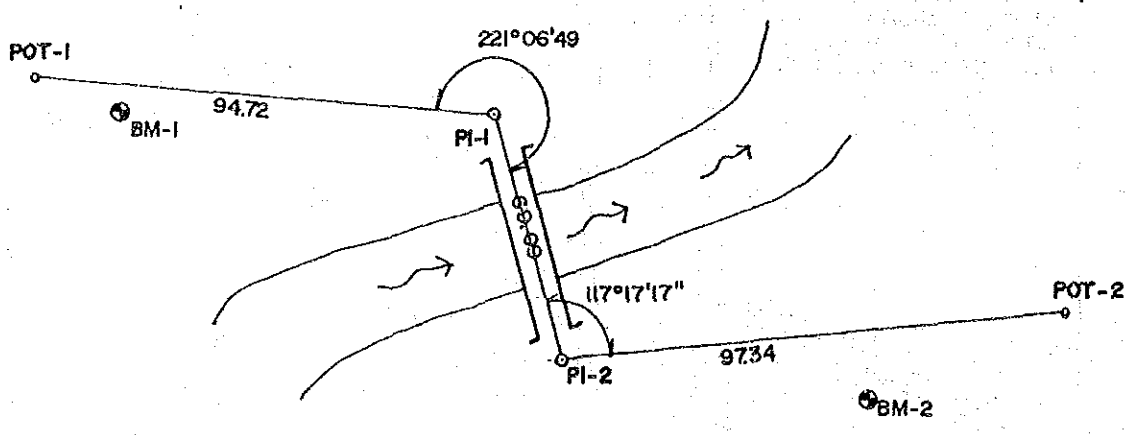
20 X 20 X 60 cm.



COORDINATES AND ELEVATION

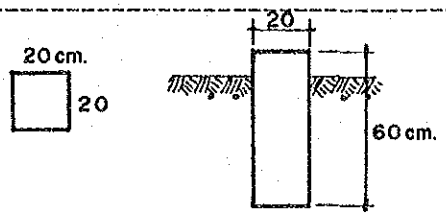
STATION	NORTHING	EASTING	ELEVATION	REMARKS
BM-1	20000.00	20000.00	10.000	CONC. MON.
BM-2	20092.46	19777.29	10.371	CONC. MON.
POT-1	19999.19	19981.50	10.320	SPIKE
PI-1	20021.81	19889.52	10.750	SPIKE
PI-2	20078.36	19849.82	9.850	SPIKE
POT-2	20065.18	19753.38	9.880	SPIKE

SKETCH AND REMARKS :



DESCRIPTION OF TRAVERSE STATION AND BENCHMARK

04.12a TUMALIM BRIDGE

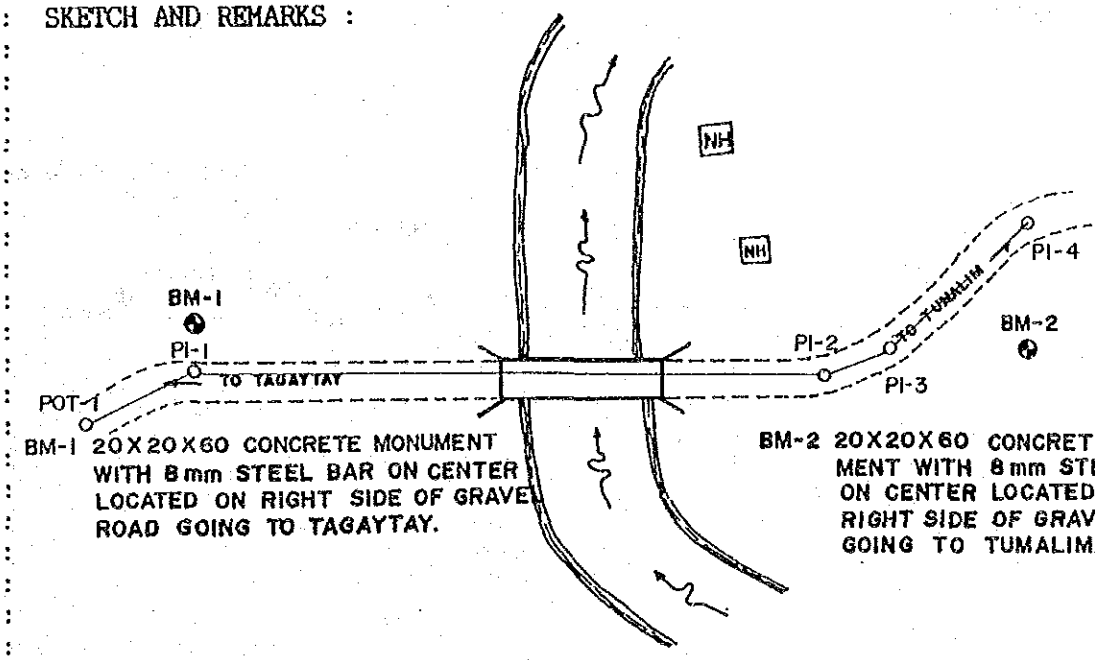
STATION NO.	:	BM-1 TO BM-2
MUNICIPALITY	:	Nasugbu, Batangas
DATE ESTABLISHED	:	September 10, 1991
SIZE OF MONUMENT	:	

20 X 20 X 60 cm.

COORDINATES AND ELEVATION

STATION	NORTHING	EASTING	ELEVATION	REMARKS
BM-1	19740.725	20040.763	30.000	CONC. MON.
BM-2	20109.902	19862.713	26.151	CONC. MON.
POT-1	19711.672	20057.698	30.000	SPIKE
PI-1	19791.827	20027.375	26.910	SPIKE
PI-2	20035.493	19984.506	22.880	SPIKE
PI-3	20096.380	19963.331	25.720	SPIKE
PI-4	20128.789	19939.084	29.200	SPIKE

SKETCH AND REMARKS :



BM-1 20X20X60 CONCRETE MONUMENT WITH 8mm STEEL BAR ON CENTER LOCATED ON RIGHT SIDE OF GRAVEL ROAD GOING TO TAGAYTAY.

BM-2 20X20X60 CONCRETE MONUMENT WITH 8mm STEEL BAR ON CENTER LOCATED ON RIGHT SIDE OF GRAVEL ROAD GOING TO TUMALIM.

DESCRIPTION OF TRAVERSE STATION AND BENCHMARK

04.12a TUNALIM BRIDGE

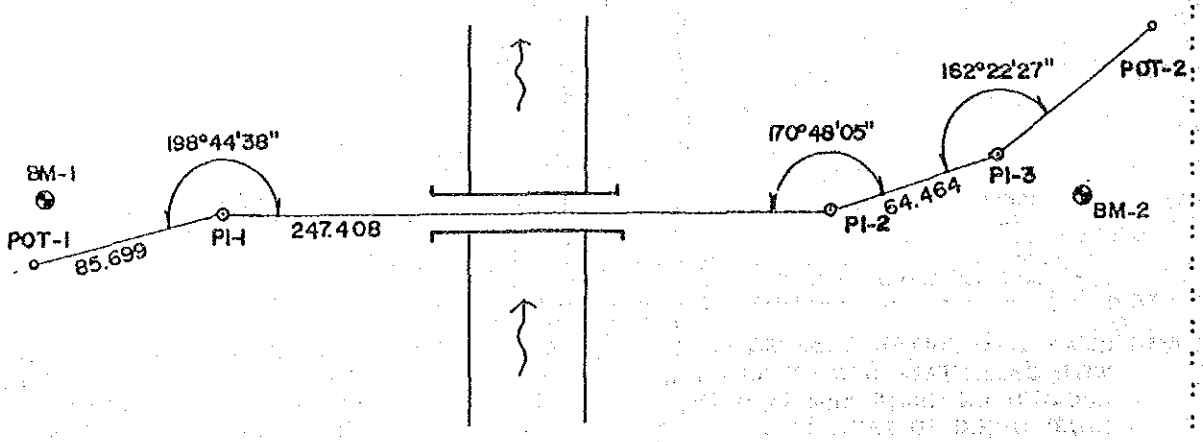
STATION NO.	:	BM-1 TO BM-2
MUNICIPALITY	:	Nasugbu, Batangas
DATE ESTABLISHED	:	September 10, 1991
SIZE OF MONUMENT	:	

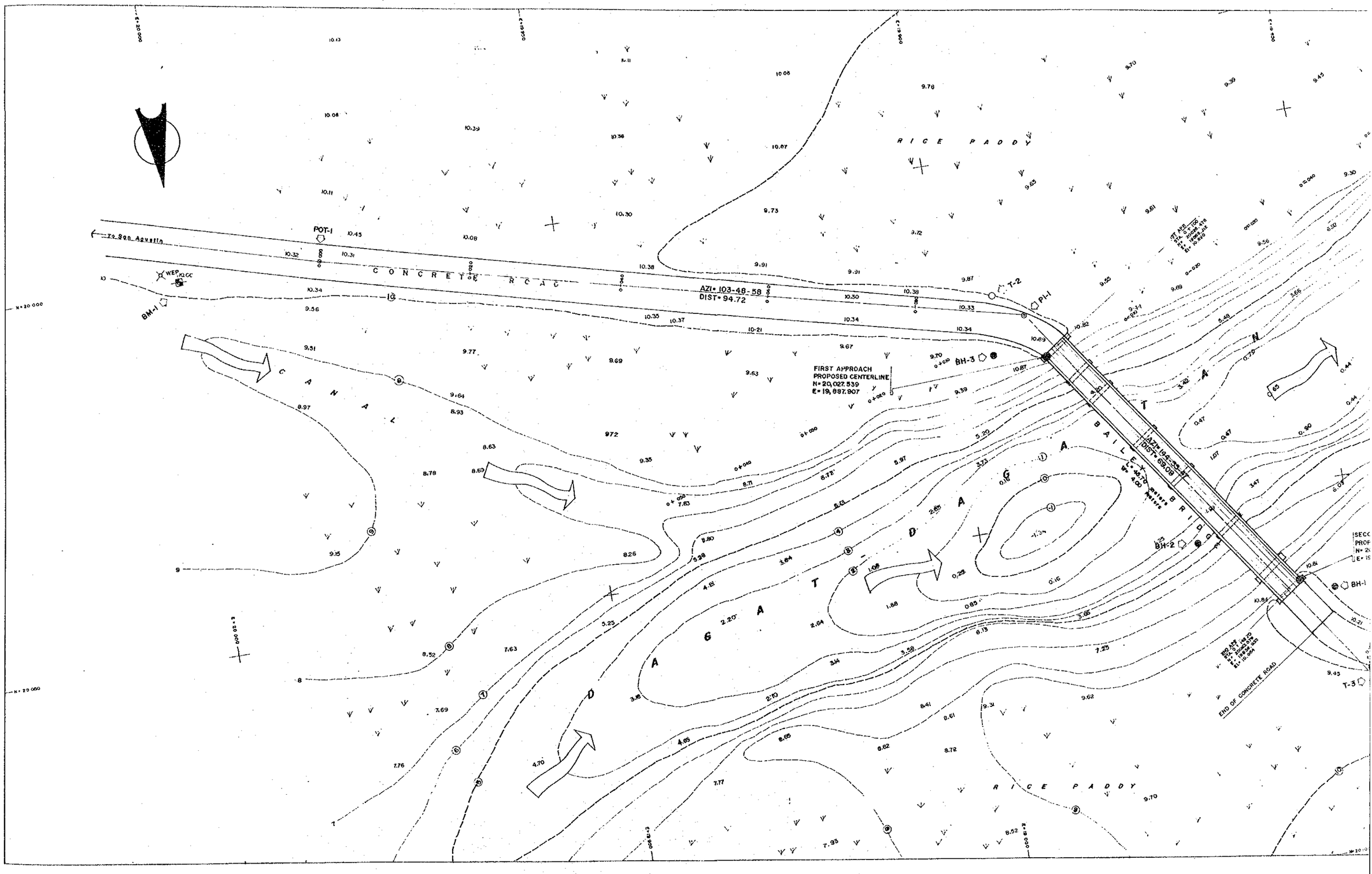
20 X 20 X 60 cm.

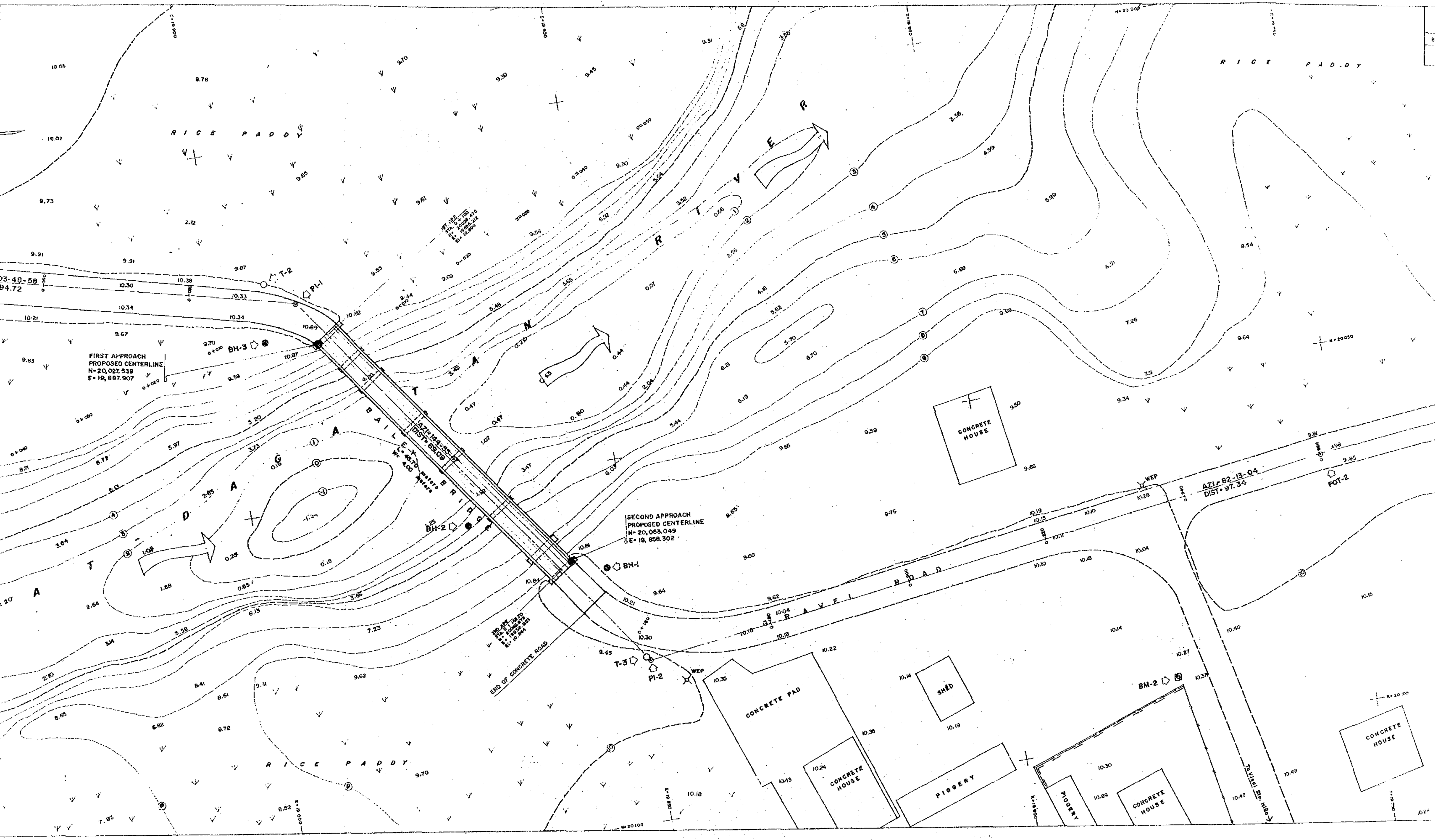
COORDINATES AND ELEVATION

STATION	NORTHING	EASTING	ELEVATION	REMARKS
BM-1	19740.725	20040.763	30.000	CONC. MON.
BM-2	20109.902	19962.713	26.151	CONC. MON.
POT-1	19711.672	20057.698	30.000	SPIKE
PI-1	19791.827	20027.375	26.910	SPIKE
PI-2	20035.493	19984.506	22.880	SPIKE
PI-3	20096.380	19963.331	25.720	SPIKE
PI-4	20128.789	19939.084	29.200	SPIKE

