

GRADE	0.9410	2%	4.9015	0.5%	8.7515	5.544%	0.4338
		L=1000m		L=1600m		L=300m	
FINISHED GRADE							
ORIGINAL GRADE							
STATION (KILOMETER POST)	265+000	265+100	265+200	265+300	265+400	265+500	265+600
	265+700	265+800	265+900	266+000	266+100	266+200	266+300
	266+400	266+500	266+600	266+700	266+800	266+900	267+000
	267+100	267+200	267+300	267+400	267+500	267+600	267+700
	267+800	267+900	268+000	268+100	268+200	268+300	268+400
	268+500	268+600	268+700	268+800	268+900	269+000	269+100

JAPAN INTERNATIONAL COOPERATION AGENCY

DALTON PASS TUNNEL PROJECT
FEASIBILITY STUDY

SECTION A - NEW ALIGNMENT ROUTE
PROFILE FOR ALTERNATIVE ROUTE II
KM 265+00000 TO KM 207+90000
DATE: MAR'82

DRAWING NO.
FS-39

ELEV. 80000

ELEV. 75000

ELEV. 70000

ELEV. 55000

SECTION TO BE IMPROVED
NATIONAL HIGHWAY No 5

ROUTE V

KM. 205+000

BRIDGE X-1 L=570 m

X-2 L=75.0

X-3 L=75.0

X-4 L=80.0

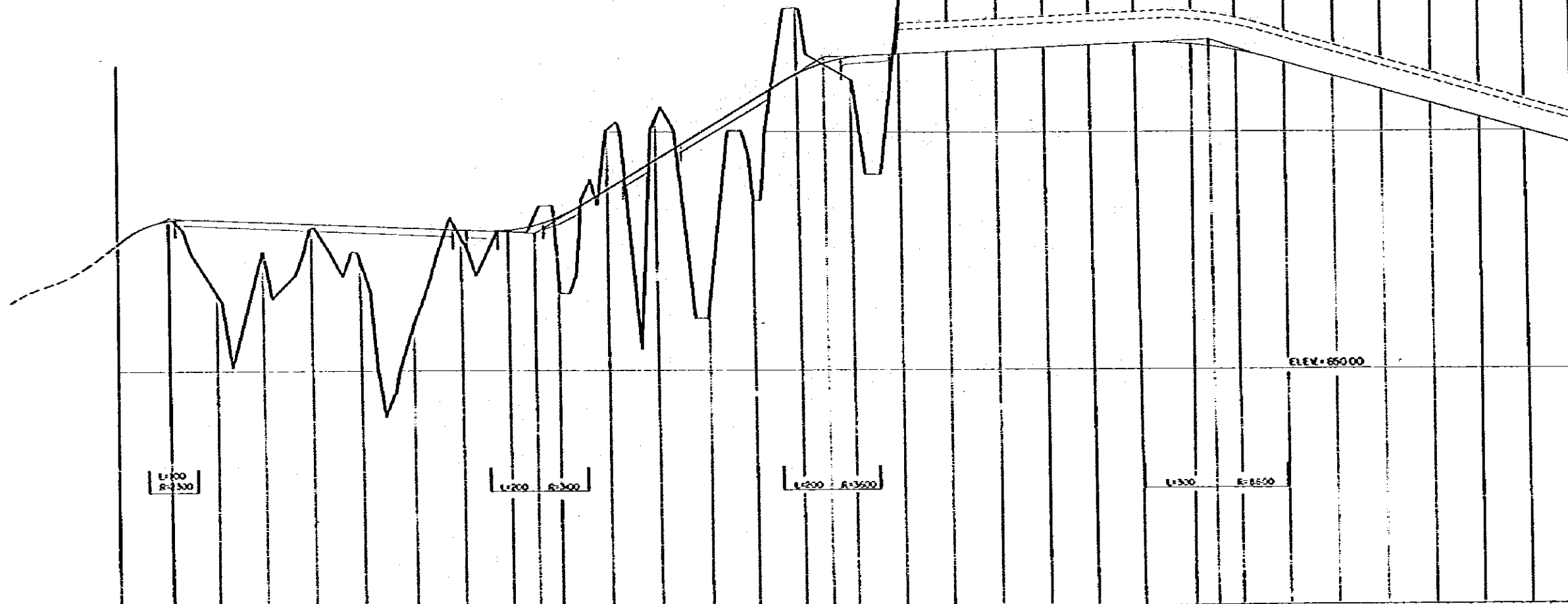
X-5 L=80.0

X-6 L=80.0

TUNNEL L=1840 m

ELEV. 75000

ELEV. 65000



GRADE																																				
FINISHED GRADE																																				
ORIGINAL GRADE																																				
STATION (KILOMETER PGST)	600	700	800	900	000	100	200	300	400	500	600	700	800	900	000	100	200	300	400	500	600	700	800	900	000	100	200	300	400	500	600	700	800	900	000	100

JAPAN INTERNATIONAL COOPERATION AGENCY

DALTON PASS TUNNEL PROJECT
FEASIBILITY STUDY

SECTION A - NEW ALIGNMENT ROUTE
PROFILE FOR ALTERNATIVE ROUTE V (I)
KM 205+000.00 TO KM 208+000.00
DATE: MAR '82

DRAWING NO.
FS-40

ELEV+800.00

ELEV+750.00

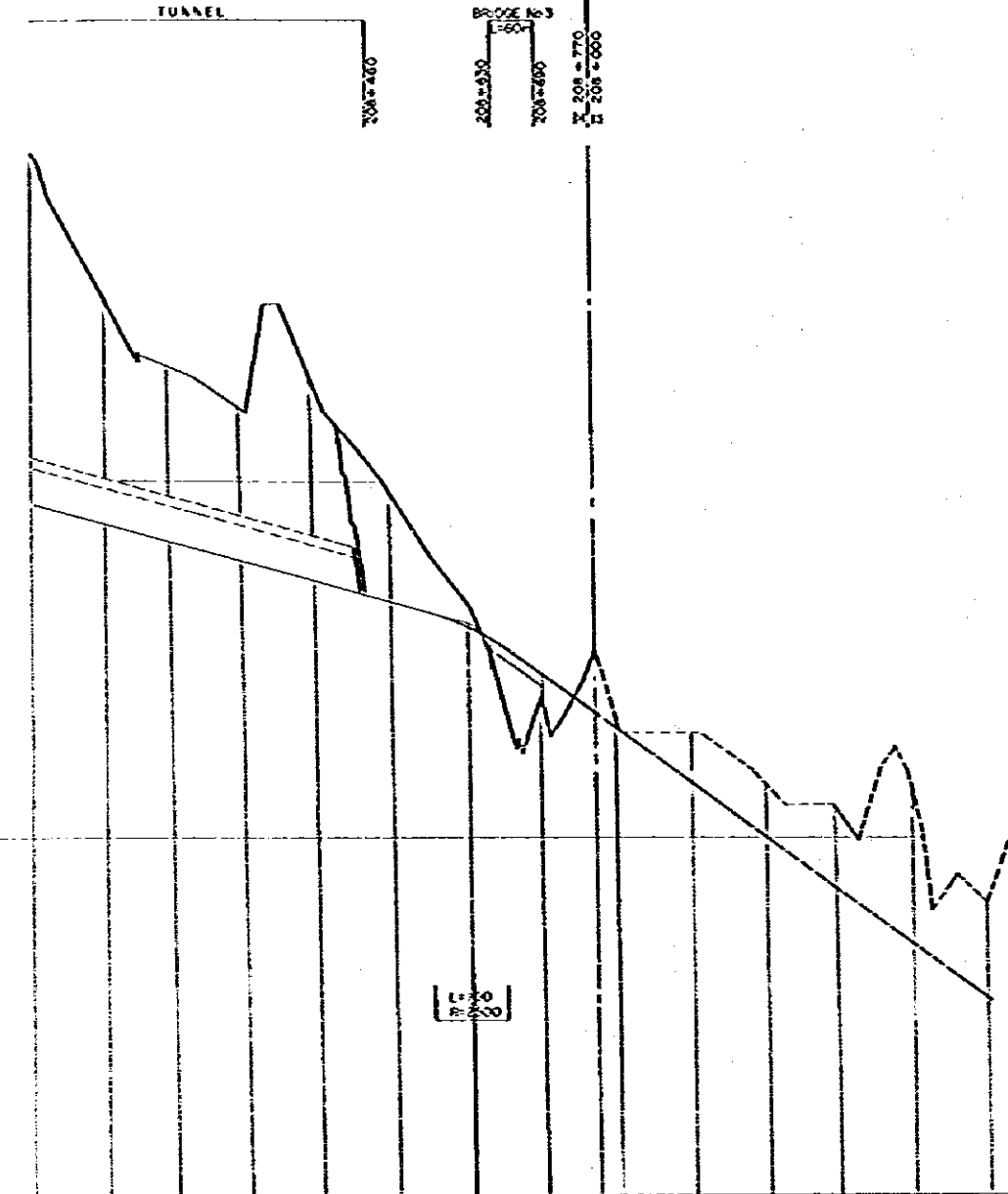
ELEV+700.00

ELEV+650.00

ROUTE V ROUTE B

TUNNEL

BRIDGE 15-3
208+530
208+600
208+770
208+800



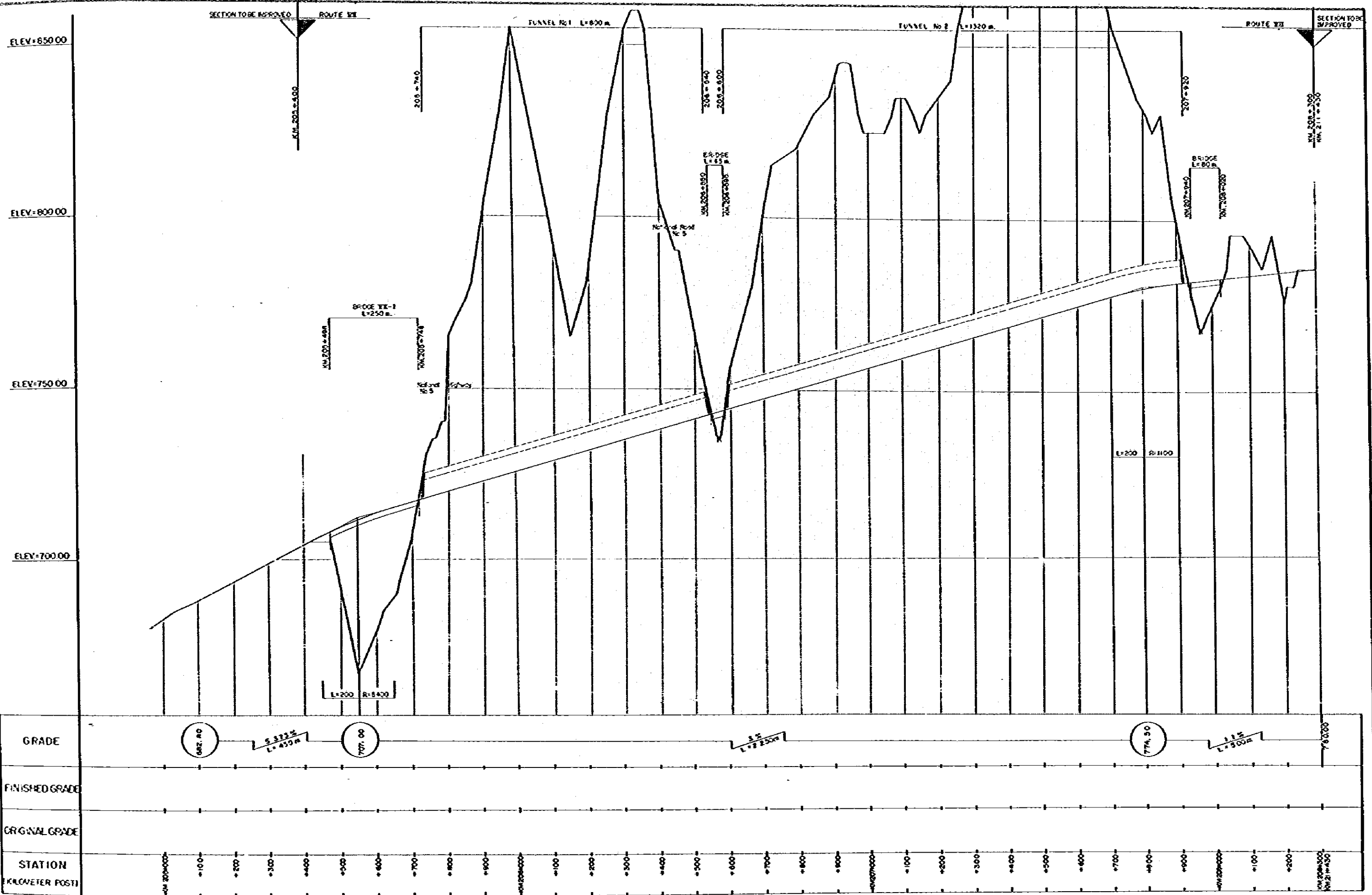
GRADE										
FINISHED GRADE	-----									
ORIGINAL GRADE	-----									
STATION (KILOMETER POST)	208+000	+100	+200	+300	+400	+500	+600	+700	+770 (208+000)	+800

JAPAN INTERNATIONAL COOPERATION AGENCY

DALTON PASS TUNNEL PROJECT
FEASIBILITY STUDY

SECTION A - NEW ALIGNMENT ROUTE
PROFILE FOR ALTERNATIVE ROUTE V(2)
KM. 208+000.00 TO KM. 208+770.00
DATE: MAR'82

DRAWING NO.
FS-41



GRADE	667.00	5.333% L=450m	707.00	3% L=250m	774.50	1.1% L=300m	780.00																	
FINISHED GRADE																								
ORIGINAL GRADE																								
STATION (KILOMETER POST)	205+000	+100	+200	+300	+400	+500	+600	+700	+800	+900	+000	+100	+200	+300	+400	+500	+600	+700	+800	+900	+000	+100	+200	208+300

JAPAN INTERNATIONAL COOPERATION AGENCY

DALTON PASS TUNNEL PROJECT
FEASIBILITY STUDY

SECTION A - NEW ALIGNMENT ROUTE
PROFILE FOR ALTERNATIVE ROUTE VII
KM 205+000.00 TO KM 208+300.00
DATE: MAR '82

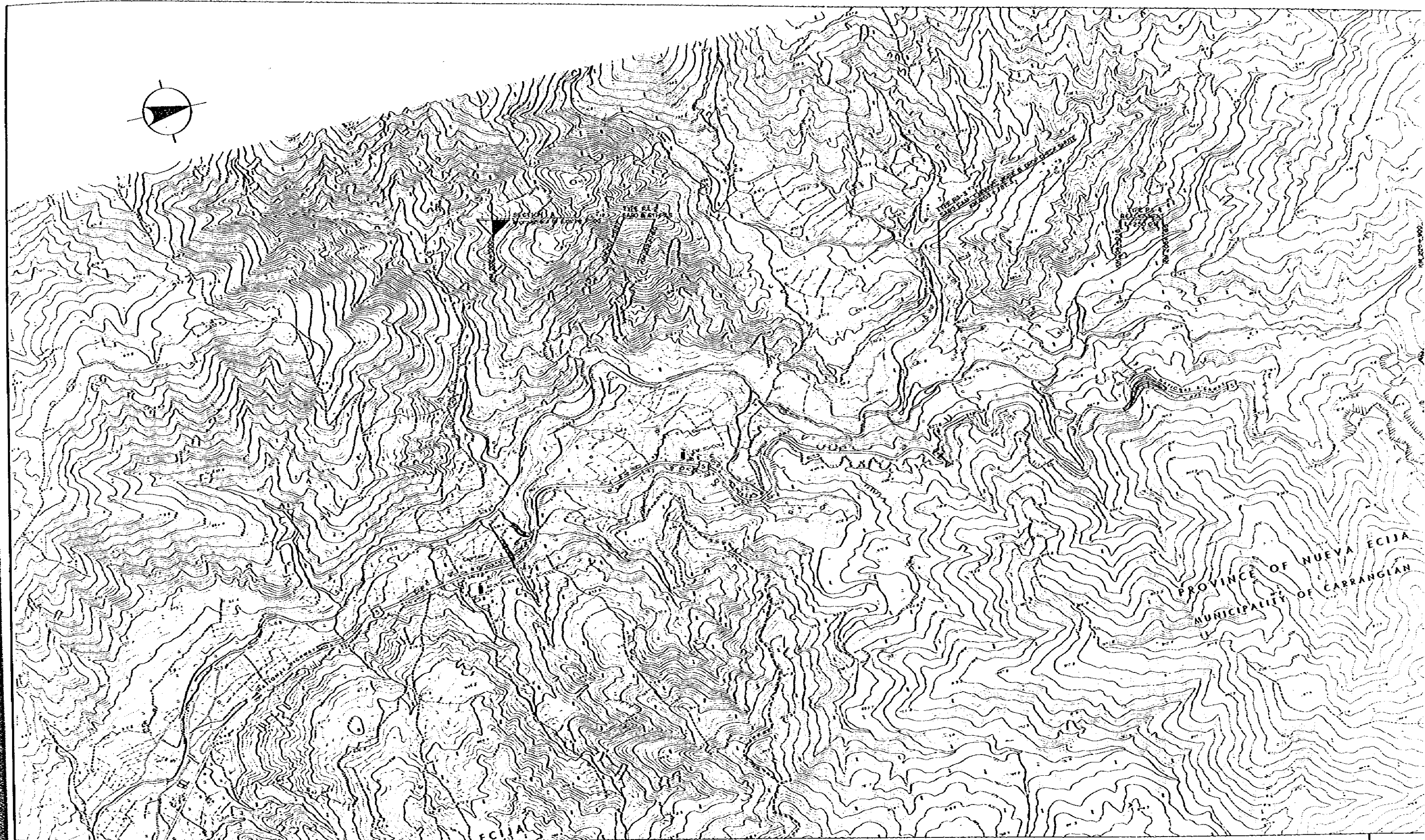
DRAWING NO.
FS-42

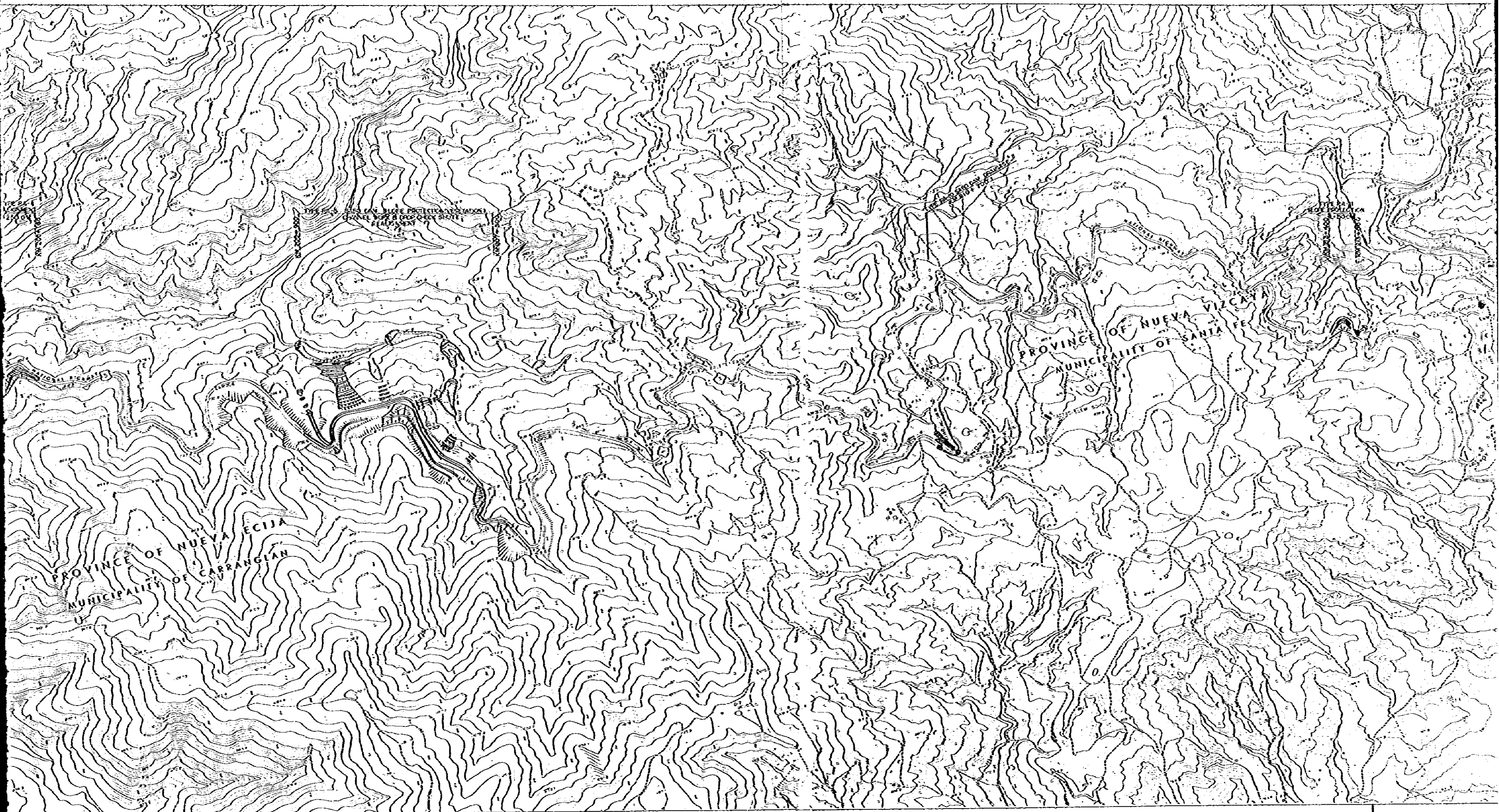
**PART 2
COUNTERMEASURE WORKS
FOR SECTION A**

TABLE OF CONTENTS

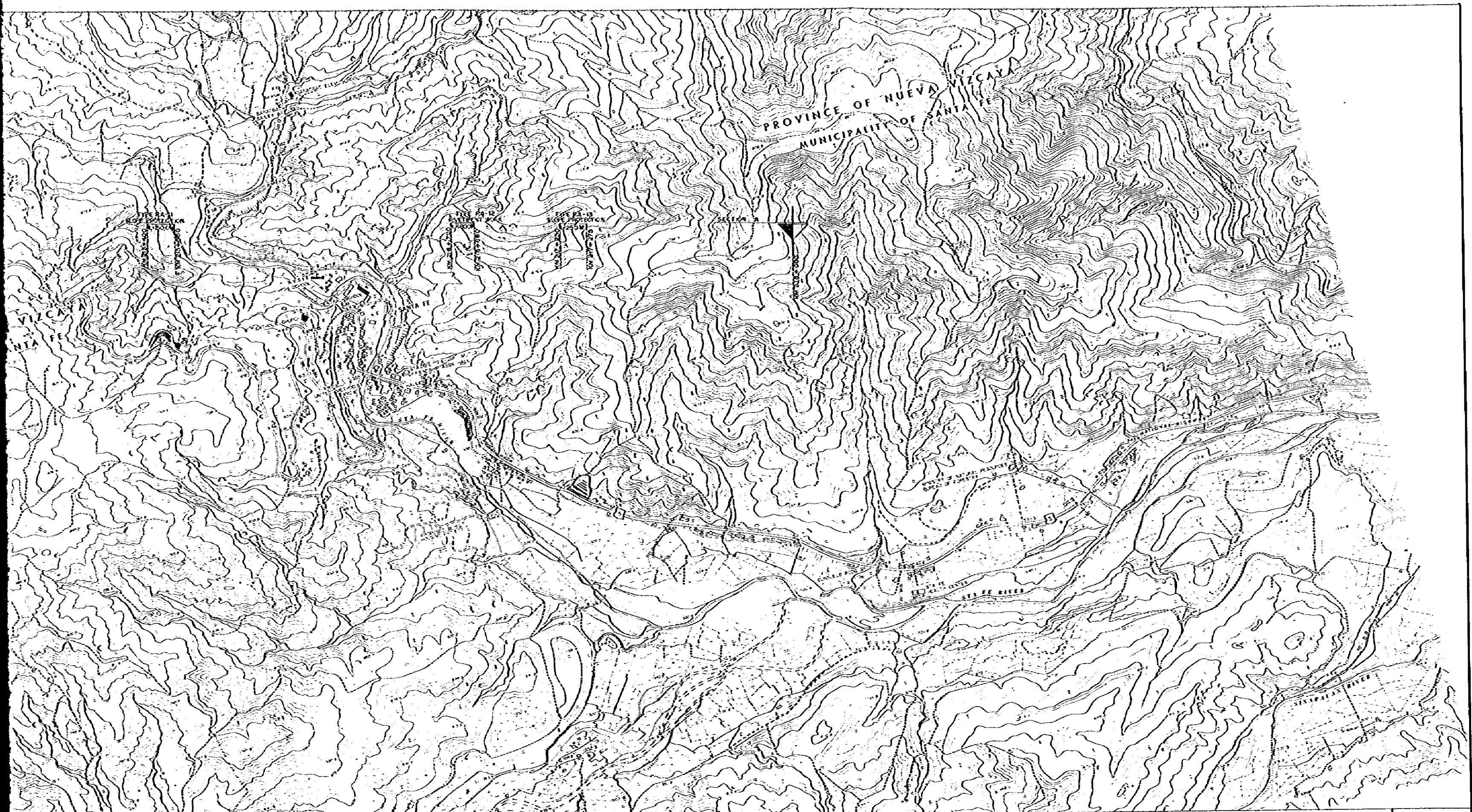
PART 2 COUNTERMEASURE WORKS FOR SECTION A

