



AB. MAGELANG

KAB. SLEMAN

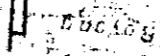
K. Tepus

7 BO-D-5

6 BO-D-4

5 BO-D-3

4 BO-D-2





KAB. SLEMAN

6 BO-D-4

5 BO-D-3

4 BO-D-2

3 BO-D-1

8 BO-R-1

9 BO-R-2

11 BO-R-4

13 BO-R-6

15 BO-R-8

20 BRIDGE 1

2 BO-C-2

1 BO-C-1

10 BO-R-3

12 BO-R-5

14 BO-R-7

16



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R2

11 BO-R4

13 BO-R6

15 BO-R8

BRIDGE 1

18 BO-R11

BRIDGE 2

10 BO-R3

12 BO-R5

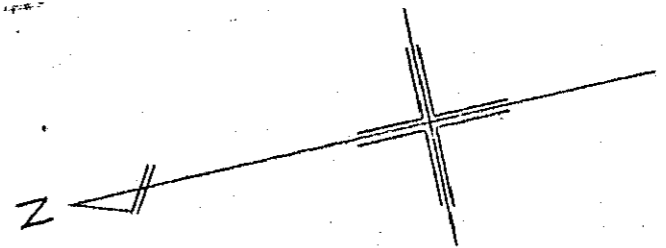
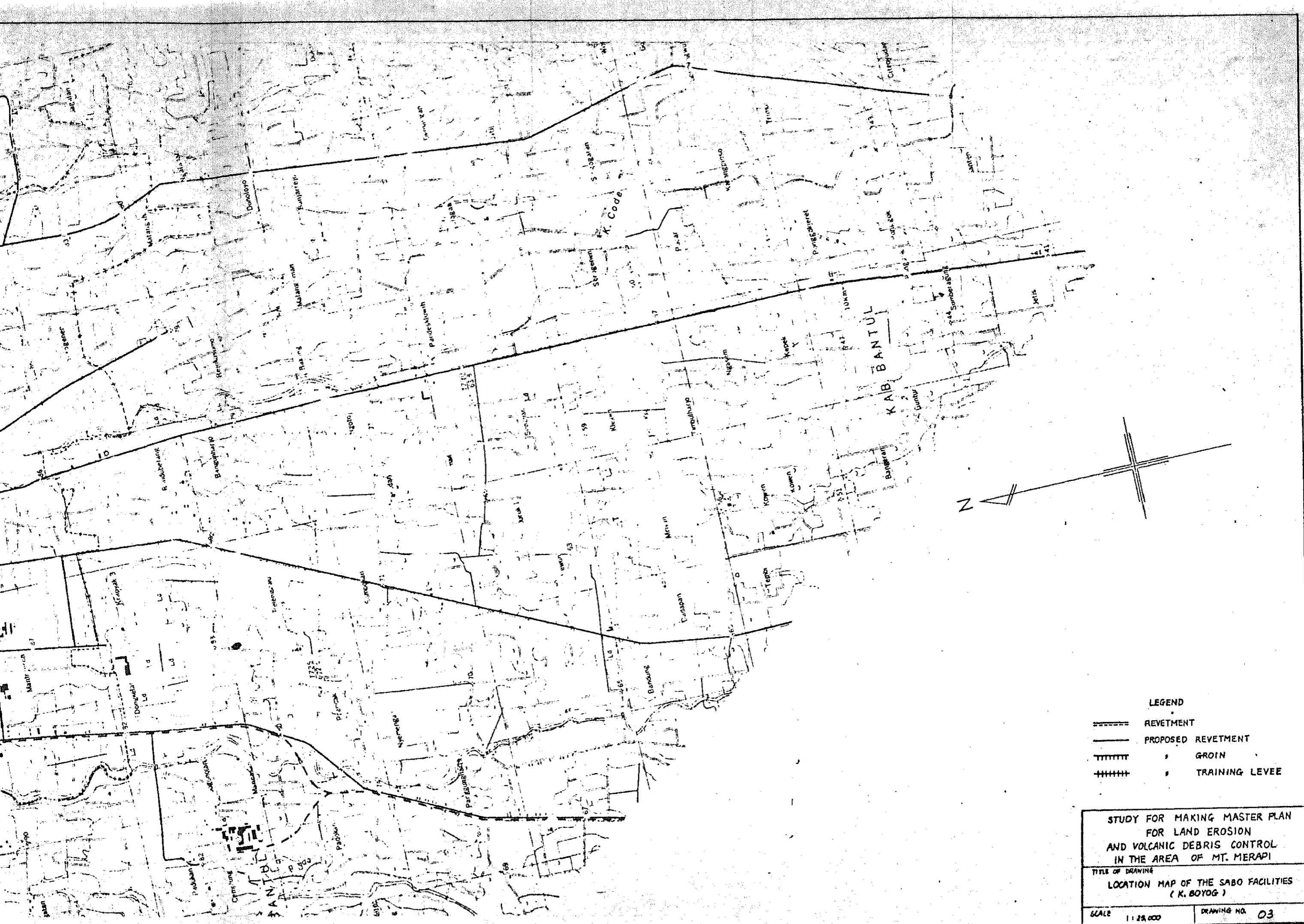
14 BO-R7