SKETCH AND REMARKS :

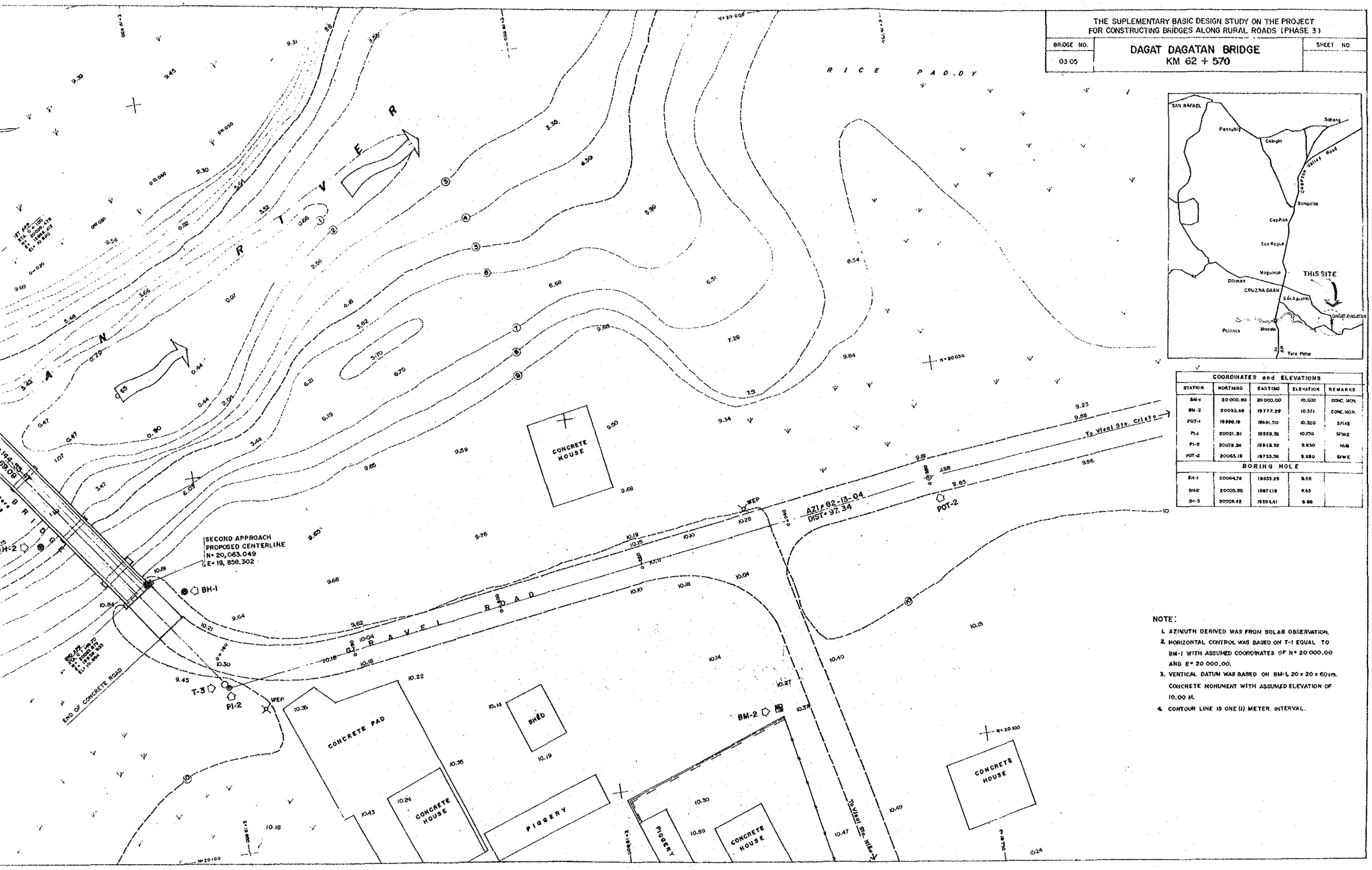



RICE PADDY
CONCRETE ROAD
To San Agustin
POT-1
WEP
BM-1
AZI = 103-48-58
DIST = 94.72
T-2
PI-1
FIRST APPROACH
PROPOSED CENTERLINE
N = 20,027.539
E = 19,887.907
BH-3
CANAL
LAGADA
BAILEY BRIDGE
BH-2
BH-1
END OF CONCRETE ROAD
T-3
RICE PADDY


RICE PADDY
RICE PADDY
RICE PADDY
RIVER
FIRST APPROACH
PROPOSED CENTERLINE
N= 20,027.539
E= 19,887.907
SECOND APPROACH
PROPOSED CENTERLINE
N= 20,063.049
E= 19,858.302
BAILEY BRIDGE
AZI= 82-13-04
DIST= 97.34
CONCRETE HOUSE
CONCRETE HOUSE
CONCRETE HOUSE
CONCRETE HOUSE
CONCRETE PAD
SHED
PIGGERY
PIGGERY
GRAVEL ROAD
END OF CONCRETE ROAD
BH-1
BH-2
BH-3
T-2
T-3
PI-1
PI-2
BM-2
POT-2
WEP

THE SUPLEMENTARY BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTING BRIDGES ALONG RURAL ROADS (PHASE 3)

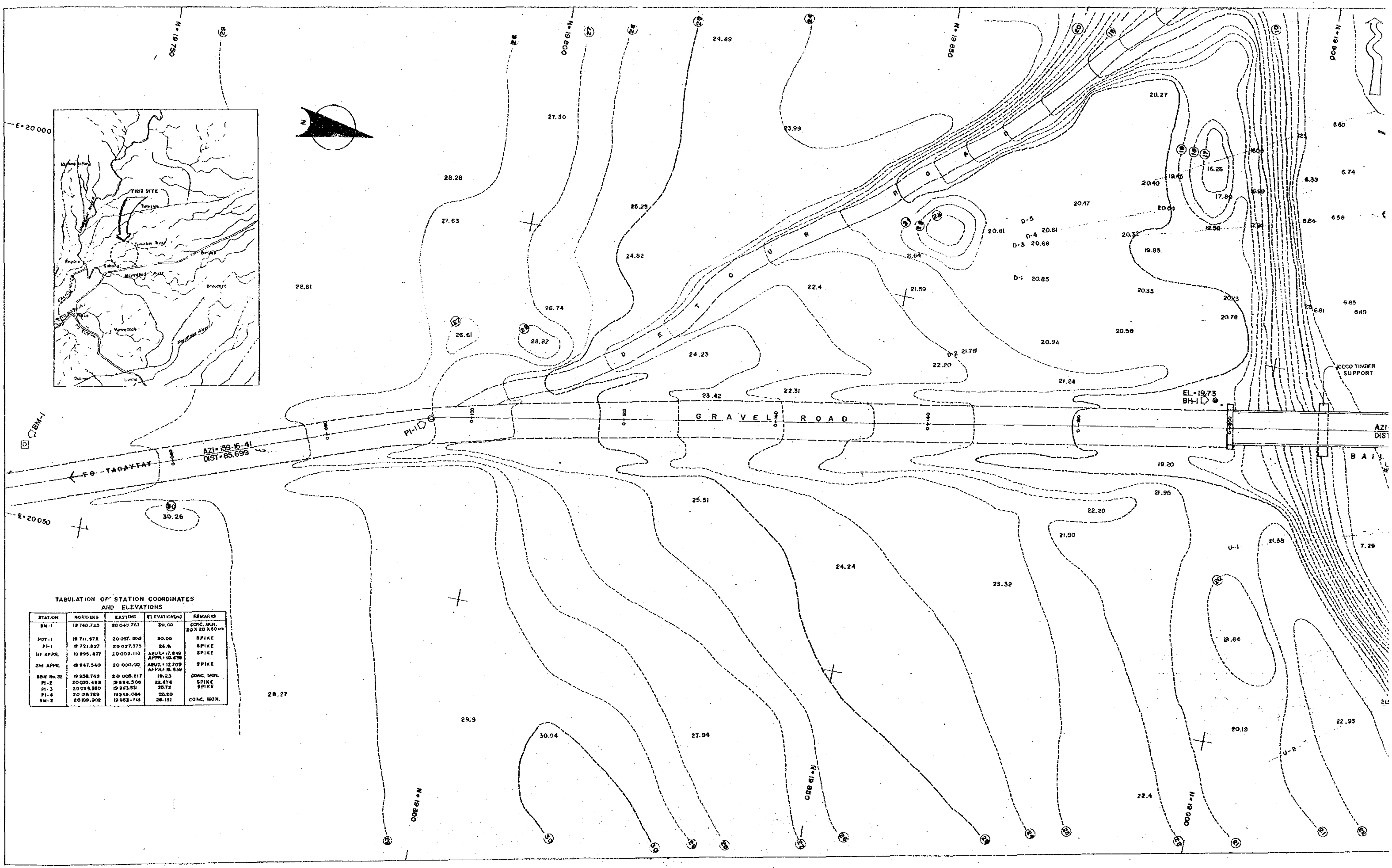
BRIDGE NO.		SHEET NO.
03 05	DAGAT DAGATAN BRIDGE KM 62 + 570	



COORDINATES and ELEVATIONS				
STATION	NORTHING	EASTING	ELEVATION	REMARKS
BM-1	20 000.00	20 000.00	10.000	CONC. MON.
BM-2	20092.48	19777.29	10.371	CONC. MON.
POT-1	19896.19	19981.50	10.320	SPIKE
PI-1	20021.81	19869.52	10.250	SPIKE
PI-2	20078.36	19843.52	9.850	NAIL
POT-2	20053.19	19753.38	9.880	SPIKE
BORING HOLE				
BH-1	20064.76	19833.25	9.64	
BH-2	20055.86	19871.19	9.45	
BH-3	20008.42	19834.41	9.88	

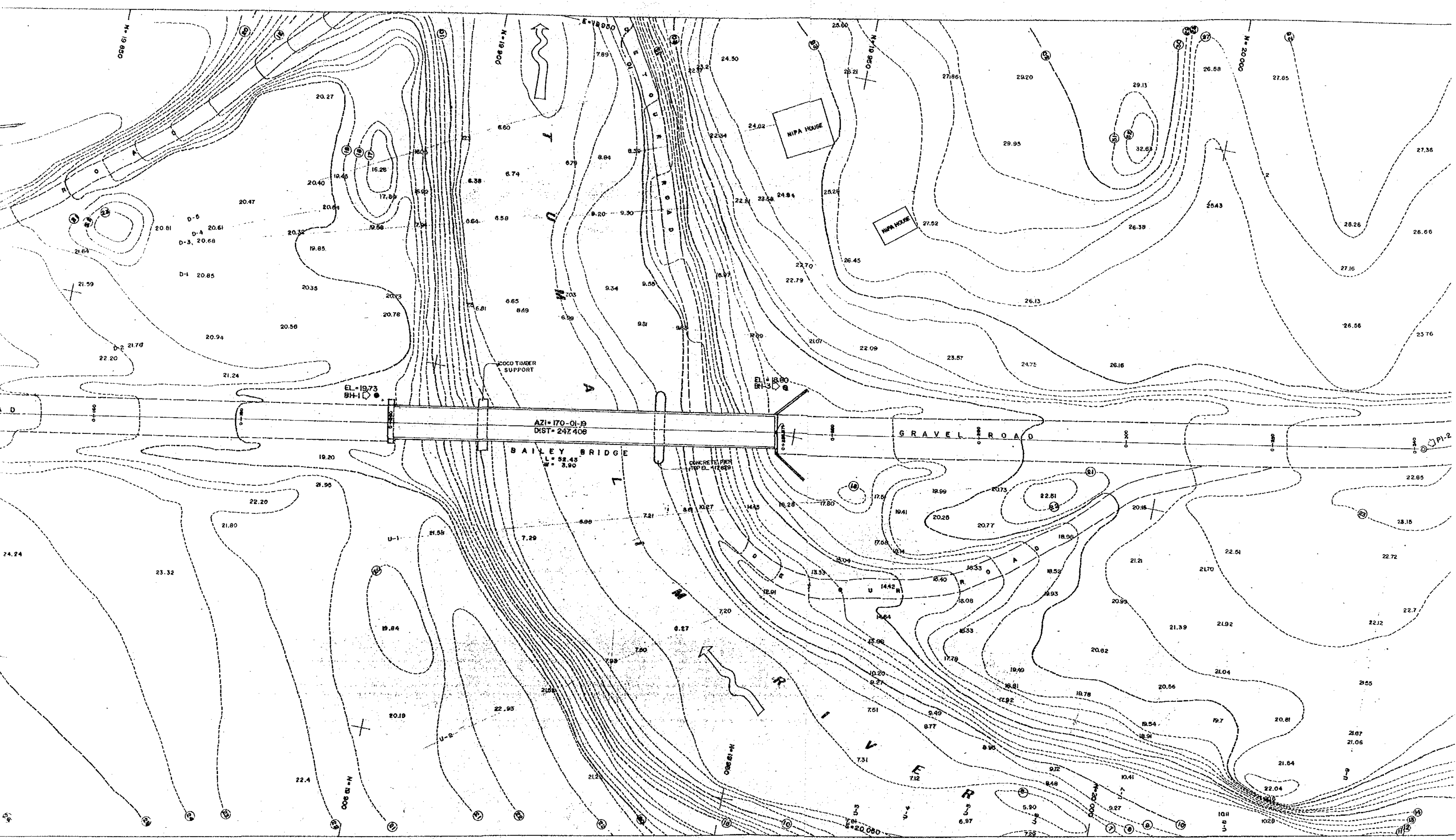
NOTE:

1. AZIMUTH DERIVED WAS FROM SOLAR OBSERVATION.
2. HORIZONTAL CONTROL WAS BASED ON T-1 EQUAL TO BM-1 WITH ASSUMED COORDINATES OF N= 20 000.00 AND E= 20 000.00.
3. VERTICAL DATUM WAS BASED ON BM-1, 20 x 20 x 60 cm. CONCRETE MONUMENT WITH ASSUMED ELEVATION OF 10.00 M.
4. CONTOUR LINE IS ONE (1) METER INTERVAL.