- RA-1 IMPROVEMENT OF EXISTING HIGHWAY ROUTE
- RA-2 SABO & OTHERS
- RA-3 SABO, CHANNEL & OTHERS
- RA-4 REALIGNMENT
- RA-5 SLOPE PROTECTION, CHECK DAM & OTHERS (1)
- RA-6 SLOPE PROTECTION, CHECK DAM & OTHERS (2)
- RA-7 SLOPE PROTECTION, CHECK DAM & OTHERS (3)
- RA-8 SLOPE PROTECTION, CHECK DAM & OTHERS (4)
- RA-9 SLOPE PROTECTION, CHECK DAM & OTHERS (5)
- RA-10 SABO, DRAINAGE & OTHERS
- RA-11 SLOPE PROTECTION
- RA-12 SLOPE PROTECTION
- RA-13 SLOPE PROTECTION & OTHERS





DALTON PASS TUNNEL PROJECT
FEASIBILITY STUDY

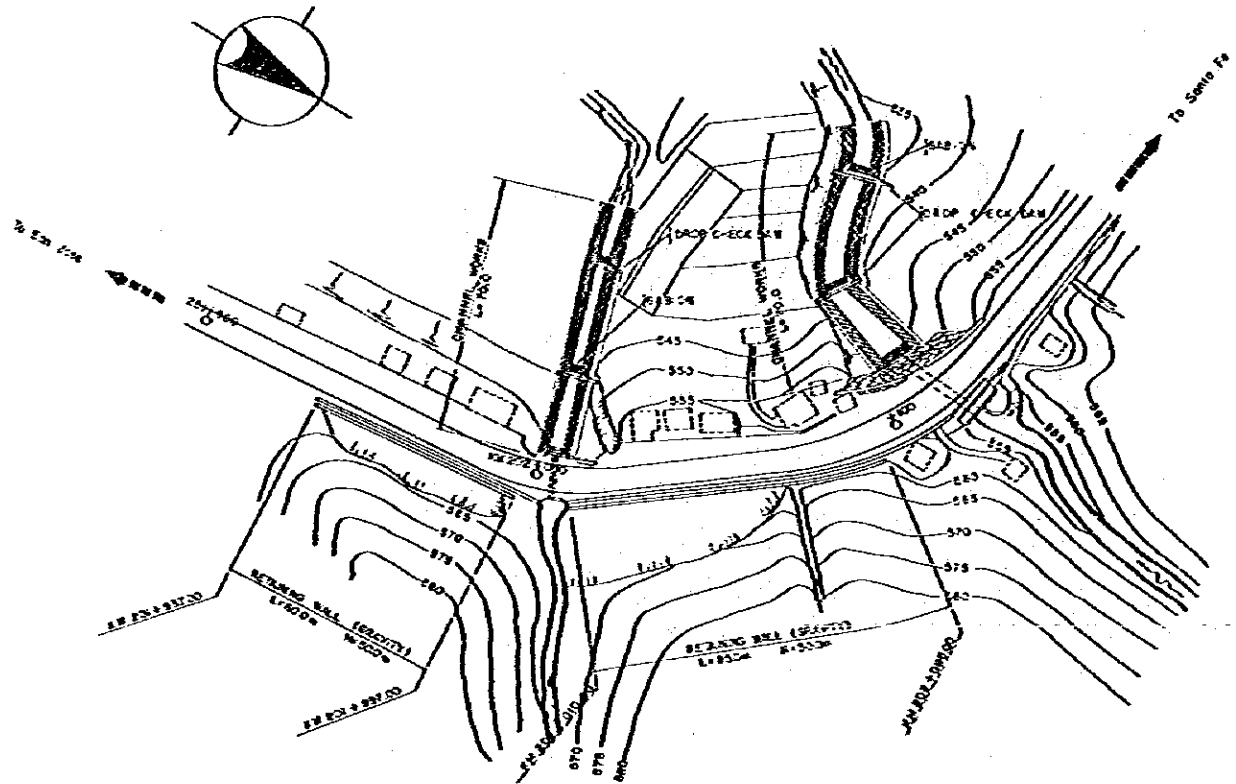


SECTION A- COUNTERMEASURE WORK
IMPROVEMENT OF EXISTING HIGHWAY ROUTE

DATE: MAR '82

DRAWING NO.
RA-1

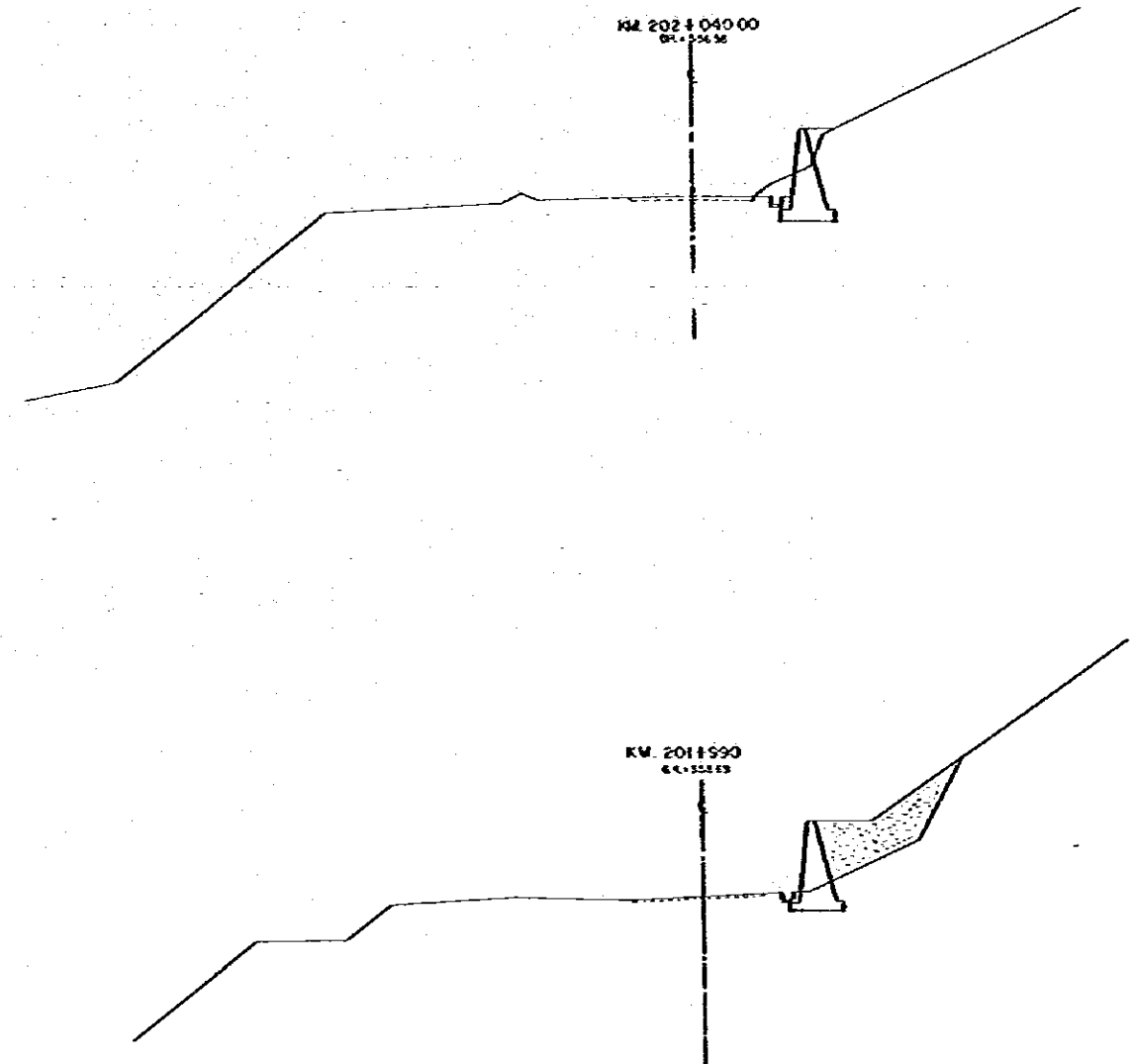
PLAN
S = 1:1000

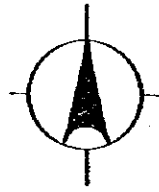


ESTIMATE OF QUANTITIES

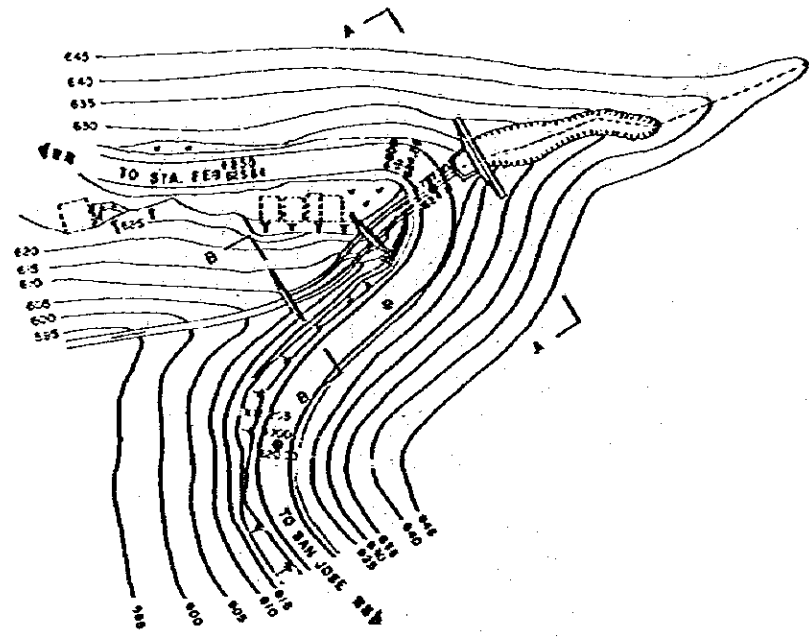
DESCRIPTION	UNIT	QUANTITIES	REMARKS
EXCAVATION FOR STRUCTURE	Cu M.	540	
SOE DITCH	L. M.	170	
RETAINING WALL, GRAVITY TYPE (H=5.0m)	L. M.	145	
STONE MASCART FOR WATER WAY (H=4.0m)	L. M.	280	
CONCRETE FOR DROP CHECK DAM	Cu M.	360	
EARTH	Cu M.	110	

CROSS - SECTION
SCALE = 1:200





PLAN
SCALE 1:1000

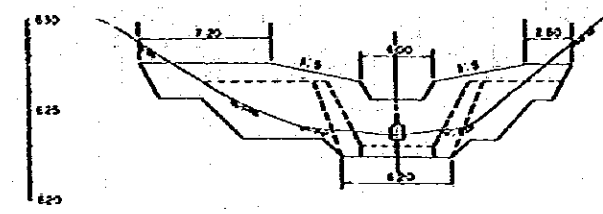


SECTION A-A
SCALE 1:200

EXAMPLE OF COMBINATION WORKS

SABO (CHECK) DAM

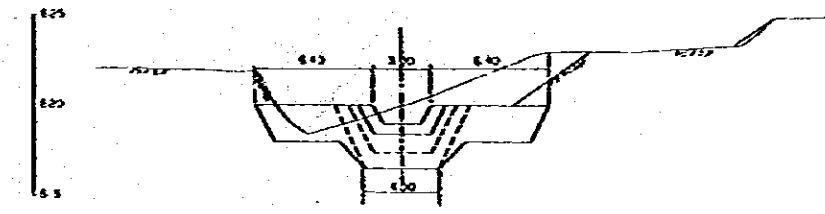
To prevent the damage from G.S.'s flow on the upstream side of forest across the road



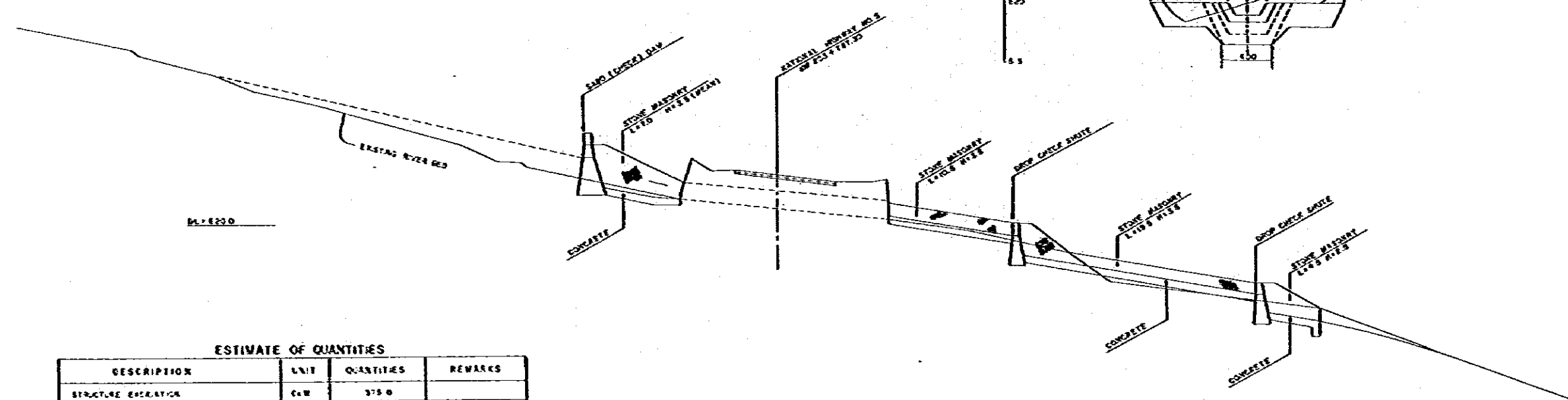
SECTION B-B
SCALE 1:200

DROP CHECK SPUTE

To prevent the scouring of bridge structure across the road

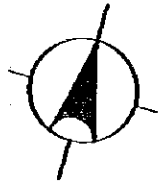


RIVER PROFILE
SCALE 1:200

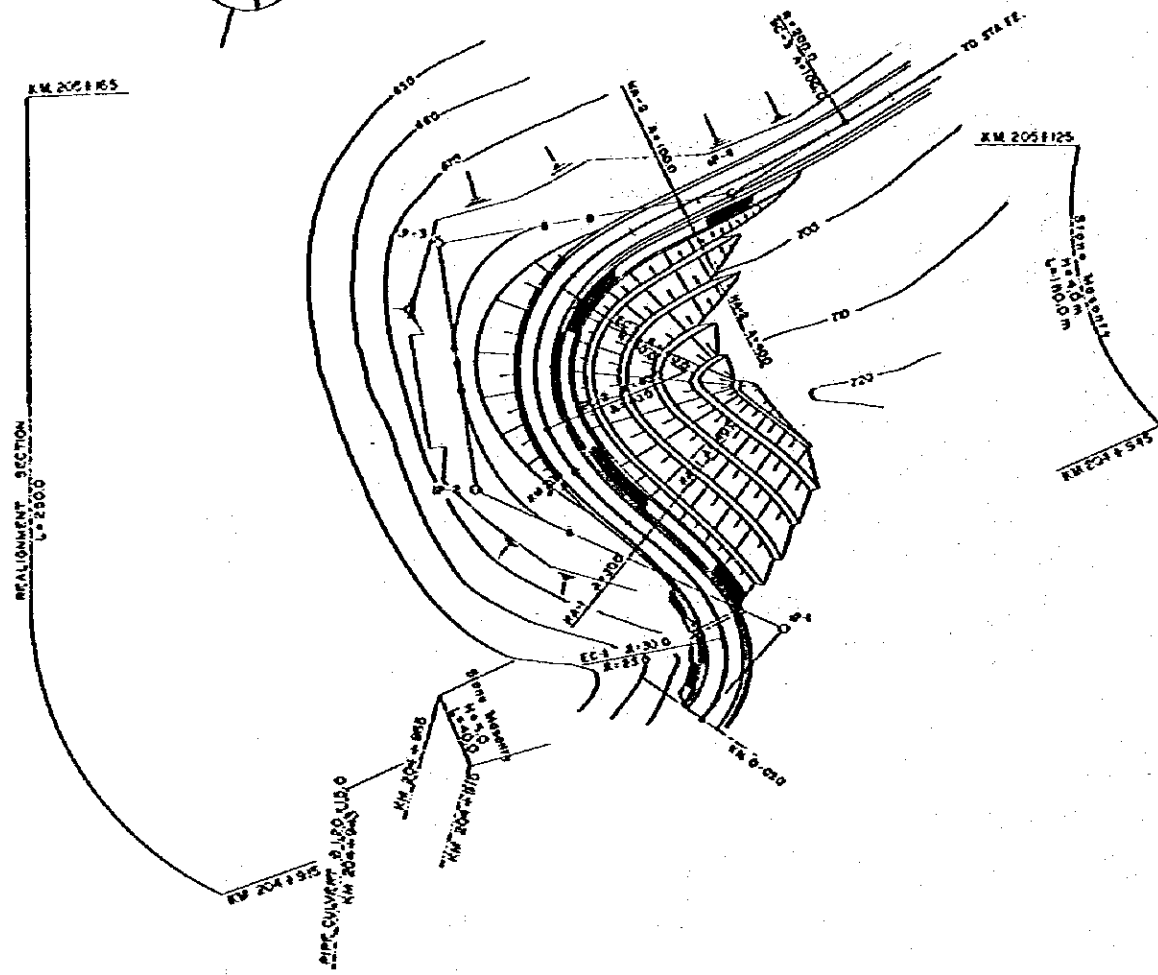


ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
STRUCTURE EXCAVATION	C.M	375.0	
STONE MASONRY FOR WATERWAY (R.B.S.)	C.M	85.0	
CONCRETE FOR SABO DAM	C.M	143.0	
CONCRETE FOR DROP CHECK SPUTE	C.M	93.0	
CONCRETE FOR RIVER BED	C.M	42.0	



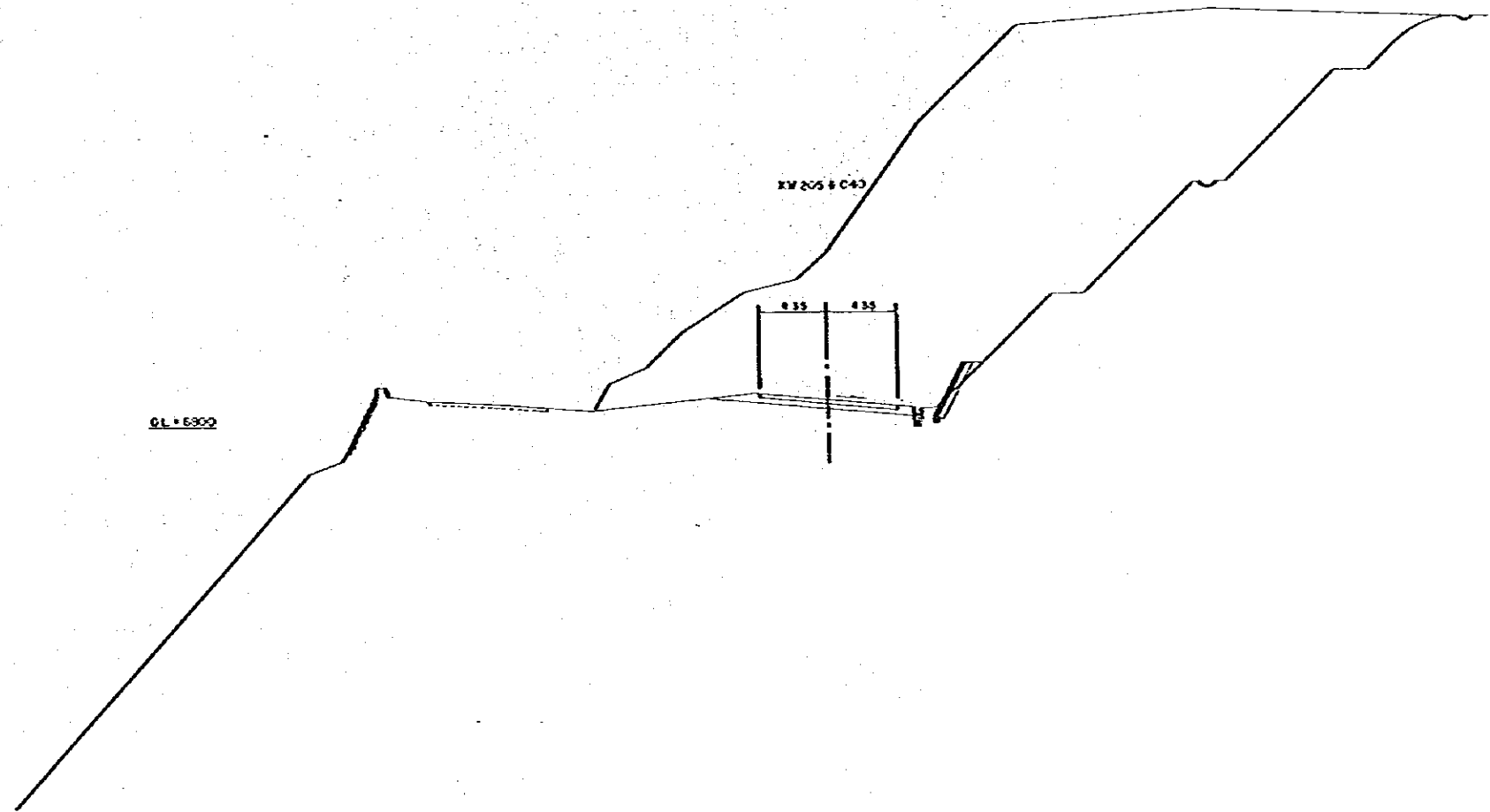
PLAN
SCALE 1:1000

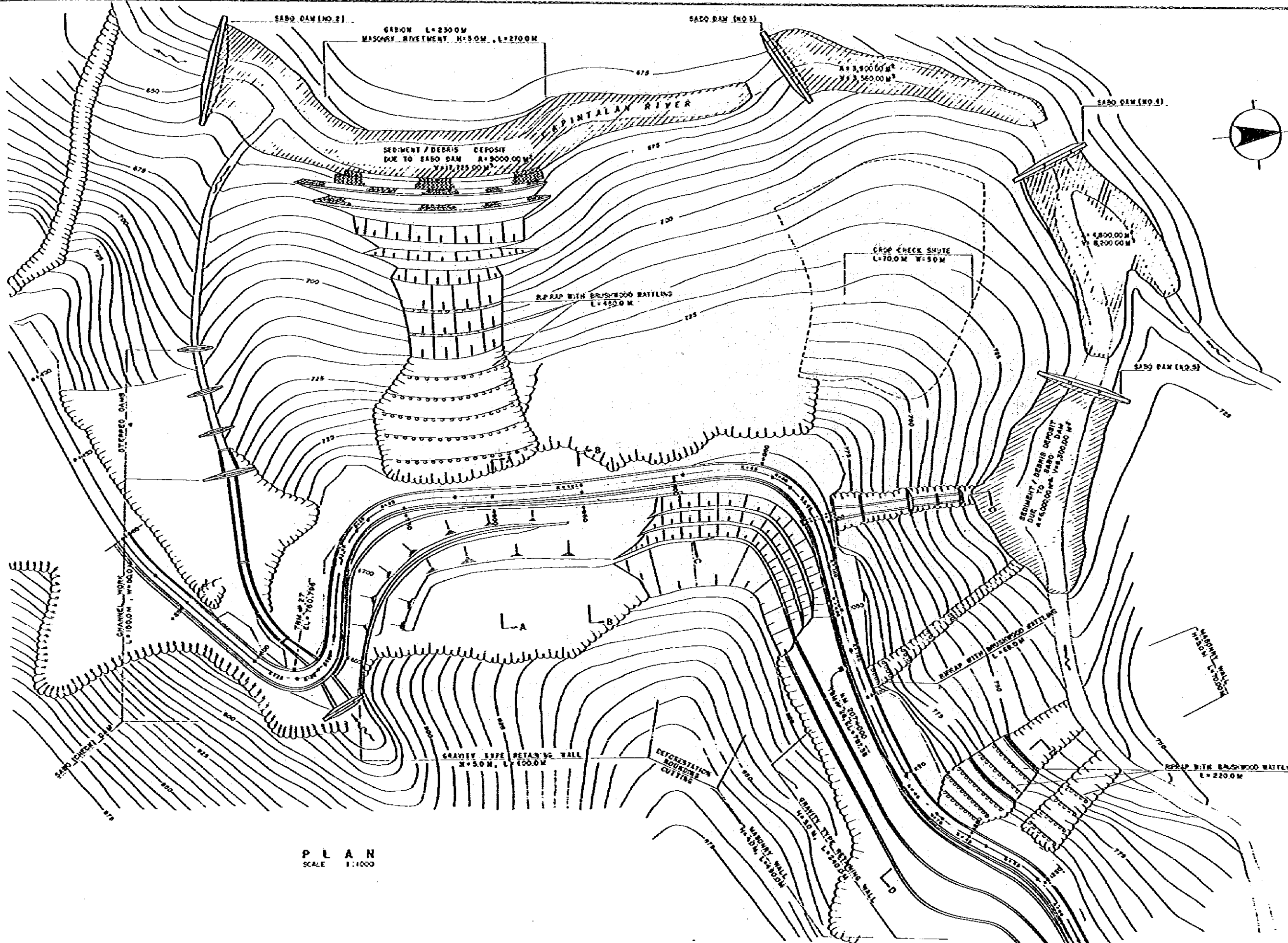


ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
CUT	CuM	32500	
CONCRETE PAVEMENT	L.M	2500	
SIDE DITCH	L.M	2500	
STONE MASONRY FOR CUT (H=3.5m)	L.M	1800	
STONE MASONRY FOR EMBANKMENT (H=5.0m)	L.M	400	
CONCRETE PIPE Ø 1.20m	L.M	15.0	
DROP DIRT	EACH	1.0	

