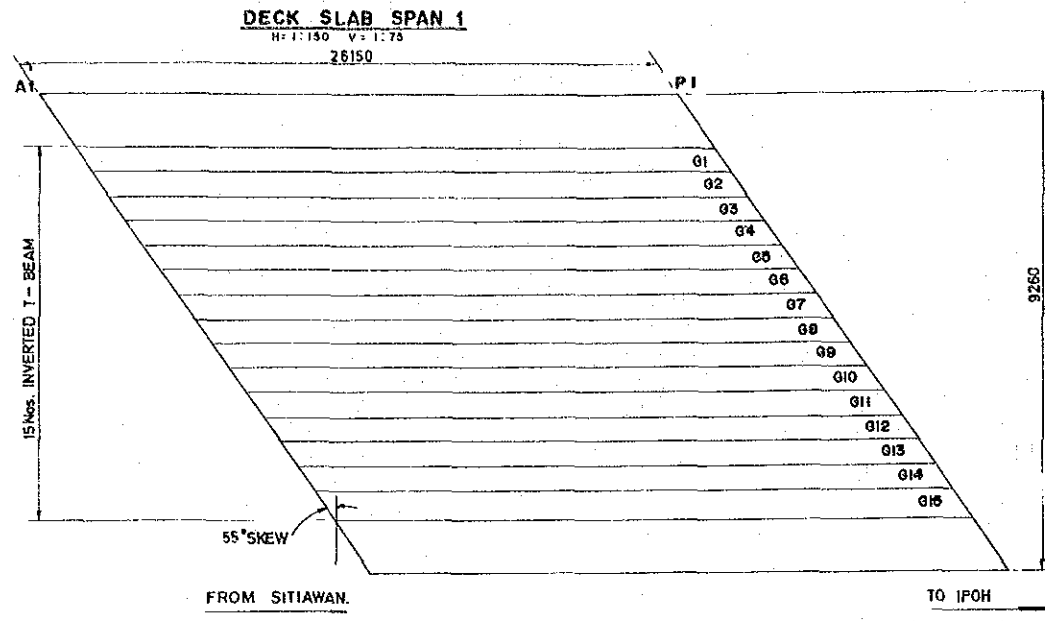
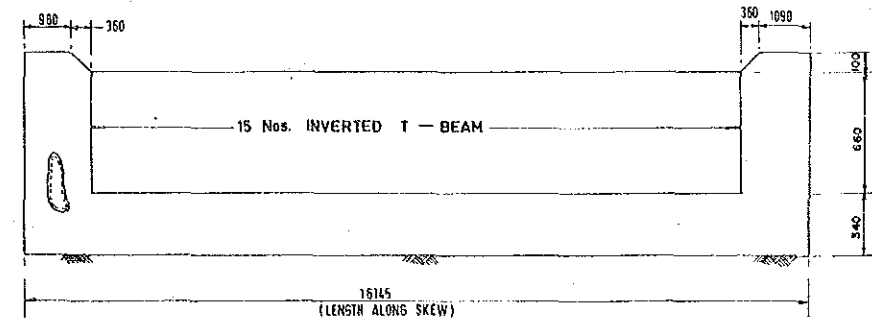


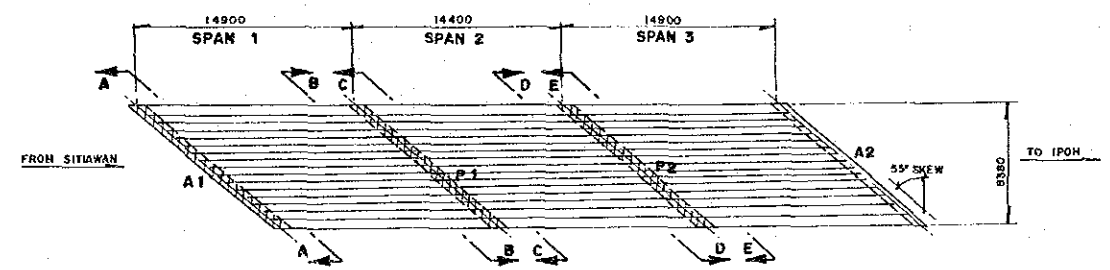
CRACK DIAGRAM OF SLAB SOFFIT



ABUTMENT A1 (VIEW A-A)
H: 1:75 V: 1:20

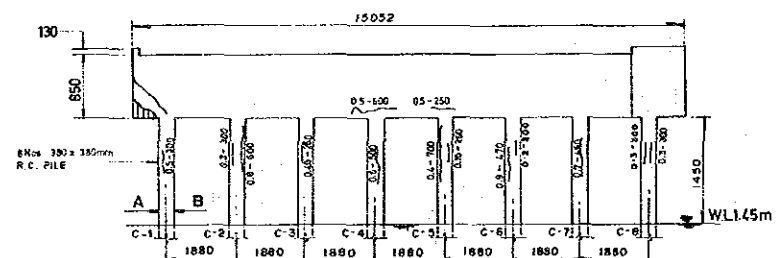


KEY MAP

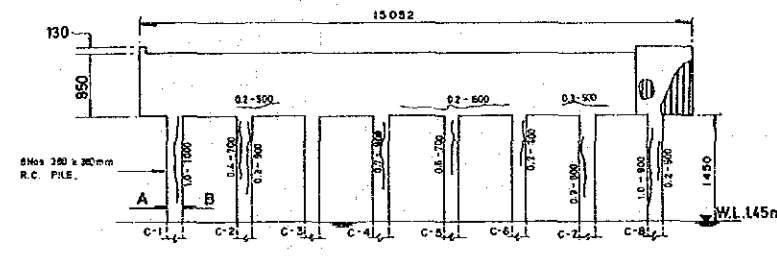


CRACK DIAGRAM OF SUBSTRUCTURE

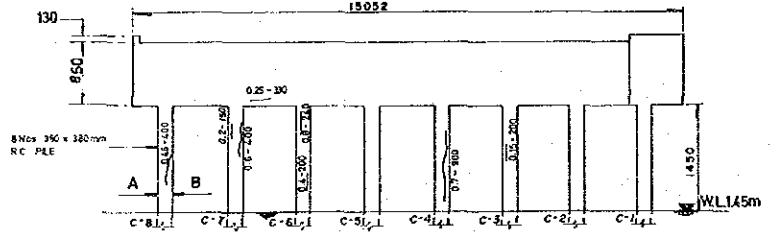
PIER 1 (VIEW B-B)
H: 1:100 V: 1:50



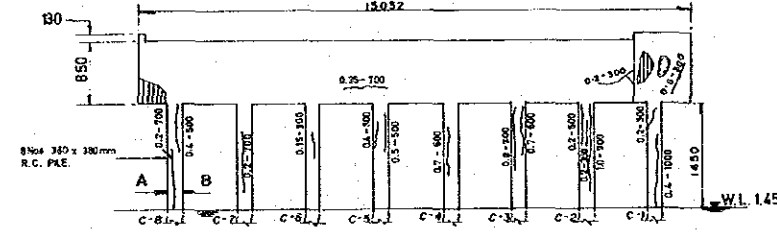
PIER 2 (VIEW D-D)
H: 1:100 V: 1:50



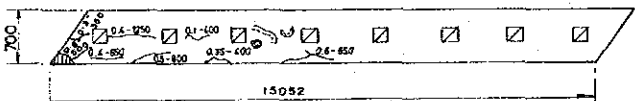
PIER 1 (VIEW C-C)
H: 1:100 V: 1:50



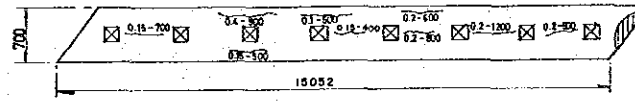
PIER 2 (VIEW E-E)
H: 1:100 V: 1:50



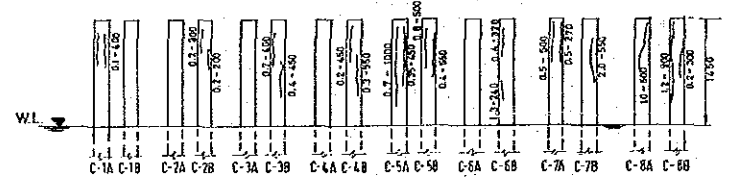
SOFFIT OF CROSS BEAM



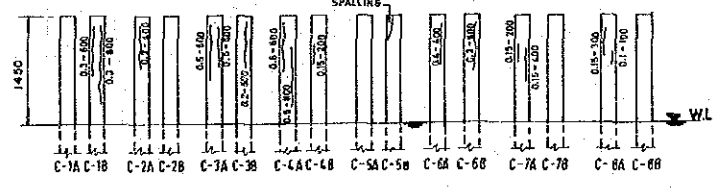
SOFFIT OF CROSS BEAM



COLUMNS (SIDE VIEW)



COLUMNS (SIDE VIEW)



NOTE: CRACK DIAGRAM OF SUBSTRUCTURE INDICATED BY KZZZ IS SHOWN IN THE DRAWING.

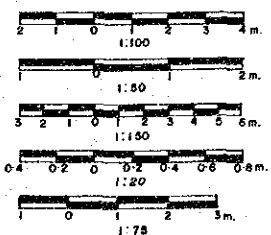
LEGEND OF DAMAGE (CONCRETE)

TYPE OF DAMAGES	INDICATION
CRACK *	
FLAKING	
REBAR EXPOSURE	
FREE LIME	
HONEY COMB	
WEAR / EROSION	
WATER STAIN	
OTHERS	

* O THE LENGTH OF CRACK
□ MAXIMUM CRACK WIDTH

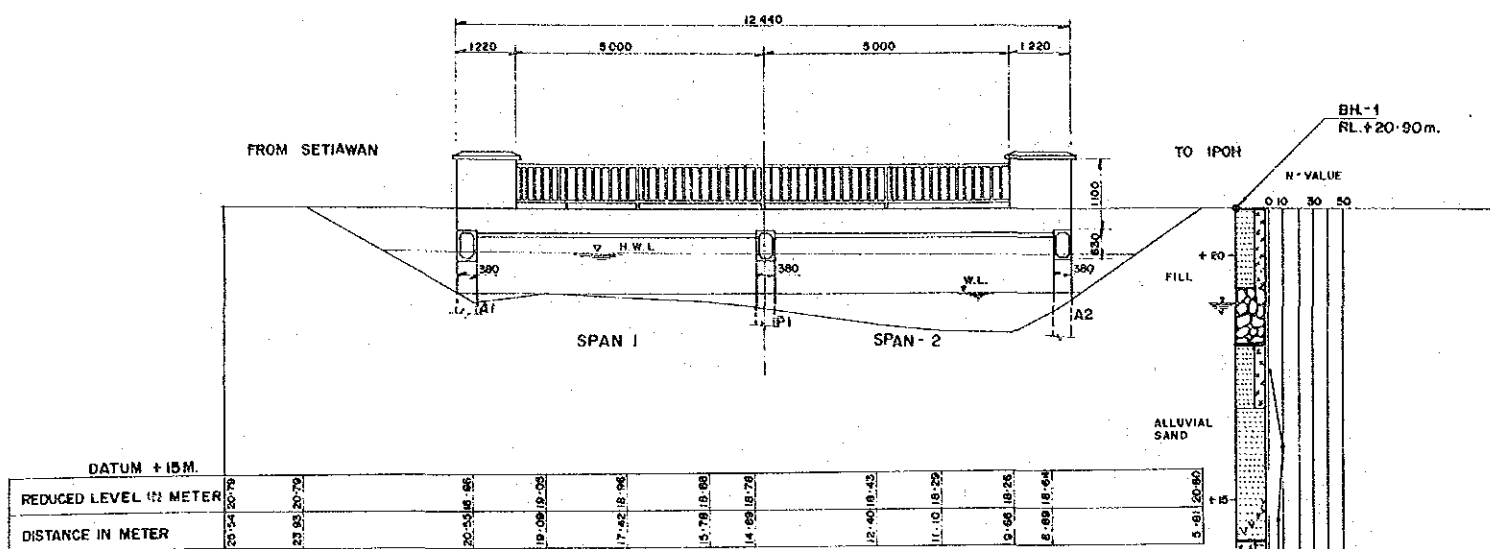
NOTES:

- DECK SLAB OF SPAN 2 AND 3 IN GOOD CONDITION.
- ABUTMENT 2 IN GOOD CONDITION.

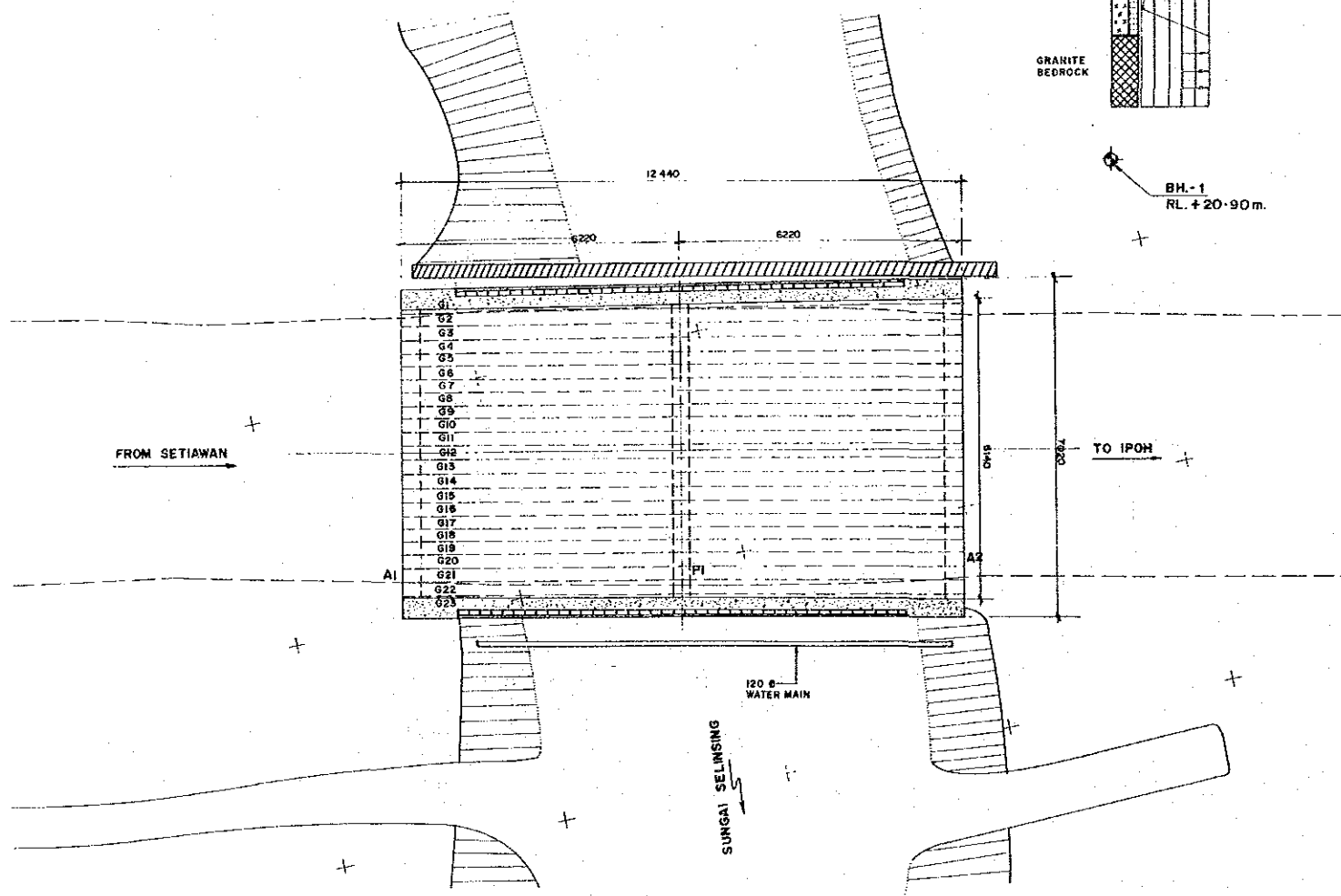


	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	CRACK DIAGRAM	5/636/80	AS SHOWN	DSS - 6 - 3

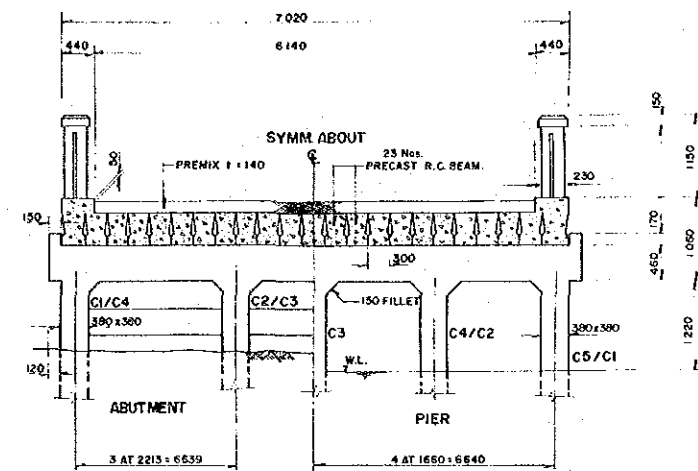
ELEVATION
1:75



PLAN
1:75

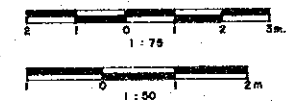


CROSS - SECTION
1:50



BRIDGE DATA :

KEY NO :	5 / 678 / 40	
STATE :	PERAK	
DISTRICT :	KINTA	
DESIGN LIVE LOAD :	HA LOADING	
MATERIAL YIELD STRENGTH	CONCRETE	SUPERSTRUCTURE: BEAM 25 N/mm ²
		SUBSTRUCTURE: 20 N/mm ²
	REBAR	230 N/mm ²
TYPE OF SUPERSTRUCTURE :	PRECAST R.C. SLAB	
TYPE OF SUBSTRUCTURE :	ABUTMENT	R.C. PILE + CROSS HEAD
	PIER	R.C. PILE + CROSS HEAD.
YEAR BUILT :	1960 (ESTIMATED)	

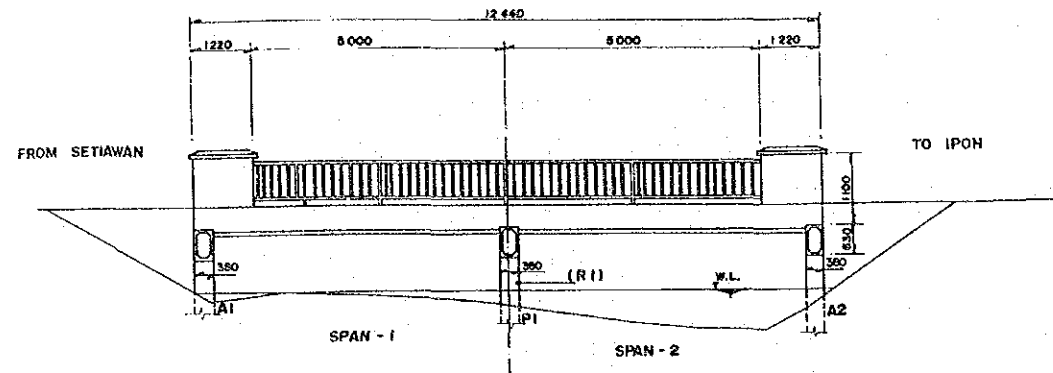


JICA	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	GENERAL VIEW	5/678/40	AS SHOWN	DSS - 7 - 1

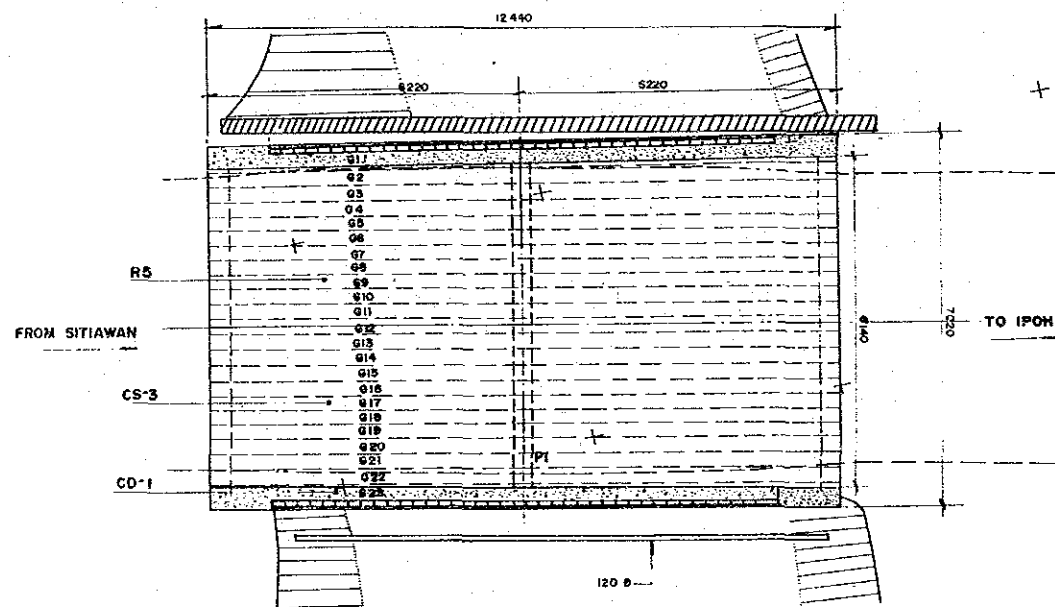
STRUCTURAL DETAILS

NOTE: LOCATION STRUCTURAL DETAILS INDICATED BY (R1) - (R5) IS SHOWN IN PLAN AND CROSS SECTION

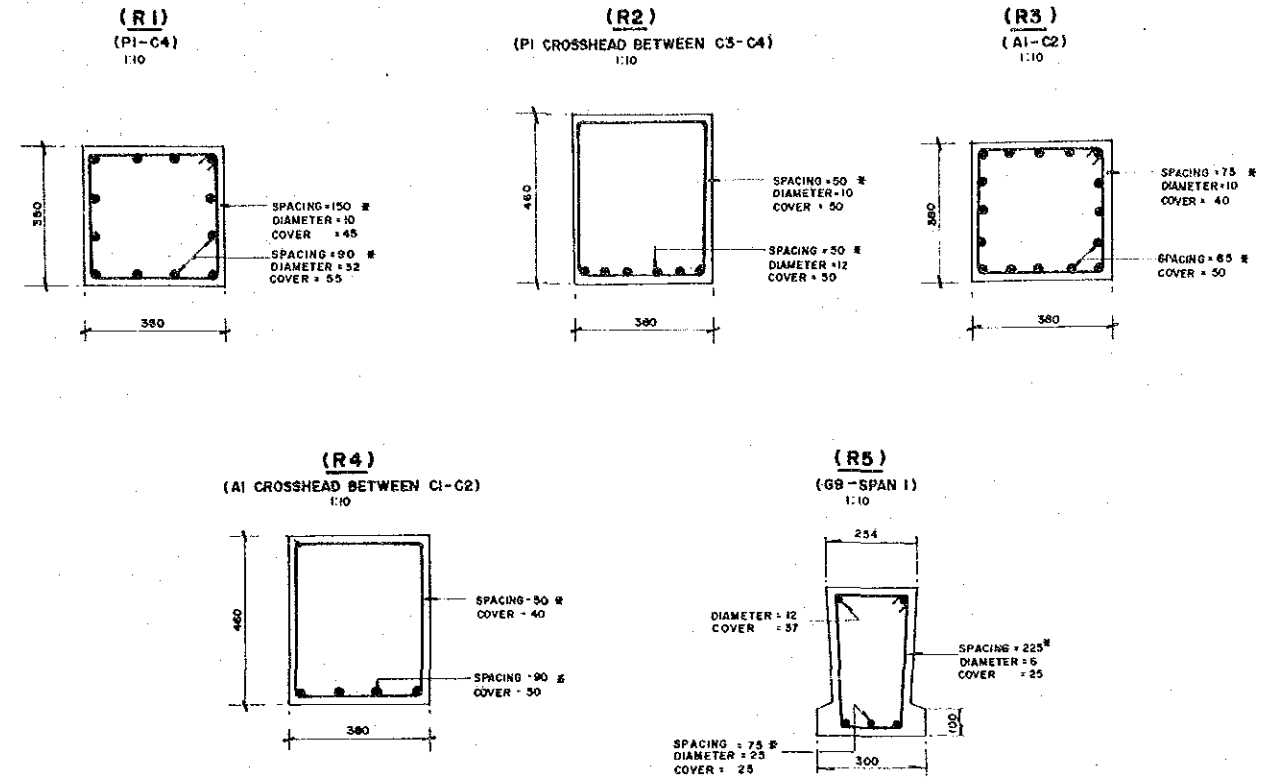
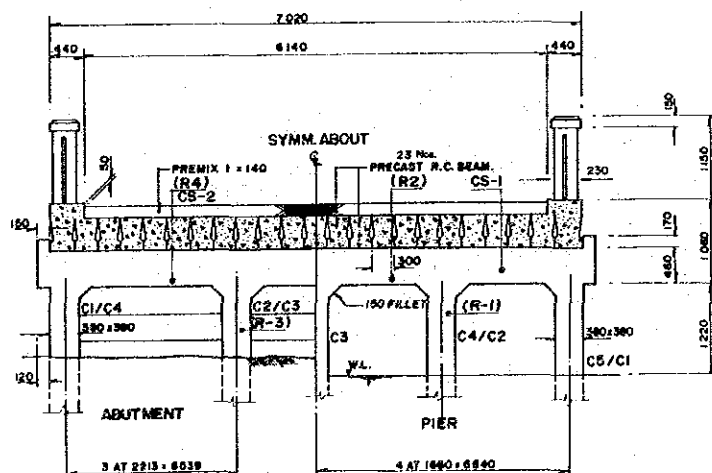
ELEVATION
1:75



PLAN
1:75



CROSS - SECTION
1:50



TEST RESULTS

CONCRETE STRENGTH (UNIT: N/MM²)

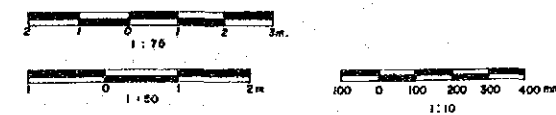
LOCATION	MEMBER	SH [Ⓢ]
CS-1	PI - CROSSHEAD BETWEEN C4 - C5	43
CS-2	A1 - CROSSHEAD	39
CS-3	G17 - SPAN I	54

CARBONATION DEPTH

LOCATION	MEMBER	DEPTH (mm)
CD-1	G23 - SPAN I	0

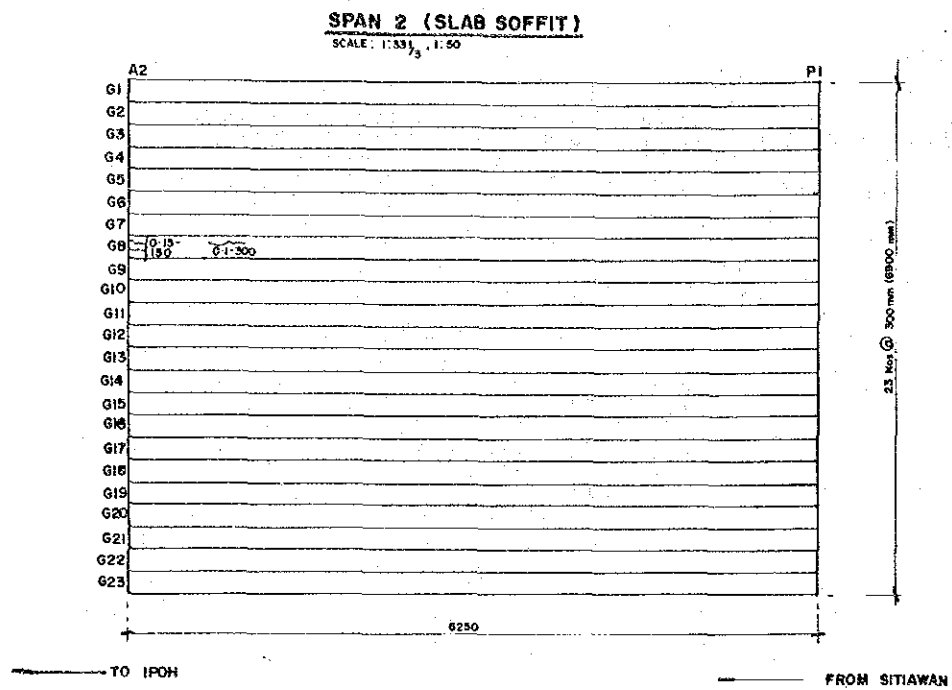
NOTES:

- ⑧ THE STRENGTH WAS MEASURED BY SCHMIDT HAMMER (SKI).
- * REBAR SPACING IS APPROXIMATE ONLY.
- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.

