

E. BRIDGE STRUCTURES

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SEC	NAME OF BRIDGE	STA. NO	TOTAL BRIDGE LENGTH (m)	SPAN ARRANGEMENT (m)	TYPE OF BRIDGE	SUPER - STRUCTURE					SUB-STRUCTURE				
						METAL BRIDGE		PRESTRESSED CONCRETE BRIDGE (REINFORCED CONCRETE BRIDGE)			CONCRETE (m ³)	REINFORCEMENT BAR (kg)	EXCAVATION (m ³)		
						STRUCTURAL STEEL (TON)	CONCRETE (m ³)	REINFORCEMENT BAR (kg)	CONCRETE (m ³)	HIGH TENSILE WIRE (kg)				REINFORCEMENT BAR (kg)	
I	BHOGATE	77+90.0 78+80.0	90.0	30.30.0	PCT	---	---	---	390	18 980	45 800	910	156 230	1 630	
	KAREKARE	82+05.0 82+55.0	50.0	20.25.0	PCT	---	---	---	210	7 260	24 540	610	81 090	1 950	
	RATU	125+28.0 127+00.0	175.0	70.25.0	PCT	---	---	---	730	25 420	85 880	940	115 590	1 230	
	SINDHUSE	282+10.0 282+70.0	60.0	20.30.0	PCT	---	---	---	260	12 650	30 530	380	47 670	1 410	
	KAMALA	289+60.0 291+25.0	165.0	45.0 1.75.0 +45.0	PC CONTINUOUS BOX GIRDER	---	---	---	1 430	123 600	157 200	2 280	270 450	4 150	
	PHITANG	323+65.0 324+25.0	60.0	20.30.0 6+60'	PCT	---	---	---	260	12 650	30 530	780	79 790	1 990	
	BUKA	344+40.0 345+00.0	60.0	20.30.0	PCT	---	---	---	260	12 760	30 690	300	23 280	550	
	GADEULI	352+60.0 353+20.0	60.0	20.30.0	PCT	---	---	---	260	12 650	30 530	450	55 200	1 000	
	SUB TOTAL						---	---	---	3 800	225 970	435 700	6 650	829 300	14 210
	II	GWANGU	79+55.0 80+25.0	70.0	20.35.0	SIG	98	170	42 600	---	---	---	300	24 080	400
SHURAH		81+90.0 82+50.0	60.0	20.30.0	SIG	78	150	36 500	---	---	---	400	43 760	650	
ARDLERI		80+140.0 80+160.0	120.0	40.30.0	SIG	156	300	75 000	---	---	---	1 050	108 130	1 450	
SUB TOTAL						332	620	154 100	---	---	---	1 750	175 970	2 500	

SEC	NAME OF BRIDGE	STA. NO	TOTAL BRIDGE LENGTH (m)	SPAN ARRANGEMENT (m)	TYPE OF BRIDGE	SUPER - STRUCTURE					SUB-STRUCTURE				
						METAL BRIDGE		PRESTRESSED CONCRETE BRIDGE (REINFORCED CONCRETE BRIDGE)			CONCRETE (m ³)	REINFORCEMENT BAR (kg)	EXCAVATION (m ³)		
						STRUCTURAL STEEL (TON)	CONCRETE (m ³)	REINFORCEMENT BAR (kg)	CONCRETE (m ³)	HIGH TENSILE WIRE (kg)				REINFORCEMENT BAR (kg)	
I	NIGALI	43+800 45+200	140.0	40.35.0	SIG	196	350	88 400	---	---	---	1 250	153 180	1 950	
	ARUBOTE	85+800 84+550	105.0	30.35.0	SIG	147	260	63 900	---	---	---	330	24 200	860	
	KIAHARE	105+95.0 107+45.0	50.0	20.25.0 6+70'	SIG	56	120	30 450	---	---	---	430	35 750	390	
	BHOTE	153+25.0 153+95.0	70.0	20.35.0	SIG	98	170	42 600	---	---	---	310	31 280	760	
	GANGATE	183+55.0 183+25.0	60.0	20.30.0	SIG	78	150	36 500	---	---	---	640	59 530	1 210	
	DHAMILE	195+75.0 202+05.0	40.0	40.0	SIG	66	100	24 350	---	---	---	600	47 700	1 430	
	SANDI	200+50.0 201+30.0	80.0	20.40.0	SIG	131	210	52 050	---	---	---	410	39 640	490	
	STA-240	209+30.0 201+5.0	85.0	60.0	RC-ARCH	---	---	---	1 170	---	212 100	600	38 600	3 970	
	SUB TOTAL						870	1 530	381 650	1 170	---	212 100	1 930	469 720	12 720
	II	GHYAMPE	12+200 14+95.0	275.0	70.39.0	PCT	---	---	---	1 320	68 250	158 470	1 690	438 390	5 700
MAMTI		41+80.0 43+00.0	120.0	40.30.0	PCT	---	---	---	470	24 850	56 660	450	48 700	950	
BHYAKURE		100+50.0 102+00.0	120.0	40.30.0	PCT	---	---	---	580	24 850	56 660	700	80 810	2 870	
DAUNE		35+85.0 36+35.0	50.0	43.0	RC-ARCH	---	---	---	510	---	94 400	770	51 200	6 870	
NARKE		59+50.0 60+20.0	70.0	43.0	RC-ARCH	---	---	---	720	---	130 400	510	34 200	4 590	
ROSI		213+15.0 213+90.0	75.0	75.0	STEEL-SIMPLE TRUSS	197	180	44 020	---	---	---	360	16 560	270	
SUB TOTAL						197	180	44 020	3 600	117 950	496 590	4 480	669 060	21 250	
TOTAL						1 399	2 330	579 770	8 570	343 920	1 144 390	17 810	2 144 850	50 680	

MEDIUM & MINOR BRIDGES (1)

SEC I

NO	STA. NO	TOTAL BRIDGE LENGTH (m)	SPAN ARRANGEMENT (m)	TYPE OF BRIDGE	PLANE FIGURE OF BRIDGE				STANDARD WIDTH				SIZE OF SUB-STRUCTURE (m)	SUPER-STRUCTURE												
					RIGHT OR CURVED BRIDGE	SKEW ANGLE	POLYGON OR CURVED GIRDER	BRIDGE WIDTH (EFFECTIVE WIDTH)	STANDARD WIDTH	WIDENING WIDTH	SHIFTING WIDTH	CURB		METAL BRIDGE			PRESTRESSED CONCRETE BRIDGE (REINFORCED CONCRETE BRIDGE)			SUB-STRUCTURE						
														HEIGHT OF ABUTMENT OR PIER	STRUCTURAL STEEL (tmt)	CONCRETE (m ³)	REINFORCEMENT BAR (kg)	CONCRETE (m ³)	HIGH TENSILE WIRE (kg)	REINFORCEMENT BAR (kg)	CONCRETE (m ³)	REINFORCEMENT BAR (kg)	EXCAVATION (m ³)			
1	82+90.0 83+10.0	20.0	20.0	PCT	RIGHT	90°		9.99 (9.00)	7.50+1.50				0.99	A-1 8.0 A-2 0.0				110	3 380	9 960	260	10 780	1 700			
2	172+40.0 172+65.0	25.0	25.0	PCT										A-1 8.0 A-2 8.0				130	4 230	12 450	260	26 120	1 700			
3	201+00.0 201+20.0	20.0	20.0	PCT										A-1 5.0 A-2 5.5				110	3 380	9 960	170	17 140	1 120			
4	211+90.0 211+05.0	15.0	15.0	RCT										A-1 6.5 A-2 6.0				80		10 100	210	8 560	740			
5	217+65.0 217+95.0	30.0	30.0	PCT		90° (RADIAL)								A-1 7.5 A-2 8.5				160	6 370	15 500	260	26 040	1 700			
6	239+00.0 239+25.0	25.0	25.0	PCT		90°								A-1 7.0 A-2 7.0				130	4 230	12 450	230	22 860	1 490			
7	242+25.0 242+40.0	15.0	15.0	RCT	CURVED (R)	90° (RADIAL)		10.09 (9.10)					0.10	A-1 7.5 A-2 7.5				80		10 200	260	10 270	890			
TOTAL																					800	21 590	80 620	1 650	129 770	9 340

MEDIUM & MINOR BRIDGES (2)

SECT-1

NO.	STA. NO.	TOTAL BRIDGE LENGTH (m)	SPAN SPACING (m)	TYPE OF BRIDGE	PLANE FIGURE OF BRIDGE			STANDARD WIDTH				SIZE OF SUB-STRUCTURE (m)	SUPER-STRUCTURE					SUB-STRUCTURE			
					RIGHT OR CURVED BRIDGE	SKEW ANGLE	POLYGON OR CURVED GIRDER	BRIDGE WIDTH (EFFECTIVE WIDTH)	STANDARD WIDTH	WIDENING WIDTH	SHIFTING WIDTH		CURB	HEIGHT OF ABUTMENT OR PIER	METAL BRIDGE		PRESTRESSED CONCRETE BRIDGE (REINFORCED CONCRETE BRIDGE)			CONCRETE	REINFORCEMENT BAR
													STRUCTURAL STEEL (ton)	CONCRETE (m ³)	REINFORCEMENT BAR (kg)	CONCRETE (m ³)	HIGH TENSILE WIRE (kg)	REINFORCEMENT BAR (kg)	CONCRETE (m ³)	REINFORCEMENT BAR (kg)	EXCAVATION (m ³)
1	22+45.0 22+60.0	15.0	15.0	RCT	RIGHT	90°	7.50 (6.50)	6.50			1.00	A-1 7.0 A-2 7.0				60		7 260	200	8 840	670
2	26+95.0 27+10.0	15.0	15.0	RCT								A-1 7.0 A-2 7.0				60		7 260	200	8 840	670
3	41+10.0 44+25.0	15.0	15.0	RCT	CURVED (R)	90° (RADIAL)	7.60 (6.60)		0.10			A-1 7.0 A-2 7.0				60		7 360	200	8 960	680
4	59+00.0 59+20.0	20.0	20.0	SH	RIGHT	90°	7.50 (6.50)					A-1 7.0 A-2 9.0	22	40	10 820				200	8 080	1 110
5	66+20.0 68+35.0	15.0	15.0	RCT	CURVED (R)		10.00 (9.00)		1.50	1.00		A-1 5.5 A-2 5.0				80		9 680	200	8 840	670
6	75+00.0 75+65.0	15.0	15.0	RCT								A-1 6.5 A-2 6.5				80		9 680	210	9 260	700
7	90+00.0 90+35.0	35.0	35.0	SIG		90° CURVED (RADIAL GIRDER)	9.50 (6.50)		2.00			A-1 8.5 A-2 9.0	57	90	22 400				260	24 300	1 690
8	119+30.0 119+20.0	30.0	30.0	SIG			10.50 (9.50)		3.00			A-1 9.0 A-2 9.5	45	80	21 200				310	28 720	2 000
9	141+00.0 141+90.0	30.0	30.0	SIG			9.00 (8.00)		1.50			A-1 7.5 A-2 10.0	45	80	19 420				260	23 290	1 650
10	257+20.0 258+05.0	35.0	35.0	SIG			10.60 (9.60)		2.00	1.10		A-1 12.5 A-2 7.0	57	100	25 000				330	31 220	2 170
11	260+15.0 260+35.0	20.0	20.0	SH			16.50 (15.50)		2.50	6.50		A-1 9.6 A-2 9.6	48	90	22 350				510	20 290	2 500
12	266+75.0 270+00.0	25.0	25.0	SIG	R.C.		13.90 (12.90)		4.00	2.40		A-1 13.0 A-2 13.0	39	100	24 450				670	51 040	3 550
13	290+50.0 290+90.0	40.0	40.0	SIG	RIGHT		7.50 (6.50)					A-1 9.0 A-2 9.0	53	90	21 750				220	21 790	1 600
14	296+35.0 296+65.0	30.0	30.0	SIG	CURVED (RIGHT)		9.00 (8.00)		1.00	0.50		A-1 11.0 A-2 9.5	45	80	19 420				300	31 830	1 940
15	346+25.0 346+60.0	35.0	35.0	SIG	CRC		9.80 (8.80)		2.30			A-1 10.6 A-2 12.0	57	90	23 100				350	33 270	2 310
16	376+90.0 377+05.0	15.0	15.0	SH	CURVED	CURVED GIRDER (R=160')	7.50 (6.50)					A-1 6.0 A-2 5.5	14	30	8 120				150	5 830	800
17	387+00.0 387+20.0	20.0	20.0	SH		(R=60')	8.50 (7.50)		1.00			A-1 7.0 A-2 8.5	32	60	15 300				290	11 510	1 470
18	300+00.0 300+95.0	35.0	35.0	SIG	RIGHT	90°	7.50 (6.50)					A-1 8.0 A-2 6.5	40	80	19 020				180	17 220	1 290
19	405+70.0 405+95.0	25.0	25.0	SIG	CURVED	90° (RADIAL)	7.50 (6.50)					A-1 9.5 A-2 5.0	22	50	13 600				180	16 510	1 290
20	408+00.0 408+40.0	40.0	40.0	SIG		CURVED GIRDER (R=160')	7.50 (6.50)					A-1 10.5 A-2 7.5	53	90	21 750				220	21 790	1 600
TOTAL												629	1 150	287 700	340		41 240	5 330	391 510	30 360	

HIS MAJESTY'S GOVERNMENT OF NEPAL
 NATIONAL ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 MEDIUM & MINOR BRIDGES (2)
 JAPAN INTERNATIONAL COOPERATION AGENCY

MEDIUM & MINOR BRIDGES (3)

SEC II-2

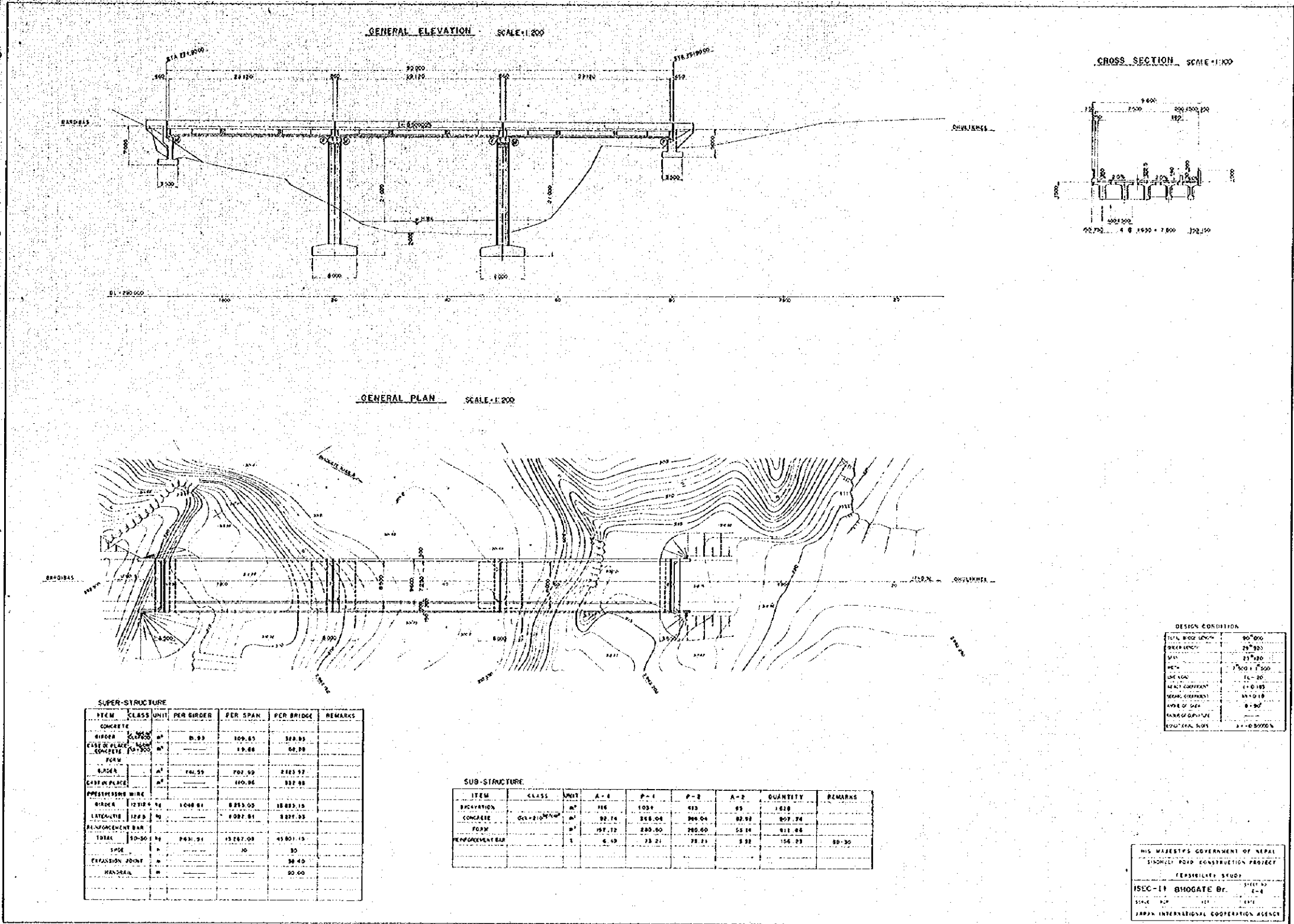
NO	STA. NO	TOTAL BRIDGE LENGTH (m)	SPAN ARRANGEMENT (m)	TYPE OF BRIDGE	PLANE FIGURE OF BRIDGE		POLYGON OR CURVED GIRDER	BRIDGE WIDTH (EFFECTIVE WIDTH)	STANDARD WIDTH				SIZE OF SUB-STRUCTURE (m)	SUPER-STRUCTURE						SUB-STRUCTURE		
					RIGHT OR CURVED BRIDGE	SKEW ANGLE			STANDARD WIDTH	WIDENING WIDTH	SHIFTING WIDTH	CURB		METAL BRIDGE			PRESTRESSED CONCRETE BRIDGE (REINFORCED CONCRETE BRIDGE)			CONCRETE (m ³)	REINFORCEMENT BAR (kg)	EXCAVATION (m ³)
														HEIGHT OF ABUTMENT OR PIER	STRUCTURAL STEEL (ton)	CONCRETE (m ³)	REINFORCEMENT BAR (kg)	CONCRETE (m ³)	HIGH TENSILE WIRE (kg)			
1	34750 41150	40.0	40.0	S10	RIGHT	90°	---	9.25 (10.75)	6.50	0.25	2.00	1.00	A-1 8.0 A-2 7.5	74	100	24 900	---	---	---	230	22 100	1 500
2	141250 141650	30.0	30.0	S10	*	*	---	7.50 (6.50)	*	---	---	*	A-1 5.0 A-2 6.0	31	70	16 320	---	---	---	140	12 790	980
3	161050 161250	20.0	20.0	S11	CURVED	90° (RADIAL)	---	7.70 (6.70)	*	---	0.20	*	A-1 5.5 A-2 5.0	22	40	11 120	---	---	---	110	5 440	750
4	221800 231000	20.0	20.0	S11	*	*	---	8.40 (7.40)	*	0.50	0.40	*	A-1 7.5 A-2 7.0	32	50	11 350	---	---	---	200	7 990	1 020
5	281450 281650	20.0	20.0	S11	*	*	---	12.00 (11.00)	*	3.00	1.50	*	A-1 9.6 A-2 11.5	40	60	16 250	---	---	---	410	16 280	2 010
6	1881300 1881500	20.0	20.0	S11	*	*	---	8.50 (7.50)	*	1.00	---	*	A-1 10.0 A-2 11.0	32	50	11 480	---	---	---	290	11 720	1 500
7	1011450 1011600	15.0	15.0	S11	RIGHT	90°	---	7.50 (6.50)	*	---	---	*	A-1 9.5 A-2 13.0	14	30	6 120	---	---	---	280	11 400	1 560
8	1921600 1921800	20.0	20.0	S11	*	*	---	7.50 (6.50)	*	---	---	*	A-1 8.0 A-2 8.0	22	40	10 820	---	---	---	200	8 090	1 110
9	2671200 2671350	15.0	15.0	S11	CURVED (R)	90° (RADIAL)	---	7.75 (6.75)	*	0.25	---	*	A-1 10.5 A-2 10.5	14	30	8 400	---	---	---	270	10 990	1 500
10	2001550 2001750	20.0	20.0	S11	*	90°	---	9.50 (8.50)	*	1.00	1.00	*	A-1 12.5 A-2 12.5	32	50	12 820	---	---	---	390	15 600	2 000
11	2701060 2701250	20.0	20.0	S11	*	90° (RADIAL)	---	7.50 (6.50)	*	---	---	*	A-1 12.5 A-2 12.5	22	40	10 820	---	---	---	320	12 620	1 730
12	2731060 2731200	15.0	15.0	S11	*	90°	---	8.90 (7.90)	*	1.00	0.40	*	A-1 10.0 A-2 10.0	19	40	9 000	---	---	---	300	11 820	1 500
13	2741300 2741550	25.0	25.0	S10	*	*	---	10.00 (9.00)	*	1.25	---	*	A-1 10.0 A-2 10.0	32	70	16 820	---	---	---	320	28 940	2 100
14	2771950 2781250	30.0	30.0	S10	RIGHT	*	---	7.50 (6.50)	*	---	---	*	A-1 10.0 A-2 10.0	31	70	16 320	---	---	---	250	23 260	1 780
TOTAL													417	740	184 540	---	---	---	3 740	199 030	21 040	

HIS MAJESTY'S GOVERNMENT OF NEPAL
 BUNDEL ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 MEDIUM & MINOR BRIDGES (3)
 SHEET NO. 1
 SCALE 1:500
 JAPAN INTERNATIONAL COOPERATION AGENCY

MEDIUM & MINOR BRIDGES (4)

SEC II-3

NO	STA. NO	TOTAL BRIDGE LENGTH (m)	SPAN ARRANGEMENT (m)	TYPE OF BRIDGE	PLANE FIGURE OF BRIDGE			STANDARD WIDTH (m)				SIZE OF SUB-STRUCTURE (m)	SUPER-STRUCTURE					SUB-STRUCTURE				
					RIGHT OR CURVED BRIDGE	SKEW ANGLE	POLYGON OR CURVED GIRDER	BRIDGE WIDTH (EFFECTIVE WIDTH)	STANDARD WIDTH	WIDENING WIDTH	SHIFTING WIDTH		CURB	METAL BRIDGE		PRESTRESSED CONCRETE BRIDGE (REINFORCED CONCRETE BRIDGE)			CONCRETE (m³)	REINFORCEMENT BAR (kg)	EXCAVATION (m³)	
														HEIGHT OF ABUTMENT OR PIER	STRUCTURAL STEEL (ton)	CONCRETE (m³)	REINFORCEMENT BAR (kg)	CONCRETE (m³)				HIGH TENSILE WIRE (kg)
1	31110.0 31135.0	25.0	25.0	SIG	RIGHT	90° (RADIAL)		7.75 (6.75)	6.50	0.25		1.00	A-1 7.5 A-2 7.6	22	60	14 050				200	17 650	1 380
2	105110.0 105150.0	40.0	2*20.0	SIG	CURVED		CURVED GIRDER	8.00 (7.00)		0.50			A-1 8.0 P-1 7.0 A-2 7.0	45	90	23 180				280	25 550	1 630
3	115180.0 116125.0	45.0	45.0	SIG	C. R (RIGHT)	90°		8.60 (7.60)		0.10	1.00		A-1 7.0 A-2 8.5	92	100	26 080				210	20 900	1 400
4	116175.0 117120.0	45.0	45.0	SIG	RIGHT			7.80 (6.50)					A-1 7.0 A-2 8.6	66	100	24 450				190	19 120	1 380
5	127175.0 127190.0	15.0	15.0	SIH				7.50 (6.50)					A-1 8.5 A-2 9.0	14	30	8 120				220	8 860	1 210
6	155105.0 155125.0	20.0	20.0	SIH	CURVED	90° (RADIAL)		7.75 (6.75)		0.25			A-1 6.5 A-2 8.0	22	40	11 180				190	7 580	1 040
7	162115.0 162130.0	15.0	15.0	SIH	RIGHT	80°		7.60 (6.50)					A-1 11.0 A-2 9.0	14	30	8 120				250	10 130	1 390
8	192120.0 192145.0	25.0	25.0	SIG	R. C (RIGHT)			7.50 (6.50)					A-1 8.0 A-2 6.0	22	50	13 600				180	15 940	1 240
9	205155.0 207105.0	10.0	10.0	RC-SLAB	CURVED (RIGHT)			7.60 (6.60)			0.10		A-1 9.0 A-2 8.5				80		19 000	260	6 460	920
10	219135.0 219165.0	30.0	30.0	SIG	R. C (RIGHT)			9.60 (8.60)		0.60	1.50		A-1 5.0 A-2 15.0	57	80	19 400				310	28 370	2 010
11	271185.0 275105.0	20.0	20.0	SIH				7.50 (6.50)					A-1 8.0 A-2 8.0	22	40	10 820				200	8 080	1 110
12	285155.0 285175.0	20.0	20.0	SIH	RIGHT			7.50 (6.50)					A-1 8.0 A-2 8.0	22	40	10 820				200	8 080	1 110
13	319150.0 319170.0	20.0	20.0	SIH				10.40 (9.40)		1.25	1.65		A-1 9.5 A-2 10.0	32	60	14 050				330	13 310	1 700
14	430165.0 431100.0	45.0	45.0	SIG	CURVED (RIGHT)			14.70 (13.70)		1.00	6.20		A-1 12.0 A-2 9.0	138	190	46 550				470	47 260	1 520
15	437165.0 438100.0	35.0	35.0	SIG				9.95 (8.95)		0.26	2.20		A-1 12.5 A-2 10.0	57	90	23 450				360	33 800	2 350
16	441100.0 44120.0	20.0	20.0	SIH				9.80 (8.80)		1.00	1.30		A-1 10.0 A-2 10.5	32	50	13 220				330	13 190	1 690
17	447100.0 448125.0	45.0	45.0	SIG				13.25 (12.25)		0.75	5.00		A-1 11.0 A-2 10.5	138	170	41 980				440	43 500	2 800
18	460125.0 460145.0	20.0	20.0	SIH				8.90 (7.90)		0.50	0.90		A-1 12.0 A-2 11.5	32	50	12 020				340	13 720	1 760
19	470125.0 470160.0	35.0	35.0	SIG				9.35 (8.35)		0.25	1.60		A-1 11.0 A-2 10.0	57	90	22 050				310	29 630	2 060
TOTAL													864	1 360	343 140	80		19 000	5 270	371 260	29 700	



SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
CONCRETE						
GIRDER	C-20/25	m ³	8.93	109.65	328.83	
CAST IN PLACE	CONCRETE	m ³		19.86	62.88	
FORM		m ²	182.55	707.50	2183.57	
CAST IN PLACE	CONCRETE	m ³		110.96	332.88	
PRESTRESSING WIRE						
GIRDER	12/12	kg	1048.81	8253.05	18883.13	
LATCHETTE	12/3	m		1087.81	3327.23	
REINFORCEMENT BAR						
TOTAL	10-30	kg	943.51	18287.08	43801.13	
SPOE		m		30	30	
EXPANSION JOINT		m			38.40	
HANDRAIL		m			80.00	

SUB-STRUCTURE

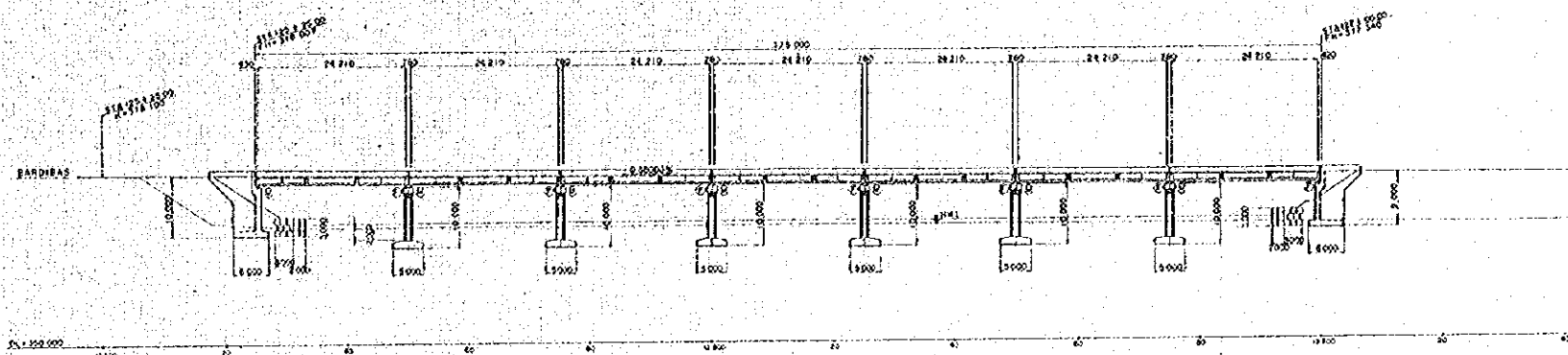
ITEM	CLASS	UNIT	A-1	P-1	P-2	A-2	QUANTITY	REMARKS
EXCAVATION		m ³	116	1034	813	93	1828	
CONCRETE	C-20/25	m ³	32.14	318.04	306.04	82.97	807.39	
FORM		m ²	157.12	230.00	782.00	58.14	1127.26	
REINFORCEMENT BAR		kg	6.43	73.21	78.21	9.92	156.77	80-30

DESIGN CONDITION

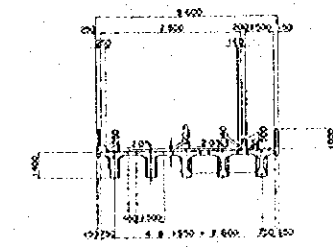
TOTAL ROAD WIDTH	30.00m
DECK LENGTH	107.00m
SPAN	27.71m
DECK TYPE	7.50m x 7.50m
DECK SLAB	15-20
SEAL COEFFICIENT	1.0-1.5
SEAL COEFFICIENT	1.0-1.5
TYPE OF DECK	8-90
HANDRAIL TYPE	
EXPANSION JOINT	1.0-1.5

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SIMULI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 ISIC-11 BIHOGATE Br. SHEET NO. 2-4
 SCALE 1:200
 JAPAN INTERNATIONAL COOPERATION AGENCY

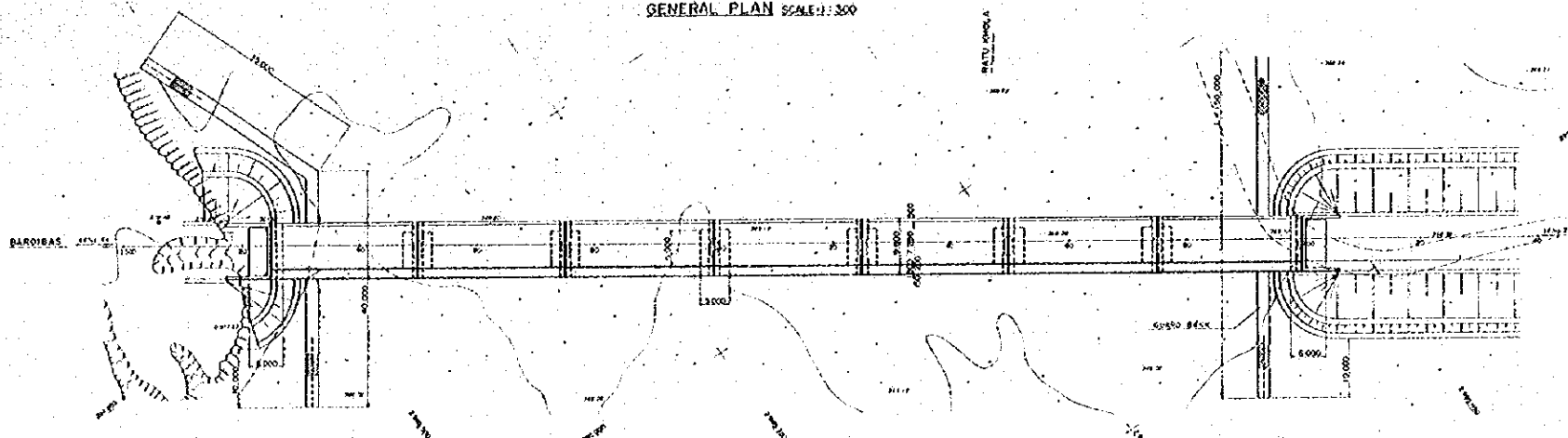
GENERAL ELEVATION SCALE: 1:300



CROSS SECTION SCALE: 1:100



GENERAL PLAN SCALE: 1:300



DESIGN CONDITIONS

TOTAL BRIDGE LENGTH	115.700
SPAN LENGTH	24.210
SPAN	24.210
SPAN	1.500 x 7.500
WIND LOAD	11.20
SEISMIC COEFFICIENT	1.0 208
SEISMIC COEFFICIENT	0.5 18
ANGLE OF DECK	0 - 90°
GRADE OF APPROACH	
LOAD AREA, SOLE	4.4 - 0.55000%

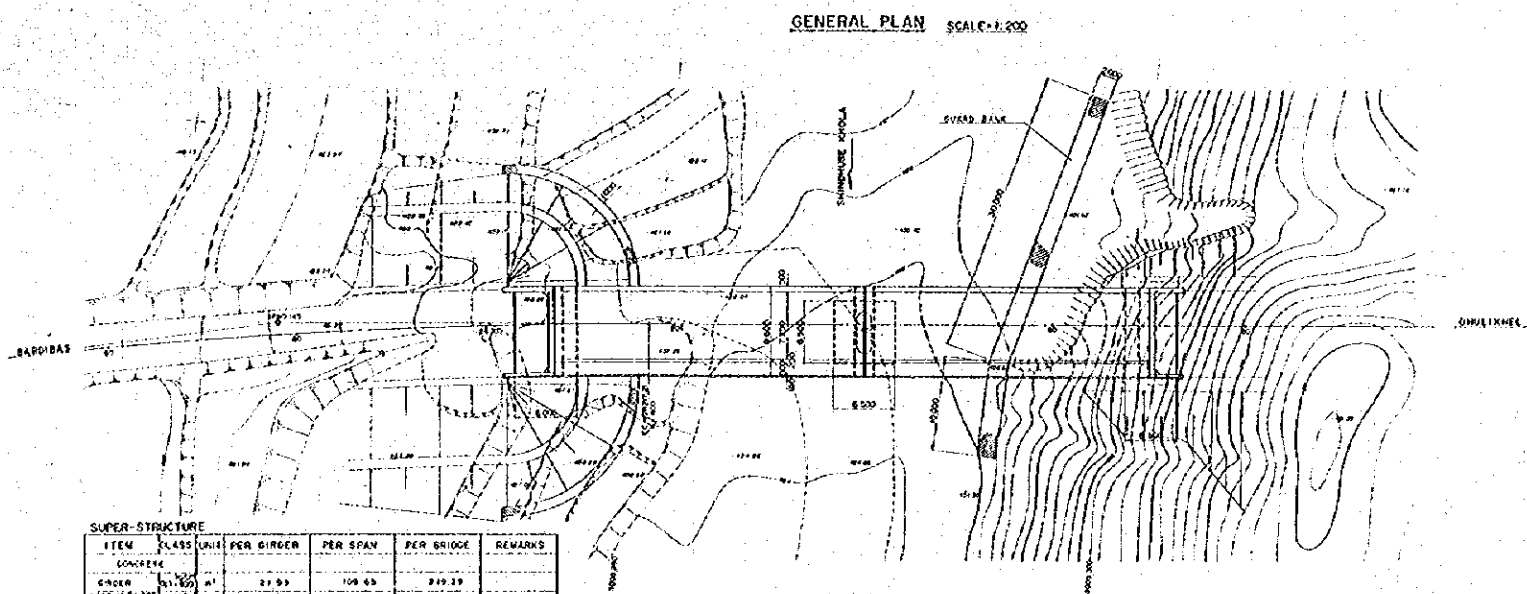
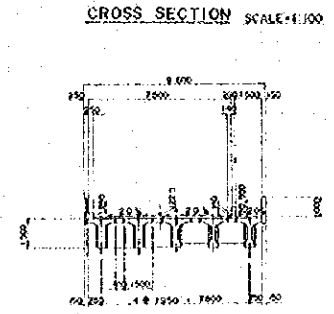
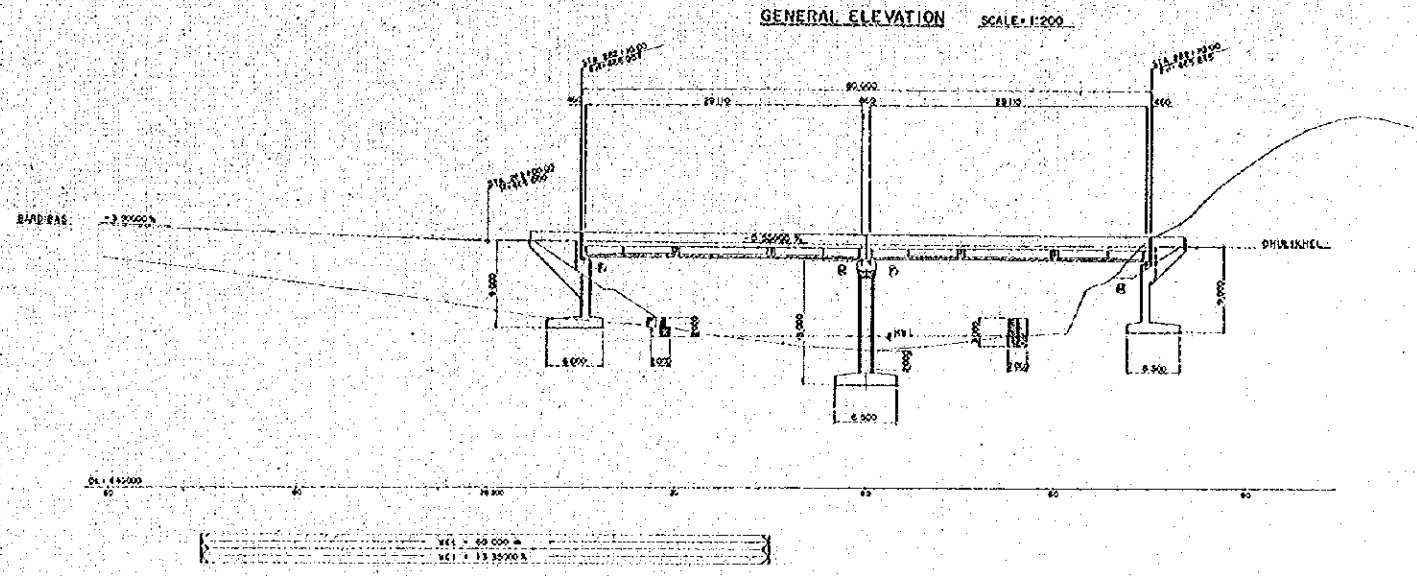
SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER ORDER	PER SPAN	PER BRIDGE	REMARKS
CONCRETE		m ³	11.50	87.31	618.37	
FORM		m ²	16.48	118.36		
BRICK		m ³	113.86	568.43	3,926.87	
CAST-IN-PLACE CONCRETE		m ³	97.00	679.00		
PRESTRESSING WIRE		kg	512.50	2,711.43	18,530.36	
GRIDER		m	124.7	870.53	6,413.41	
LATERAL BRACE		m	2,100.33	12,268.09	85,874.63	
SHOE		m	10	70		
EXPANSION JOINT		m		76.80		
HANDRAIL		m		183.00		

SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	P-2	P-3	P-4	P-5	P-6	A-2	QUANTITY	REMARKS
EXCAVATION		m ³	218	152	159	159	159	159	159	94	1,130	
CONCRETE		m ³	810.52	81.80	81.80	81.80	81.80	81.80	81.80	181.33	844.83	
FORM		m ²	411.11	124.84	124.84	124.84	124.84	124.84	124.84	221.15	1,563.50	
REINFORCEMENT BAR		kg	22.08	12.31	12.31	12.31	12.31	12.31	12.31	19.65	115.39	50 - 30
GRASS BANK		m ²	450							800	1,350	

HIS MAJESTY'S GOVERNMENT OF NEPAL
 ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 ISEC - 11 RATU B.
 DRAWING NO. 101
 SHEET NO. 101
 JAPAN INTERNATIONAL COOPERATION AGENCY



DESIGN CONDITION

WATER LEVEL	87.000
SPUR LEG	29.910
SPAN	28.110
W.C.	P200 x P200
LANE WIDTH	1L - 20
WEAR SURFACE	14.0.185
ROAD DEPTH	14.0.18
WIND OF SPAN	0.457
WIND DEPTH	0.457
WIND AREA	1.1-0.55000

SUPER-STRUCTURE

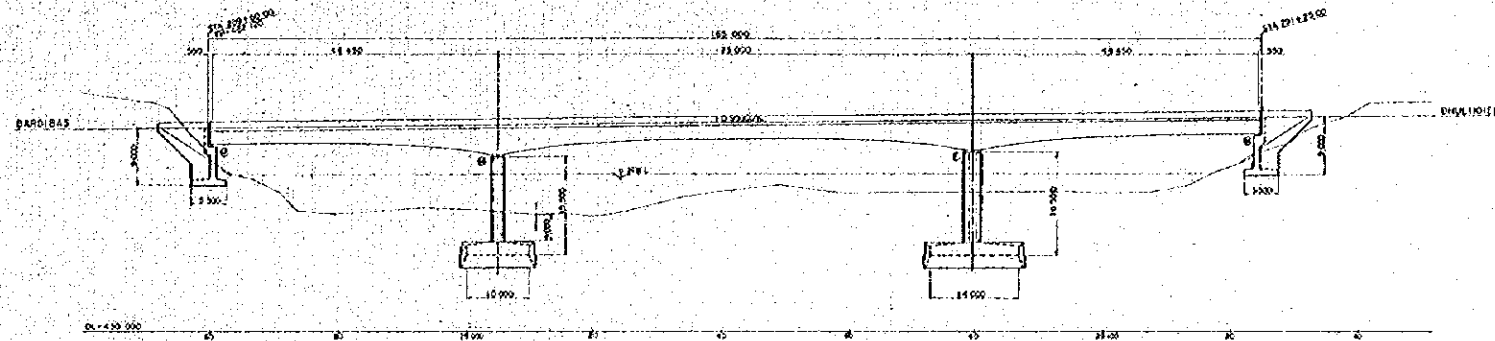
ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
CONCRETE						
GIRDER	100	m ³	27.93	108.63	240.33	
CAST IN PLACE CONCRETE	100	m ³		19.66	31.92	
FORM						
GIRDER		m ²	147.85	207.93	1415.93	
CAST IN PLACE		m ²		810.86	221.92	
PRESTRESSING WIRE						
GIRDER	21074	kg	1046.81	3233.05	10466.11	
LABORATIVE	1245	kg		1022.51	2183.01	
REINFORCEMENT BAR						
TOTAL	10-30	kg	2487.31	15287.65	30534.10	
SHOE				10	20	
EXPANSION JOINT					18.80	
MANORAL					60.00	

SUB-STRUCTURE

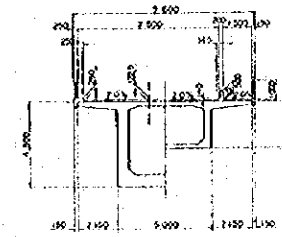
ITEM	CLASS	UNIT	A-1	P-1	A-2	QUANTITY	REMARKS
EXCAVATION		m ³	46	832	3109	1407	
CONCRETE	0.1-210 10/LM	m ³	181.27	138.34	115.50	319.84	
FORM		m ²	829.65	116.50	232.81	619.02	
REINFORCEMENT BAR		kg	66.43	21.85	12.81	19.87	SD-30
GUARD BANK		m ²			240	240	

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHU RIVER CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 (SEC-II SHINDHU BR.)
 SCALE: 1:100
 2007 INTERNATIONAL COOPERATION AGENCY

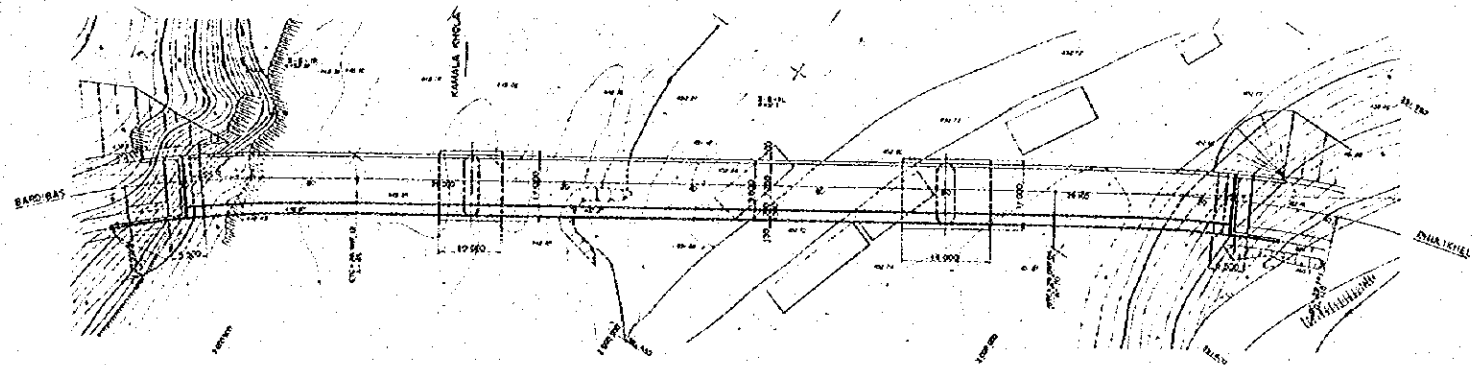
GENERAL ELEVATION SCALE: 1:300



CROSS SECTION SCALE: 1:100



GENERAL PLAN SCALE: 1:300



DESIGN CONDITIONS

SEA LEVEL	1437.000
DECK LEVEL	1447.200
SPAN	18.000 + 19.800 (37.800)
PIER	1.500 x 1.500
LINE LOAD	EL - 20
WIND DIFFERENTIAL	1.0 (1.0)
SEAM DIFFERENTIAL	35.0 (1.0)
WIND OF DECK	0.0 (0.0)
WIND OF DECK	0.0 (0.0)
WIND OF DECK	0.0 (0.0)

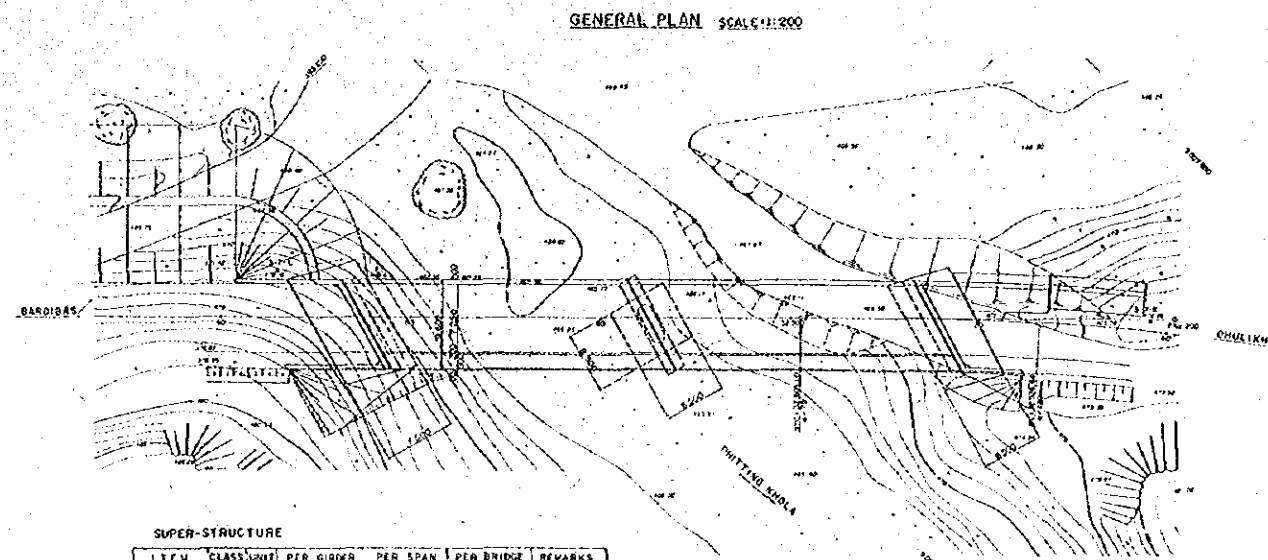
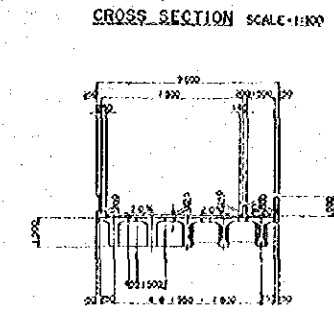
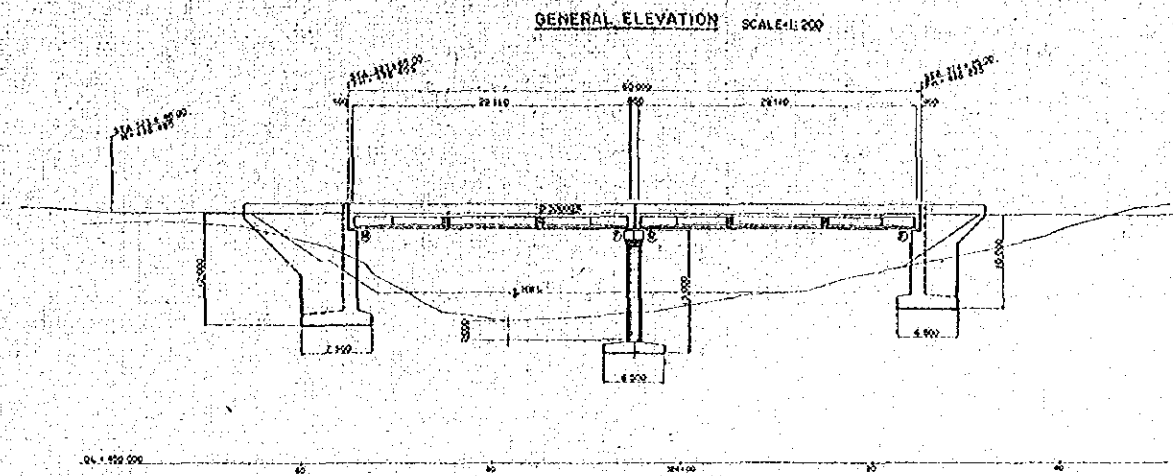
SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
CONCRETE						
WALKER	23-200	sq			1285.00	
CAST IN PLACE		sq			185.5	
FORM		sq			4.680.00	
WALKER		sq			185.5	
CAST IN PLACE		sq			185.5	
PRECASTING WIRE						
WALKER	8-32	sq			108.7	
WALKER	8-26	sq			18.8	
REINFORCEMENT BAR						
TOTAL	90-30	sq			387.200.00	
SHOE					8	
EXPANSION JOINT					19.2	
HANDRAIL					163.0	

SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	P-2	P-2	QUANTITY	REMARKS
FOUNDATION		sq	826	1.404	2.818	3.11	4.133	
CONCRETE	04-210	sq	119.42	821.18	1.811.39	1.79.42	8.779.21	
FORM		sq	351.85	812.19	712.43	328.85	2.125.32	
REINFORCEMENT BAR			87.45	145.62	18.84		270.45	90-30

HIS MAJESTY'S GOVERNMENT OF NEPAL
 FEDERAL ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SEC-IPKAMALA B.
 TOTAL B.P. 1111
 JAPAN INTERNATIONAL COOPERATION AGENCY



SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
CONCRETE		m ³	21.93	109.65	219.23	
GIRDER		m	1.07	5.35	10.70	
CAST-IN-PLACE CONCRETE MASSIVE FORM		m ³	1.07	5.35	10.70	
PRESTRESSING WIRE		kg	1046.51	5232.55	10465.10	
LATERAL B.C. 2# 5		kg	1046.51	5232.55	10465.10	
REINFORCEMENT BAR		kg	1046.51	5232.55	10465.10	
TOTAL			21.93	109.65	219.23	
PILE		m		0	0	
EXPANSION JOINT		m		0	0	
RAVINE		m		0	0	

SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	A-2	QUANTITY	REMARKS
EXCAVATION		m ³	110	310	572	992	
CONCRETE		m ³	808.82	148.86	218.35	1176.03	
FORM		m ²	634.66	177.83	304.16	1116.65	
REINFORCEMENT BAR		kg	32.24	22.83	24.63	79.70	10-20

DESIGN CONDITION

DESIGN SPEED	40 KM/H
DESIGN WIND	25 M/S
DESIGN SNOW	25 CM
DESIGN SEISMICITY	0.500 (Z=0)
LIVE LOAD	TL-70
MINIMUM CLEARANCE	4.0 M
DESIGN TEMPERATURE	10°C
DESIGN WIND SPEED	40 KM/H
DESIGN SNOW LOAD	25 CM

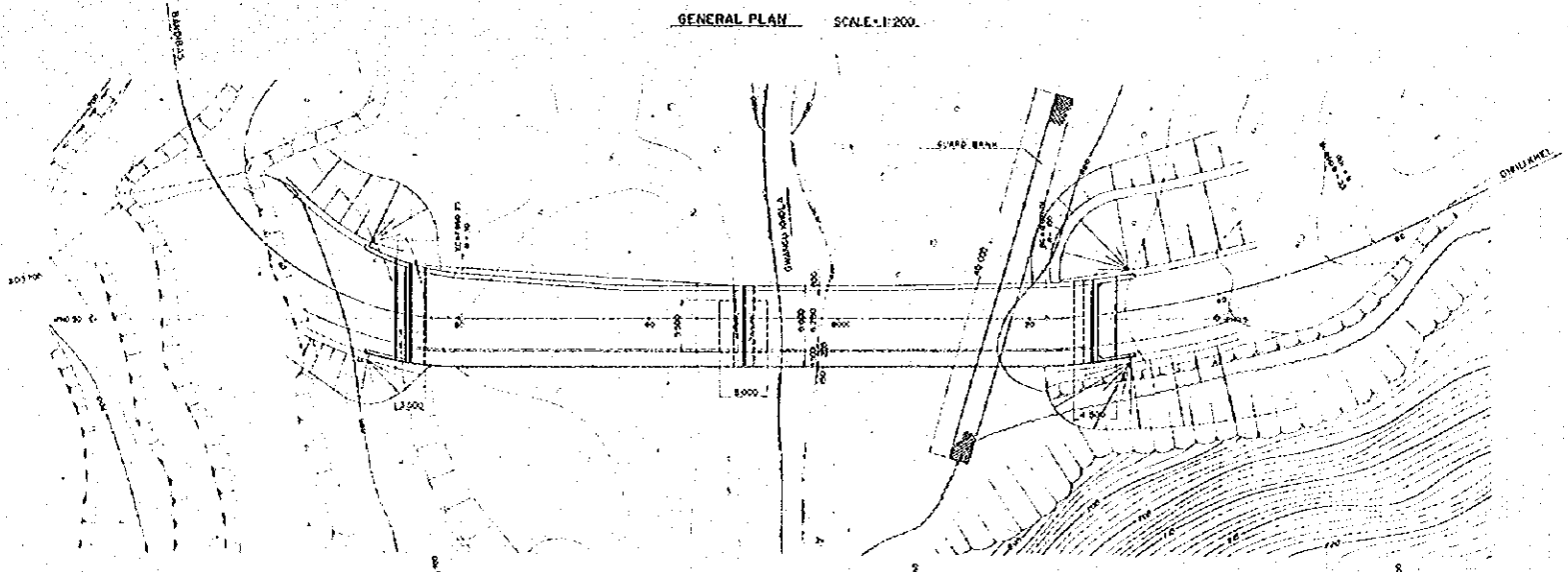
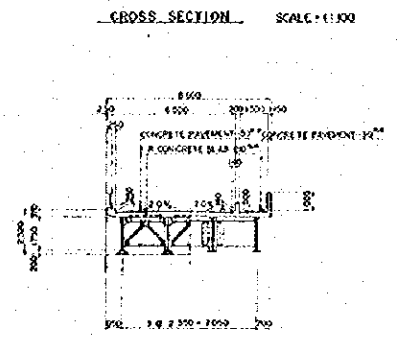
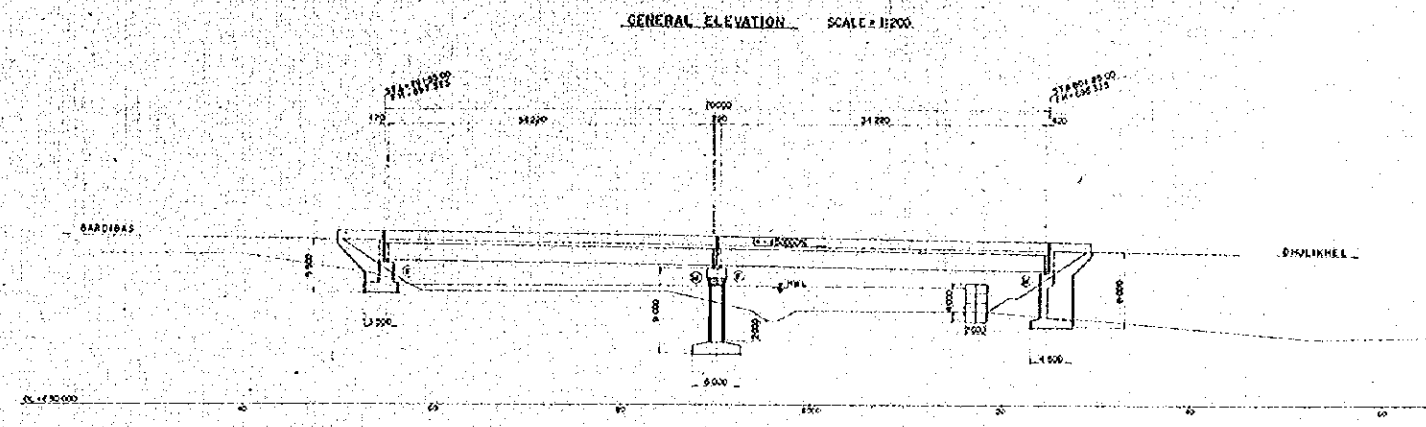
THE NEPAL GOVERNMENT OF NEPAL
SINGLE ROAD CONSTRUCTION PROJECT

FEASIBILITY STUDY

(SEC-II PHITANG B.) SHEET NO. E-11

SCALE: 1:1000

JAPAN INTERNATIONAL COOPERATION AGENCY



DESIGN CONDITION

PLAN AREA	10'000
PIER LENGTH	34'200
SPAN	34'200
PIER	8'500 x 8'500
LINE LOG	14-20
WIND VELOCITY	140.237
SEISMIC COEFFICIENT	10.018
WIND OF DEER	8.907
WIND VELOCITY	8.30700, 11.107000
WIND VELOCITY	11.1070000

SUPER-STRUCTURE

ITEM	CLASS UNIT	PER PIER	PER SPAN	PER BRIDGE	REMARKS
STEEL					
6 YOGI	QUADRA	12	36.800	73.600	
8 YOGI	QUADRA	12	12.160	24.320	
WAL		8			
WAL				70.00	
CONCRETE	0.8-300	12	85.20	170.40	
FORM			334	180	
CONCRETE PAVEMENT	1:1		268.45	536.80	

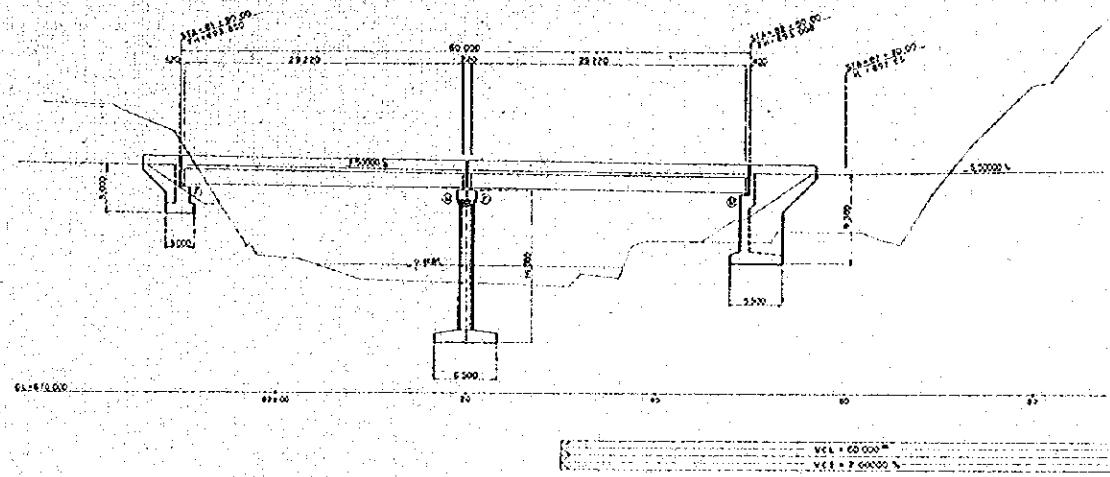
3 REINFORCEMENT BAR 1:200

SUB-STRUCTURE

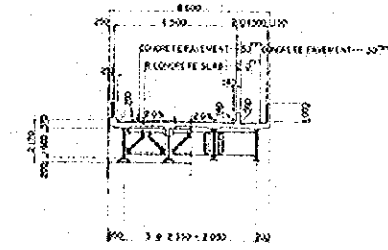
ITEM	CLASS	UNIT	A-1	P-1	A-2	QUANTITY	REMARKS
ELEVATION		m ²	87	293	41	300	
CONCRETE	0.8-210	m ³	89.45	78.04	125.29	292.00	
FORM		m ²	172.10	107.97	277.49	557.47	
REINFORCEMENT BAR		t	3.58	9.18	11.32	24.00	10-50

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SMALL ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 ISECR-31 GWANGU BRIDGE
 SCALE: 1:100
 JAPAN INTERNATIONAL COOPERATION AGENCY

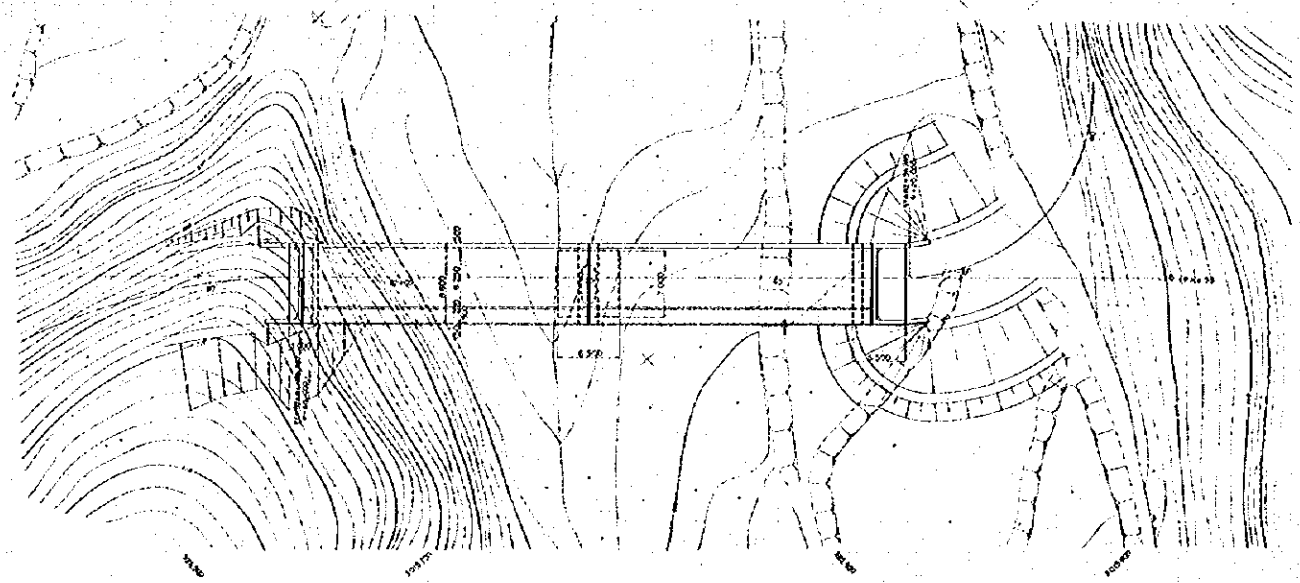
GENERAL ELEVATION SCALE: 1:200



CROSS SECTION SCALE: 1:100



GENERAL PLAN SCALE: 1:200



DESIGN CONDITIONS

TOTAL BRIDGE LENGTH	60.000
SPAN	23.120
SPAN	23.720
VELOCITY	80 km/h
WIND LOAD	EL = 20
SEISMIC COEFFICIENT	1.0
SEISMIC COEFFICIENT	1.0
GRADE OF ROAD	1:20
WINDING RADIUS	1000.000
WINDING RADIUS	1000.000

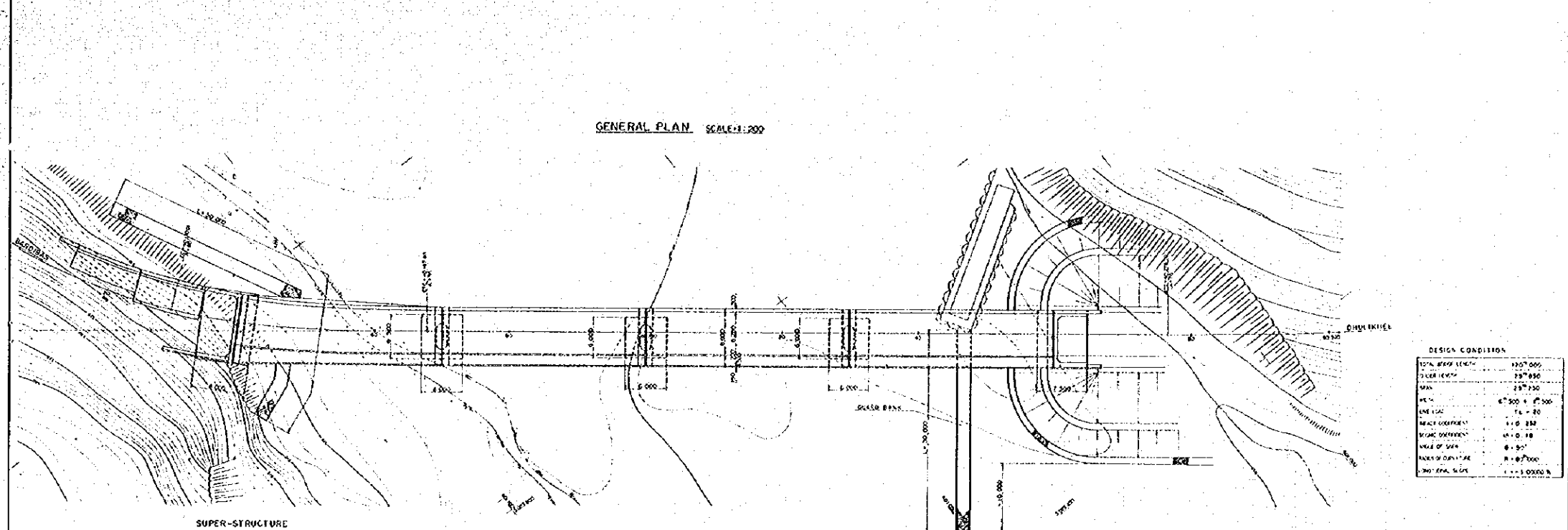
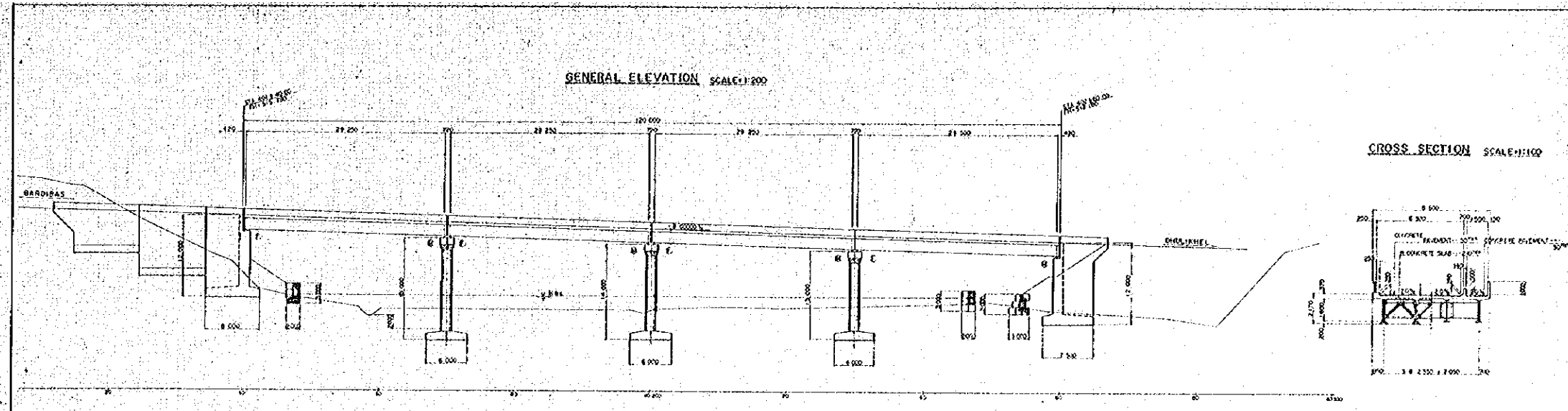
SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
STEEL						
GIRO	SPRONG	m	27.00	54.00	54.00	
OTHERS	SPRONG	m	11.00	22.00	22.00	
SHOE			4	8	8	
MANORAL				60.00	60.00	
CONCRETE	SLAB	m ²	79.00	158.00	158.00	
FORM		m ²	119	238	238	
CONCRETE PAVEMENT		m ²	224.30	448.60	448.60	

SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	A-2	QUANTITY	REMARKS
EXCAVATION	m ³		192	367	89	648	
CONCRETE	m ³		23.52	145.42	181.72	470.66	
FORM	m ²		156.70	193.10	426.74	776.54	
REINFORCEMENT BAR	m		2.33	22.35	12.88	47.56	55-30

THE GOVERNMENT OF NEPAL
 ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SECTION SURANI BR
 SHEET NO. 111
 JAPAN INTERNATIONAL COOPERATION AGENCY



DESIGN CONDITION

TOTAL BRIDGE LENGTH	120.000
PIER LENGTH	25.000
SPAN	25.000
PIER	6.000 + 6.000
LINE 1:20	TL = 20
GRADE COEFFICIENT	1:10 230
GRADE DIFFERENCE	14.0 18
GRADE OF DECK	0.50
GRADE OF APPROACH	1:10 200
MINIMUM CLEARANCE	1:10 2000

SUPER-STRUCTURE

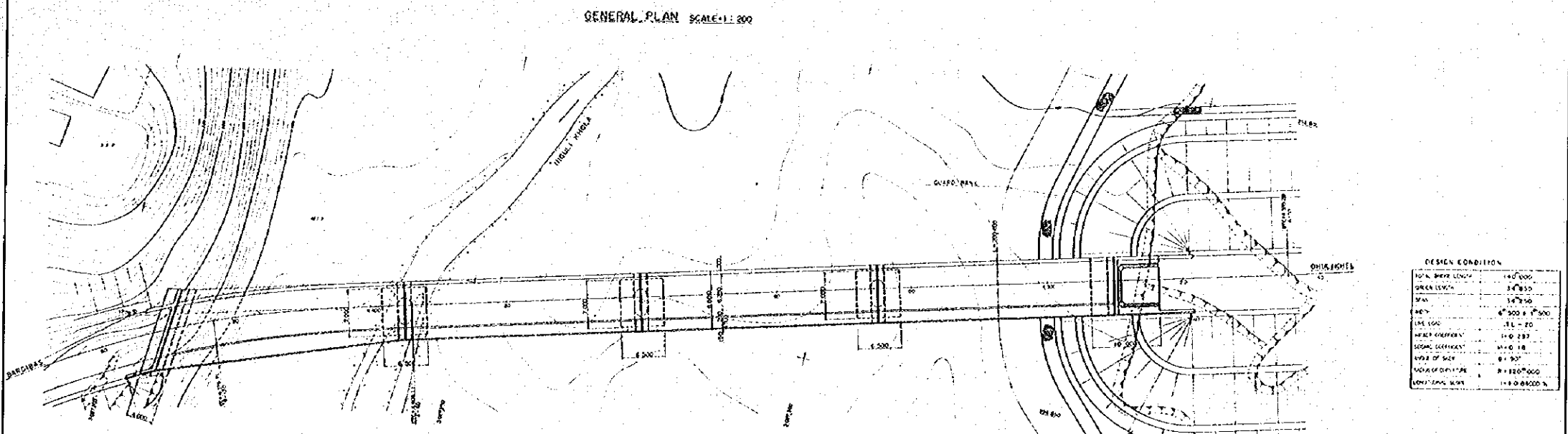
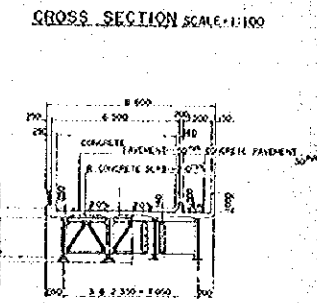
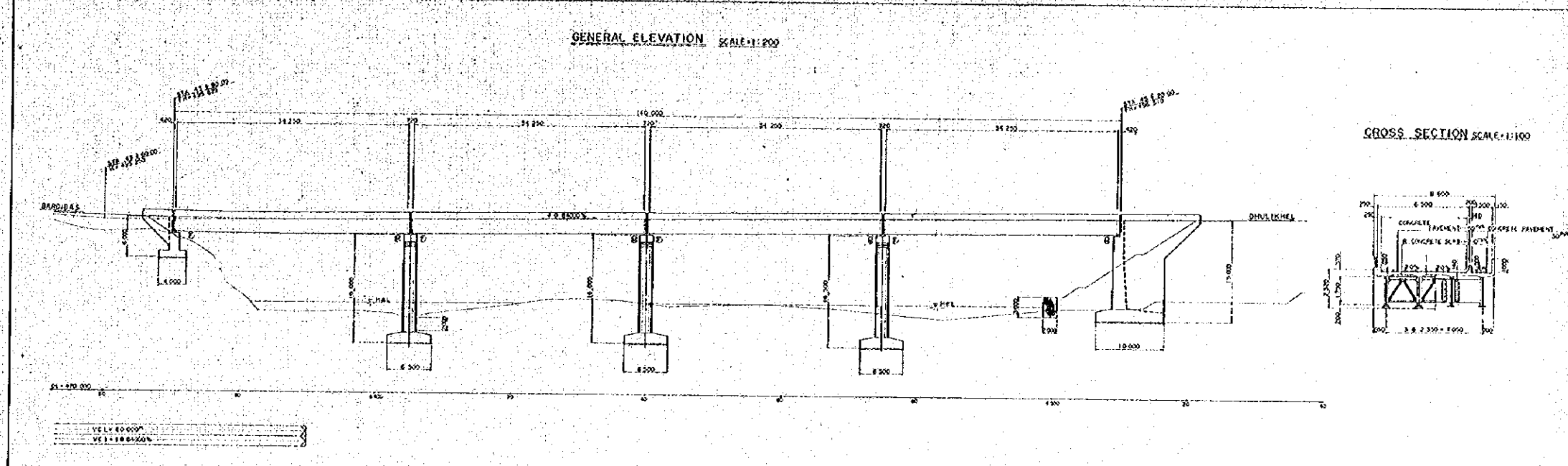
ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
STEEL						
WELDER	WELDER	kg	27.825	134.140		
OTHERS	BARBULAC	kg	11.000	48.320		
SHOE	P		8	32		
MINORAL	P			120.00		
CONCRETE	CONCRETE	m ³	13.0	500.00		
FORM	FORM	m ²	338	1388.8		
CONCRETE TREATMENT	CONCRETE TREATMENT	m ²	328.3	934.3		

SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	P-2	P-3	A-2	QUANTITY	REMARKS
EXCAVATION		m ³	444	291	263	310	120	1.428	
CONCRETE	CONCRETE	m ³	325.48	134.10	122.24	117.52	296.24	1.045.68	
FORM		m ²	627.18	124.25	148.84	127.22	221.11	1.257.60	
REINFORCEMENT BAR		kg	30.04	20.13	17.78	44.44	23.82	156.21	59-53
SLASH BANK		m	800				600	900	

X REINFORCEMENT BAR 250

HIS MAJESTY'S GOVERNMENT OF NEPAL
 ANIMAL AND CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SECI-HAROLERI B. SHEET NO. 6-46
 SHEET NO. 111
 NEPAL INTERNATIONAL COOPERATION AGENCY



DESIGN CONDITION

SPAN BEING LONG	140.000
DECK WIDTH	8.000
SPAN	34.250
NO. OF SPANS	4
DECK TYPE	SLAB
ROADWAY WIDTH	14.000
ROADWAY GRADE	1:100
ROADWAY CURVE	R=100.000
ROADWAY OFFSET	1.000
ROADWAY WIDTH	14.000
ROADWAY GRADE	1:100
ROADWAY CURVE	R=100.000
ROADWAY OFFSET	1.000