CROSS SECTION
SCALE 1:200





PLAN
SCALE 1:1000

JAPAN INTERNATIONAL COOPERATION AGENCY

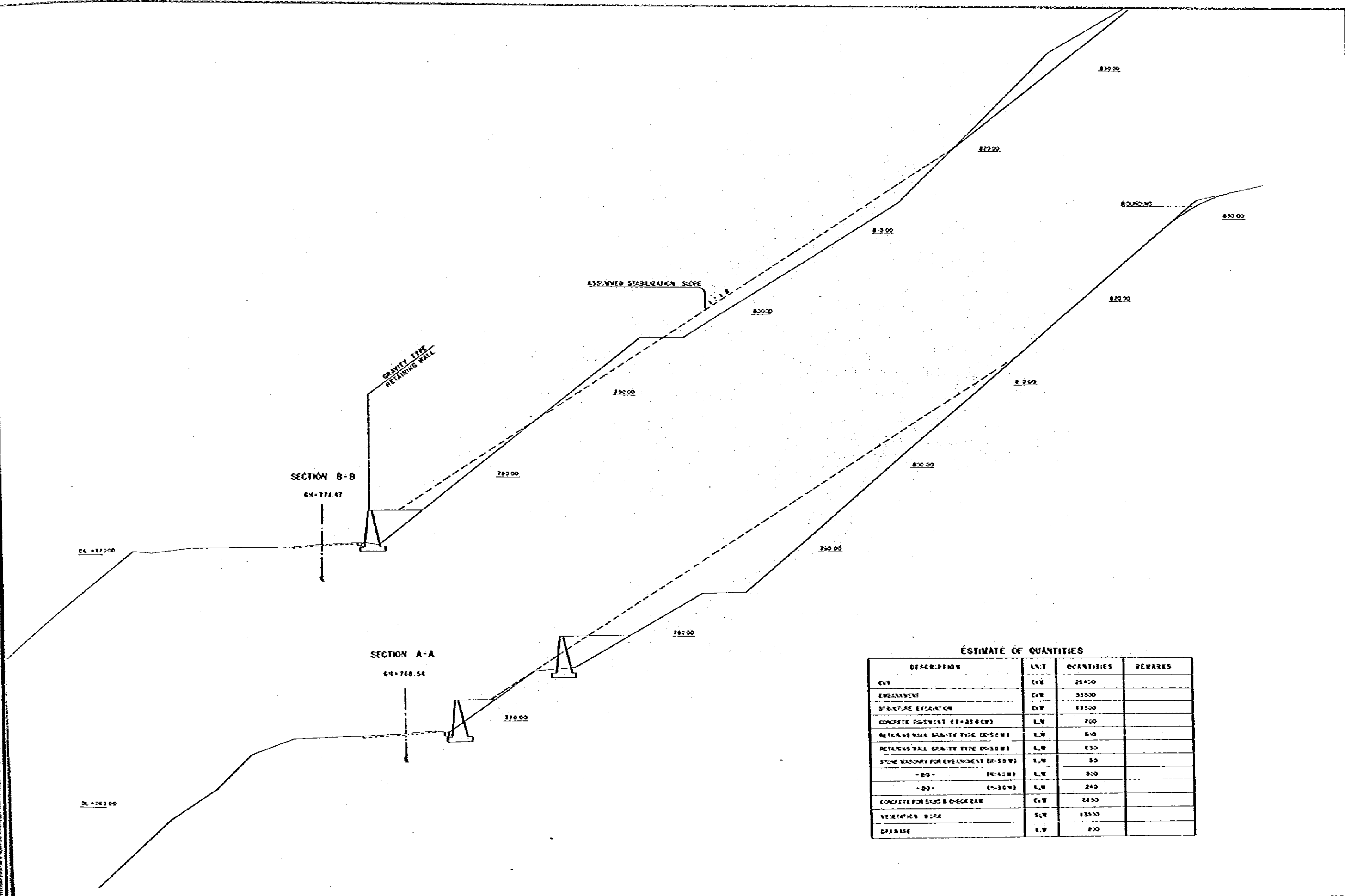
DALTON PASS TUNNEL PROJECT
FEASIBILITY STUDY

SECTION A - COUNTERMEASURE WORK
SLOPE PROTECTION, CHECK DAM & OTHERS(1)
KM. 205+900.00 TO KM. 207+500.00

DATE: MAR '82

DRAWING NO.

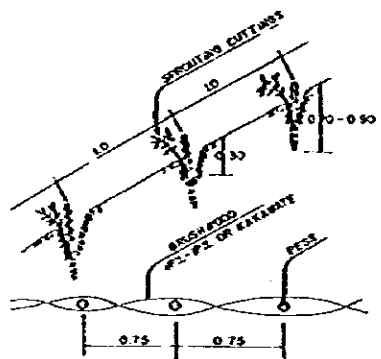
RA-5



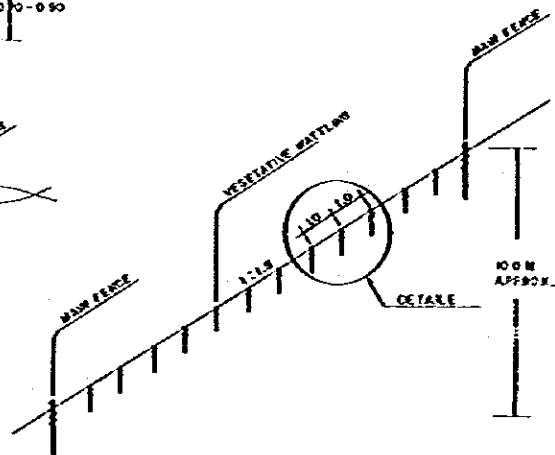
ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
CUT	CuW	28400	
EMBANKMENT	CuW	31600	
STRUCTURE EXCAVATION	CuW	13300	
CONCRETE PAVEMENT (15+250CW)	L/W	700	
RETAINING WALL GRAVITY TYPE (2-50W)	L/W	810	
RETAINING WALL GRAVITY TYPE (2-30W)	L/W	630	
STONE MASONRY FOR EMBANKMENT (2-50W)	L/W	50	
- 20 - (2-40W)	L/W	300	
- 20 - (2-30W)	L/W	240	
CONCRETE FOR SLOPE & CHECK DAM	CuW	2450	
VEGETATION WORK	SuW	13500	
DRAINAGE	L/W	200	

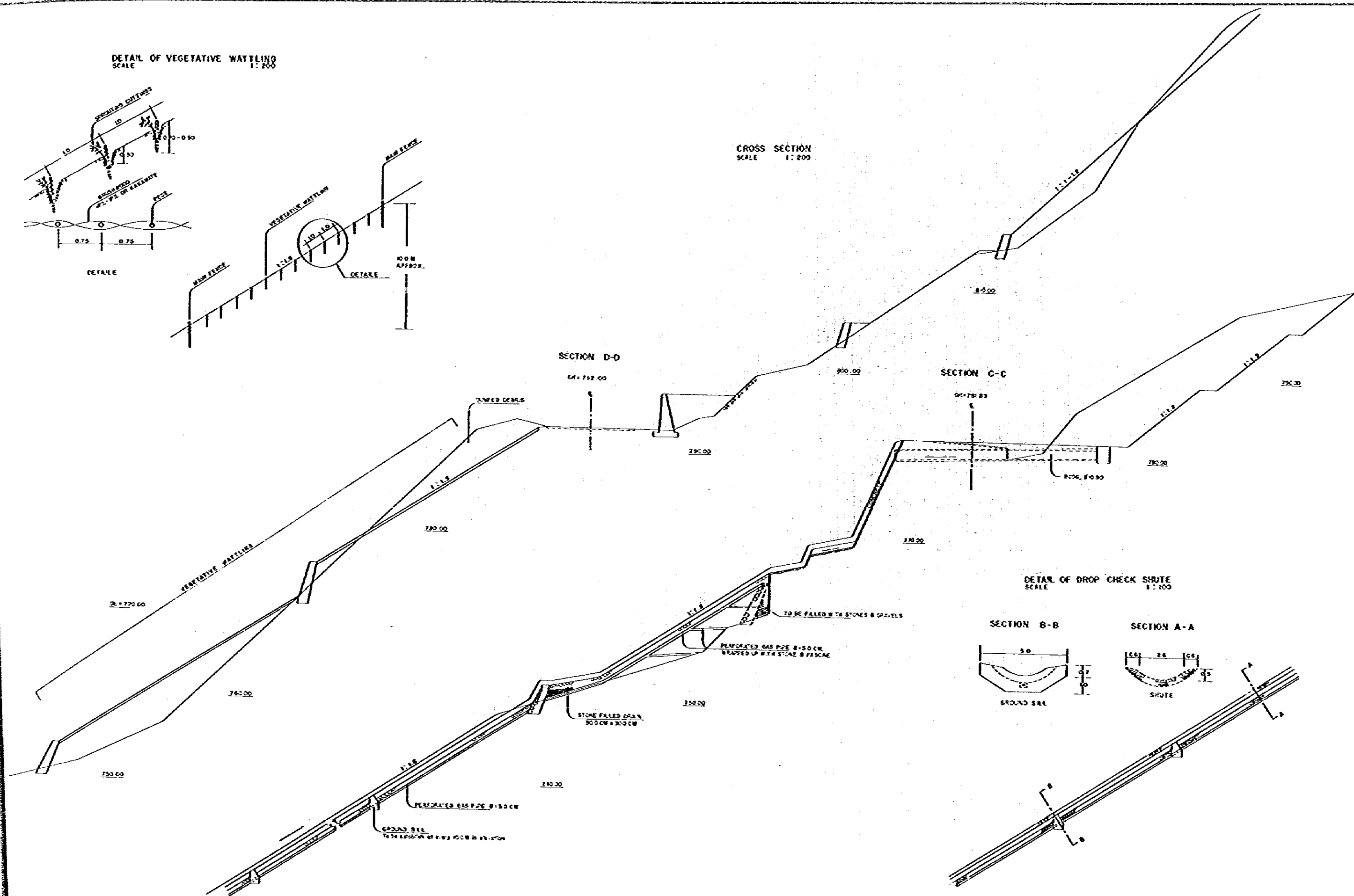
DETAIL OF VEGETATIVE MATTLING
SCALE 1:200



DETAIL

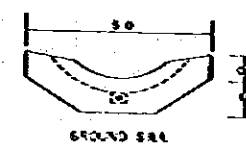


CROSS SECTION
SCALE 1:200



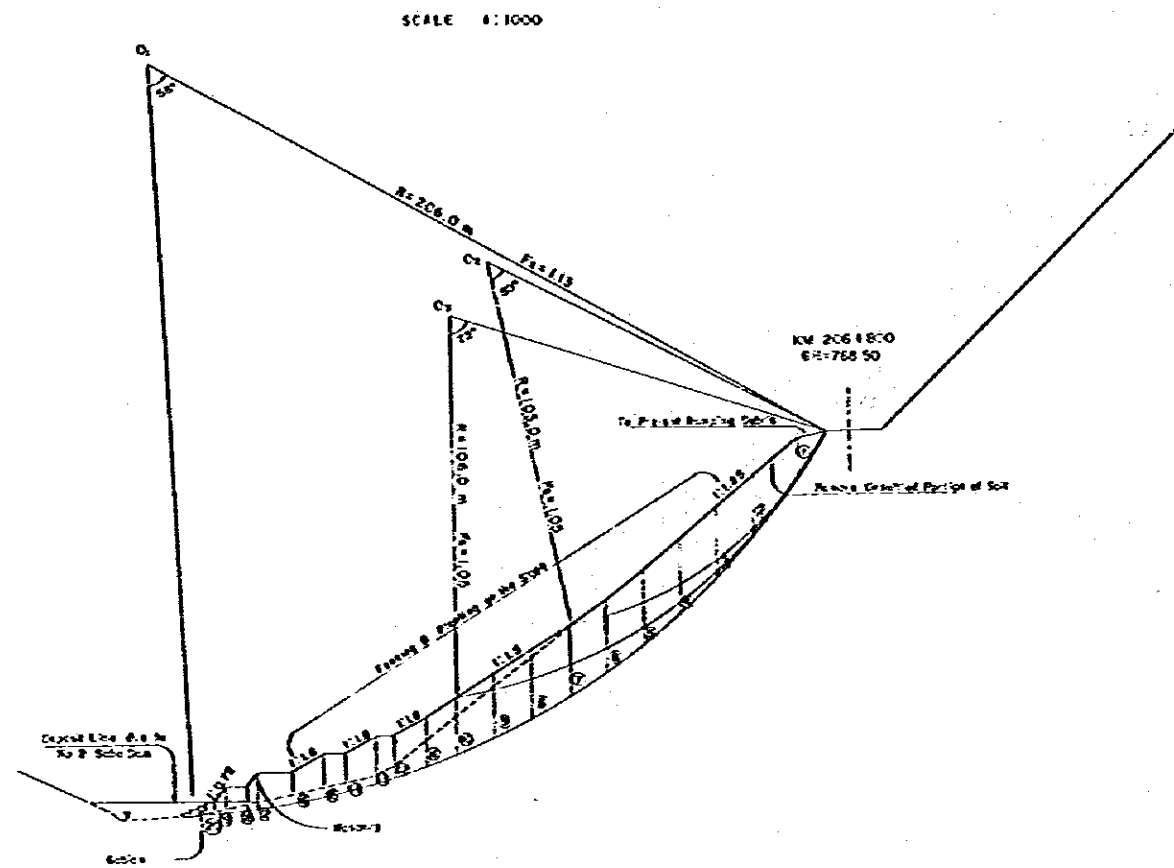
DETAIL OF DROP CHECK SHUTE
SCALE 1:100

SECTION B-B



SECTION A-A





No	h ₁	h ₂	$\frac{h_1+h_2}{2}$	z	$\frac{(h_1^2-h_2^2)}{2}$	wt	W x A x t	z x A x t	cos θ	W x z x t	W x cos θ	z	
1	0	10	5.0	7	35.0	1.7	59.5	58	0.8480	0.5299	50.5	34.5	
2	10	17	13.5	13	175.5	"	238.4	52	0.7890	0.6157	235.1	163.7	
3	17	20	18.5	10	165.0	"	314.5	50	0.7660	0.6428	240.9	202.2	
4	20	20	20.0	10	200.0	"	340.0	46	0.7193	0.6947	244.6	236.2	
5	20	22	21.0	10	210.0	"	357.0	42	0.6691	0.7431	238.9	265.0	
6	22	20	21.0	10	210.0	"	357.0	38	0.6137	0.7850	219.8	281.3	
7	20	20	20.0	10	200.0	"	340.0	34	0.5592	0.8290	190.1	281.9	
8	20	20	20.0	10	200.0	"	255.0	31	0.5150	0.8572	131.3	218.6	
9	20	18	19.0	10	190.0	"	323.0	28	0.4595	0.8829	151.6	285.2	
10	18	17	17.5	10	175.0	"	297.5	25	0.4226	0.9065	125.7	289.6	
11	17	15	16.0	8	128.0	"	217.6	23	0.3907	0.9205	85.0	200.3	
12	15	13	14.0	9	126.0	"	214.2	20	0.3420	0.9337	73.3	201.3	
13	13	15	14.0	9	126.0	"	119.0	18	0.3090	0.9511	36.8	113.2	
14	15	12	13.5	9	126.0	"	114.8	16	0.2756	0.9613	31.6	110.4	
15	12	12	12.0	6	72.0	"	122.4	14	0.2479	0.9703	29.6	118.8	
16	12	9	10.5	8	84.0	"	142.8	12	0.2079	0.9781	29.7	139.7	
17	9	10	9.5	9	85.5	"	145.4	8	0.1952	0.9903	20.2	144.0	
18	10	7	8.5	3	25.5	"	43.4	7	0.1278	0.9925	5.3	43.1	
19	7	6	6.5	6	39.0	"	66.3	5	0.0670	0.9962	5.8	65.3	
20	6	0	3.0	8	24.0	"	43.8	2	0.0549	0.9994	1.4	40.8	
											2147.2	3433.4	2012

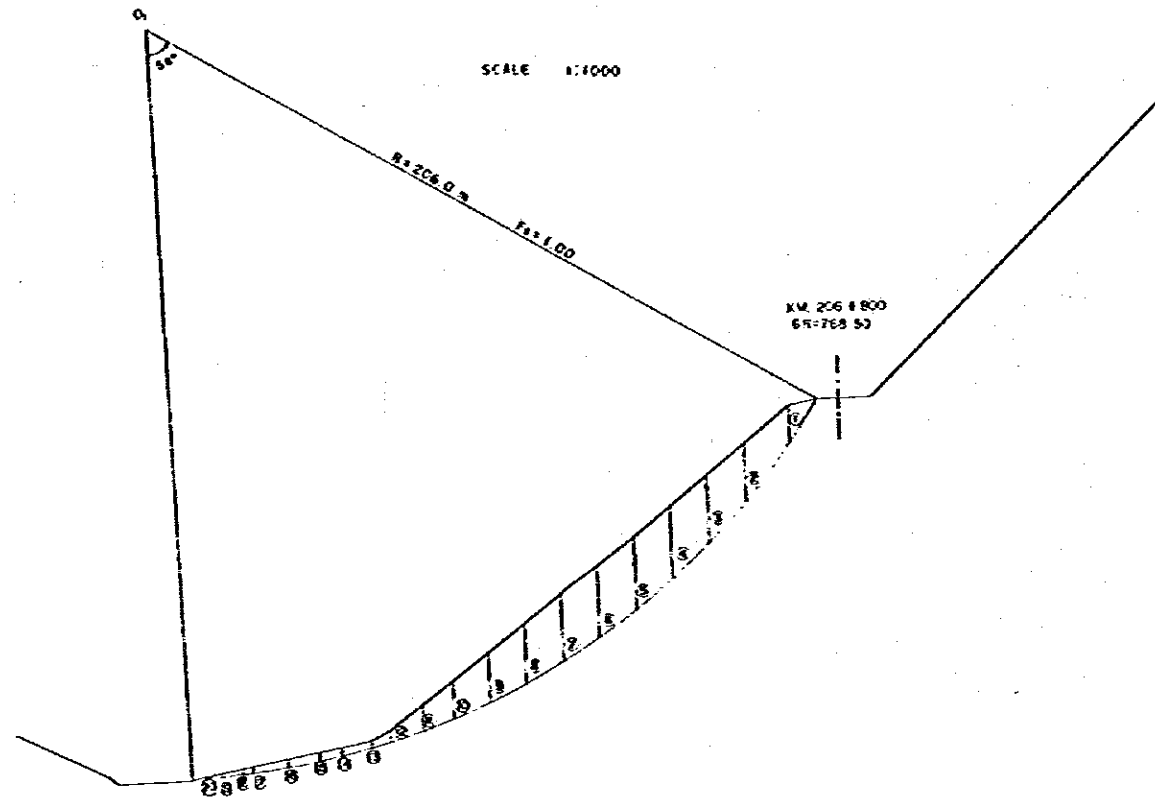
O₁ (COUNTERWEIGHT)
 $F_s = \frac{201.2 \times 2.0 + (3433.4 - 0) \times 0.5873}{2147.2}$
 = 1.13 m.

No	h ₁	h ₂	$\frac{h_1+h_2}{2}$	z	$\frac{(h_1^2-h_2^2)}{2}$	wt	W x A x t	z x A x t	cos θ	W x z x t	W x cos θ	z	
1	0	10	5.0	7	35.0	1.7	59.5	58	0.8480	0.5299	50.5	34.5	
2	10	13	11.5	13	143.5	"	254.2	43	0.7547	0.6560	191.8	165.8	
3	13	12	12.5	10	125.0	"	212.5	40	0.6429	0.7560	136.6	162.8	
4	12	12	12.0	10	120.0	"	204.0	33	0.5446	0.8387	110.1	171.9	
5	12	8	10.0	10	100.0	"	170.0	26	0.4384	0.8938	92.6	152.8	
6	8	6	7.0	10	60.0	"	102.2	20	0.3420	0.9337	34.5	55.8	
7	6	0	3.0	10	20.0	"	34.0	16	0.2756	0.9613	9.3	32.7	
											625.8	815.5	89.8

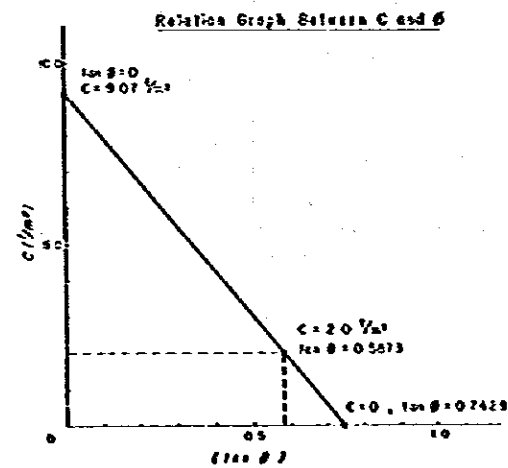
O₂ (NATURAL SLOPE)
 $F_s = \frac{89.8 \times 2.0 + (815.5 - 0) \times 0.5873}{625.8}$
 = 1.05
 $L = \frac{2.0 \times 103.0 \times 3.14 \times 500}{360}$
 = 89.8 m.

No	h ₁	h ₂	$\frac{h_1+h_2}{2}$	z	$\frac{(h_1^2-h_2^2)}{2}$	wt	W x A x t	z x A x t	cos θ	W x z x t	W x cos θ	z	
1	0	10	5.0	7	35.0	1.7	59.5	58	0.8480	0.5299	50.5	34.5	
2	10	16	13.0	13	169.0	"	287.3	52	0.7580	0.6517	226.4	176.9	
3	16	17	16.5	10	165.0	"	280.5	45	0.7070	0.7070	158.3	158.3	
4	17	16	16.5	10	175.0	"	297.5	39	0.6295	0.7771	187.2	231.2	
5	16	16	16.0	10	170.0	"	283.0	34	0.5592	0.8290	141.6	239.6	
6	16	13	14.5	10	145.0	"	245.5	29	0.4848	0.8745	119.5	215.6	
7	13	11	12.0	10	120.0	"	204.0	25	0.4226	0.9065	85.2	184.9	
8	11	8	9.5	10	95.0	"	161.5	21	0.3581	0.9335	57.9	150.8	
9	8	6	7.0	10	60.0	"	102.0	17	0.2921	0.9563	29.8	97.5	
10	6	0	3.0	10	20.0	"	34.0	11	0.1908	0.9816	6.5	55.4	
											1123.9	1559.7	133.1

O₃ (NATURAL SLOPE)
 $F_s = \frac{133.1 \times 2.0 + (1559.7 - 0) \times 0.5873}{1123.9}$
 = 1.65
 $L = \frac{2.0 \times 106.0 \times 3.14 \times 72.0}{360}$
 = 133.1 m.