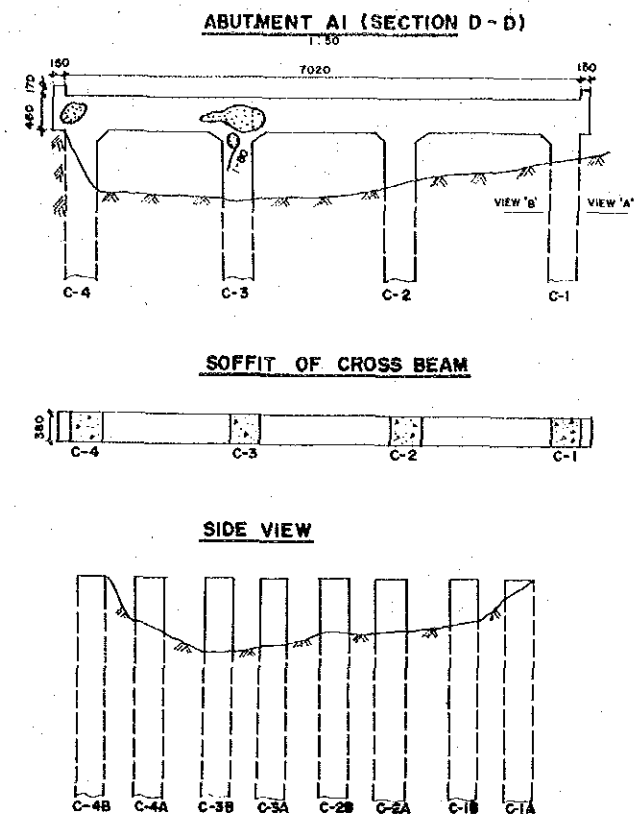


THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA				
JICA	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	STRENGTH MEASUREMENT DIAGRAM	5/678/40	AS SHOWN	DSS-7-2

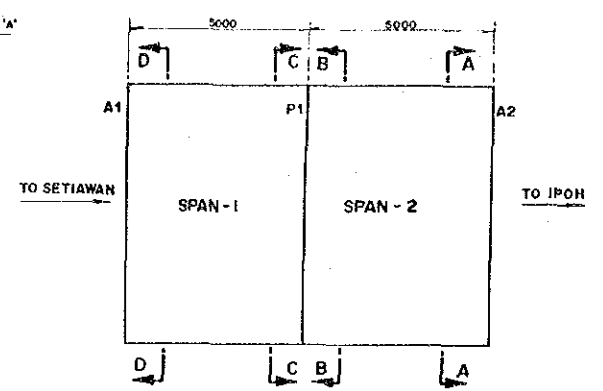
CRACK DIAGRAM OF SLAB SOFFIT



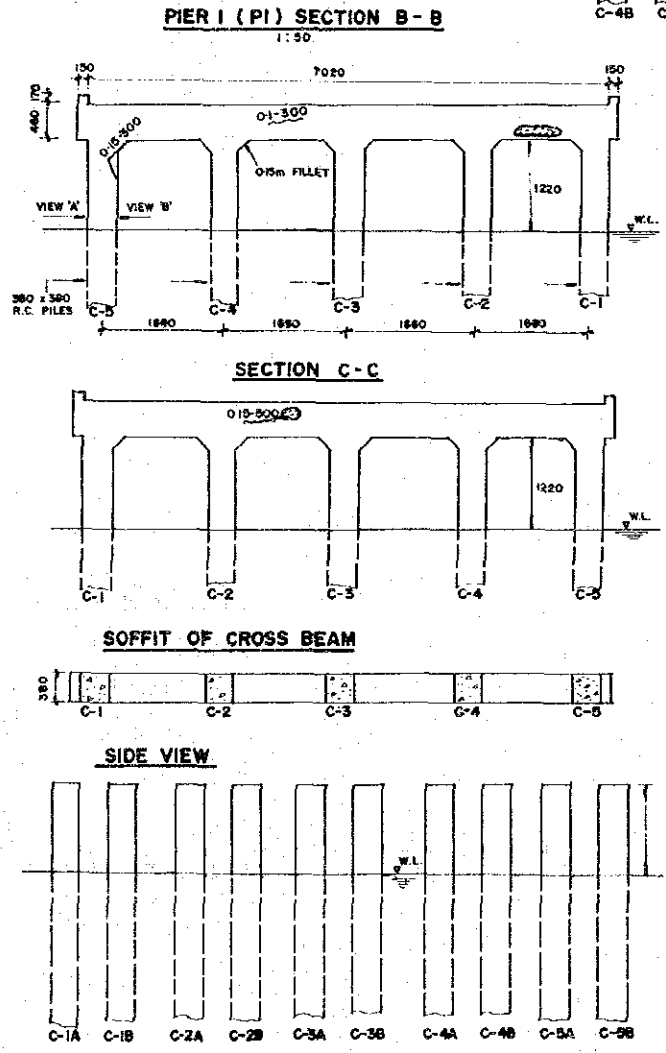
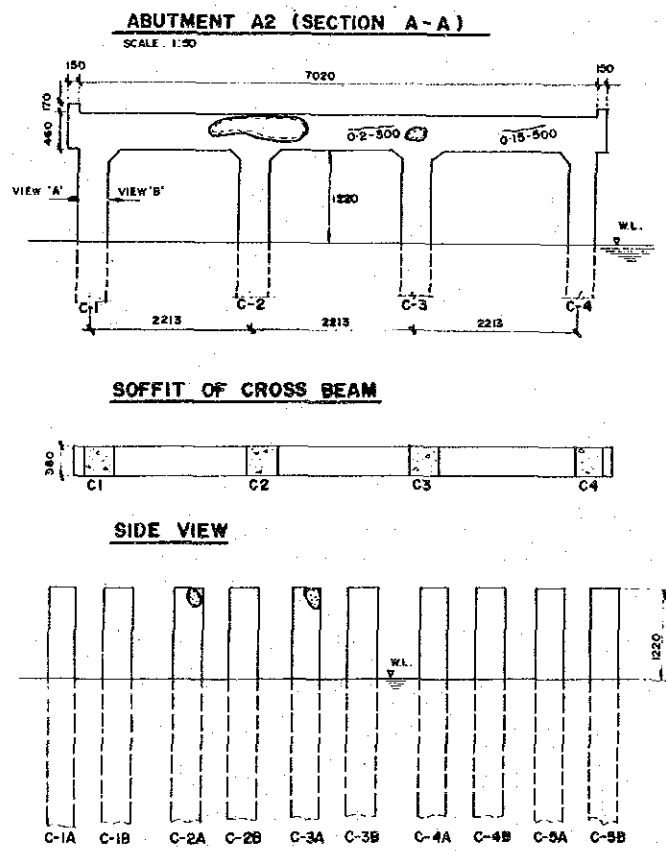
CRACK DIAGRAM OF SUBSTRUCTURE



KEY MAP



- NOTES:**
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
 2. DECK SLAB SOFFIT FOR SPAN 1 IS STILL IN GOOD CONDITION.

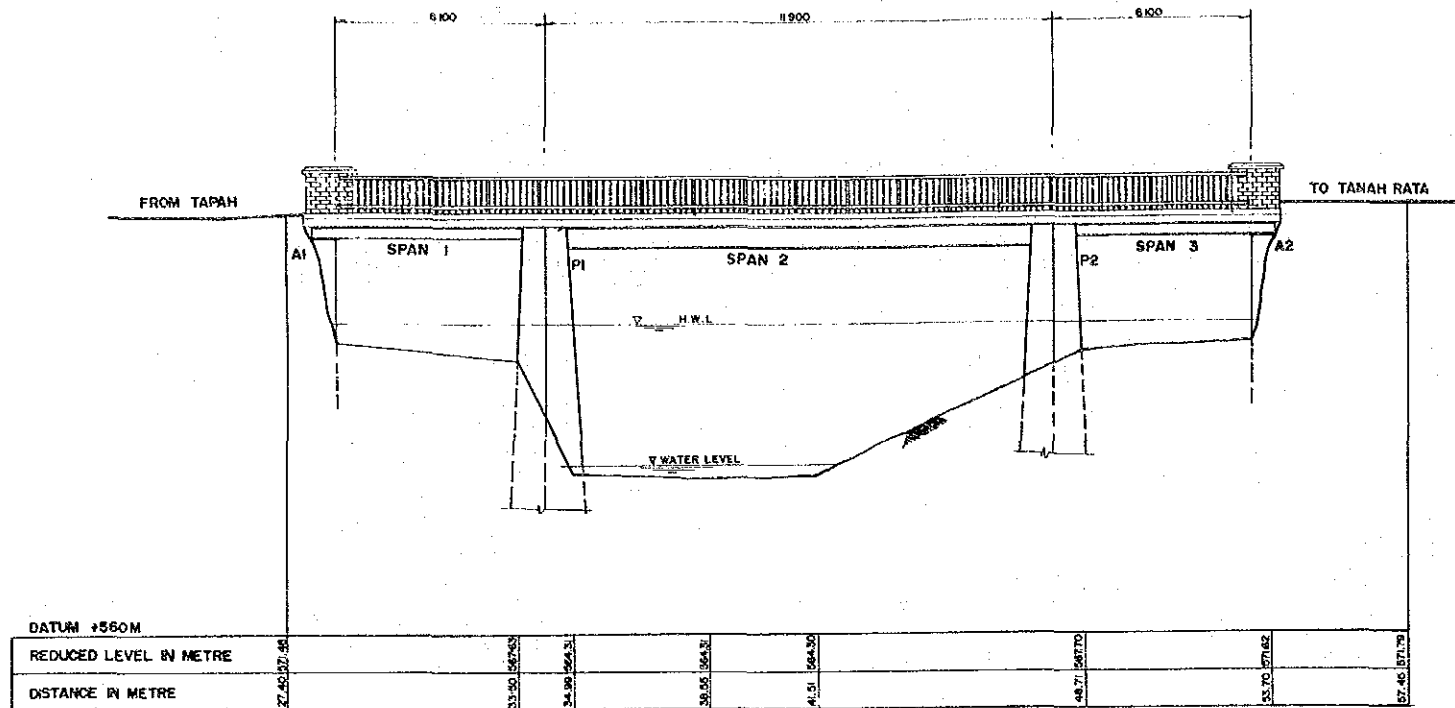


LEGEND OF DAMAGE (CONCRETE)

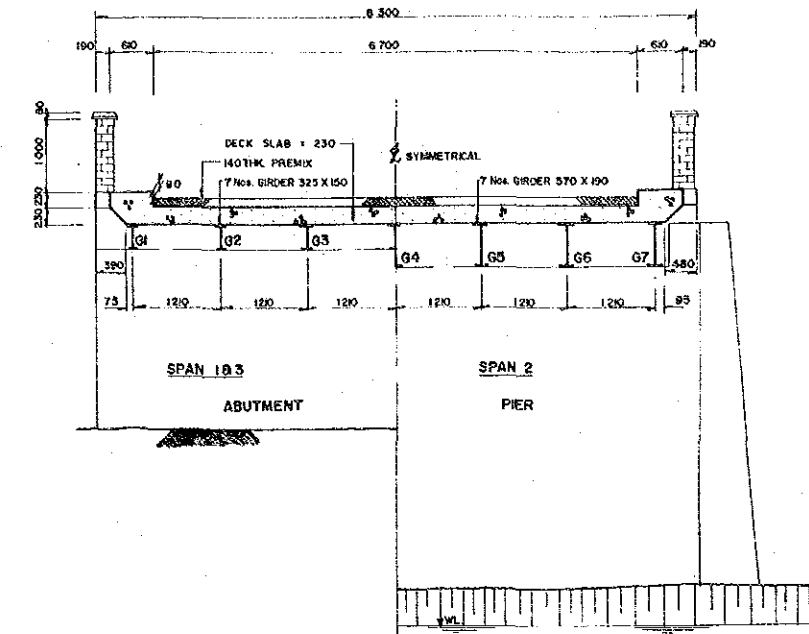
TYPE OF DAMAGES	INDICATION
CRACK	
FLAKING	
REBAR EXPOSURE	
FREE LIME	
HONEY COMB	
WEAR/EROSION	
WATER STAIN	
OTHERS	

⊙ THE LENGTH OF CRACK
□ MAXIMUM CRACK WIDTH

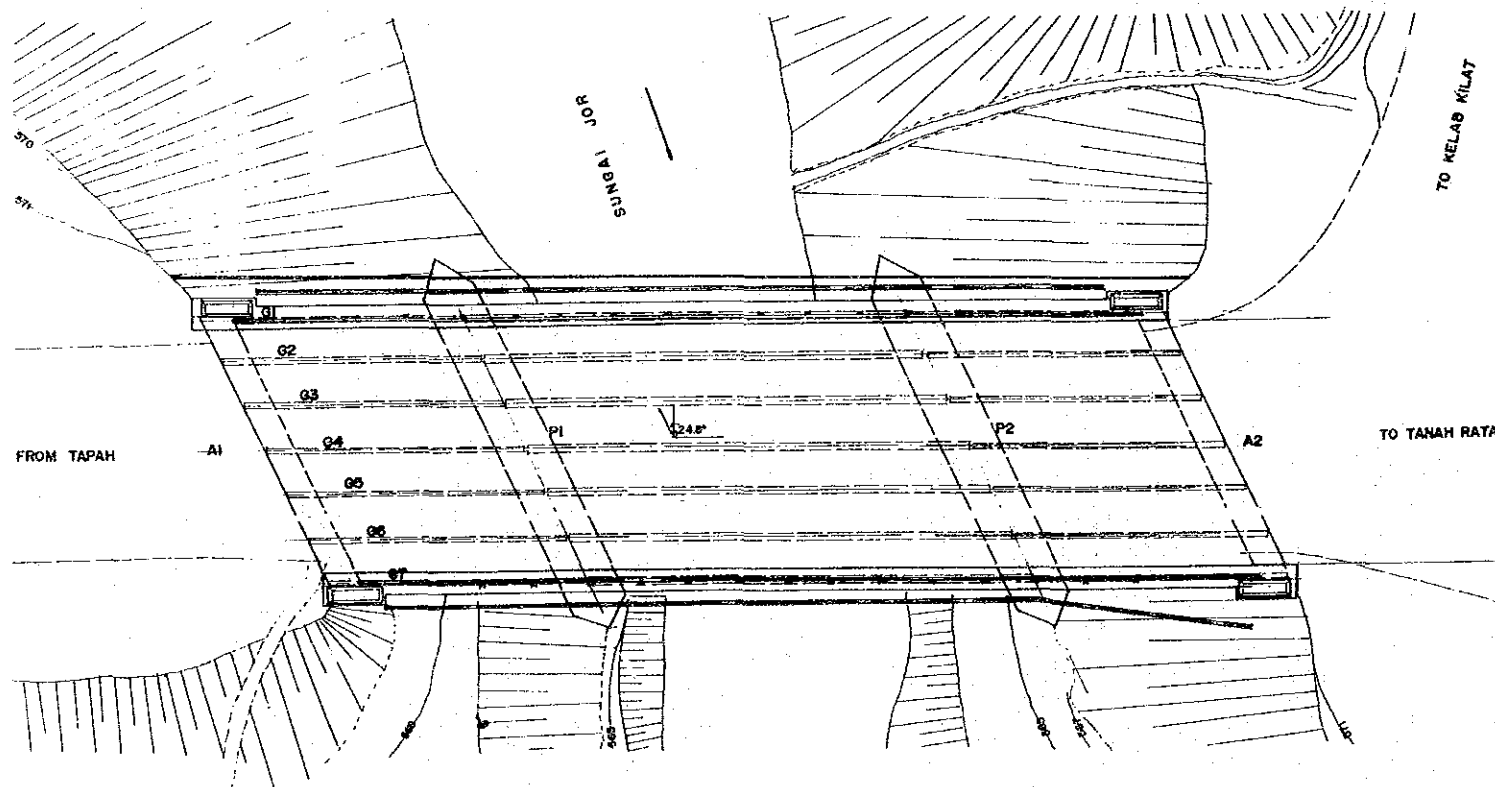
ELEVATION
1:100



CROSS SECTION
1:50

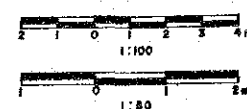


PLAN
1:100



BRIDGE DATA :

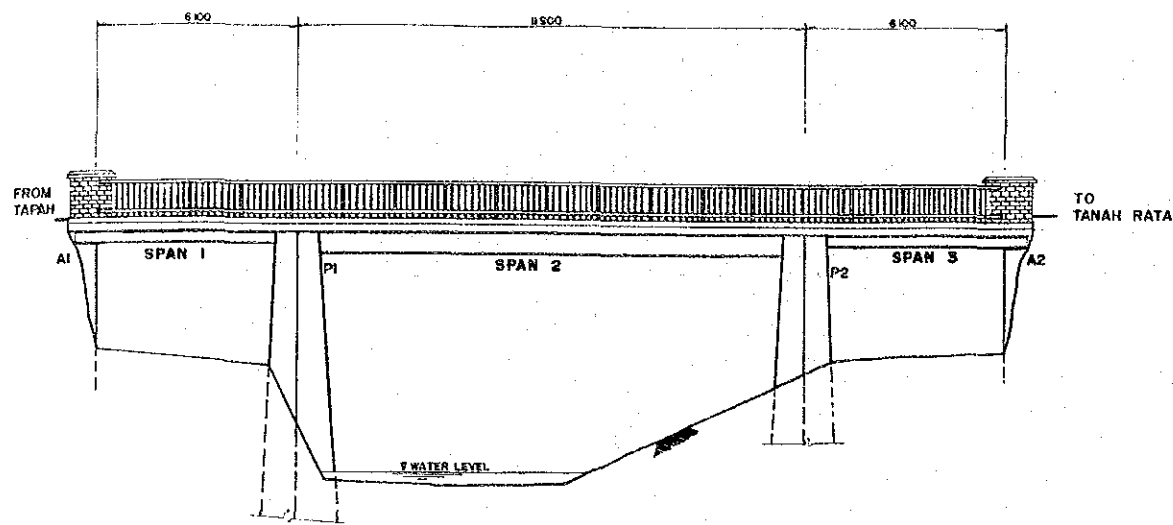
KEY NO :	59/031/20	
STATE :	PERAK	
DISTRICT :	BATANG PADANG	
DESIGN LIVE LOAD :	IM 577 (EQUIVALENT TO HA LOADING)	
MATERIAL YIELD STRENGTH	CONCRETE	SUPERSTRUCTURE: DECK 20 N/mm ²
		SUBSTRUCTURE : 20 N/mm ²
	STEEL	STRUCTURAL STEEL 230 N/mm ²
TYPE OF SUPERSTRUCTURE :	STEEL BEAM: STEEL BEAM W./ R.C. SLAB	
TYPE OF SUBSTRUCTURE :	ABUTMENT	MASS CONCRETE WALL
	PIER	MASS WALL
YEAR BUILT :	1950 (ESTIMATED)	



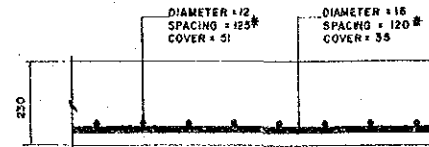
	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	GENERAL VIEW	59/031/20	AS SHOWN	DSS-6-1

STRUCTURAL DETAILS

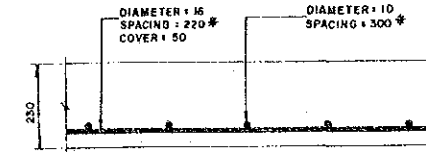
ELEVATION
1:50



(R-1)
(DECK SLAB-SPAN 3)
1:10



(R-2)
(DECK SLAB-SPAN 2)
1:10



TEST RESULTS

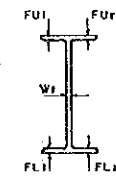
CONCRETE STRENGTH BY SCHMIDT HAMMER

LOCATION	MEMBER	STRENGTH N/mm ²
CS-1	ABUTMENT A2	27
CS-2	PIER 2 BETWEEN G4-G5	27
CS-3	DECK SLAB-SPAN 2 BETWEEN G2-G3	43
CS-4	DECK SLAB-SPAN 2 BETWEEN G1 & G2	39

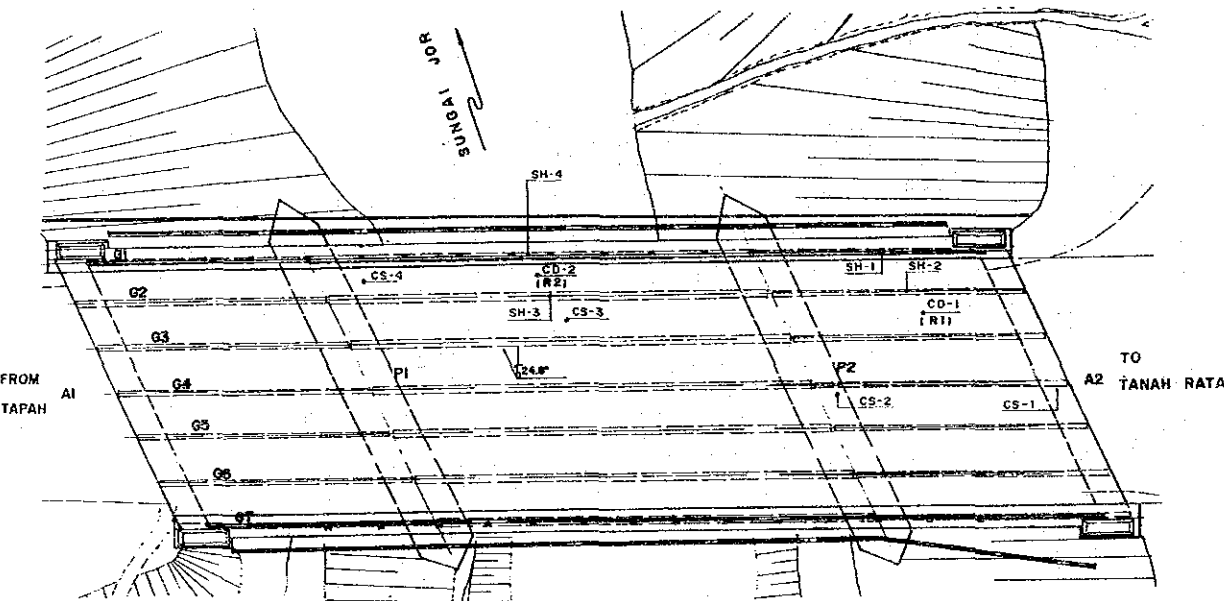
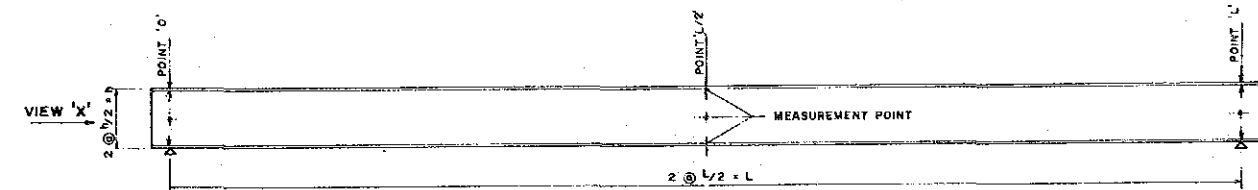
CARBONATION DEPTH

LOCATION	MEMBER	DEPTH (mm)
CD-1	DECK SLAB-SPAN 3 BETWEEN G2-G3	50
CD-2	DECK SLAB-SPAN 2 BETWEEN G1 & G2	23.2

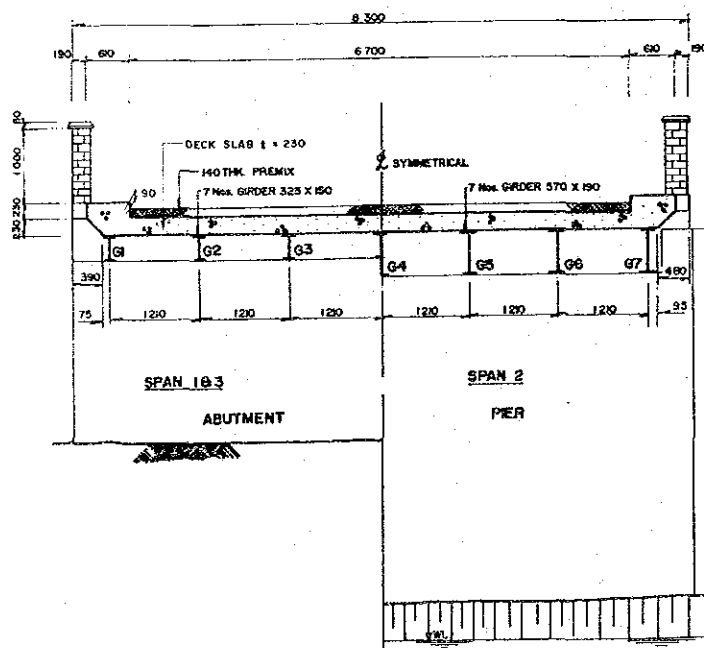
VIEW 'X'



STEEL MEMBERS



CROSS SECTION
1:50



THICKNESS MEASUREMENT

STEEL THICKNESS

MEMBER	POINT	0	L/2	L
G 1 SPAN 2	FUI	-	-	-
	FUr	-	-	-
	Wl	15.91	15.64	15.36
	FLl	25.60	25.30	24.71
	FLr	25.27	25.29	23.90
G 2 SPAN 2	FUI	-	-	-
	FUr	-	-	26.48
	Wl	15.26	15.06	15.17
	FLl	26.02	25.48	26.06
G 3 SPAN 3	FUI	-	-	-
	FUr	-	-	-
	Wl	12.06	12.34	12.32
	FLl	21.59	22.01	23.64
G 2 SPAN 3	FUI	-	-	-
	FUr	-	-	-
	Wl	12.24	12.41	11.97
	FLl	21.33	21.07	21.83
G 6 SPAN 3	FUI	-	-	-
	FUr	24.36	-	24.63
	Wl	12.34	-	12.40
	FLl	-	-	-

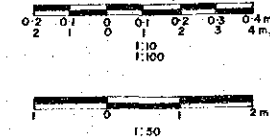
STEEL STRENGTH MEASUREMENT

STEEL HARDNESS / STRENGTH

LOCATION	MEMBER	BRINELL HARDNESS	STRENGTH N/mm ²
SH-1	SPAN 3 - GIRDER 1 WEB	98	-
SH-1	SPAN 3 - GIRDER 1 BOTTOM FLANGE	105	-
SH-2	SPAN 3 - GIRDER 2 WEB	80	-
SH-2	SPAN 3 - GIRDER 2 BOTTOM FLANGE	123	425
SH-3	SPAN 2 - GIRDER 2 WEB	132	455
SH-4	SPAN 2 - GIRDER 1 WEB	130	455

NOTES :

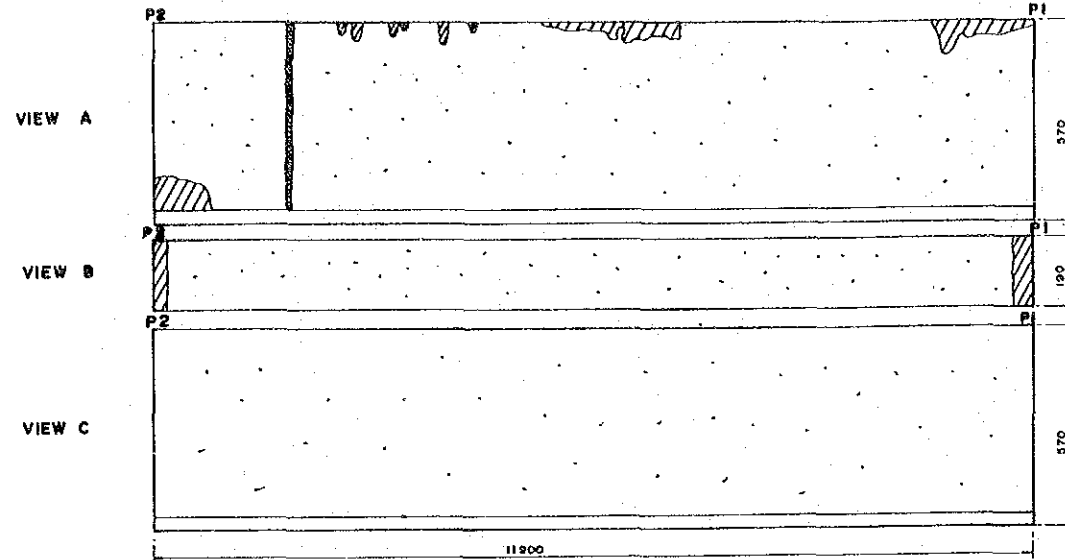
- LOCATIONS INDICATED BY R1 & R2 IS ALSO SHOWN ON THE PLAN AND CROSS-SECTION.
- REBAR SPACING SHOWN IN THE DRAWING IS APPROXIMATE ONLY.