SUPER-STRUCTURE

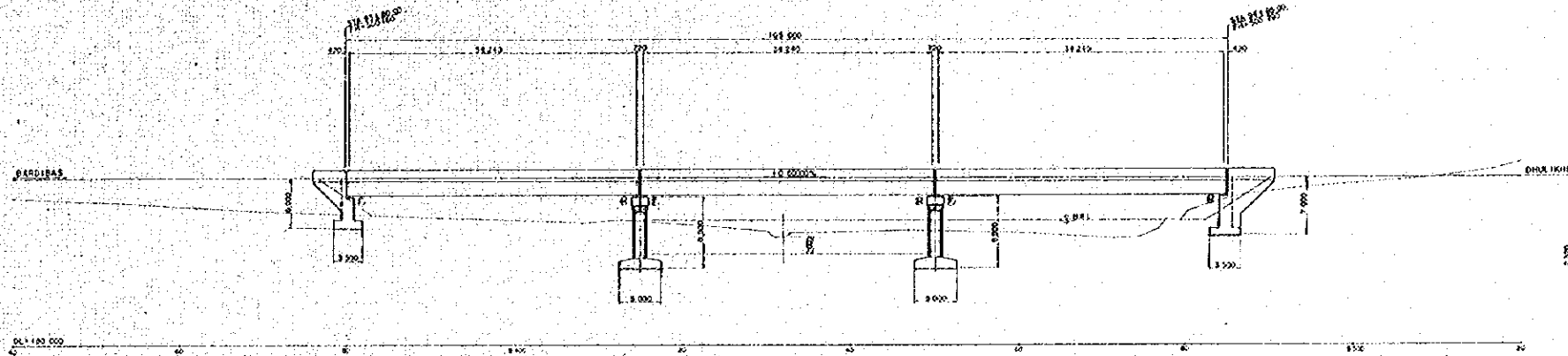
ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
STEEL						
GIRDER	SA370	m	35.830	147.320		
OTHERS	SA370	m	12.180	48.740		
SHOE			8	32		
ANCHOR				160.00		
CONCRETE	PC20	m ³	85.2	340.8		
FORM		m ²	324	1295.4		
CONCRETE PAVEMENT		m ²	228.4	913.6		

SUB-STRUCTURE

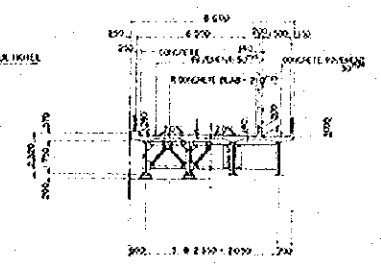
ITEM	CLASS	UNIT	A-1	P-1	P-2	P-3	A-2	QUANTITY	REMARKS
ELEVATION		m	188	281	483	313	215	1.931	
CONCRETE	PC20	m ³	130.31	181.92	183.92	187.49	583.28	1.246.92	
FORM		m ²	274.55	206.24	206.84	274.58	274.76	1.244.97	
REINFORCEMENT BAR		t	5.21	30.35	30.35	20.94	34.33	123.18	
SLAB BASK		m ²					1.200	1.200	

HIS MAJESTY'S GOVERNMENT OF NEPAL
 NATIONAL ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 ISECC-27 NIGAUJI BRIDGE
 SCALE: 1:200
 JAPAN INTERNATIONAL COOPERATION AGENCY

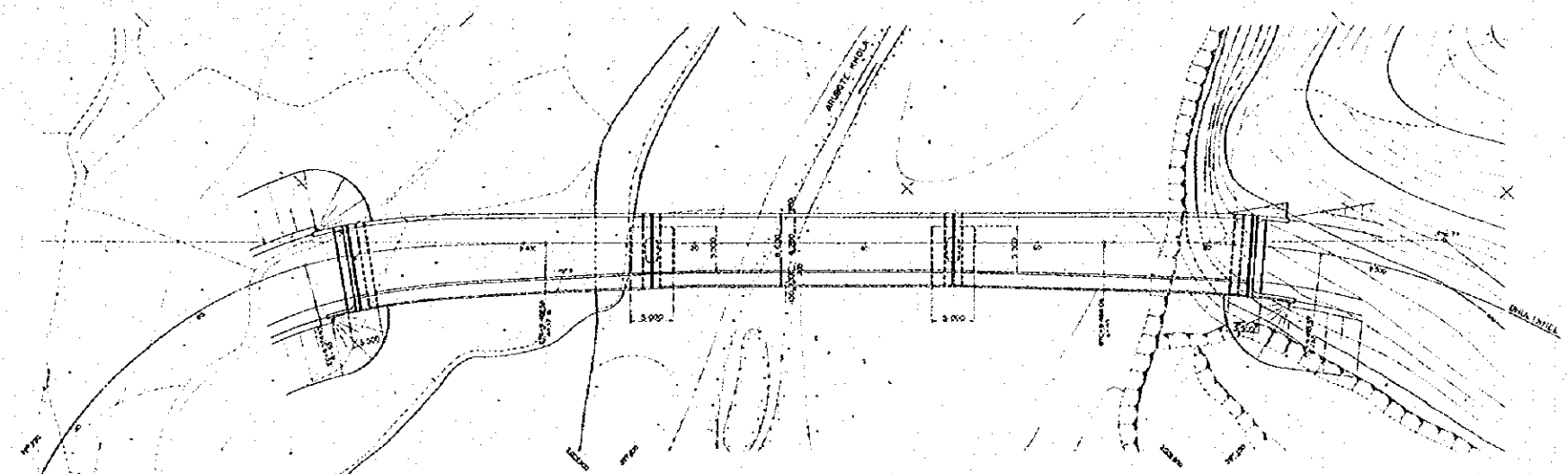
GENERAL ELEVATION SCALE: 1:200



CROSS SECTION SCALE: 1:100



GENERAL PLAN SCALE: 1:200



DESIGN CONDITION

SPAN LENGTH	18.210
DECK LENGTH	36.420
SPAN	18.210
PIER	1.000 x 1.000
ABUTMENT	3.000 x 3.000
ROAD WIDTH	11.000
ROAD CENTERLINE	11.000
ROAD WIDTH	11.000
ROAD CENTERLINE	11.000
ROAD WIDTH	11.000
ROAD CENTERLINE	11.000
ROAD WIDTH	11.000
ROAD CENTERLINE	11.000

SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
STEEL						
GIRDER	SHOWN	TR	36.430	36.430	36.430	
OTHERS	SHOWN	TR	18.160	18.160	18.160	
PIPE			3	3	3	
MANHOLE					100.00	
CONCRETE	SHOWN	M ³	88.20	176.40	176.40	
FORM		M ²	334	334	334	
CONCRETE REINFORCEMENT			218.40	218.40	218.40	

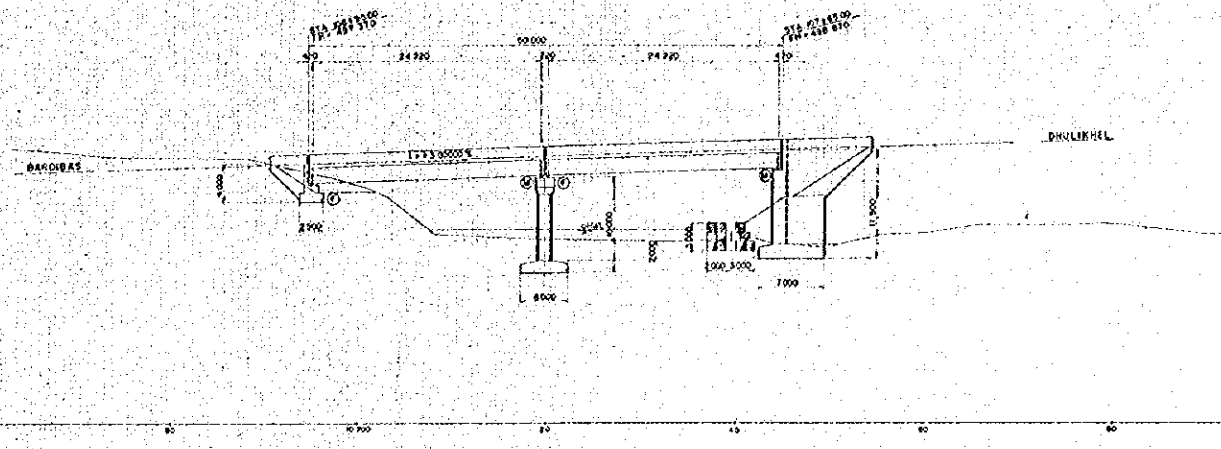
SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	P-2	A-2	QUANTITY	REMARKS
FOUNDATION			20	20	20	20	80	
CONCRETE	SHOWN	M ³	80.80	12.80	12.80	80.80	177.20	
FORM		M ²	326.00	104.00	104.00	326.00	860.00	
REINFORCEMENT			5.80	8.50	8.50	5.80	28.60	SP-30

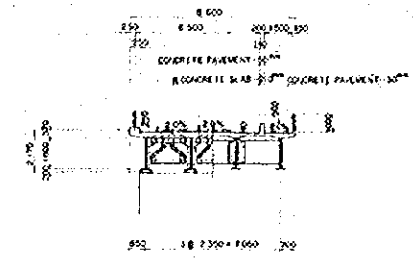
REINFORCEMENT BAR SCALE: 1:250

MINI MINISTRY'S GOVERNMENT OF NEPAL
SINGHUR ROAD CONSTRUCTION PROJECT
FEASIBILITY STUDY
(SCCR-21) ARUBOTE BI
SCALE: 1:100
JAPAN INTERNATIONAL COOPERATION AGENCY

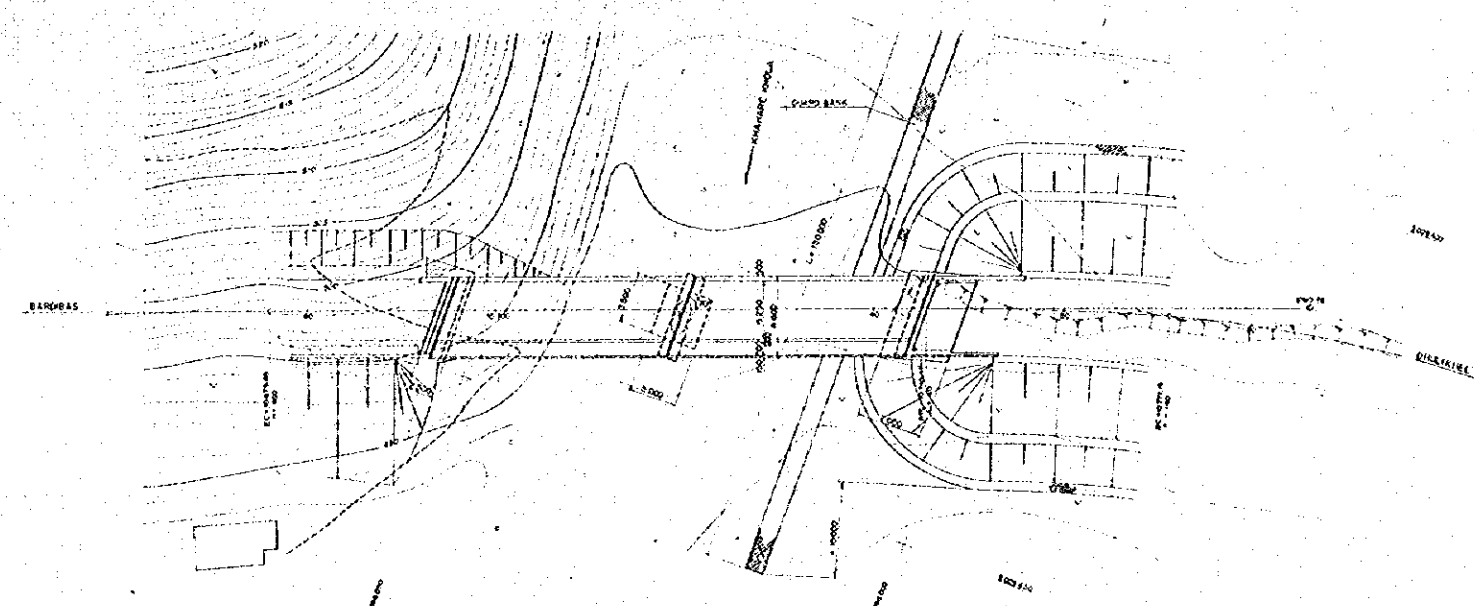
GENERAL ELEVATION SCALE: 1:200



CROSS SECTION SCALE: 1:100



GENERAL PLAN SCALE: 1:200



DESIGN CONDITIONS

TOTAL BRIDGE LENGTH	50.000
BRIDGE LENGTH	24.800
SPAN	24.750
SPAN SPACING	6.500 + 7.500
ROAD WIDTH	3L + 2D
WIND COEFFICIENT	1.0-2.0
SEISMIC COEFFICIENT	1.0-2.0
SCALE OF PLAN	1:200
SCALE OF SECTION	1:100
SCALE OF ELEVATION	1:100
SCALE OF GROUND	1:100
SCALE OF CROSS SECTION	1:100
SCALE OF GENERAL PLAN	1:200

SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
STEEL						
SPLICE	DISC	kg		18 500	36 000	
OTHERS	BAR	kg		8 500	17 000	
SHOT				8	16	
MANTEL					50 000	
CONCRETE	20-30	m ³		80 80	161 60	
FORM		m ²		281	562	
CONCRETE TREATMENT		m ²		80 30	160 60	

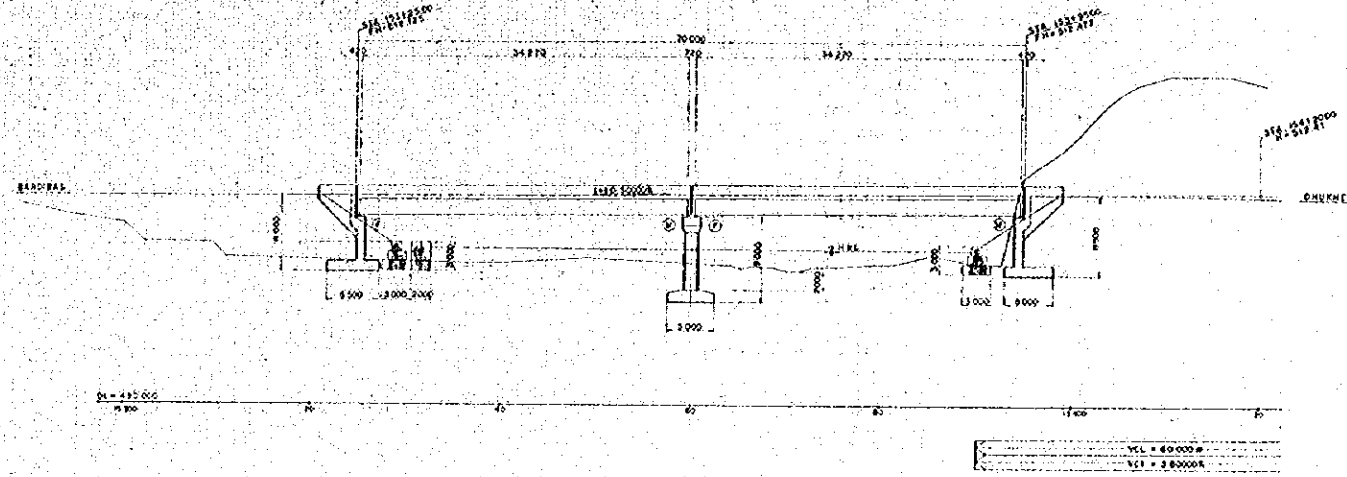
SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	A-2	QUANTITY	REMARKS
FOUNDATION		m ²	82	102	177	361	
CONCRETE	Gr-10	m ³	48 84	60 83	254 87	474 54	
FORM		m ²	118 83	123 83	518 83	761 49	
REINFORCEMENT BAR		kg	1 98	10 89	21 81	33 78	30-30
GRAND BANK		m ²				780	780

Ø REINFORCEMENT BAR: 250mm

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINGLE ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 (SICC)-ZYKHAIARE BR.
 SCALE: 1:200
 SHEET NO. 01/1
 JAPAN INTERNATIONAL COOPERATION AGENCY

GENERAL ELEVATION SCALE: 1:200



CROSS SECTION SCALE: 1:100

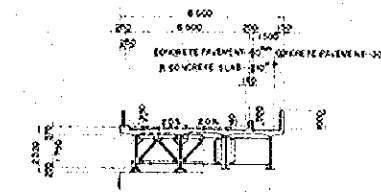
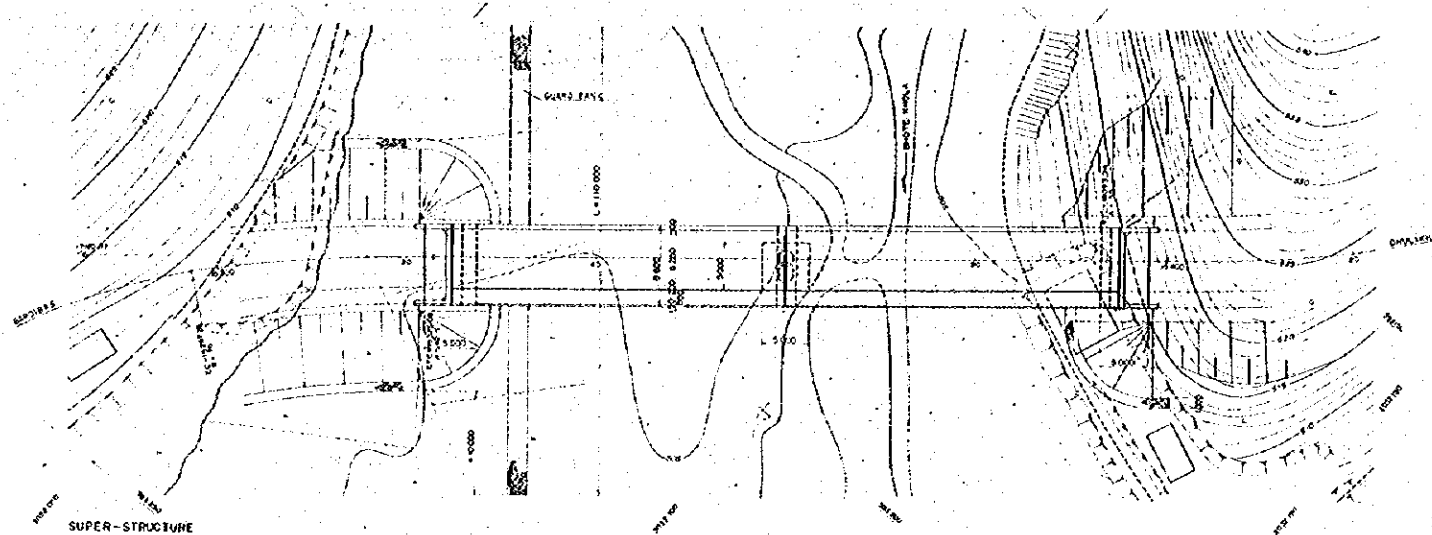


FIG. 10 2 300 x 700 2/2

GENERAL PLAN SCALE: 1:200



DESIGN CONDITION

TOTAL BRIDGE LENGTH	70.000
SPAN LENGTH	34.000
SPAN	34.000
PIER	17.500 x 17.500
LINE GRADE	1% - 2%
IMPACT DEFLECTION	110.23F
LOAD DEFLECTION	88.0.18
ANGLE OF SKEW	0° - 30°
SKIRT/SPALLS	R = 60.000
100% SPA. SLAB	1 x 19.500000

SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
STEEL						
GIRDER	SM400B	m	34.850	78.400		
OTHERS	MULFAY	m	12.160	28.330		
SHOE		m	0	16		
HANDRAIL		m		20.00		
CONCRETE	GL-200	m ³	85.20	170.40		
FORM		m ²	318	748		
CONCRETE PAVEMENT		m ²	266.82	532.85		

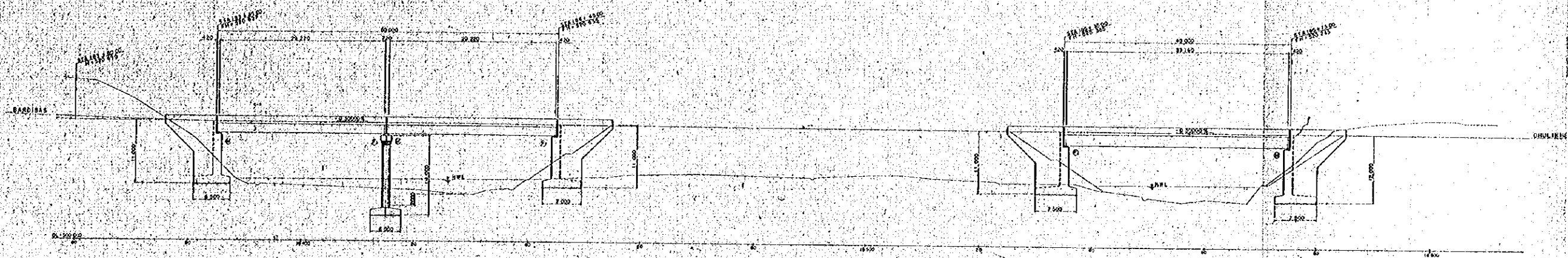
SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	A-2	QUANTITY	REMARKS
ENCLOSURE		m ²	87	168	671	726	
CONCRETE	GL-210	m ³	118.81	80.99	118.83	318.63	
FORM		m ²	830.79	89.99	838.48	1759.26	
REINFORCEMENT BAR		t	15.97	9.57	11.00	36.54	20-20
WIPED BENT		m ²	450			450	

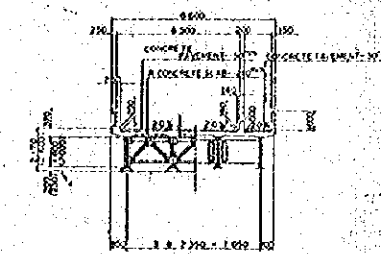
REINFORCEMENT BAR --- 250# 30'

H. H. MAJESTY'S GOVERNMENT OF NEPAL
 BUDHINI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 (SECT-2) BHOTE BR. 4-20
 SCALE: 1:200
 JAPAN INTERNATIONAL COOPERATION AGENCY

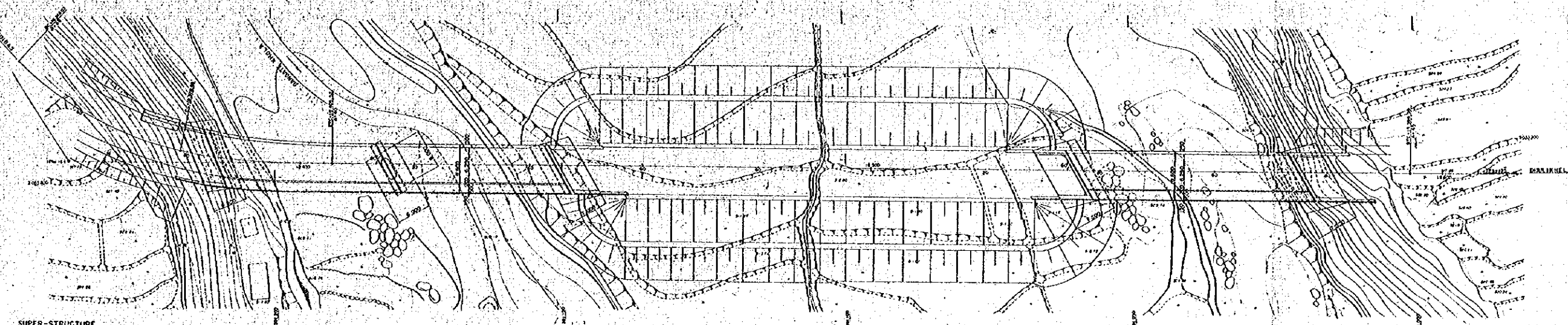
GENERAL ELEVATION SCALE: 1:200



CROSS SECTION SCALE: 1:100



GENERAL PLAN SCALE: 1:200



DESIGN CONDITION

SPAN LENGTH	40.000
SPAN	20.000
PIER	2.000
LIVE LOAD	TL-50
WIND COEFFICIENT	1.00
WIND EXPOSURE	EXPOSED
WIND SPEED	45.00
WIND DIRECTION	45°
WIND PERIOD	10
WIND PRESSURE	1.00
WIND MOMENT	1.00
WIND TORQUE	1.00
WIND ROTATION	1.00
WIND TRANSLATION	1.00
WIND VIBRATION	1.00
WIND TORSION	1.00
WIND DRIFT	1.00
WIND COLLISION	1.00
WIND IMPACT	1.00
WIND DAMAGE	1.00
WIND DESTRUCTION	1.00
WIND COLLAPSE	1.00
WIND FAILURE	1.00
WIND DISASTERS	1.00
WIND HAZARDS	1.00
WIND RISKS	1.00
WIND VULNERABILITY	1.00
WIND RESILIENCE	1.00
WIND ADAPTABILITY	1.00
WIND FLEXIBILITY	1.00
WIND SUSTAINABILITY	1.00
WIND RESILIENT	1.00
WIND ADAPTIVE	1.00
WIND FLEXIBLE	1.00
WIND SUSTAINABLE	1.00
WIND RESILIENT	1.00
WIND ADAPTIVE	1.00
WIND FLEXIBLE	1.00
WIND SUSTAINABLE	1.00

SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
STEEL						
GIRDER	SA 250	m	27.850	55.700		
OTHERS	SA 250	m	11.000	22.000		
SHOUL		m	8	16		
RAILWAY		m	80.000	160.000		
CONCRETE	SA 250	m	13.0	26.0		
FORM		m	338	676		
CONCRETE PAVEMENT		m	218.8	437.6		

SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	A-2	QUANTITY	REMARKS
EXCAVATION		m ³	802	249	225	1,376	
CONCRETE	SA 250	m ³	218.88	222.74	242.93	684.55	
FORM		m ²	410.88	164.56	438.46	1,013.90	
REINFORCEMENT BAR		t	19.91	11.19	21.83	52.93	50-30

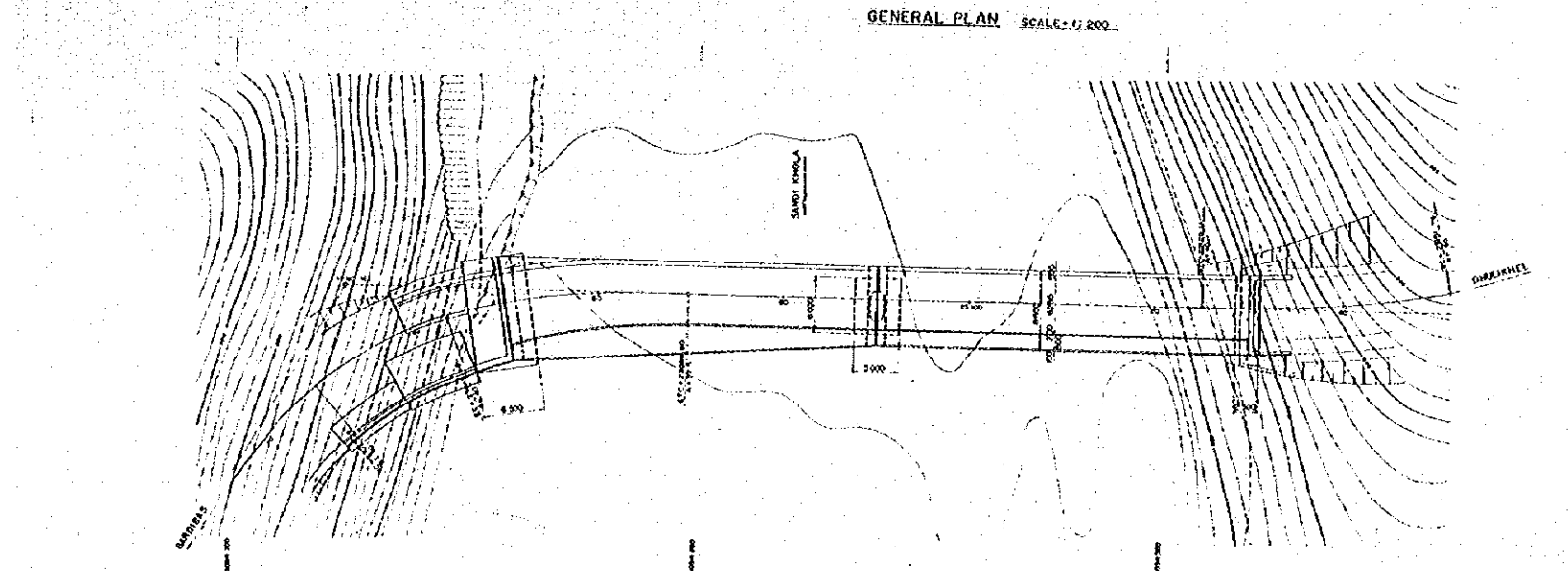
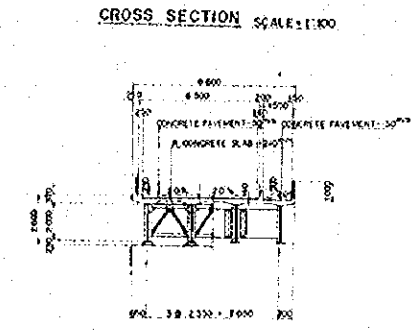
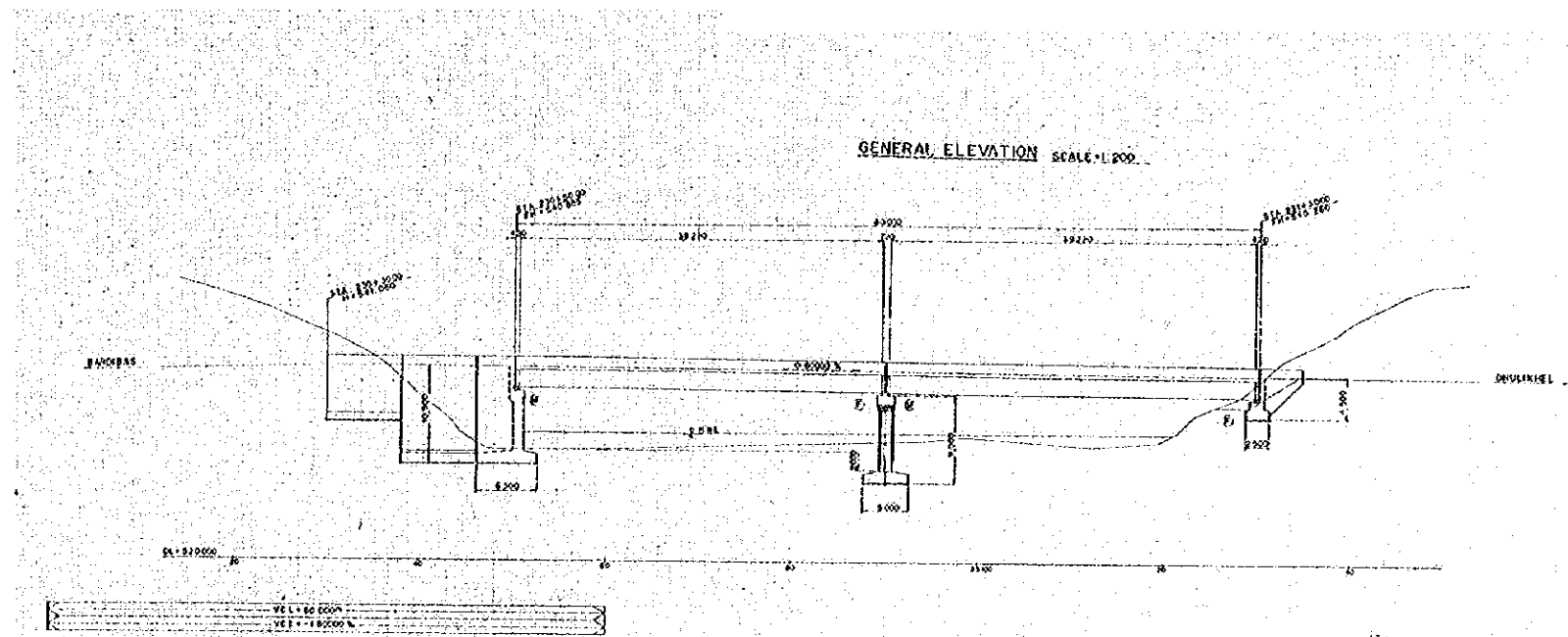
SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
STEEL						
GIRDER	SA 250	m	50.100	100.200		
OTHERS	SA 250	m	15.430	30.860		
SHOUL		m	8	16		
RAILWAY		m	80.000	160.000		
CONCRETE	SA 250	m	97.4	194.8		
FORM		m ²	430	860		
CONCRETE PAVEMENT		m	306.4	612.8		

SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	A-2	QUANTITY	REMARKS
EXCAVATION		m ³	129	1,230	1,428	
CONCRETE	SA 250	m ³	287.78	308.35	596.13	
FORM		m ²	547.78	557.32	1,105.10	
REINFORCEMENT BAR		t	27.02	24.65	51.67	50-30

THE MAJESTY'S GOVERNMENT OF NEPAL
 NATIONAL ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SECTION-21 GANGA G. 01
 SCALE: 1:200
 DATE: 1974
 JAPAN INTERNATIONAL COOPERATION AGENCY



DESIGN CONDITION

SPAN WIDTH	8.000
DEEP (M)	3.000
SPAN	30.000
PIER	2.000 x 2.000
WEIGHT	EL - 10
SPACE DISTANCE	1.000
SPAN DISTANCE	30.000
GRADE OF ROAD	0.000
GRADE OF PAVEMENT	0.000
LONGITUDINAL GRADE	1.000

SUPER-STRUCTURE

ITEM	CLASS	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
STEEL					
GIRDER	SA 250	10.000	30.000	100.000	
OTHERS	SA 250	10.000	30.000	100.000	
SPICE					
WALDRA					
CONCRETE	SA 250	10.000	30.000	100.000	
FORM					
CONCRETE PAVEMENT					

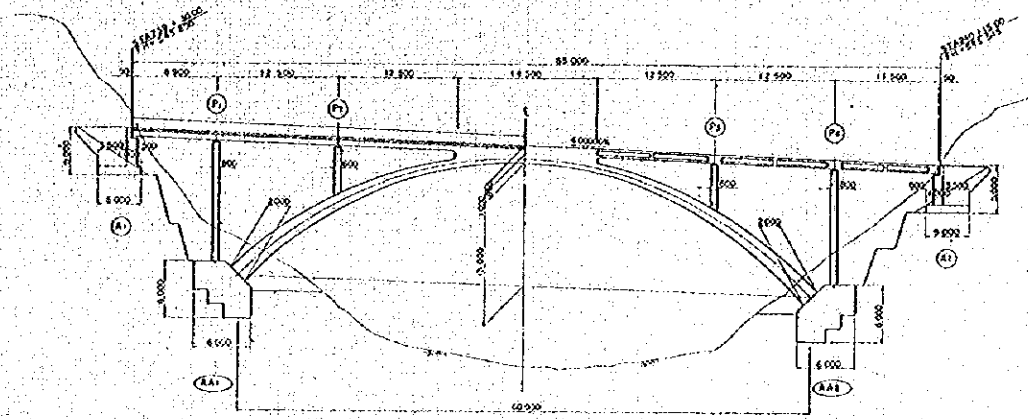
REINFORCEMENT BAR - 250#

SUB-STRUCTURE

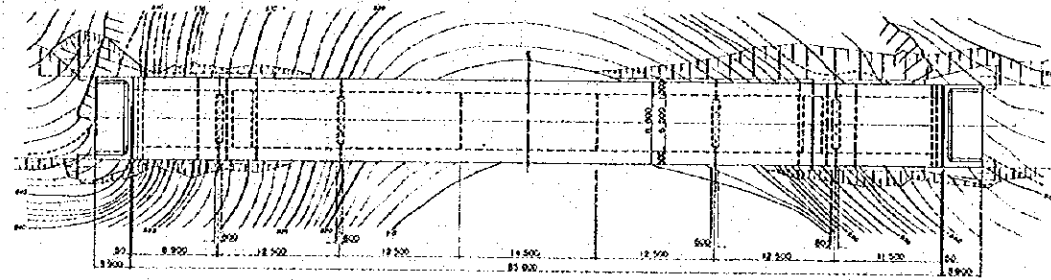
ITEM	CLASS	UNIT	A-1	P-1	A-2	QUANTITY	REMARKS
EXCAVATION		m ³	121	230	123	474	
CONCRETE	SA 250	m ³	206.19	88.78	59.15	354.12	
FORM		m ²	443.18	117.68	100.83	661.69	
REINFORCEMENT BAR		t	26.62	9.85	8.91	45.38	50-50

HIS MAJESTY'S GOVERNMENT OF NEPAL
SANDI ROAD CONSTRUCTION PROJECT
FEBRUARY STUDY
(SECB-2) SANDI BR.
SCALE: 1:200
JAPAN INTERNATIONAL COOPERATION AGENCY

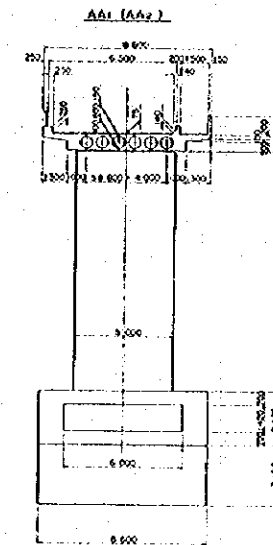
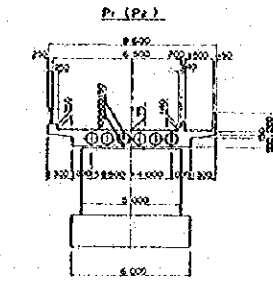
GENERAL ELEVATION SCALE: 1:200



GENERAL PLAN SCALE: 1:200



CROSS SECTION SCALE: 1:100



DESIGN CONDITION	
TOTAL BRIDGE LENGTH	85.000
SPAN LENGTH	84.000
SPAN	85.000/100.000/85.000
PIER	6.000 x 6.000
ARCH RISE	11.000
ARCH COEFFICIENT	1.000
ARCH COEFFICIENT	1.000
ANGLE OF SKIN	0.000
RADIUS OF CURVATURE	0.000
LONGITUDINAL SLOPE	0.00000%