No	h_1	h_2	$\frac{h_1+h_2}{2}$	d	$A = \frac{h_1+h_2}{2} \cdot d$	W	$W \cdot A \cdot \sin \theta$	θ	$\sin \theta$	$\cos \theta$	$T = W \cdot \sin \theta$	$N = W \cdot \cos \theta$	1
1	0	10	5.0	7	35.0	1.7	59.5	58	0.8480	0.5299	50.5	31.5	
2	10	17	13.5	13	175.5	"	295.4	32	0.7680	0.6437	235.1	183.7	
3	17	20	18.5	10	185.0	"	314.5	50	0.7660	0.6426	240.9	202.2	
4	20	20	20.0	10	200.0	"	340.0	46	0.7193	0.6947	244.6	236.2	
5	20	22	21.0	10	210.0	"	357.0	42	0.6591	0.7431	236.9	265.3	
6	22	20	21.0	10	210.0	"	357.0	38	0.6157	0.7890	219.8	281.3	
7	20	20	20.0	10	200.0	"	340.0	34	0.5592	0.8290	190.1	281.9	
8	20	18	19.0	10	190.0	"	329.0	31	0.5150	0.8572	166.3	276.9	
9	18	14	16.0	10	160.0	"	272.0	28	0.4555	0.8929	127.7	240.2	
10	14	10	12.0	10	120.0	"	204.0	25	0.4226	0.9063	85.2	184.9	
11	10	8	9.0	8	72.0	"	122.4	23	0.3907	0.9205	47.8	112.7	
12	8	4	6.0	5	30.0	"	91.8	20	0.3420	0.9337	31.4	86.3	
13	4	3	3.5	5	17.5	"	29.8	18	0.3090	0.9511	9.2	28.3	
14	3	3	3.0	5	15.0	"	25.5	16	0.2755	0.9613	7.0	24.5	
15	3	4	3.5	6	21.0	"	35.7	14	0.2419	0.9703	8.6	34.6	
16	4	3	3.5	8	28.0	"	47.6	12	0.2079	0.9781	9.8	45.6	
17	3	2	2.5	5	12.5	"	38.3	8	0.1332	0.9903	5.3	37.9	
18	2	2	2.0	3	6.0	"	10.2	7	0.1219	0.9923	1.2	10.1	
19	2	1	1.5	6	9.0	"	15.3	5	0.0870	0.9962	1.3	15.2	
20	1	0	0.5	8	4.0	"	6.8	2	0.0343	0.9994	0.2	6.8	
											1921.9	2587.1	2012



$$L = \frac{20 \times 206.0 \times 3.14}{360} = 2012 \text{ m}$$

$$u = 0$$

$$N = 2587.1 \text{ } \frac{1}{\text{m}}$$

$$T = 1921.9 \text{ } \frac{1}{\text{m}}$$

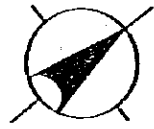
$$F_s = 1.0$$

$$F_s = \frac{C \times L + (N \cdot u) \times K \cdot \theta}{T}$$

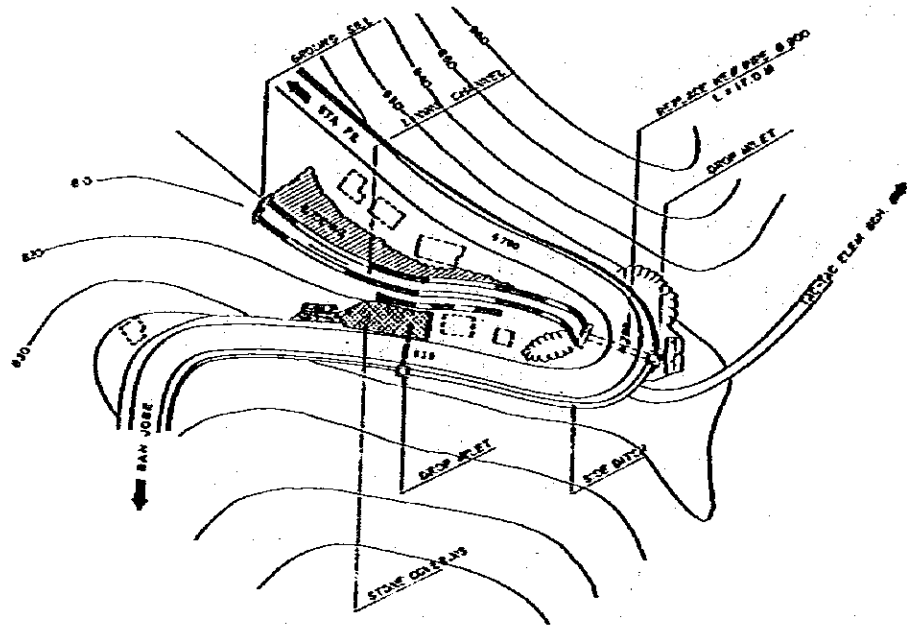
$$1.0 = \frac{2012 \times C + (2587.1 \cdot 0) \times K \cdot \theta}{1921.9}$$

$$C = 0 \quad \tan \theta = 0.7429$$

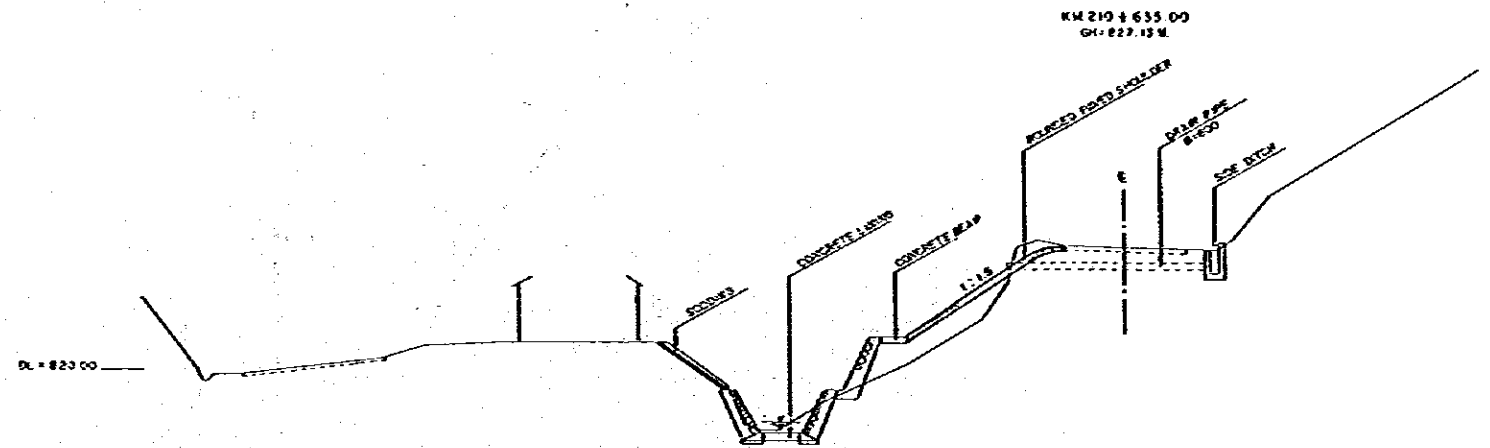
$$\tan \theta = 0 \quad C = 9.07 \text{ } \frac{1}{\text{m}^2}$$



PLAN
SCALE 1 : 1000

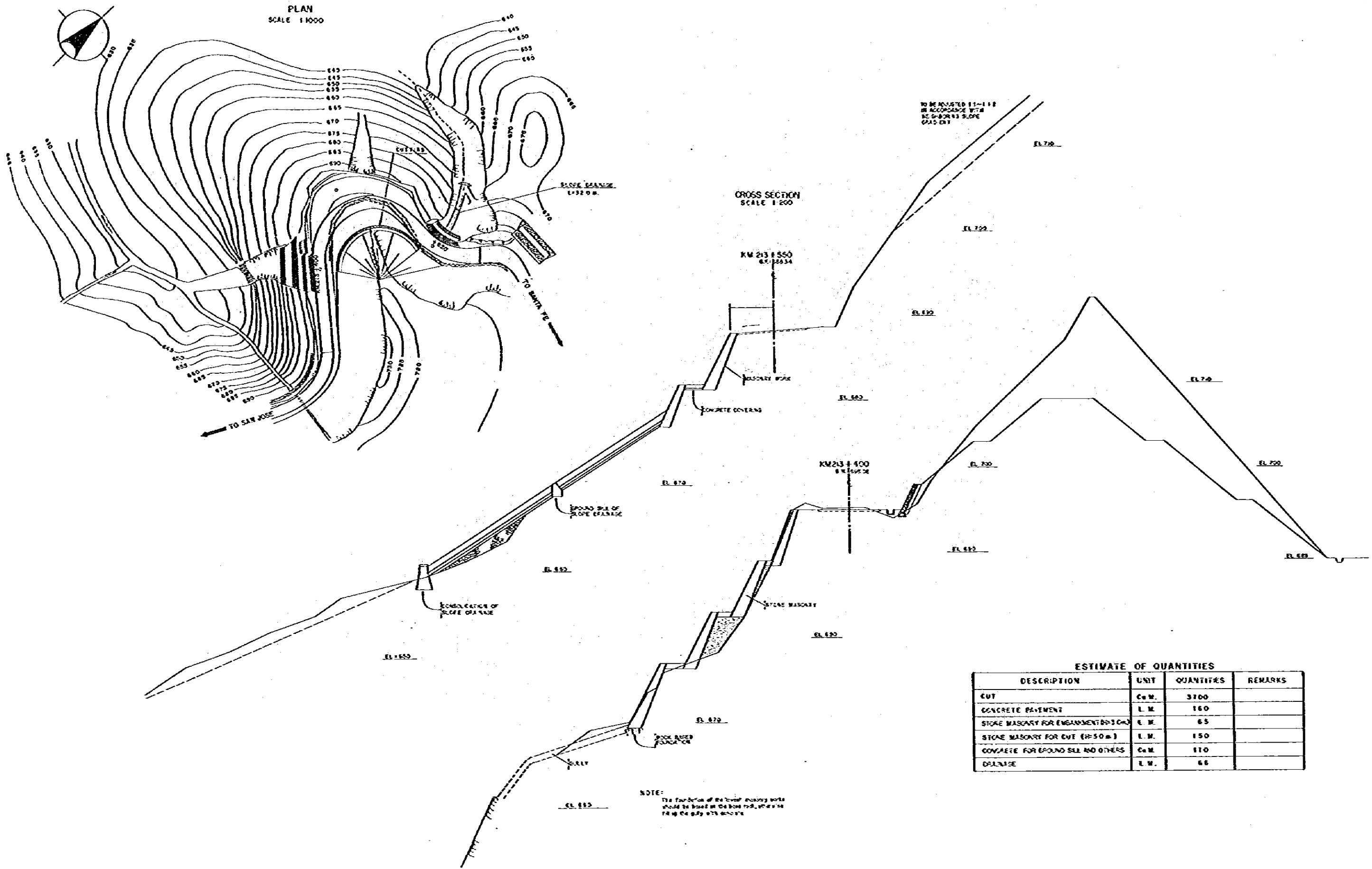


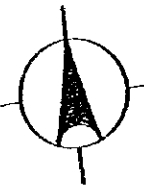
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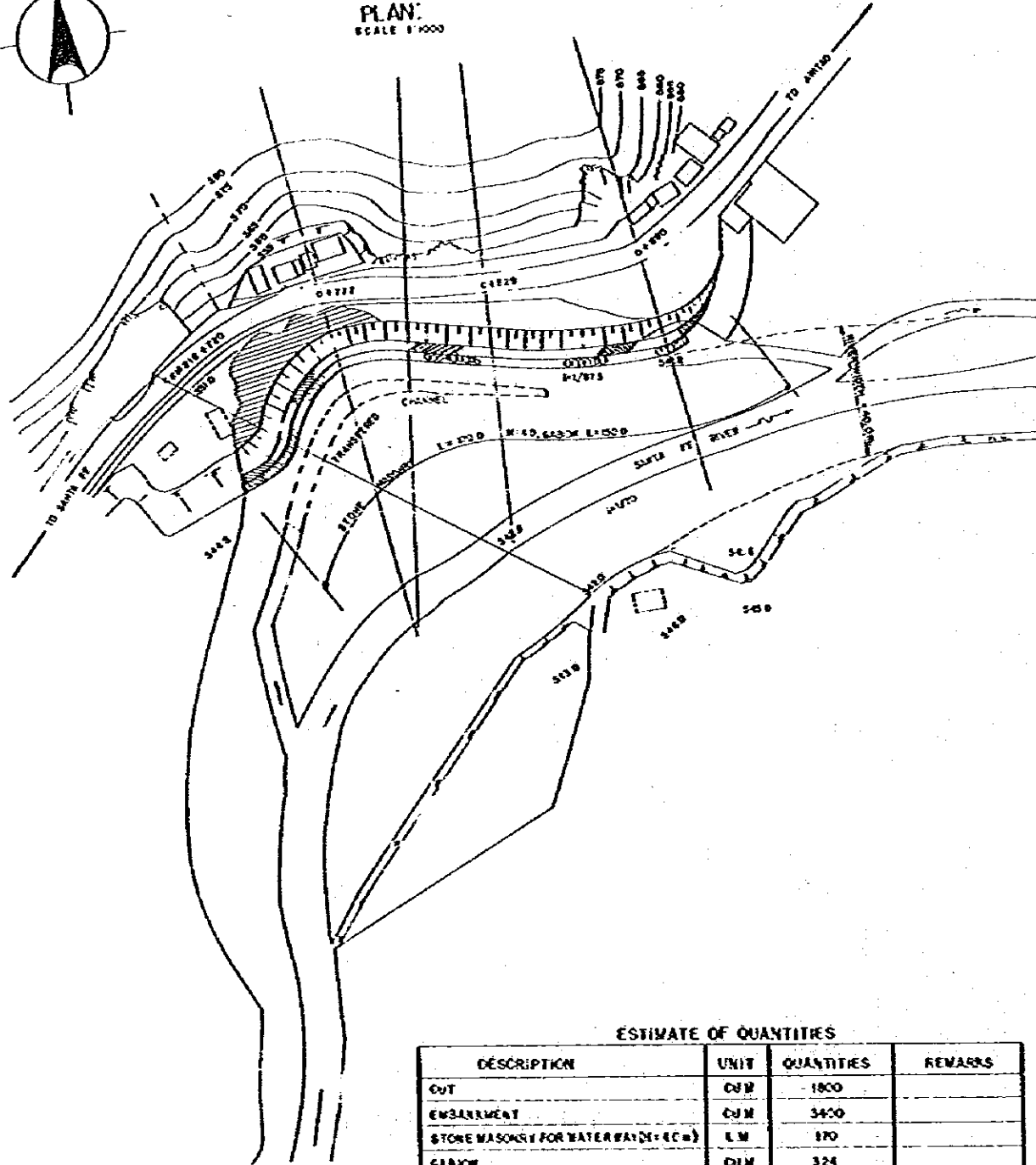
ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
STRUCTURE ERECTION	CUM	800	
EMBALLMENT	CUM	350	
PILET	EA	2	
OUTLET	EA	2	
CONCRETE PIPE Ø=500	LW	12	
CONCRETE PIPE Ø=900	LW	17	
STONE BASKETRY FOR RIVER BED (1x30 M)	LW	225	
CONCRETE FOR RIVER BED	CUM	95	
CONCRETE FOR SPOND BELL	CUM	20	
SOCCLES	EA	600	





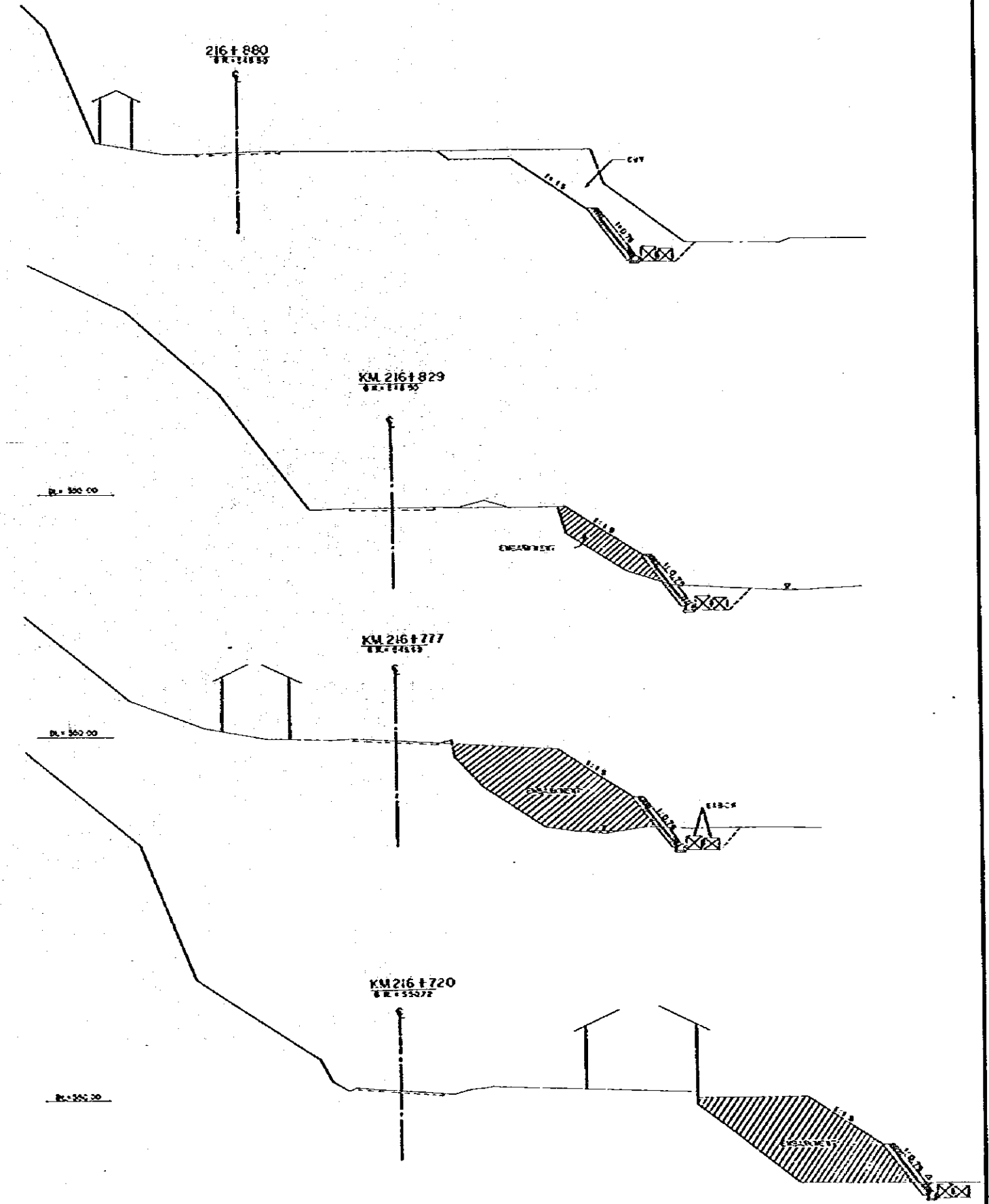
PLAN.
SCALE 1:1000



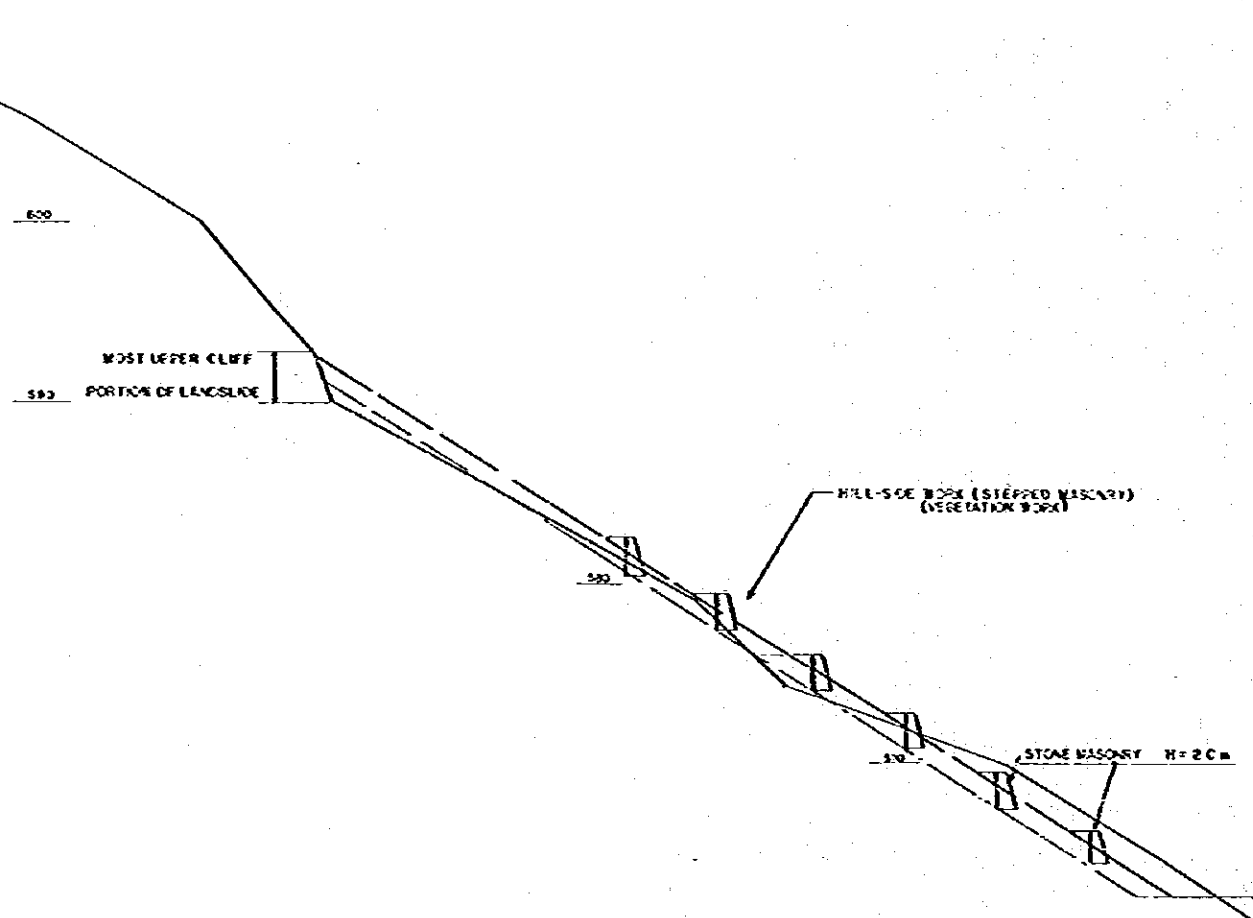
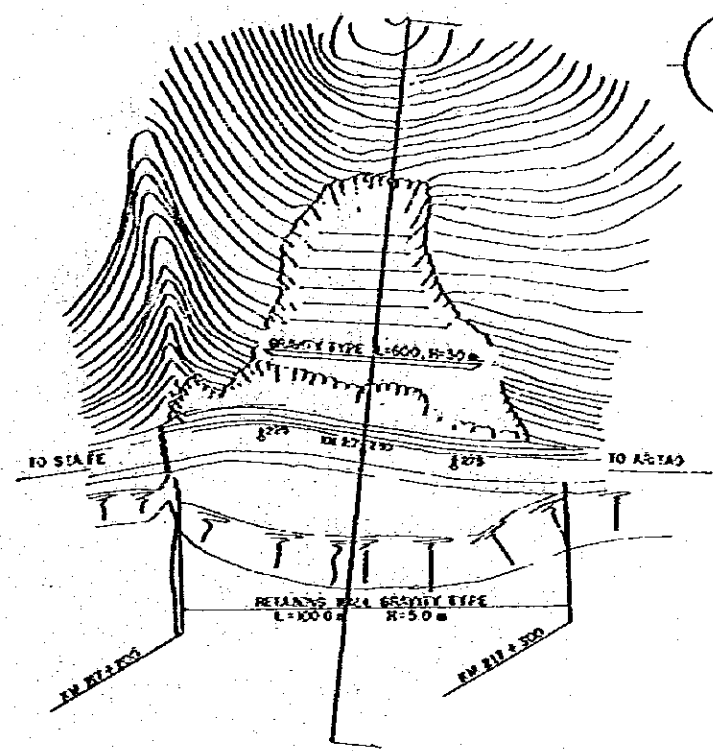
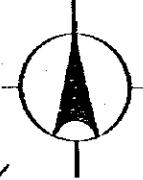
ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
CUT	CUM	1800	
EMBANKMENT	CUM	3400	
STONE MASONRY FOR WATER WALES (EC=)	LM	170	
GABION	CUM	324	