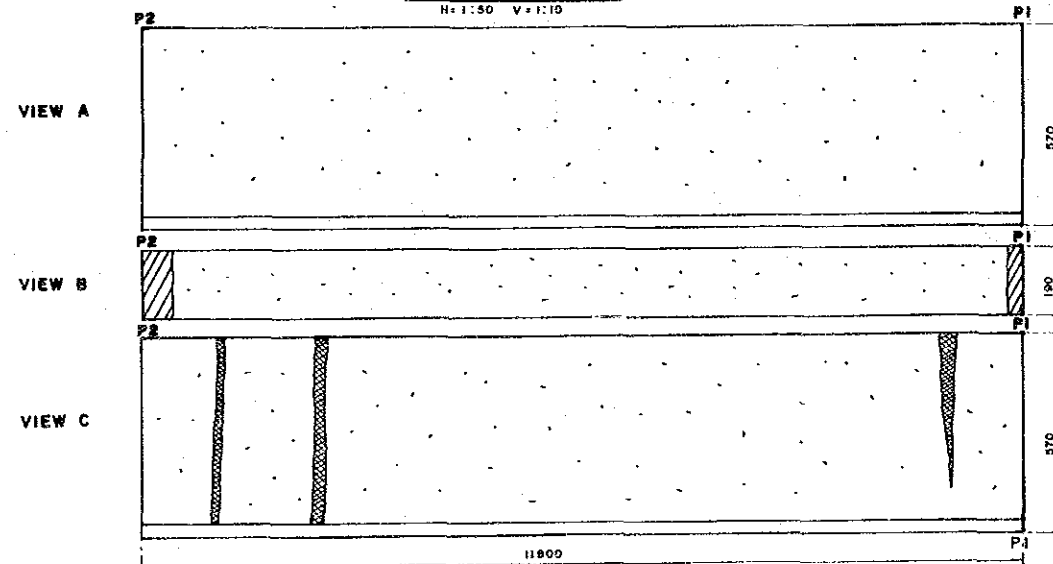
THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
JICA	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE
	STRENGTH MEASUREMENT DIAGRAM	59 / 031 / 20	AS SHOWN
			DRAWING NO.
			DSS-8-2

CORROSION DIAGRAM FOR GIRDERS

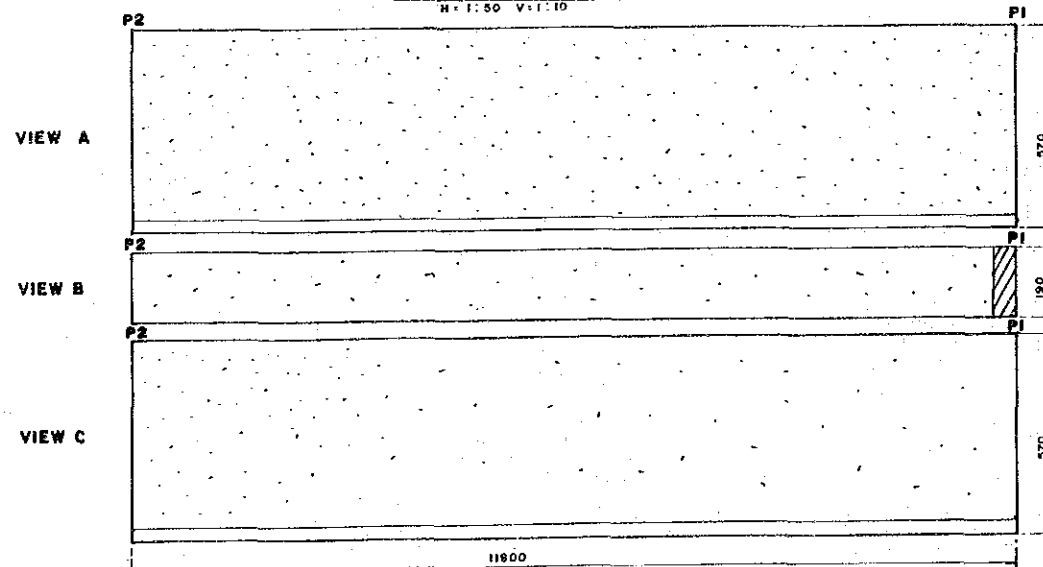
SPAN 2 - GIRDER 1
H: 1:50 V: 1:10



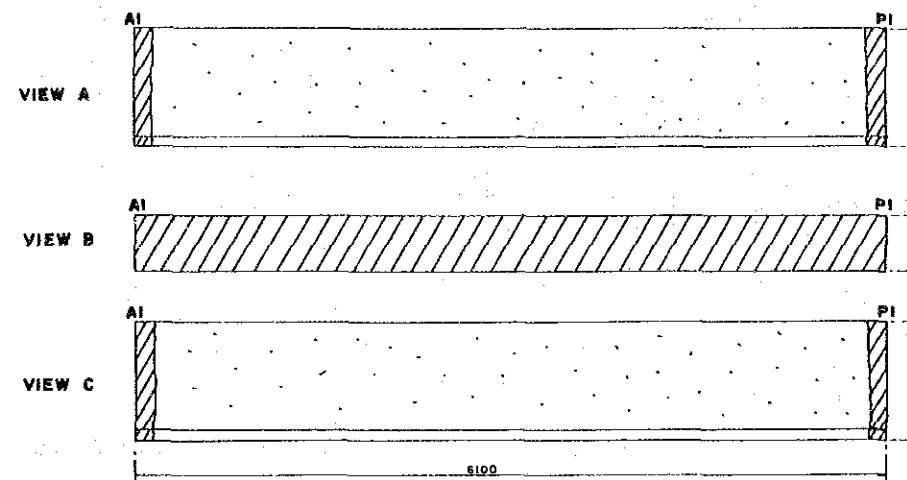
SPAN 2 - GIRDER 2
H: 1:50 V: 1:10



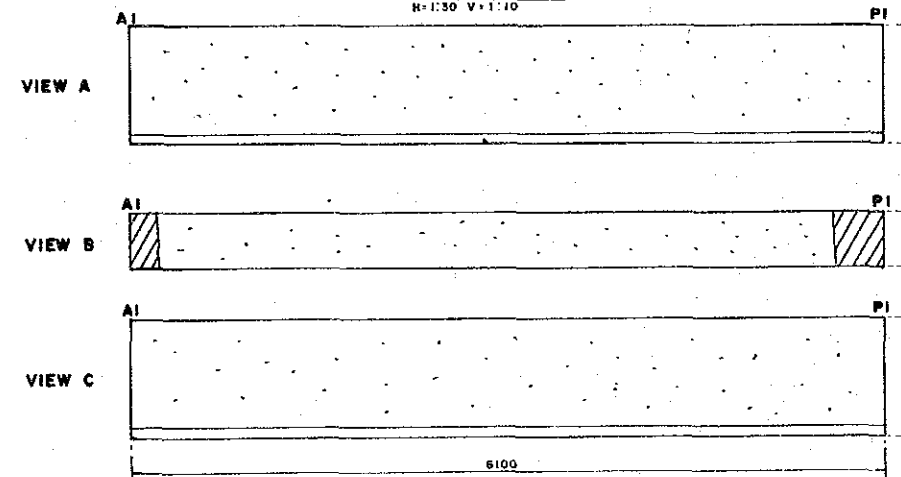
SPAN 2 - GIRDER 3
H: 1:50 V: 1:10



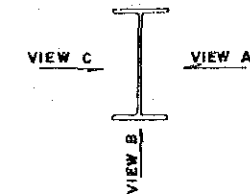
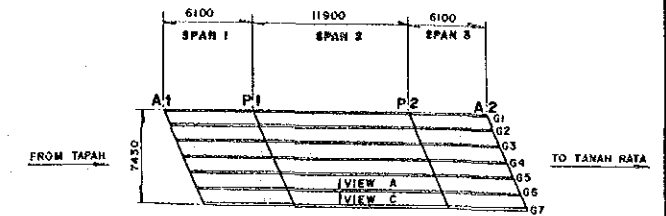
SPAN 1 - GIRDER 1
H: 1:50 V: 1:10



SPAN 1 - GIRDER 2
H: 1:50 V: 1:10



KEY MAP
N.T.S.

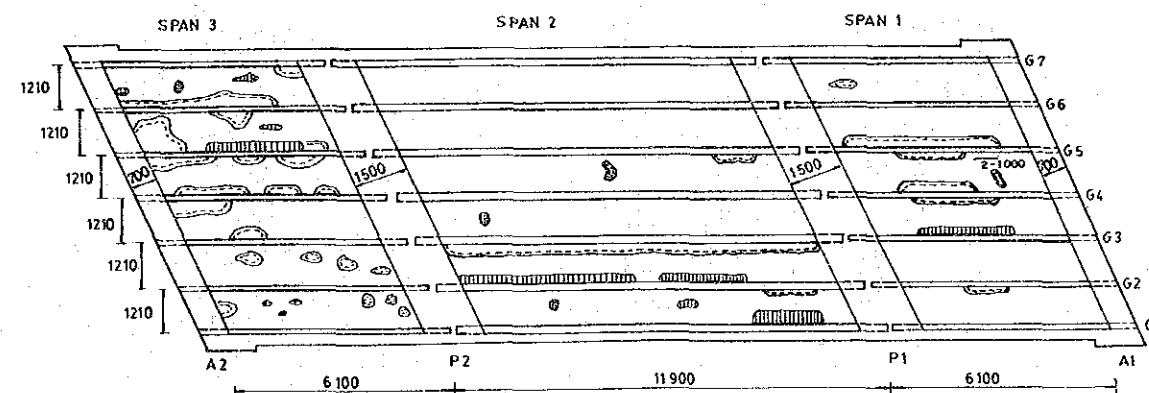


- NOTES:**
1. THE CORROSION DIAGRAM FOR SPAN 3 SIMILAR TO SPAN 1.
 2. THE CORROSION DIAGRAM FOR GIRDER 7-SPAN 1 IS SIMILAR TO GIRDER 1-SPAN 1.
 3. THE CORROSION DIAGRAM FOR GIRDERS 3,4,5,6-SPAN 1 ARE SIMILAR TO GIRDER 2-SPAN 1.
 4. THE CORROSION DIAGRAM FOR GIRDER 4,5,6-SPAN 2 IS SIMILAR TO GIRDER 3-SPAN 2.
 5. THE CORROSION DIAGRAM FOR GIRDER 7-SPAN 2 IS SIMILAR TO GIRDER 1-SPAN 2.

LEGEND FOR DAMAGE (STEEL)

TYPE OF DAMAGES	INDICATION
CORROSION	
LAMINATION	
CRACK *	
FALLING OFF (BOLT)	xxx
PAINT DETERIORATION	
DEFORMATION / BUCKLING	
WATER STAIN	

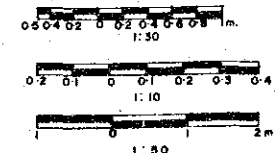
DECK SLAB SOFFIT
1:100



LEGEND OF DAMAGE (CONCRETE)

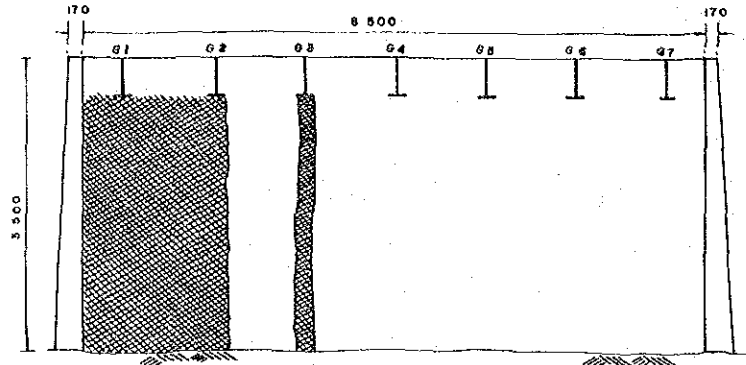
TYPE OF DAMAGES	INDICATION
CRACK *	
FLAKING	
REBAR EXPOSURE	
FREE LIME	
HONEY COMB	
WEAR / EROSION	
WATER STAIN	
OTHERS	

* O THE LENGTH OF CRACK
□ MAXIMUM CRACK WIDTH

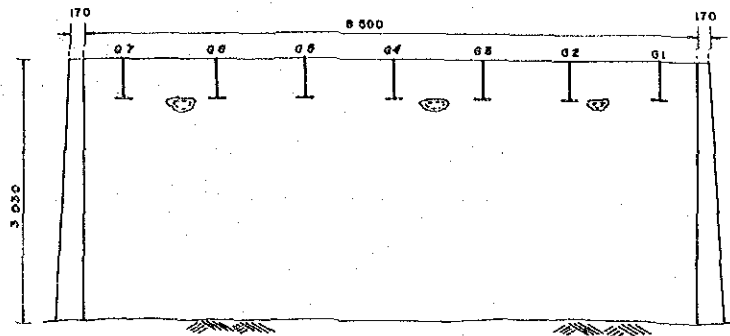


	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	CORROSION AND CRACK DIAGRAM (1/2)	59/031/20	AS SHOWN	DSS-8-3

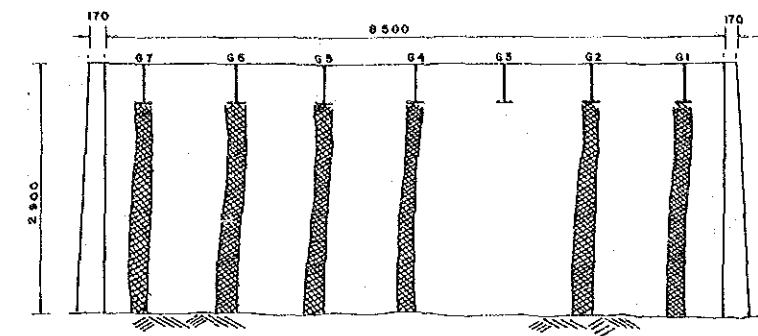
PIER 1 (SECTION A-A)
1:50



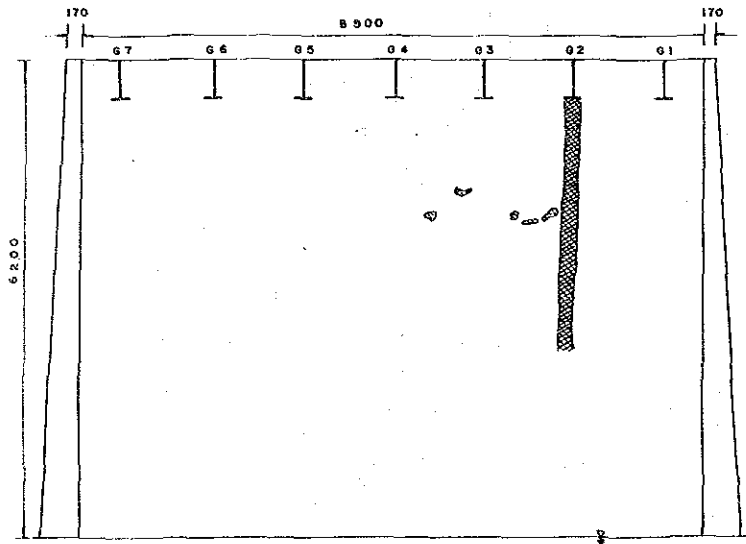
PIER 2 (SECTION C-C)
1:50



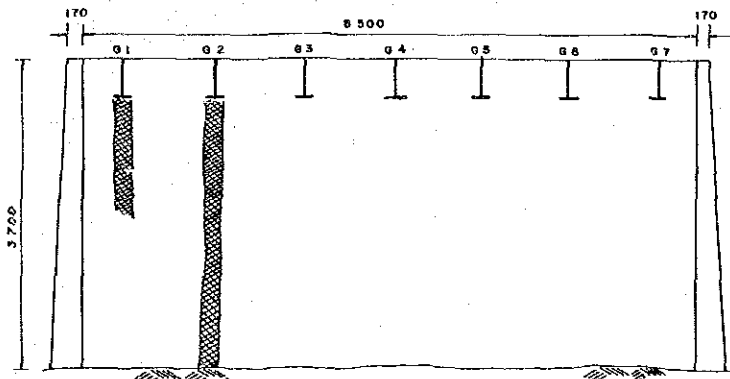
ABUTMENT 1 (SECTION E-E)
1:50



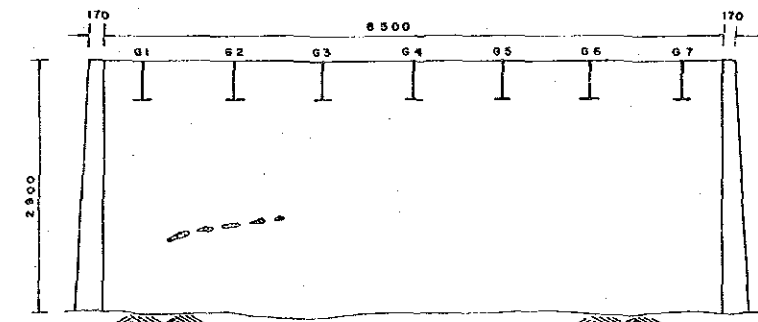
PIER 1 (SECTION B-B)
1:50



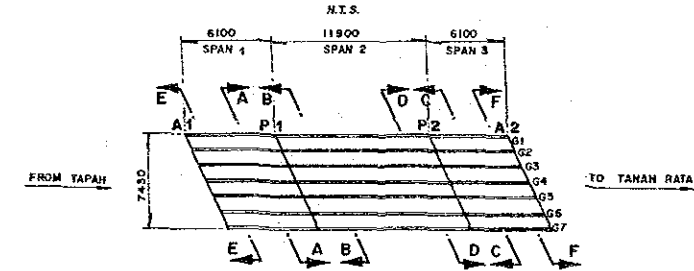
PIER 2 (SECTION D-D)
1:50



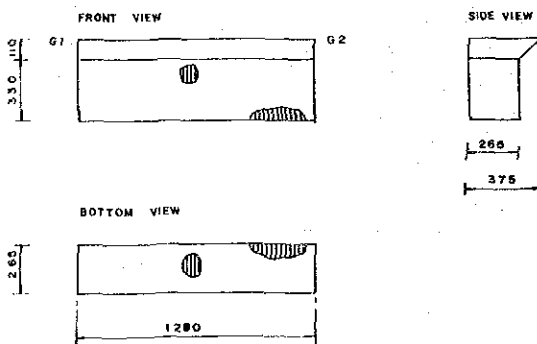
ABUTMENT 2 (SECTION F-F)
1:50



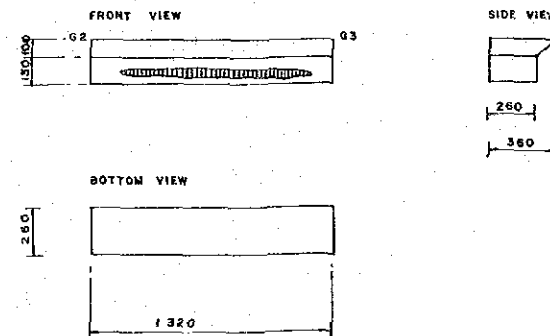
KEY MAP



DIAPHRAGM
(BETWEEN G1 & G2 - VIEW FROM P1)
1:200



DIAPHRAGM
(BETWEEN G2 & G3, ABOVE P1 - VIEW FROM A1)
1:200



LEGEND OF DAMAGE (CONCRETE)

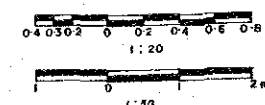
TYPE OF DAMAGES	INDICATION
CRACK *	
FLACKING	
REBAR EXPOSURE	
FREE LIME	
HONEY COMB	
WEAR/EROSION	
WATER STAIN	

* O THE LENGTH OF CRACK
□ MAXIMUM CRACK WIDTH

LEGEND OF DAMAGE (STEEL)

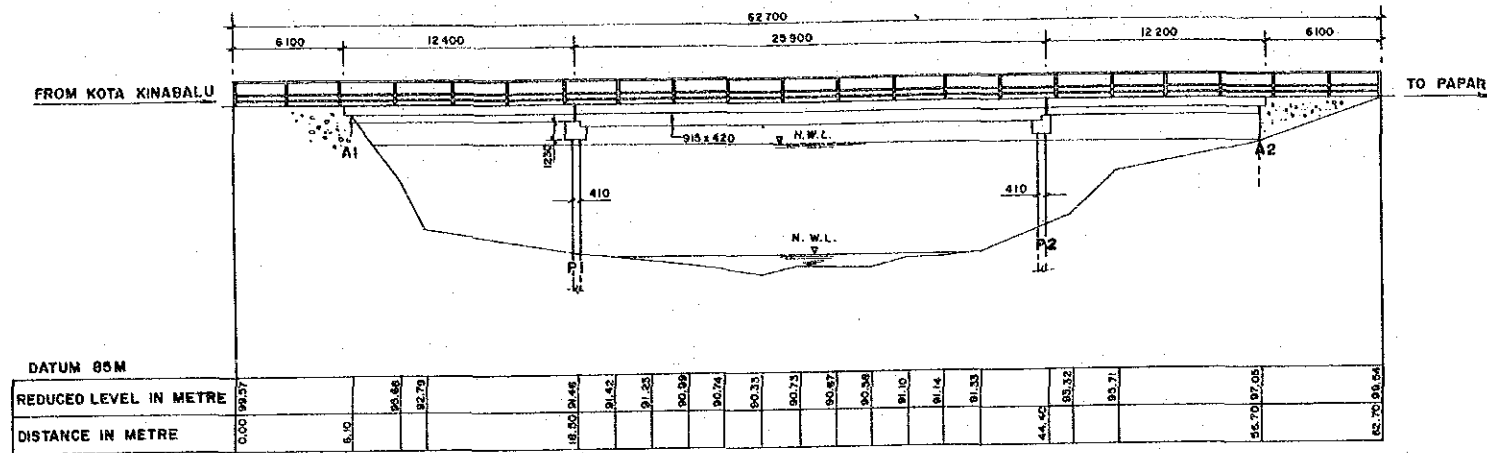
TYPE OF DAMAGES	INDICATION
CORROSION	
LAMINATION	
CRACK *	
FALLING OFF (BOLT)	xxx
PAINT DETERIORATION	
DEFORMATION / BUCKLING	
WATER STAIN	

* O THE LENGTH OF CRACK

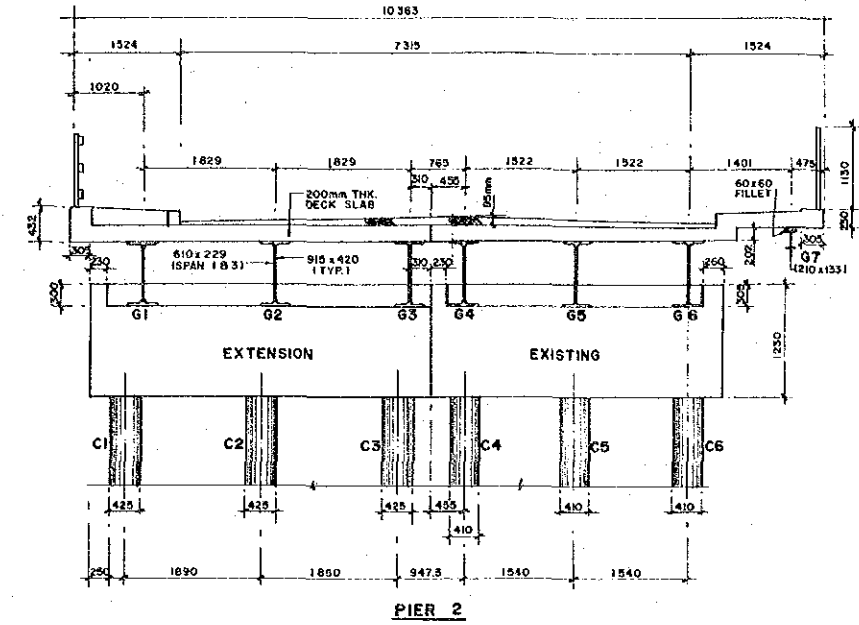


	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	CRACK DIAGRAM (2/2)	59/031/20	AS SHOWN	DSS-8-4

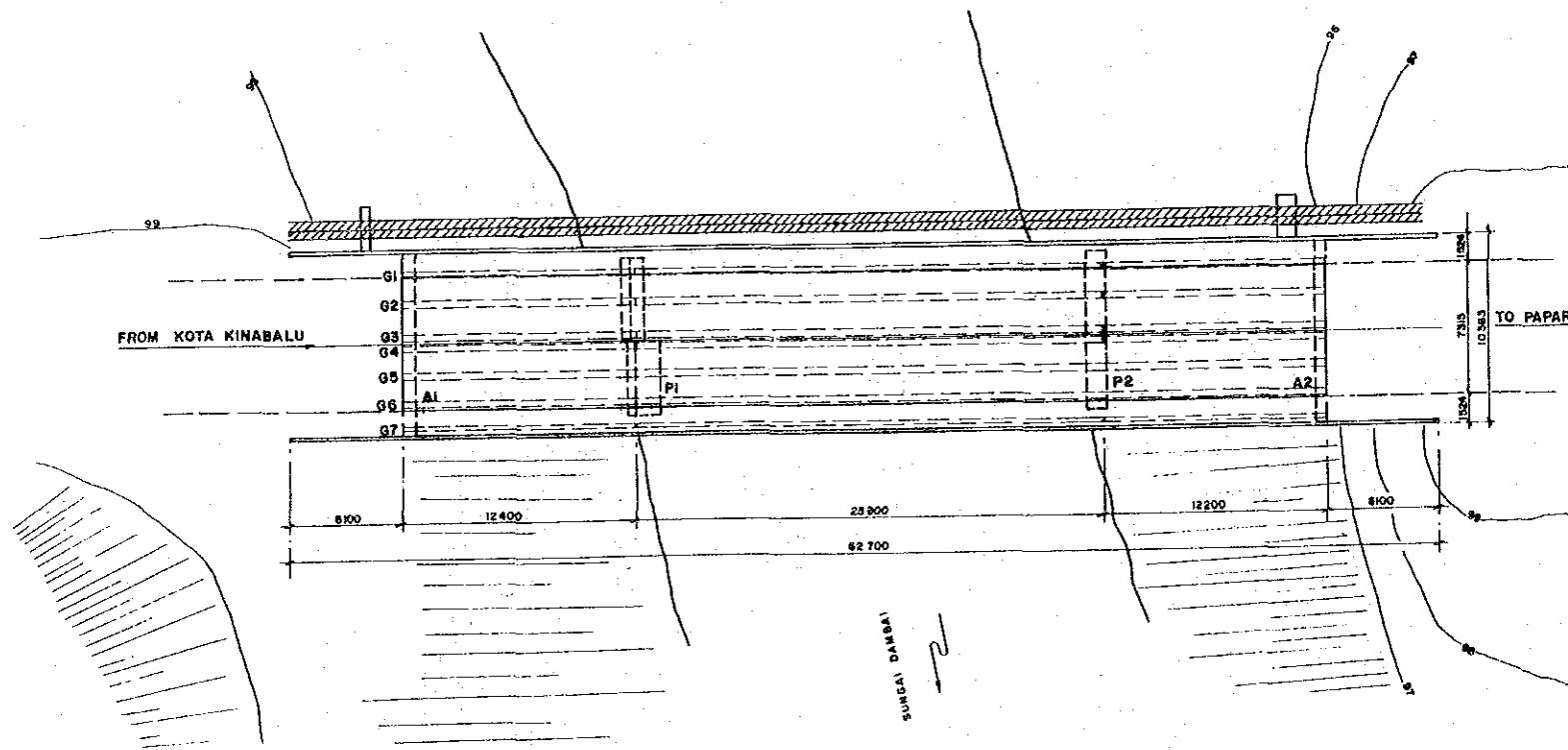
ELEVATION
1:200



CROSS SECTION
1:50



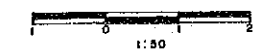
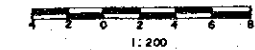
PLAN
1:200



BRIDGE DATA:

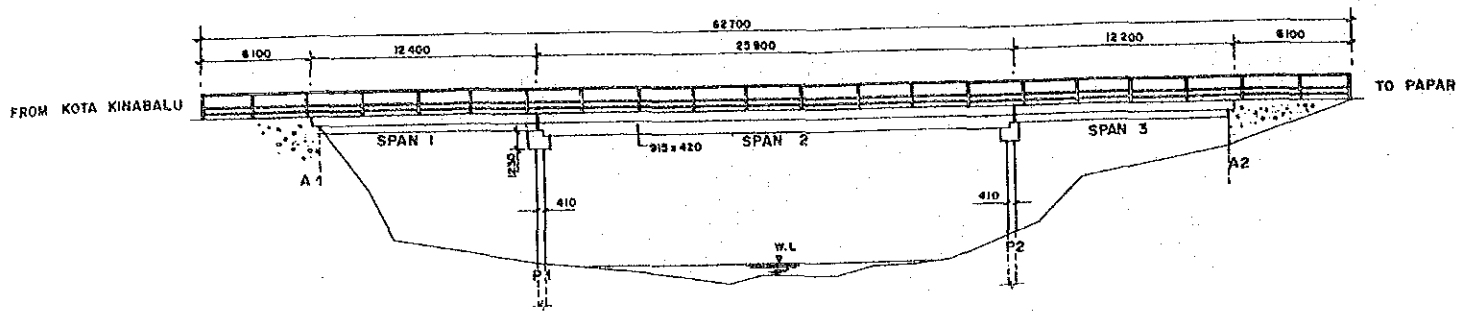
KEY NO.	BRIDGE OVER SUNGAI DAMBAI	
STATE	SABAH	
DISTRICT	PENAMPANG	
DESIGN LIVE LOAD	HA LOADING	
MATERIAL YIELD STRENGTH	CONCRETE	SUPERSTRUCTURE: DECK 20 N/mm ²
		SUBSTRUCTURE: 20 N/mm ²
	STEEL	STRUCTURAL STEEL 230 N/mm ²
TYPE OF SUPERSTRUCTURE	STEEL GIRDER W./CONCRETE DECK SLAB	
TYPE OF SUBSTRUCTURE	ABUTMENT	BANK SEAT
	PIER	PILE BENT TYPE
YEAR BUILT	1964; WIDENED IN 1975 (KNOWN)	

- NOTES:**
 1. THE REDUCED LEVEL IS BASED ON TEMPORARY BM WITH ASSUMED LEVEL OF 99.82 m OD.
 2. PIER 1 HAS 7 COLUMNS.