SUPER-STRUCTURE

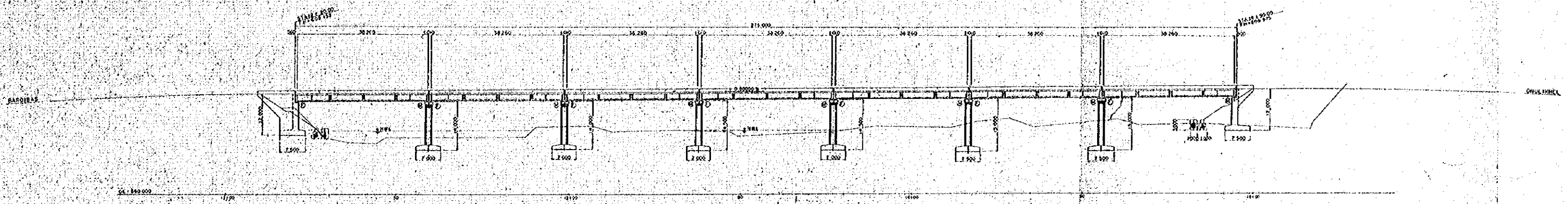
ITEM	CLASS	UNIT	QUANTITY	REMARKS
CONCRETE	25-275	m ³	1173.30	
FORM		m ²	2570.00	
HOLLOW FORM		m ²	374.00	
REINFOR CEMENT BAR	SD-30	t	212.10	
SHOE				
EXPANSION JOINT		m	14.00	
CONCRETE PAVEMENT		m ²	616.00	

SUB-STRUCTURE

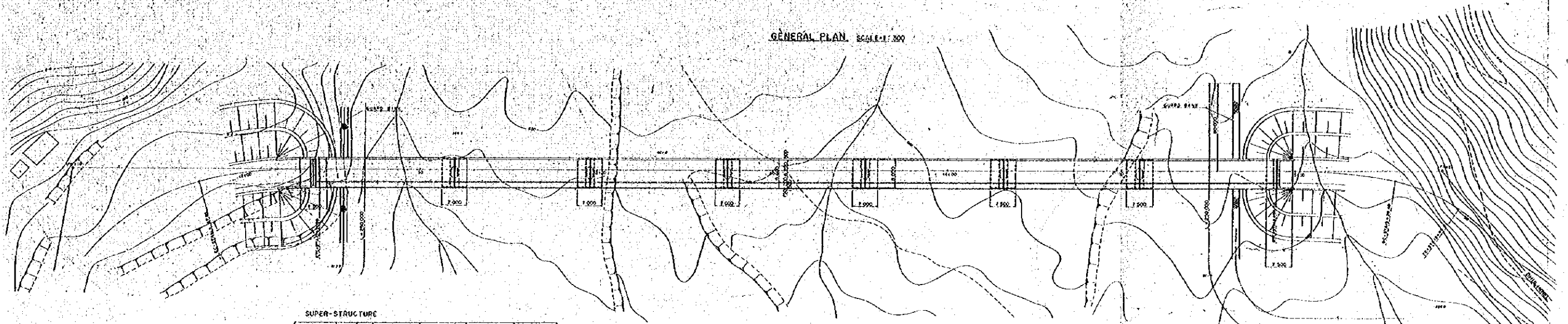
ITEM	CLASS	UNIT	A-1	AA-1	AA-2	A-2	QUANTITY	REMARKS
ENCASEMENT		m ³	670.00	1110.00	1260.00	780.00	3970.00	
CONCRETE	25-240 SUP	m ³	53.00	217.10	217.10	51.00	604.30	
FORM		m ²	160.30	112.20	112.20	160.30	545.00	
REINFOR CEMENT BAR		t	8.30	10.00	10.00	8.30	36.60	20-10

HIS MAJESTY'S GOVERNMENT OF NEPAL
 NATIONAL ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 (SEC-21 STA 240) Dr. SHEET NO. 5-24
 SCALE: 1:100 DATE: 1988
 JAPAN INTERNATIONAL COOPERATION AGENCY

GENERAL ELEVATION SCALE: 1:300



GENERAL PLAN SCALE: 1:300

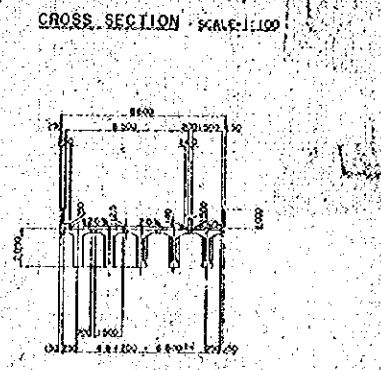
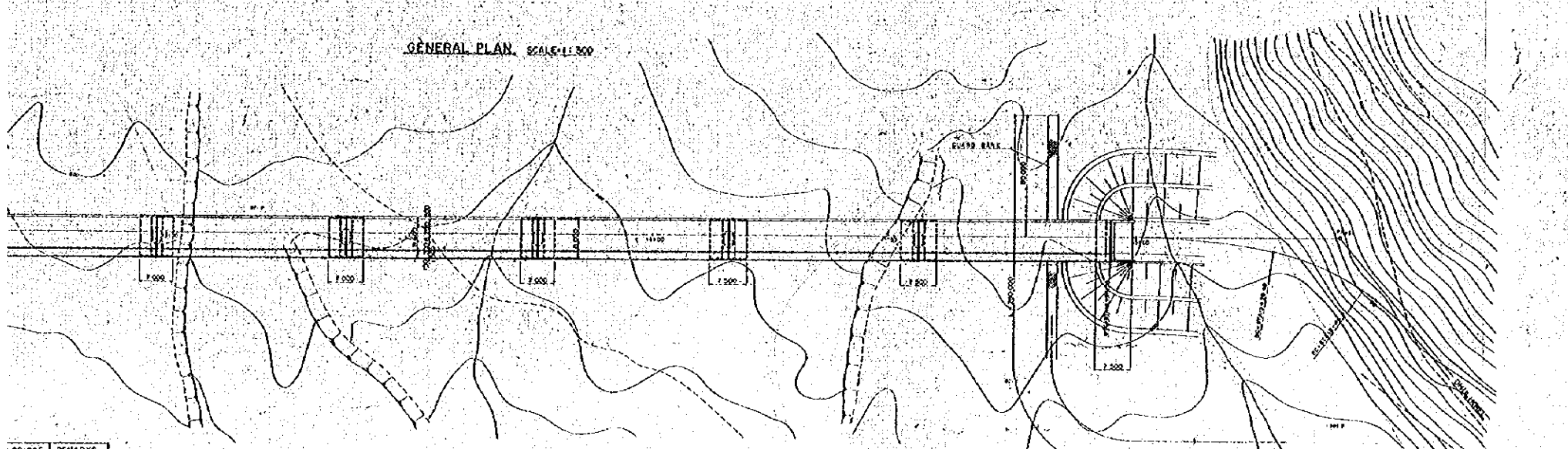
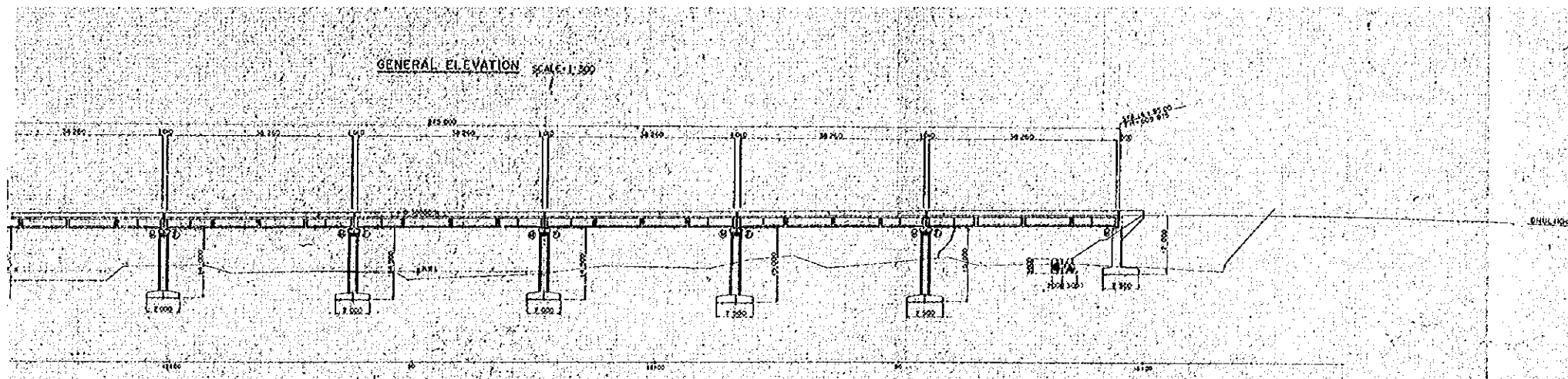


SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
CONCRETE		m ³	81.08	870.38	1 182.06	
GIRDER		m	1.00	10.00	100.00	
CAST IN PLACE CONCRETE		m ³	18.87	193.89	212.76	
FORM		m ²	226.82	2 133.10	2 359.92	
PRESTRESSING WIRE		kg	1 200.93	8 504.93	9 705.86	
LATERAL BRACING		m	1 268.78	8 713.18	9 981.96	
REINFORCEMENT BAR		kg	4 063.22	22 638.18	26 701.40	
TOTAL						
SHOE		m	10	70	80	
EXPANSION JOINT		m			68.00	
PAVEMENT		m ²			238.00	

SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	P-2	P-3	P-4	P-5	P-6	A-2	QUANTITY	REMARKS
FOUNDATION		m ³	53	138	404	538	703	1 184	4 696	123	9 637	
CONCRETE		m ³	76.31	188.78	586.56	798.24	1 041.84	1 610.55	6 096	233.39	11 518.27	
FORM		m ²	152.50	377.50	1 173.10	1 596.48	2 083.68	3 221.10	12 192.00	466.78	23 352.56	
REINFORCEMENT BAR		kg	3 000	7 467	23 148	31 168	40 520	63 744	227 840	8 880	405 720	50-50
GUANO FRAME		m ²	1 500							1 500	3 000	



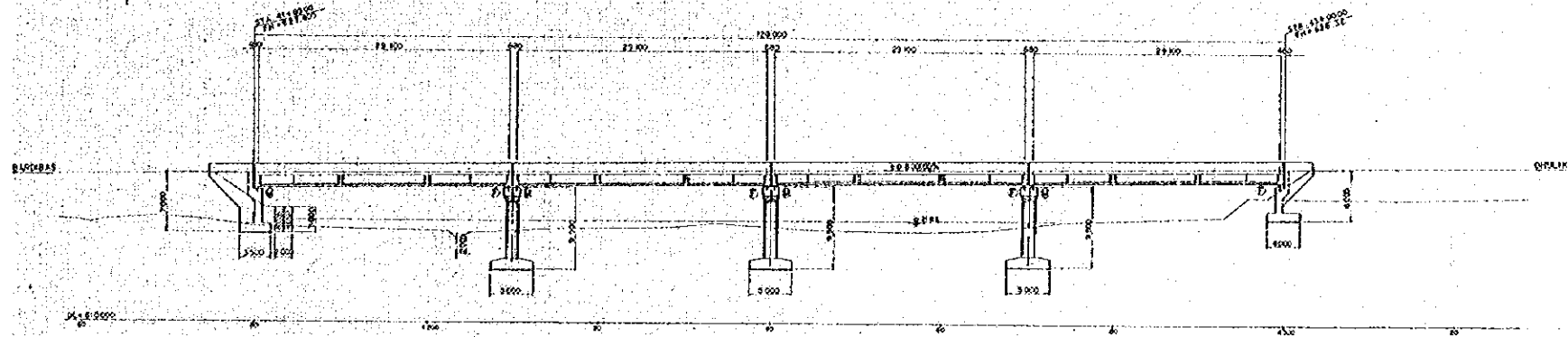
BRIDGE	REMARKS
182.86	
150.68	
933.70	
716.80	
154.81	
712.18	
187.96	
70	
48.80	
278.00	

SUB-STRUCTURE												
ITEM	CLASS	M11	A-1	P-1	P-2	P-3	P-4	P-5	P-6	A-2	QUANTITY	REMARKS
EXCAVATION	SP	33	273	1045	933	705	1184	1154	120	0.627		
CONCRETE	GA-210 ²	A3	76.31	154.78	194.76	201.24	201.24	240.53	210.95	235.35	1,328.14	
REIN	A1	132.50	211.30	211.30	217.83	217.83	239.38	226.95	329.50	2,595.26		
MANPOWER	A	3.09	31.48	31.48	33.20	33.20	34.74	34.74	38.85	220.72	89-30	
GUARD BANK	A2	7.500							1.500	3.000		

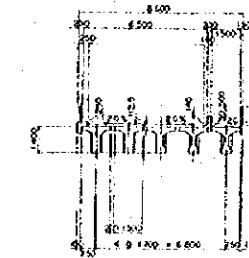
DESIGN CONDITION	
TOTAL BRIDGE LENGTH	225.000
SPAN LENGTH	59.160
SPAN	30.000
WIDTH	6.500 + 2.500
SKIN SLOPE	1:1.50
WIND COEFFICIENT	1.00
SEISMIC COEFFICIENT	0.10
ANGLE OF SKEW	0.00°
RADIUS OF CURVATURE	1100.000
LONGITUDINAL SLOPE	1:10.0000%

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SANGLI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SECT-31GHYAMPE BR. SHEET NO. 8-15
 SCALE: H.P. DATE: _____
 JAPAN INTERNATIONAL COOPERATION AGENCY

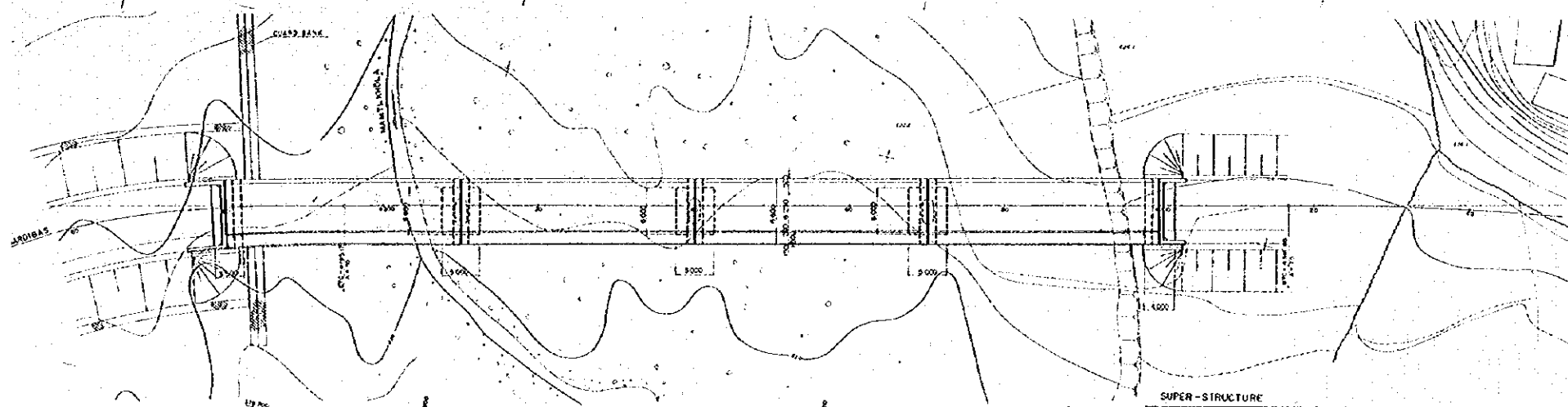
GENERAL ELEVATION SCALE: 1:200



CROSS SECTION SCALE: 1:200



GENERAL PLAN SCALE: 1:200



DESIGN CONDITION

SPAN LENGTH	480'000
OVER LENGTH	23'000
SPAN	23'000
WIDTH	4'500 + 7'500
GRADE	1% - 2%
WIND COEFFICIENT	1.2 - 0.85
SEISMIC COEFFICIENT	1.1 - 0.4
WGT. OF WIND	8.1'000
WIND VELOCITY	84 - 60'000
LONGITUDINAL CURVE	1% - 40'000000

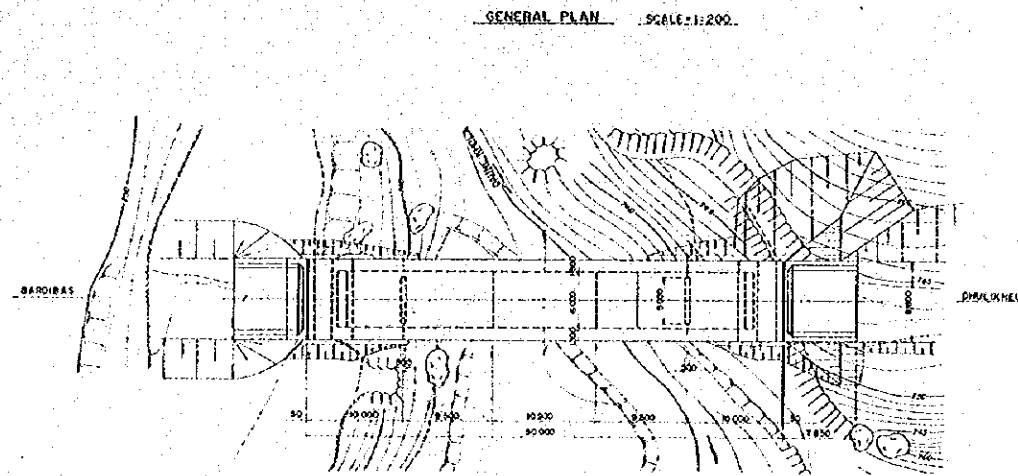
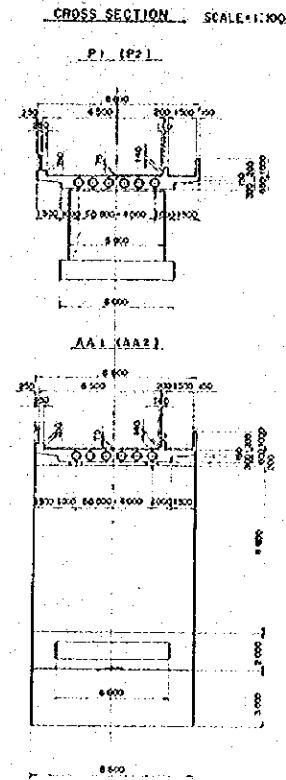
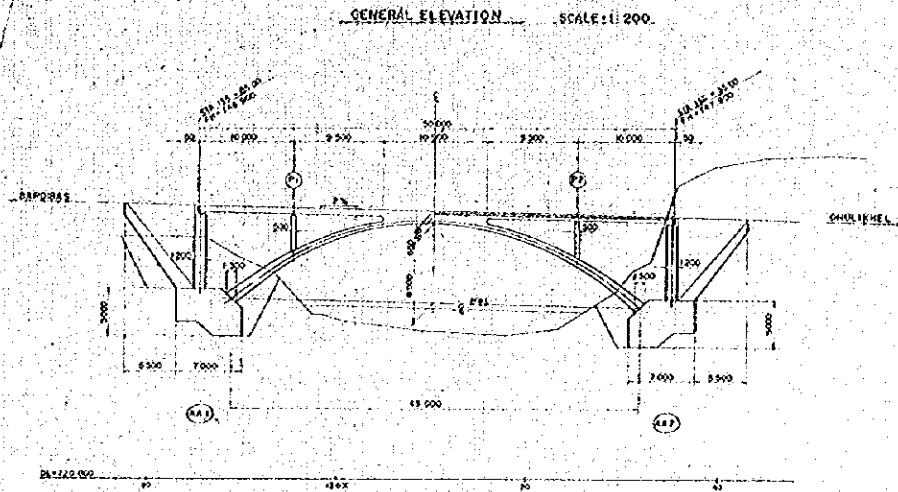
SUB-STRUCTURE

ITEM	CLASS	UNIT	A-1	P-1	P-2	P-3	A-2	QUANTITY	REMARKS
EXCAVATION	MP	23	259	265	265	112	112	845	
CONCRETE	CM-2101g/m ³	MP	100.17	48.78	59.78	88.78	81.78	448.82	
FORM	MP	821.37	117.84	187.83	188.82	48.82	48.82	730.80	
REINFORCEMENT BAR	MP	7.01	41.80	41.80	41.80	41.80	41.80	48.70	30-30

SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
CONCRETE	CM-2101g/m ³	MP	21.18	103.94	423.68	
FORM	MP	153.88	878.28	3915.04		
CASTING WIRE	MP	88.03	440.16	1760.64		
PRESSING WIRE	MP	3041.66	15208.30	60833.20		
LATERALITE	MP	814.46	4072.30	16289.20		
REINFORCEMENT BAR	MP	2181.95	10909.75	43639.00		
SPREAD JOINT	MP	43	43	43		
WINDWALL	MP	120.00	120.00	120.00		

HIS MAJESTY'S GOVERNMENT OF NEPAL
SINGHUR ROAD CONSTRUCTION PROJECT
FEASIBILITY STUDY
SITE NO. 3-111
E-26
SCALE: 1:200
DATE: 1972
JAPAN INTERNATIONAL COOPERATION AGENCY



DESIGN CONDITION

SPAN LENGTH	30.000
DECK LENGTH	49.999
SPAN	28.000/28.000/10.000
LCR	1:1.20
LCR SPC	1:1.20
WIND COEFFICIENT	1.40.000
SEISMIC COEFFICIENT	1.40.000
WIND W. DIR.	0.000
SEISMIC W. DIR.	1.40.000

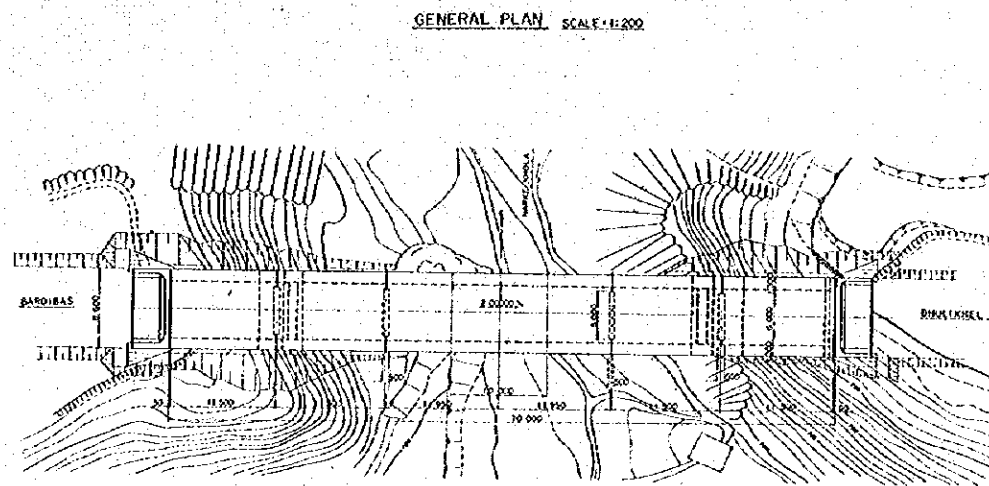
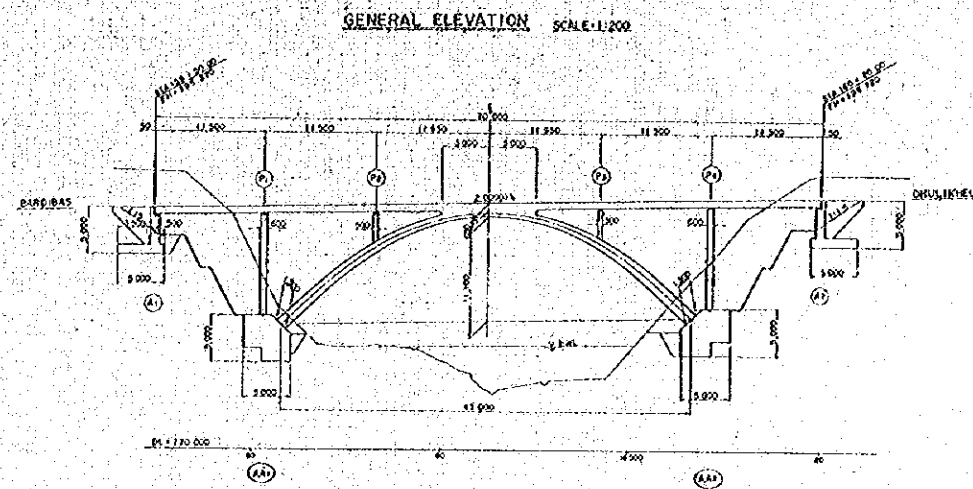
SUPER-STRUCTURE

ITEM	CLASS	UNIT	QUANTITY	REMARKS
CONCRETE	CLASS 20	m ³	505.85	
FORM		m ²	8416.20	
WOLLEW FORM		m	208.00	
REINFORCEMENT BAR	30-32	t	94.62	
PIPE		m	4	
EXPANSION JOINT		m	16.40	
CONCRETE PAVEMENT		m ²	387.33	

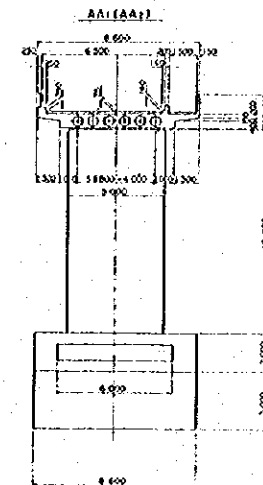
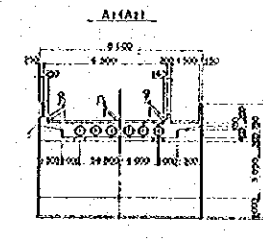
SUB-STRUCTURE

ITEM	CLASS	UNIT	AA-1	AA-2	QUANTITY	REMARKS
EXCAVATION		m ³	875.00	4.128	879.128	
CONCRETE	CLASS 20	m ³	385.00	305.00	690.00	
FORM		m ²	428.00	422.00	850.00	
REINFORCEMENT BAR		t	25.62	25.80	51.42	16-30

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHU ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 (SECT-3) DAUNE 6
 SCALE 1:200
 JAPAN INTERNATIONAL COOPERATION AGENCY



CROSS SECTION SCALE: 1:100



DESIGN CONDITION

PLAN PROJECTION	10' 000
OVER LENGTH	63' 000
SPAN	40' 000 + 20' 000
WIDTH	6' 000 + 1' 000
LANE WIDTH	11' 000
RAILWAY CLEARANCE	11' 000
ROAD CLEARANCE	11' 000
GRADE OF DECK	0.00%
RAILWAY GRADE	1.2000%

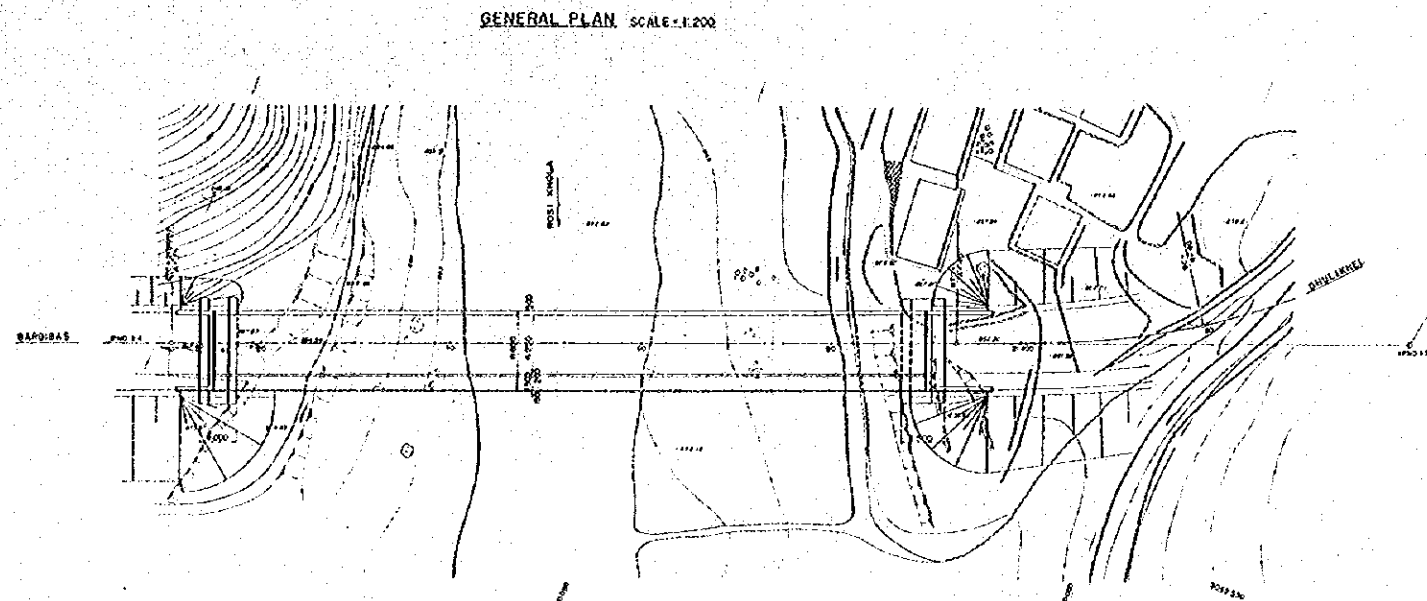
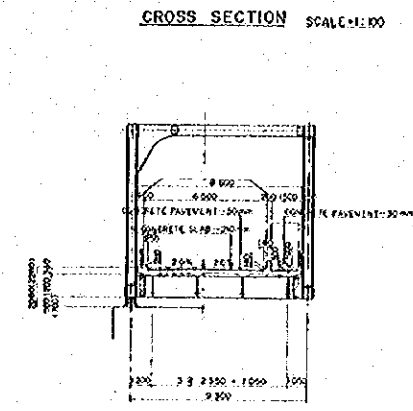
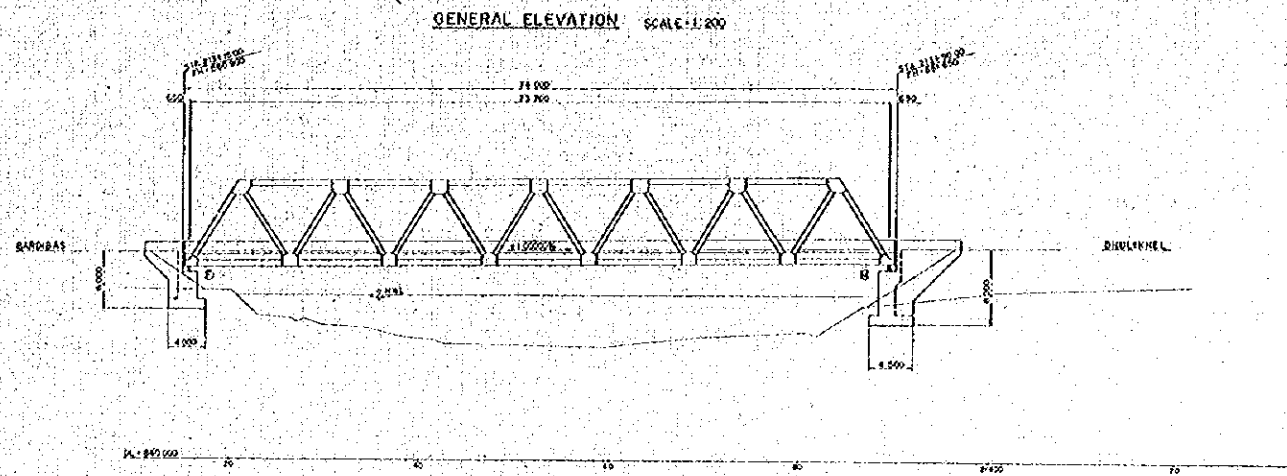
SUPER-STRUCTURE

ITEM	CLASS	UNIT	QUANTITY	REMARKS
CONCRETE	CC-20	m ³	218.40	
FORM		m ²	2033.00	
IRON BAR	RB-20	t	347.00	
REINFORCEMENT BAR	RB-20	t	150.40	
SHOE		#	4	
EXPANSION JOINT		#	18.40	
CONCRETE PAVEMENT		m ²	842.50	

SUB-STRUCTURE

ITEM	CLASS	UNIT	AA-1	AA-1	AA-2	AA-2	QUANTITY	REMARKS
EXPANSION		m ²	257.30	2337.30	1357.50	257.50	4592.00	
CONCRETE	CC-20	m ³	83.00	472.00	182.00	83.00	514.00	
FORM		m ²	160.50	93.00	93.00	160.50	507.00	
REINFORCEMENT BAR		t	8.50	6.60	8.40	6.50	34.20	19.30

HIS MAJESTY'S GOVERNMENT OF NEPAL
 BIRKHILL ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SHEET NO. 6-29
 DATE: 1978
 JAPAN INTERNATIONAL COOPERATION AGENCY



DESIGN CONDITION

SPAN LENGTH	25.00m
DECK LENGTH	75.00m
SPAN	25.00m
SPAN	25.00m
SPAN	25.00m
SPAN	25.00m
SPAN	25.00m
SPAN	25.00m
SPAN	25.00m
SPAN	25.00m
SPAN	25.00m

SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER GIRDER	PER SPAN	PER BRIDGE	REMARKS
STEEL						
GIRDER	QUADRA	m			118.00	
OTHERS	WALAN	m			78.50	
SHOE					4	
NATURAL		m ²			28.00	
CONCRETE	CHAKO	m ²			175.10	
FORM		m ²			843	
CONCRETE PAVEMENT		m ²			250.82	

SUB-STRUCTURE

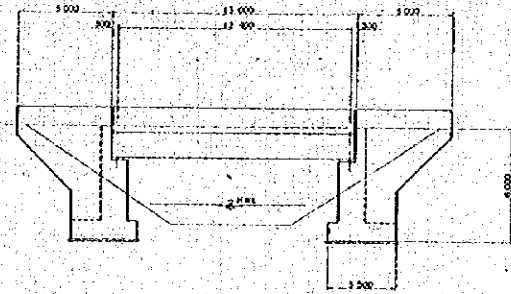
ITEM	CLASS	UNIT	A-1	A-2	QUANTITY	REMARKS
ENCASATION		m ³	172	154	226	
CONCRETE	CHAKO	m ³	211.47	218.01	329.48	
FORM		m ²	248.18	178.08	326.26	
REINFORCEMENT BAR		m	3.06	10.50	14.56	50-50

HIS MAJESTY'S GOVERNMENT OF NEPAL
SINGHUR ROAD CONSTRUCTION PROJECT
FEASIBILITY STUDY
(SEC-3) RDSI Br. E-50
SCALE: 1:100
DATE: 1971
JAPAN INTERNATIONAL COOPERATION AGENCY

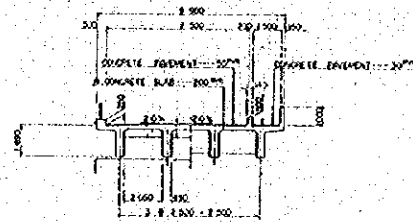
STANDARD DESIGN OF MEDIUM & MINOR BRIDGE (1/4) Sec. I

RCT
W = 9^m00
L = 13^m00

GENERAL ELEVATION SCALE = 1:100



CROSS SECTION SCALE = 1:100



MATERIAL LIST

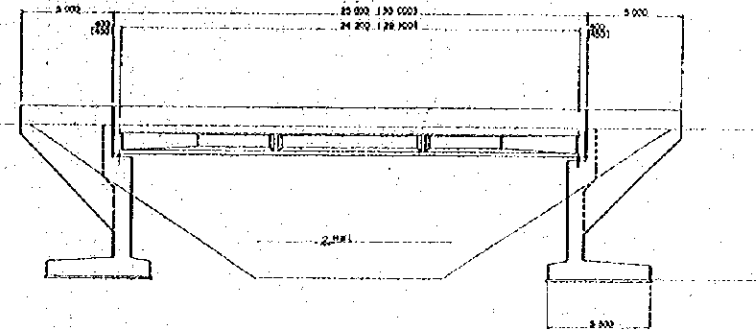
ITEM	CLASS	UNIT	PER BRIDGE	REMARKS
SUPER-STRUCTURE				
CONCRETE	AN	m ³	72.8	
FORM	m ²		342.0	
REINFORCEMENT BAR	SD-30	Tg	8.750	
SPACE	m		8	
EXPANSION JOINT	m		19.98	
HANDRAIL	m		43.00	
CONCRETE PAVEMENT	m ²		117.0	
SUB-STRUCTURE				
EXCAVATION	m ³		524	
CONCRETE	SD-30	m ³	102.77	
FORM	m ²		202.19	
REINFORCEMENT BAR	SD-30	Tg	4.41	

DESIGN CONDITION

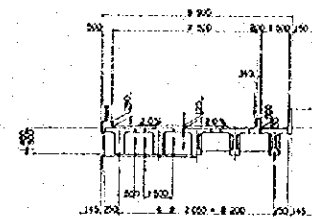
TOTAL BRIDGE LENGTH	13.000
SPAN LENGTH	13.000
SPAN	13.000
ROADWAY WIDTH	7.000 + 2.000
LIVE LOAD	8t + 20
IMPACT COEFFICIENT	1 + 50/13.000
SKIN COEFFICIENT	1.0 + 0.18
ANGLE OF SLOPE	
PANEL OF SURFACING	
LONGITUDINAL SLOPE	

PCT
W = 9^m00
L = 25^m00, 30.00

GENERAL ELEVATION SCALE = 1:100



CROSS SECTION SCALE = 1:100



MATERIAL LIST

ITEM	CLASS	UNIT	L = 25.00	L = 30.00	REMARKS
SUPER-STRUCTURE					
CONCRETE					
FORM					
REINFORCEMENT BAR					
SPACE					
EXPANSION JOINT					
HANDRAIL					
CONCRETE PAVEMENT					
SUB-STRUCTURE					
EXCAVATION					
CONCRETE					
FORM					
REINFORCEMENT BAR					

DESIGN CONDITION

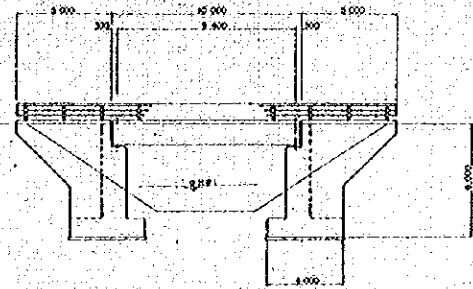
TOTAL BRIDGE LENGTH	25.000	30.000
SPAN LENGTH	25.000	30.000
SPAN	25.000	30.000
ROADWAY WIDTH	7.000 + 2.000	
LIVE LOAD	8t + 20	
IMPACT COEFFICIENT	1 + 50/25.000	
SKIN COEFFICIENT	1.0 + 0.18	
ANGLE OF SLOPE		
PANEL OF SURFACING		
LONGITUDINAL SLOPE		