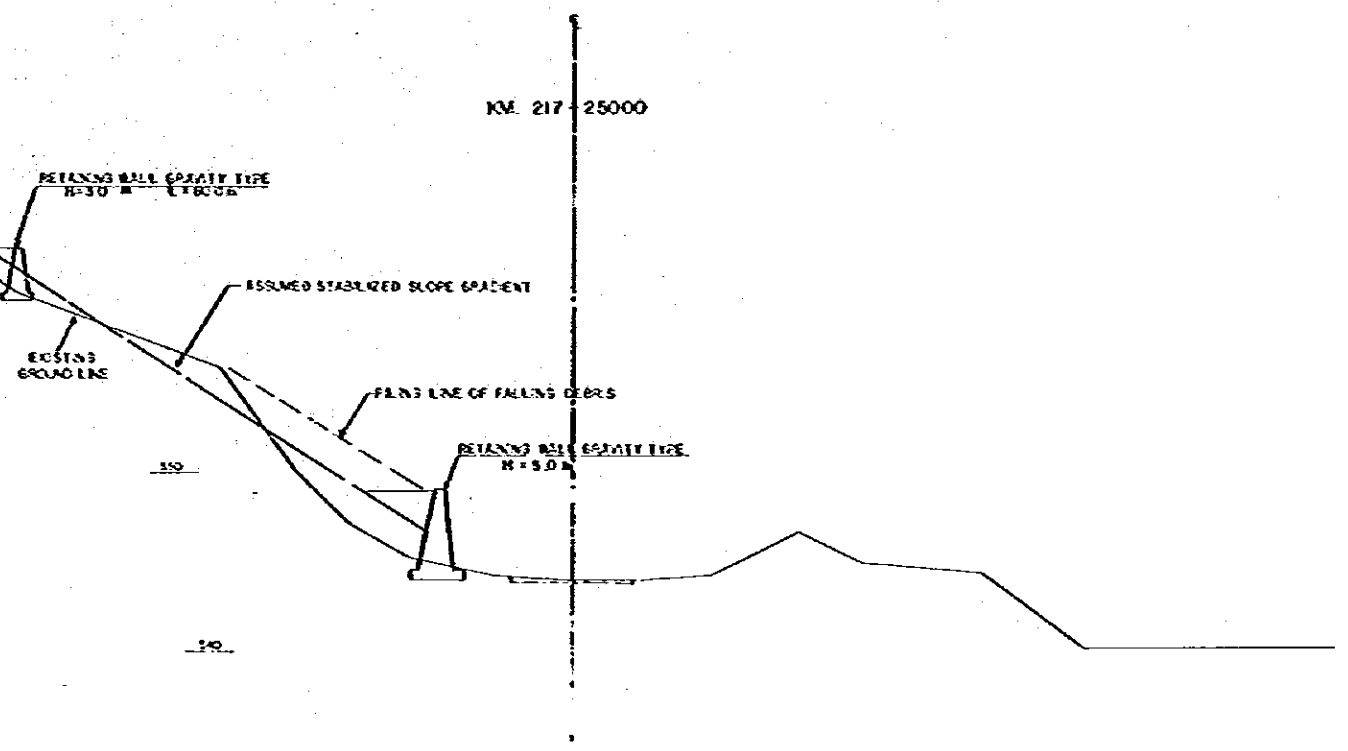
CROSS SECTION
SCALE 1:250



PLAN
SCALE 1:100



CROSS SECTION
SCALE 1:200



ESTIMATE OF QUANTITY

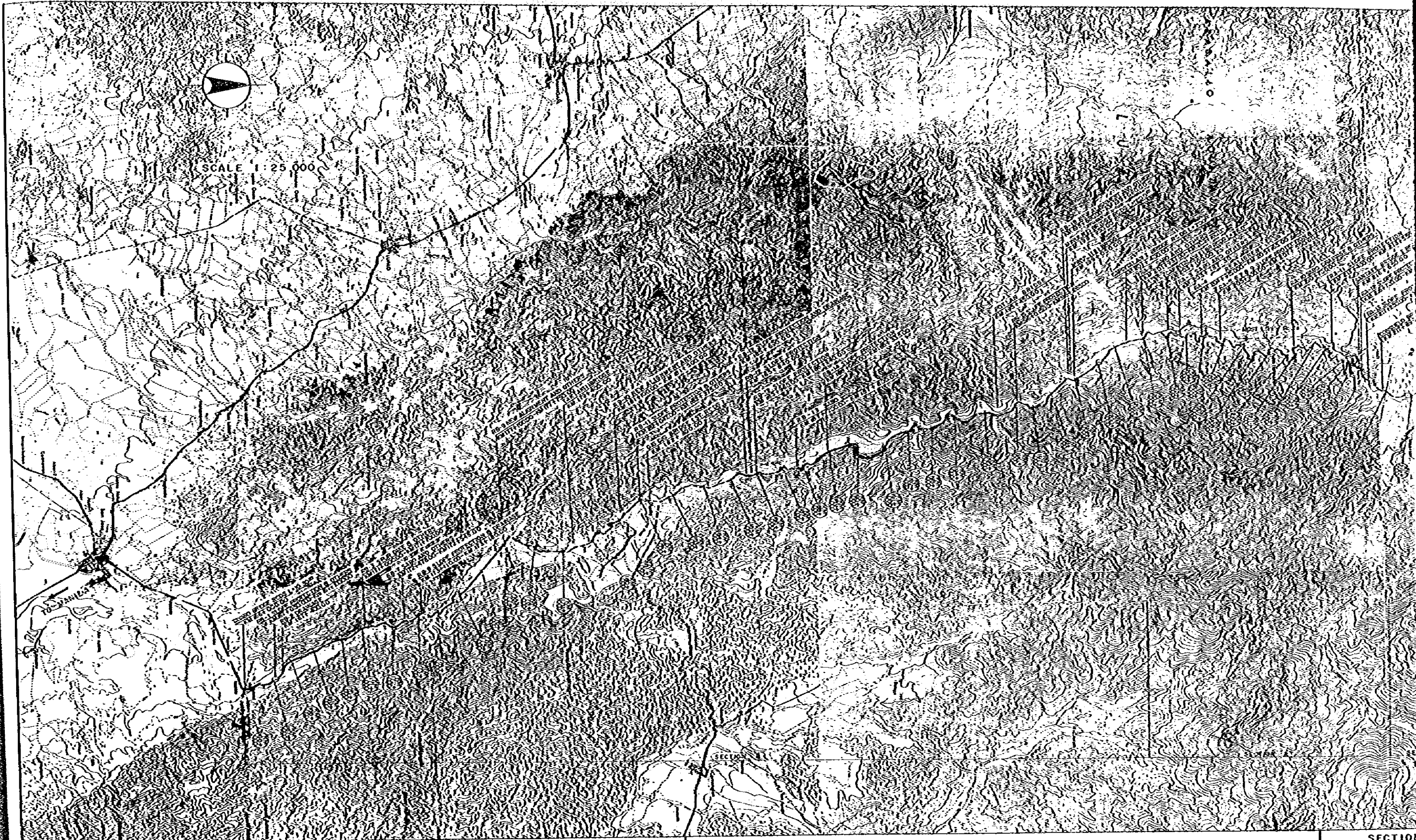
DESCRIPTION	UNIT	QUANTITIES	REMARKS
STRUCTURE EXCAVATION	CUM	870	
RETAINING WALL GRAVITY TYPE H=5.0M	LM	106	
RETAINING WALL GRAVITY TYPE H=3.0M	LM	60	
STONE MASONRY FOR EMBANKMENT (H=2.0M)	LM	200	
VEGETATION WORK	SQM	3400	

**PART 3
COUNTER MEASURE WORKS
FOR SECTION B**

TABLE OF CONTENTS

PART 3 COUNTERMEASURE WORKS FOR SECTION B

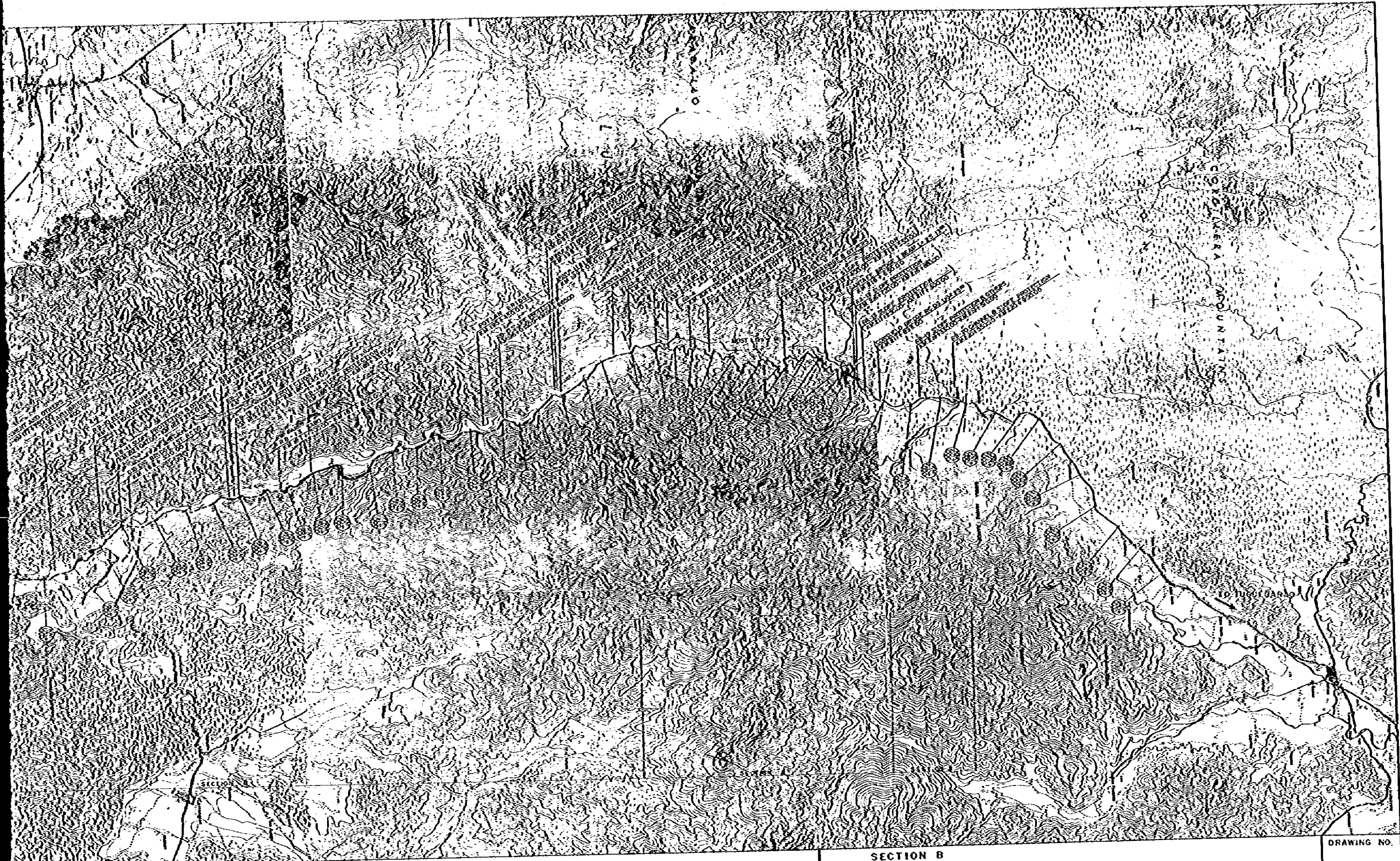
RB-0	LOCATION OF COUNTERMEASURE WORKS
RB-1	SLOPE PROTECTION DRAINAGE & OTHERS
RB-2	DRAINAGE
RB-3	SPUR DIKE AND OTHERS (1)
RB-4	SPUR DIKE AND OTHERS (2)
RB-5	SPUR DIKE AND OTHERS (3)
RB-6	SPUR DIKE AND OTHERS (4)
RB-7	SABO, SLOPE PROTECTION, DRAINAGE & OTHERS
RB-8	SLOPE PROTECTION AND DRAINAGE
RB-9	NEW ALIGNMENT, BRIDGE & OTHERS
RB-10	NEW ALIGNMENT, BRIDGE & OTHERS
RB-11	SLOPE PROTECTION & OTHERS
RB-12	SLOPE PROTECTION & DRAINAGE
RB-13	SABO
RB-14	SLOPE PROTECTION
RB-15	SLOPE PROTECTION (1)
RB-16	SLOPE PROTECTION (2)
RB-17	SLOPE PROTECTION (3)
RB-18	NEW ALIGNMENT, BRIDGE & OTHERS
RB-19	SLOPE PROTECTION & OTHERS
RB-20	CHANNEL & SLOPE PROTECTION



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SECTION
LOCATIO



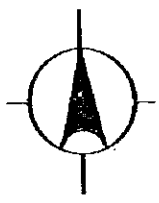
AGENCY

DALTON PASS TUNNEL PROJECT
FEASIBILITY STUDY

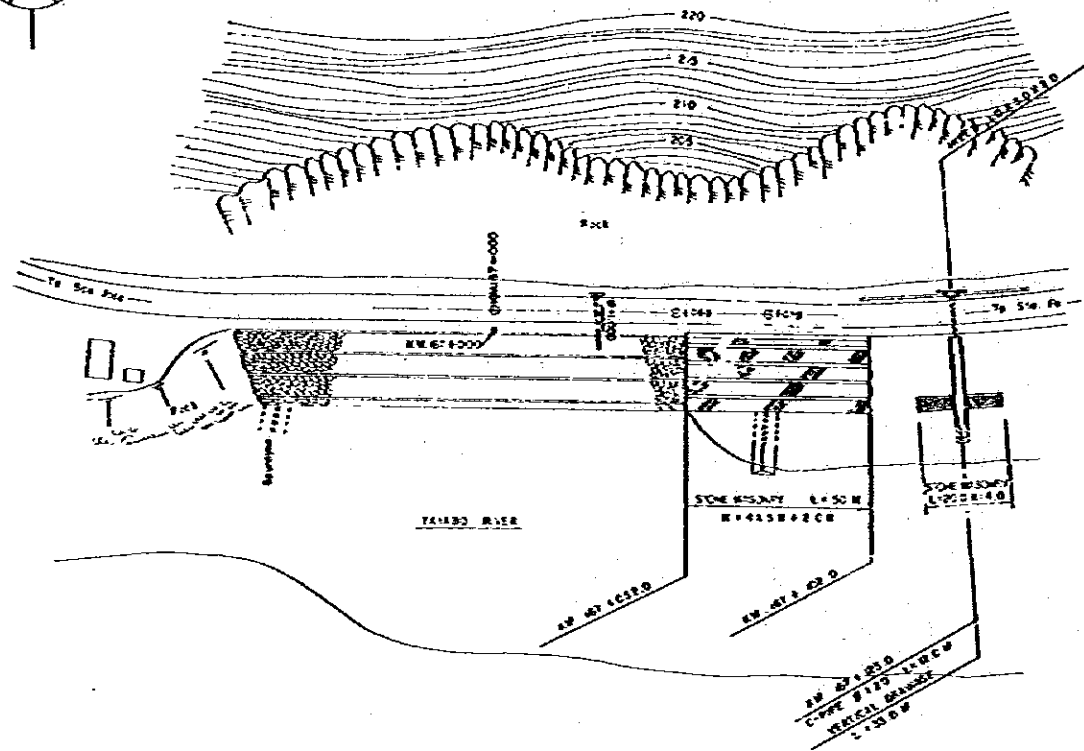
SECTION B
LOCATION OF COUNTER MEASURE WORKS

DRAWING NO.
RB-0

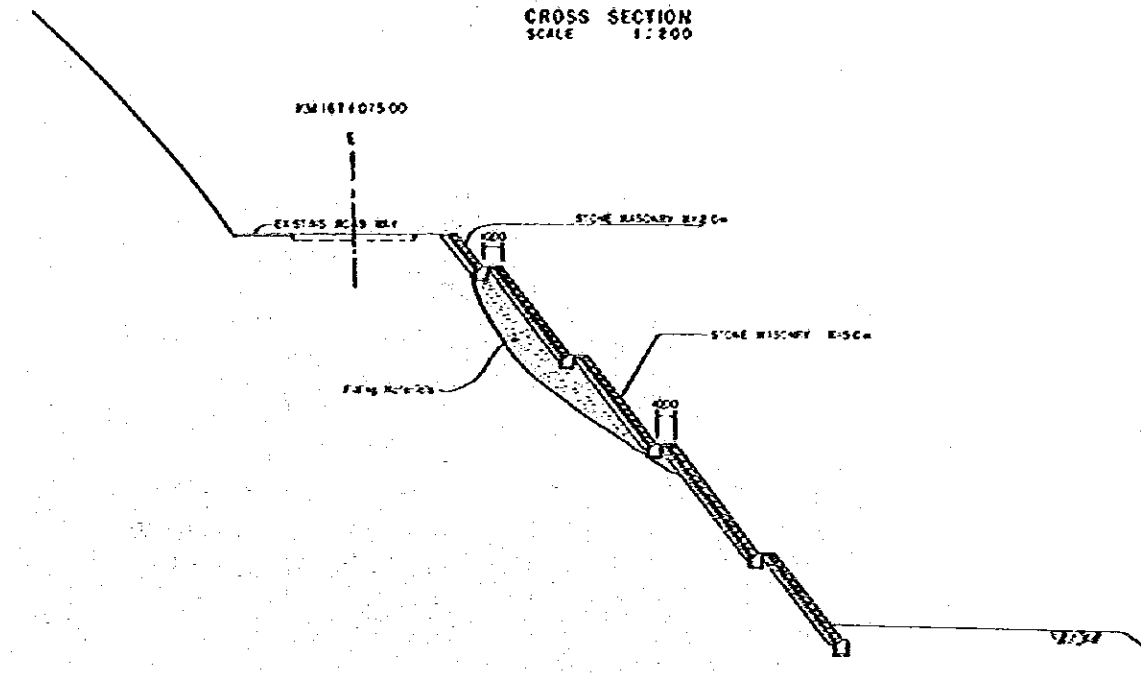
DATE: MAR '82



PLAN
SCALE 1:1000



CROSS SECTION
SCALE 1:200

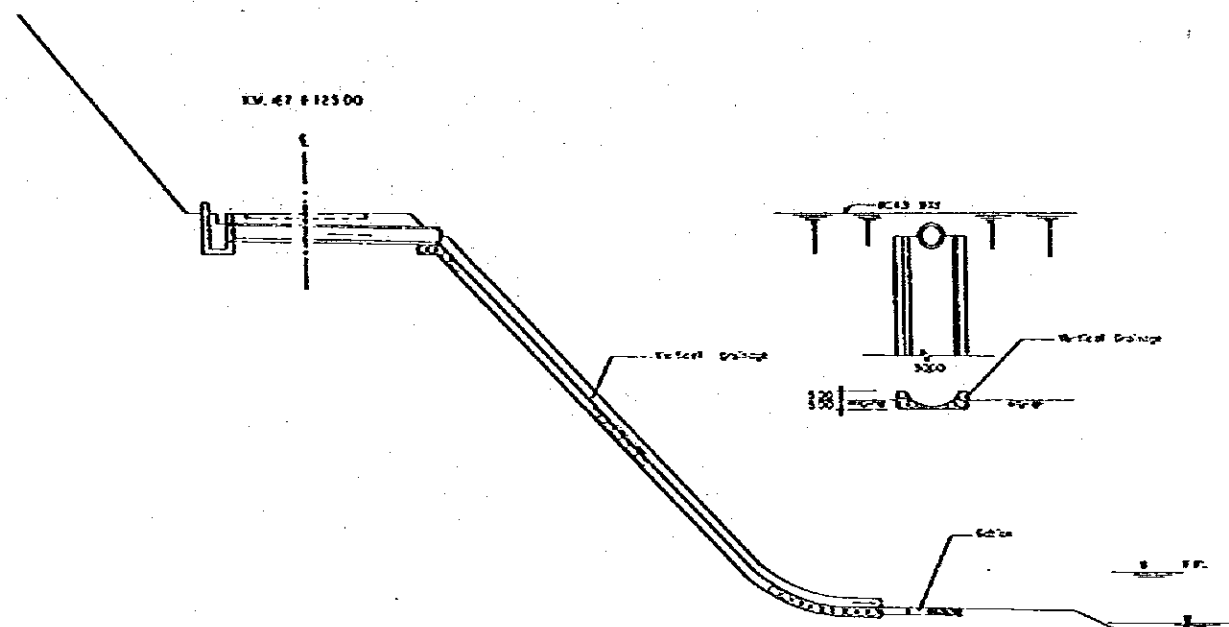


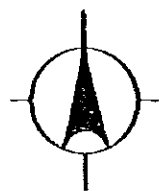
ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
EMBANKMENT	CuM	400	
STONE MASONRY FOR WATER WAY (8x50)	S.M.	200	
STONE MASONRY FOR WATER WAY (10x20)	S.M.	50	
CONCRETE	CuM	110	
STONE MASONRY FOR WATER WAY (10x40)	S.M.	20	
CONCRETE PIPE CULVERT Ø1200	S.M.	12	
INLET	PCS	1	
VERTICAL DRAINAGE	L.M.	35	
PIPE	CuM	3	Ø=250mm

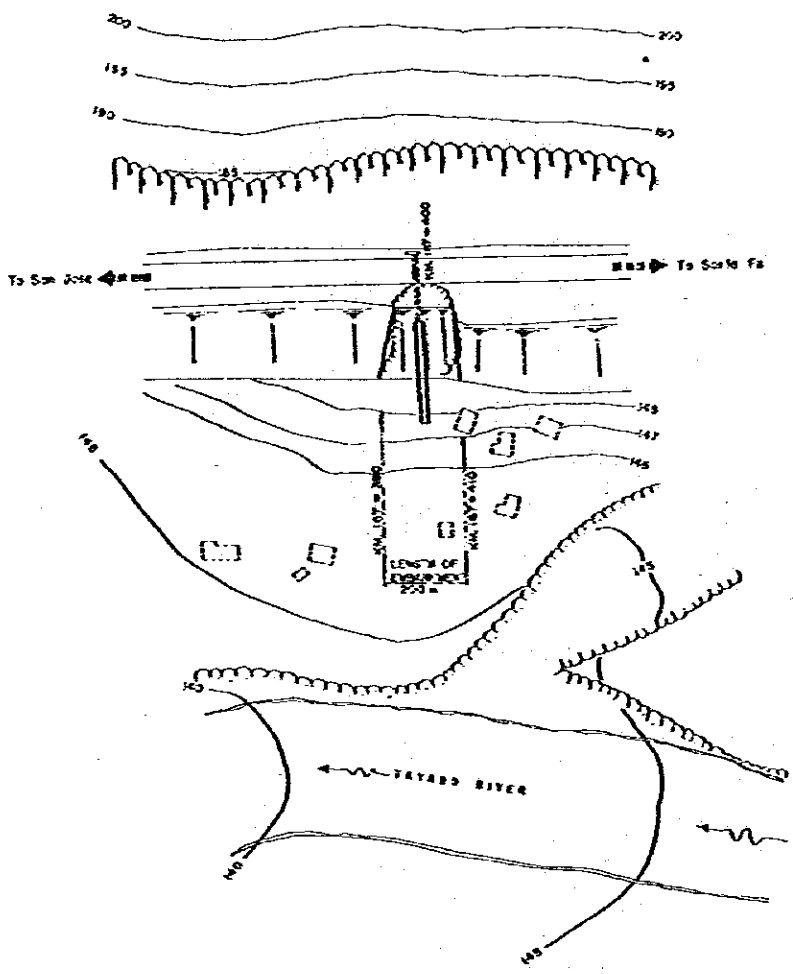
LOCATION	KM. 167+050 TO +100
DESCRIPTION	
Site	-
Site protection	-
Alignment	500 m
Drainage	-
Excavation	For Ø 800mm drainage - 4000 m