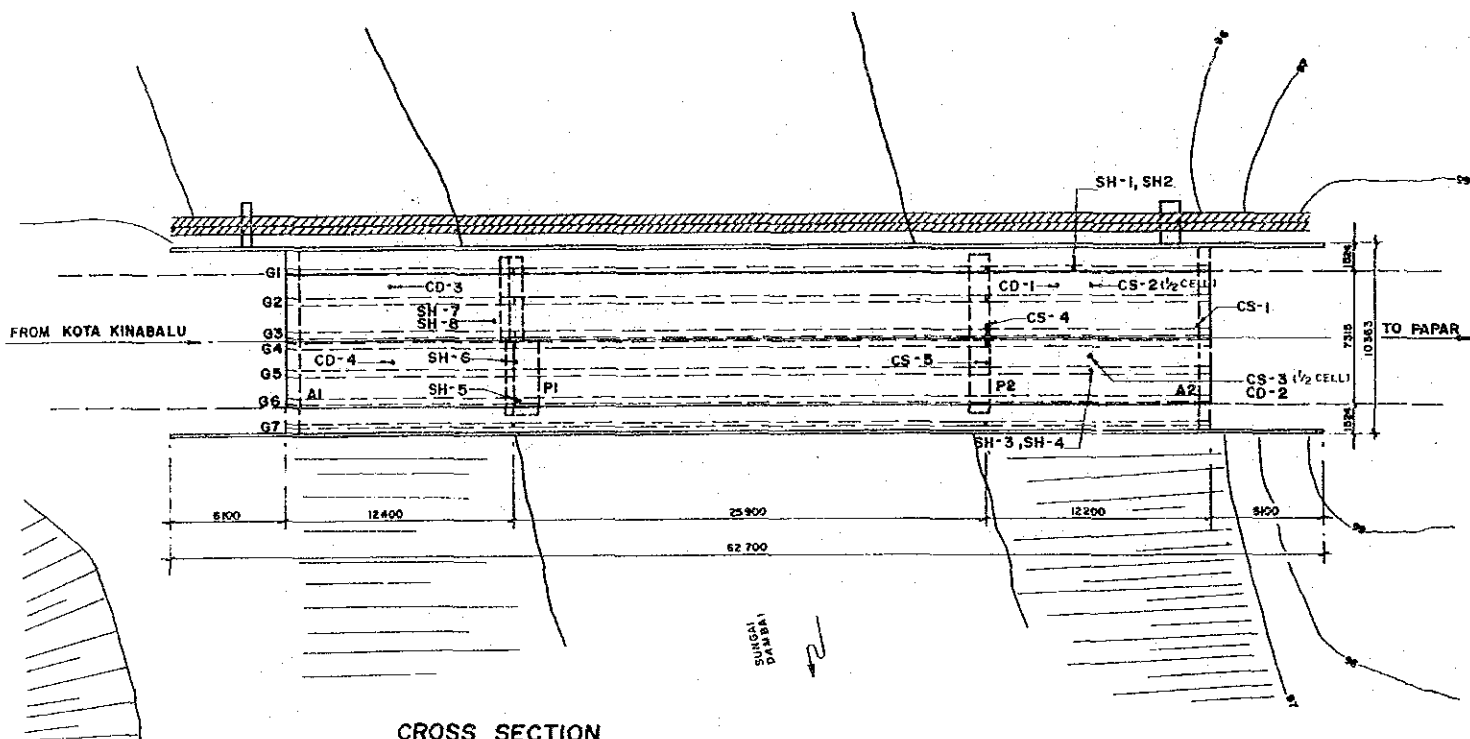


	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	GENERAL VIEW	SUNGAI DAMBAI	AS SHOWN	DSS-9-1

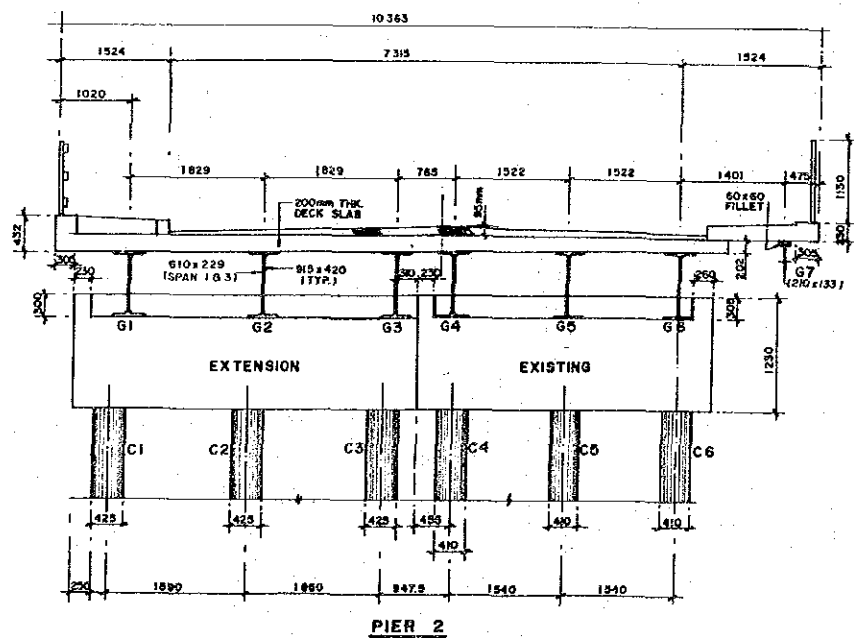
ELEVATION
1:200



PLAN
1:200



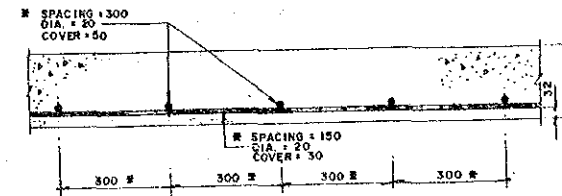
CROSS SECTION
1:50



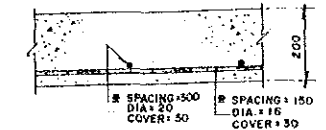
PIER 2

STRUCTURAL DETAILS

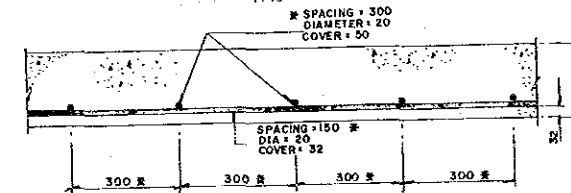
DECK SLAB SPAN 3
(NEW CONSTRUCTION BETWEEN G1-G2)
1:10



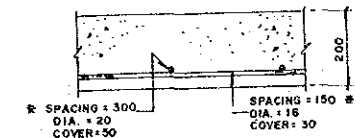
DECK SLAB SPAN 1
(BETWEEN G1-G2 NEW CONSTRUCTION)
1:10



DECK SLAB SPAN 3
(OLD CONSTRUCTION BETWEEN G5-G6)
1:10



DECK SLAB SPAN 1
(BETWEEN G5-G6 OLD CONSTRUCTION)
1:10



TEST RESULTS

CONCRETE STRENGTH BY SCHMIDT HAMMER

LOCATION	MEMBER	STRENGTH (N/mm ²)
CS-1	ABUTMENT 2	38
CS-2	DECK SLAB SPAN 3	35
CS-3	DECK SLAB SPAN 3	28
CS-4	PIER 2	36
CS-5	PIER 2	25

CARBONATION DEPTH

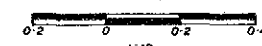
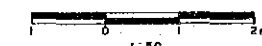
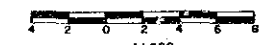
LOCATION	MEMBER	DEPTH (mm.)
CD-1	DECK SLAB SPAN 3	32
CD-2	DECK SLAB SPAN 3	20
CD-3	DECK SLAB SPAN 1	20
CD-4	DECK SLAB SPAN 1	43

STEEL HARDNESS/STRENGTH

LOCATION	MEMBER	BRINELL HARDNESS	STRENGTH (N/mm ²)
SH-1	SPAN 3-GIRDER 1	121	425
SH-2	SPAN 3-GIRDER 1	127	425
SH-3	SPAN 3-GIRDER B	113	390
SH-4	SPAN 3-GIRDER B	133	455
SH-5	PIER 1 - C7	165	545
SH-6	PIER 1 - C5	154	515
SH-7	PIER 1 - C3 (UP)	138	455
SH-8	PIER 1 - C3 (DOWN)	131	455

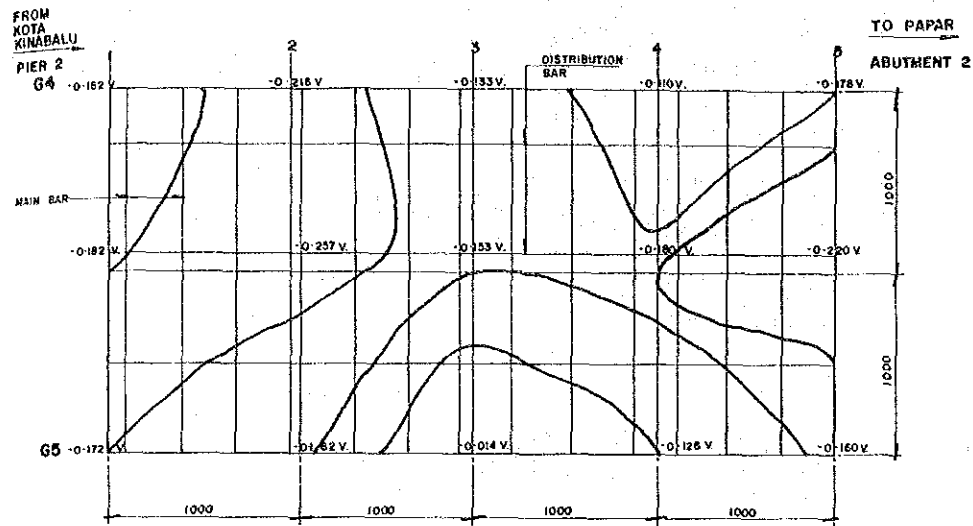
NOTES:

- * REBAR SPACING SHOWN IN THE DRAWING IS APPROXIMATE ONLY.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
- PIER 1 HAS 7 COLUMNS.

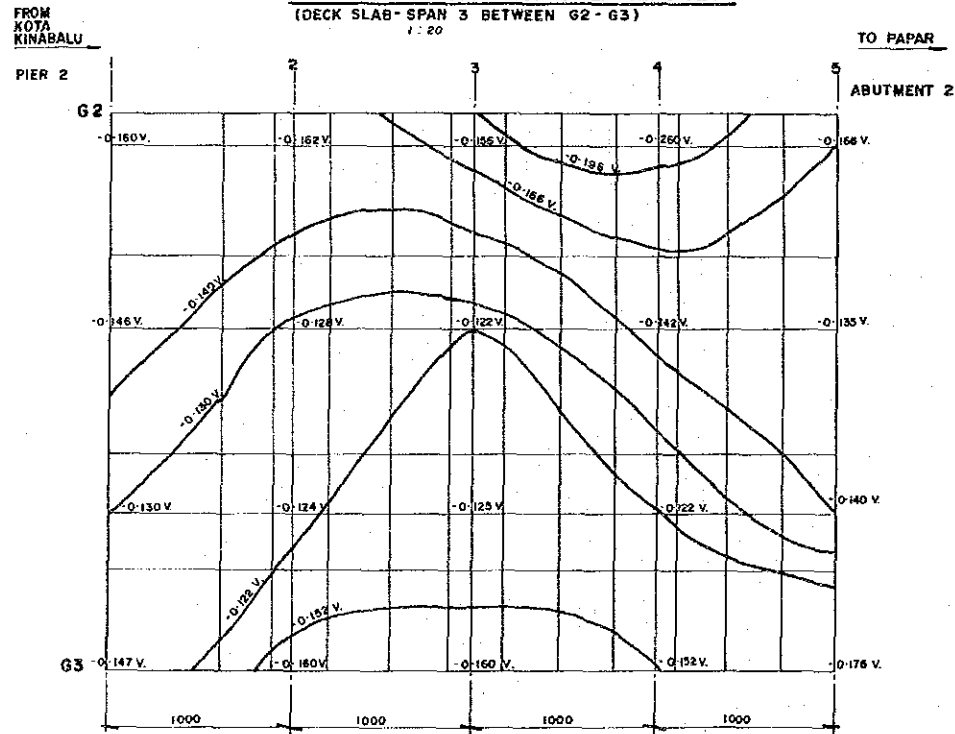


	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	STRENGTH MEASUREMENT DIAGRAM (1/2)	SG. DAMBAI	AS SHOWN	DSS-9-2

CORROSION LEVEL FROM HALF CELL TEST
(DECK SLAB - SPAN 3 BETWEEN G4 - G5)
1:20



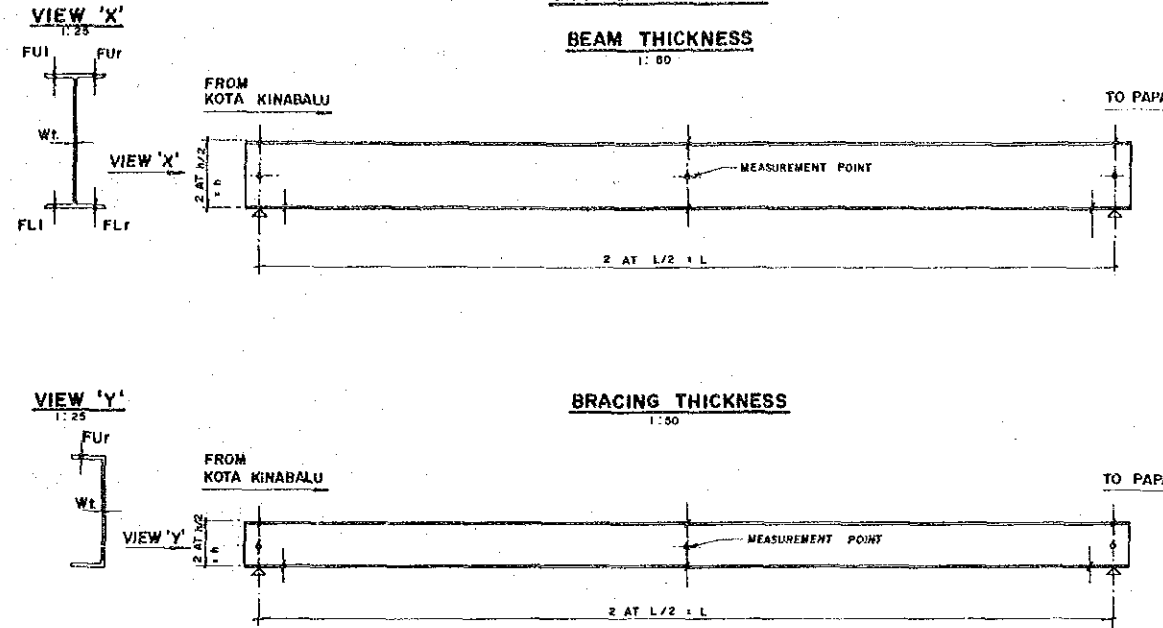
CORROSION LEVEL FROM HALF CELL TEST
(DECK SLAB - SPAN 3 BETWEEN G2 - G3)
1:20



HALF CELL CORROSION POTENTIAL TABLE

ELECTRICAL POTENTIAL	PROBABILITY OF CORROSION
> -0.20V	>90% CORROSION WILL NOT OCCUR
-0.20V TO -0.35V	NOT CONCLUSIVE
< -0.35V	>90% CORROSION TO TAKE PLACE

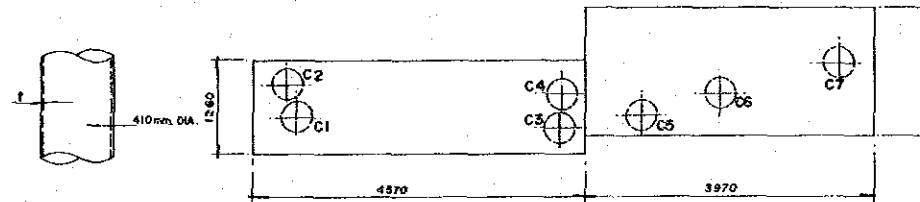
STEEL MEMBERS



STEEL THICKNESS FOR BEAM (mm)

BEAM NO	POINT	CENTRE OF GIRDER
SPAN 3 GIRDER 1	FU1	22.16
	FUr	23.0
	Wt	13.70
	FL1	22.14
SPAN 3 GIRDER 2	FLr	22.20
	FU1	22.21
	FUr	22.86
	Wt	13.54
SPAN 3 GIRDER 4	FL1	22.77
	FLr	22.20
	FU1	21.90
	FUr	21.54
SPAN 3 GIRDER 5	Wt	13.27
	FL1	21.07
	FLr	21.77
	FU1	21.65
SPAN 2 GIRDER 2	FUr	-
	Wt	12.88
	FL1	21.16
	FLr	-
SPAN 2 GIRDER 4	FU1	-
	FUr	32.26
	Wt	17.48
	FL1	32.97
SPAN 2 GIRDER 2	FLr	-
	FU1	-
	FUr	21.97
	Wt	20.84
SPAN 2 GIRDER 4	FL1	33.84
	FLr	-
	FU1	-
	FUr	-
SPAN 2 GIRDER 2	Wt	-
	FL1	33.17
	FLr	19.50
	FLI	-

DETAIL OF COLUMN
1:20



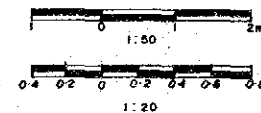
PLAN (PIER 1)
1:50

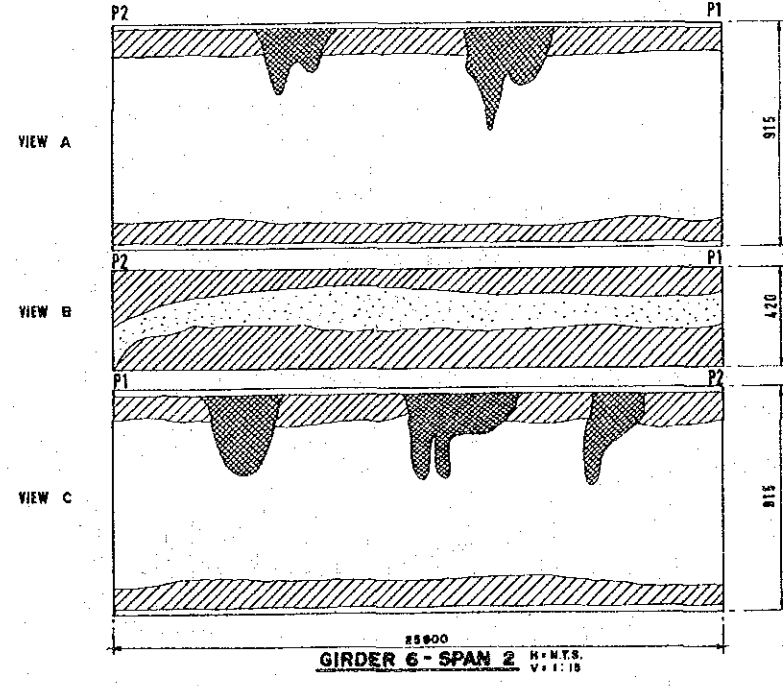
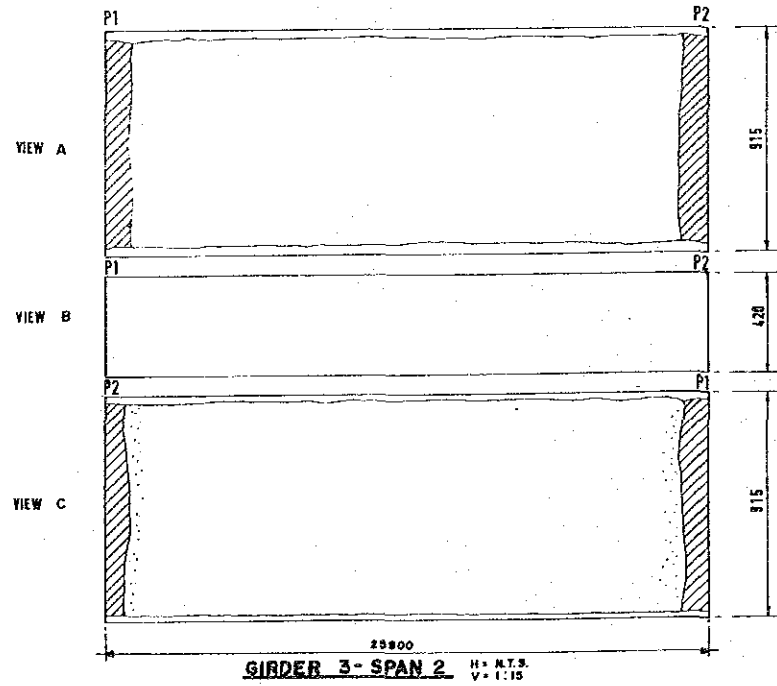
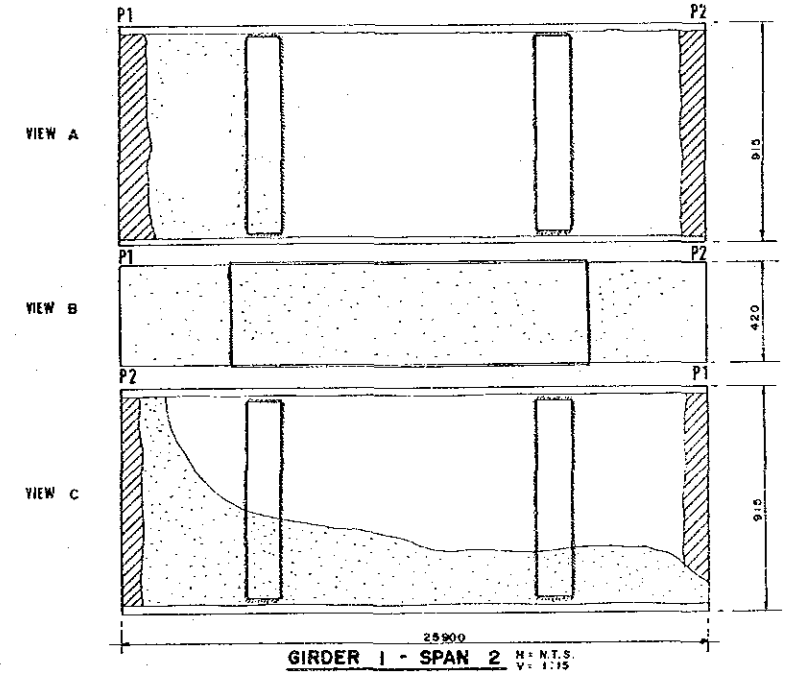
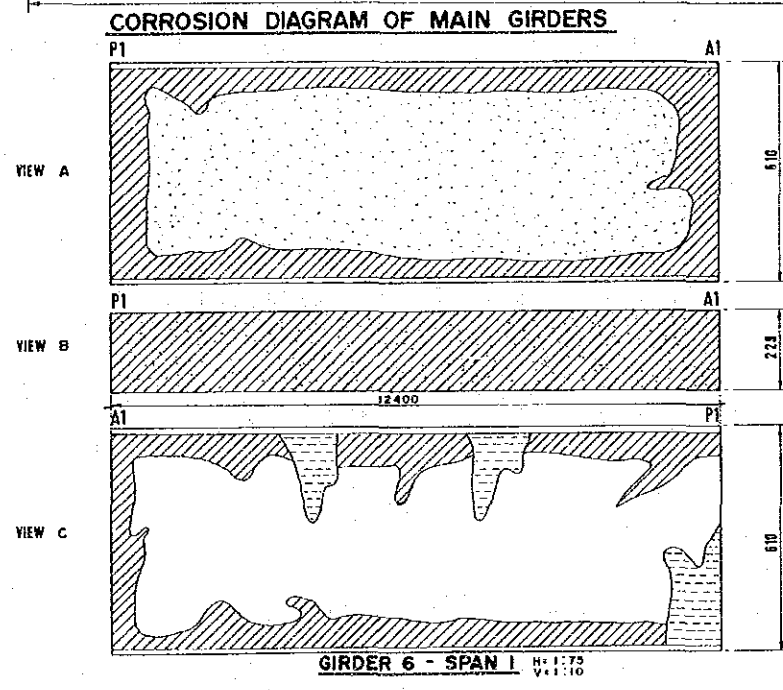
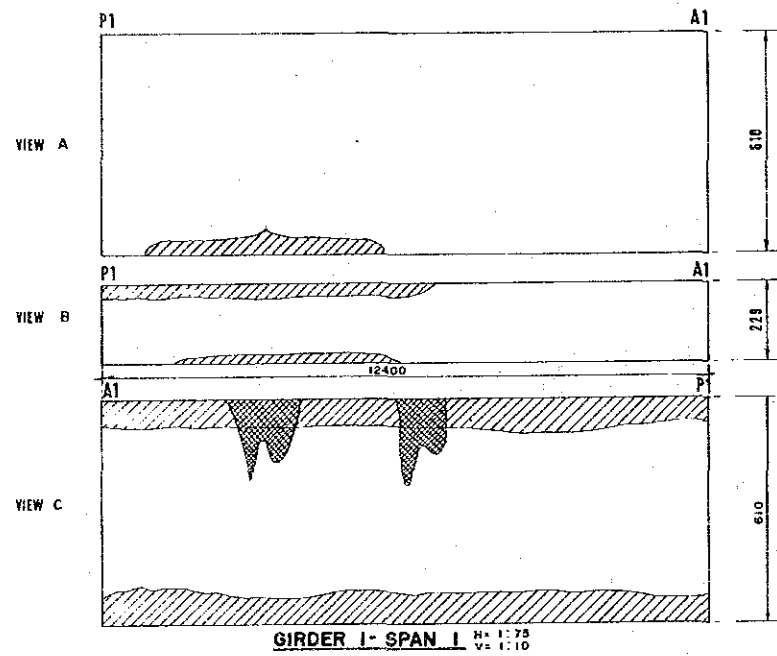
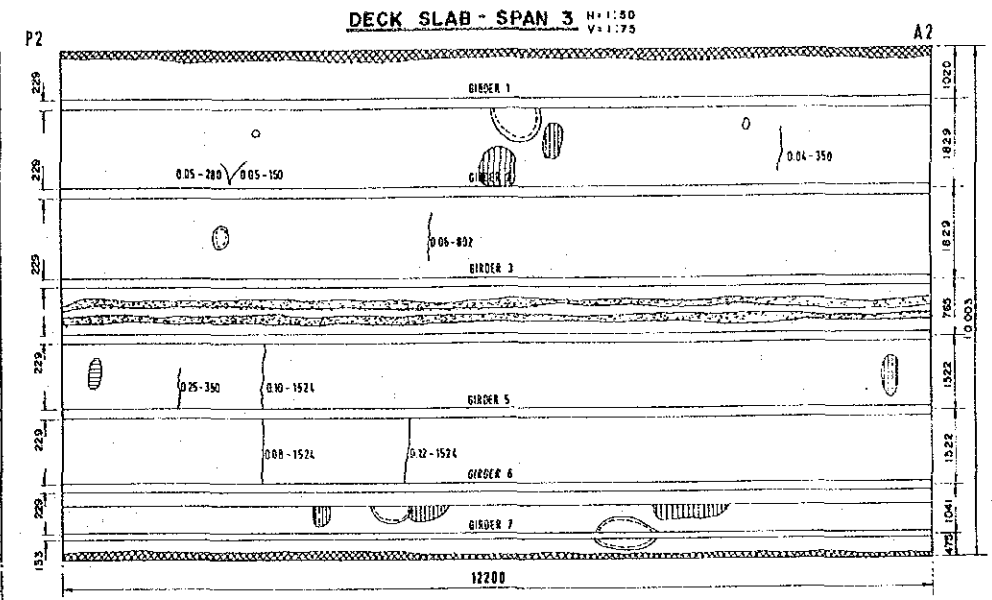
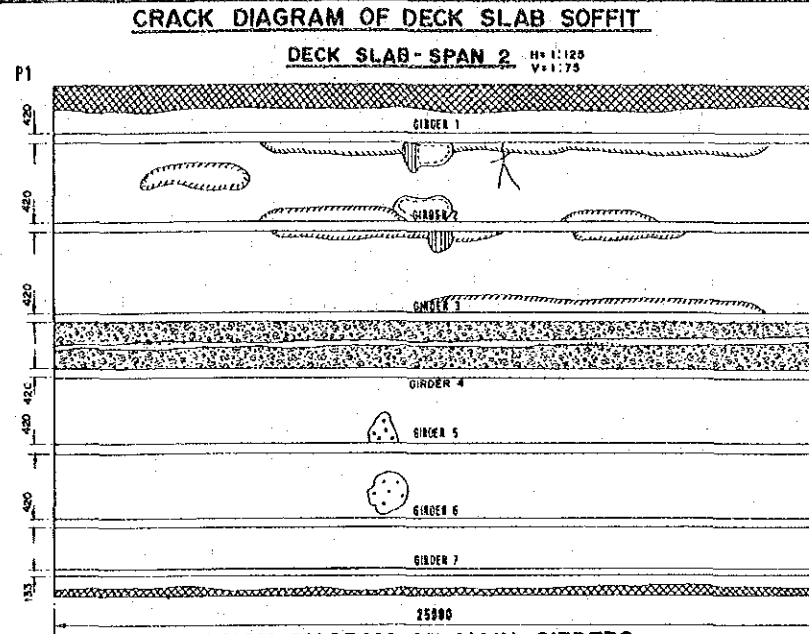
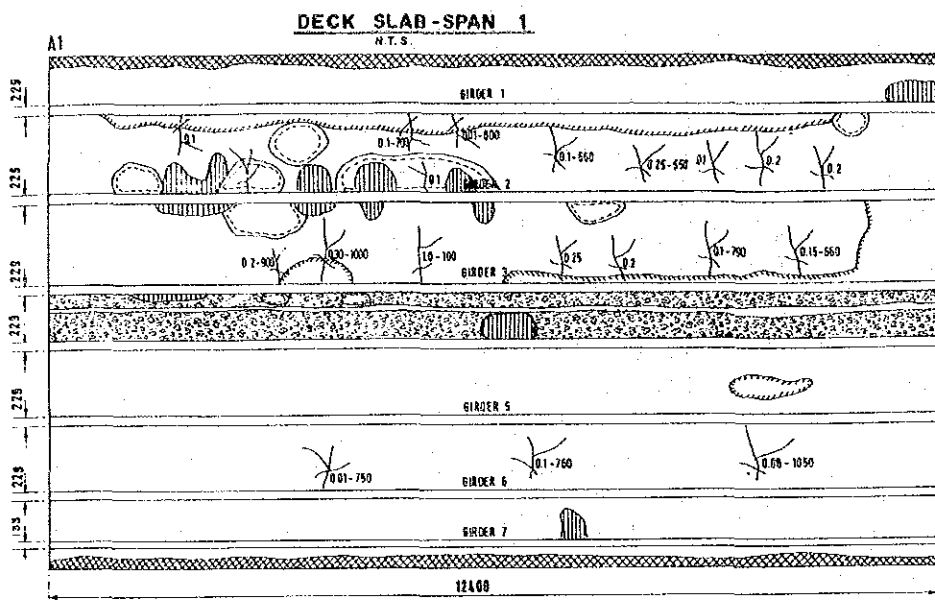
COLUMN THICKNESS (mm)