THE PROJECT'S GOVERNMENT OF NEPAL
SINGHUR ROAD CONSTRUCTION PROJECT
FEASIBILITY STUDY
STANDARD DESIGN OF MEDIUM & MINOR BRIDGE (1/4) Sec. I
JAPAN INTERNATIONAL COOPERATION AGENCY

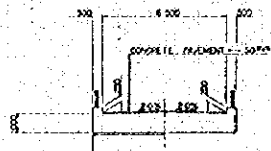
STANDARD DESIGN OF MEDIUM & MINOR BRIDGE (2/4) Sec II

RC Slab
W = 6^m.50
L = 10^m.00

GENERAL ELEVATION SCALE = 1:100



CROSS SECTION SCALE = 1:100



MATERIAL LIST

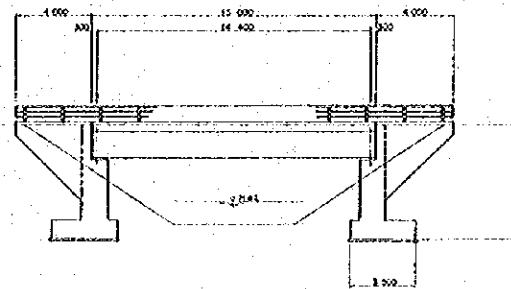
ITEM	CLASS	UNIT	PER BRIDGE	REMARKS
SUB-STRUCTURE				
CONCRETE	25-30	m ³	85.0	
FORM		m ²	85.0	
REINFORCEMENT BAR	50-50	kg	18,000	
SIDE		m	15.00	
EXPANSION JOINT		m	18.00	
MANHOLE		m	20.00	
CONCRETE PAVEMENT		m ²	85.0	
SUB-STRUCTURE				
CONCRETE	25-30	m ³	310	
FORM		m ²	86.80	
REINFORCEMENT BAR	50-50	kg	148.94	
			3.87	

DESIGN CONDITION

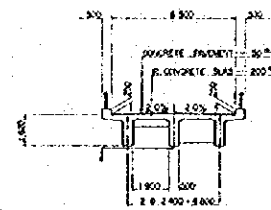
HTA BRIDGE LENGTH	10 ^m .00
BRIDGE WIDTH	6 ^m .50
SPAN	6 ^m .00
WIDTH	6 ^m .00
TYPE	RC
DESIGN SPEED	40 km/h
DESIGN LOAD	HS-20
DESIGN WIND SPEED	110 km/h
DESIGN SEISMICITY	Zone II
DESIGN FLOOD	100 Year
DESIGN SOIL	Good
DESIGN TEMPERATURE	10°C
DESIGN WIND	110 km/h

RCT
W = 6^m.50
L = 15^m.00

GENERAL ELEVATION SCALE = 1:100



CROSS SECTION SCALE = 1:100



MATERIAL LIST

ITEM	CLASS	UNIT	PER BRIDGE	REMARKS
SUB-STRUCTURE				
CONCRETE	25-30	m ³	80.5	
FORM		m ²	256.5	
REINFORCEMENT BAR	50-50	kg	7,260	
SIDE		m	8	
EXPANSION JOINT		m	15.00	
MANHOLE		m	30.00	
CONCRETE PAVEMENT		m ²	87.5	
SUB-STRUCTURE				
CONCRETE	25-30	m ³	899	
FORM		m ²	142.81	
REINFORCEMENT BAR	50-50	kg	3.78	

DESIGN CONDITION

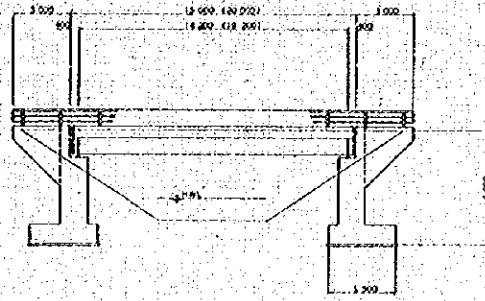
HTA BRIDGE LENGTH	15 ^m .00
BRIDGE WIDTH	6 ^m .50
SPAN	6 ^m .00
WIDTH	6 ^m .00
TYPE	RC
DESIGN SPEED	40 km/h
DESIGN LOAD	HS-20
DESIGN WIND SPEED	110 km/h
DESIGN SEISMICITY	Zone II
DESIGN FLOOD	100 Year
DESIGN SOIL	Good
DESIGN TEMPERATURE	10°C
DESIGN WIND	110 km/h

HIS MAJESTY'S GOVERNMENT OF NEPAL
SANDHAKHAR ROAD CONSTRUCTION PROJECT
FEASIBILITY STUDY
STANDARD DESIGN OF MEDIUM & MINOR BRIDGE (2/4) Sec II
SCALE: 1:100
DATE: 1978
JAPAN INTERNATIONAL COOPERATION AGENCY

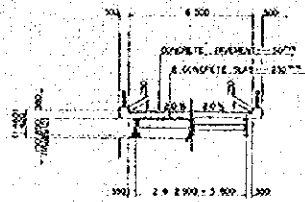
STANDARD DESIGN OF MEDIUM & MINOR BRIDGE (3/4) Sec II

S 111
W = 6^m 50
L = 15^m 00, 20.00

GENERAL ELEVATION SCALE = 1:100

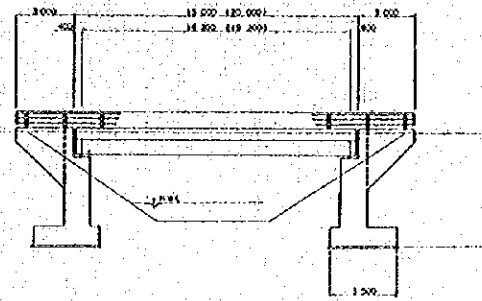


CROSS SECTION SCALE = 1:100

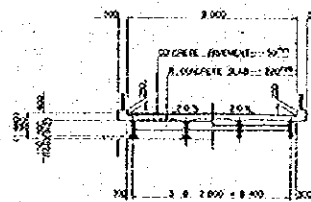


S 111
W = 9^m 00
L = 15^m 00, 20.00

GENERAL ELEVATION SCALE = 1:100

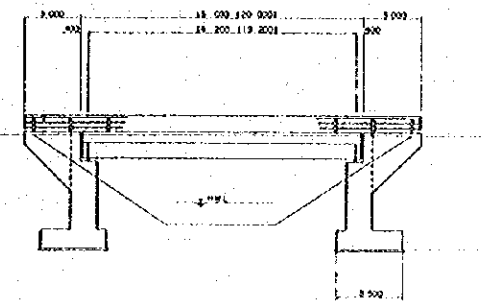


CROSS SECTION SCALE = 1:100

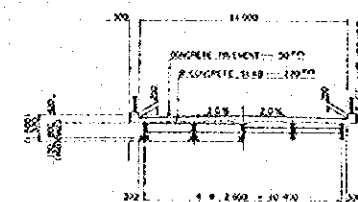


S 111
W = 11^m 00
L = 15^m 00, 20.00

GENERAL ELEVATION SCALE = 1:100



CROSS SECTION SCALE = 1:100



MATERIAL LIST

ITEM	CLASS	UNIT	W = 6.50		W = 9.00		W = 11.00		REMARKS
			L = 15.00	L = 20.00	L = 15.00	L = 20.00	L = 15.00	L = 20.00	
SUPER-STRUCTURE									
STEEL	SAUER	QMS 20	9.250	17.210	13.540	21.180	16.920	9.830	
	CHINA	QMS 20	4.340	8.600	3.820	6.310	4.920	2.820	
PIPE	Ø	m	6	6	6	6	10	10	
MANHOLE	Ø	m	30.00	49.00	30.00	49.00	30.00	49.00	
CONCRETE	Ø 150	m ³	32.5	43.3	40.5	14.0	48.8	65.0	
	FORM	m ²	122	163	155	107	181	241	
CONCRETE FINISH	m ²	37.3	120.0	135.0	180.0	165.0	220.0		
EXPANSION JOINT	m	15.0	15.0	20.0	20.0	26.0	26.0		
SUB-STRUCTURE									
EXCAVATION	m ³	816	816	504	504	578	578		
CONCRETE	Ø 240	m ³	75.32	75.43	93.80	93.43	117.55	114.55	
FORM	m ²	155.44	155.32	163.37	163.34	189.33	183.30		
REINFORCEMENT BAR	Ø 10 - 30	m	3.04	3.03	3.23	3.24	4.72	4.64	

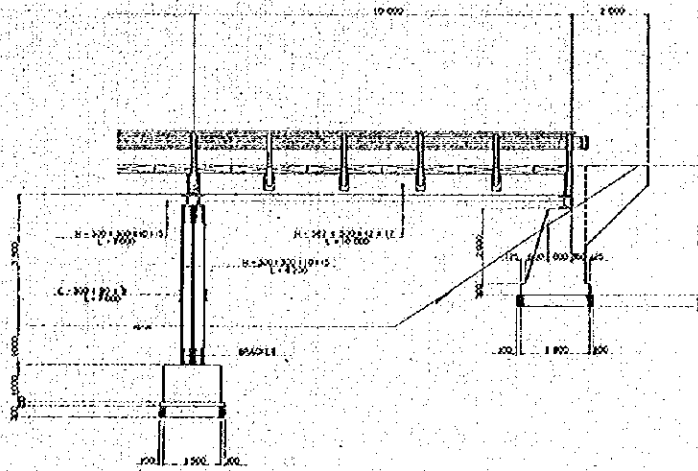
DESIGN CONDITIONS

TOTAL BRIDGE LENGTH	15.000, 20.000
SPAN LENGTH	15.000, 20.000
PIER	15.000, 20.000
PIER WIDTH	1.000, 1.000
PIER SPACING	15.000, 20.000
PIER WIDTH	1.000, 1.000
PIER WIDTH	1.000, 1.000
PIER WIDTH	1.000, 1.000
PIER WIDTH	1.000, 1.000

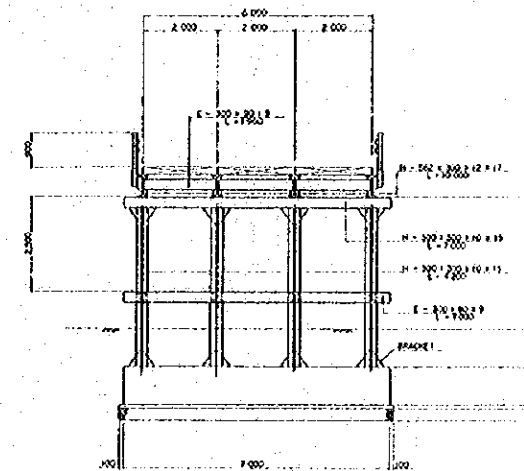
HIS MAJESTY'S GOVERNMENT OF NEPAL
BONDUL ROAD CONSTRUCTION PROJECT
RESPONSIBILITY STUDY
STANDARD DESIGN OF MEDIUM & MINOR BRIDGE (3/4) SEC II
SCALE 1:100
JAPAN INTERNATIONAL COOPERATION AGENCY

STANDARD DESIGN OF TEMPORARY BRIDGE

GENERAL ELEVATION SCALE = 1:100



CROSS SECTION SCALE = 1:100



SUPER-STRUCTURE

ITEM	CLASS	UNIT	PER 10% CO	REMARKS
H-300	SS 41	kg	8 430	
C-300	SS 41	kg	806	
P.I. 1112	SS 41	kg	264	
FIN	SS 41	kg	10 830	
MANORAIL	kg		400	
H.V.B.	kg		61	
BRACKET	kg		235	

SUB-STRUCTURE

ITEM	CLASS	UNIT	ABUTMENT	PIER	QUANTITY	REMARKS
H-300	SS 41	kg	438	8 700	5 358	
E-300	SS 41	kg	333	333	333	
P.I. 1112-25	SS 41	kg	66	300	451	
BRACKET	kg		104	114	114	
H.I.B.	kg		7	104	111	
ANG. S. WIP	SS 41	kg	25	68	63	
EXCAVATION	m ³		81	68	149	
CONCRETE	CU-M		25.0	10.5	35.5	
FORM	m ²		42.0	17.0	59.0	
REINFORCEMENT BAR	kg		0.63	0.37	1.00	

DESIGN CONDITION

TOTAL BRIDGE LENGTH	10000
SPAN	40000
PIER	20000
LINE GRADE	FL-20
BRIDGE OFFSET	1000
BRIDGE CROWN	1000
GRADE OF SIDE	1:1
GRADE OF PAVEMENT	1:1
GRADE OF ROAD	1:1

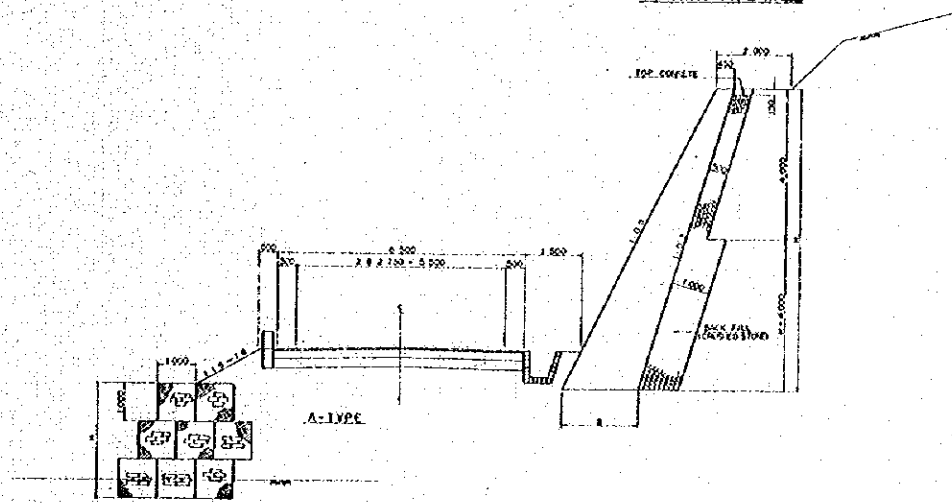
HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHUKOTI RECONSTRUCTION PROJECT
 FEASIBILITY STUDY
 STANDARD DESIGN OF
 TEMPORARY BRIDGE
 SCALE: 1:100
 DATE: 1985
 JAPAN INTERNATIONAL COOPERATION AGENCY

F. RETAINING WALL & SLOPE PROTECTION WORKS

RETAINING WALL	F-1 to F-3
SLOPE PROTECTION	F-4 to F-5
ROCK SHED	F-6

GABION WALL

LEANING TYPE WALL



DIMENSION LIST

ITEM	8.00	9.00	10.00
W	2.00	2.25	2.45

MATERIAL LIST

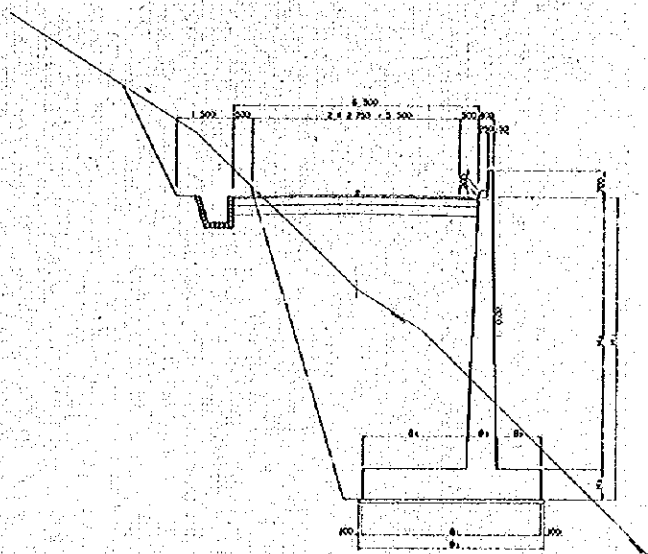
ITEM	UNIT	H=2.00	H=3.00	H=4.00	H=5.00	REMARKS
BOULDER	m ³	4.00	8.00	12.00	16.00	
WIRE MESH	m ²	24.00	36.00	48.00	60.00	
TYPICAL CROSS SECTION						

MATERIAL LIST

ITEM	UNIT	H=8.00	H=9.00	H=10.00	REMARKS
CONCRETE	m ³	10.00	12.00	14.00	OK-100
FORM	m ²	12.00	14.00	16.00	
SCAFFOLD	m ²	8.00	9.00	10.00	
TOP CONCRETE	m ³	0.078	0.078	0.078	

HIS MAJESTY'S GOVERNMENT OF JAPAN
 SINGAPORE FUND CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 GABION WALL
 LEANING TYPE WALL
 SCALE 1:50
 JAPAN INTERNATIONAL COOPERATION AGENCY

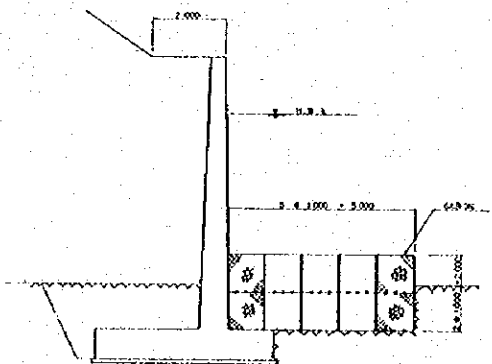
REVERSED T TYPE WALL



DIMENSION LIST

	4.00	5.00	6.00	7.00	8.00	9.00	10.00
H1	3.50	4.50	5.50	6.50	7.50	8.50	9.50
H2	0.30	0.30	0.30	0.30	0.30	0.30	0.30
B1	2.40	3.00	3.60	4.20	4.80	5.40	6.00
B2	0.30	0.30	0.30	0.30	0.30	0.30	0.30
B3	0.40	0.60	0.80	1.00	1.20	1.40	1.60
B4	1.50	1.80	2.10	2.40	2.70	3.00	3.30
B5	2.10	2.70	3.30	3.90	4.50	5.10	5.70

RIVER BED PROTECTION



MATERIAL LIST

ITEM	UNIT	H=4.00	H=5.00	H=6.00	H=7.00	H=8.00	H=9.00	H=10.00	REMARKS
CONCRETE	BOU	2.253	3.318	4.383	5.448	6.513	7.578	8.643	Q _c = 200 N/mm ²
	BASE	0.200	0.200	0.200	0.200	0.200	0.200	0.200	Q _c = 150 N/mm ²
FORM	BOU	9.527	17.421	25.315	33.209	41.103	48.997	56.891	
	BASE	0.200	0.200	0.200	0.200	0.200	0.200	0.200	
REINFORCEMENT	T	0.117	0.236	0.354	0.473	0.592	0.711	0.830	

SLOPE PROTECTION WORK (I)
S = 1:60

SEED SPRAYING

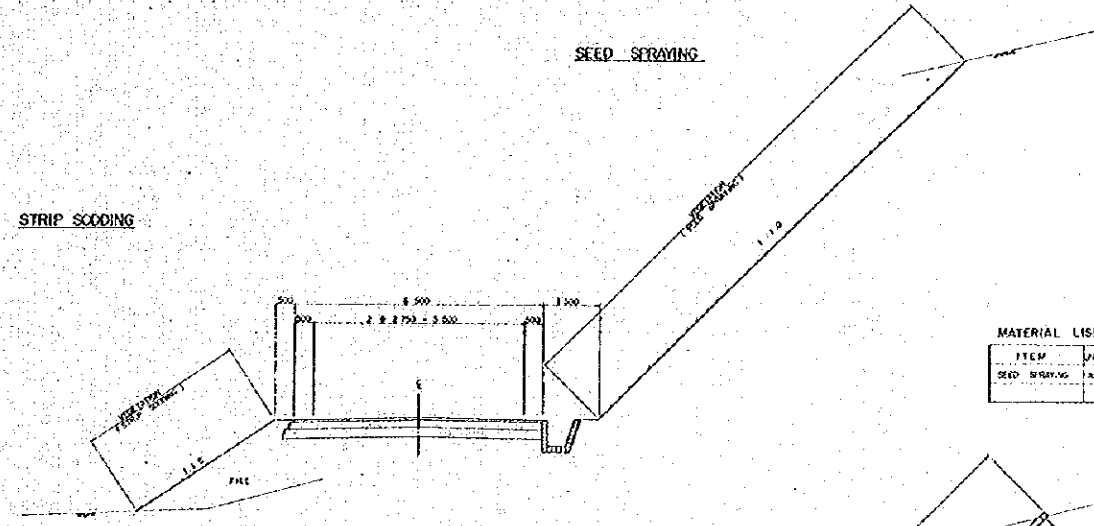
STRIP SODDING

MATERIAL LIST

ITEM	UNIT	QUANTITY	REMARKS
STRIP SODDING	m ²	100.0	

MATERIAL LIST

ITEM	UNIT	QUANTITY	REMARKS
SEED SPRAYING	m ²	100.0	



CRIB WALL

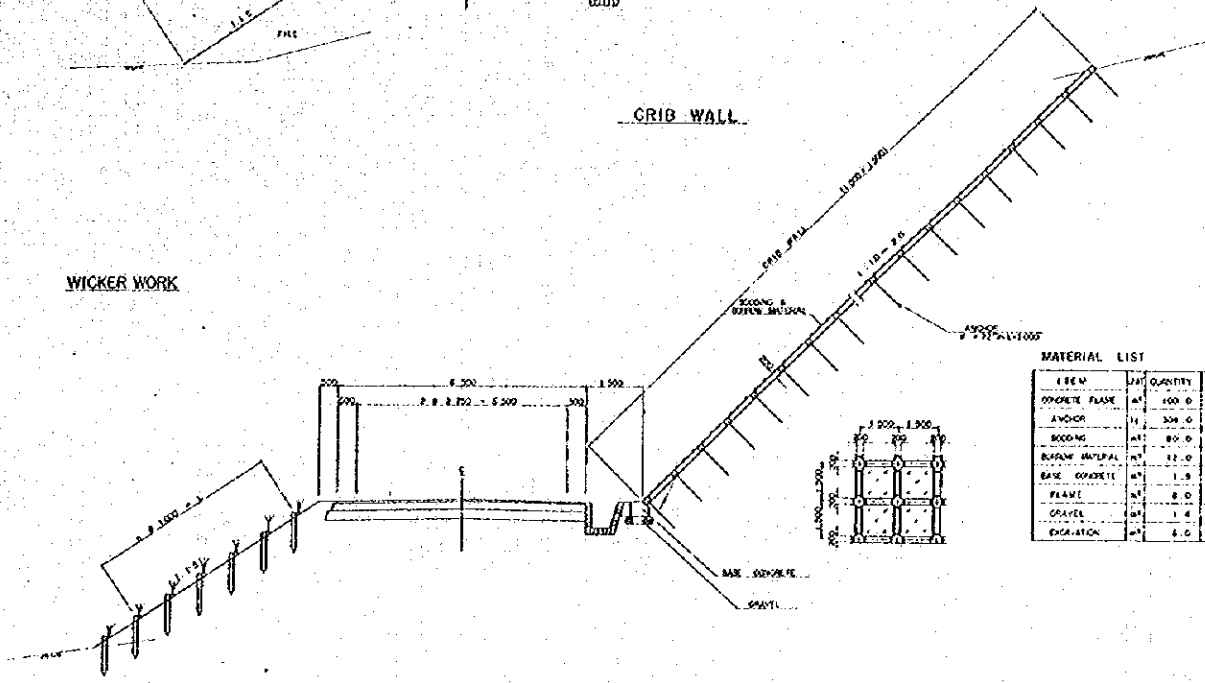
WICKER WORK

MATERIAL LIST

ITEM	UNIT	QUANTITY	REMARKS
WICKER WORK	m ²	100.0	

MATERIAL LIST

ITEM	UNIT	QUANTITY	REMARKS
CONCRETE PLATE	m ²	100.0	CASE IN SITE
ANCHOR	kg	300.0	Ø 22mm x 1000mm
SOODING	m ²	80.0	
ROCKWATER	m ³	11.0	
BASE CONCRETE	m ³	1.5	1 PER 10m ²
FRAME	m ²	2.0	1 PER 10m ²
GRAVEL	m ³	1.4	1 PER 10m ²
EXCAVATION	m ³	2.0	1 PER 10m ²



G. DRAINAGE STRUCTURES

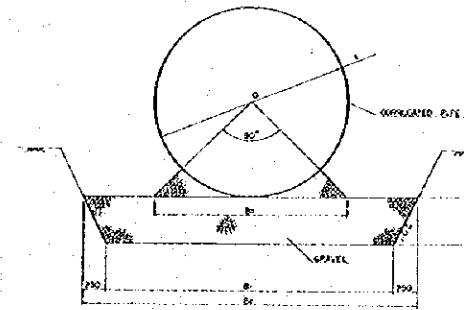
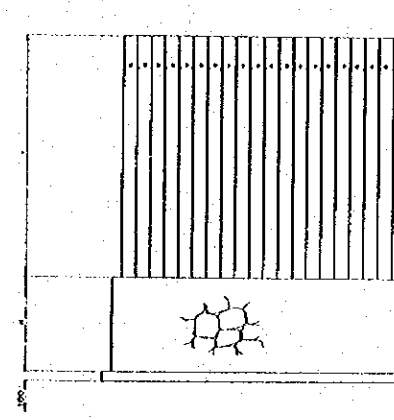
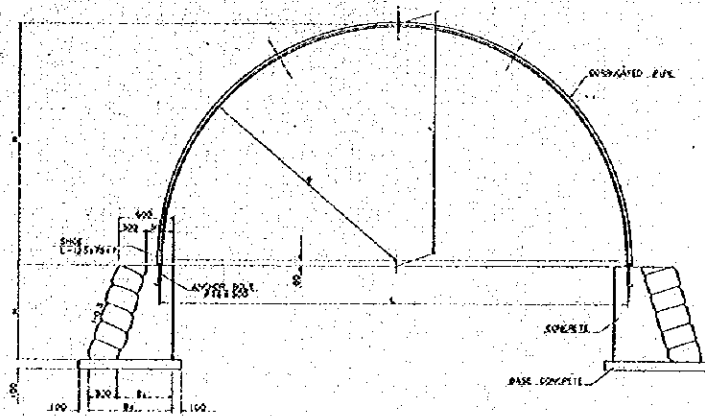
PIPE , ARCH CULVERT	G-1 to G-2
CATCH PIT , INLET & OUTLET OF PIPE CULVERT	G-3
SIDE DRAIN , CHANNEL	G-4
BOX CULVERT	G-5

CORRUGATED ARCH CULVERT
SCALE 1:20

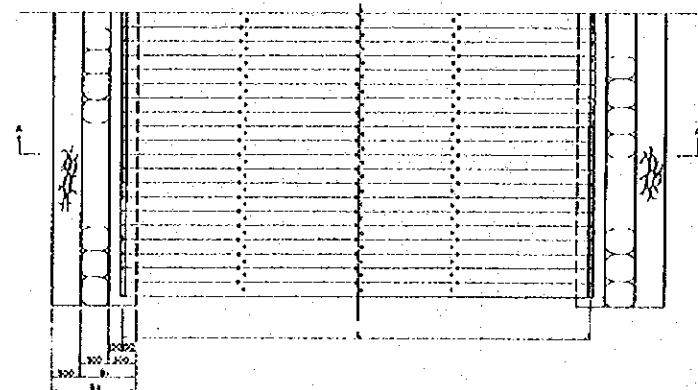
CORRUGATED PIPE CULVERT
SCALE 1:20

A-A

ELEVATION



PLAN



DIMENSION LIST

ITEM	UNIT	1.50	2.20
R	m	2.50	2.50
L	m	3.00	3.00
H	m	1.50	2.00
B	m	0.75	0.75
B ₁	m	1.00	1.20

DIMENSION LIST

ITEM	UNIT	0.80	1.00
D	m	0.80	0.80
B ₁	m	2.10	2.50
B ₂	m	0.80	1.00

MATERIAL LIST

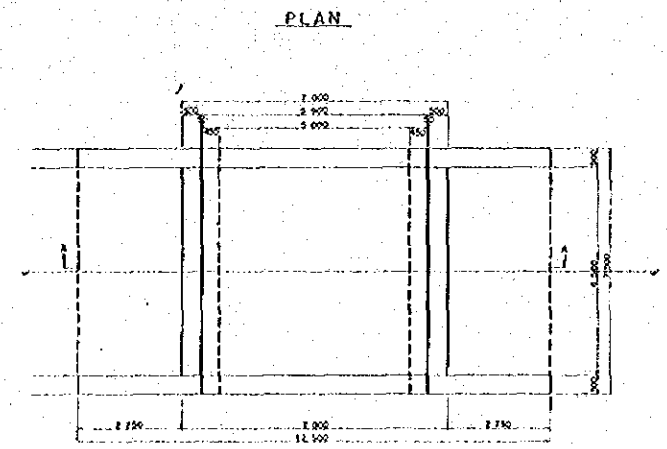
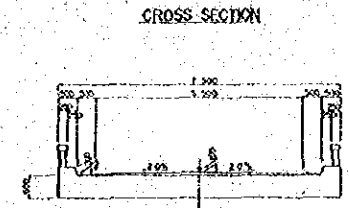
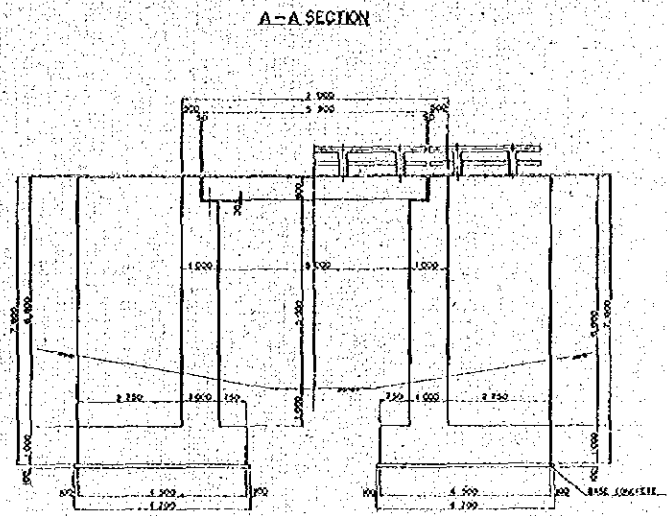
ITEM	UNIT	R=1.50m	R=2.20m	REMARKS
CORRUGATED PIPE	m	0	2	
ANCHOR BOLT	kg	18	25.5	230x25
IRON	kg	1.2	1.8	16x500
CONCRETE	m ³	0.78	1.20	0.1+2.6%adm
FORM	m ²	3.07	4.09	
STONE MASONRY	m ³	1.37	2.04	1:3:10
BASE CONCRETE	m ³	0.128	0.14	0.1+0.5%adm

MATERIAL LIST

ITEM	UNIT	D=0.80m	D=1.00m	REMARKS
CORRUGATED PIPE	m	1.00	2.00	
GRAVEL	m ³	0.95	1.18	

HIS MAJESTY'S GOVERNMENT OF NEPAL
SINGHU ROAD CONSTRUCTION PROJECT
FEASIBILITY STUDY
CORRUGATED ARCH CULVERT 1:20
CORRUGATED PIPE CULVERT 1:20
SCALE 1:20
DATE
JAPAN INTERNATIONAL COOPERATION AGENCY

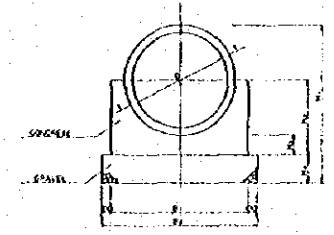
SLAB CULVERT
SCALE: 1:50



MATERIAL LIST

ITEM	UNIT	QUANTITY	REMARKS
CONCRETE	SLAB	27.97	0.15 x 4.50 x 1.80
	BODY	186.03	0.15 x 1.20 x 1.80
	BASE	8.24	0.15 x 1.20 x 4.50
	SLAB	54.14	
FORM	ROOF	128.20	
	BASE	4.84	
	REIN FOR CONCRETE	1.44	
	WATERPROOF	25.00	

PIPE CULVERT (CONCRETE)
SCALE: 1:20



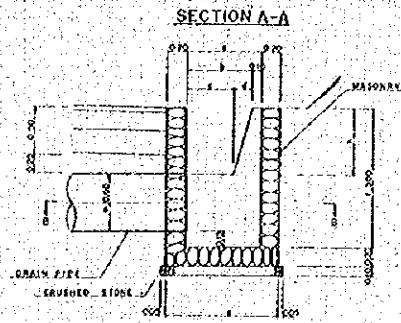
DIMENSION LIST

ITEM	UNIT	QUANTITY	REMARKS
D	Ø	0.50	Ø 1.00
L	Ø	0.50	Ø 0.80
B ₁	Ø	0.50	1.45
B ₂	Ø	1.10	1.65
H ₁	Ø	1.10	1.184
H ₂	Ø	0.50	0.79
H ₃	Ø	0.15	0.70
H ₄	Ø	0.15	0.10

MATERIAL LIST

ITEM	UNIT	QUANTITY	REMARKS
CONCRETE	Ø	2.378	Ø 1.10 x 1.10
FORM	Ø	2.750	Ø 1.10 x 1.10
PIPE	Ø	10.000	Ø 1.00

CATCH PIT

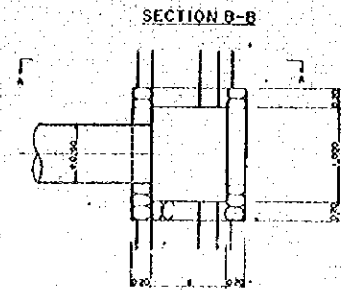


DIMENSION LIST

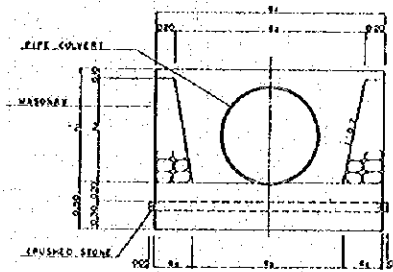
TYPE	a	b	c	d	e	f	g	h
0.60	0.60	0.30	0.30	0.15	1.00	0.30		
0.80	0.80	0.30	0.30	0.20	1.20	0.30		
1.00	1.00	0.30	0.30	0.30	1.40	0.30		

MATERIAL LIST

ITEM	UNIT	TYPE	PER EACH
MASONRY	m ³	0.60	1.00
CEMENT MORTAR	m ³	1.17	1.61
CRUSHED STONE	m ³	0.33	0.45
EXCAVATION	m ³	0.47	0.63



INLET AND OUTLET

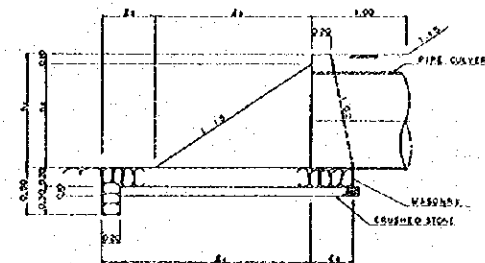
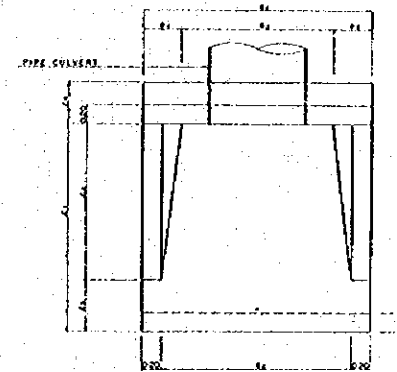


DIMENSION LIST

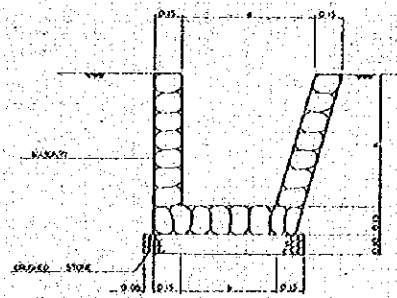
TYPE	a	b	c	d	e	f	g	h	i	j
0.60	2.00	0.60	1.30	0.30	1.64	1.03	0.30	0.30	0.30	0.30
1.00	2.40	2.05	1.41	0.42	2.27	1.65	0.30	0.44	1.20	1.10

MATERIAL LIST

ITEM	UNIT	TYPE	PER EACH
MASONRY	m ³	0.60	1.00
CEMENT MORTAR	m ³	1.48	2.08
CRUSHED STONE	m ³	0.44	0.60



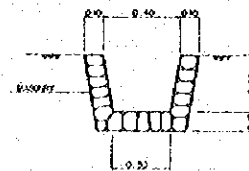
SIDE DRAIN (A)



DIMENSION LIST			
TYPE	a	b	h
0.50	0.50	0.50	0.50
0.75	0.75	0.50	0.50
0.50	0.50	0.45	0.50

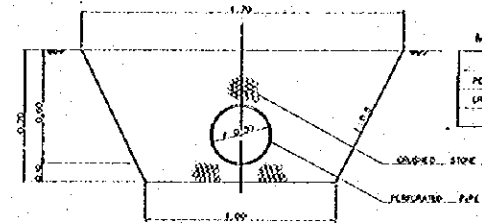
MATERIAL LIST			
ITEM	UNIT	TYPE	QUANTITY
WASARI	m ²	0.50	0.50
CEMENT MORTAR	m ³	0.74	0.85
CRUSHED STONE	m ³	0.50	1.00
EXCAVATION	m ³	4.7	10.4

SIDE DRAIN (B)



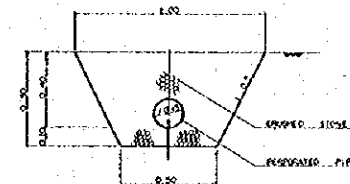
MATERIAL LIST		
ITEM	UNIT	QUANTITY
WASARI	m ²	1.02
CEMENT MORTAR	m ³	0.30
EXCAVATION	m ³	2.1

FILLED DRAIN (φ 300A)



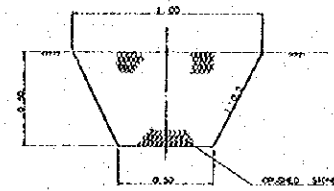
MATERIAL LIST			
ITEM	UNIT	QUANTITY	REMARKS
PERFORATED PIPE	m	10.00	
CRUSHED STONE	m ³	8.74	
EXCAVATION	m ³	9.0	

FILLED DRAIN (φ 150A)



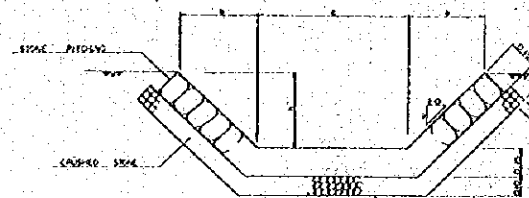
MATERIAL LIST			
ITEM	UNIT	QUANTITY	REMARKS
PERFORATED PIPE	m	10.00	
CRUSHED STONE	m ³	3.57	
EXCAVATION	m ³	3.0	