KM. 167+125.00

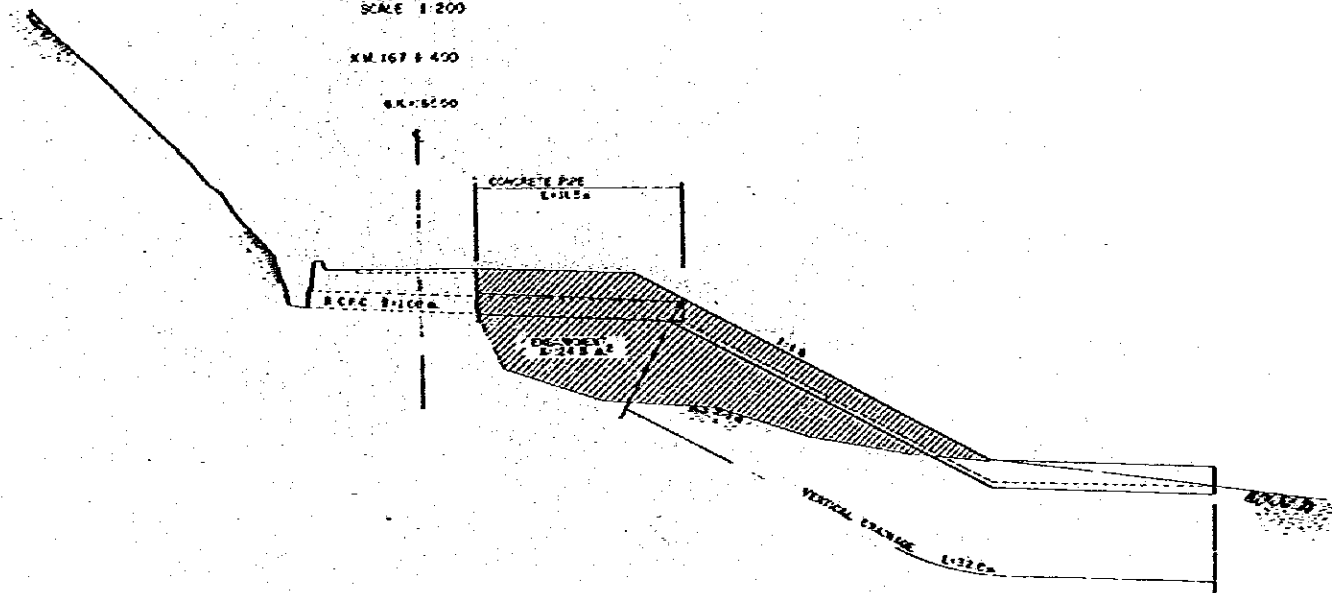




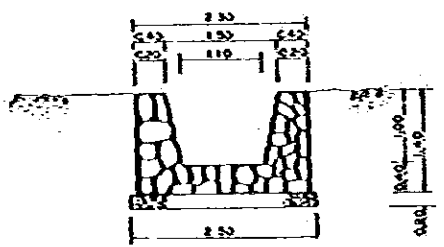
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CROSS SECTION
SCALE 1:200



VERTICAL DRAINAGE
SCALE 1:50

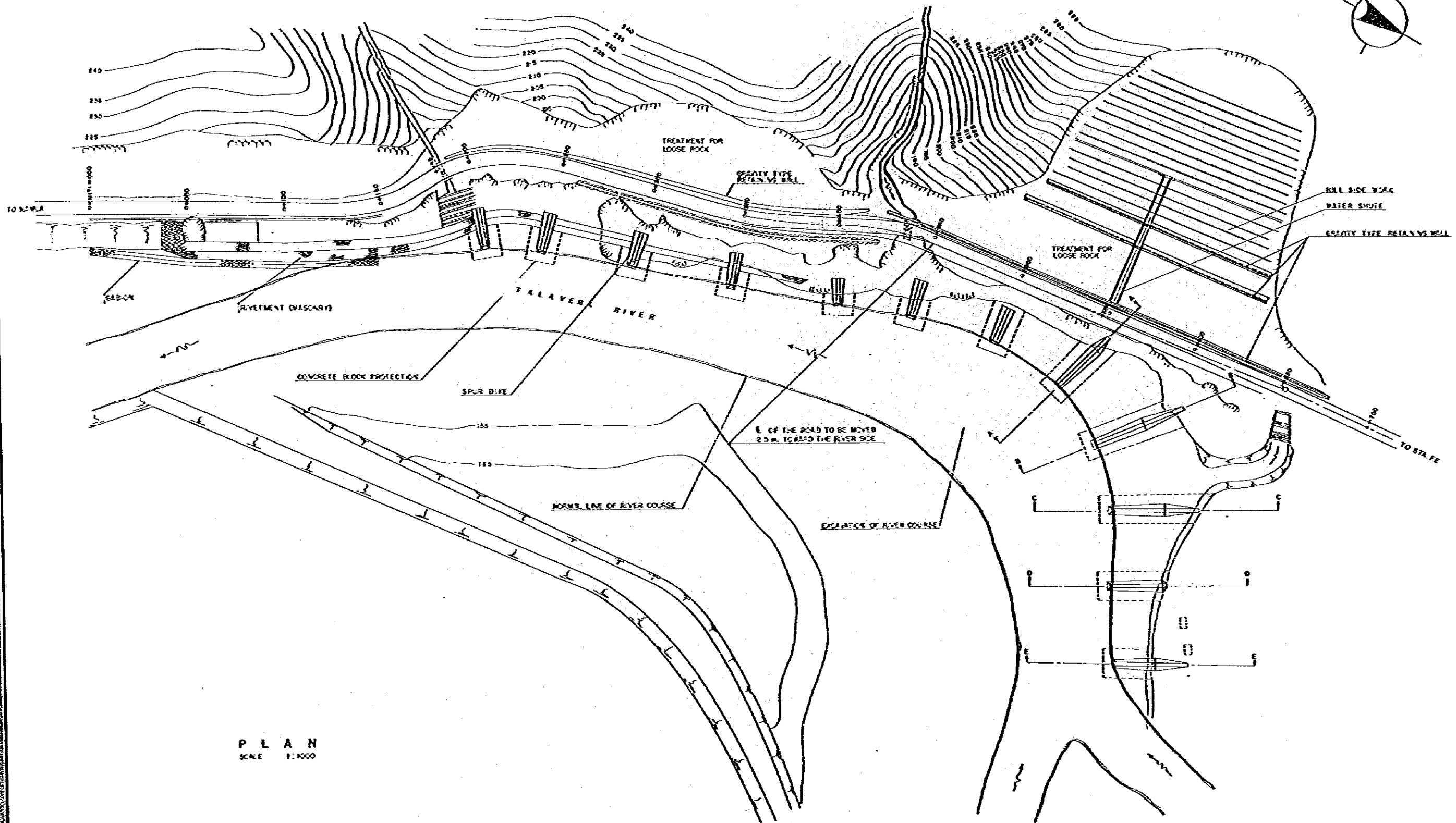


ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
EMBEDMENT	Cu M.	2360	
CONCRETE P.I.P.E	L. M.	11.5	
VERTICAL DRAINAGE	L. M.	32	

LIST OF MATERIALS PER 10 M.

DESCRIPTION	UNIT	QUANTITIES	REMARKS
COBBLE	Cu M.	15.4	250 DIA Ø
CONCRETE CLASS "B"	Cu M.	3.8	
PILE FOUNDATION	Cu M.	5.0	



PLAN
SCALE 1:1000

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FEASIBILITY STUDY

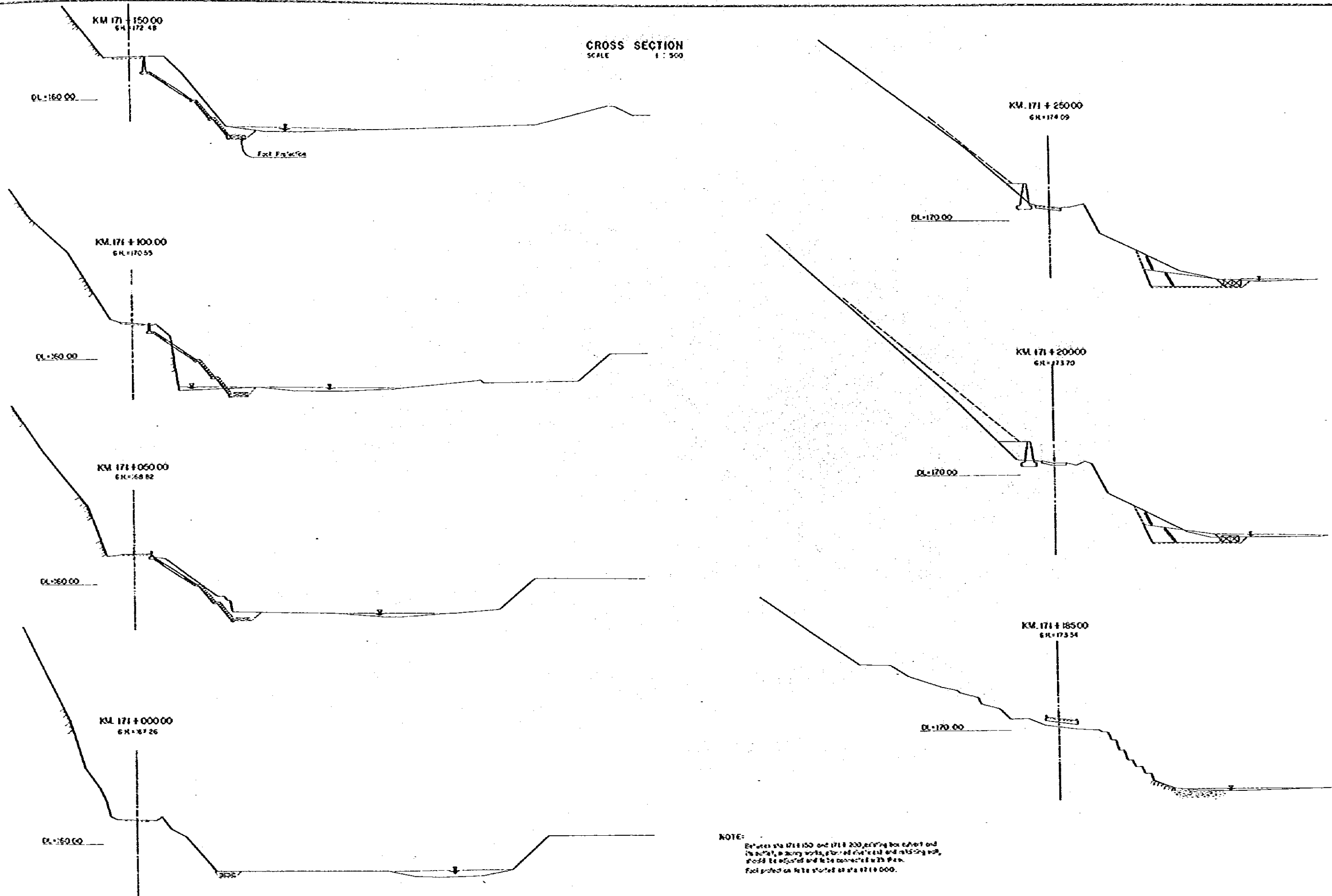
SECTION B - COUNTERMEASURE WORK
SPUR DIKE AND OTHERS (I)
KM 171+000.00 TO KM 171+700.00

DATE: MAR '82

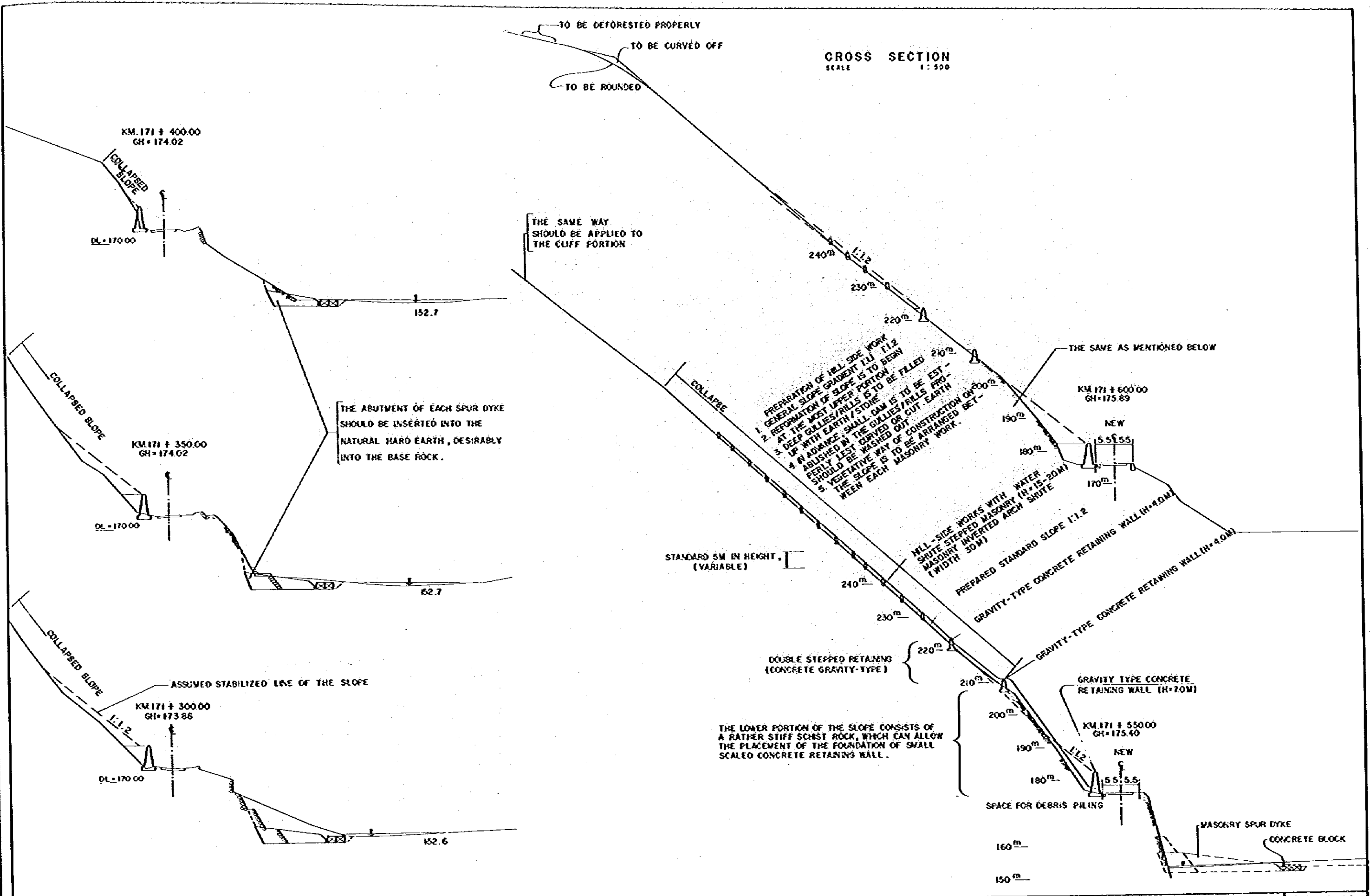
DRAWING NO.

RB-3

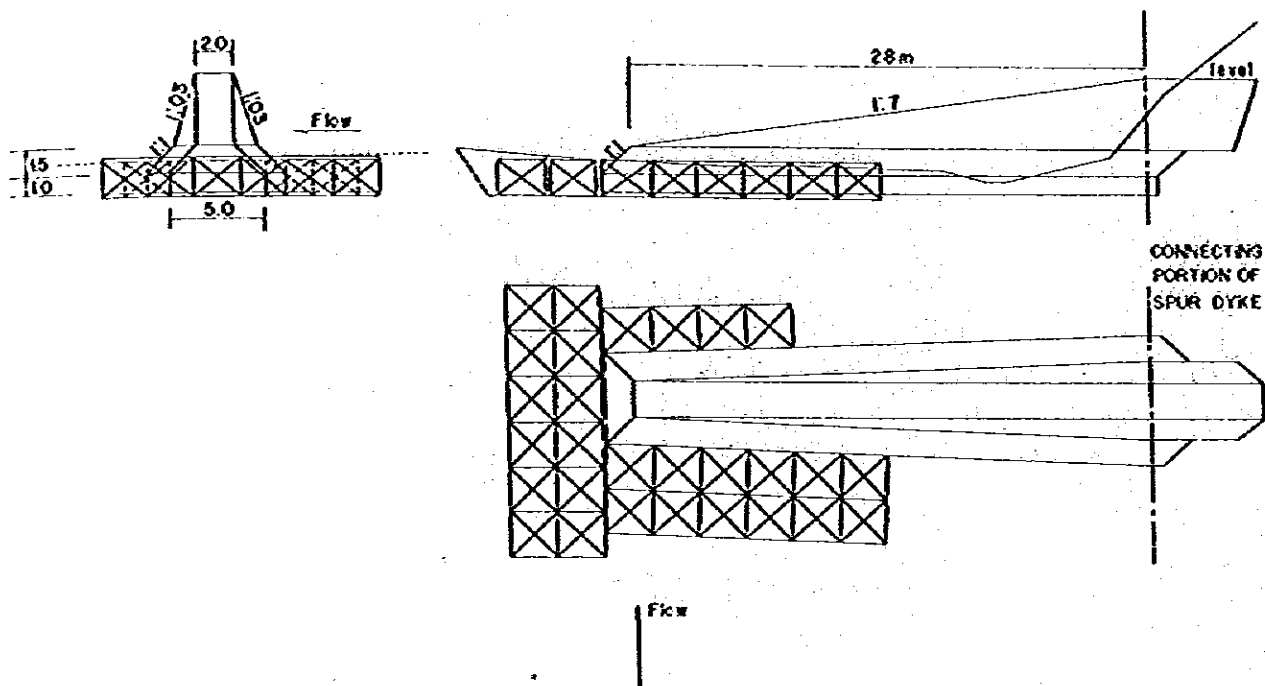
CROSS SECTION
SCALE 1 : 500



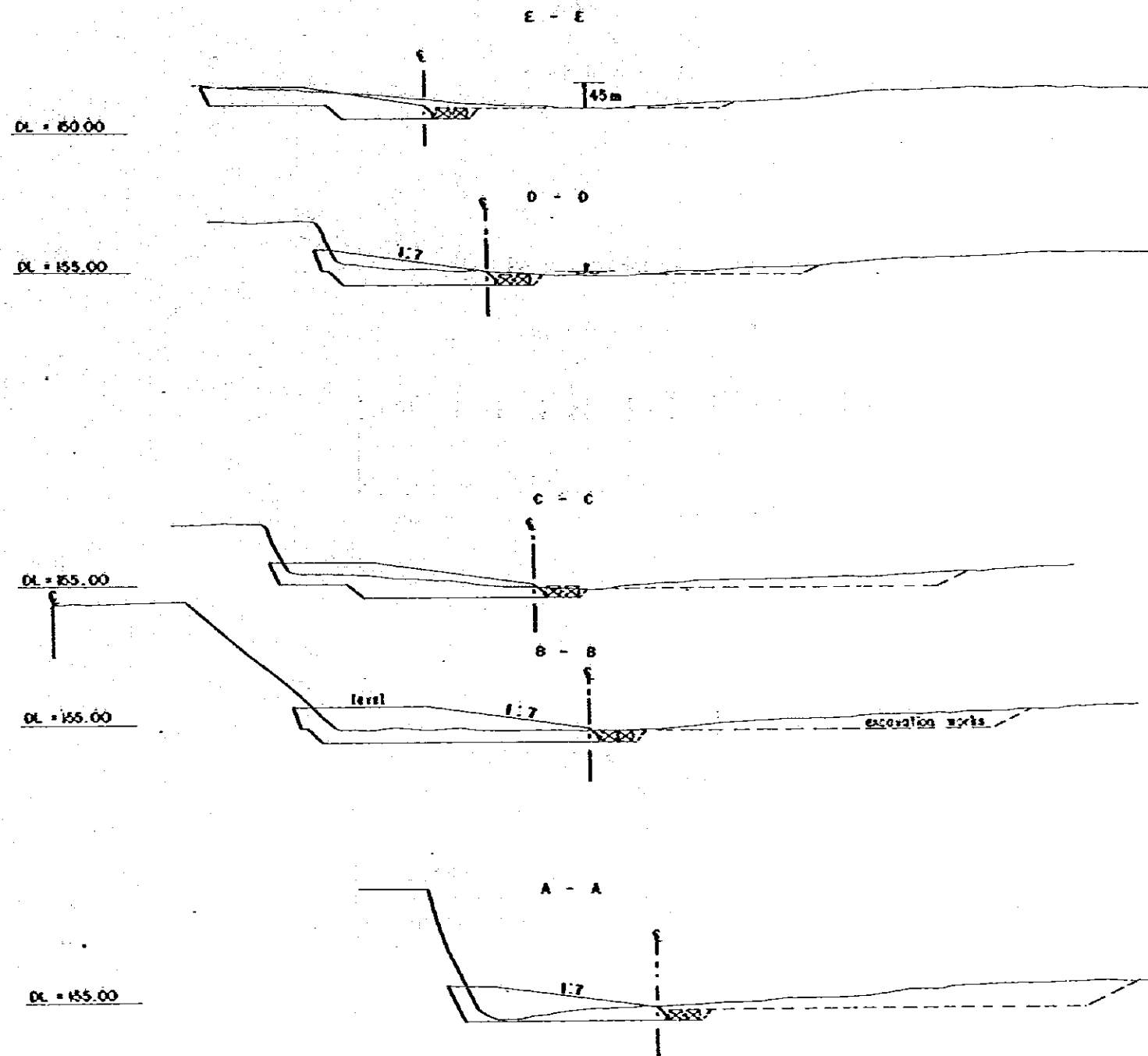
NOTE:
Between sta 171+150 and 171+200, existing box culvert and its apron, in survey works, planned river bed and existing wall, should be repaired and to be connected with the foot protection to be started at sta 171+000.