TABULATION OF STATION COORDINATES AND ELEVATIONS

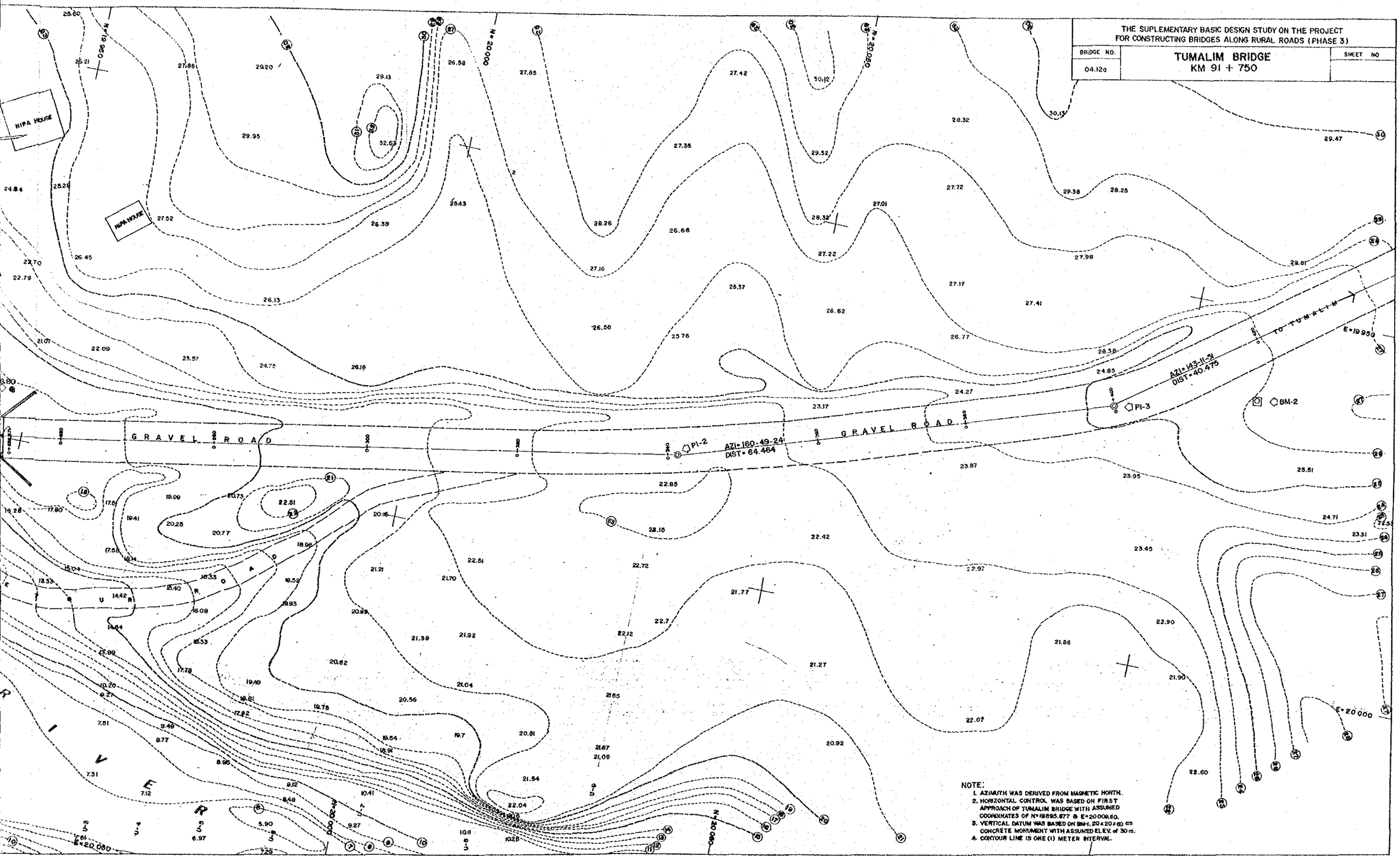
STATION	NORTHING	EASTING	ELEVATION(m)	REMARKS
BM-1	19 740.725	20 040.763	30.00	CONC. MON. 20 X 20 X 60 cm.
POT-1	19 711.672	20 057.898	30.00	SPIKE
PI-1	19 791.827	20 027.375	26.9	SPIKE
1st APPR.	19 895.877	20 009.110	ABUT. = 17.849 APPR. = 18.839	SPIKE
2nd APPR.	19 947.540	20 000.00	ABUT. = 17.709 APPR. = 18.659	SPIKE
BBM No. 32	19 958.742	20 008.817	18.23	CONC. MON.
PI-2	20 035.493	19 984.506	22.876	SPIKE
PI-3	20 095.380	19 963.531	25.72	SPIKE
PI-4	20 126.769	19 939.084	28.20	
BM-2	20 109.902	19 962.763	28.151	CONC. MON.



NIPA HOUSE
NIPA HOUSE
COCO TIMBER SUPPORT
EL.= 19.73
BH-1
EL.= 18.80
BH-3
AZI= 170-01-19
DIST= 247.406
BAILEY BRIDGE
L = 52.43
W = 3.90
CONCRETE PIER
GRAVEL ROAD
PI-2

THE SUPLEMENTARY BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTING BRIDGES ALONG RURAL ROADS (PHASE 3)

BRIDGE NO.	TUMALIM BRIDGE KM 91 + 750	SHEET NO
04.12a		



NOTE:
1. AZIMUTH WAS DERIVED FROM MAGNETIC NORTH.
2. HORIZONTAL CONTROL WAS BASED ON FIRST APPROACH OF TUMALIM BRIDGE WITH ASSUMED COORDINATES OF N=18895.677 & E=20008.60.
3. VERTICAL DATUM WAS BASED ON BM-1, 20×20×60 cm CONCRETE MONUMENT WITH ASSUMED EL.EV. of 30 m.
4. CONTOUR LINE IS ONE (1) METER INTERVAL.

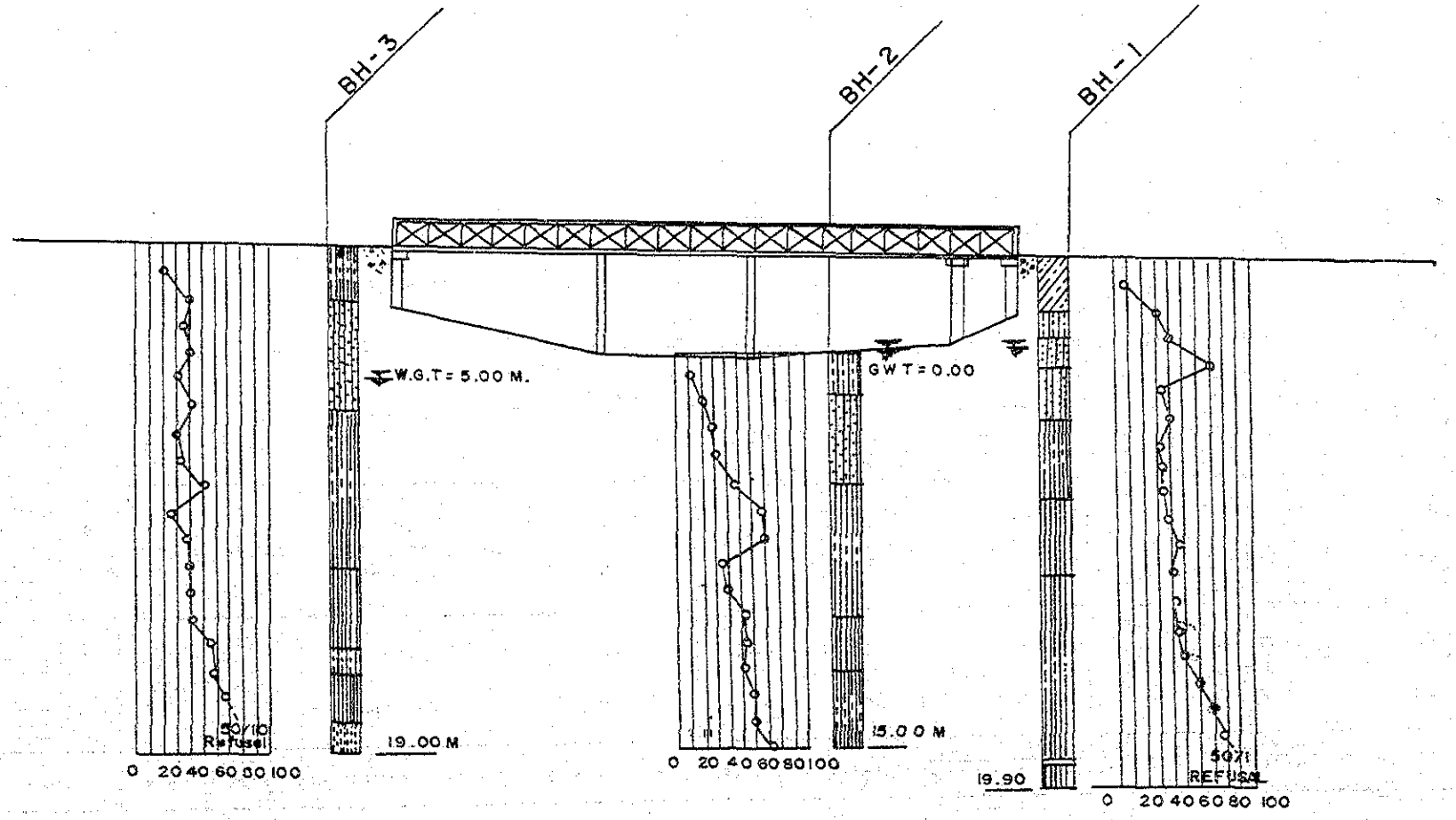
APPENDIX 13

DATA OF GEOTECHNICAL SURVEY

Bridge No. 3.05 Bridge Name: DAGAT- DAGATAN

General View							Result of Boring											
							Boring No. 1				Boring No. 2				Boring No. 3			
Symbol		Name of Soil (Rock) Layer	Constituted Materials (Layer)	Layer Depth (m)	Thickness (m)	N-Value	Thickness (m)	N-Value	Soil Test NMC	Soil Test U.W.	Thickness (m)	N-Value	Soil Test NMC	Soil Test U.W.	Thickness (m)	N-Value	Soil Test NMC	Soil Test U.W.
	AC ⌇ 2	ALLUVIAL DEPOSIT	- CLAYEY SILT	1-5	1-5	10 ⌇ 50	9	10 ⌇ 50	16 ⌇ 31		6	13 ⌇ 45	20 ⌇ 25		5	22 ⌇ 44	28 ⌇ 35	
			- SANDY SILT	5-9	5-9													
	AC ⌇ 2	ALLUVIAL DEPOSIT	- CLAYEY SILT - COMPACTED CLAYEY SILT	10 ⌇ 14	5	28 ⌇ 50/N	5	39 ⌇ 50/N	25 ⌇ 32		5	34 ⌇ 50/N	28 ⌇ 47		5	28 ⌇ 50/N	34 ⌇ 42	
	SR	SOFT ROCK	MUDSTONE	15 ⌇ 20	5	50/N	6	50/N	33 ⌇ 34		5	50/N	36 ⌇ 45		6	50/N	34 ⌇ 38	
	SS	SILTSTONE	SILTSTONE		2										2			