FILLED DRAIN



MATERIAL LIST			
ITEM	UNIT	QUANTITY	REMARKS
CRUSHED STONE	m ³	0.50	
EXCAVATION	m ³	0.4	

CHANNEL (STONE PITCHING)



DIMENSION LIST			
TYPE	a	b	h
2.00	1.00	0.50	0.50
3.00	1.50	0.75	0.75
4.00	2.00	1.00	1.00
5.00	2.50	1.50	1.50

MATERIAL LIST			
ITEM	UNIT	TYPE	QUANTITY
STONE PITCHING	m ²	3.24	3.58
CEMENT MORTAR	m ³	1.32	1.67
CRUSHED STONE	m ³	2.86	4.02
EXCAVATION	m ³	11.1	24.3

CHANNEL (VEGETATION)

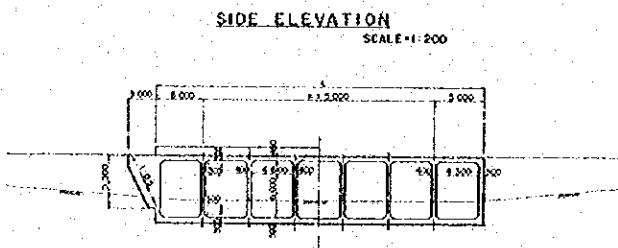
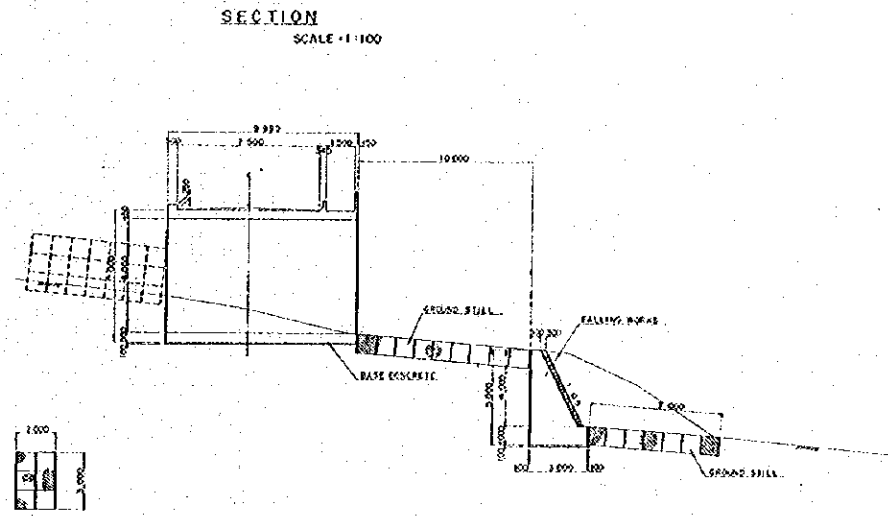
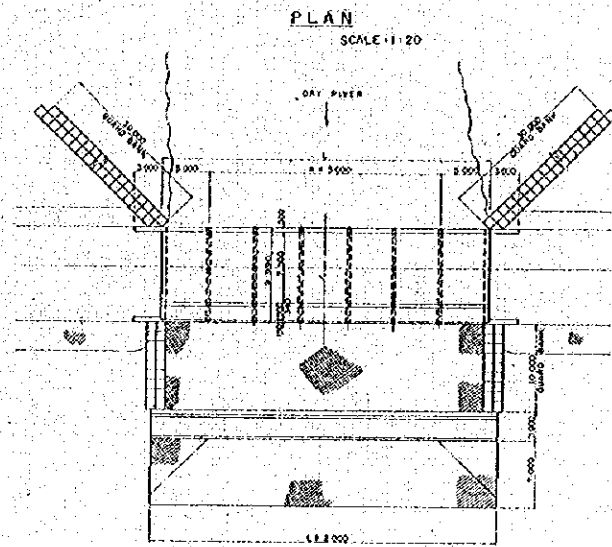


DIMENSION LIST			
TYPE	a	b	h
2.00	1.00	0.50	0.50
3.00	1.50	0.75	0.75

MATERIAL LIST			
ITEM	UNIT	TYPE	QUANTITY
VEGETATION	m ²	14.1	21.2
EXCAVATION	m ³	7.9	16.8

HIS MAJESTY'S GOVERNMENT OF NEPAL
 BINAVAL ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SIDE DRAIN, CHANNEL (4" x 4")
 FILLED DRAIN (φ 150)
 SCALE: 1:100
 JAPAN INTERNATIONAL COOPERATION AGENCY

BOX CULVERT



MATERIAL LIST

ITEM	UNIT	L=5.00	L=10.00	L=15.00	L=20.00	L=25.00	L=30.00	L=35.00	L=40.00	REMARKS
CONCRETE	BODY	113.53	191.10	268.65	346.21	423.77	501.34	578.89	656.45	DES: 210/100
	WING	20.90	40.80	60.70	80.60	100.50	120.40	140.30	160.20	DES: 210/100
	BASE	5.30	10.60	15.90	21.20	26.50	31.80	37.10	42.40	DES: 150/100
FORM	BODY	219.04	438.08	657.12	876.16	1095.20	1314.24	1533.28	1752.32	
	WING	33.20	66.40	99.60	132.80	166.00	199.20	232.40	265.60	
	REINFORCEMENT	1.13	2.26	3.39	4.52	5.65	6.78	7.91	9.04	
GUARD BANK	PP	482	482	482	482	482	482	482	482	
	CONCRETE	63.00	108.00	153.00	198.00	243.00	288.00	333.00	378.00	DES: 150/100
PAVING WORKS	FORM	7.30	14.60	21.90	29.20	36.50	43.80	51.10	58.40	DES: 150/100
	MASONRY	31.30	62.60	93.90	125.20	156.50	187.80	219.10	250.40	
GROUND FILL	PP	119.0	238.0	357.0	476.0	595.0	714.0	833.0	952.0	

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHUJI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
BOX CULVERT
 SHEET NO. G-5
 DATE: _____
 JAPAN INTERNATIONAL COOPERATION AGENCY

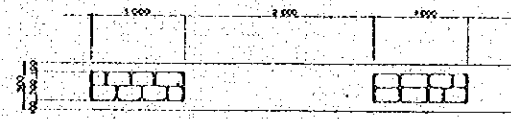
H. MISCELLANEOUS WORKS

GUARD RAIL &
ROAD PARAPET

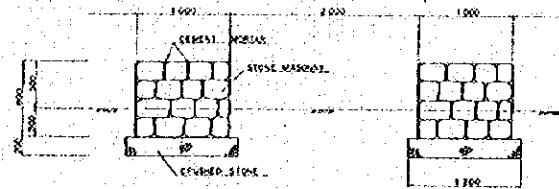
H-1

ROAD PARAPET

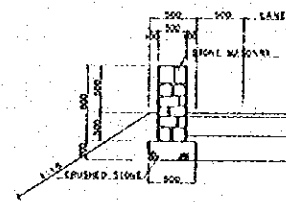
PLANE



ELEVATION



SECTION A-A

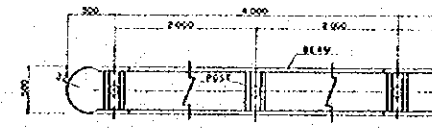


MATERIAL LIST (PER 100')

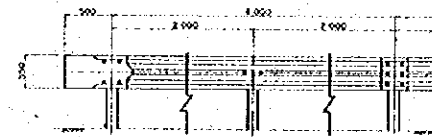
ITEM	UNIT	QUANTITY	REMARKS
MASONRY	m ³	0.80	
CEMENT MORTAR	sf	0.24	
CRUSHED STONE	sf	0.40	

GUARD RAIL FOR ROCK SHED

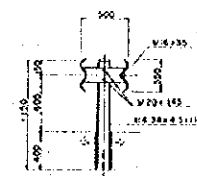
PLANE



ELEVATION



POST



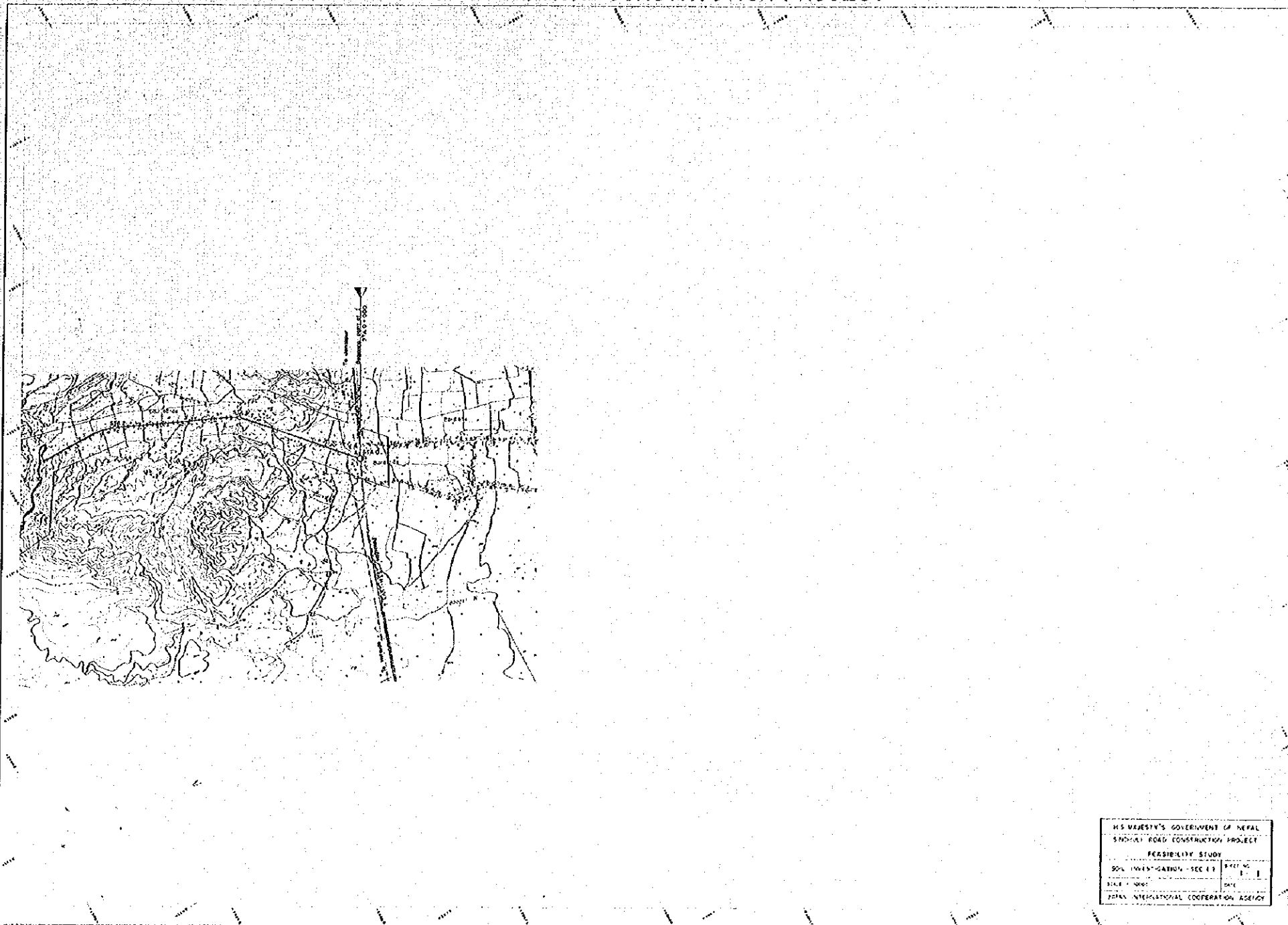
MATERIAL LIST (PER 100')

ITEM	UNIT	QUANTITY	REMARKS
POST	PIECE	5	100x100x1000
BEAM	PIECE	5	100x100x4000

HIS MAJESTY'S GOVERNMENT OF NEPAL
 INFRASTRUCTURE CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 GUARD RAIL & ROAD PARAPET
 SHEET NO. 20
 JAPAN INTERNATIONAL COOPERATION AGENCY

I. SOIL PROFILES

I-1 to I-30



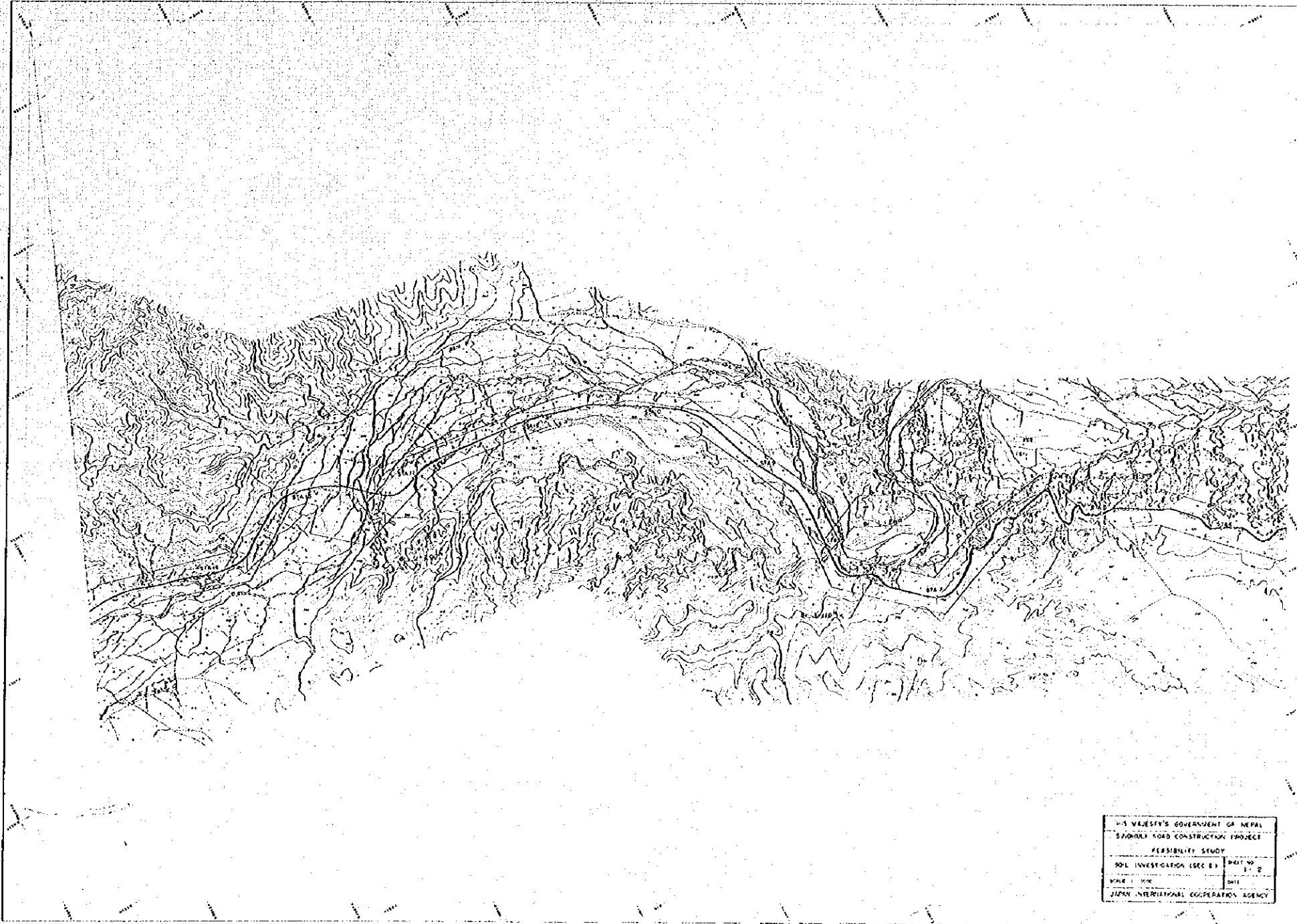
LEGEND

ROAD	---
RAILWAY	—+—+—+—+—
POWER LINE	—•—•—•—•—
WATER
...	...

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHULI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOULIMBY-GARHUK - SEC 4 B
 SCALE: 1:5000
 JAPAN INTERNATIONAL COOPERATION AGENCY

10:500
 1:5000
 1:10000

SINDHULI ROAD CONSTRUCTION PROJECT

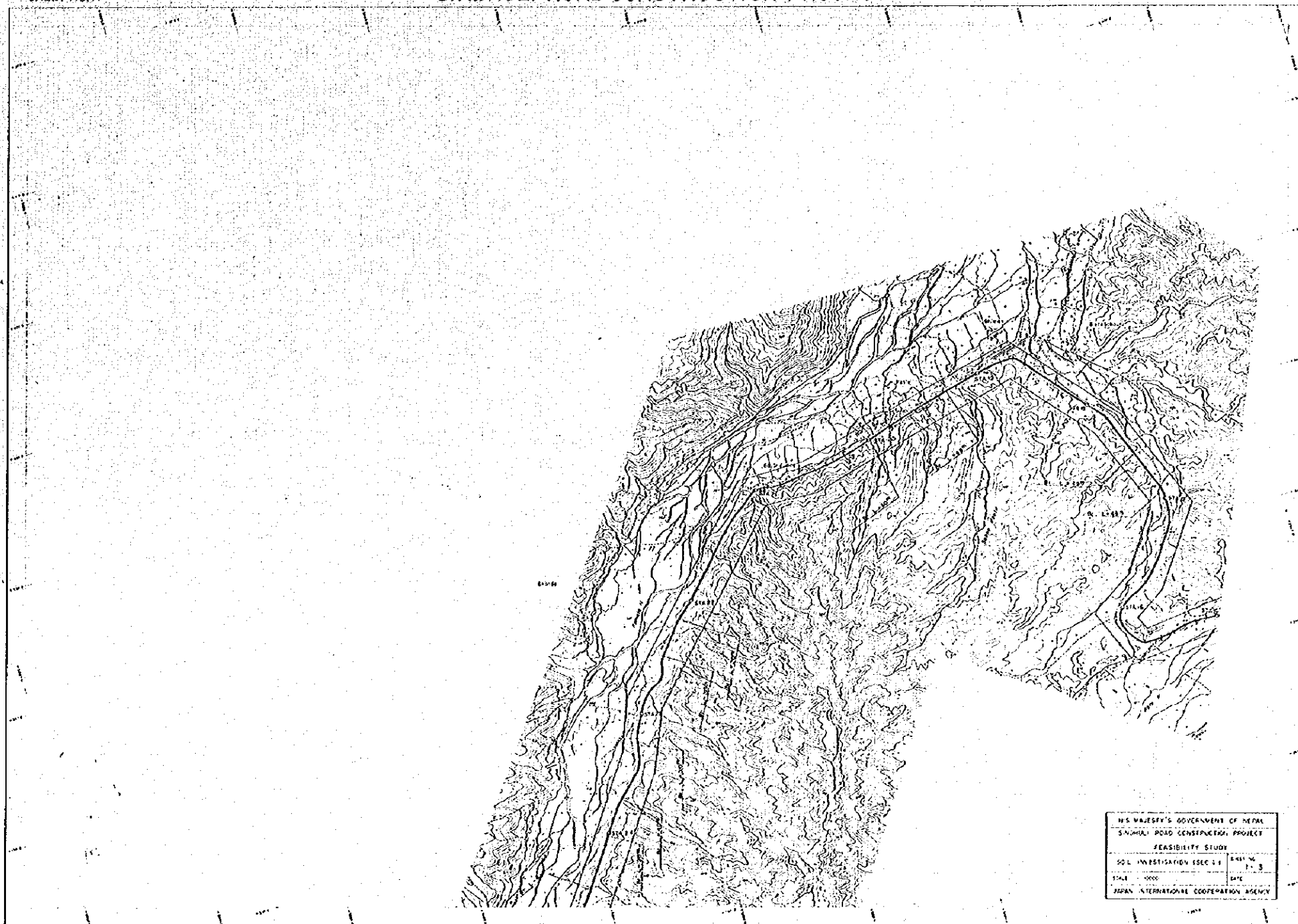


LEGEND

ROAD	---
RAILWAY	—+—+—+—+—+—+—+—+—+—
INTERNATIONAL BOUNDARY	—•—•—•—•—•—•—•—•—•—
NATIONAL BOUNDARY	—•—•—•—•—•—•—•—•—•—
STATE BOUNDARY	—•—•—•—•—•—•—•—•—•—
LOCAL BOUNDARY	—•—•—•—•—•—•—•—•—•—
WATER COURSE	—~—~—~—~—~~—~—~~~—
WATER DIVISION	—•—•—•—•—•—•—•—•—•—
TEMPERATURE	—•—•—•—•—•—•—•—•—•—
RAINFALL	—•—•—•—•—•—•—•—•—•—
SOIL	—•—•—•—•—•—•—•—•—•—
VEGETATION	—•—•—•—•—•—•—•—•—•—
POPULATION	—•—•—•—•—•—•—•—•—•—
RELIEF	—•—•—•—•—•—•—•—•—•—
ADMINISTRATIVE BOUNDARY	—•—•—•—•—•—•—•—•—•—
ROAD	---
RAILWAY	—+—+—+—+—+—+—+—+—+—+—
INTERNATIONAL BOUNDARY	—•—•—•—•—•—•—•—•—•—
NATIONAL BOUNDARY	—•—•—•—•—•—•—•—•—•—
STATE BOUNDARY	—•—•—•—•—•—•—•—•—•—
LOCAL BOUNDARY	—•—•—•—•—•—•—•—•—•—
WATER COURSE	—~—~—~—~—~~—~—~~~—
WATER DIVISION	—•—•—•—•—•—•—•—•—•—
TEMPERATURE	—•—•—•—•—•—•—•—•—•—
RAINFALL	—•—•—•—•—•—•—•—•—•—
SOIL	—•—•—•—•—•—•—•—•—•—
VEGETATION	—•—•—•—•—•—•—•—•—•—
POPULATION	—•—•—•—•—•—•—•—•—•—
RELIEF	—•—•—•—•—•—•—•—•—•—
ADMINISTRATIVE BOUNDARY	—•—•—•—•—•—•—•—•—•—

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHULI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION (SEC 13) SHEET NO. 1-2
 WORK 1/80C DATE 1981
 JAPAN INTERNATIONAL COOPERATION AGENCY

SINDHULI ROAD CONSTRUCTION PROJECT



LEGEND

ROAD	---
RAILWAY	—+—+—+—
POWER LINE	—●—●—●—
WATER	~~~~~
BOUNDARY	—x—x—x—
SETBACK	—o—o—o—
...	...

HER MAJESTY'S GOVERNMENT OF NEPAL
 SINDHULI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION SEC 11
 SCALE 1:5000
 JAPAN INTERNATIONAL COOPERATION AGENCY

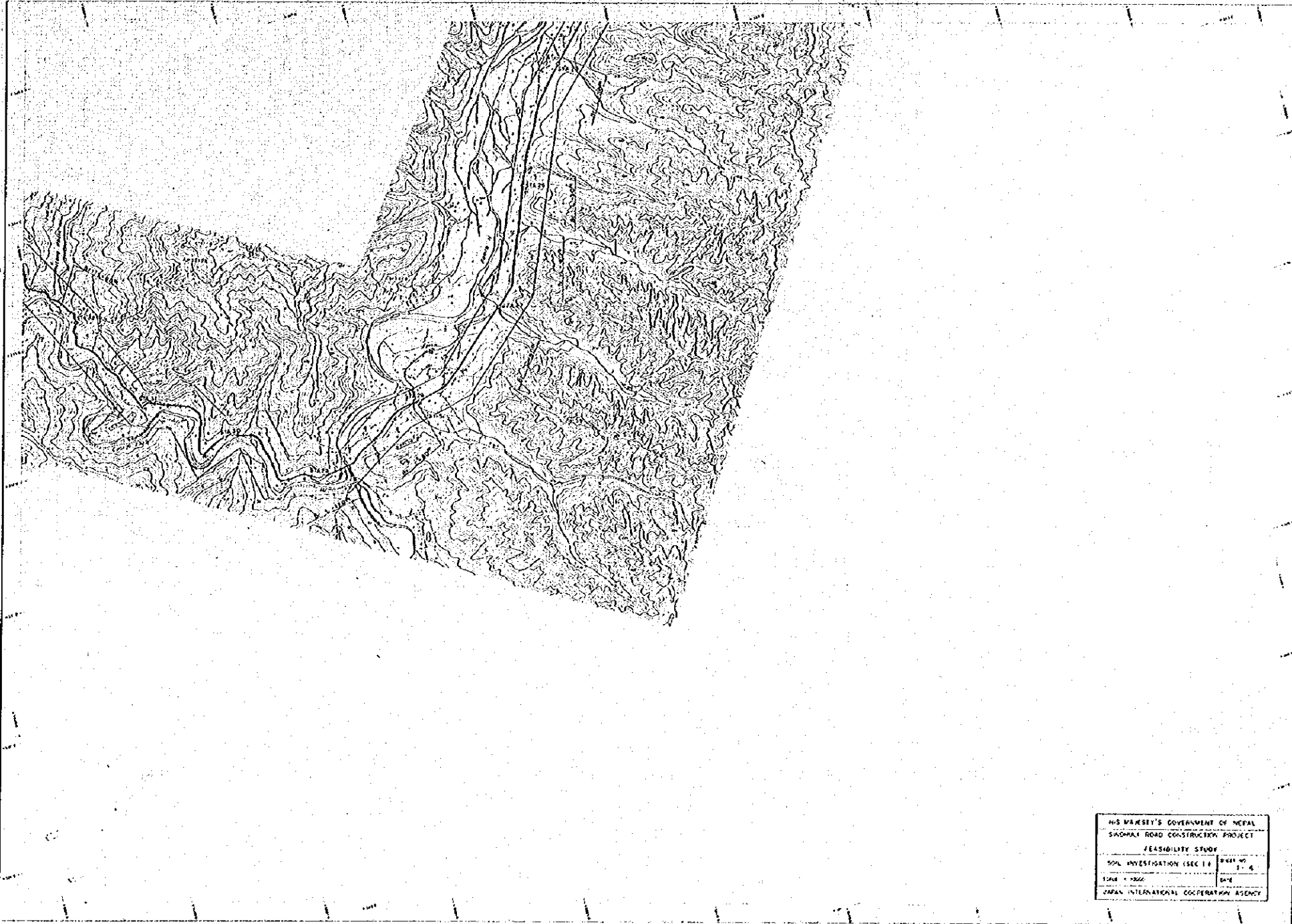
DEPARTMENT OF PUBLIC WORKS, ROAD AND TRANSPORT
 FOR MINISTRY OF TRANSPORT AND TRAVEL

1:5000
 1:10000
 1:20000
 1:50000
 1:100000

JAPAN INTERNATIONAL COOPERATION AGENCY
 The Agency has provided technical assistance
 for the study of the Sindhuli Road Project
 under the grant-in-aid from the Government of Japan.

SHEET NO.10

SINDHULI ROAD CONSTRUCTION PROJECT



LEGEND

ROAD	---
RAILWAY	—+—+—+—
POWER LINE	—●—●—●—
WATER COURSE	~~~~~
BOUNDARY	—x—x—x—
SETBACK	—o—o—o—
...	...

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHULI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION (SEC 1.4) SHEET NO. 1-4
 YEAR: 1982 DATE: ...
 JAPAN INTERNATIONAL COOPERATION AGENCY

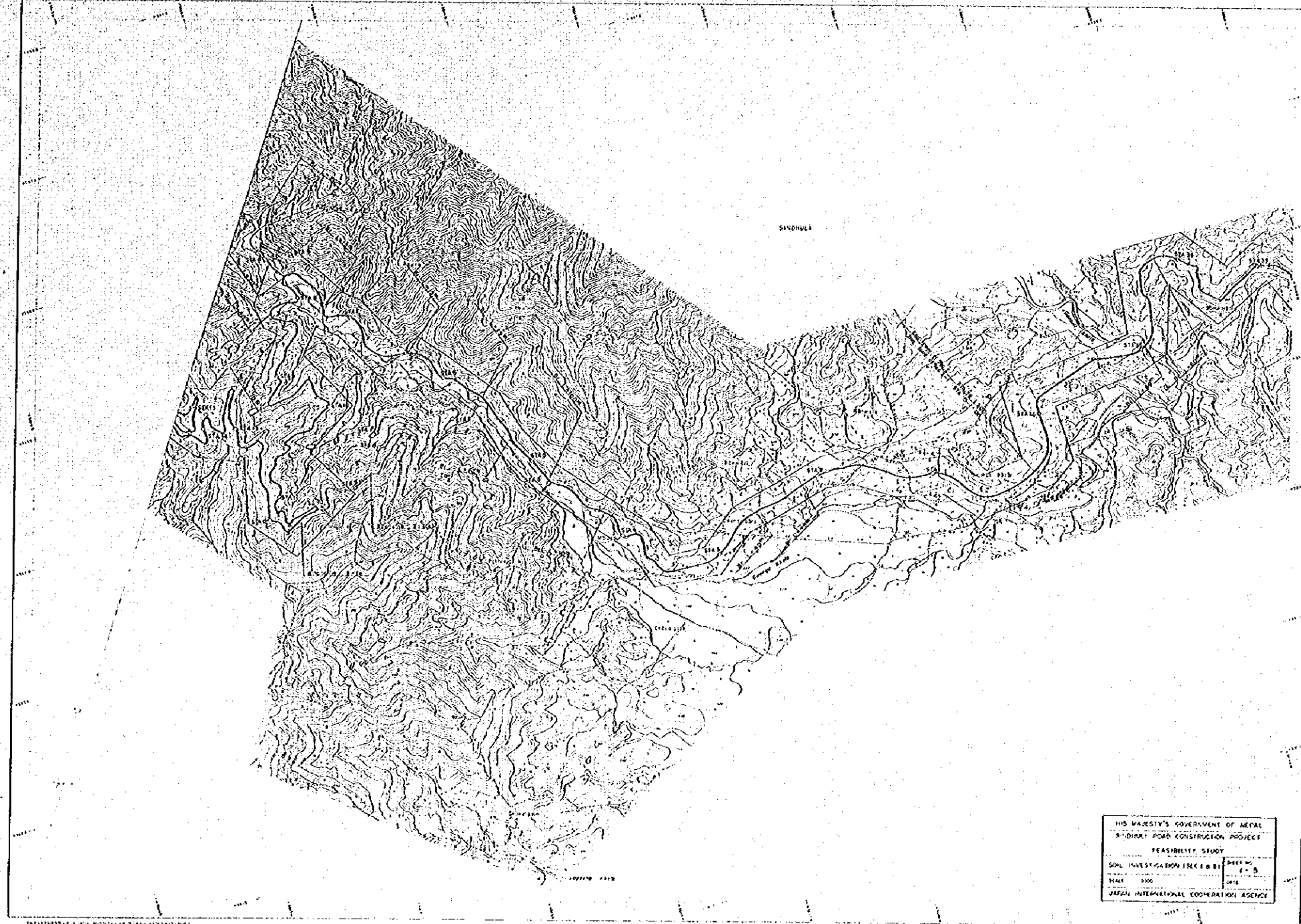
SHEET NO.10

DEPARTMENT OF ROAD, MINISTRY OF WORKS AND TRANSPORT
KATHMANDU, NEPAL

SCALE: 1:50,000
PROJECTION: UTM
EPOCH: 1950
SOURCE: ...

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SINDHULI ROAD CONSTRUCTION PROJECT



LEGEND

Contour Interval	100 Feet
Water	Blue
Highway	Double Line
Major Road	Single Line
Minor Road	Dashed Line
Track	Dotted Line
Power Line	Line with Cross-ticks
Telephone Line	Line with Circles
Electricity Line	Line with Squares
Telegraph Line	Line with Triangles
Boundary	Line with Dots and Dashes
Settlement	Cluster of Small Squares
Forest	Wavy Line Pattern
Barren Land	Stippled Area
Rocky Area	Diagonal Line Pattern
Marshy Area	Wavy Line Pattern
Swampy Area	Wavy Line Pattern
Waterfall	Vertical Line with Triangles
Spring	Circle with a Dot
Well	Circle with a Cross
Well Head	Circle with a Square
Well Shaft	Circle with a Triangle
Well Platform	Circle with a Circle
Well Wall	Circle with a Square
Well Cover	Circle with a Circle
Well Head	Circle with a Square
Well Shaft	Circle with a Triangle
Well Platform	Circle with a Circle
Well Wall	Circle with a Square
Well Cover	Circle with a Circle

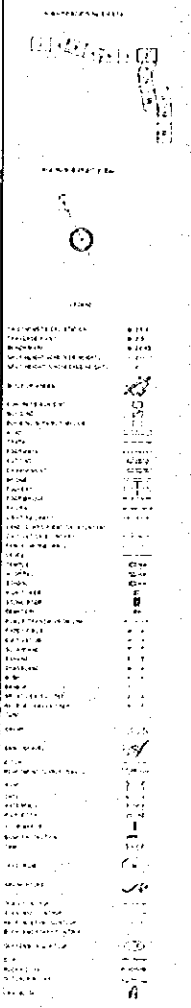
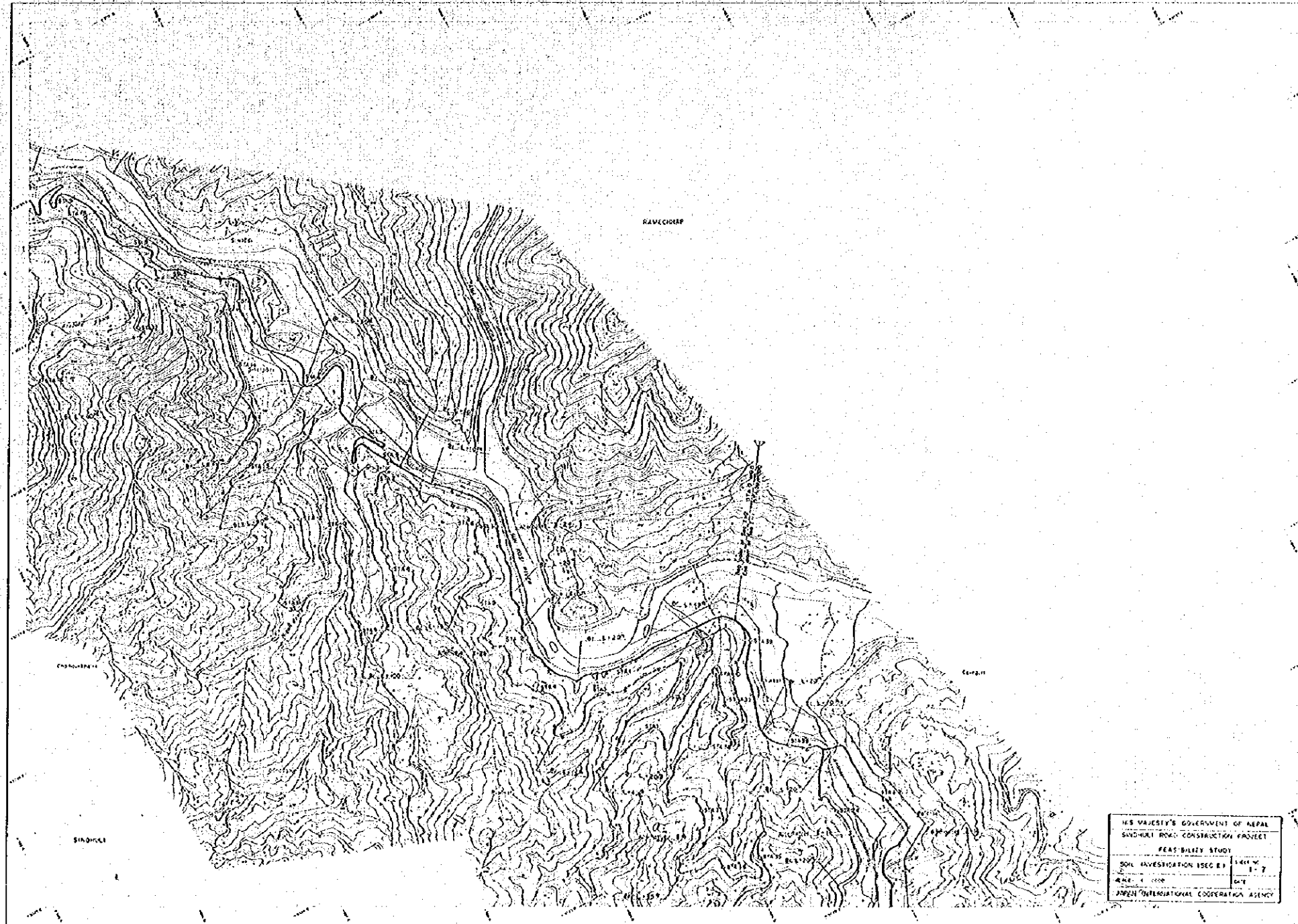
THE MAJESTY'S GOVERNMENT OF NEPAL
 SINDHULI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION (S.E.C. & B.I.)
 SCALE 1:5000
 JAPAN INTERNATIONAL COOPERATION AGENCY

DEPARTMENT OF LAND, SURVEY & MAPPING, NEPAL

0.00
1:5000

DATE: 1976
BY: [Signature]

SINDHULI ROAD CONSTRUCTION PROJECT



HIS MAJESTY'S GOVERNMENT OF NEPAL
SINDHULI ROAD CONSTRUCTION PROJECT
FEASIBILITY STUDY
SOIL INVESTIGATION (SEC B) 1:1000
SCALE: 1:5000
JAPAN INTERNATIONAL COOPERATION AGENCY