SPUR DYKE WITH CONCRETE BLOCK
SCALE 1:200



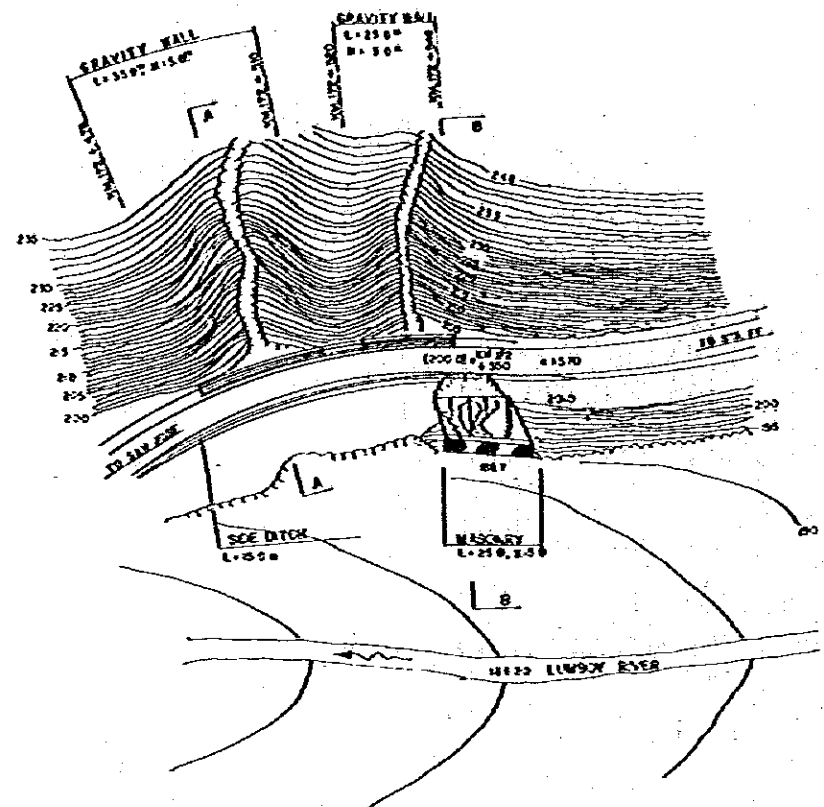
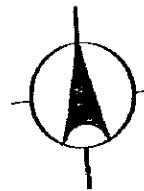
CROSS SECTION
SCALE 1:500
Concrete Spur Dike with
Channel Excavation



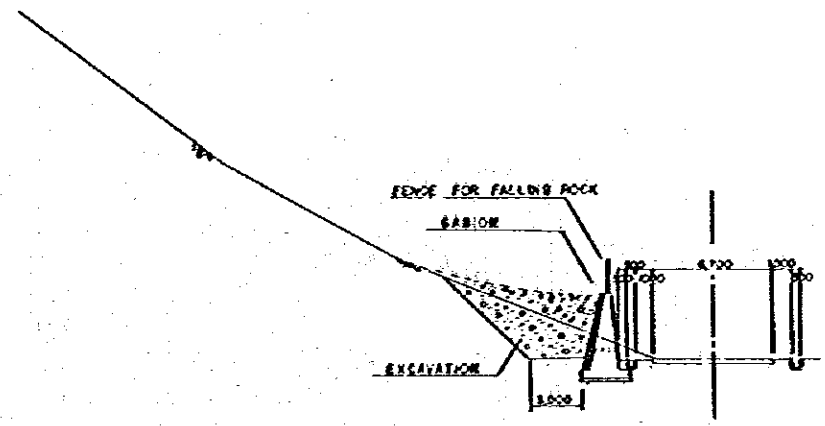
ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
STRUCTURE EXCAVATION	CuM	17800	
CONCRETE FOR SPUR DIKE	CuM	7880	
CONCRETE FOR FOOT PROTECTION	CuM	4200	
STONE MASONRY FOR WATERWAY (K=40%)	LW	450	
BAR-CH	CuM	900	
RETAINING WALL GRAVEL TYPE (K=70%)	LW	450	
RETAINING WALL GRAVEL TYPE (K=40%)	LW	300	
STONE MASONRY FOR EMBANKMENT (K=20%)	LW	1650	
VEGETATION WORK	SqM	15600	
RETAINING WALL	LW	150	

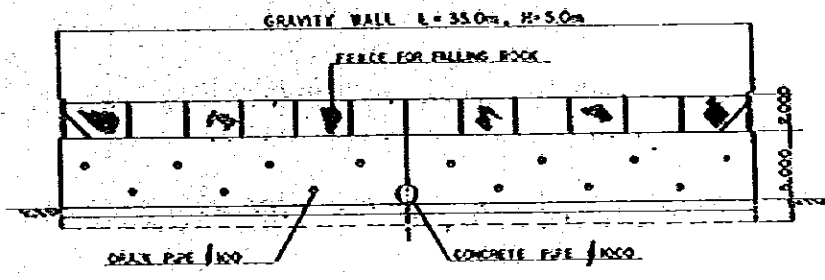
PLAN
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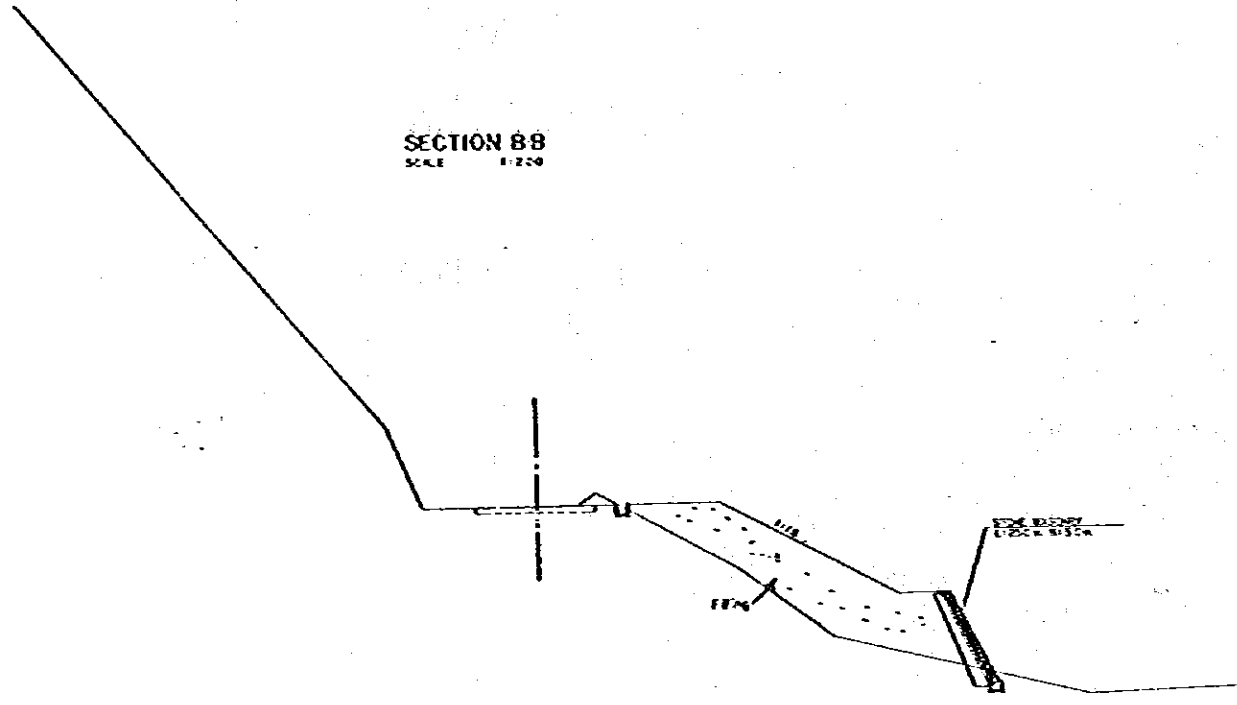
SECTION A-A
SCALE 1:100



FRONT ELEVATION
SCALE 1:200

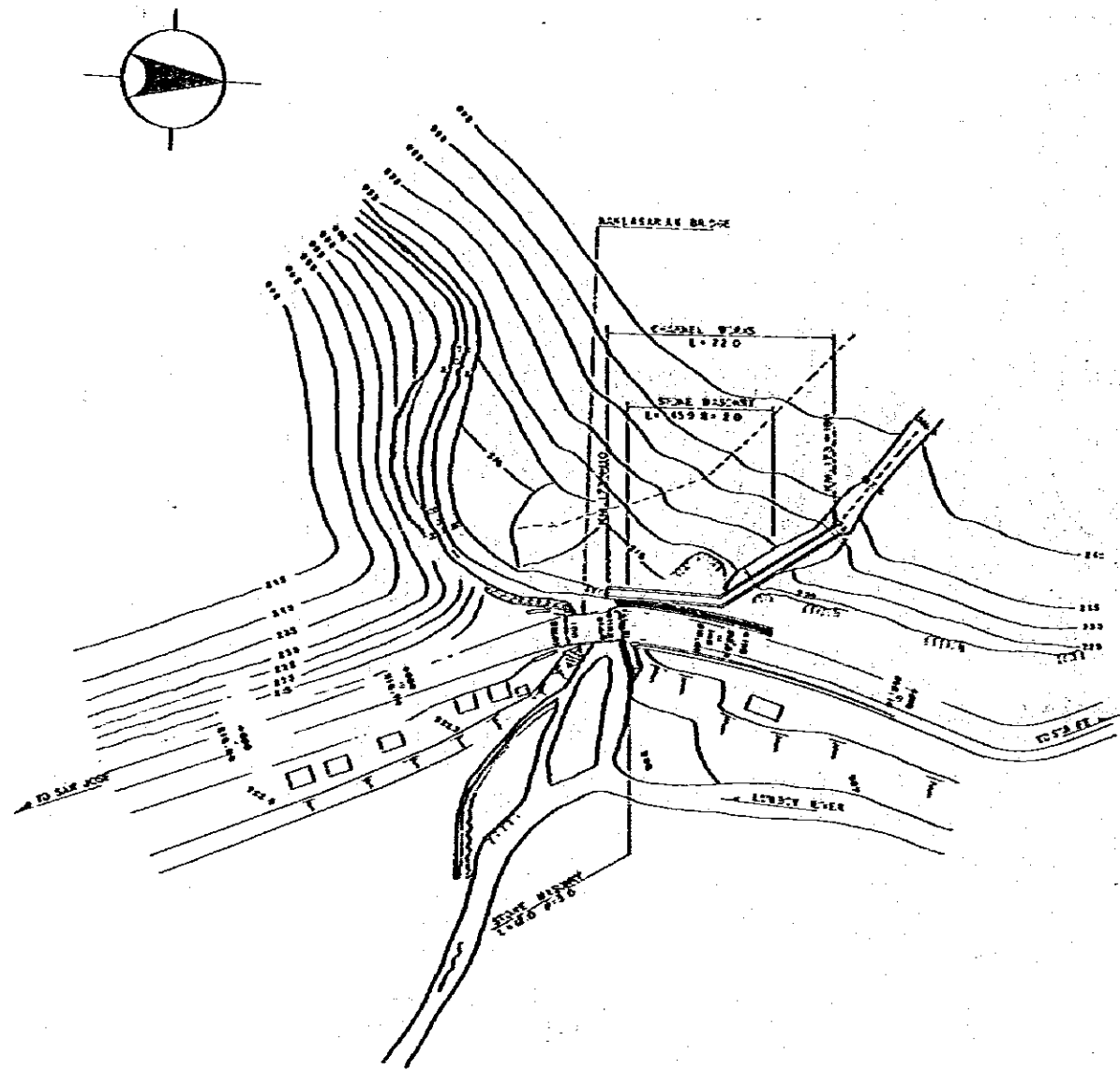


SECTION BB
SCALE 1:200

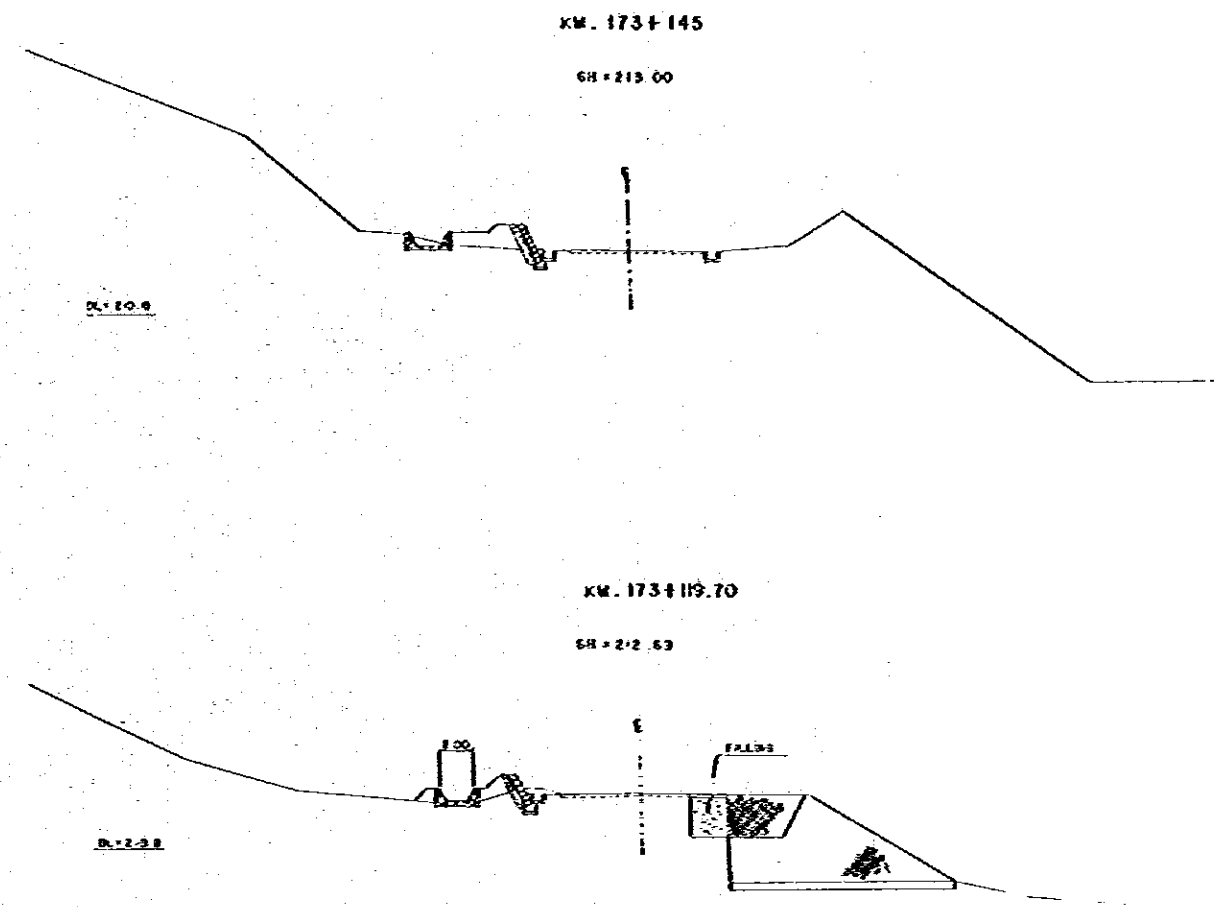


ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
STRUCTURE EXCAVATION	Cu M	360	
EMBANKMENT	Cu M	650	
SILT DITCH	LM	150	
STONE MASONRY FOR EMBANKMENT (H=5.0m)	LM	25	
RETAINING WALL FOR GRAVITY TYPE (H=5.0m)	LM	60	
EDGE FOR FALLING ROCK	LM	60	
GABION	Cu M	168	



PLAN
SCALE 1:1000



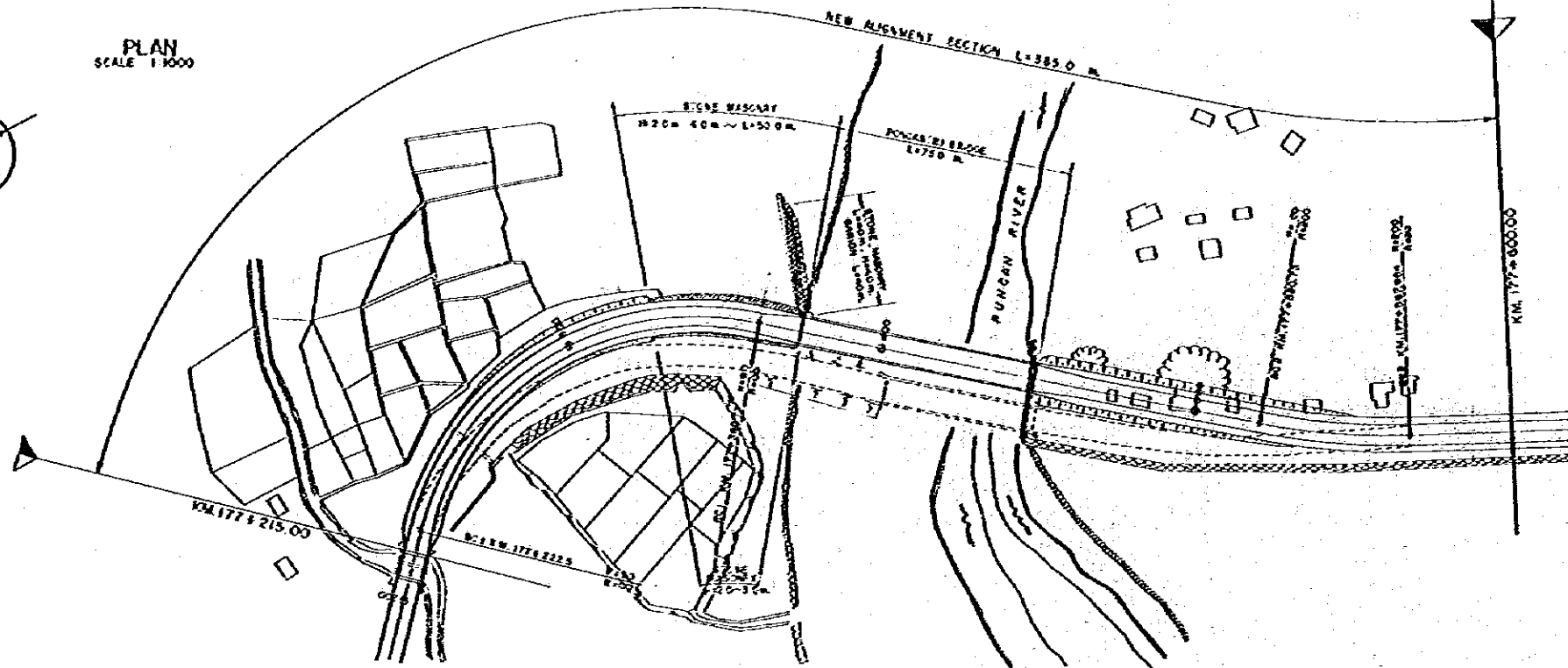
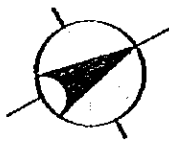
CROSS SECTION
SCALE 1:200

ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
STRUCTURE EXCAVATION	CuM	150	
EMBANKMENT	CuM	43	
DRAINAGE	LW	72	
STONE MASONRY FOR EMBANKMENT (1:20 @ 1)	LW	45	
STONE MASONRY FOR WATERBAY (1:50 @ 1)	LW	12	

LOCATION		
DESCRIPTION		
EXPECTED CONSTRUCTION WORK	BARB	EXTENSION OF FENCE PROTECTION
	SLOPE PROTECTION	RETAINING WALL, VERTICAL DITCH
	REINFORCEMENT	
	BRIDGE	
	DRAINAGE	SIDE DITCH

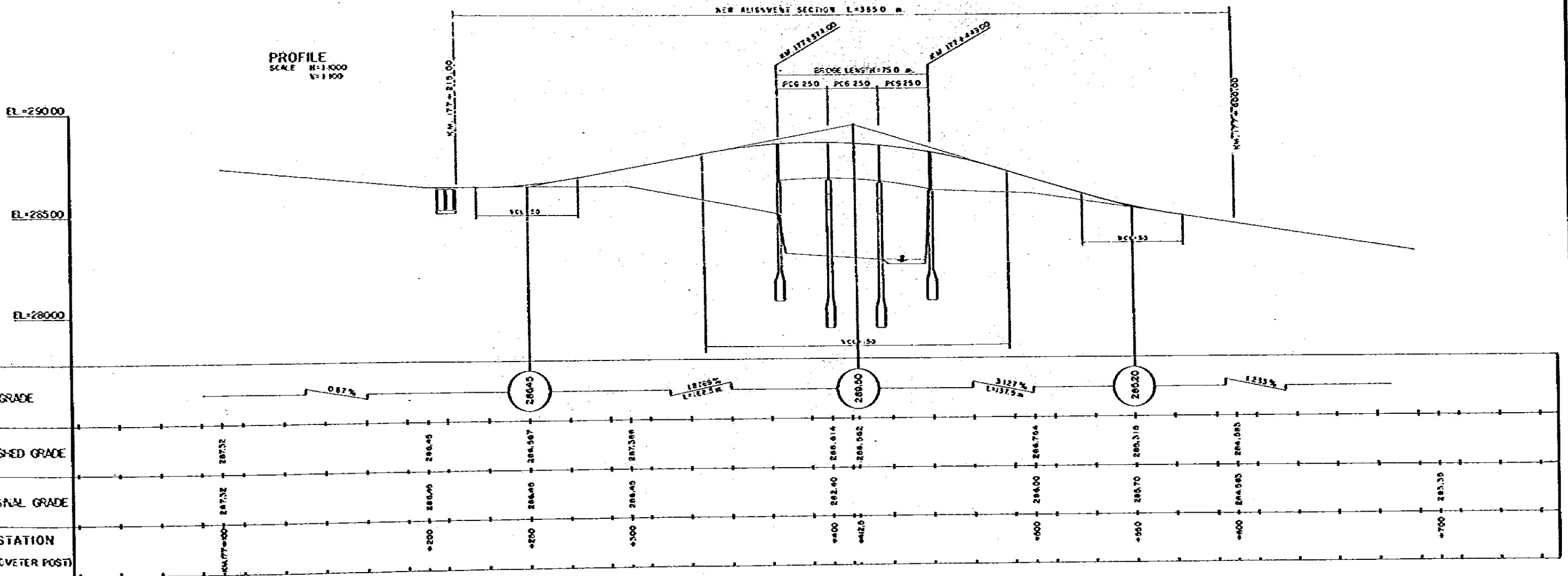
PLAN
SCALE 1:1000



ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
EMBANKMENT	CUM.	4650	
CONCRETE PAVEMENT	L.M.	310	
STONE MASONRY FOR EMBANKMENT B=30	L.M.	100	
STONE MASONRY FOR WATERWAY B=40	L.M.	40	
BRIDGE L=75.0	L.S.	1	
GEODIN	Q/M	80	

PROFILE
SCALE H=1:1000
V=1:100

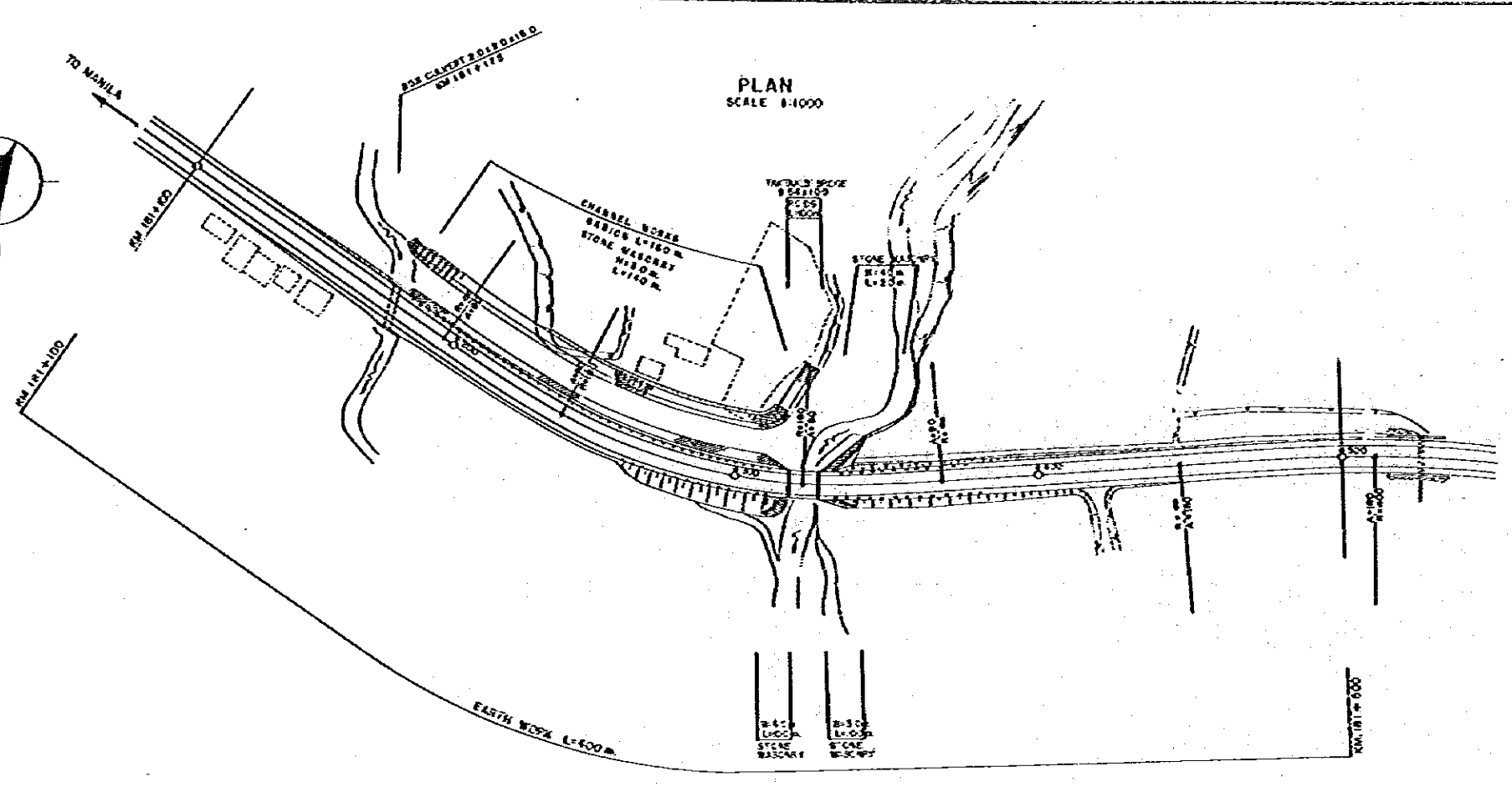
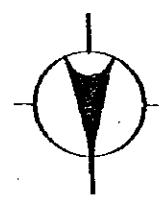