03.05 DAGAT - DAGATAN BRIDGE

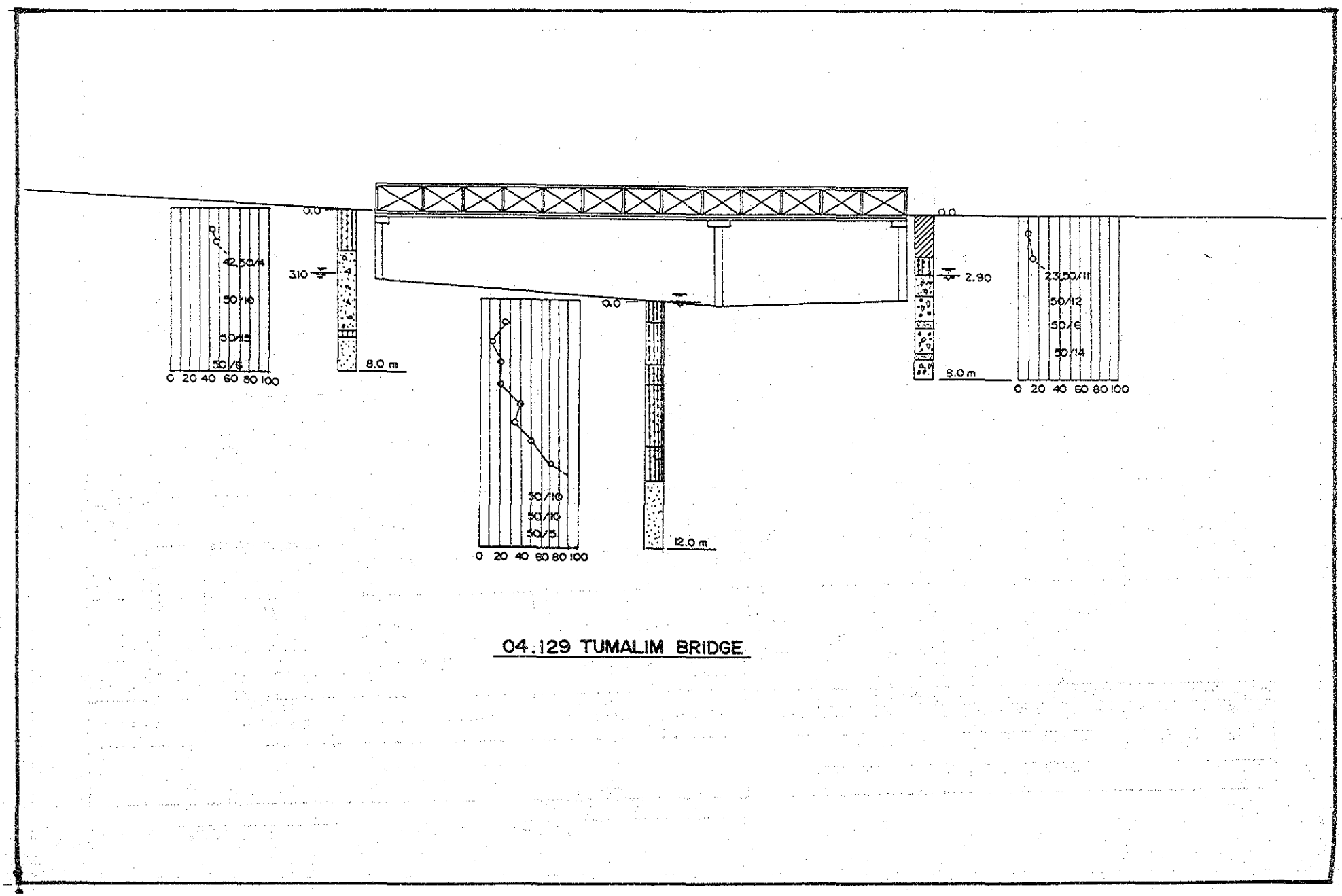


ELEVATION PLAN

SCALE 1 : 200

Bridge No 4.12A Bridge Name: TUMALIM

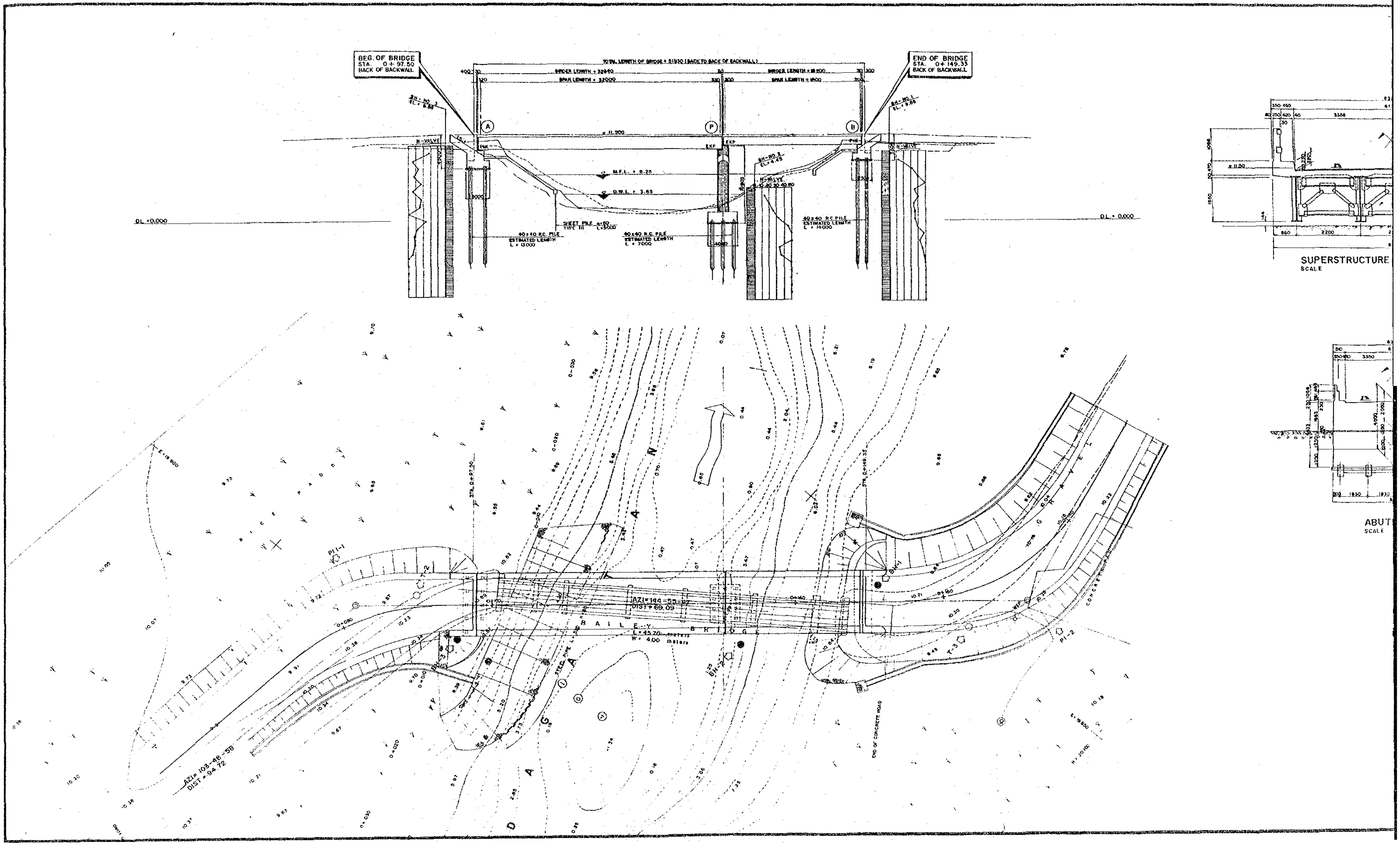
General View							Result of Boring											
							Boring No.1				Boring No. 2				Boring No.3			
Symbol		Name of Soil (Rock) Layer	Constituted Materials (Layer)	Layer Depth (m)	Thickness (m)	N-Value	Thickness (m)	N-Value	Soil Test NMC	Soil Test U.wt	Thickness (m)	N-Value	Soil Test NMC	Soil Test U.wt	Thickness (m)	N-Value	Soil Test NMC	Soil Test U.wt
	FD	FLOOD DEPOSITS	– SILTY SAND – SAND	2 9	2 9	22 50	2	44 49	22 24		9	22 50/N	20 40					
	FD	FLOOD DEPOSITS	– SANDY GRAVEL – COBBLES	6 10	5 6	50/N	4	50/N	10 21						6	50/N	25 30	
	HR	HOST ROCK	SANDSTONE	8 – 12	2–3		2				3							



04.129 TUMALIM BRIDGE

APPENDIX 14

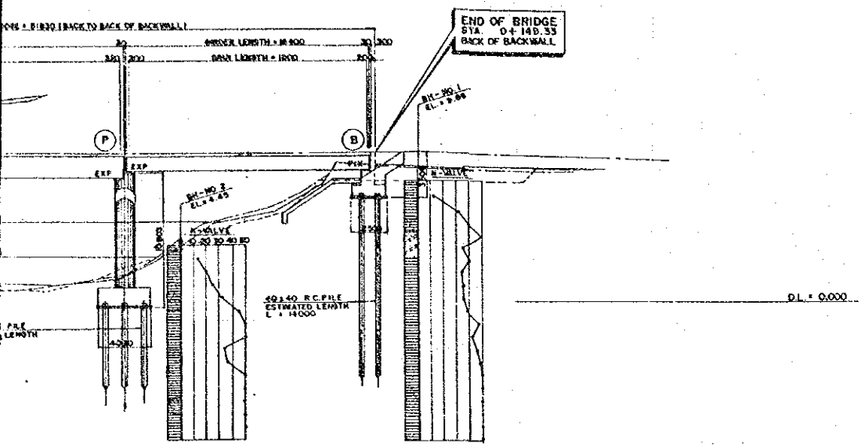
GENERAL PLAN OF BRIDGES

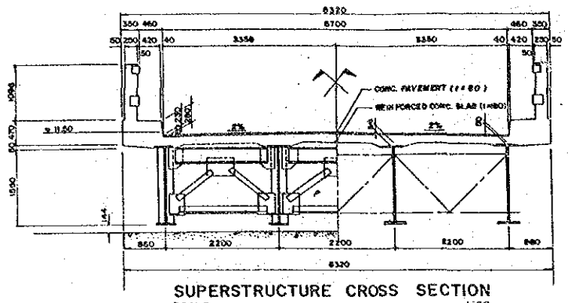


BEG. OF BRIDGE
STA. 0+97.50
BACK OF BACKWALL
END OF BRIDGE
STA. 0+149.33
BACK OF BACKWALL
M.F.L. = 8.25
O.W.L. = 3.65
DL = 0.000
40×40 R.C. PILE
ESTIMATED LENGTH
SHEET PILE
SUPERSTRUCTURE
SCALE
ABUT
SCALE
RICE PADDY
BAILEY BRIDGE
L = 45.70 meters
W = 4.00 meters
AZI = 103-48-58
DIST = 94.72
GRAVEL
CONCRETE ROAD
END OF CONCRETE ROAD
DAGAN

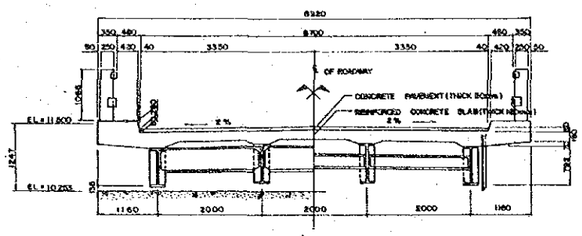
THE SUPLEMENTARY BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTING BRIDGES ALONG RURAL ROADS (PHASE 3)