MEMBER	THICKNESS (mm)
PIER 1 C3 (UP)	7.60
PIER 1 C3 (DOWN)	8.30
PIER 1 C5 (UP)	11.23
PIER 1 C7 (UP)	11.24

STEEL THICKNESS FOR BEAM (mm)

BRACING	POINT	CENTRE OF GIRDER
SPAN 3 BRACING	FU1	10.82
	FUr	-
	Wt	7.73
	FL1	11.16
SPAN 2 BRACING BETWEEN G2 AND G3	FLr	-
	FU1	-
	FUr	10.46
	Wt	7.43
SPAN 2 BRACING BETWEEN G2 AND G3	FL1	10.15
	FLr	-





KEY MAP

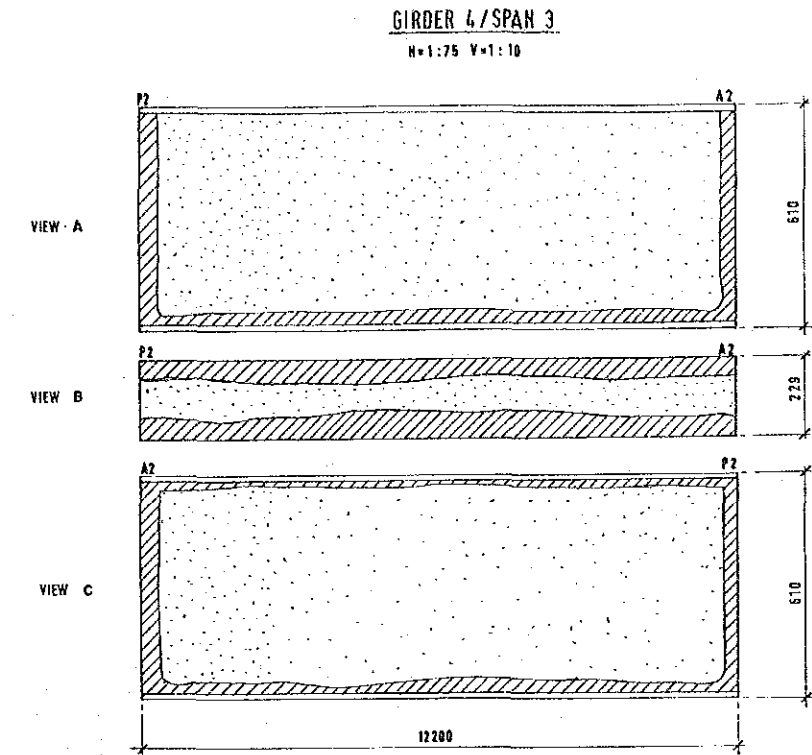
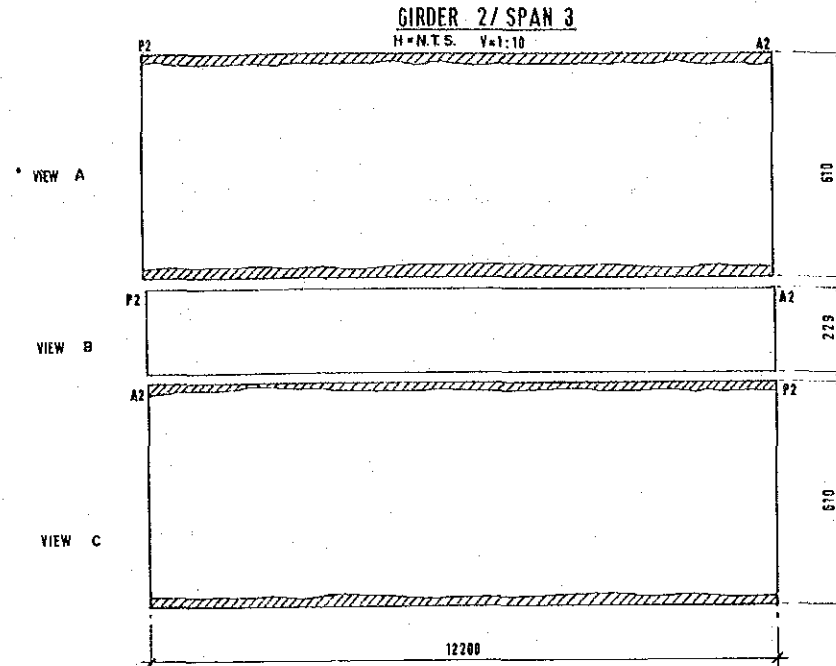
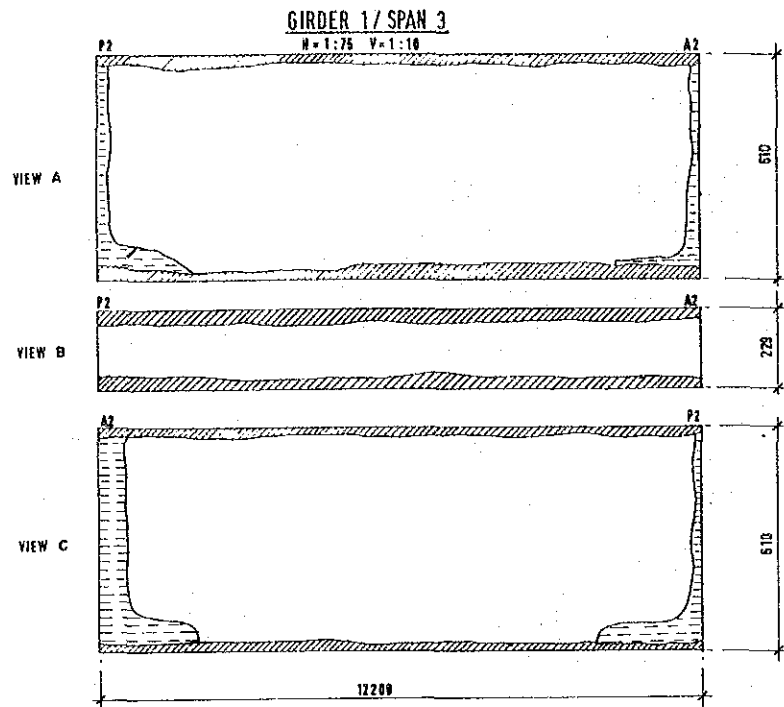
LEGEND OF DAMAGE (CONCRETE/STEEL)

	TYPE OF DAMAGES	IRRICATION
CONCRETE	FLAKING	
	REBAR EXPOSURE	
	FREE LIME	
	HONEY COMB	
	WATER LEAK	
STEEL	CORROSION	
	LAMINATION	
	CRACK *	
	PAINT DETERIORATION	
	WATER STAIN	

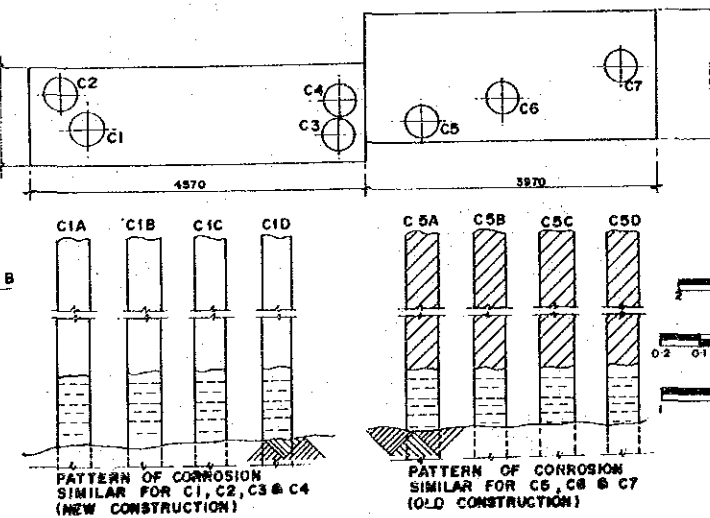
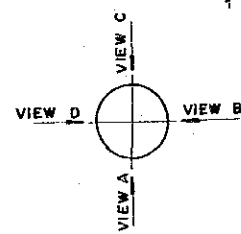
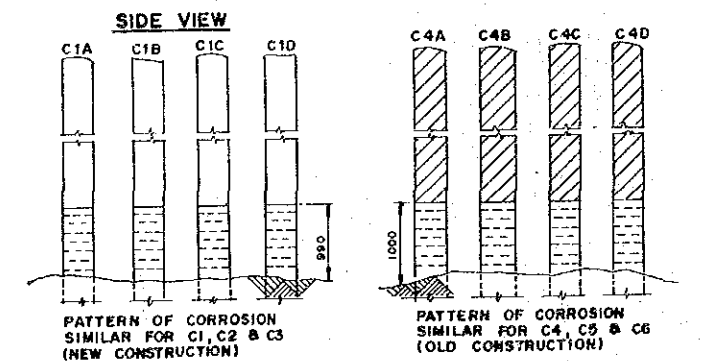
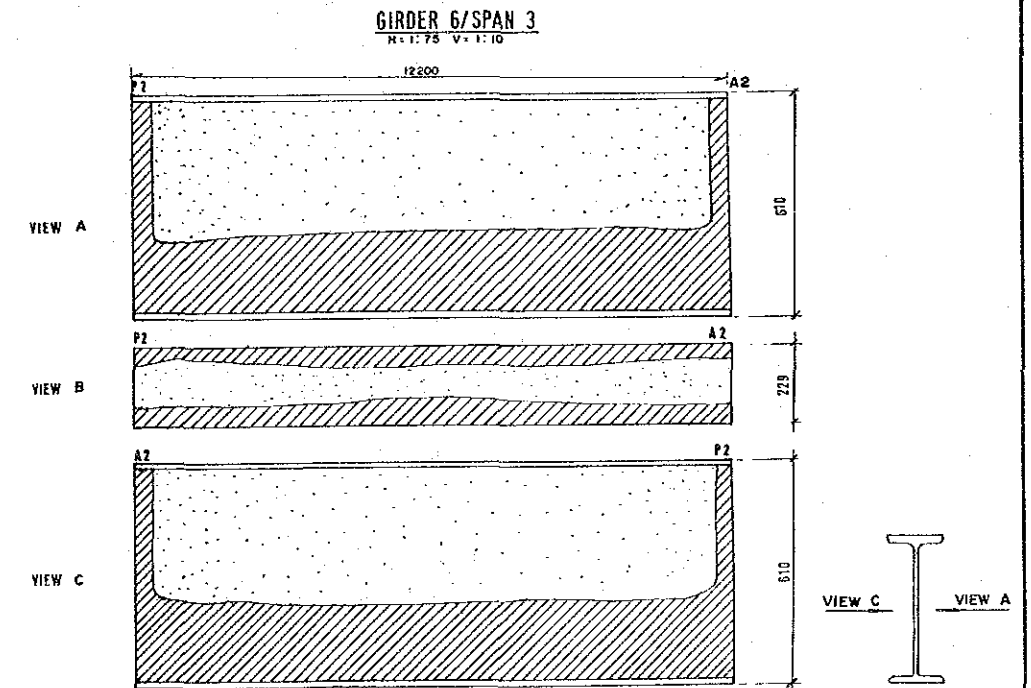
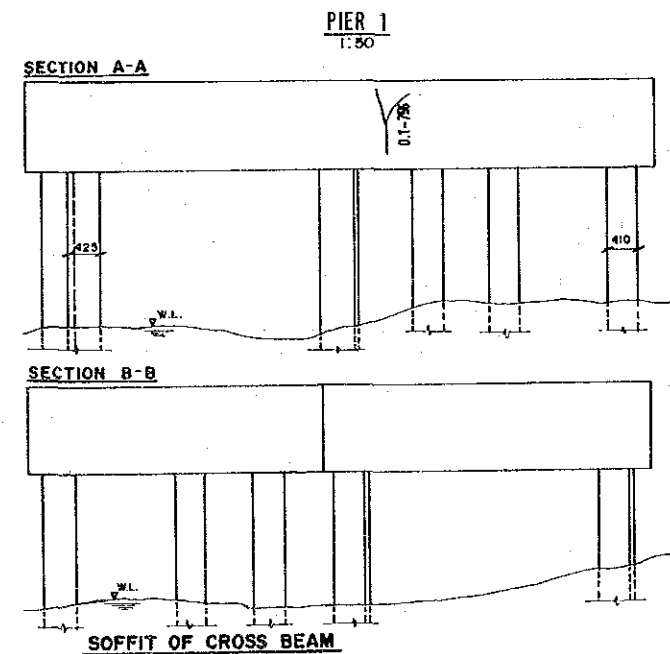
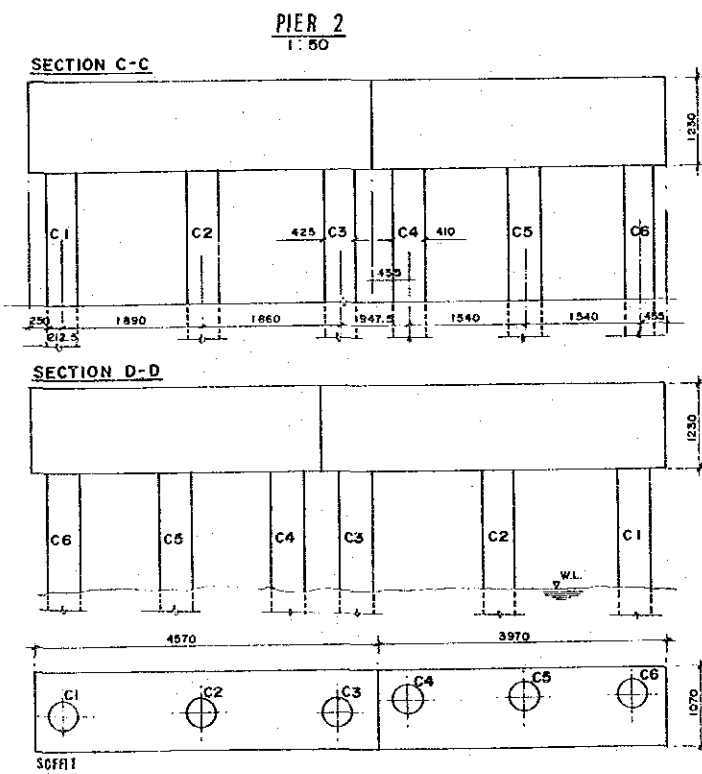
* - MAXIMUM CRACK WIDTH.
O - THE LENGTH OF CRACK.

NOTES:
1. CORROSION DIAGRAM OF GIRDERS INDICATED BY G22 AS SHOWN IN KEY MAP.
2. BOTH ABUTMENTS ARE STILL IN GOOD CONDITION.
3. GIRDER 2,3,4,5,7 SPAN 1 ARE STILL IN GOOD CONDITION.
4. GIRDER 2,4,5 & 7 SPAN 2 ARE STILL IN GOOD CONDITION.
5. GIRDER 3,5,7 SPAN 3 ARE STILL IN GOOD CONDITION.

CORROSION DIAGRAM OF GIRDERS



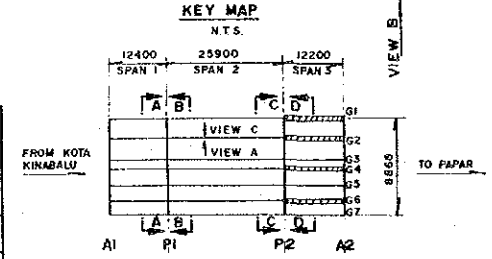
CRACK DIAGRAM AND CORROSION DIAGRAM OF PIERS



LEGEND OF DAMAGE (CONCRETE / STEEL)

	TYPE OF DAMAGES	INDICATION
CONCRETE	CRACK *	—
	WEAR / EROSION	▨
	LAMINATION	▨
	PAIN DEGRADATION	▨
	WATER STAIN	▨
STEEL	CORROSION	▨

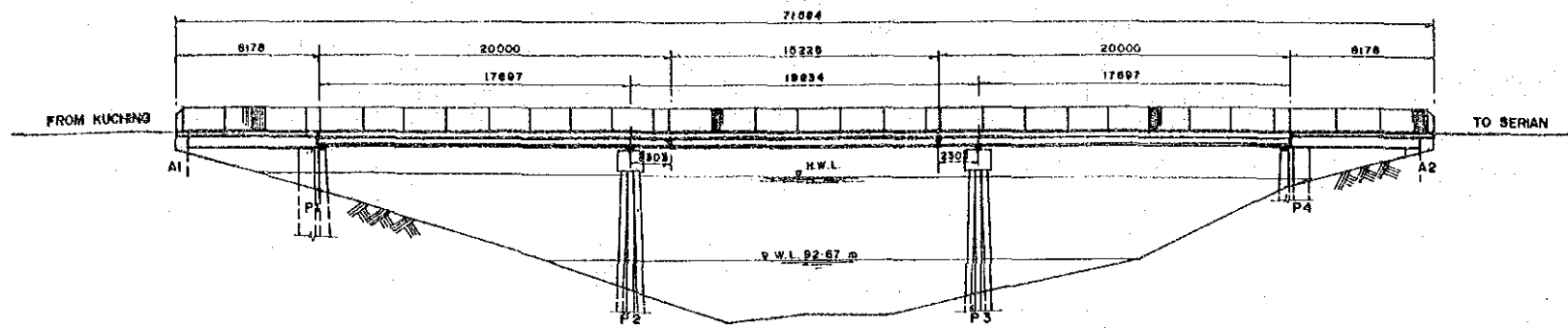
* □ - MAXIMUM CRACK WIDTH
○ - THE LENGTH OF CRACK



- NOTES:**
- CORROSION DIAGRAM OF GIRDERS INDICATED BY ▨ AS SHOWN IN KEY MAP.
 - BOTH ABUTMENTS ARE STILL IN GOOD CONDITION.
 - GIRDER 2,3,4,5,7 SPAN 1 ARE STILL IN GOOD CONDITION.
 - GIRDER 2,4,5,7 SPAN 2 ARE STILL IN GOOD CONDITION.
 - GIRDER 3,5,7 SPAN 3 ARE STILL IN GOOD CONDITION.

ELEVATION

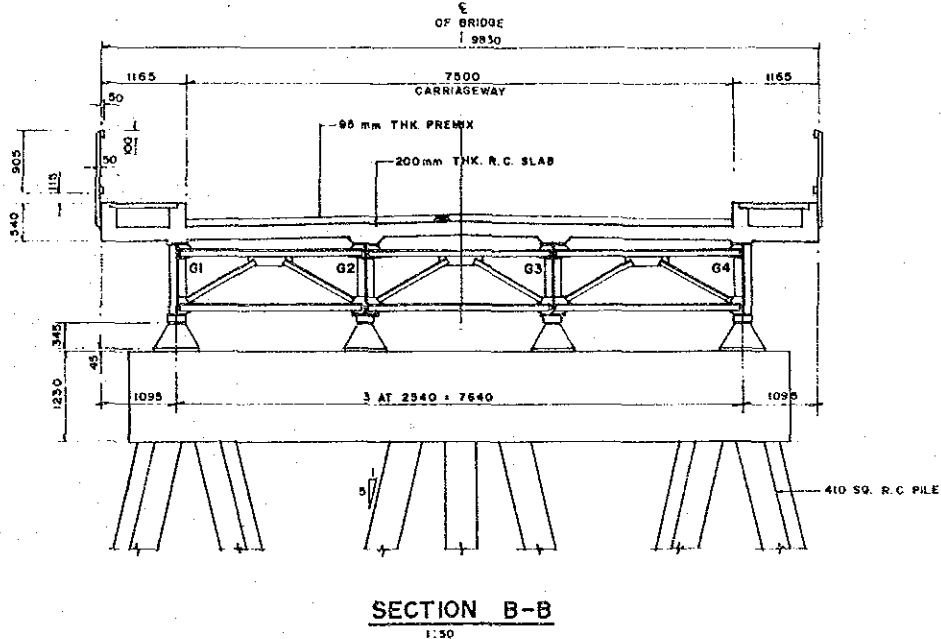
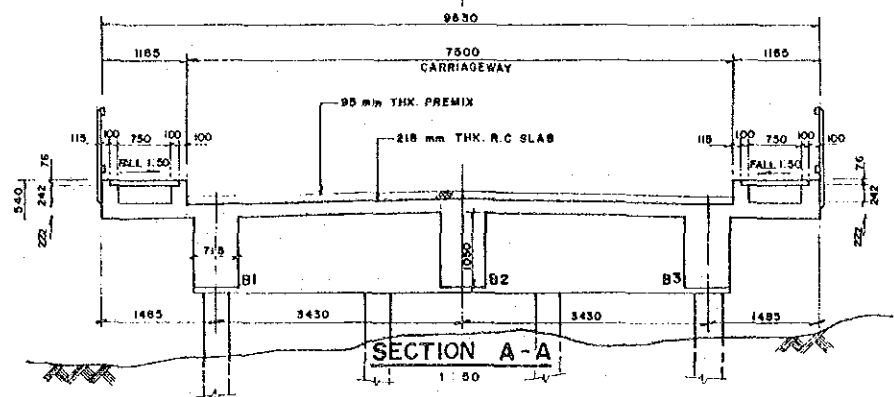
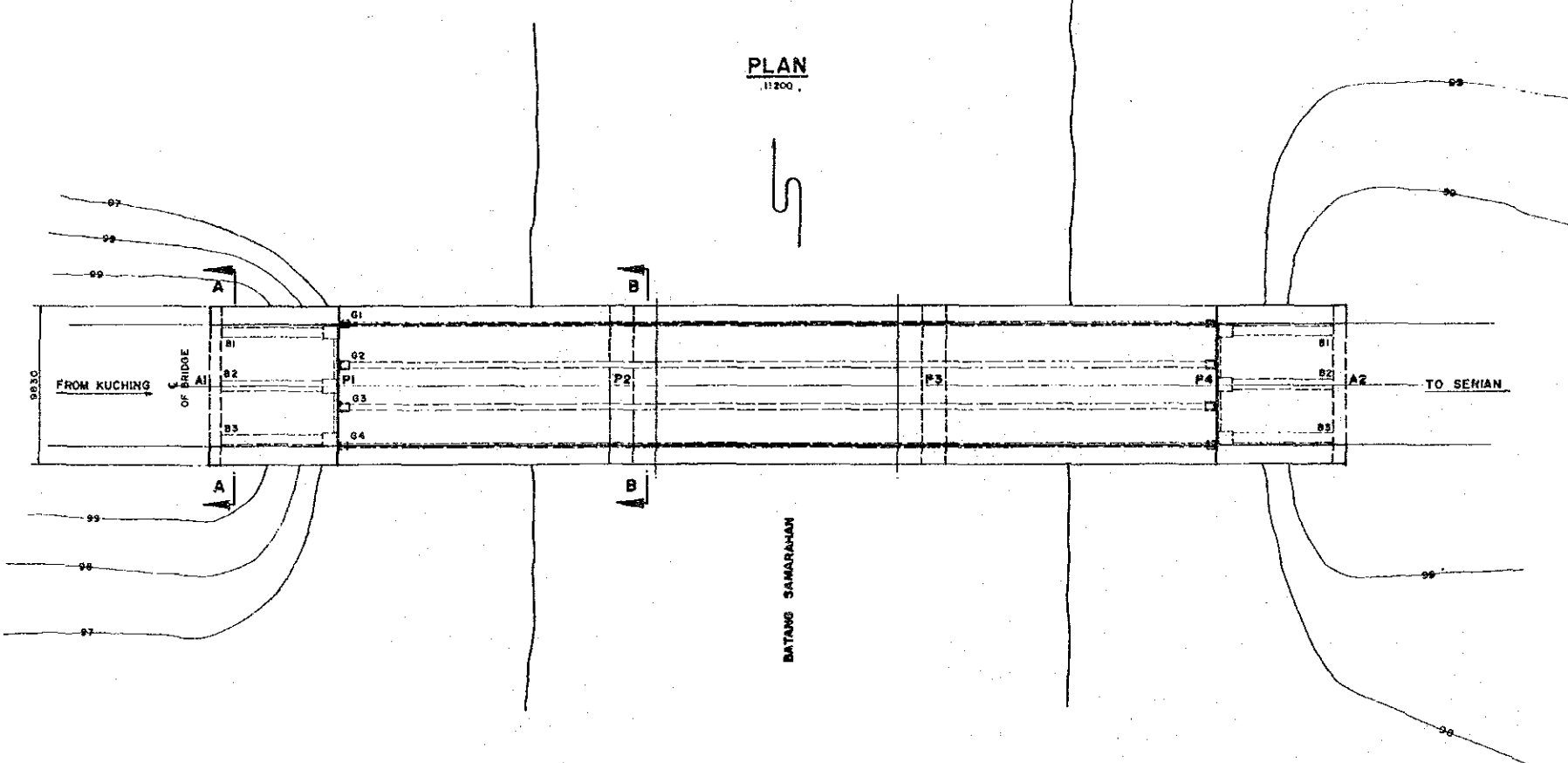
1:200



DATUM 95 m	
REDUCED LEVEL IN METRE	0.00 99.47
DISTANCE IN METRE	0.00
	8.18 96.73
	20.70 92.61
	25.98 90.51
	27.00 90.51
	31.50 99.11
	36.20 99.61
	40.80 99.51
	45.40 90.51
	45.71
	54.76
	63.40 96.77
	71.58 99.47

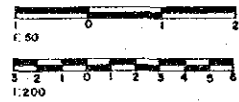
PLAN

1:200



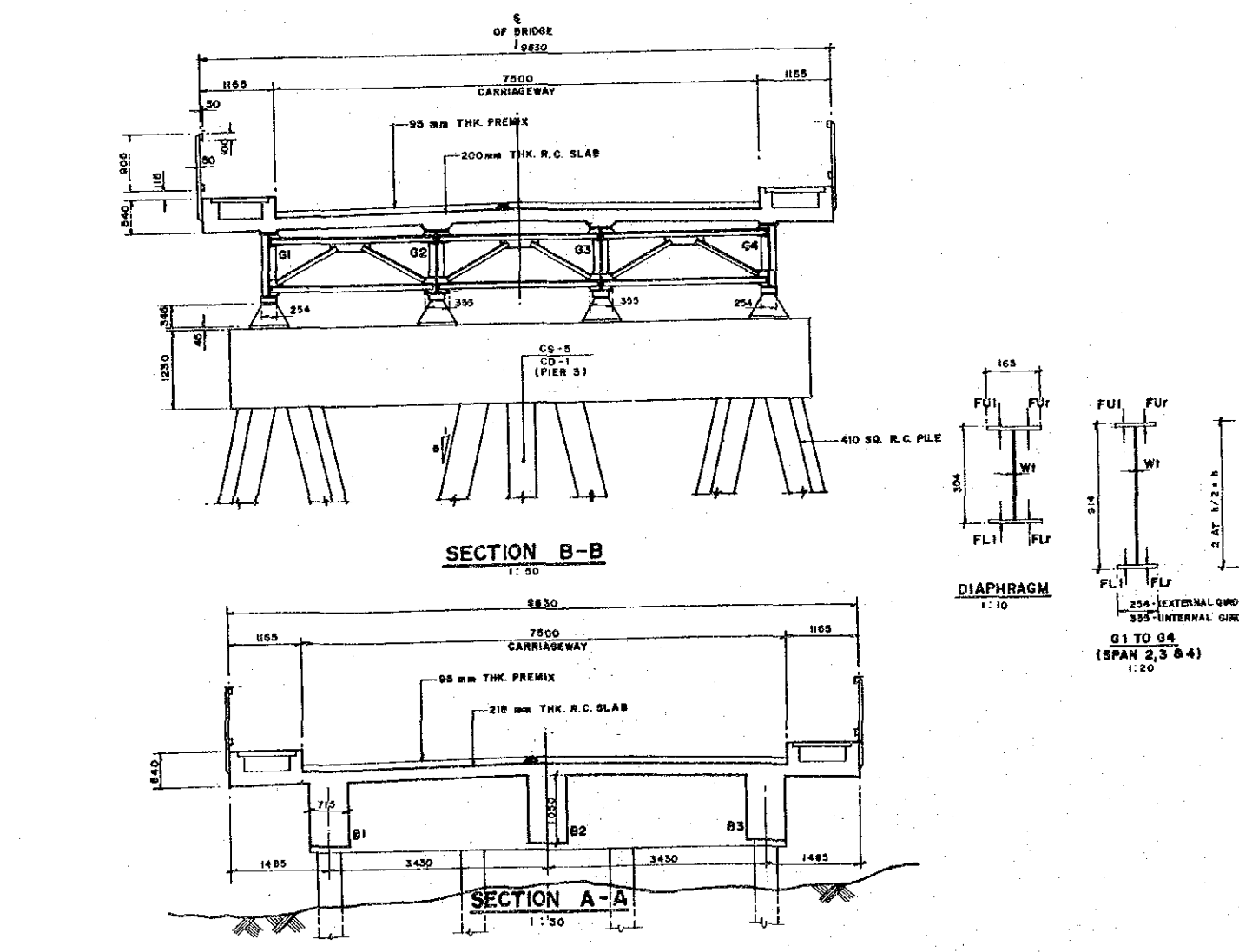
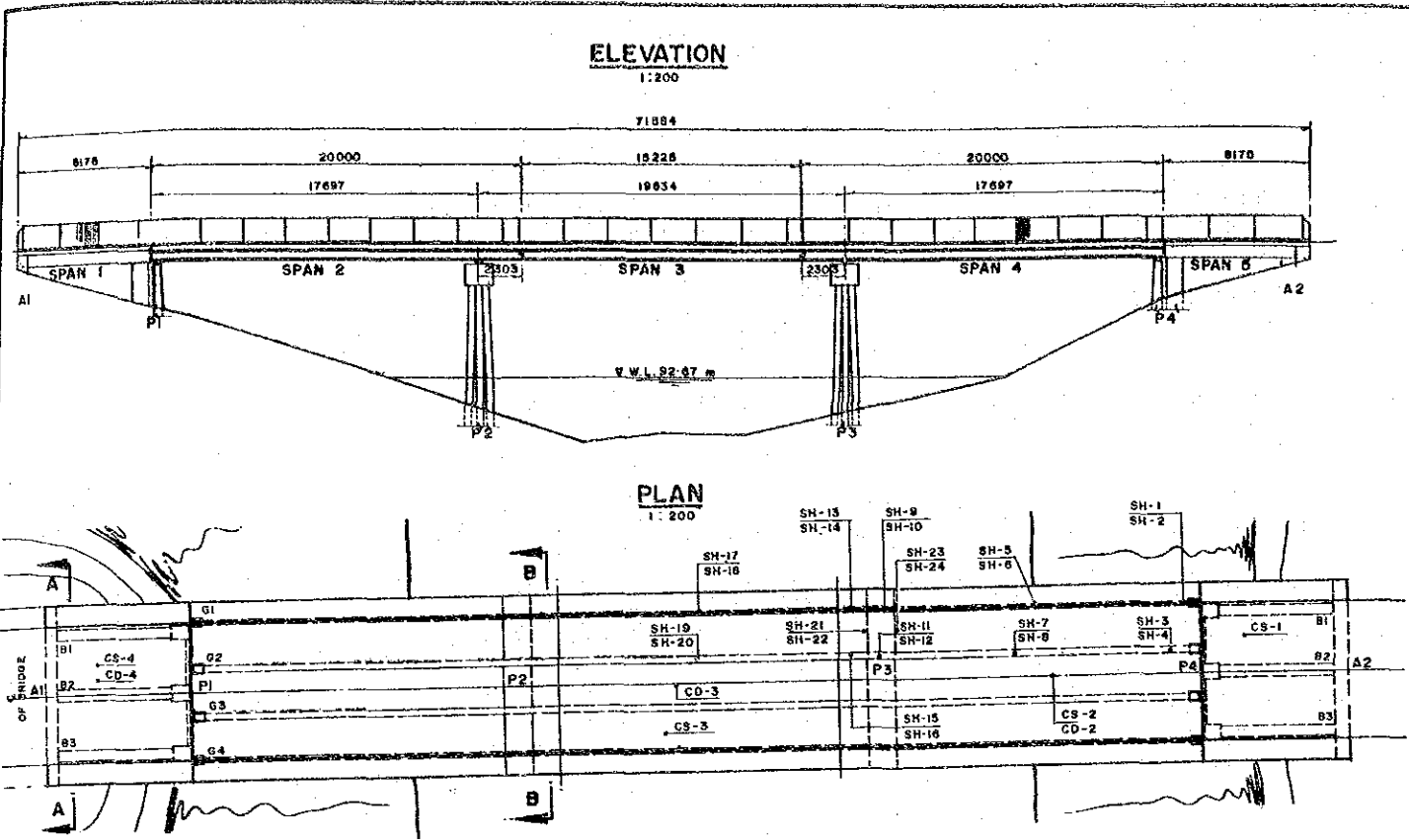
BRIDGE DATA

KEY No.	BATANG SAMARAHAN	
STATE	SARAWAK	
DISTRICT	BHG. SAMARAHAN	
DESIGN LIVE LOAD	HA LOADING	
MATERIAL STRENGTH	CONCRETE	SUPERSTRUCTURE · DECK 20N/mm ²
		SUBSTRUCTURE · 20N/mm ²
	STEEL	STRUCTURAL STEEL 235 N/mm ²
TYPE OF SUPERSTRUCTURE	R.C. RIGID FRAME + STEEL GIRDER W/R.C. SLAB	
TYPE OF SUBSTRUCTURE	ABUTMENT	R.C. RIGID FRAME
	PIER	PILE BENT
YEAR BUILT	1965	



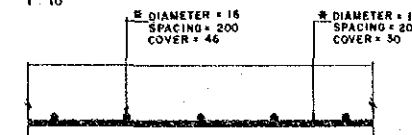
NOTE:
AS BUILT DRAWINGS ARE AVAILABLE

	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	GENERAL VIEW	BATANG SAMARAHAN	AS SHOWN	DSS-10-1



STRUCTURAL DETAIL

DECK SLAB - SPAN 4



NOTE:
* - REBAR SPACING SHOWN IN DRAWING IS APPROXIMATE ONLY.