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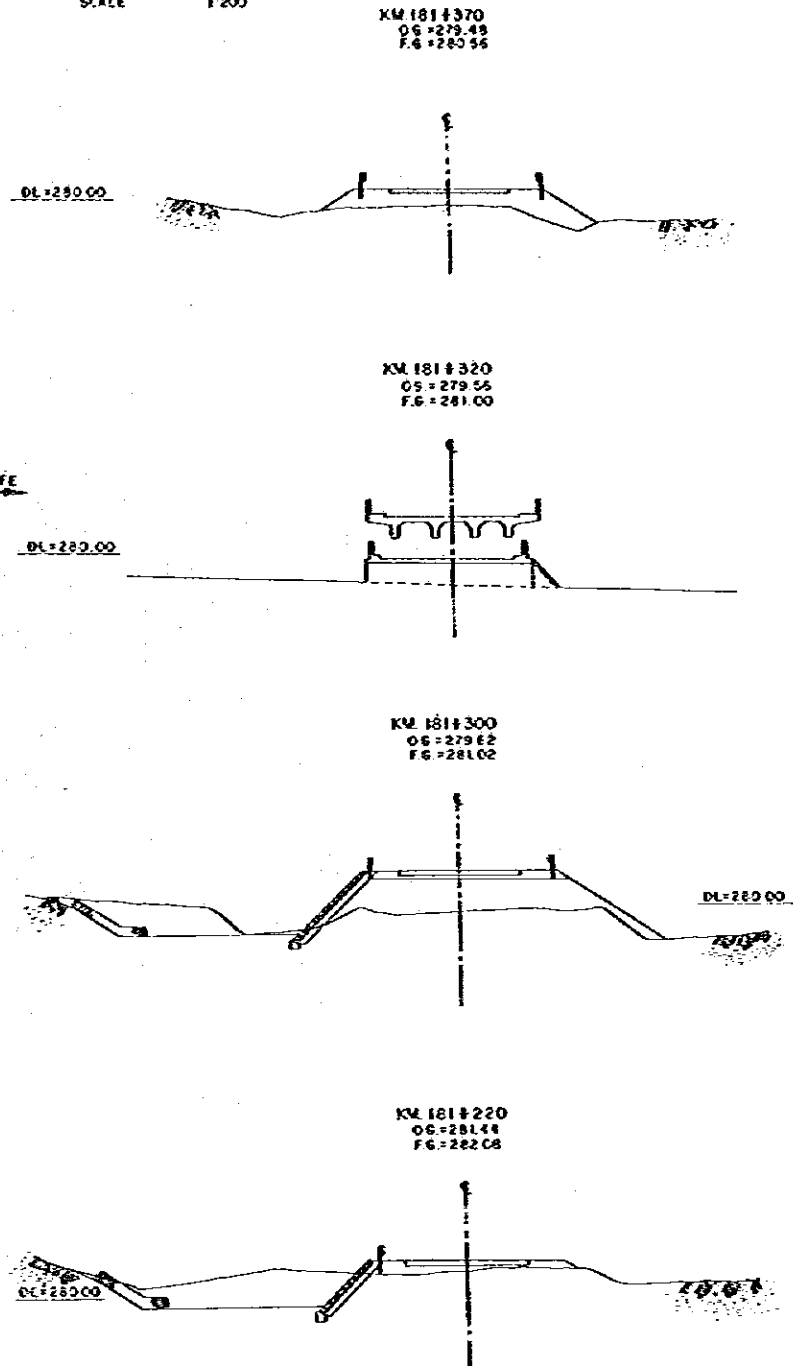
DALTON PASS TUNNEL PROJECT
FEASIBILITY STUDY

SECTION B - COUNTERMEASURE WORK
NEW ALIGNMENT, BRIDGE & OTHERS
KM 177+10000 TO KM 177+75000
DATE: MAR '82

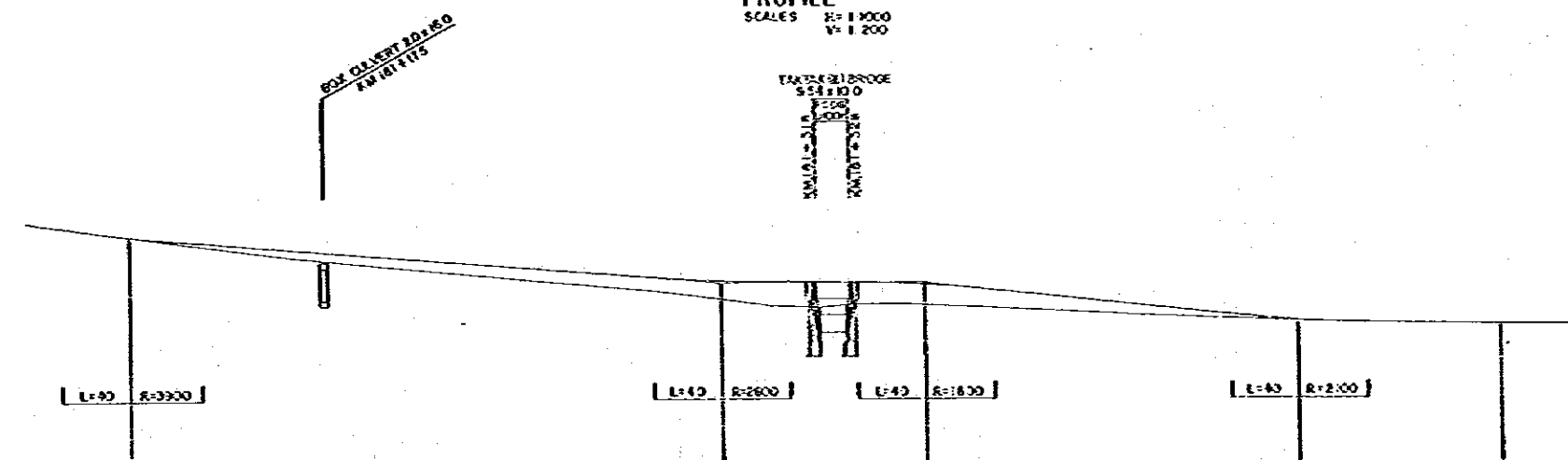
DRAWING NO.
RB-9



CROSS SECTION SCALE 1:200



PROFILE SCALES H=1:1000 V=1:200



GRADE	DATUM LINE									
FINISHED GRADE	283.03			281.00	261.00		276.08		276.08	276.08
ORIGINAL GRADE	283.66	282.40	281.44	280.83	279.62	279.63	279.63	279.40	278.98	278.08
STATION (KILOMETER POST)	181+00	181+200	181+400	181+600	181+800	181+900	181+950	181+950	181+950	181+950

ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
EMBANKMENT	Cu.m.	4300	
CONCRETE PAVEMENT	L.M.	390	
GUARD RAIL	L.M.	280	
STONE MASCARY FOR WATERWAY (H=40cm)	L.M.	170	
-DO- (H=30cm)	L.M.	10	
BRIDGE (L=10m)	L.S.	1	
GABION	Cu.m.	160	
BOX CULVERT 20x20	L.M.	16	

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DALTON PASS TUNNEL PROJECT
FEASIBILITY STUDY

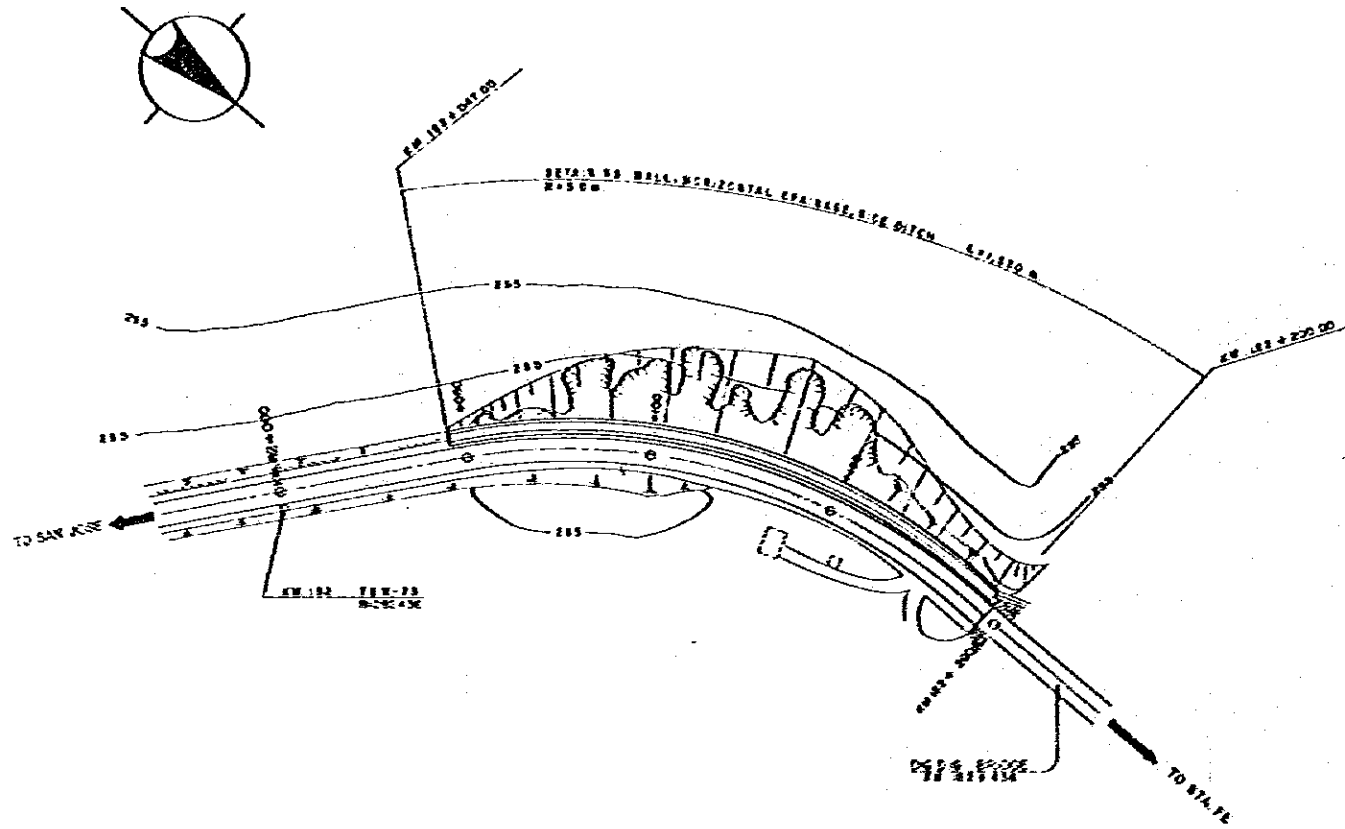
SECTION B - COUNTERMEASURE WORK
NEW ALIGNMENT, BRIDGE & OTHERS.
KM 181+1000 TO KM 181+5000

DATE: MAR '82

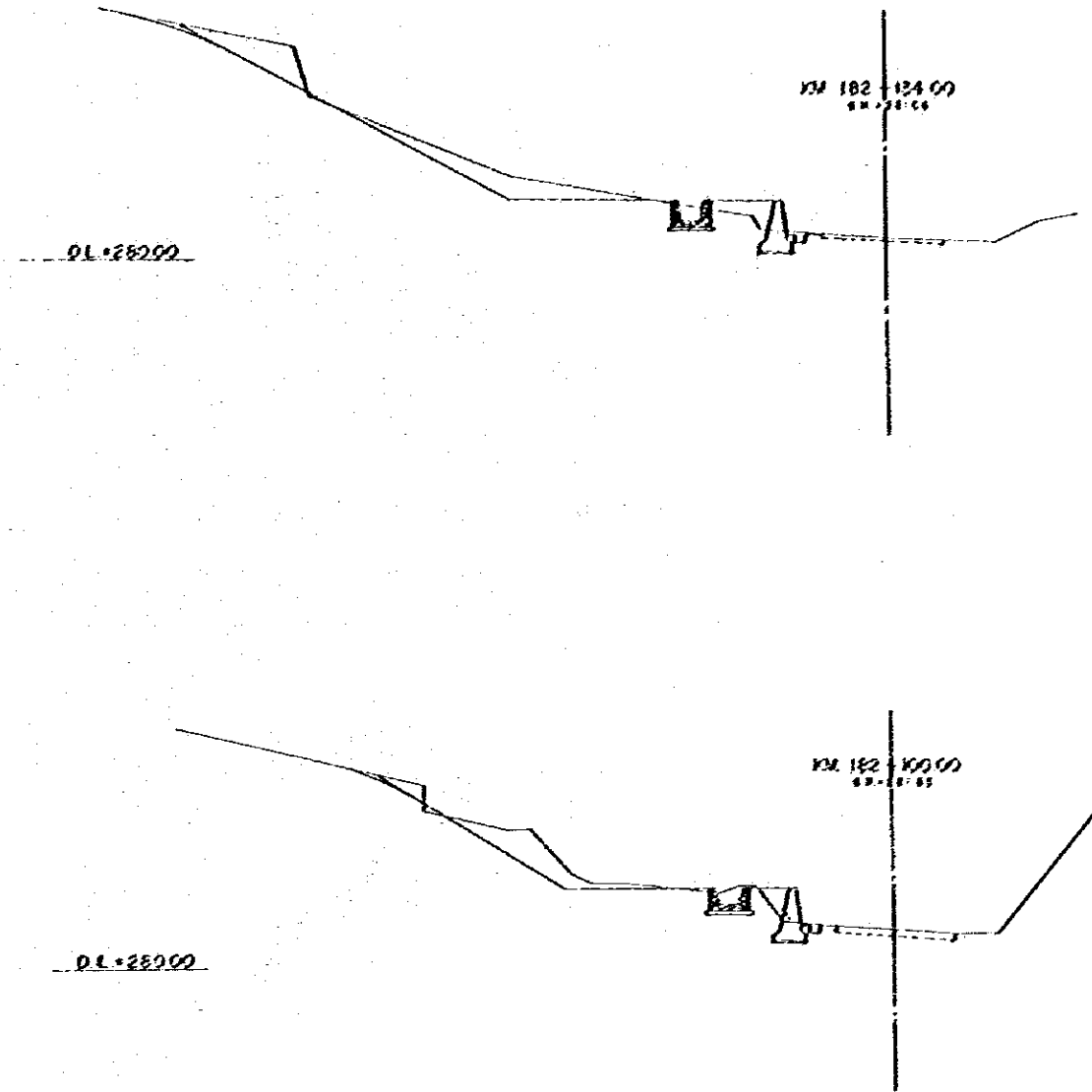
DRAWING NO.

RB-10

PLAN
SCALE 1:1000

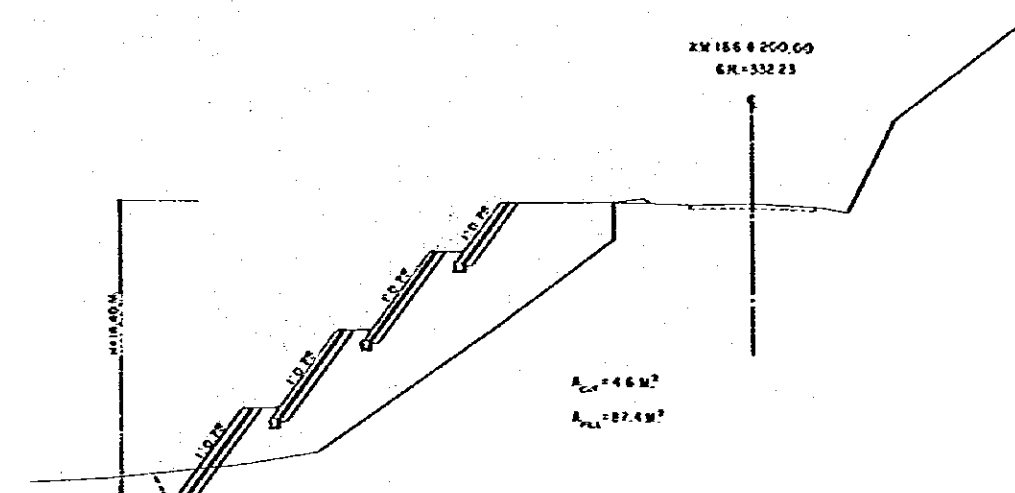
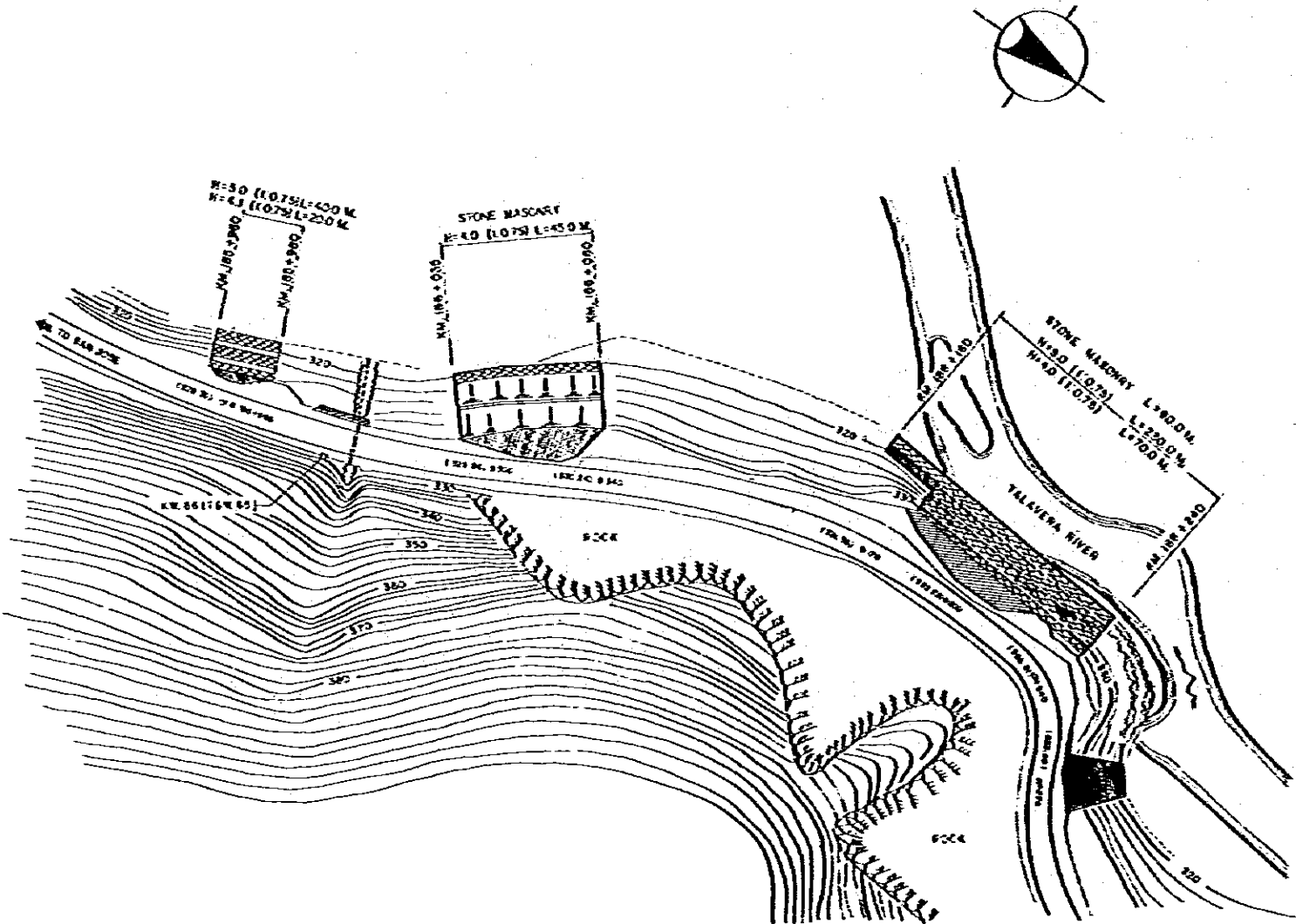
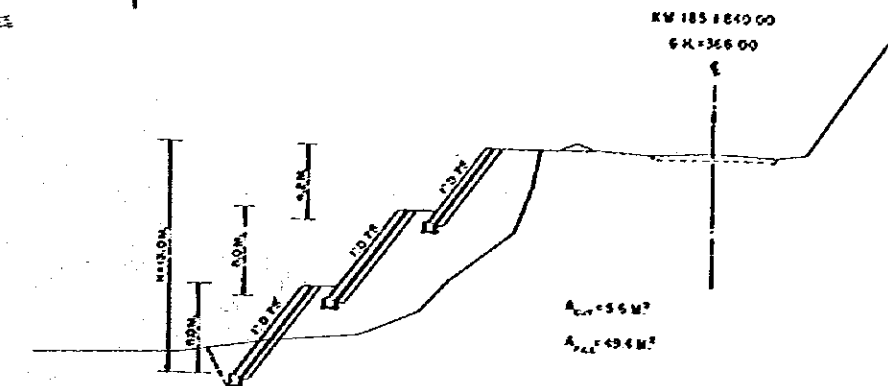
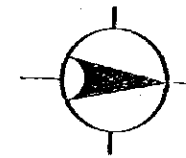
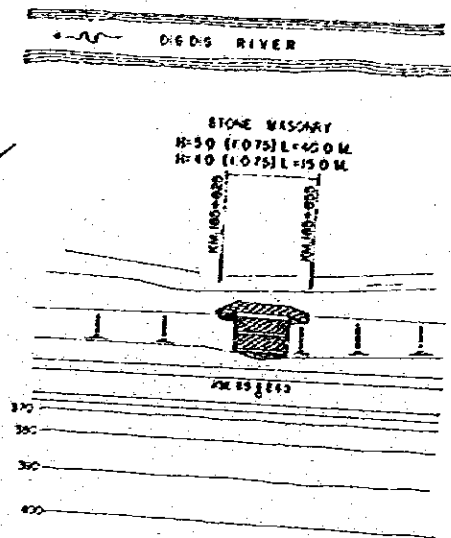
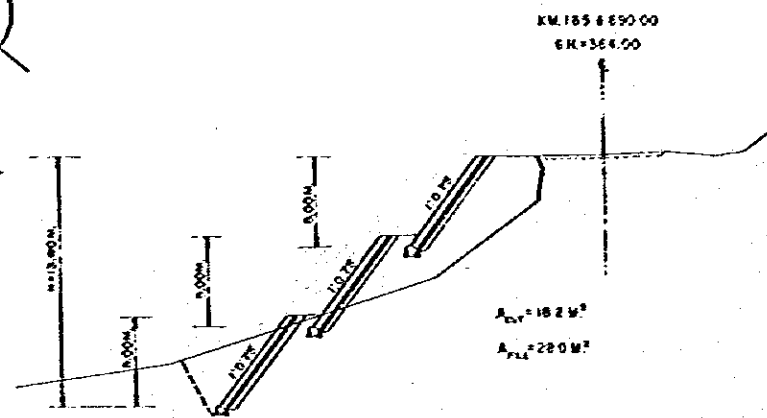
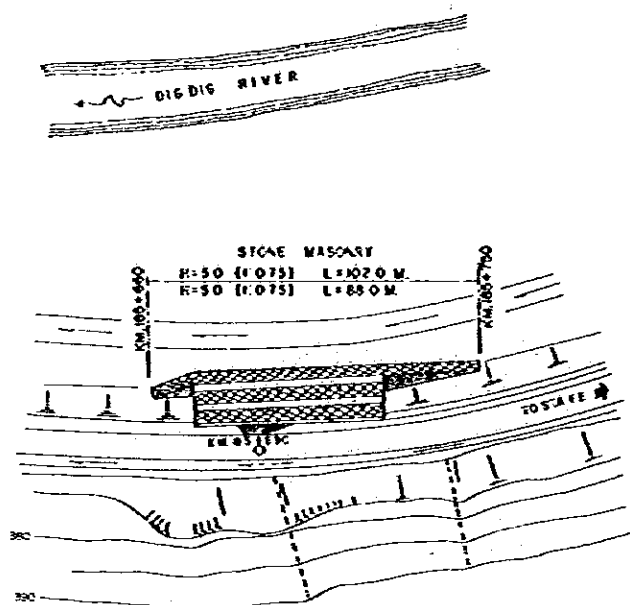


CROSS SECTION
SCALE: 1:200



ESTIMATE OF QUANTITIES

DESCRIPTION	UNIT	QUANTITIES	REMARKS
CUT	Cu M	2100	
SIDE DITCH	E M	153	
PERMANE WALL FOR GRAVITY TYPE (4.75x2.0)	L M	153	
DRAINAGE	E M	153	
INLET	EACH	1	



DESCRIPTION	UNIT	ESTIMATE OF QUANTITIES					TOTAL
		QUANTITIES					
		STA. 185+860 - STA. 185+750	STA. 185+825 - STA. 185+855	STA. 185+960 - STA. 185+990	STA. 186+035 - STA. 186+040	STA. 186+160 - STA. 186+240	
STONE MASONRY FOR WATERWAY (H=3.00)	L. M.	190.00	40.00	40.00	—	230.00	500.00
STONE MASONRY FOR WATERWAY (H=6.00)	L. M.	—	15.00	20.00	45.00	70.00	150.00
STONE MASONRY FOR WATERWAY (H=3.00)	L. M.	—	—	—	—	—	—
EXCAVATION	CU. M.	630.00	100.00	80.00	250.00	700.00	1,760.00
EMBANKMENT	CU. M.	1,430.00	750.00	00.00	3,000.00	6,000.00	11,680.00
GABION	CU. M.	—	—	—	—	—	—