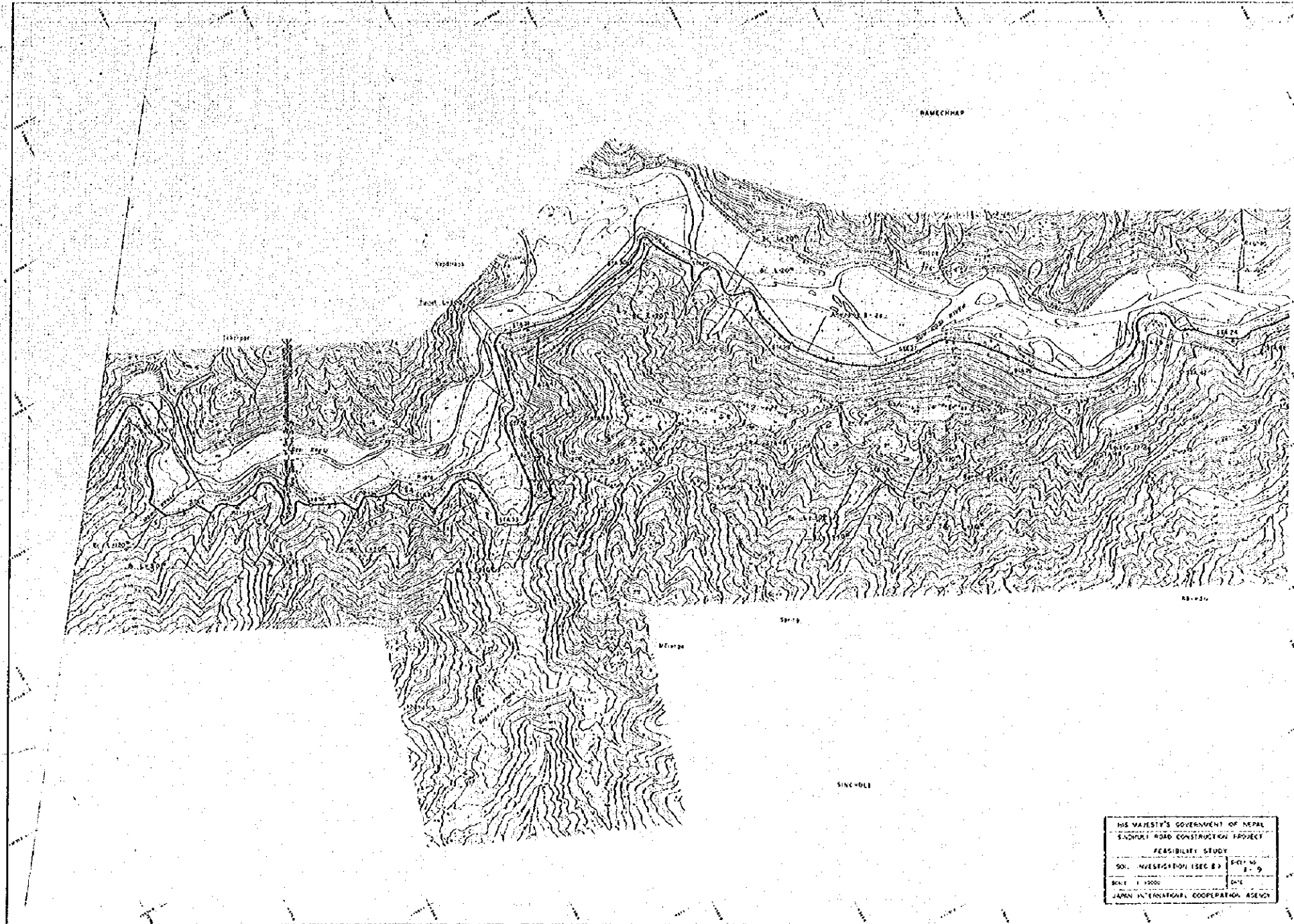
PREPARED BY: JICA, NICTD, AND JICA-UNEP
FOR NEPAL GOVERNMENT (1988)

1:5000
1:1000
1:2000
1:5000

1:1000
1:5000
1:1000
1:5000

SHEET NO. 5

SINDHULI ROAD CONSTRUCTION PROJECT



SYMBOLS

BOUNDARY

ROAD

RAILWAY

WATER

SETTLEMENT

VEGETATION

RELIEF

GRID

OTHER

LEGEND

1. BOUNDARY

2. ROAD

3. RAILWAY

4. WATER

5. SETTLEMENT

6. VEGETATION

7. RELIEF

8. GRID

9. OTHER

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHULI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SO. INVESTIGATION (SEC. B) SHEET NO. 5
 SCALE 1:5000 DATE 1964
 JAPAN INTERNATIONAL COOPERATION AGENCY

SHEET NO. 5

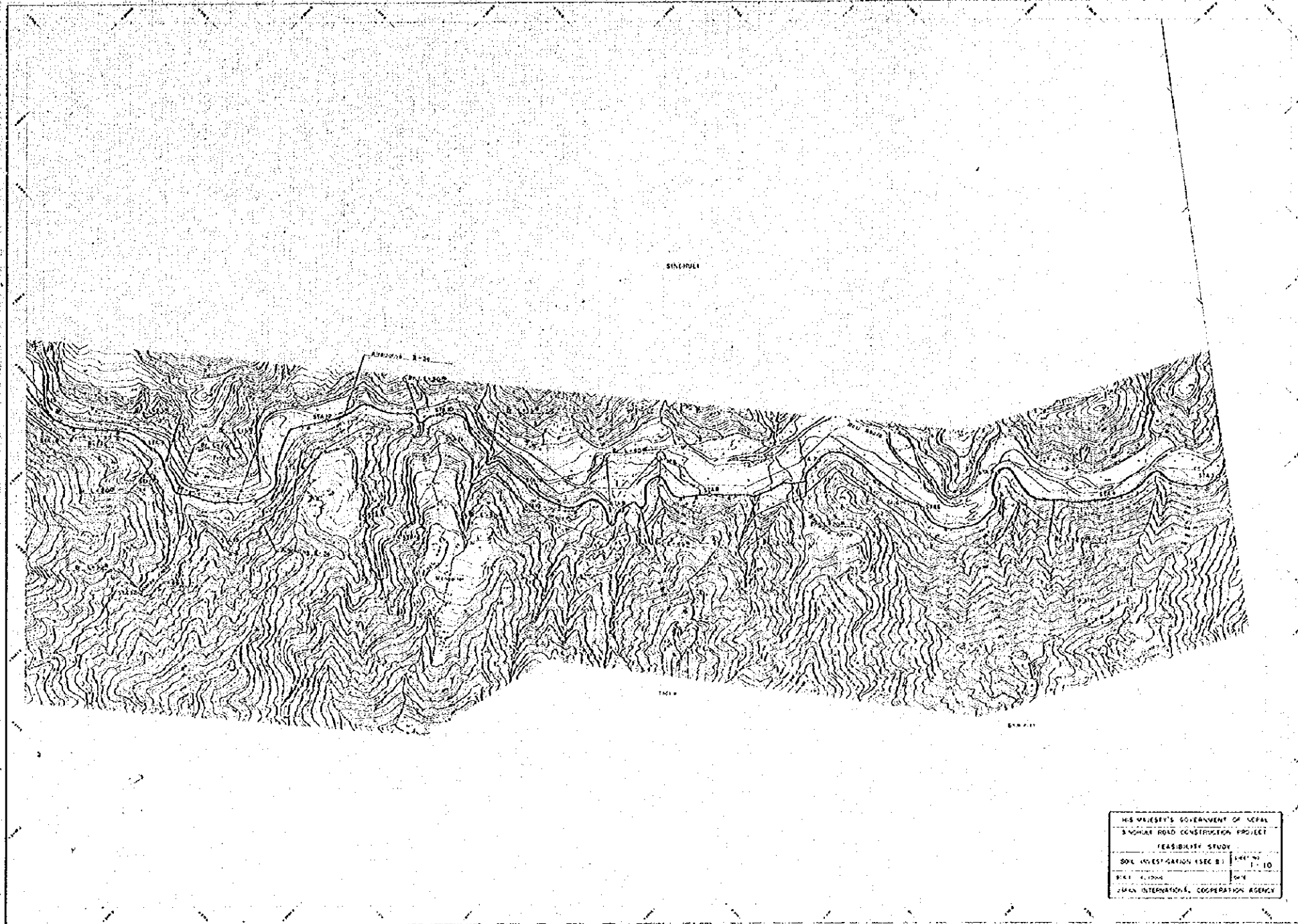
DEPARTMENT OF HIGHWAY, SURVEYING, SURVEY AND TRANSPORT
 AND HIGHWAY DEPARTMENT OF NEPAL

300
 1:5000
 1:5000
 1:5000

मानवसहायक संस्थाहरूको
 सहयोगमा नेपाल सरकारको
 सन्धिखर्कमा सन्धिखर्क
 सडक निर्माणको लागि
 १९६४

SHEET NO. 4

SINDHULI ROAD CONSTRUCTION PROJECT



LEGEND

ROAD	1:20
RAILROAD	1:20
POWER LINE	1:20
WATER	1:20
...	...

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHULI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION (SEC B) SHEET NO. 1-10
 SCALE 1:10000
 JAPAN INTERNATIONAL COOPERATION AGENCY

SHEET NO. 4

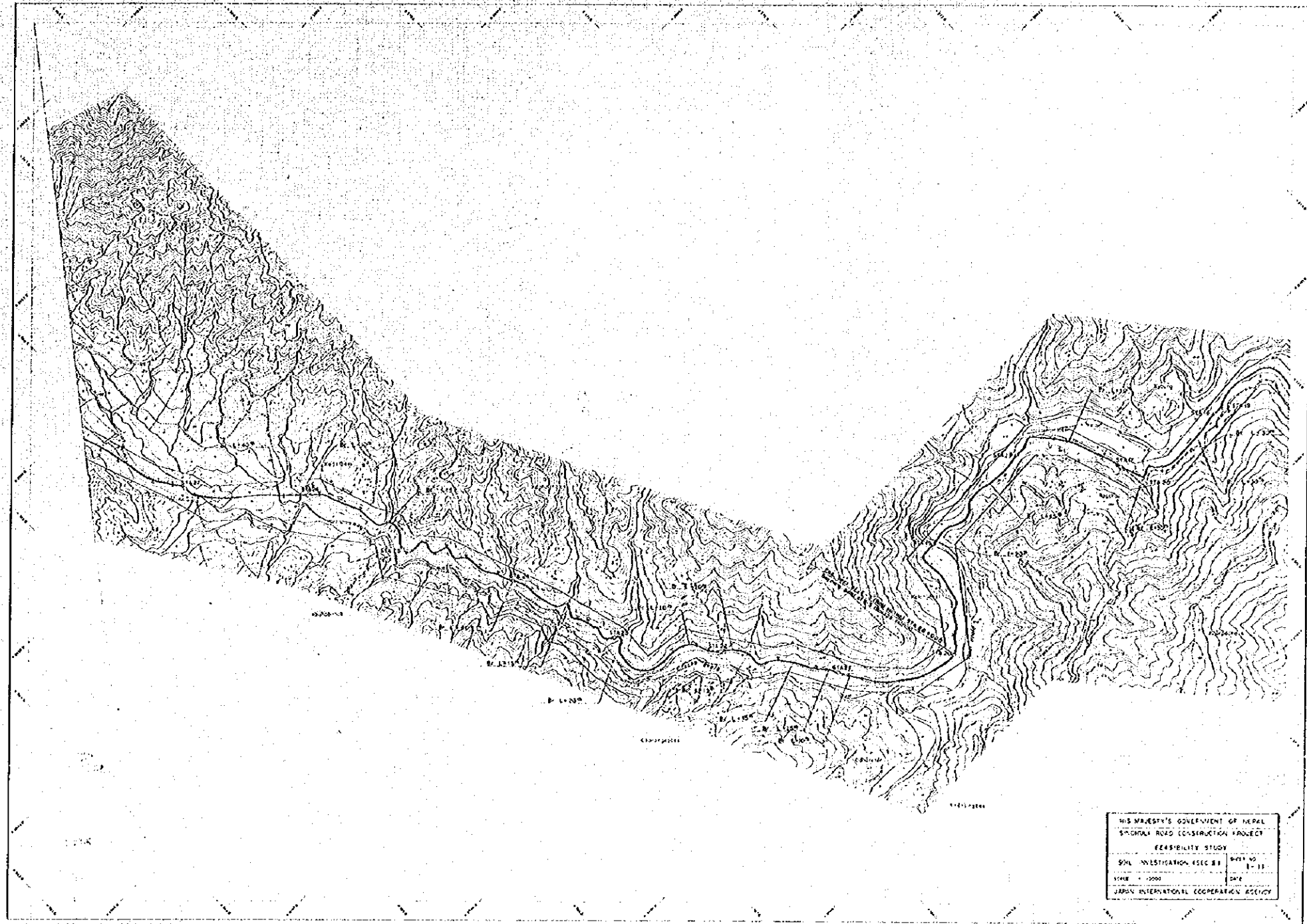
DEPARTMENT OF ROAD AND MOTORWAY CONSTRUCTION
 MINISTRY OF TRANSPORT AND COMMUNICATION

4110/71
 1:10000
 1:10000

THE INFORMATION CONTAINED HEREIN IS FOR OFFICIAL USE ONLY AND IS NOT TO BE DISTRIBUTED OUTSIDE THE OFFICE OF THE PROJECT ENGINEER.

SHEET NO.3

SINDHULI ROAD CONSTRUCTION PROJECT



- UNCLASSIFIED
 - CONFIDENTIAL
 - SECRET
- | | | | | | | | | | | |
|-------|--------|--------|--------|---------|---------|---------|----------|----------|----------|-----------|
| 1:500 | 1:1000 | 1:2000 | 1:5000 | 1:10000 | 1:25000 | 1:50000 | 1:100000 | 1:250000 | 1:500000 | 1:1000000 |
| 1:500 | 1:1000 | 1:2000 | 1:5000 | 1:10000 | 1:25000 | 1:50000 | 1:100000 | 1:250000 | 1:500000 | 1:1000000 |
- Scale: 1:50,000

HIS MAJESTY'S GOVERNMENT OF NEPAL
SINDHULI ROAD CONSTRUCTION PROJECT
FEASIBILITY STUDY
SOIL INVESTIGATION, SSC III
SCALE - 1:50,000
DATE - 2002
JAPAN INTERNATIONAL COOPERATION AGENCY

SHEET NO.3

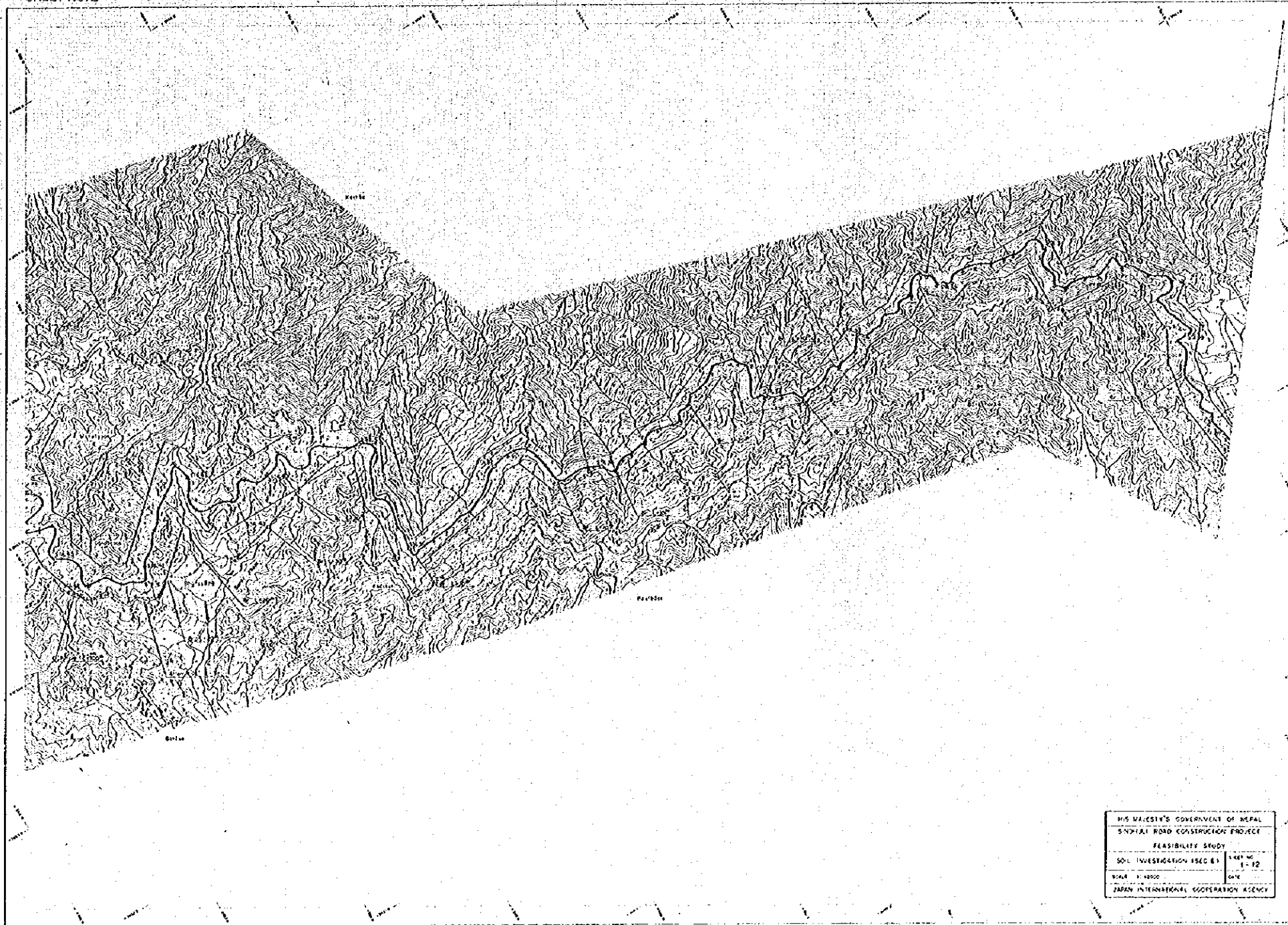
FOR SUPPLY OF B. R. M. AND L. S. R. AND B. R. M. AND L. S. R.

1:50,000
1:100,000
1:200,000
1:500,000
1:1,000,000

FOR SUPPLY OF B. R. M. AND L. S. R. AND B. R. M. AND L. S. R.

SHEET NO. 2

SINDHULI ROAD CONSTRUCTION PROJECT



LEGEND

CONTOUR LINE

ROAD

RAILWAY

WATER

SETBACK

...

HIS MAJESTY'S GOVERNMENT OF NEPAL	
SINDHULI ROAD CONSTRUCTION PROJECT	
FEASIBILITY STUDY	
SOL INVESTIGATION (SEC 81)	1-12
SCALE 1:4000	DATE
JAPAN INTERNATIONAL COOPERATION AGENCY	

SHEET NO. 2

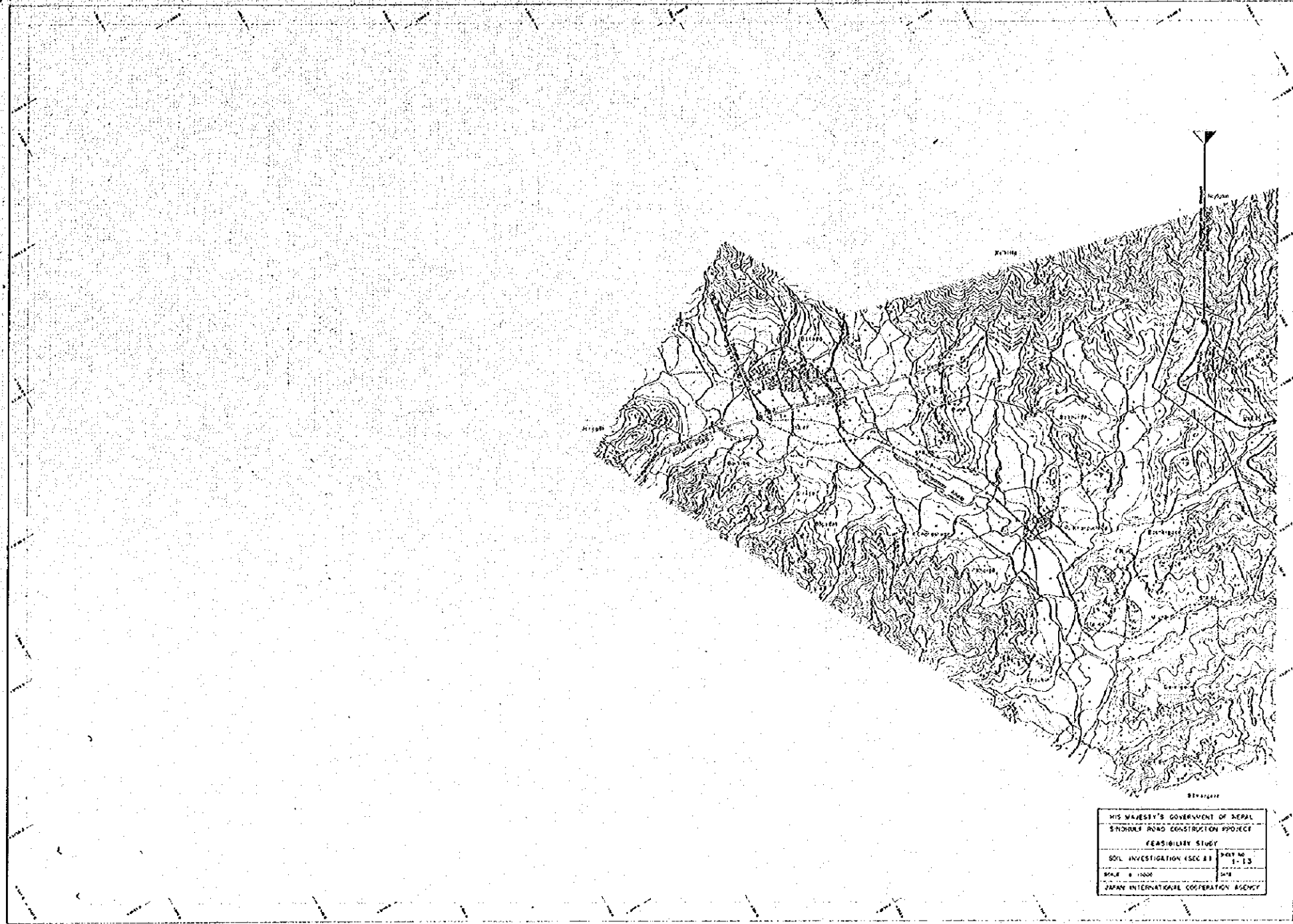
DEPARTMENT OF ROAD CONSTRUCTION

1:4000

JAPAN INTERNATIONAL COOPERATION AGENCY

SHEET NO.1

SINDHULI ROAD CONSTRUCTION PROJECT



LEGEND

Contour Interval	20 Meters
Proposed Road	--- ---
Existing Road	—— ———
Railway	—+—+—+—
Canal	— — — —
Water Course	~~~~~
Settlement	□
Public Building	■
Religious Building	⊕
Government Building	⊙
Health Building	⊖
Police Station	⊛
Post Office	⊞
Telegraph Office	⊟
Telephone Office	⊠
Electricity Pole	⊡
Water Tower	⊢
Well	⊣
Spring	⊤
Waterfall	⊥
Rocky Area	⊦
Cliff	⊧
Scree Slope	⊨
Scree	⊩
Barren Land	⊪
Forest	⊫
Barren Land	⊬
Barren Land	⊭
Barren Land	⊮
Barren Land	⊯
Barren Land	⊰
Barren Land	⊱
Barren Land	⊲
Barren Land	⊳
Barren Land	⊴
Barren Land	⊵
Barren Land	⊶
Barren Land	⊷
Barren Land	⊸
Barren Land	⊹
Barren Land	⊺
Barren Land	⊻
Barren Land	⊼
Barren Land	⊽
Barren Land	⊾
Barren Land	⊿

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHULI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION (SEC. 3) SHEET NO. 1-13
 SCALE: 1:1000
 JAPAN INTERNATIONAL COOPERATION AGENCY

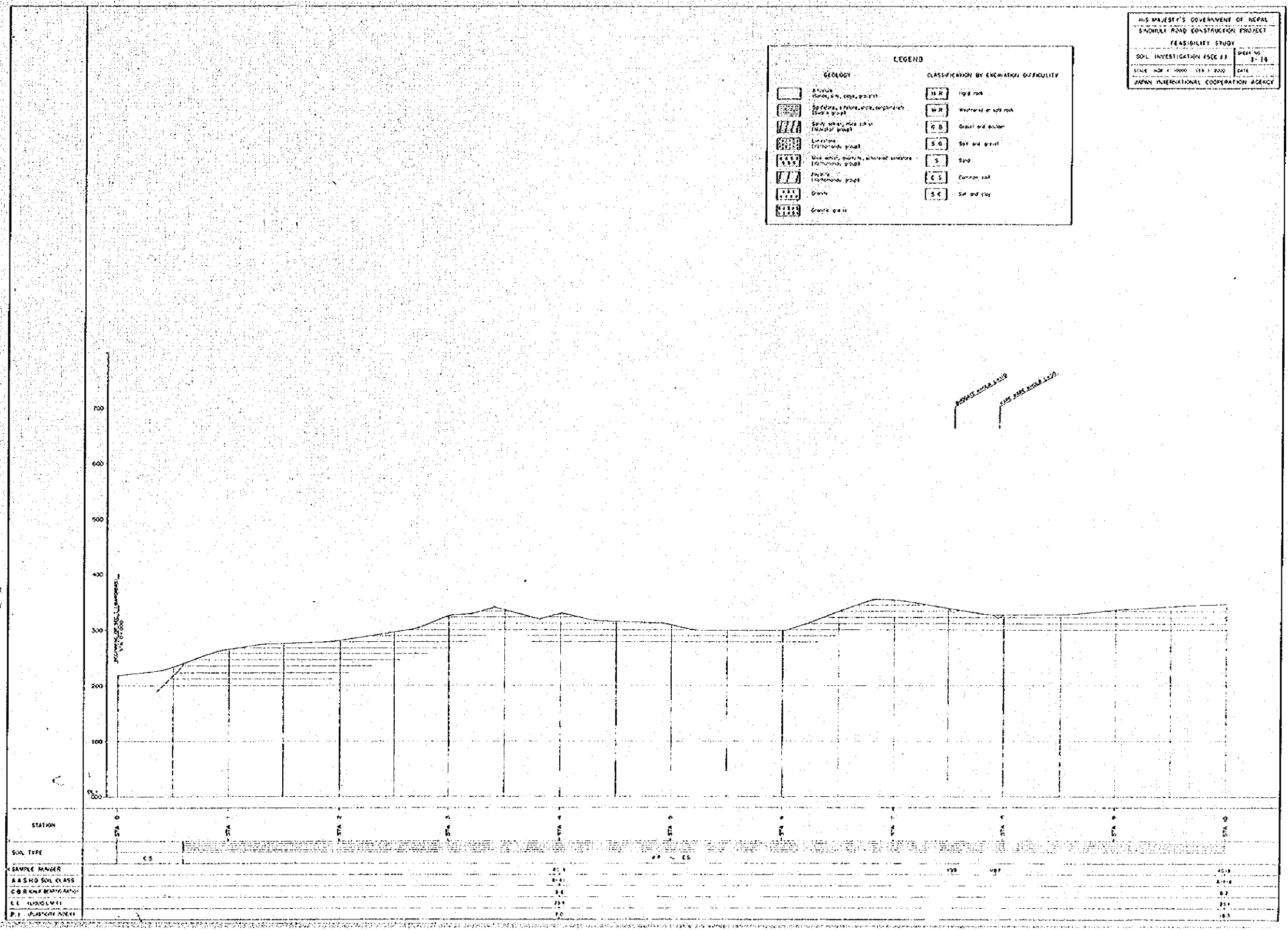
SHEET NO.1

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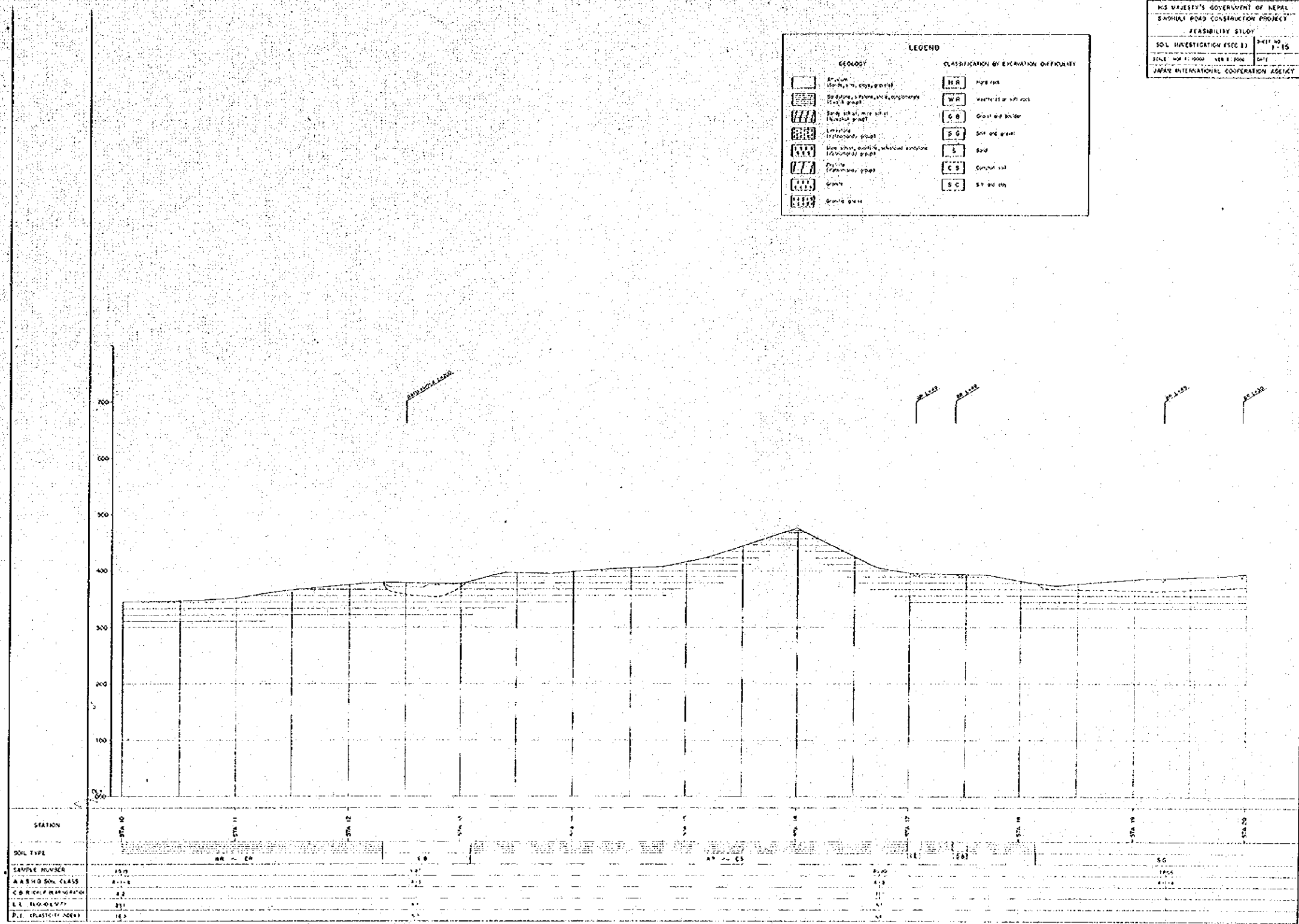
SCALE: 1:1000
 SHEET NO. 1-13

JAPAN INTERNATIONAL COOPERATION AGENCY
 THE CONTENTS OF THIS MAP ARE THE PROPERTY OF HIS MAJESTY'S GOVERNMENT OF NEPAL.

LEGEND	
GEOLGY	CLASSIFICATION BY EXCAVATION DIFFICULTY
Alluvium (sand, silt, clay, gravel)	HR Hard rock
Sandstone, siltstone, shale, argillaceous shale, gneiss	WR Weathered or soft rock
Sandstone, siltstone, shale, argillaceous shale, gneiss	GB Gneiss and granite
Limestone	SG Soft and gravel
Mud shale, siltstone, silty shale, argillaceous shale, gneiss	S Sand
Sandstone, siltstone, shale, argillaceous shale, gneiss	CS Common soil
Granite	SC Soft and clay
Granite gneiss	

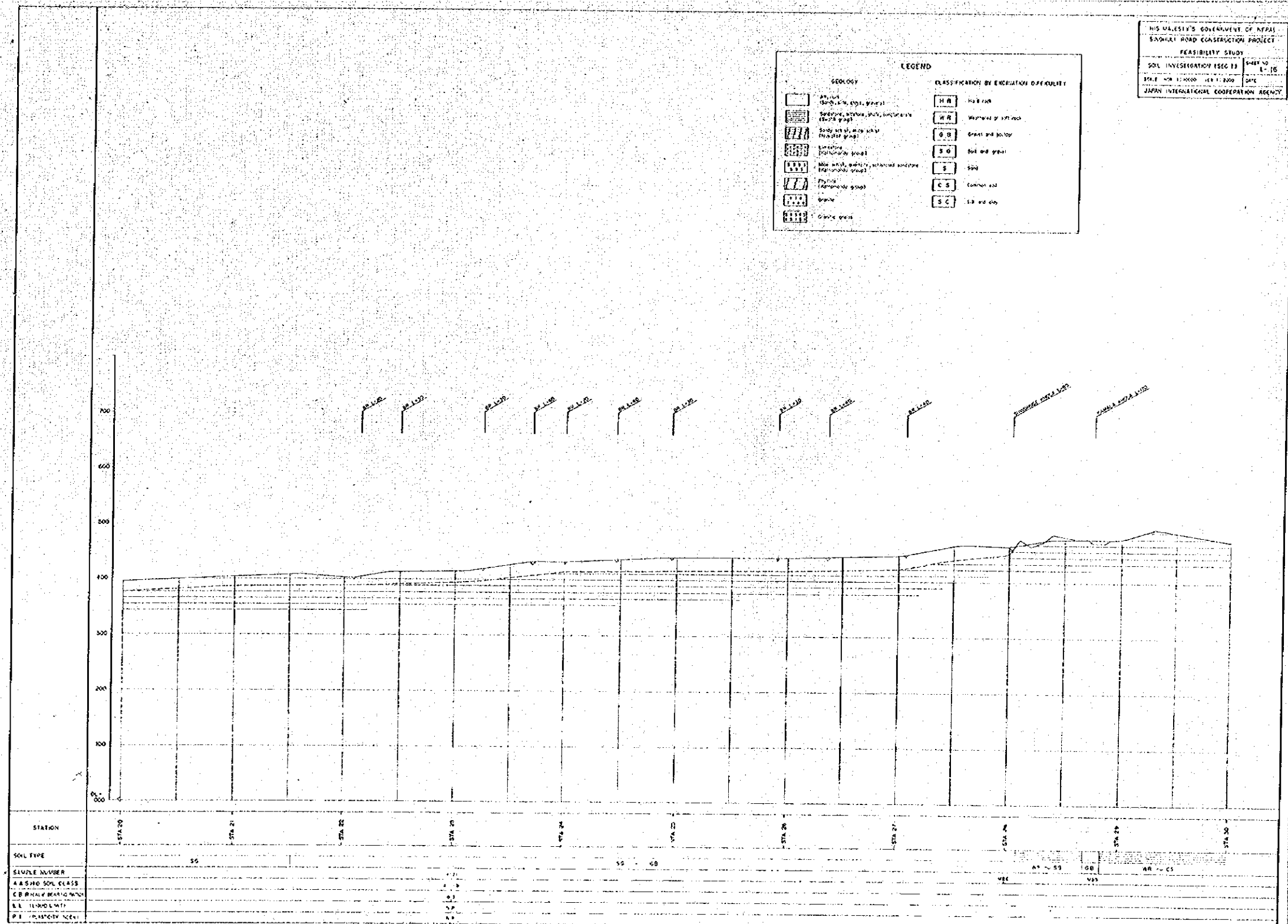


GEOLOGY		CLASSIFICATION BY EXCAVATION DIFFICULTY	
	Sandstone, quartzite, gneiss		Hard rock
	Sandstone, quartzite, gneiss with schistosity		Medium to soft rock
	Sandstone, mica schist		Soft to medium soil
	Limestone		Soil and gravel
	Sandstone, quartzite, schistose gneiss		Sand
	Marble		Gravelly soil
	Granite		Sand and clay
	Granite gneiss		

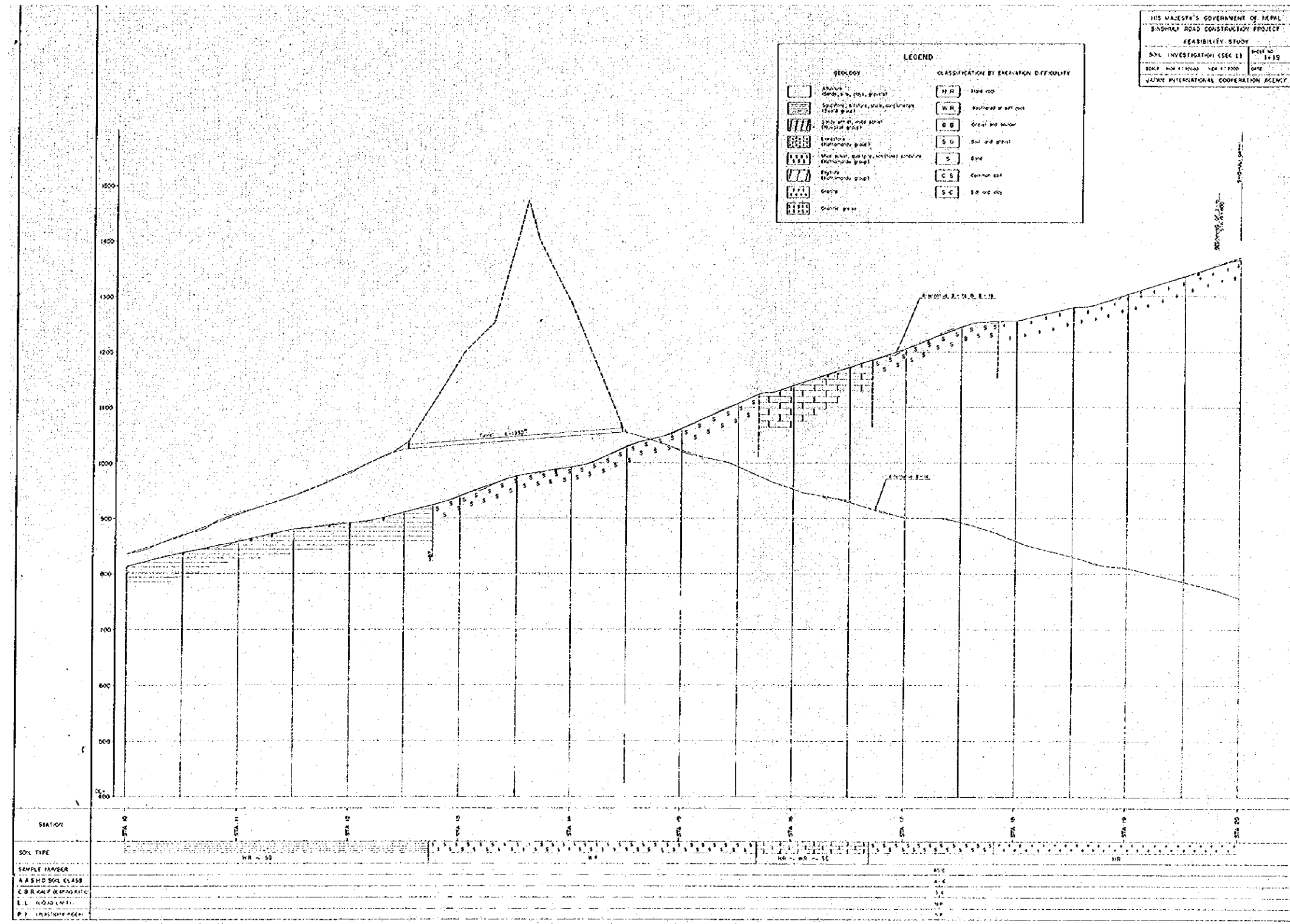


STATION	SOIL TYPE	CLASSIFICATION BY EXCAVATION DIFFICULTY
0+00	WR	Hard rock
0+10	WR	Hard rock
0+20	WR	Hard rock
0+30	WR	Hard rock
0+40	WR	Hard rock
0+50	WR	Hard rock
0+60	WR	Hard rock
0+70	WR	Hard rock
0+80	WR	Hard rock
0+90	WR	Hard rock
1+00	WR	Hard rock
1+10	WR	Hard rock
1+20	WR	Hard rock
1+30	WR	Hard rock
1+40	WR	Hard rock
1+50	WR	Hard rock
1+60	WR	Hard rock
1+70	WR	Hard rock
1+80	WR	Hard rock
1+90	WR	Hard rock
2+00	WR	Hard rock