BRIDGE NO.		SHEET NO.
03 05	DAGAT DAGATAN BRIDGE KM 62 + 570	

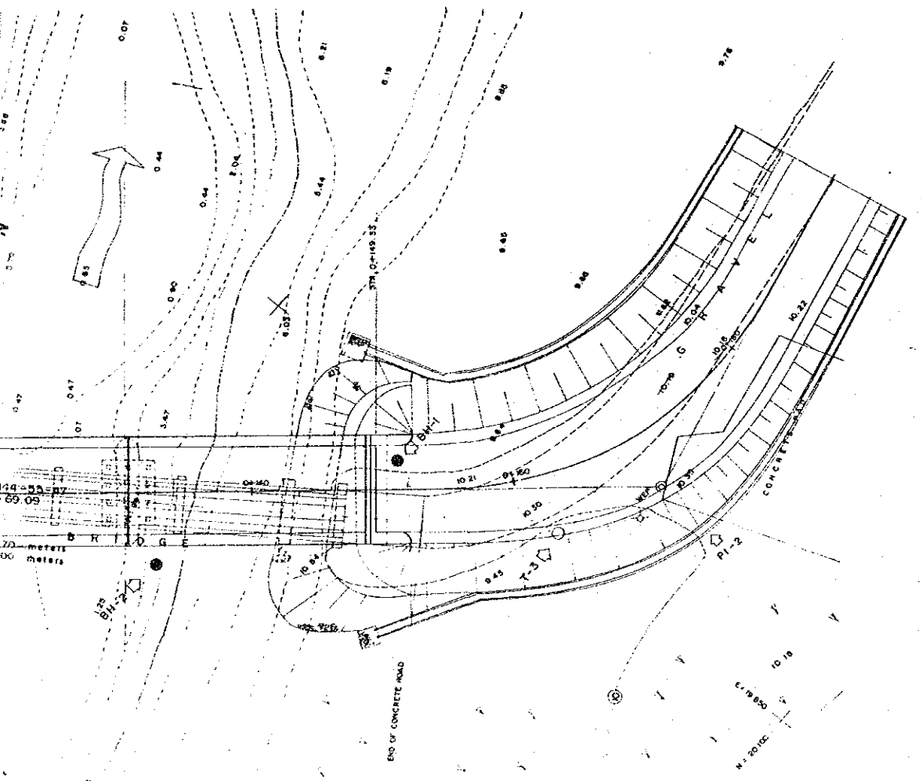


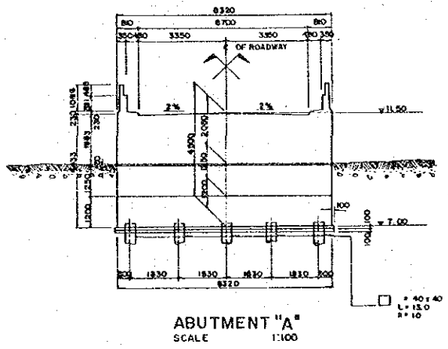


SUPERSTRUCTURE CROSS SECTION
SCALE 1:50

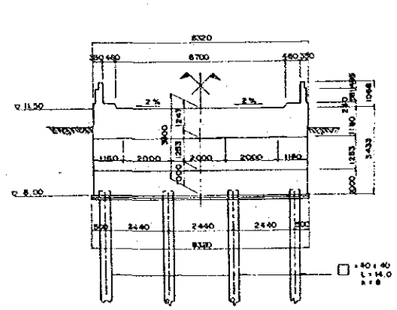


SUPERSTRUCTURE CROSS SECTION
SCALE 1:50

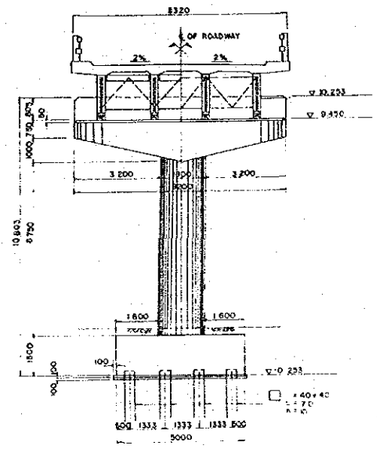




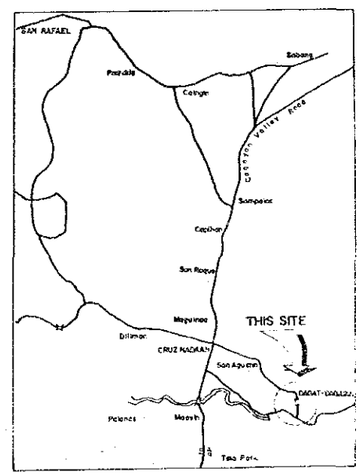
ABUTMENT "A"
SCALE 1:100

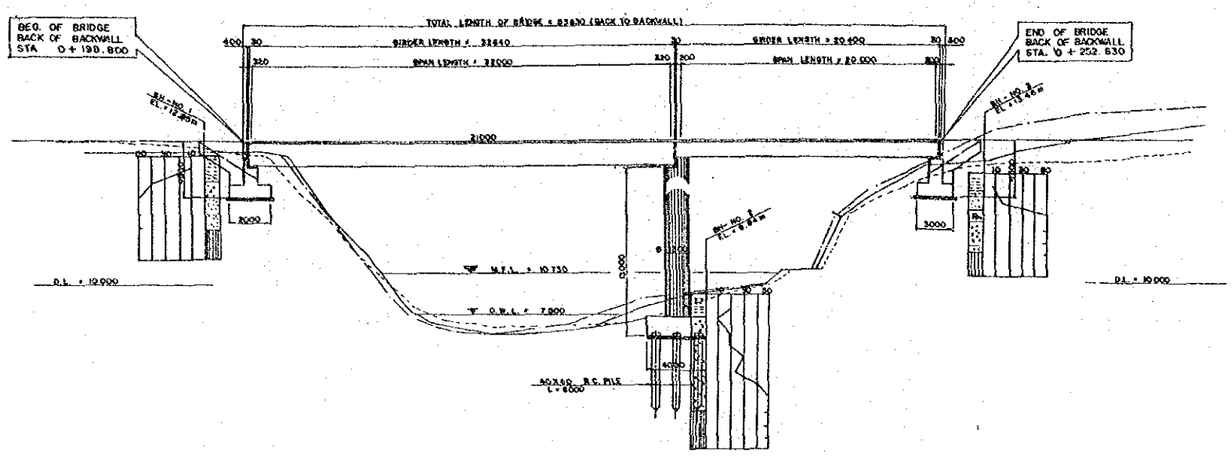


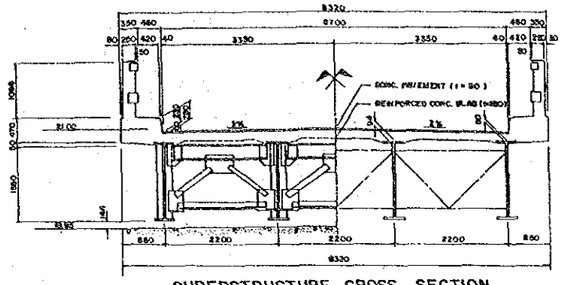
ABUTMENT "B"
SCALE 1:100



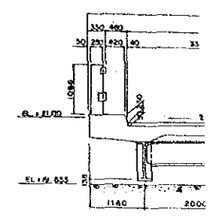
PIER
SCALE 1:100



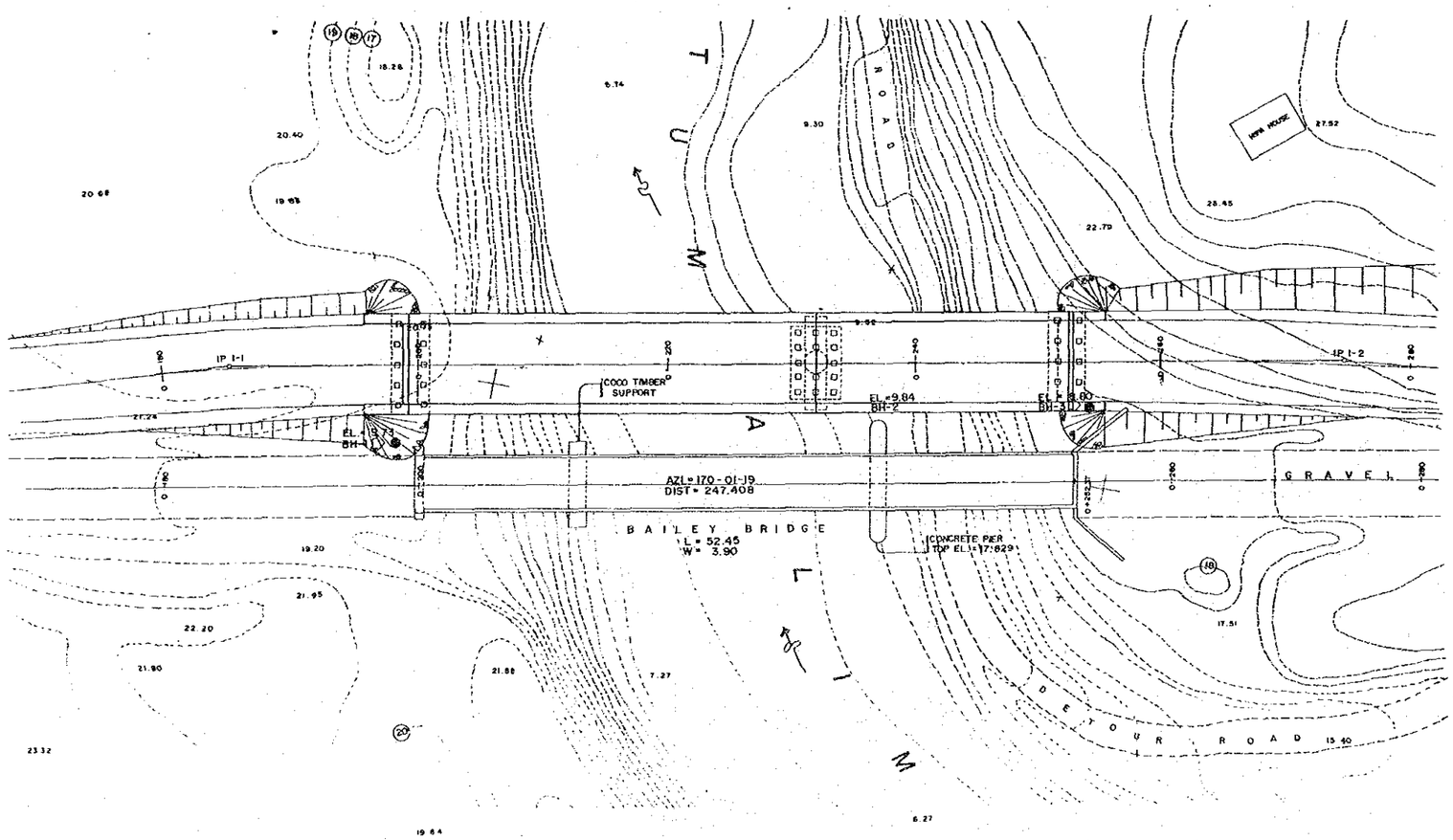


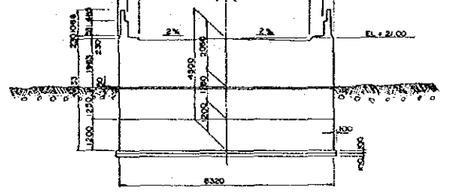


SUPERSTRUCTURE CROSS SECTION
SCALE 1:80

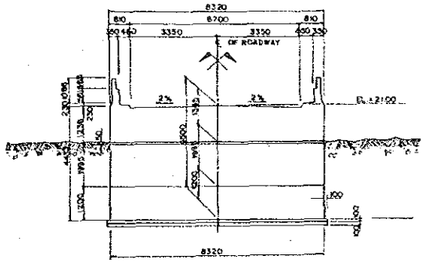


SUPE
SCA

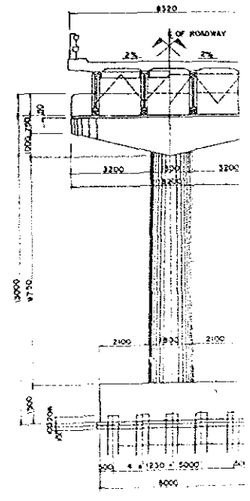




ABUTMENT "A"



ABUTMENT "B"

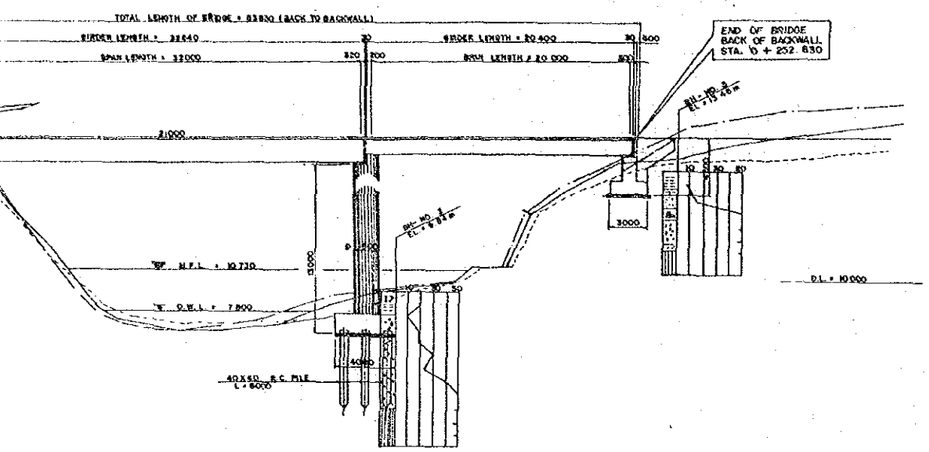


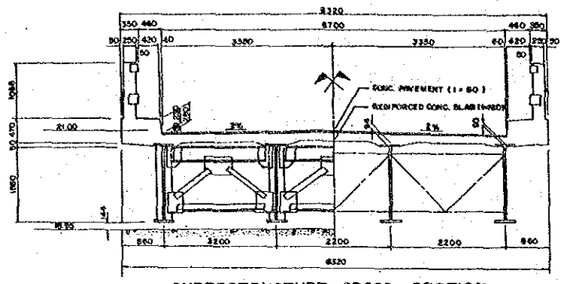
PIER "P"

SUBSTRUCTURE CROSS SECTION
SCALE 1:50

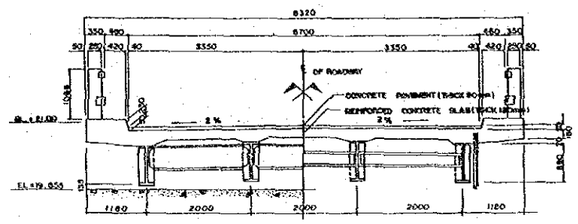
THE SUPLEMENTARY BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTING BRIDGES ALONG RURAL ROADS (PHASE 3)

BRIDGE NO.	TUMALIN BRIDGE	SHEET NO.
04.12a		

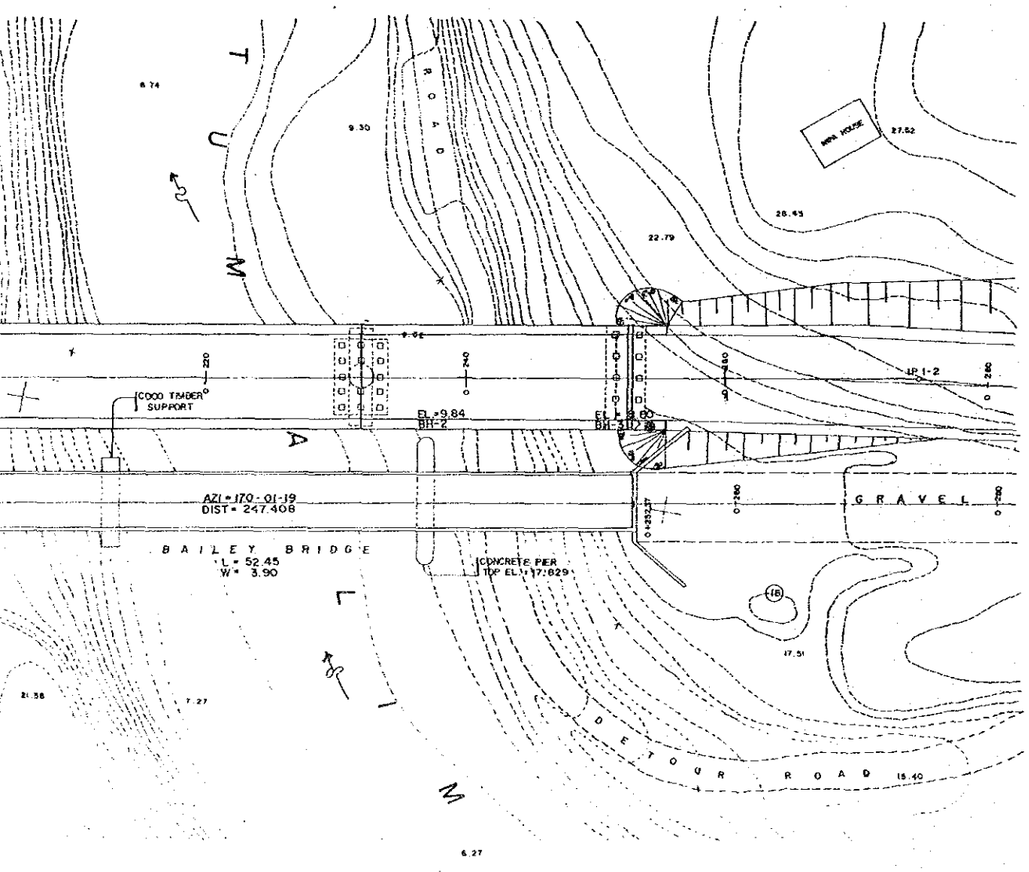


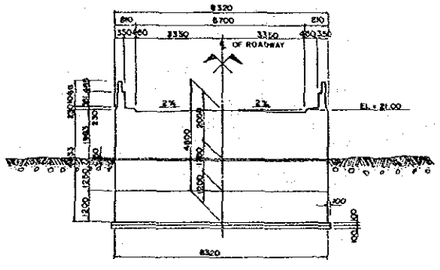


SUPERSTRUCTURE CROSS SECTION
SCALE 1:80

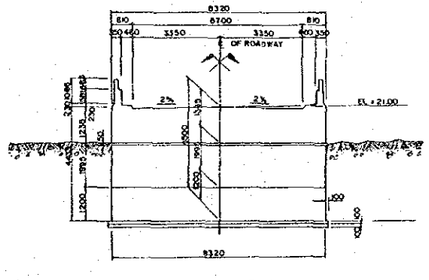


SUPERSTRUCTURE CROSS SECTION
SCALE 1:80





ABUTMENT "A"