STEEL THICKNESS (mm.)

MEMBER	POINT	0	L/2	L
GIRDER 1 SPAN 4	FU1	-	-	-
	FUR	19-18	19-30	26-78
	WI	8-03	8-17	8-34
	FL1	-	-	-
GIRDER 2 SPAN 4	FU1	-	-	-
	FUR	25-96	26-85	32-57
	WI	8-10	8-36	8-25
	FL1	-	-	-
GIRDER 1 SPAN 3	FU1	-	-	-
	FUR	16-19	16-31	-
	WI	8-21	8-32	-
	FL1	-	-	-
GIRDER 2 SPAN 3	FU1	-	-	-
	FUR	18-87	18-84	-
	WI	8-33	8-27	-
	FL1	-	-	-
END DIAPHRAGM SPAN 4 BETWEEN G1-G2 NEAR PIER 3	FU1	-	13-13	-
	WI	-	7-36	-
	FL1	-	-	-
	FL	-	13-77	-
END DIAPHRAGM SPAN 3 BETWEEN G1-G2 NEAR PIER 3	FU1	-	-	-
	FUR	-	13-75	-
	WI	-	7-54	-
	FL1	-	-	-

STEEL HARDNESS / STRENGTH

LOCATION	MEMBER	BRINELL HARDNESS	STRENGTH (N/mm ²)
SH-1	SPAN 4 - GIRDER 1 WEB	127	425
SH-2	SPAN 4 - GIRDER 1 FLANGE	133	455
SH-3	SPAN 4 - GIRDER 2 FLANGE	145	490
SH-4	SPAN 4 - GIRDER 2 WEB	123	425
SH-5	SPAN 4 - GIRDER 1 FLANGE	137	455
SH-6	SPAN 4 - GIRDER 1 WEB	136	455
SH-7	SPAN 4 - GIRDER 2 FLANGE	127	425
SH-8	SPAN 4 - GIRDER 2 WEB	105	-
SH-9	SPAN 4 - GIRDER 1 FLANGE	120	425
SH-10	SPAN 4 - GIRDER 1 WEB	118	392
SH-11	SPAN 4 - GIRDER 2 FLANGE	156	515
SH-12	SPAN 4 - GIRDER 2 WEB	118	392
SH-13	SPAN 3 - GIRDER 3 FLANGE	137	456
SH-14	SPAN 3 - GIRDER 3 WEB	110	390
SH-15	SPAN 3 - GIRDER 2 FLANGE	142	490
SH-16	SPAN 3 - GIRDER 2 WEB	138	455
SH-17	SPAN 3 - GIRDER 1 WEB	125	425
SH-18	SPAN 3 - GIRDER 1 WEB	118	392
SH-19	SPAN 3 - GIRDER 2 FLANGE	163	545
SH-20	SPAN 3 - GIRDER 2 WEB	122	425
SH-21	SPAN 3 - DIAPHRAGM BETWEEN G1-G2 FLANGE	122	425
SH-22	SPAN 3 - DIAPHRAGM BETWEEN G1-G2 WEB	111	390
SH-23	SPAN 4 - DIAPHRAGM BETWEEN G1-G2 FLANGE	127	425
SH-24	SPAN 4 - DIAPHRAGM BETWEEN G1-G2 WEB	123	425

CONCRETE STRENGTH BY SCHMIDT HAMMER

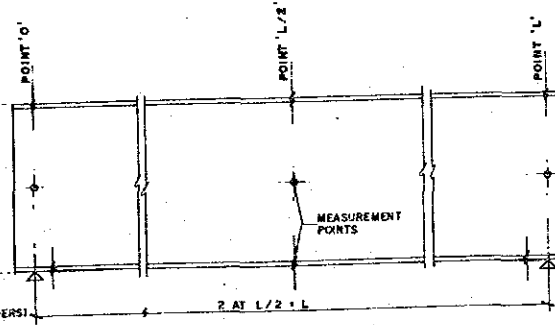
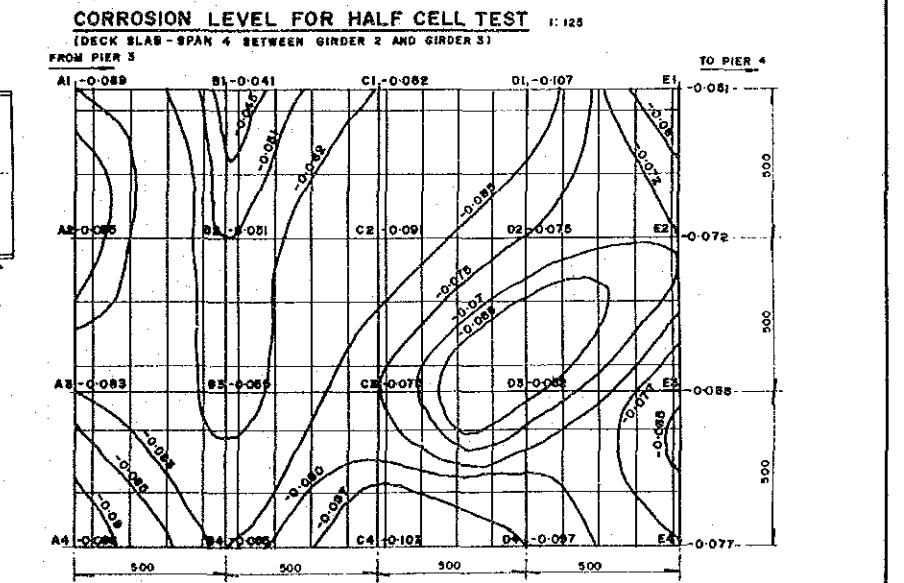
LOCATION	MEMBER	STRENGTH N/mm ²
CS-1	DECK SLAB - SPAN 5 RIGID FRAME	50
CS-2	DECK SLAB - SPAN 4 BETWEEN G2-G3	49
CS-3	DECK SLAB - SPAN 3 BETWEEN G3-G4	44
CS-4	DECK SLAB - SPAN 1 BETWEEN G2-G3	21
CS-5	PILE NO. 6 - PIER 3	31

CARBONATION DEPTH

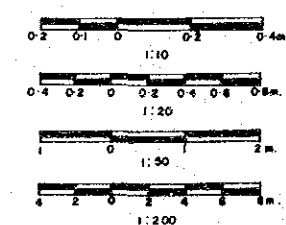
LOCATION	MEMBER	DEPTH (mm)
CD-1	PILE NO. 6 - PIER 3	0
CD-2	DECK SLAB - SPAN 4 BETWEEN G2-G3	12
CD-3	DECK SLAB - SPAN 3 BETWEEN G2-G3	7
CD-4	DECK SLAB - SPAN 1 RIGID FRAME	11

HALF CELL CORROSION POTENTIAL TABLE

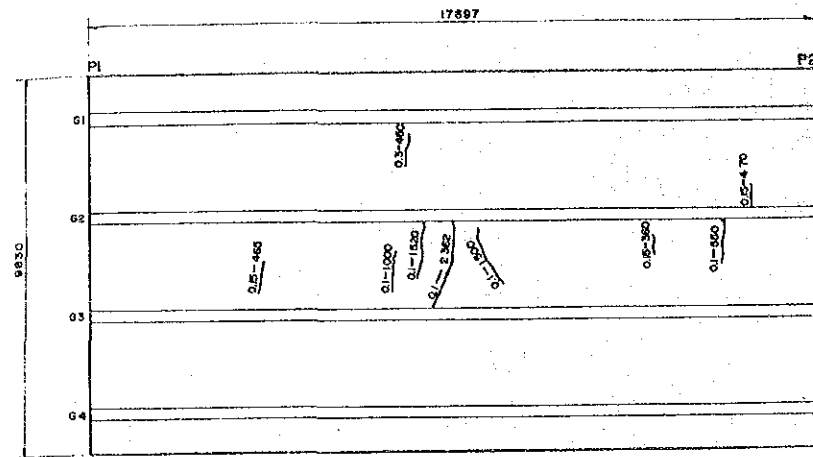
ELECTRICAL POTENTIAL	PROBABILITY OF CORROSION
> -0.20V.	>90% CORROSION WILL NOT OCCUR
-0.20V TO -0.35 V	NOT CONCLUSIVE
< -0.35 V	>90% CORROSION TO TAKE PLACE



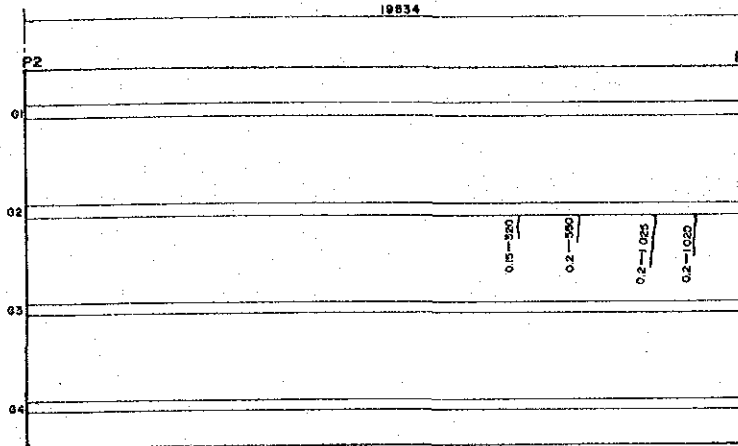
STEEL MEMBERS BEAM THICKNESS



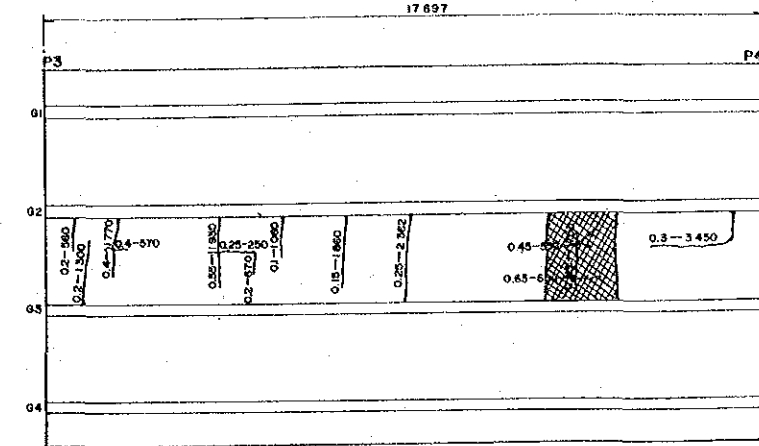
DECK SLAB SPAN 2



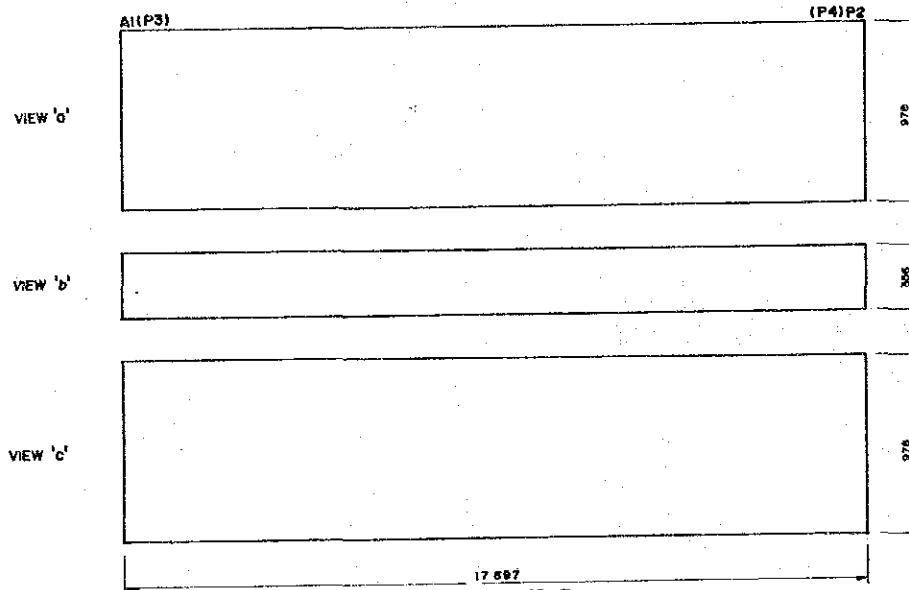
CRACK DIAGRAM OF DECK SLAB SOFFIT
DECK SLAB SPAN 3



DECK SLAB SPAN 4

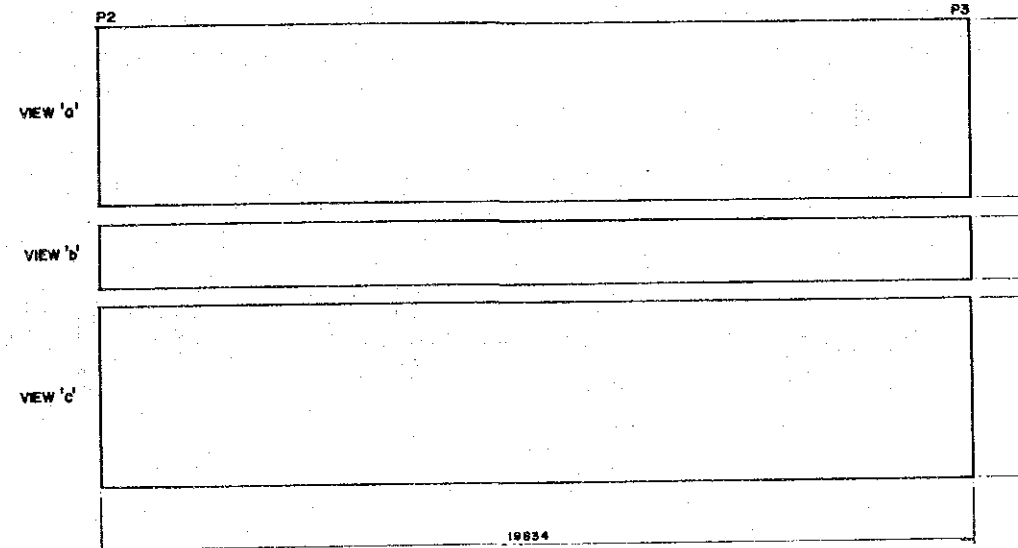


GIRDER SPAN 2 & SPAN 4
(NO CRACK OR CORROSION OBSERVED)

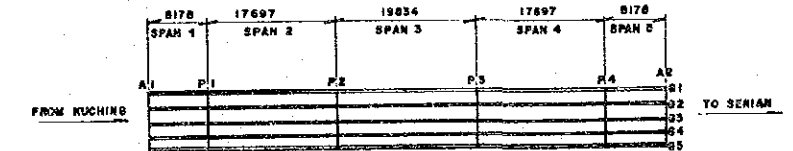


CORROSION DIAGRAM OF TYPICAL GIRDERS

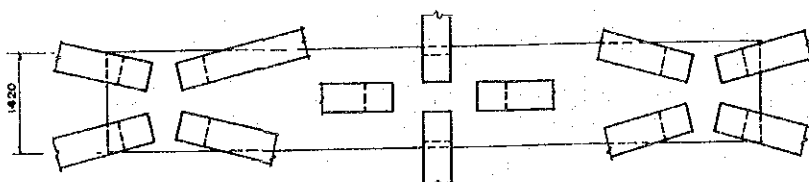
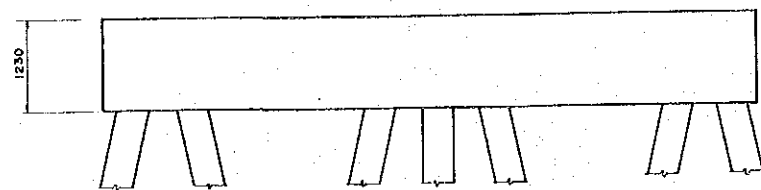
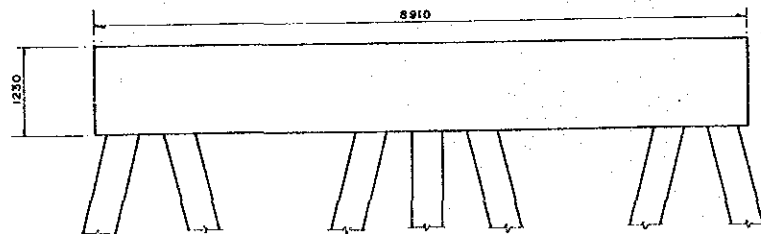
GIRDER SPAN 3
(NO CRACK OR CORROSION OBSERVED)



KEY MAP



PIER 2 & PIER 3
(NO CRACK OR CORROSION OBSERVED)



NOTES:

1. DECK SLAB SOFFIT FOR SPAN 1 AND SPAN 5 ARE STILL IN GOOD CONDITION.
2. BOTH ABUTMENTS ARE STILL IN GOOD CONDITION.
3. PIER 1, 2, 3 ARE STILL IN GOOD CONDITION.
4. ALL GIRDERS IN SPAN 1, 2, 3, 4, 5 ARE STILL IN GOOD CONDITION.

LEGEND OF DAMAGE (STEEL)

TYPE OF DAMAGES	INDICATION
CORROSION	

LEGEND OF DAMAGE (CONCRETE)

TYPE OF DAMAGES	INDICATION
REBAR EXPOSURE	
HONEY COMB	
WATER STAIN	
CRACK #1	
FLACKING	

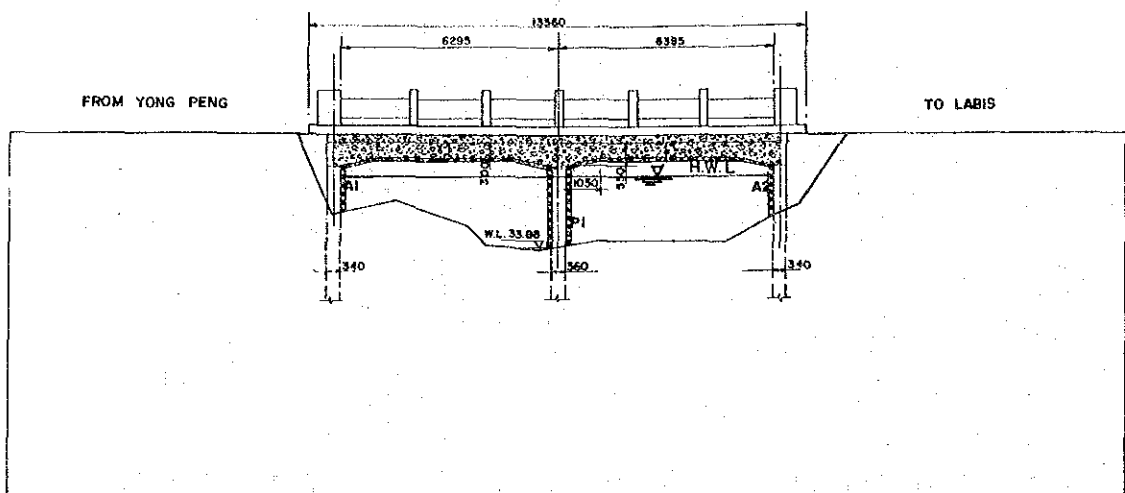
#1 THE LENGTH OF CRACK
O MAXIMUM CRACK WIDTH

2. MAINTENANCE AND REHABILITATION DRAWINGS

LIST OF DRAWINGS

TITLE OF DRAWING	BRIDGE NO.	SCALE	DRAWING NO.
GENERAL VIEW	1/149/20	1:100, 1:50	MR-D-1
GENERAL VIEW	1/611/40	1:100, 1:50, 1:20	MR-D-2
GENERAL VIEW	1/665/10	1:100, 1:50	MR-D-3
GENERAL VIEW	2/372/00	1:100, 1:50	MR-D-4
GENERAL VIEW	3/170/00	1:500, 1:50	MR-D-5
GENERAL VIEW	3/191/10	1:200, 1:50	MR-D-6
GENERAL VIEW	3/418/00	1:150, 1:50	MR-D-7
GENERAL VIEW	3/467/40	1:400, 1:50	MR-D-8
GENERAL VIEW	5/208/50	1:100, 1:50	MR-D-9
GENERAL VIEW	5/465/60	1:100, 1:50	MR-D-10
GENERAL VIEW	5/469/80	1:200, 1:75	MR-D-11
GENERAL VIEW	5/638/80	1:150, 1:50	MR-D-12
GENERAL VIEW	5/678/40	1:75, 1:50	MR-D-13
GENERAL VIEW	8/348/50	1:100, 1:50	MR-D-14
GENERAL VIEW	50/010/70	1:100, 1:60	MR-D-15
GENERAL VIEW	58/033/40	1:75, 1:50	MR-D-16
GENERAL VIEW	59/031/20	1:100, 1:50	MR-D-17
GENERAL VIEW	SG. DAMBAI, SABAH	1:200, 1:50	MR-D-18
GENERAL VIEW	SG. SAMARAHAN, SARAWAK	1:200, 1:50	MR-D-19
GENERAL VIEW	3/710/00	1:1000, 1:50	MR-D-20
STANDARD DRAWING OF CONCRETE PROTECTION (1)	-	NOT TO SCALE	MR-D-21
STANDARD DRAWING OF CONCRETE PROTECTION (2)	-	NOT TO SCALE	MR-D-22
STANDARD DRAWING OF CONCRETE REINFORCEMENT	-	NOT TO SCALE	MR-D-23
STANDARD DRAWING OF PROTECTION OF CONCRETE SUBSTRUCTURE	-	NOT TO SCALE	MR-D-24
STANDARD DRAWING OF STEEL PROTECTION AND REINFORCEMENT (1)	-	NOT TO SCALE	MR-D-25
STANDARD DRAWING OF STEEL PROTECTION AND REINFORCEMENT (2)	-	NOT TO SCALE	MR-D-26
STANDARD DRAWING OF INCIDENTAL FACILITIES	-	NOT TO SCALE	MR-D-27
STANDARD RIVER TRAINING WORK	-	NOT TO SCALE	MR-D-28
STANDARD DRAWING OF TEMPORARY WORKS	-	1:100, 1:60, 1:50	MR-D-29

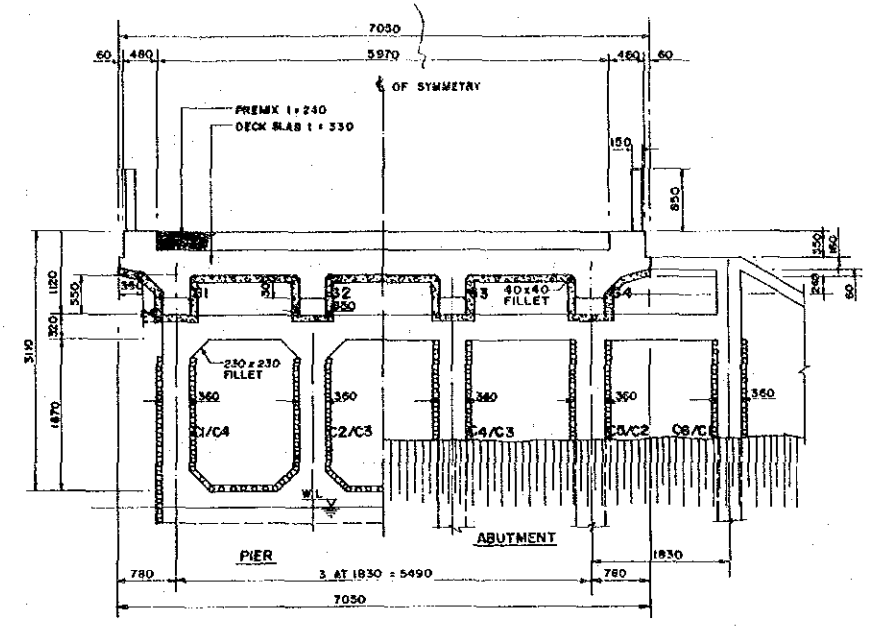
ELEVATION
1:100



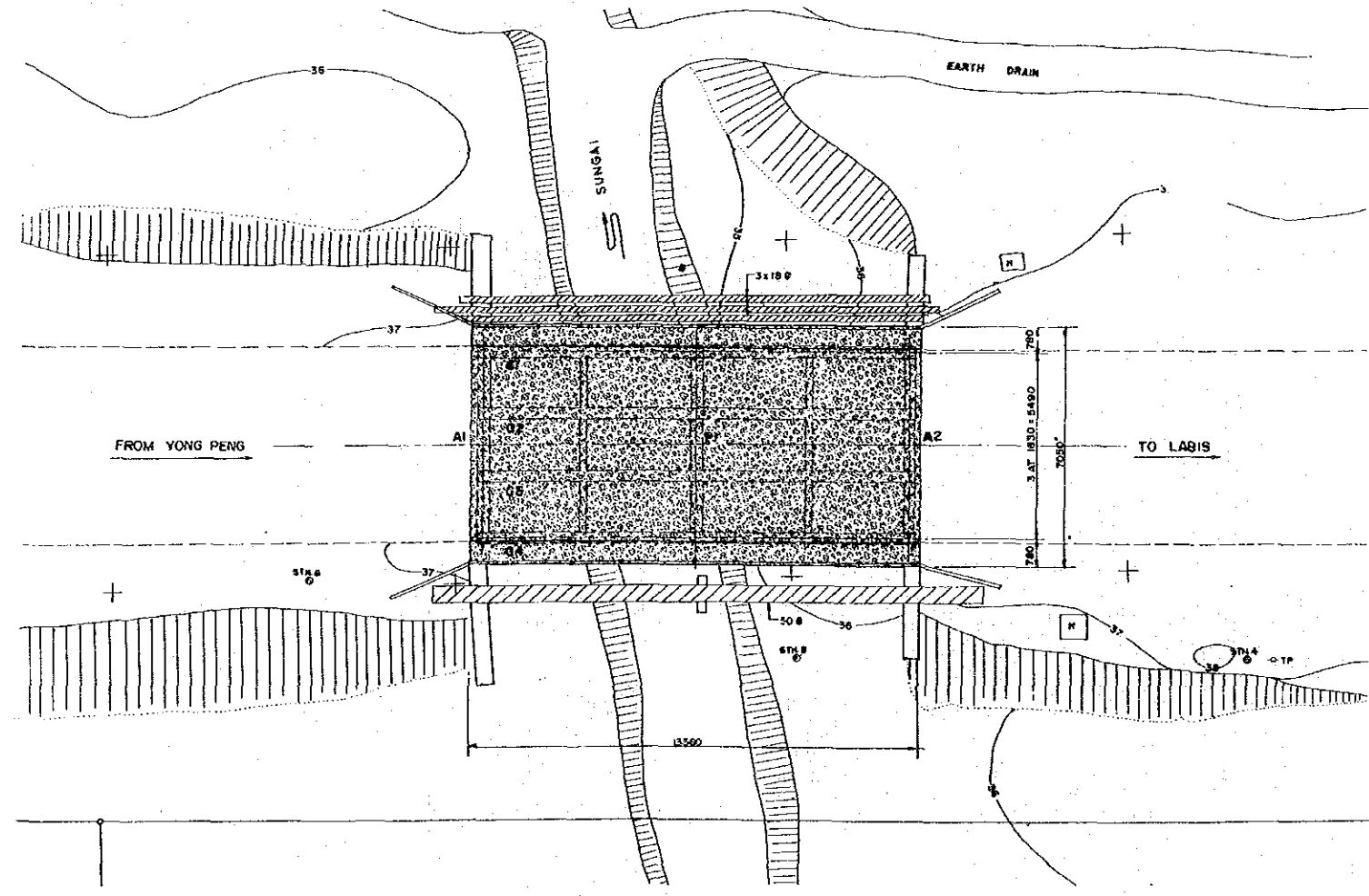
DATUM 27 M

REDUCED LEVEL IN METRE	0.00	37.16	1.66	37.16	3.04	37.15	4.26	37.15	7.71	37.15	9.70	34.84	10.49	35.24	12.37	34.56	13.29	34.08	14.38	33.84	15.02	34.08	16.08	34.08	16.92	34.04	18.03	34.75	19.04	35.07	20.23	37.07	21.41	37.08	22.68	37.05	24.03	37.03	25.47	37.02	26.37	37.02
DISTANCE IN METRE	0.00		1.66		3.04		4.26		7.71		9.70		10.49		12.37		13.29		14.38		15.02		16.08		16.92		18.03		19.04		20.23		21.41		22.68		24.03		25.47		26.37	