LEGEND	
GEOLOGY	
	Alluvial (Silt, clay, gravel)
	Sandstone, siltstone, shale, conglomerate (Blocky grain)
	Sandstone, siltstone, shale (Foliated grain)
	Limestone (Irregularly bedded)
	Mica schist, quartzite, schist and gneiss (Foliated)
	Quartzite (Foliated)
	Granite
	Gneiss
CLASSIFICATION BY ENGINEERING DIFFICULTY	
	H B Hard rock
	W R Weakness of structure
	G B Gravel and boulders
	S G Soil and gravel
	S Soil
	C S Compact soil
	S C Soft soil

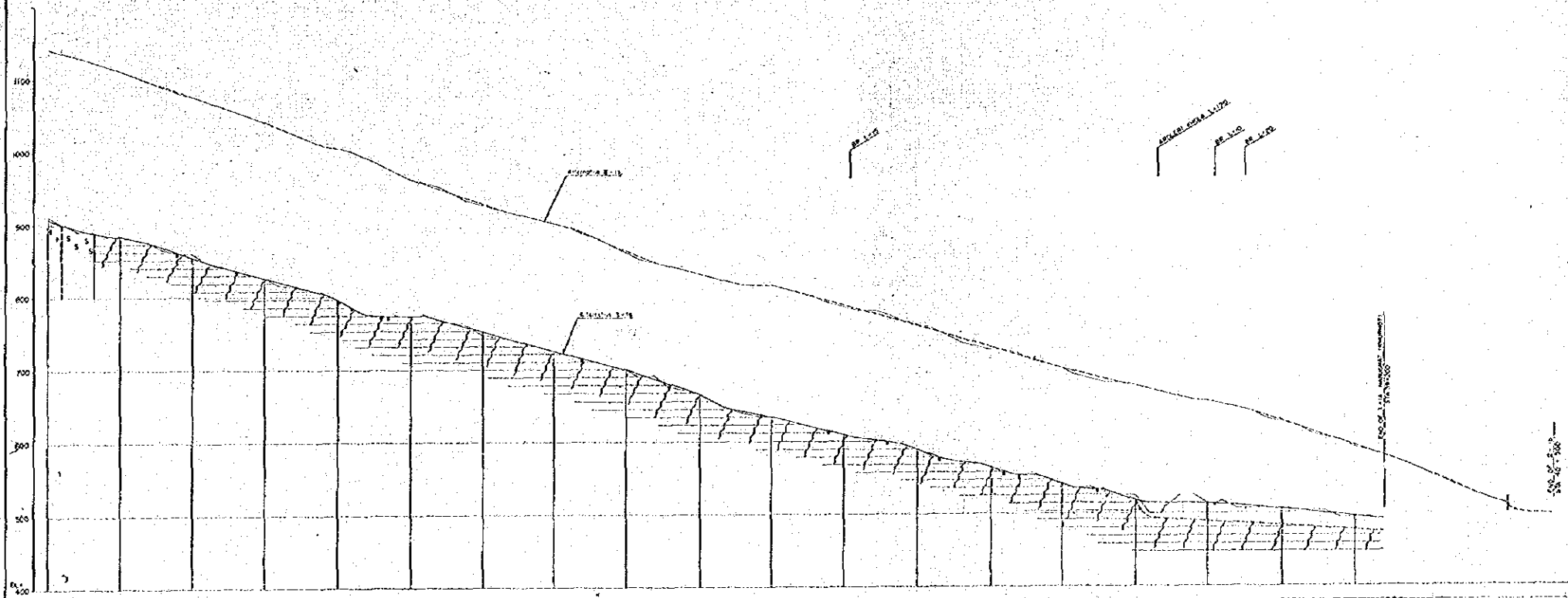


LEGEND	
GEOLOGY	CLASSIFICATION BY EXCAVATION DIFFICULTY
	H.R. High road
	W.R. Washroad or soft road
	G.G. Good and better
	S.G. Soil and gravel
	S. Sand
	C.S. Common soil
	S.C. Soil and clay



HIS MAJESTY'S GOVERNMENT OF NEPAL
 SIVAPATI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION SEC. 81
 SCALE: HORIZ. 1:2000, VERT. 1:200
 SHEET NO. 1-21
 DATE
 JAPAN INTERNATIONAL COOPERATION AGENCY

LEGEND	
GEOLOGY	CLASSIFICATION BY EXCAVATION DIFFICULTY
[Symbol] Sandstone, clay, gneiss	[H R] Hard rock
[Symbol] Sandstone, clay, gneiss, (soft) shale	[M R] Medium hard rock
[Symbol] Sandstone, clay, gneiss (slaty shale)	[S B] Great soft rock
[Symbol] Gneiss (granitic) gneiss	[S S] Soft rock
[Symbol] Gneiss (acidic, medium grained) (granitic) gneiss	[S] Sand
[Symbol] Gneiss (acidic, medium grained) (granitic) gneiss	[C S] Compact soil
[Symbol] Granite	[S C] Soft soil
[Symbol] Granite (pink)	

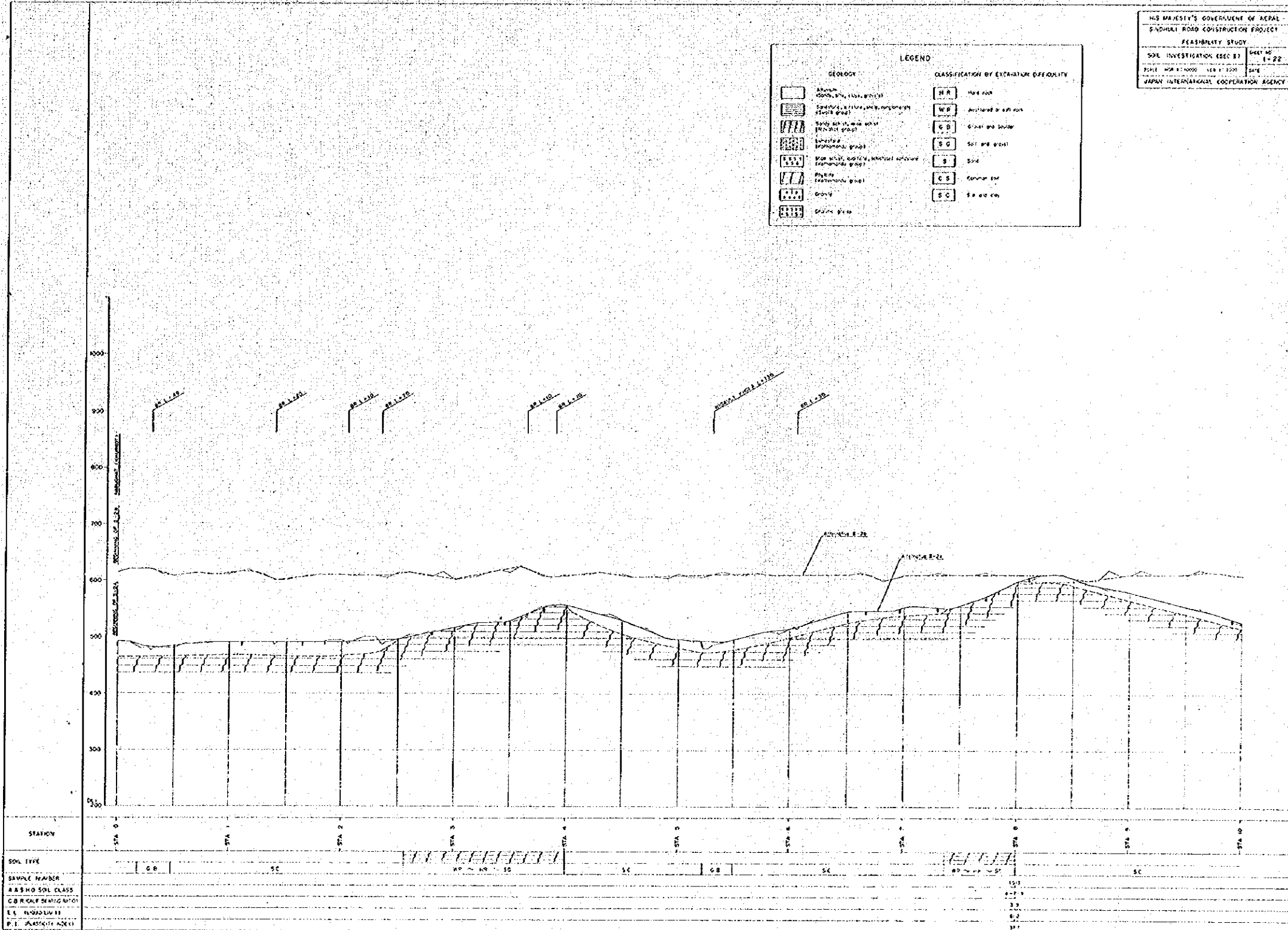


STATION	SOIL TYPE
STA 2	HR
STA 31	HR
STA 32	HR
STA 33	HR
STA 34	HR
STA 35	HR
STA 36	HR
STA 37	HR
STA 38	HR
STA 39	HR
STA 40	HR

SAMPLE NUMBER	DEPTH (M)	CLASS
1	1.2	HR
2	1.5	HR
3	1.8	HR
4	2.1	HR
5	2.4	HR
6	2.7	HR
7	3.0	HR
8	3.3	HR
9	3.6	HR
10	3.9	HR
11	4.2	HR
12	4.5	HR
13	4.8	HR
14	5.1	HR
15	5.4	HR
16	5.7	HR
17	6.0	HR
18	6.3	HR
19	6.6	HR
20	6.9	HR
21	7.2	HR
22	7.5	HR
23	7.8	HR
24	8.1	HR
25	8.4	HR
26	8.7	HR
27	9.0	HR
28	9.3	HR
29	9.6	HR
30	9.9	HR
31	10.2	HR
32	10.5	HR
33	10.8	HR
34	11.1	HR
35	11.4	HR
36	11.7	HR
37	12.0	HR
38	12.3	HR
39	12.6	HR
40	12.9	HR
41	13.2	HR
42	13.5	HR
43	13.8	HR
44	14.1	HR
45	14.4	HR
46	14.7	HR
47	15.0	HR
48	15.3	HR
49	15.6	HR
50	15.9	HR
51	16.2	HR
52	16.5	HR
53	16.8	HR
54	17.1	HR
55	17.4	HR
56	17.7	HR
57	18.0	HR
58	18.3	HR
59	18.6	HR
60	18.9	HR
61	19.2	HR
62	19.5	HR
63	19.8	HR
64	20.1	HR
65	20.4	HR
66	20.7	HR
67	21.0	HR
68	21.3	HR
69	21.6	HR
70	21.9	HR
71	22.2	HR
72	22.5	HR
73	22.8	HR
74	23.1	HR
75	23.4	HR
76	23.7	HR
77	24.0	HR
78	24.3	HR
79	24.6	HR
80	24.9	HR
81	25.2	HR
82	25.5	HR
83	25.8	HR
84	26.1	HR
85	26.4	HR
86	26.7	HR
87	27.0	HR
88	27.3	HR
89	27.6	HR
90	27.9	HR
91	28.2	HR
92	28.5	HR
93	28.8	HR
94	29.1	HR
95	29.4	HR
96	29.7	HR
97	30.0	HR
98	30.3	HR
99	30.6	HR
100	30.9	HR

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHURAI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION ESEC 81 SHEET NO. 1-22
 SCALE: HORIZ. 1:4000 VERT. 1:1000 DATE
 JAPAN INTERNATIONAL COOPERATION AGENCY

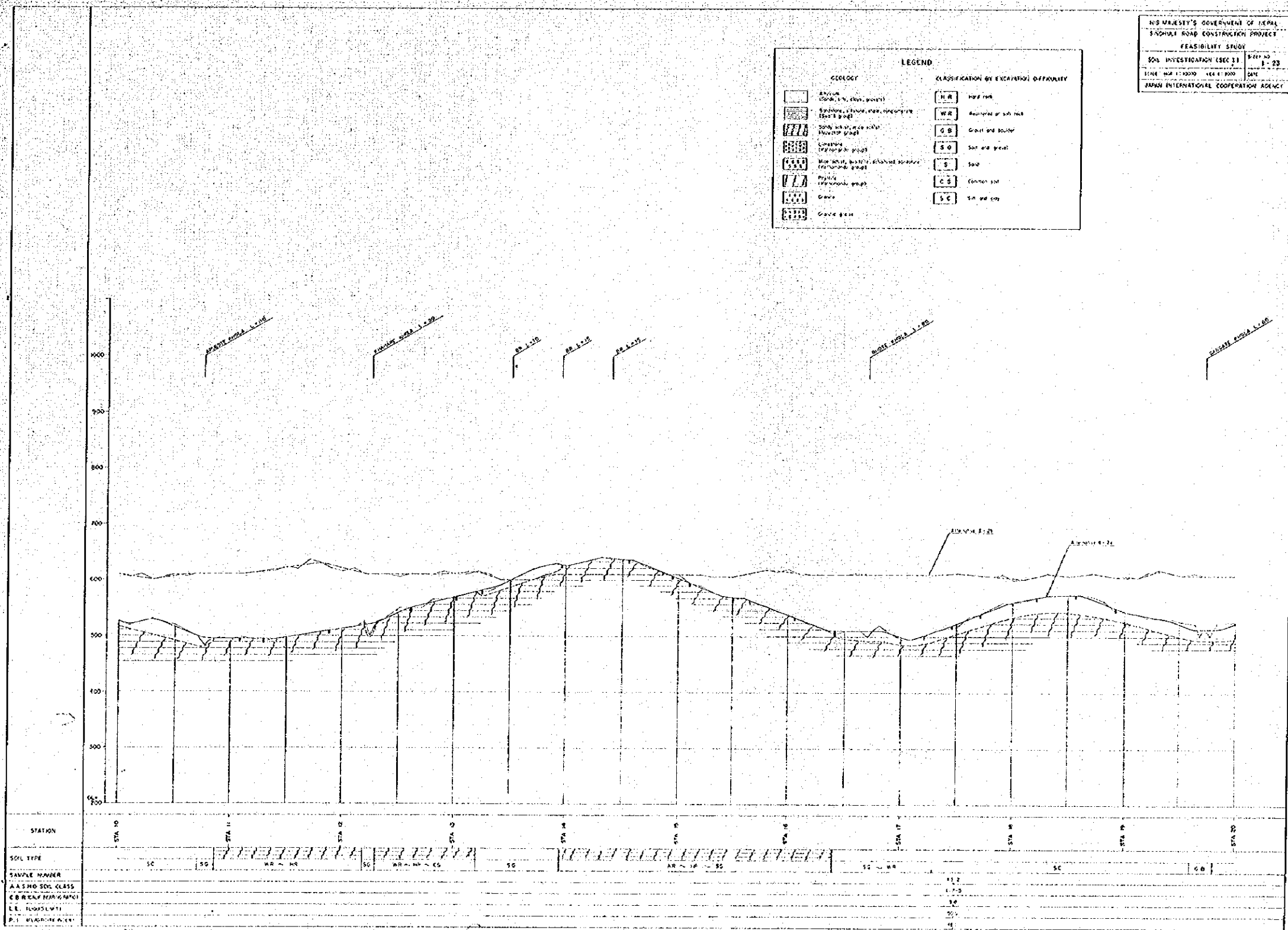
LEGEND	
GEOLOGY	CLASSIFICATION BY ESCAVATION DIFFICULTY
[Symbol] Alluvium (sand, silt, clay, gravel)	[Symbol] Hard rock
[Symbol] Sandstone, siltstone, shale, conglomerate (fresh rock)	[Symbol] Artificially soft rock
[Symbol] Sandstone, siltstone, shale, conglomerate (weathered rock)	[Symbol] Gravel and boulder
[Symbol] Limestone	[Symbol] Soft and gravel
[Symbol] Sandstone, siltstone, shale, conglomerate (weathered rock)	[Symbol] Soil
[Symbol] Marble	[Symbol] Common soil
[Symbol] Granite	[Symbol] Soil and rock
[Symbol] Gneiss	



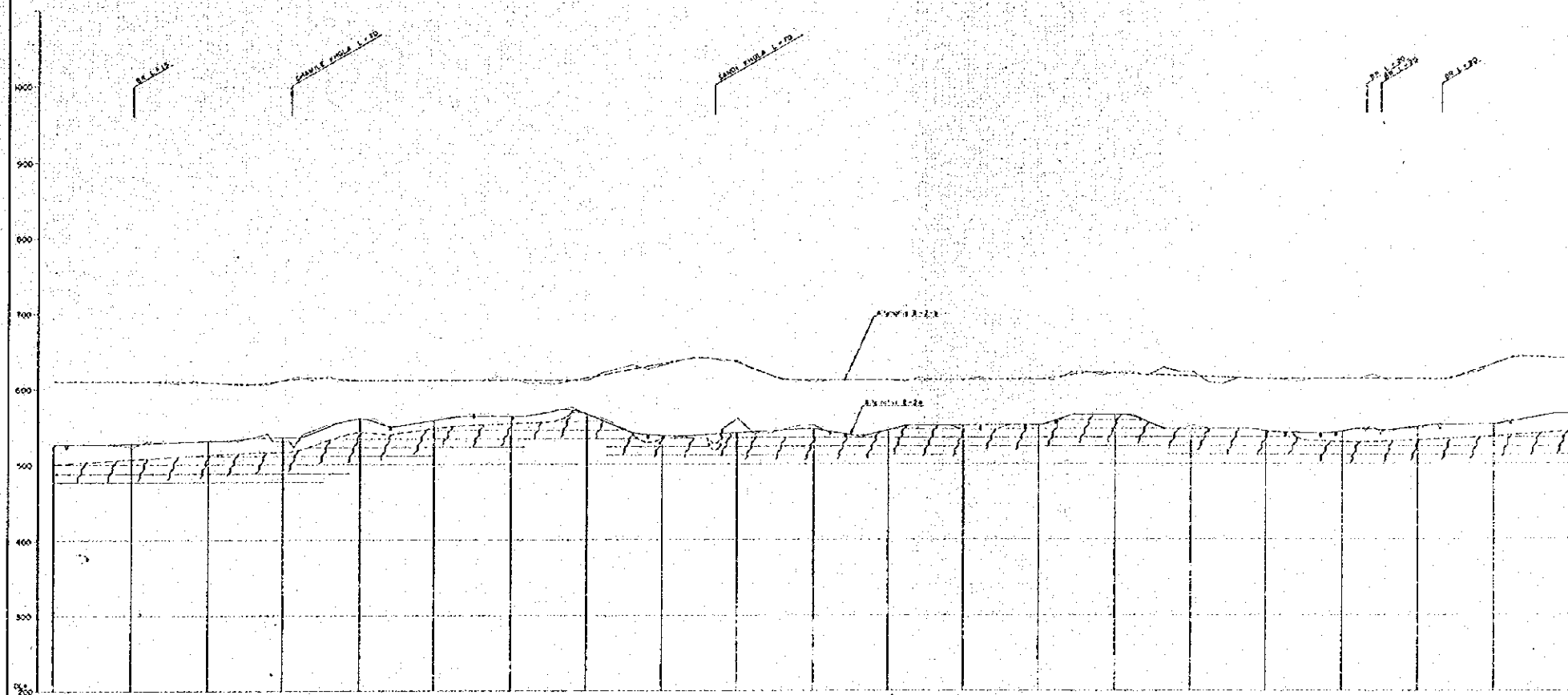
HIS MAJESTY'S GOVERNMENT OF NEPAL
 SINDHULI ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION (SEC II) SHEET NO. 1-23
 SCALE: HORIZ. 1:2500 VERT. 1:500 DATE _____
 JAPAN INTERNATIONAL COOPERATION AGENCY

LEGEND

GEOLOGY		CLASSIFICATION BY EXCAVATION DIFFICULTY	
[Symbol]	Shale (Silt, clay, quartz)	[Symbol]	HR Hard rock
[Symbol]	Sandstone, siltstone, marl, limestone (Silt & sand)	[Symbol]	WR Weathered soft rock
[Symbol]	Sandy shale, mica, silty shale, silty sand	[Symbol]	GB Gravel and boulder
[Symbol]	Limestone	[Symbol]	SB Sand and gravel
[Symbol]	Marl (silt, clay, silty, shaly, silty shale)	[Symbol]	S Sand
[Symbol]	Mudstone, siltstone, shale	[Symbol]	CS Coarse sand
[Symbol]	Gravel	[Symbol]	SC Silty sand
[Symbol]	Gravel (sand)		



LEGEND	
GEOLOGY	CLASSIFICATION BY EXCAVATION DIFFICULTY
Sandstone, quartz, pebbles	HR Hard rock
Sandstone, quartz, pebbles, weathered	WR Weathered or soft rock
Soft sand, mica, white, thin, silty, clay	SB Soft and loose
Loose, (fine) sand	SG Soft and moist
Mo. white, quartz, silty, sandstone, (fine) sand	S Sand
Fine, (fine) sand	CS Common soil
Gravel	SC Silt and clay
Gravel, pebbles	



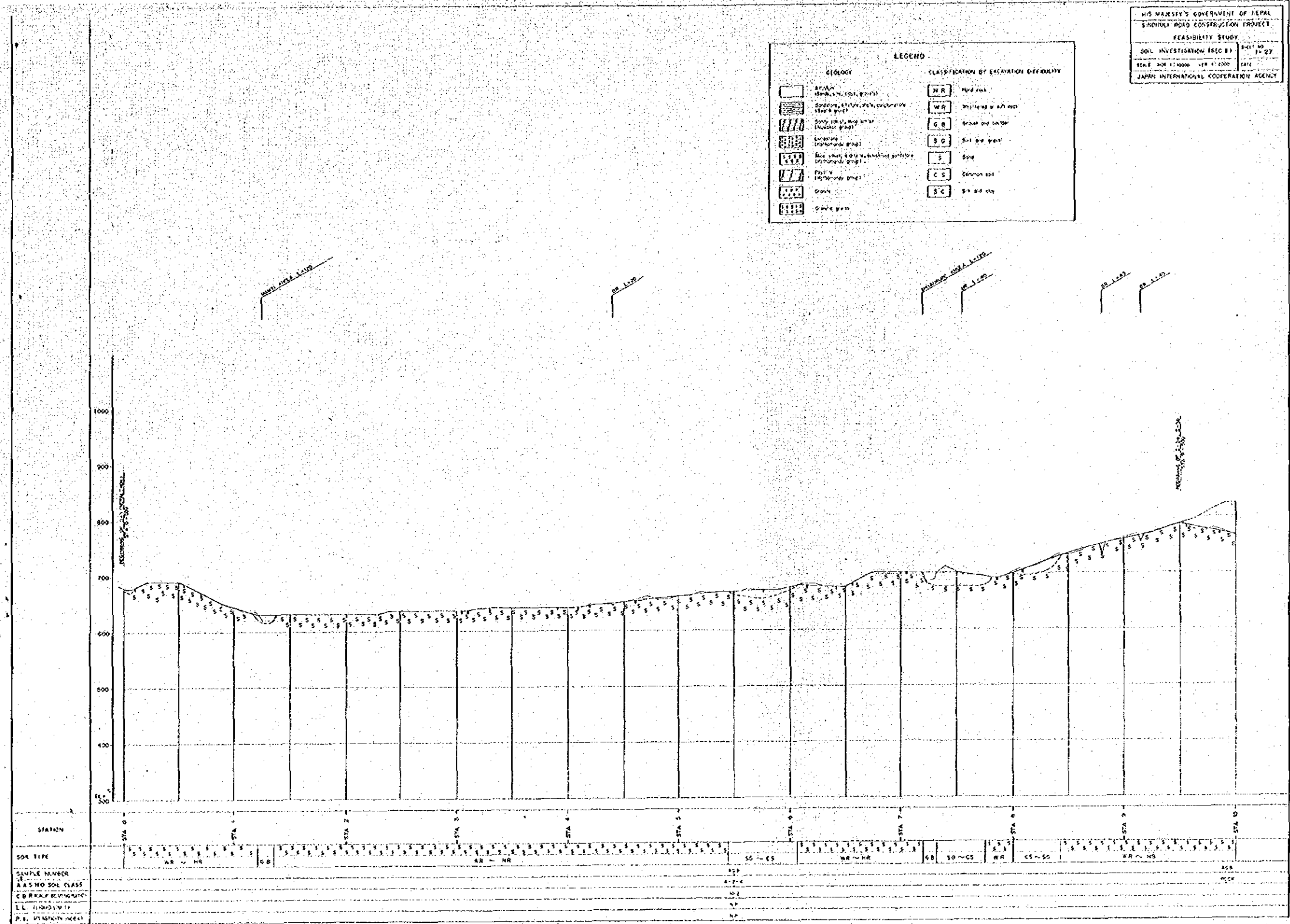
STATION	SOIL TYPE	DEPTH (m)	REMARKS
STA 20	SC ~ SB	0.00	
STA 21	CS	0.00	
STA 22	CS ~ SG ~ SC	0.00	
STA 23	HR ~ SF ~ SG	0.00	
STA 24	HR ~ SF ~ SG	0.00	
STA 25	HR ~ SF ~ SG	0.00	
STA 26	HR ~ SF ~ SG	0.00	
STA 27	HR ~ SF ~ SG	0.00	
STA 28	SC	0.00	
STA 29	SG	0.00	
STA 30	SG	0.00	

SAMPLE NUMBER	4211	4212
AA SMO SOIL CLASS	4.1	4.2
CB SOIL DEPTH (m)	1.0	1.0
LL (%)	25.0	25.0
PI (%)	5.0	5.0

HIS MAJESTY'S GOVERNMENT OF NEPAL
 SHIMLETA ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION (SEC II)
 SCALE: HORIZ. 1:10000 VERT. 1:1000
 SHEET NO. 1 OF 27
 DATE: 1971
 JAPAN INTERNATIONAL COOPERATION AGENCY

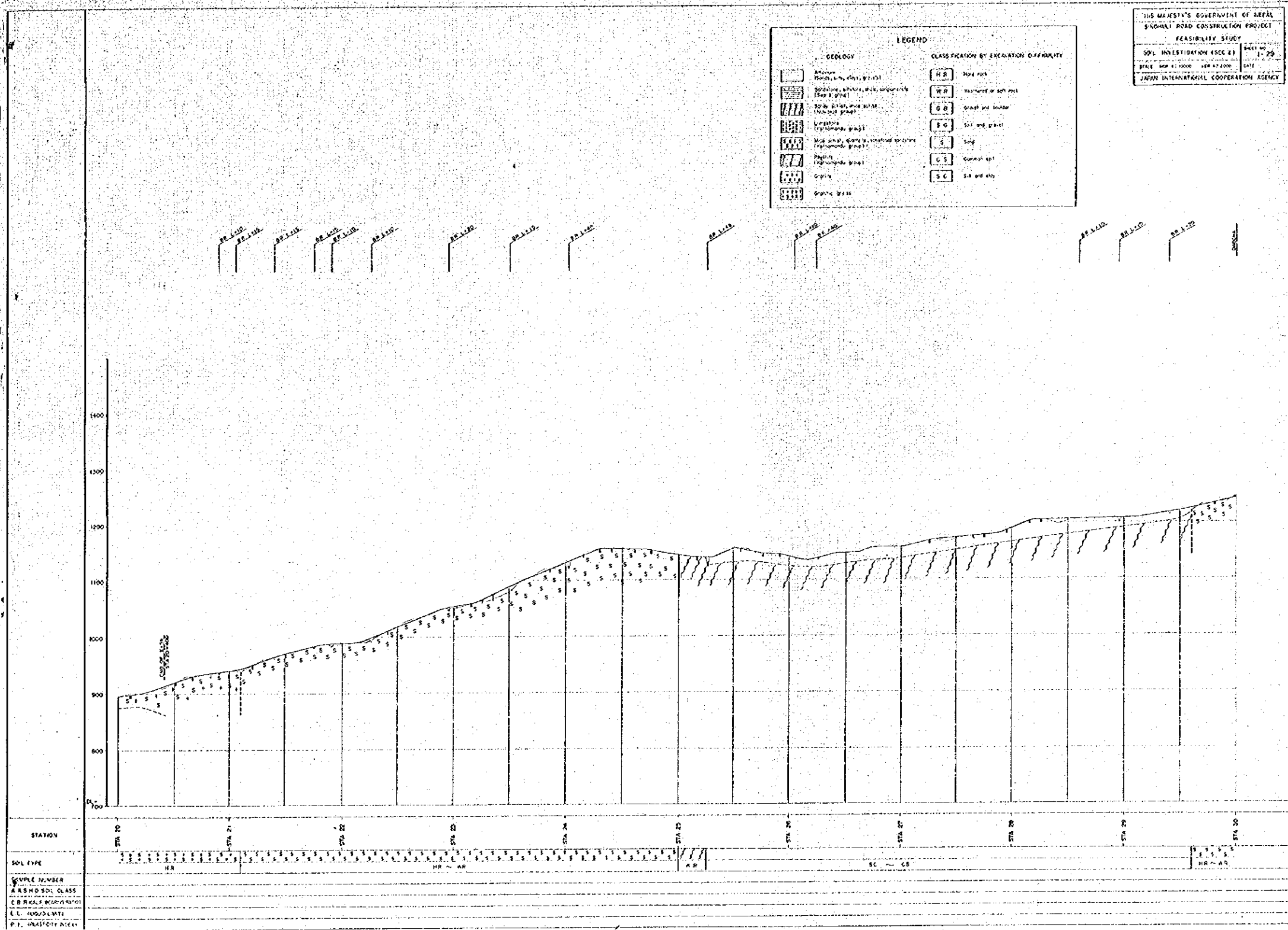
LEGEND

GEOLOGY		CLASSIFICATION OF EXCAVATION DIFFICULTY	
[Symbol]	AR (Aq. Sandstone, etc. group)	NR	Hard rock
[Symbol]	Sandstone, etc. (Aq. Sandstone, etc. group)	WR	Soft to medium hard rock
[Symbol]	Sandy shale, etc. (Aq. Sandstone, etc. group)	GB	Gravel and coarse sand
[Symbol]	Claystone, etc. (Aq. Sandstone, etc. group)	SG	Soft to medium sand
[Symbol]	Shale, etc. (Aq. Sandstone, etc. group)	S	Silt
[Symbol]	Thinly bedded sandstone, etc. (Aq. Sandstone, etc. group)	CS	Common soil
[Symbol]	Gravel	SC	Soft to medium clay
[Symbol]	Granic gneiss		



STATION	SOIL TYPE	CLASSIFICATION
STA 0	AR	NR
STA 1	WR	WR
STA 2	GB	GB
STA 3	AR	NR
STA 4	WR	WR
STA 5	GB	GB
STA 6	SG	SG
STA 7	WR	WR
STA 8	CS	CS
STA 9	AR	NR
STA 10	SC	SC

LEGEND	
GEOLOGY	CLASSIFICATION BY EXCAVATION DIFFICULTY
Blank	HR Hard rock
Sandstone, siltstone, shale, conglomerate (See S. profile)	WR Intermediate soft rock
Soft siltstone, shale, sandstone (See S. profile)	GB Gravel and boulder
Limestone	SG Soil and gravel
Mud shale, quartz, sandstone, siltstone (See S. profile)	S Soil
Pagite (See S. profile)	CS Compact soil
Granite	SC Soil and clay
Granite gneiss	

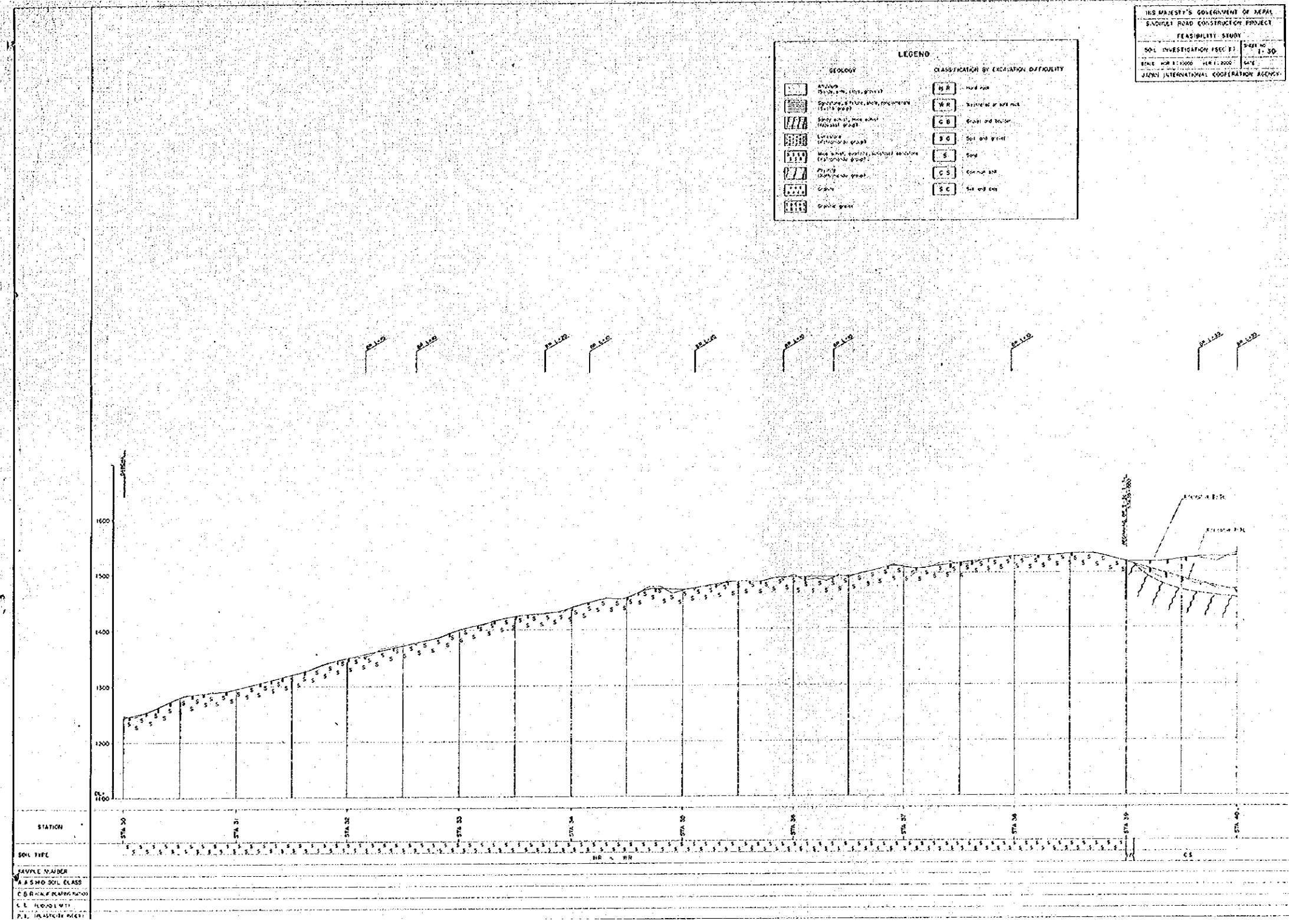


GEOLOGY		CLASSIFICATION BY EXCAVATION DIFFICULTY	
[Symbol]	Shale	[Symbol]	MR Hard rock
[Symbol]	Sandstone, siltstone, claystone, limestone, etc.	[Symbol]	MR Medium to soft rock
[Symbol]	Clay, silt, sand, gravel, etc.	[Symbol]	GD Gravel and sand
[Symbol]	Gravel, sand, silt, etc.	[Symbol]	SG Soil and gravel
[Symbol]	Soft clay, sandy clay, silty clay, etc.	[Symbol]	S Soil
[Symbol]	Clay	[Symbol]	CS Common soil
[Symbol]	Gravel	[Symbol]	SC Silty soil
[Symbol]	Gravel, sand		



HIS MAJESTY'S GOVERNMENT OF NEPAL
 SANDHAT ROAD CONSTRUCTION PROJECT
 FEASIBILITY STUDY
 SOIL INVESTIGATION (SEC 1) SHEET NO. 1-30
 SCALE: HOR. 1:10000 VER. 1:2000 DATE
 JAPAN INTERNATIONAL COOPERATION AGENCY

LEGEND	
GEOLOGY	CLASSIFICATION BY EXCAVATION DIFFICULTY
Alluvium (Sand, silt, clay, gravel)	HR - Hard rock
Sandstone, siltstone, shale, conglomerate (with pebbles)	WR - Saturated or wet rock
Sandstone, siltstone, shale (without pebbles)	GR - Gravel and boulder
Limestone (fractured or jointed)	SO - Soil and gravel
Limestone (massive)	S - Sand
Sandstone, siltstone, shale (with pebbles) (fractured or jointed)	CS - Compact soil
Sandstone, siltstone, shale (with pebbles) (massive)	SC - Silty wet clay
Clay (shale)	
Gravel	
Gravelly sand	



STATION	SOIL TYPE	SAMPLE NUMBER	A.S.M.O. SOIL CLASS.	C.B.R. VALUE (MPA)	C.B. VALUE (%)	P.L. (UNSATURATED)
STA 20						
STA 31						
STA 32						
STA 33						
STA 34						
STA 35						
STA 36						
STA 37						
STA 38						
STA 39						
STA 40						