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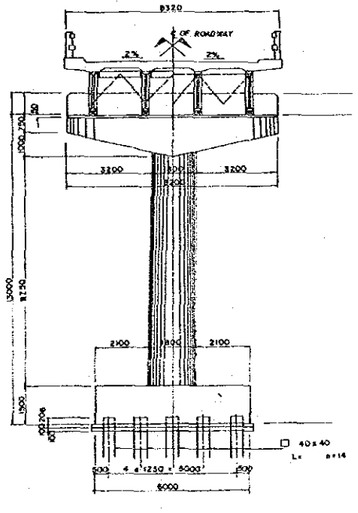
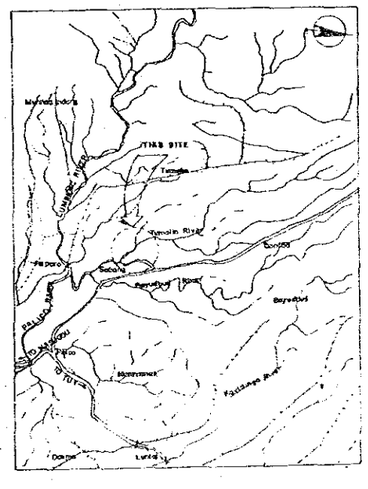
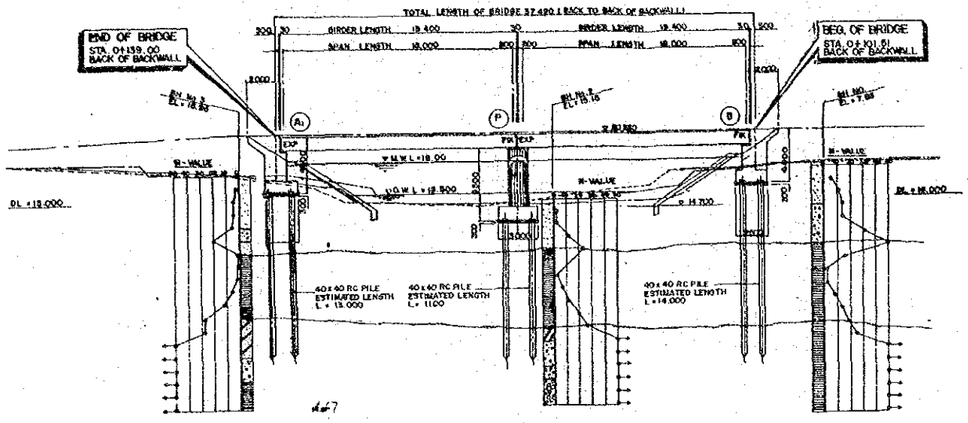


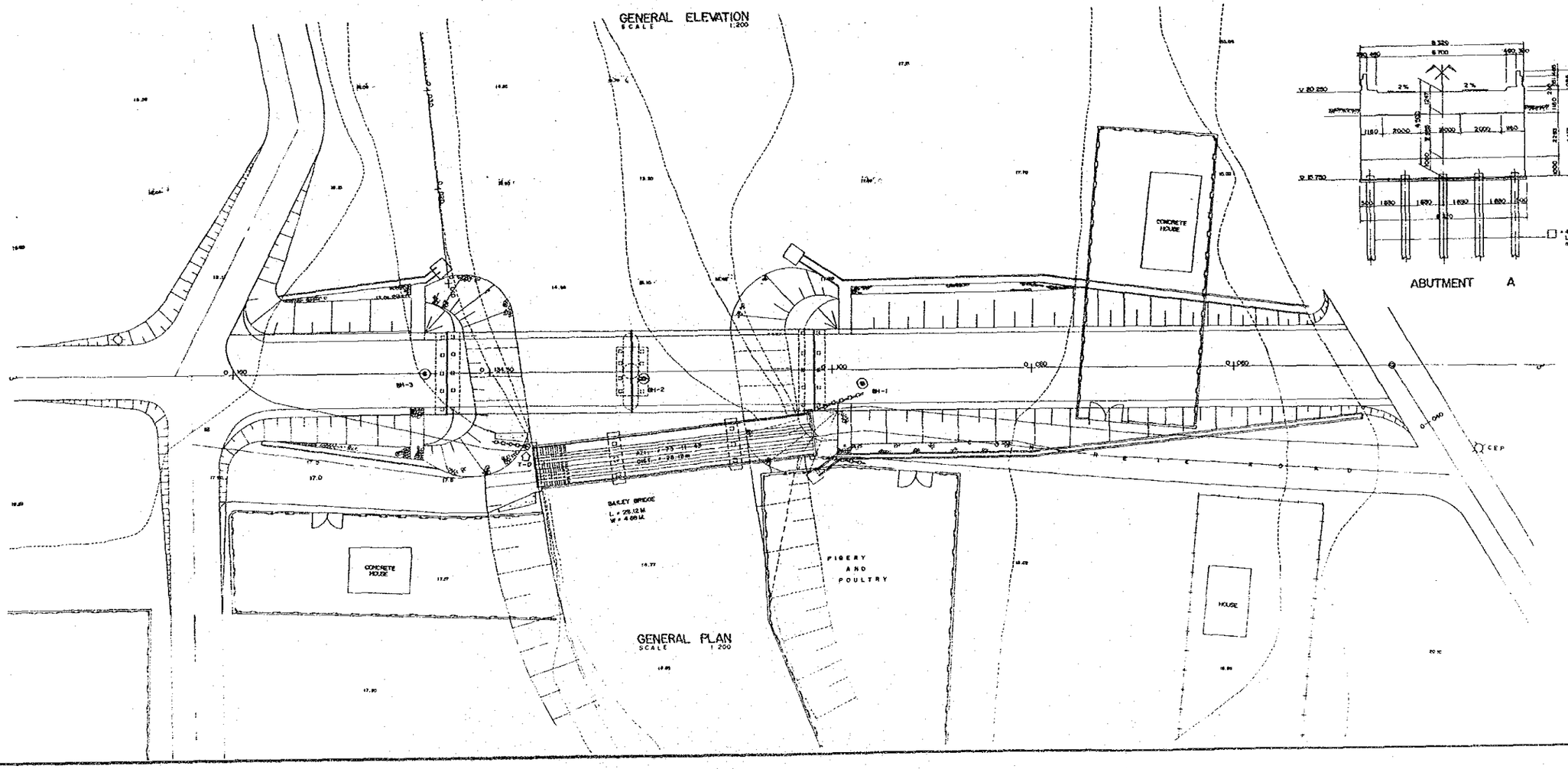
PIER "P"



SUBSTRUCTURE CROSS SECTION
SCALE 1:50

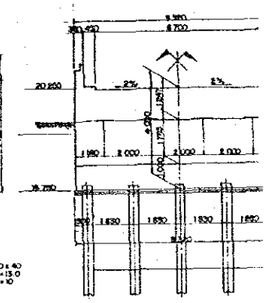


GENERAL ELEVATION
SCALE 1:200

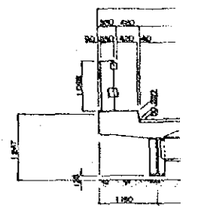


GENERAL PLAN
SCALE 1:200

ABUTMENT A



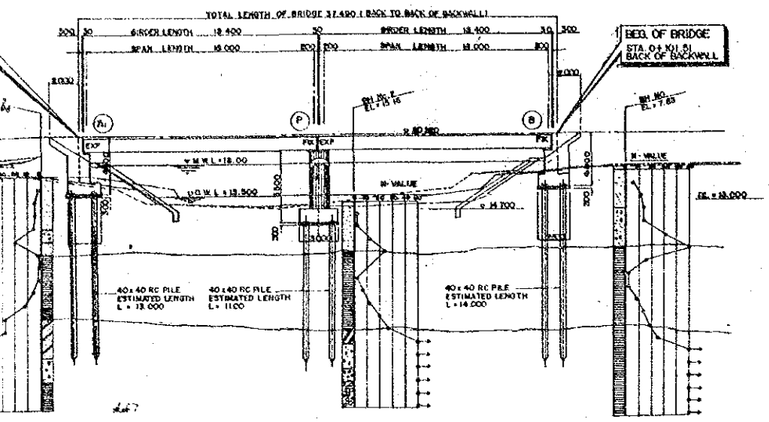
ABUTMENT



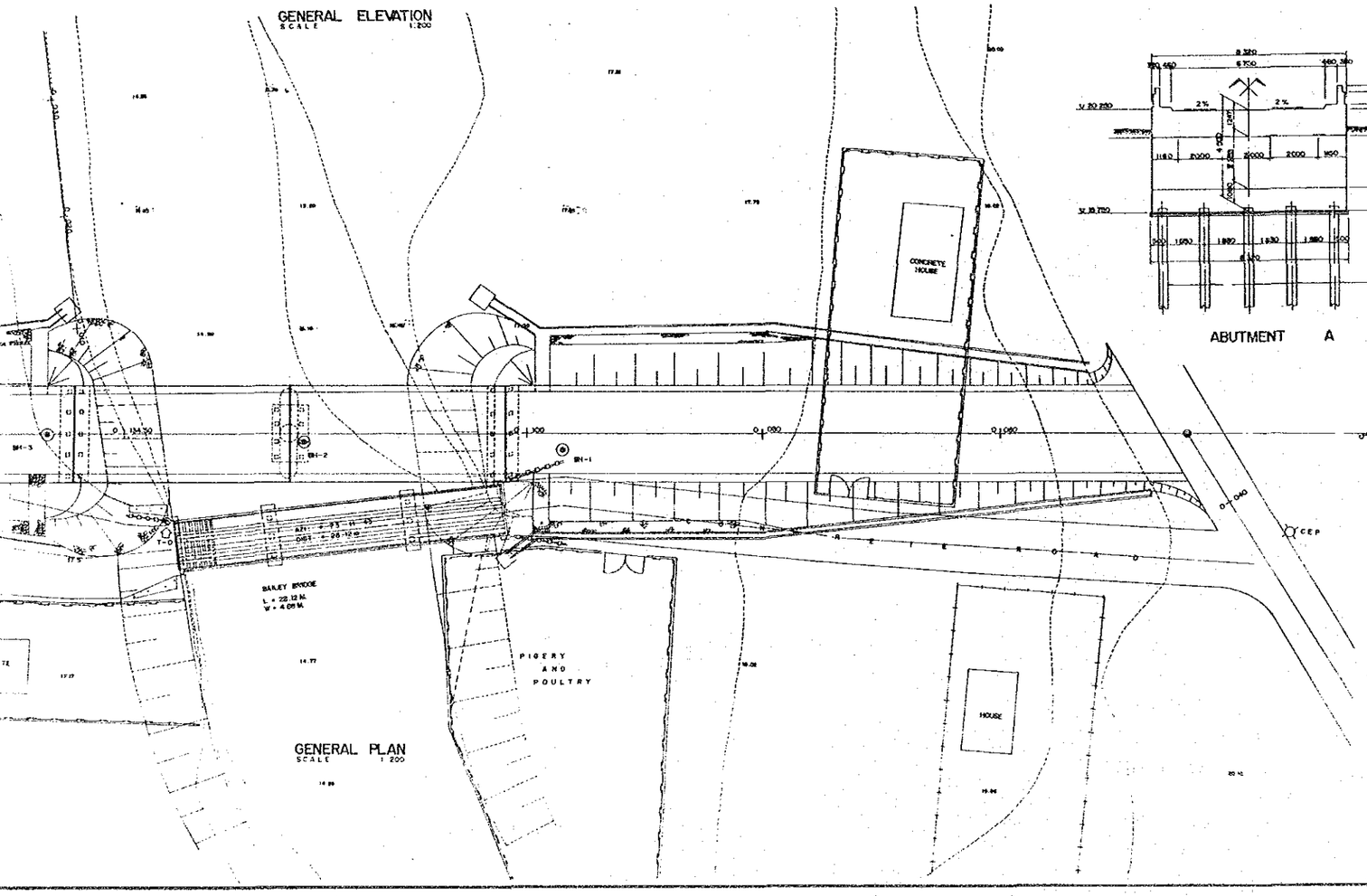
BRIDGE
0.3

THE SUPPLEMENTARY BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTING BRIDGES ALONG RURAL ROADS (PHASE III)

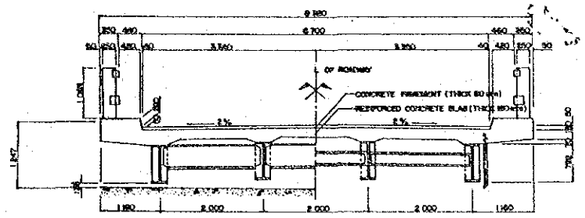
BRIDGE NO.	APOLLO BRIDGE	SHEET NO.
0.3 S	KM. 107	



GENERAL ELEVATION
SCALE 1:200

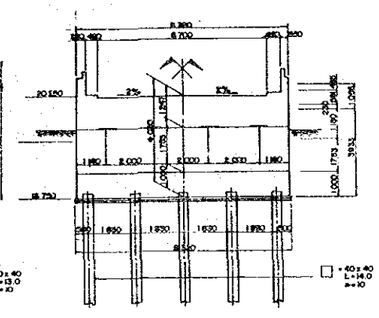


GENERAL PLAN
SCALE 1:200

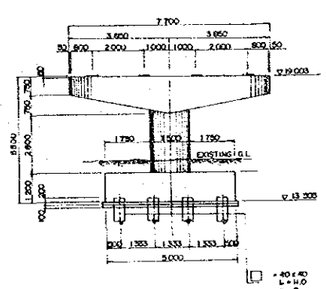


SUPERSTRUCTURE CROSS SECTION
SCALE 1:50

ABUTMENT A

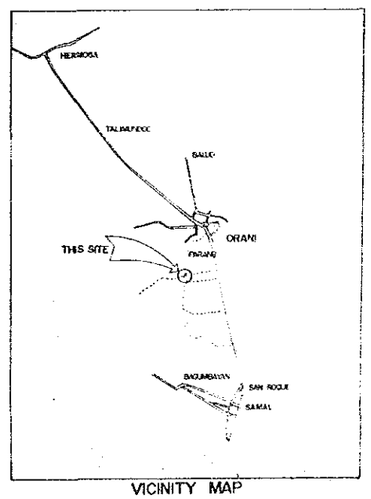


ABUTMENT B



PIER P

SUBSTRUCTURE CROSS SECTION
SCALE 1:100



VICINITY MAP
SCALE 1:80,000

APPENDIX 15

PHOTO ALBUM

1. Subjective bridges for Phase Ⅲ、group 2
affected by eruption of Mt.Pinatubo

1) Sula bridge
2) Bacong bridge
3) San Roque bridge
4) Maphilindo bridge

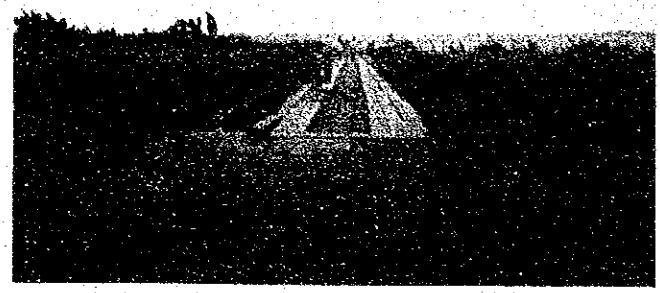
BRIDGE NO. : 03.17
BRIDGE NAME : SULA
LOCATION : KM. 143+104
TARLAC-SULA RD.
SULA, TARLAC, TARLAC