CROSS SECTION
1:50



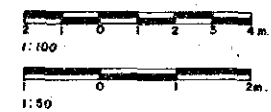
PLAN
1:100



MAIN WORK ITEMS

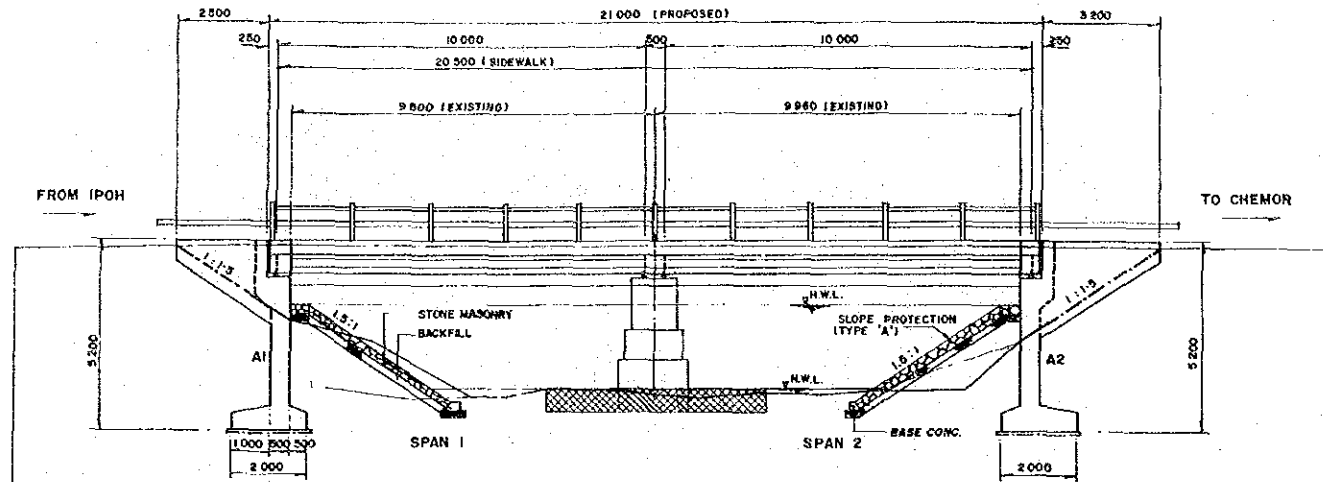
1. GUNITING TO SOFFIT OF SLABS AND BEAMS AND WEB SURFACE OF BEAMS. (REFER TO STD. DWG. MR-D-22)
2. CONCRETE LINING OF R.C. PILES FOR PIER AND ABUTMENTS. (REFER TO STD. DWG. MR-D-24)
3. EXTENSION OF DRAINAGE PIPES TO THE LEVEL BELOW THE SOFFIT OF THE BEAM. (REFER TO STD. DWG. MR-D-27)
4. INSTALLATION AND REMOVAL OF SCAFFOLDING. (REFER TO STD. DWG. MR-D-29, TYPE B)

LEGEND OF REHABILITATION WORK		
CONCRETE	EPOXY INJECTION	
	PROTECTIVE COATING	////
	PATCHING	*
	GUNITING	
	WATERPROOF LAYER	
	PREPACKED CONCRETE LINING WITH ADDITIONAL REBAR	
STEEL	STEEL PLATE BONDING	
	CONCRETE LINING (A) (Pi)	
STEEL	REPAINTING	
	CONCRETE LINING	

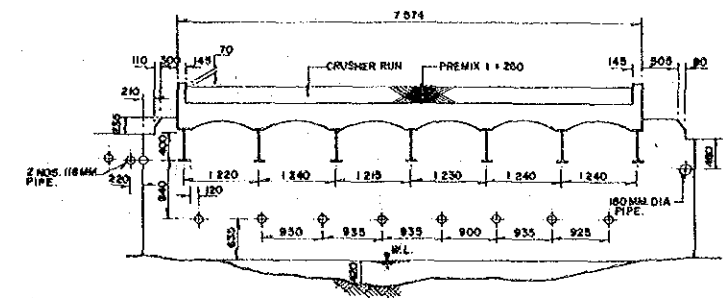


	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	GENERAL VIEW	1/149/20	AS SHOWN	MR-D-1

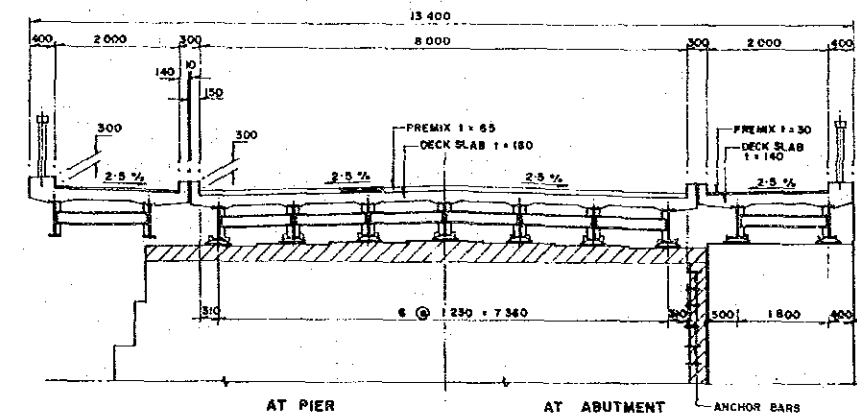
ELEVATION.
1 : 60



CROSS-SECTION OF EXISTING BRIDGE.
1 : 60



CROSS-SECTION OF PROPOSED BRIDGE.
1 : 60

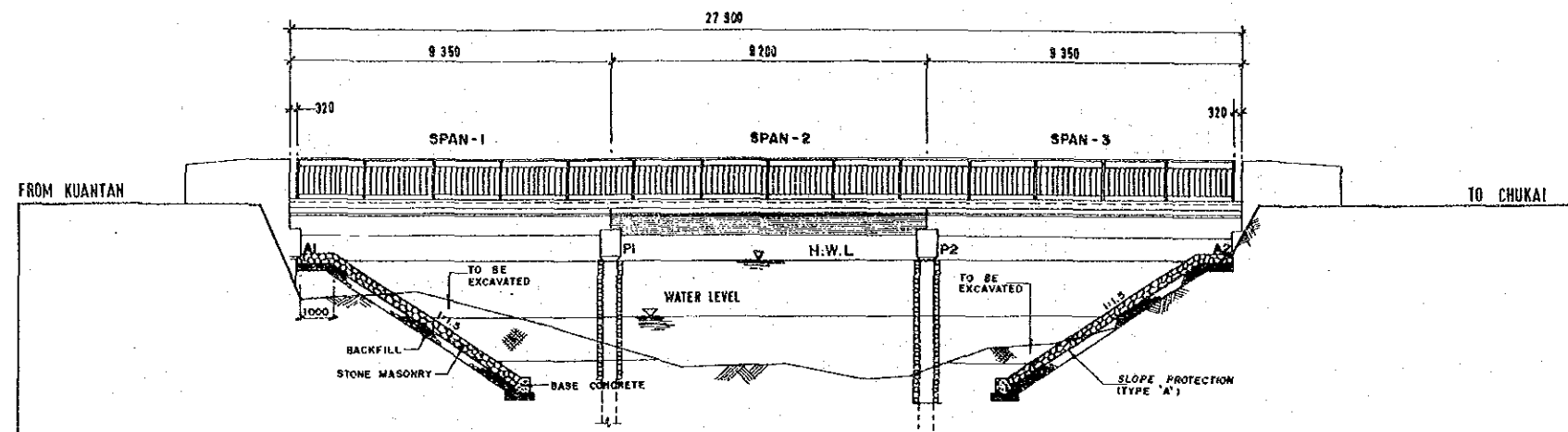


DATUM +66.00M

REDUCED LEVEL IN METER
DISTANCE IN METER

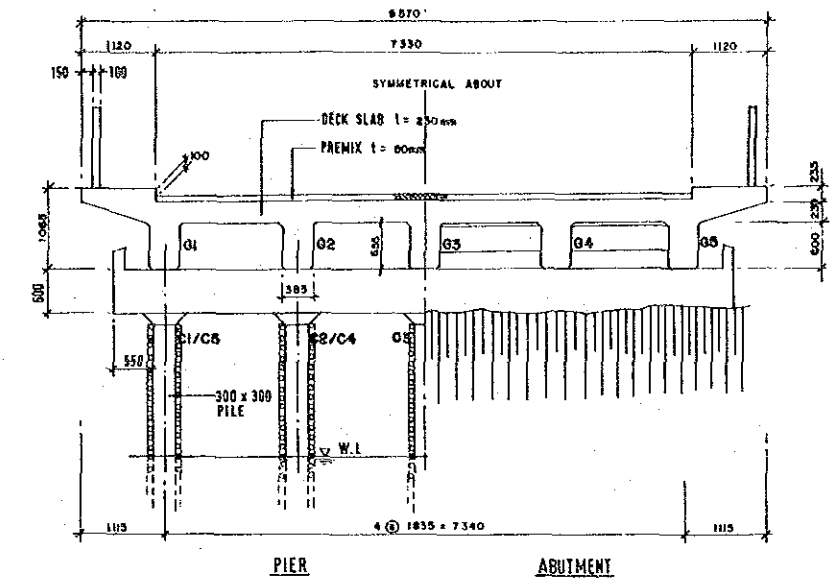
11.16	12.36	12.70	12.93	13.14	13.35	13.55	13.75	13.95	14.15	14.35	14.55	14.75	14.95	15.15	15.35	15.55	15.75	15.95	16.15	16.35	16.55	16.75	16.95	17.15	17.35	17.55	17.75	17.95	18.15	18.35	18.55	18.75	18.95	19.15	19.35	19.55	19.75	19.95	20.15	20.35	20.55	20.75	20.95	21.15	21.35	21.55	21.75	21.95	22.15	22.35	22.55	22.75	22.95	23.15	23.35	23.55	23.75	23.95	24.15	24.35	24.55	24.75	24.95	25.15	25.35	25.55	25.75	25.95	26.15	26.35	26.55	26.75	26.95	27.15	27.35	27.55	27.75	27.95	28.15	28.35	28.55	28.75	28.95	29.15	29.35	29.55	29.75	29.95	30.15	30.35	30.55	30.75	30.95	31.15	31.35	31.55	31.75	31.95	32.15	32.35	32.55	32.75	32.95	33.15	33.35	33.55	33.75	33.95	34.15	34.35	34.55	34.75	34.95	35.15	35.35	35.55	35.75	35.95	36.15	36.35	36.55	36.75	36.95	37.15	37.35	37.55	37.75	37.95	38.15	38.35	38.55	38.75	38.95	39.15	39.35	39.55	39.75	39.95	40.15	40.35	40.55	40.75	40.95	41.15	41.35	41.55	41.75	41.95	42.15	42.35	42.55	42.75	42.95	43.15	43.35	43.55	43.75	43.95	44.15	44.35	44.55	44.75	44.95	45.15	45.35	45.55	45.75	45.95	46.15	46.35	46.55	46.75	46.95	47.15	47.35	47.55	47.75	47.95	48.15	48.35	48.55	48.75	48.95	49.15	49.35	49.55	49.75	49.95	50.15	50.35	50.55	50.75	50.95	51.15	51.35	51.55	51.75	51.95	52.15	52.35	52.55	52.75	52.95	53.15	53.35	53.55	53.75	53.95	54.15	54.35	54.55	54.75	54.95	55.15	55.35	55.55	55.75	55.95	56.15	56.35	56.55	56.75	56.95	57.15	57.35	57.55	57.75	57.95	58.15	58.35	58.55	58.75	58.95	59.15	59.35	59.55	59.75	59.95	60.15	60.35	60.55	60.75	60.95	61.15	61.35	61.55	61.75	61.95	62.15	62.35	62.55	62.75	62.95	63.15	63.35	63.55	63.75	63.95	64.15	64.35	64.55	64.75	64.95	65.15	65.35	65.55	65.75	65.95	66.15	66.35	66.55	66.75	66.95	67.15	67.35	67.55	67.75	67.95	68.15	68.35	68.55	68.75	68.95	69.15	69.35	69.55	69.75	69.95	70.15	70.35	70.55	70.75	70.95	71.15	71.35	71.55	71.75	71.95	72.15	72.35	72.55	72.75	72.95	73.15	73.35	73.55	73.75	73.95	74.15	74.35	74.55	74.75	74.95	75.15	75.35	75.55	75.75	75.95	76.15	76.35	76.55	76.75	76.95	77.15	77.35	77.55	77.75	77.95	78.15	78.35	78.55	78.75	78.95	79.15	79.35	79.55	79.75	79.95	80.15	80.35	80.55	80.75	80.95	81.15	81.35	81.55	81.75	81.95	82.15	82.35	82.55	82.75	82.95	83.15	83.35	83.55	83.75	83.95	84.15	84.35	84.55	84.75	84.95	85.15	85.35	85.55	85.75	85.95	86.15	86.35	86.55	86.75	86.95	87.15	87.35	87.55	87.75	87.95	88.15	88.35	88.55	88.75	88.95	89.15	89.35	89.55	89.75	89.95	90.15	90.35	90.55	90.75	90.95	91.15	91.35	91.55	91.75	91.95	92.15	92.35	92.55	92.75	92.95	93.15	93.35	93.55	93.75	93.95	94.15	94.35	94.55	94.75	94.95	95.15	95.35	95.55	95.75	95.95	96.15	96.35	96.55	96.75	96.95	97.15	97.35	97.55	97.75	97.95	98.15	98.35	98.55	98.75	98.95	99.15	99.35	99.55	99.75	99.95	100.15	100.35	100.55	100.75	100.95	101.15	101.35	101.55	101.75	101.95	102.15	102.35	102.55	102.75	102.95	103.15	103.35	103.55	103.75	103.95	104.15	104.35	104.55	104.75	104.95	105.15	105.35	105.55	105.75	105.95	106.15	106.35	106.55	106.75	106.95	107.15	107.35	107.55	107.75	107.95	108.15	108.35	108.55	108.75	108.95	109.15	109.35	109.55	109.75	109.95	110.15	110.35	110.55	110.75	110.95	111.15	111.35	111.55	111.75	111.95	112.15	112.35	112.55	112.75	112.95	113.15	113.35	113.55	113.75	113.95	114.15	114.35	114.55	114.75	114.95	115.15	115.35	115.55	115.75	115.95	116.15	116.35	116.55	116.75	116.95	117.15	117.35	117.55	117.75	117.95	118.15	118.35	118.55	118.75	118.95	119.15	119.35	119.55	119.75	119.95	120.15	120.35	120.55	120.75	120.95	121.15	121.35	121.55	121.75	121.95	122.15	122.35	122.55	122.75	122.95	123.15	123.35	123.55	123.75	123.95	124.15	124.35	124.55	124.75	124.95	125.15	125.35	125.55	125.75	125.95	126.15	126.35	126.55	126.75	126.95	127.15	127.35	127.55	127.75	127.95	128.15	128.35	128.55	128.75	128.95	129.15	129.35	129.55	129.75	129.95	130.15	130.35	130.55	130.75	130.95	131.15	131.35	131.55	131.75	131.95	132.15	132.35	132.55	132.75	132.95	133.15	133.35	133.55	133.75	133.95	134.15	134.35	134.55	134.75	134.95	135.15	135.35	135.55	135.75	135.95	136.15	136.35	136.55	136.75	136.95	137.15	137.35	137.55	137.75	137.95	138.15	138.35	138.55	138.75	138.95	139.15	139.35	139.55	139.75	139.95	140.15	140.35	140.55	140.75	140.95	141.15	141.35	141.55	141.75	141.95	142.15	142.35	142.55	142.75	142.95	143.15	143.35	143.55	143.75	143.95	144.15	144.35	144.55	144.75	144.95	145.15	145.35	145.55	145.75	145.95	146.15	146.35	146.55	146.75	146.95	147.15	147.35	147.55	147.75	147.95	148.15	148.35	148.55	148.75	148.95	149.15	149.35	149.55	149.75	149.95	150.15	150.35	150.55	150.75	150.95	151.15	151.35	151.55	151.75	151.95	152.15	152.35	152.55	152.75	152.95	153.15	153.35	153.55	153.75	153.95	154.15	154.35	154.55	154.75	154.95	155.15	155.35	155.55	155.75	155.95	156.15	156.35	156.55	156.75	156.95	157.15	157.35	157.55	157.75	157.95	158.15	158.35	158.55	158.75	158.95	159.15	159.35	159.55	159.75	159.95	160.15	160.35	160.55	160.75	160.95	161.15	161.35	161.55	161.75	161.95	162.15	162.35	162.55	162.75	162.95	163.15	163.35	163.55	163.75	163.95	164.15	164.35	164.55	164.75	164.95	165.15	165.35	165.55	165.75	165.95	166.15	166.35	166.55	166.75	166.95	167.15	167.35	167.55	167.75	167.95	168.15	168.35	168.55	168.75	168.95	169.15	169.35	169.55	169.75	169.95	170.15	170.35	170.55	170.75	170.95	171.15	171.35	171.55	171.75	171.95	172.15	172.35	172.55	172.75	172.95	173.15	173.35	173.55	173.75	173.95	174.15	174.35	174.55	174.75	174.95	175.15	175.35	175.55	175.75	175.95	176.15	176.35	176.55	176.75	176.95	177.15	177.35	177.55	177.75	177.95	178.15	178.35	178.55	178.75	178.95	179.15	179.35	179.55	179.75	179.95	180.15	180.35	180.55	180.75	180.95	181.15	181.35	181.55	181.75	181.95	182.15	182.35	182.55	182.75	182.95	183.15	183.35	183.55	183.75	183.95	184.15	184.35	184.55	184.75	184.95	185.15	185.35	185.55	185.75	185.95	186.15	186.35	186.55	186.75	186.95	187.15	187.35	187.55	187.75	187.95	188.15	188.35	188.55	188.75	188.95	189.15	189.35	189.55	189.75	189.95	190.15	190.35	190.55	190.75	190.95	191.15	191.35	191.55	191.75	191.95	192.15	192.35	192.55	192.75	192.95	193.15	193.35	193.55	193.75	193.95	194.15	194.35	194.55	194.75	194.95	195.15	195.35	195.55	195.75	195.95	196.15	196.35	196.55	196.75	196.95	197.15	197.35	197.55	197.75	197.95	198.15	198.35	198.55	198.75	198.95	199.15	199.35	199.55	199.75	199.95	200.15	200.35	200.55	200.75	200.95	201.15	201.35	201.55	201.75	201.95	202.15	202.35	202.55	202.75	202.95	203.15	203.35	203.55	203.75	203.95	204.15	204.35	204.55	204.75	204.95	205.15	205.35	205.55	205.75	205.95	206.15	206.35	206.55	206.75	206.95	207.15	207.35	207.55	207.75	207.95	208.15	208.35	208.55	208.75	208.95	209.15	209.35	209.55	209.75	209.95	210.15	210.35	210.55	210.75	210.95	211.15	211.35	211.55	211.75	211.95	212.15	212.35	212.55	212.75	212.95	213.15	213.35	213.55	213.75	213.95	214.15	214.35	214.55	214.75	214.95	215.15	215.35	215.55	215.75	215.95	216.15	216.35	216.55	216.75	216.95	217.15	217.35	217.55	217.75	217.95	218.15	218.35	218.55	218.75	218.95	219.15	219.35	219.55	219.75	219.95	220.15	220.35	220.55	220.75	220.95	221.15	221.35	221.55	221.75	221.95	222.15	222.35	222.55	222.75	222.95	223.15	223.35	223.55	223.75	223.95	224.15	224.35	224.55	224.75	224.95	225.15	225.35	225.55	225.75	225.95	226.15	226.35	226.55	226.75	226.95	227.15	227.35	227.55	227.75	227.95	228.15	228.35	228.55	228.75	228.95	229.15	229.35	229.55	229.75	229.95	230.15	230.35	230.55	230.75	230.95	231.15	231.35	231.55	231.75	231.95	232.15	232.35	232.55	232.75	232.95	233.15	233.35	233.55	233.75	233.95	234.15	234.35	234.55
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ELEVATION
1:100

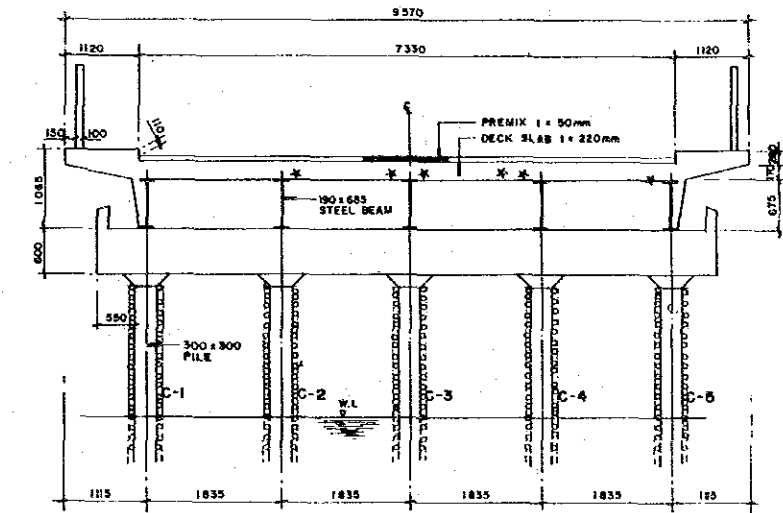


DATUM - 4 m	REDUCED LEVEL IN METRE	DISTANCE IN METRE
	4.80	0.00
	4.31	3.48
	4.10	7.01
	1.32	8.22
	1.52	11.65
	0.52	15.34
	-0.71	19.22
	-0.65	22.28
	-1.04	24.42
	-0.95	26.04
	-0.14	28.19
	-0.03	29.91
	0.49	31.95
	2.63	35.35
	4.12	38.13
	4.74	38.48
	4.16	42.51
	4.79	45.00

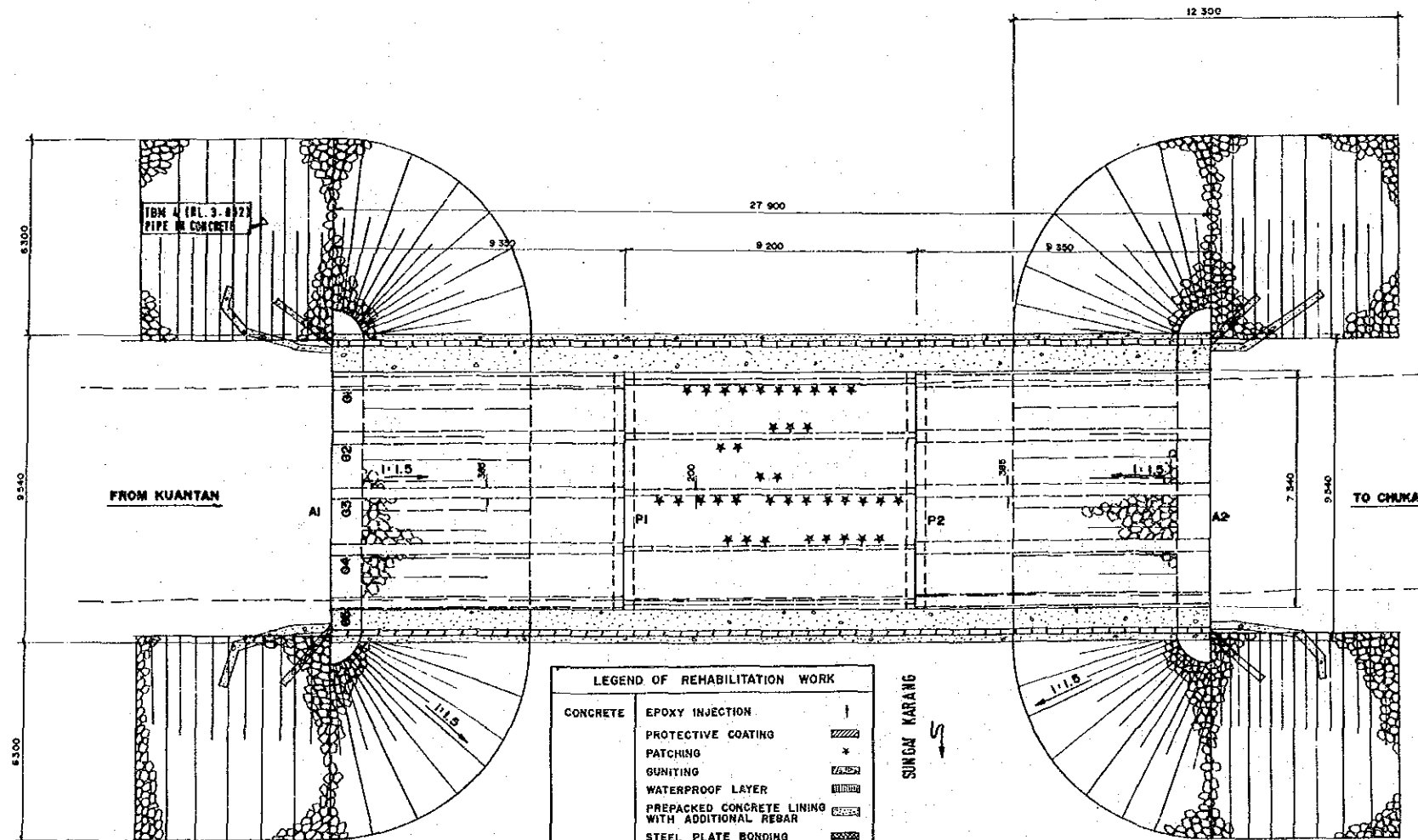
CROSS SECTION (AT SPAN 1 & 3)
1:50



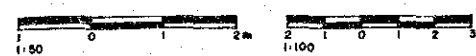
CROSS SECTION (AT SPAN 2)
1:50



PLAN
1:100



LEGEND OF REHABILITATION WORK		
CONCRETE	EPOXY INJECTION	
	PROTECTIVE COATING	///
	PATCHING	*
	GUNITING	////
	WATERPROOF LAYER	
	PREPACKED CONCRETE LINING WITH ADDITIONAL REBAR	
	STEEL PLATE BONDING	
	CONCRETE LINING (A)	
	CONCRETE LINING (P)	
STEEL	REPAINTING	
	CONCRETE LINING	