UPSTREAM

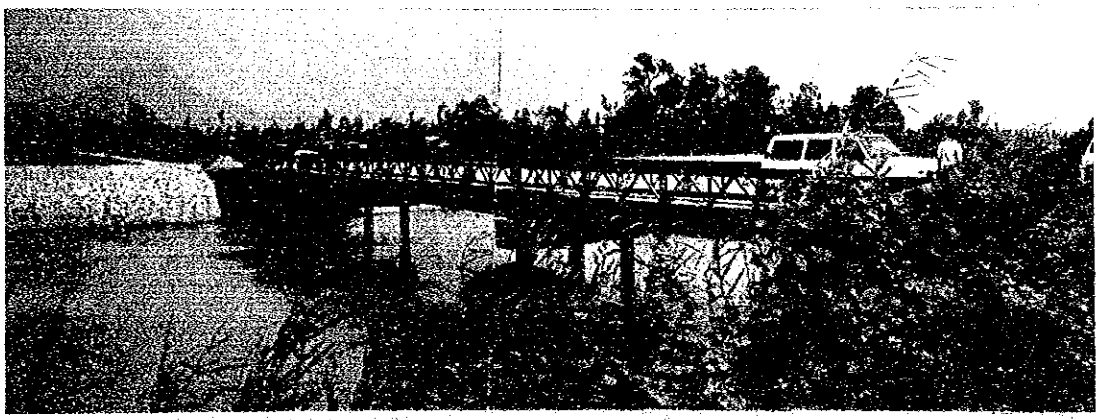
DOWNSTREAM

LOCATION OF PROPOSED BRIDGE

BRIDGE NO. : 03.03
BRIDGE NAME : BACONG
LOCATION : KM. 105+360
LUACAN-BACONG ROAD
BACONG, BATAAN



FIRST APPROACH

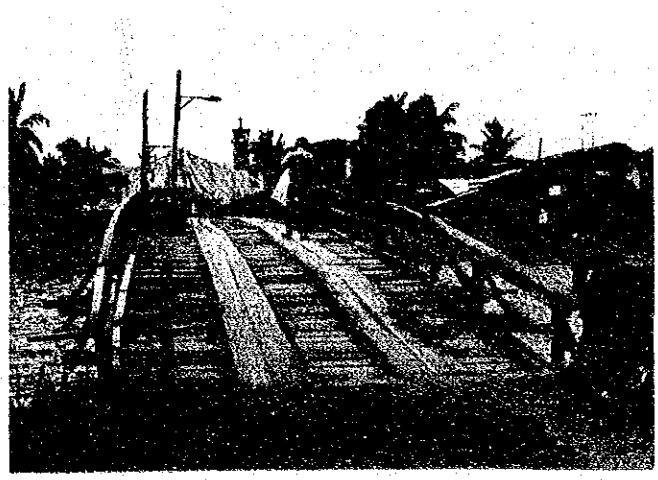


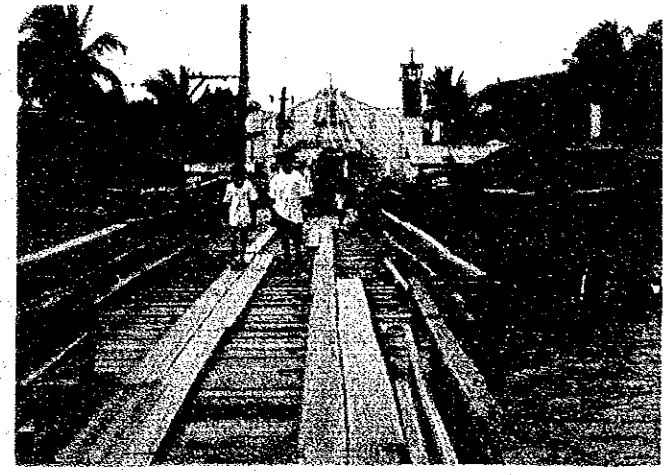
FULL VIEW OF THE BRIDGE FROM LEFT SIDE OF 2ND APPROACH

UPSTREAM VIEW

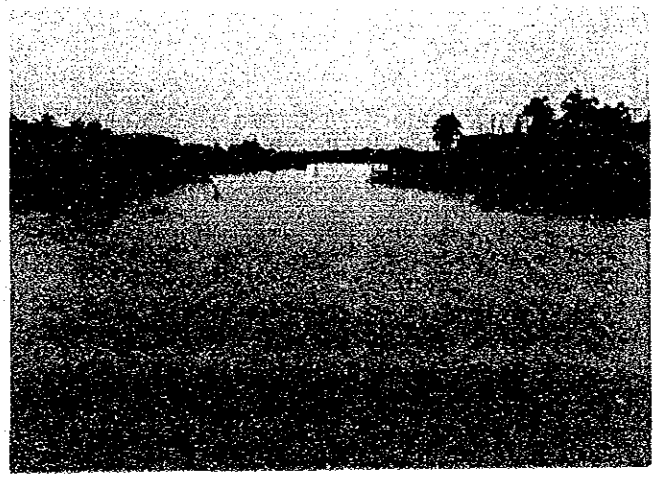
DOWNSTREAM VIEW

BRIDGE NO. : 03.07
BRIDGE NAME : SAN ROQUE
LOCATION : KM. 57+284
HAGONOY, BULACAN





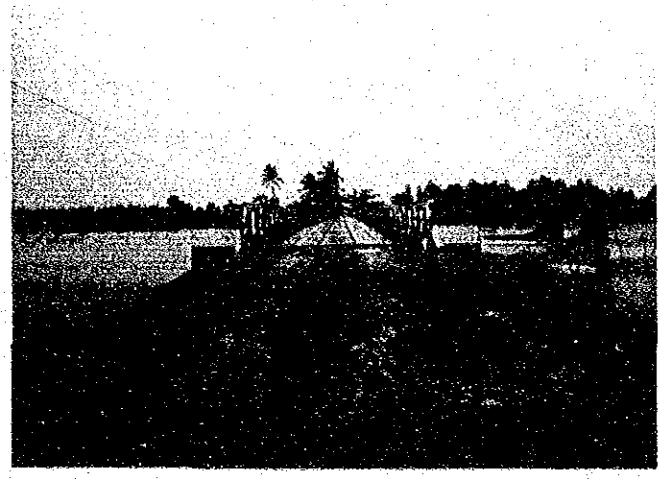
FIRST APPROACH



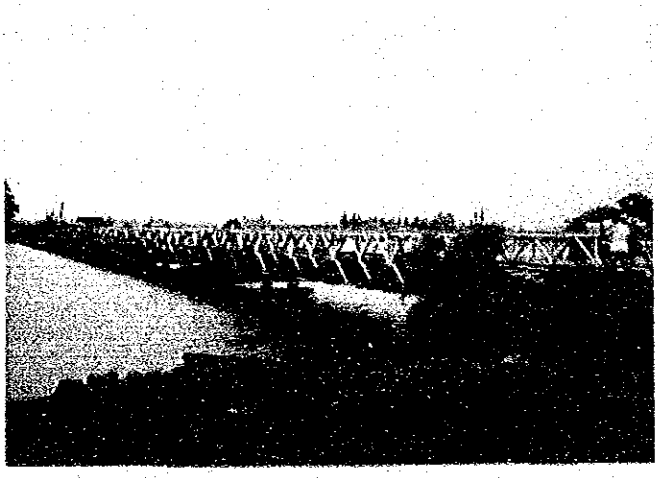
UPSTREAM VIEW

DOWNSTREAM VIEW

BRIDGE NO. : 01.02
BRIDGE NAME : MAPHILINDO
LOCATION : KM. 220+900
BIEC-LOMBOY ROAD
BINMALEY, PANGASINAN

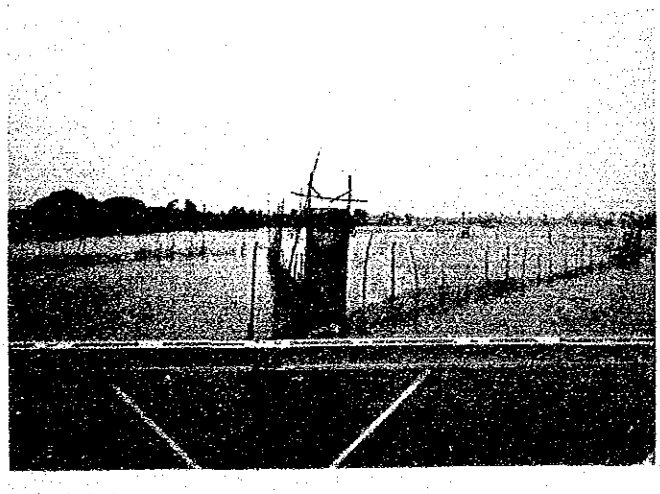


SECOND APPROACH



SIDEVIEW OF THE BRIDGE FROM SECOND APPROACH

UPSTREAM VIEW



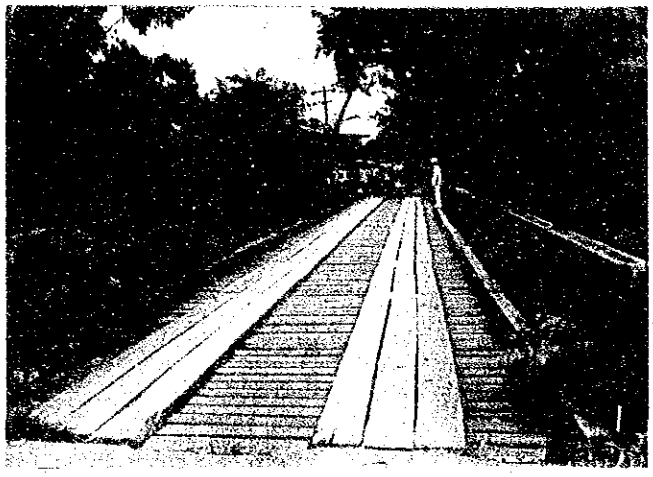
DOWNSTREAM VIEW

2. Substitute candidate bridges for Phase Ⅲ, group 2

5) Dagat-dagatan bridge
6) Aeta-kinarangan bridge
7) Tumalim bridge
8) kinalapan bridge
9) Paurungan bridge

BRIDGE NO. : 03.05
BRIDGE NAME : DAGAT-DAGATAN
LOCATION : KM. 62+500
SAN RAFAEL-BUSTOS ROAD
SAN RAFAEL, BULACAN

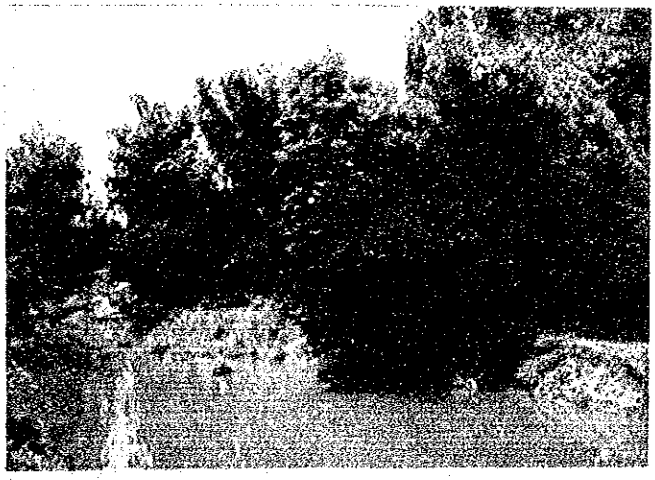
FIRST APPROACH



SECOND APPROACH

DOWNSTREAM SIDE

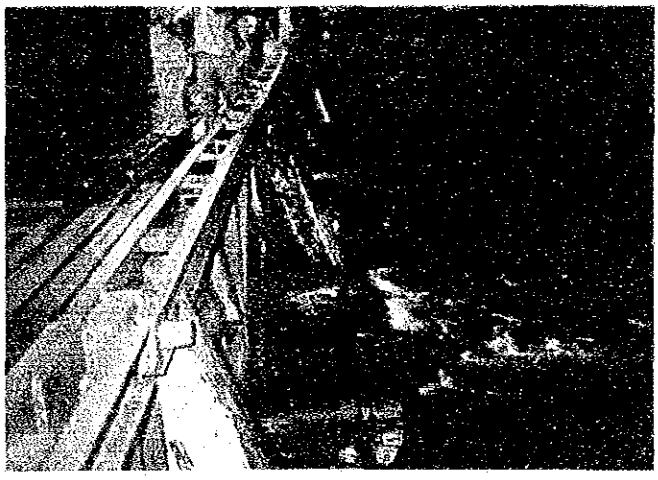
UPSTREAM SIDE



DOWNSTREAM VIEW

BRIDGE NO. : 03.02
BRIDGE NAME : AETA-KINARANGAN
LOCATION : KM 143+654
AETA-KINARANGAN ROAD
LIMAY, BATAAN

FIRST APPROACH



DOWNSTREAM SIDE

DOWNSTREAM VIEW

BRIDGE NO. : 04.12a
BRIDGE NAME : TUMALIM
LOCATION : KM. 91+700
BANILAD-TUMALIM-M. INDANG ROAD
NASUGBU, BATANGAS

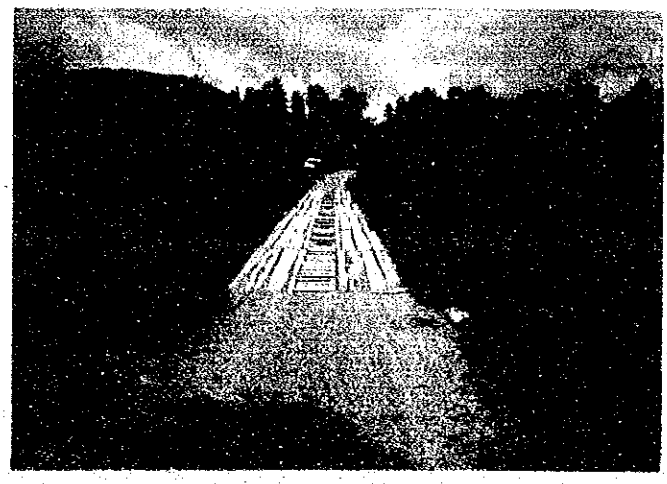
FIRST APPROACH

SECOND APPROACH

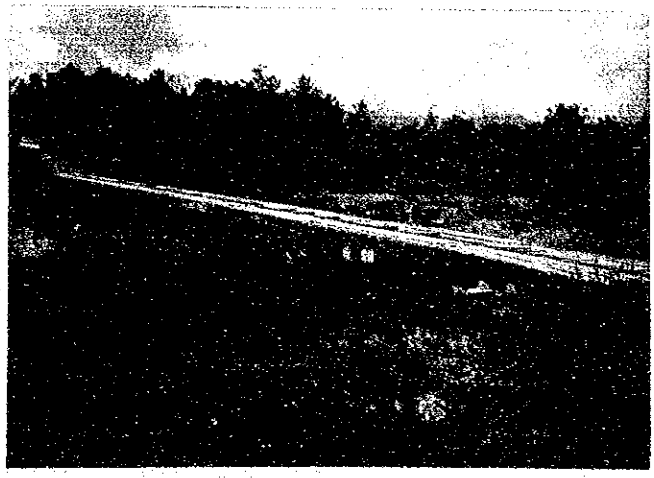
A VIEW OF THE BRIDGE FROM DOWNSTREAM

A VIEW FROM LEFT SIDE OF 1ST APPROACH

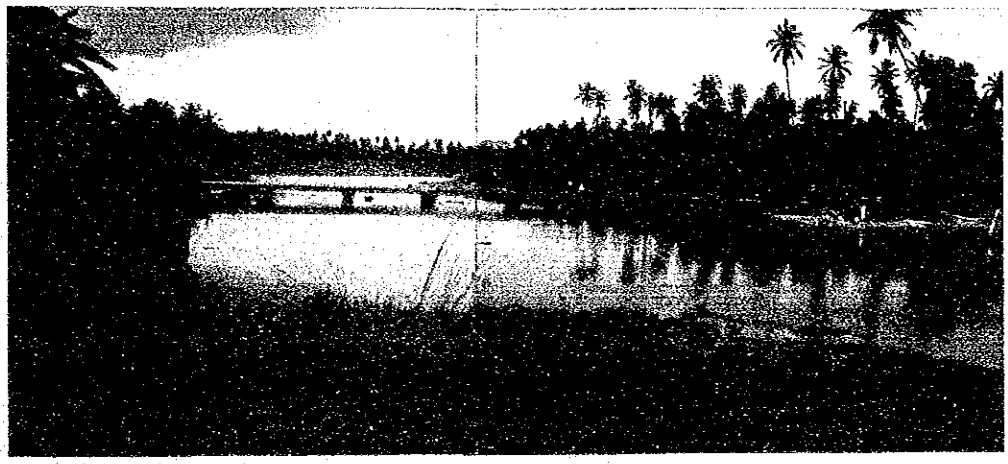
BRIDGE NO. : 04.15a
BRIDGE NAME : KINALAPAN BRIDGE
LOCATION : KM. 233+033
BALER-AURORA ROAD
PINGIT, BALER, AURORA



SECOND APPROACH



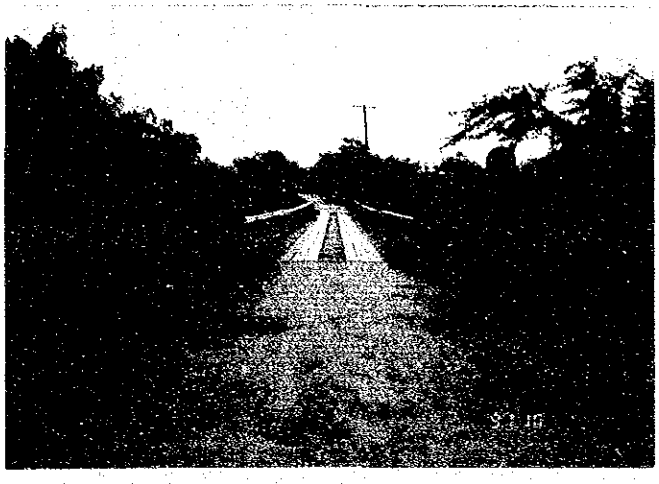
LEFT SIDE VIEW FROM SECOND APPROACH

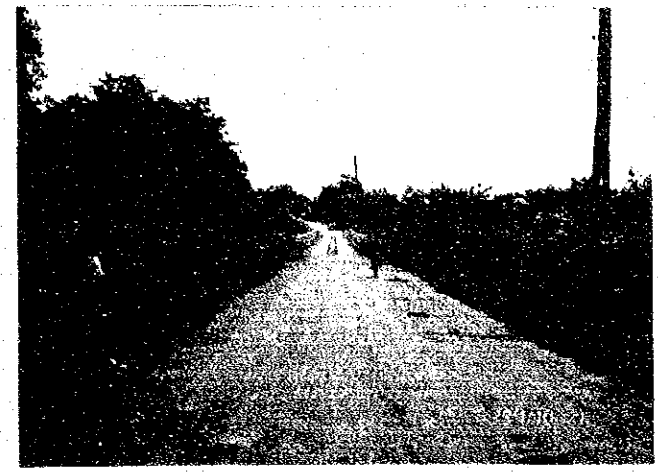


VIEW OF THE BRIDGE FROM DOWNSTREAM

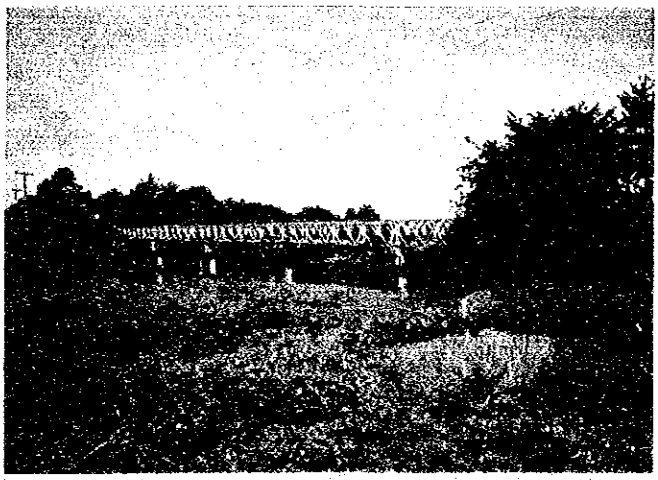
UPSTREAM

BRIDGE NO. : 04.03a
BRIDGE NAME : PAURUNGAN
LOCATION : KM. 29+118
ZAPOTE-SALAWAG-SALITRAN ROAD
DAMARINAS, CAVITE

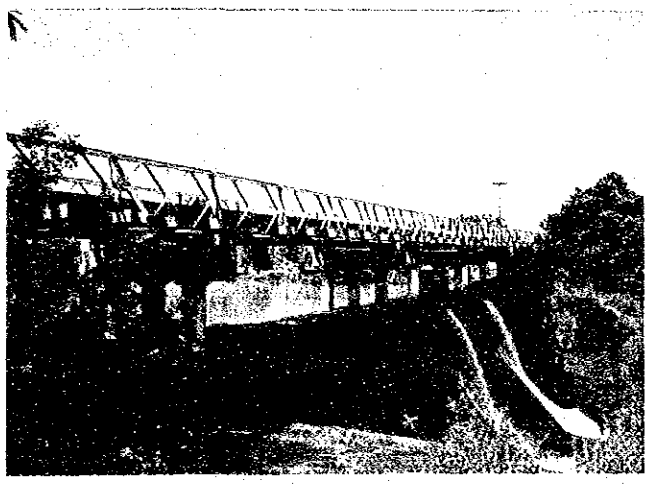




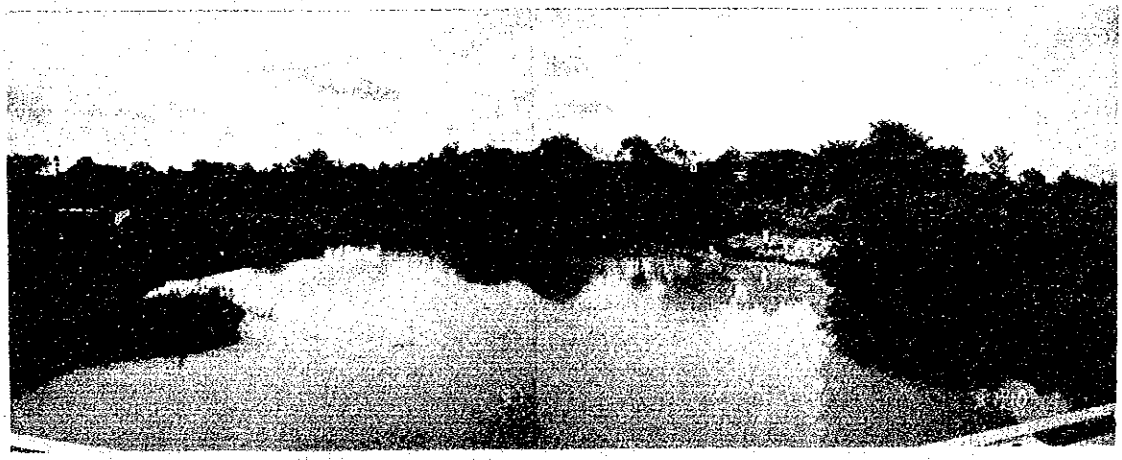
FIRST APPROACH



FULL VIEW OF THE BRIDGE FROM UPSTREAM



DOWNSTREAM SIDE



UPSTREAM

3. Subjective bridges for Phase Ⅲ, group 1 affected by eruption of Mt.Pinatubo

10) Pias bridge
11) Pulo bridge
12) Sindol bridge

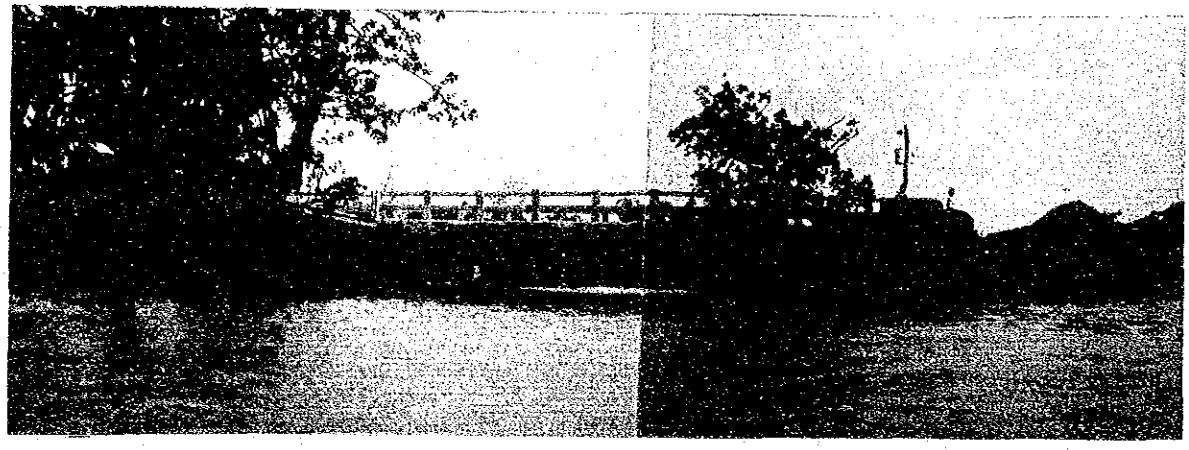
BRIDGE NO. : 03.08
BRIDGE NAME : PIAS
LOCATION : KM. 90+470
PIAS-EBOS ROAD
PORAC, PAMPANGA

VIEW FROM FIRST APPROACH
(No Existing Bridge)

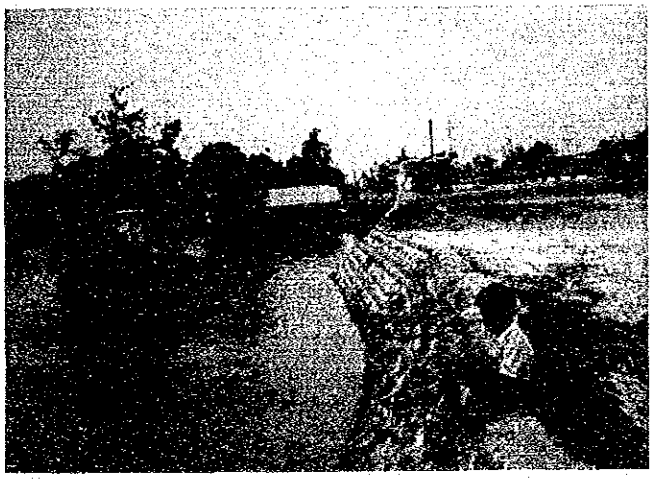
UPSTREAM VIEW

RIGHT SIDE VIEW

BRIDGE NO. : 03.11
BRIDGE NAME : PULO
LOCATION : KM. 85+925
STA. CATALINA-PULONG, BAYU ROAD
LUBAO, PAMPANGA



FULL VIEW OF PULO BRIDGE FROM UPSTREAM SIDE



SIDE VIEW FROM UPSTREAM AT SECOND APPROACH

FIRST APPROACH

FLOOD CONDITION AT THE FIRST APPROACH

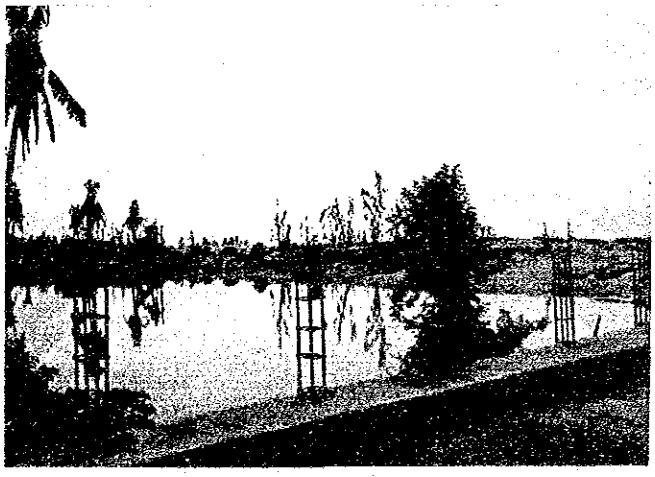
FLOOD CONDITION AT THE SECOND APPROACH

BRIDGE NO. : 03.18
BRIDGE NAME : SINDOL
LOCATION : KM. 172+350
BRGY. SINDOL ROAD
SAN FELIPE, ZAMBALES

VIEW FROM RIGHT SIDE OF FIRST APPROACH

SIDE VIEW OF THE BRIDGE FROM UPSTREAM

SECOND APPROACH



DOWNSTREAM VIEW


JICA