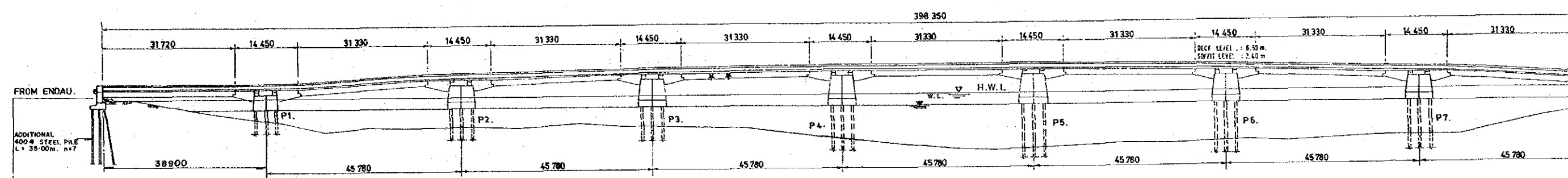


MAIN WORK ITEMS

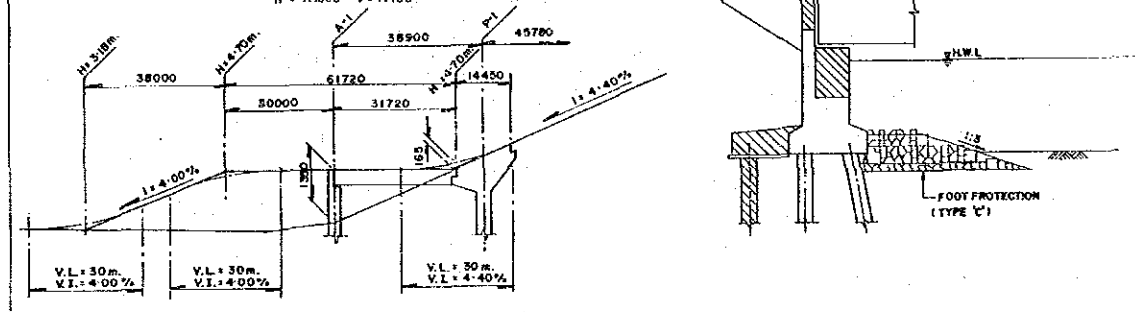
1. CONCRETE LINING OF ALL PIER COLUMNS. (PIER 1 AND PIER 2). (REFER TO STD. DWG. MR-D-24, TYPE B)
2. PATCH REPAIR TO SPALLED CONCRETE AT DECK SLAB SPAN 2. REFER TO STD. DWG. MR-D-21)
3. CLEANING AND REPAINTING OF STEEL GIRDERS AT SPAN 2. (REFER TO STD. DWG. MR-D-25)
4. EXTENSION OF DRAINAGE PIPES TO THE LEVEL BELOW THE SOFFIT OF THE BEAM. (REFER TO STD. DWG. MR-D-27)
5. REPLACEMENT OF EXPANSION JOINTS. (REFER TO STD. DWG. MR-D-27, TYPE A)
6. RECONSTRUCTION OF SLOPE PROTECTION. (REFER TO STD. DWG. MR-D-28)
7. INSTALLATION AND REMOVAL OF SCAFFOLDING. (REFER TO STD. DWG. MR-D-29, TYPE B)

THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
GENERAL VIEW	2/372/00	AS SHOWN	MR-D-4

ELEVATION
1:8000



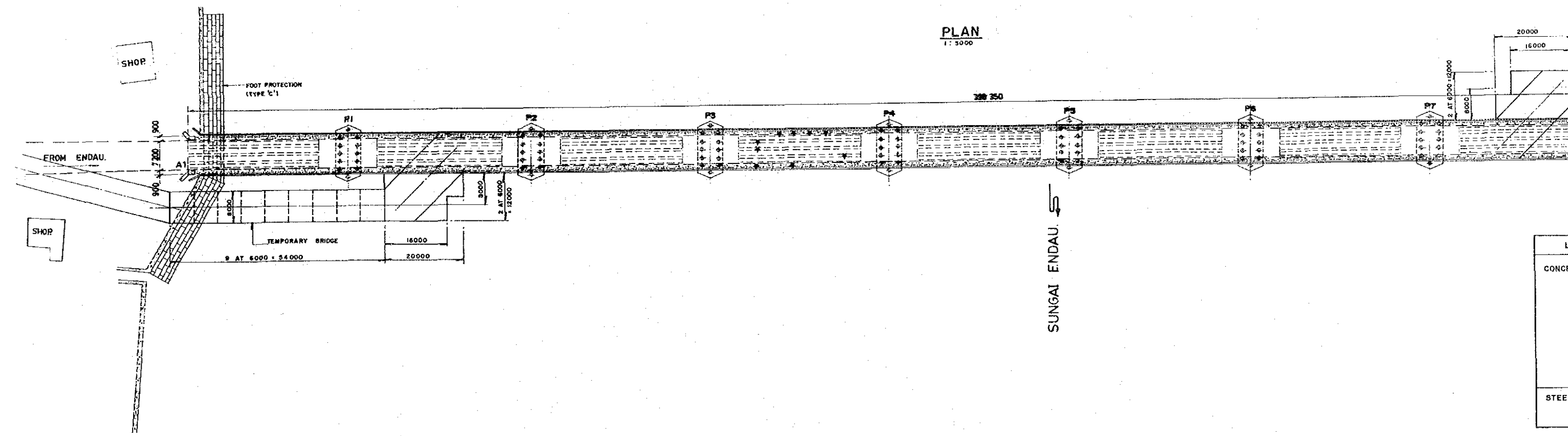
VERTICAL PROFILE
H: 1:8000 V: 1:100

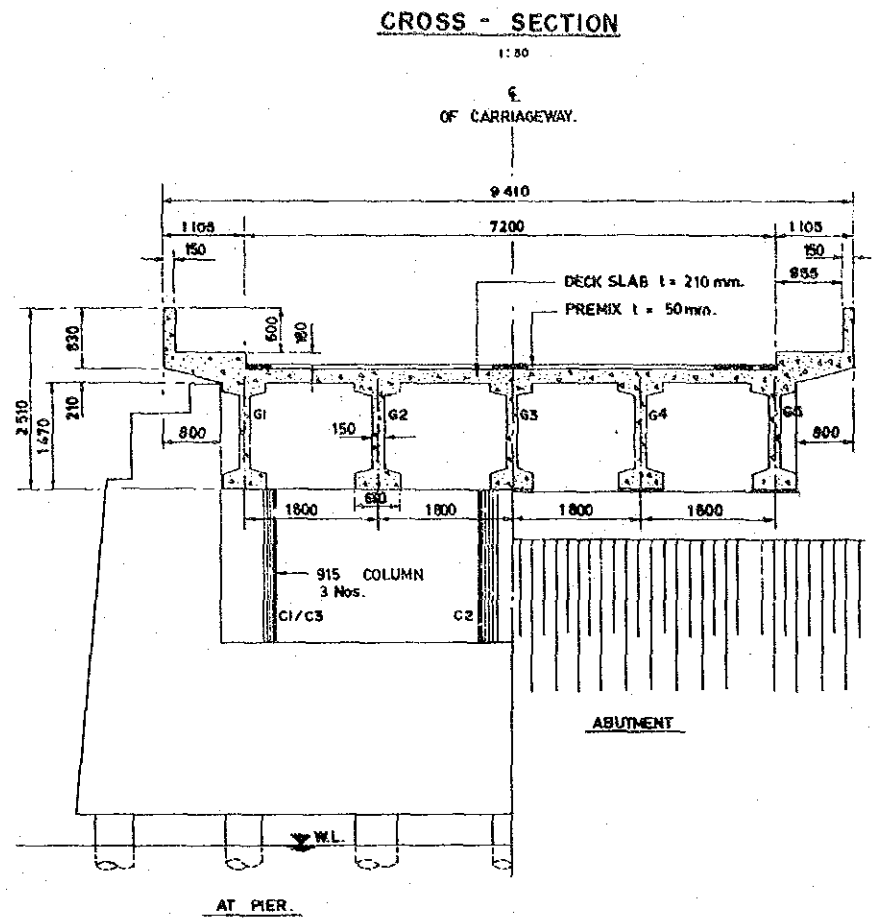
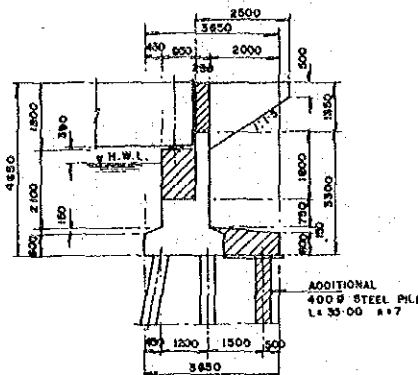
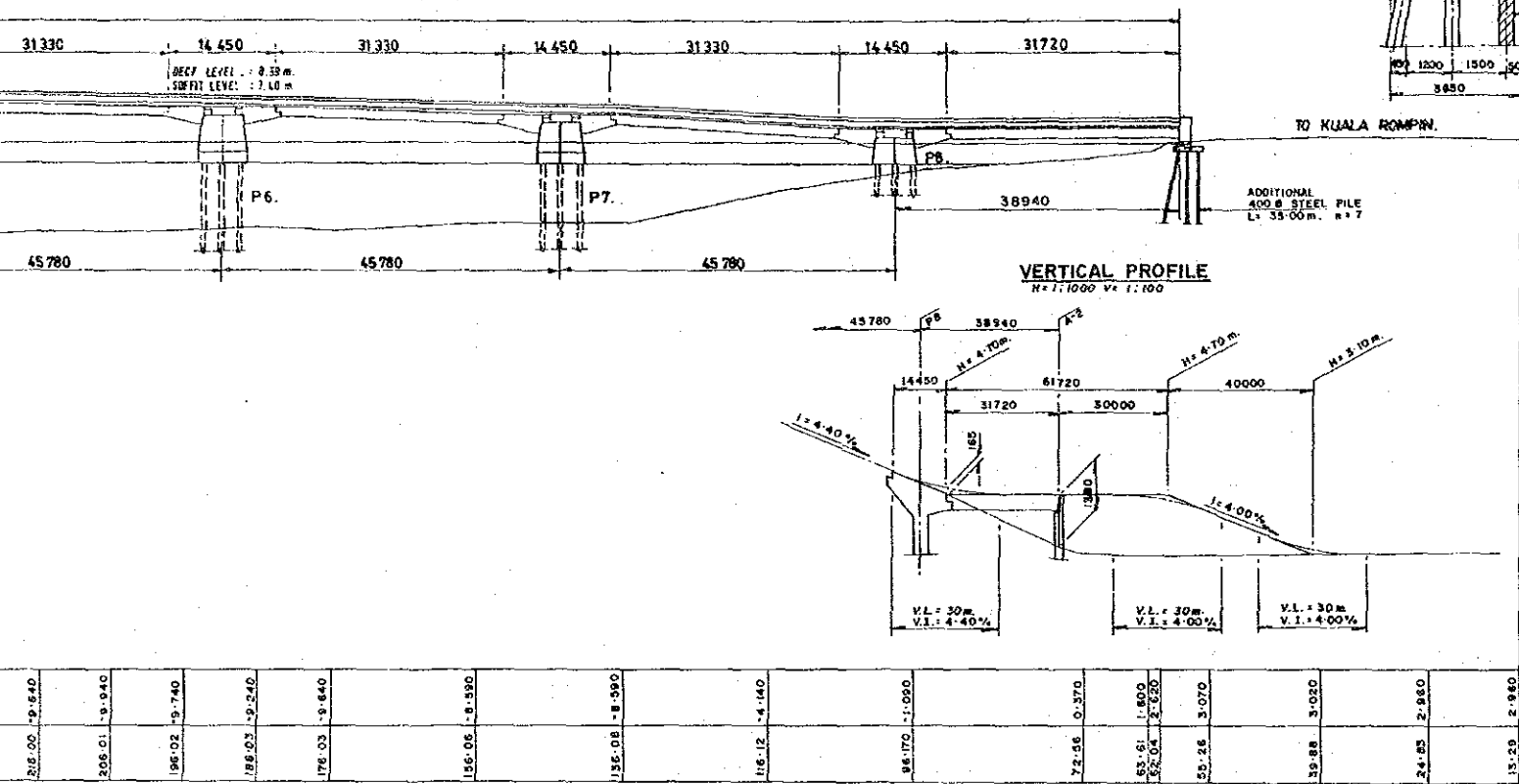


DATUM - 70 m.

REDUCED LEVEL IN METRE	DISTANCE IN METRE
479.17	3.170
456.21	2.800
456.80	0.550
451.37	0.080
430.84	0.640
415.84	3.640
405.84	5.880
385.84	4.780
387.95	4.580
375.85	4.520
369.85	5.080
345.85	4.040
335.85	4.780
315.95	5.180
305.97	5.280
285.97	6.880
275.98	8.840
255.99	10.940
245.99	10.940
235.99	10.740
216.00	9.640
206.01	9.940
186.02	9.740
166.03	9.240
176.05	9.840
156.06	8.580
136.08	8.590
116.12	4.140

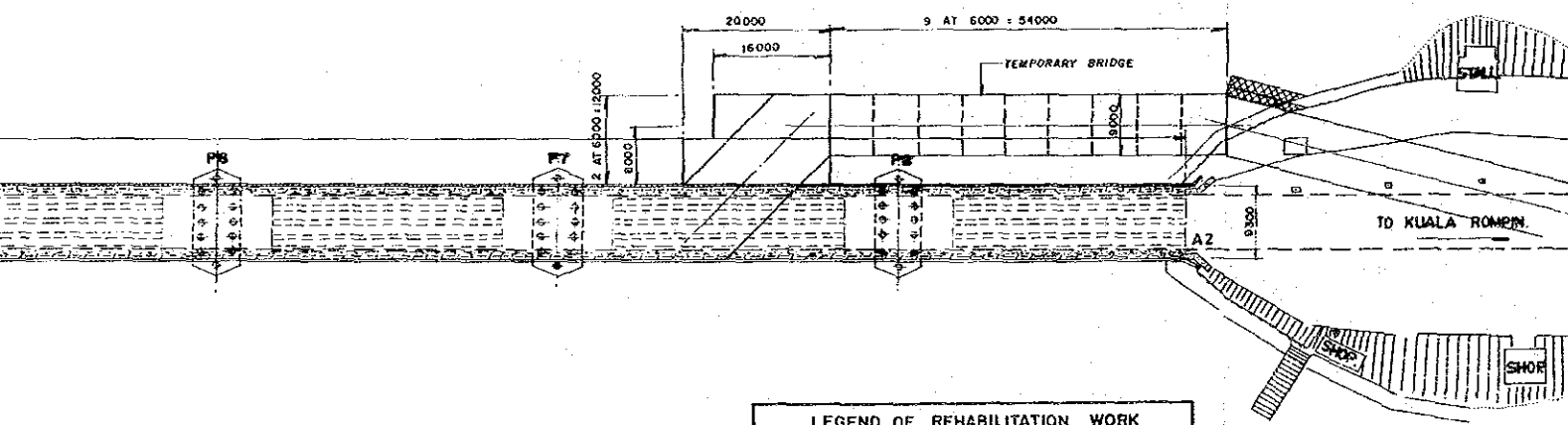
PLAN
1:5000





MAIN WORK ITEMS

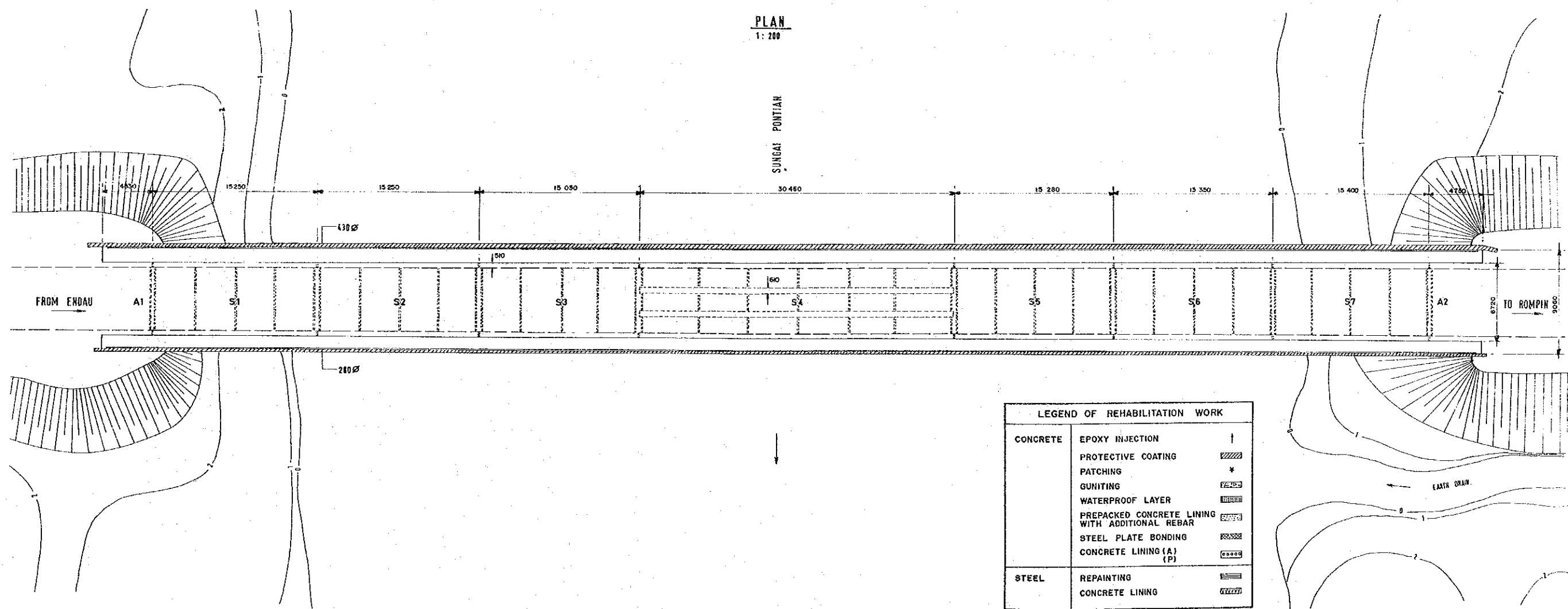
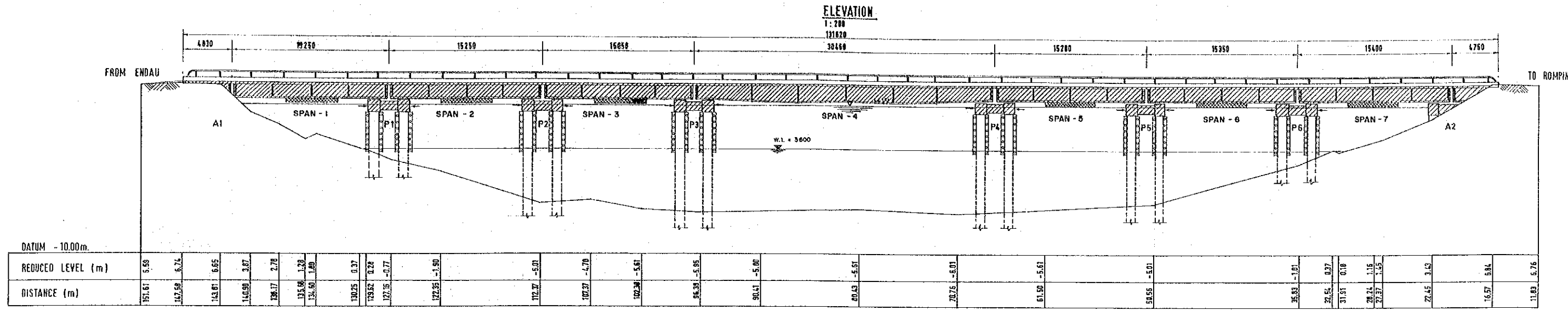
1. PROVISION, MAINTENANCE AND REMOVAL OF TEMPORARY BRIDGE. (REFER TO STD. DWG. MR-D-29, TYPE A)
2. DEMOLITION OF SUPERSTRUCTURE AT BOTH END SPANS.
3. UNDERPINNING BY ADDITIONAL PILES AND RAISING BRIDGE SEAT FOR BOTH ABUTMENTS.
4. CONSTRUCTION OF PCB WITH RC DECK SLAB AT BOTH END SPANS.
5. INSTALLATION AND REMOVAL OF HANGING SCAFFOLDING FOR PATCHING WORK. (REFER TO STD. DWG. MR-D-29, TYPE A)
6. PATCHING FOR ALL SPALLED CONCRETE MEMBERS. (REFER TO STD. DWG. MR-D-21)
7. REPLACEMENT OF EXPANSION JOINTS. (REFER TO STD. DWG. MR-D-27, TYPE B)
8. INSTALLATION OF FOOT PROTECTION FOR THE EXISTING CONCRETE WALL PROTECTION AT ENDAU SIDE. (REFER TO STD. DWG. MR-D-28, TYPE C)

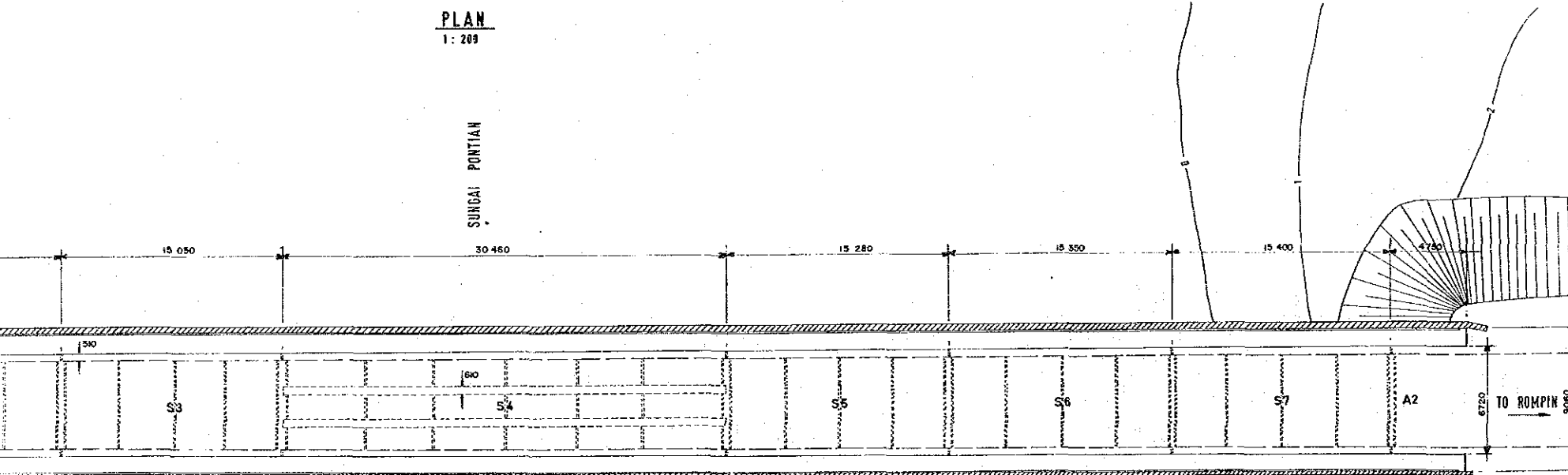
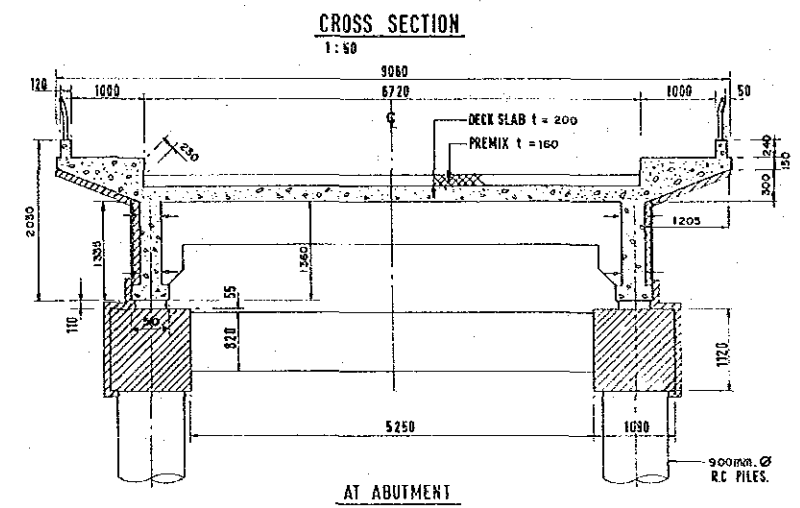
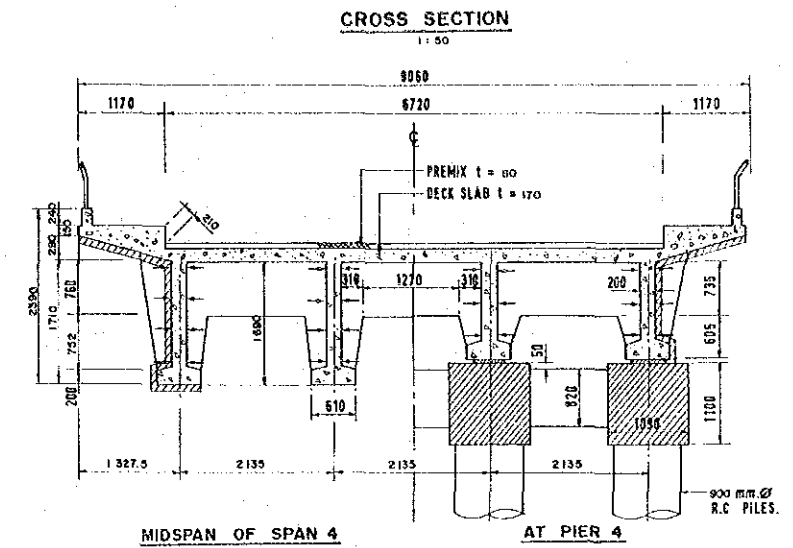
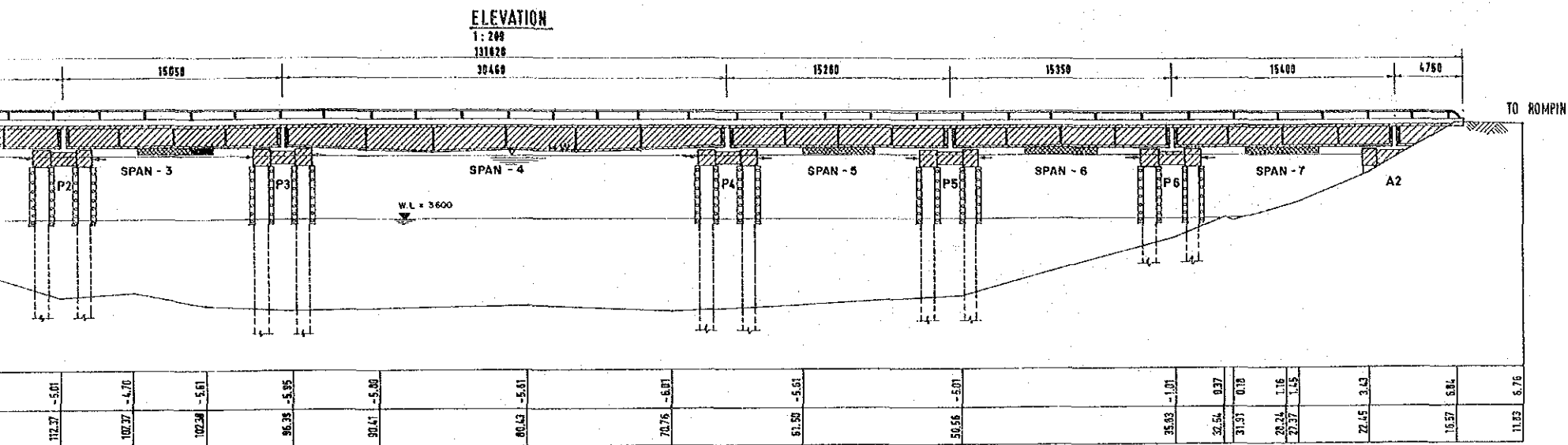


LEGEND OF REHABILITATION WORK		
CONCRETE	EPOXY INJECTION	↑
	PROTECTIVE COATING	▨
	PATCHING	*
	GUNITING	▧
	WATERPROOF LAYER	▩
	PREPACKED CONCRETE LINING WITH ADDITIONAL REBAR	▫
	STEEL PLATE BONDING	▬
STEEL	CONCRETE LINING (A)	▯
	CONCRETE LINING (P)	▰
	REPAINTING	▭



JICA	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA.			
	TITLE OF DRAWING	BRIDGE NAME / NO	SCALE	DRAWING NO.
	GENERAL VIEW	3/170/00	AS SHOWN	MR-D-5



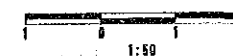
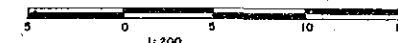


LEGEND OF REHABILITATION WORK

CONCRETE	EPOXY INJECTION	↑
	PROTECTIVE COATING	▨
	PATCHING	*
	GUNITING	▧
	WATERPROOF LAYER	▩
	PREPACKED CONCRETE LINING WITH ADDITIONAL REBAR	▫
	STEEL PLATE BONDING	▬
STEEL	CONCRETE LINING (A)	▧
	CONCRETE LINING (P)	▩
STEEL	REPAINTING	▬
	CONCRETE LINING	▩

MAIN WORK ITEMS

1. EPOXY RESIN CRACK INJECTIONS AT PILE CAPS AND BEAMS. (REFER TO STD. DWG. MR-D-21)
2. CONCRETE LINING OF ALL PIER COLUMNS. (REFER TO STD. DWG. MR-D-24, TYPE B)
3. STEEL PLATE BONDING AT BEAM SOFFITS AT ALL SPANS EXCEPT SPAN 4. (REFER TO STD. DWG. MR-D-23)
4. APPLICATION OF PROTECTIVE COATINGS TO ALL EXPOSED SURFACE OF SUPERSTRUCTURE AND PILE CAPS (REFER TO STD. DWG. MR-D-21)
5. EXTENSION OF DRAINAGE PIPES TO THE LEVEL BELOW THE SOFFIT OF THE BEAM. (REFER TO STD. DWG. MR-D-27)
6. PROVISION OF WATER DROP AT CANTILEVER SLAB. (REFER TO STD. DWG. MR-D-27)
7. REMOVAL OF VEGETATION.
8. REPLACEMENT OF EXPANSION JOINTS. (REFER TO STD. DWG. MR-D-27, TYPE B)
9. INSTALLATION AND REMOVAL OF SCAFFOLDING. (REFER TO STD. DWG. MR-D-29, TYPE A)



JICA	THE STUDY ON THE MAINTENANCE AND REHABILITATION OF BRIDGES IN MALAYSIA			
	TITLE OF DRAWING	BRIDGE NAME / NO.	SCALE	DRAWING NO.
	GENERAL VIEW	3/191/10	AS SHOWN	MR-D-6