16 BO-R9

17 BO-R10

19 BO-R12

KAB. SLEMAN



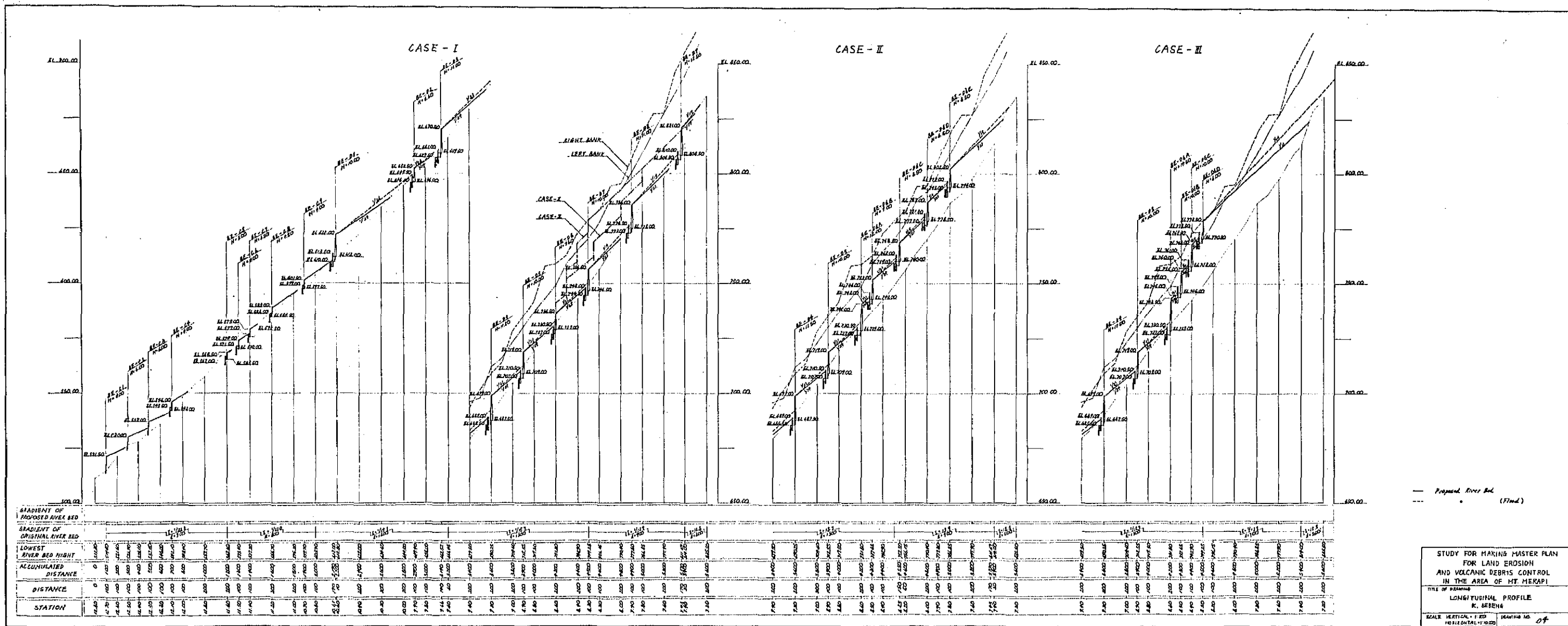
LEGEND

====	REVETMENT
———	PROPOSED REVETMENT
TTTTTT	GROIN
+++++	TRAINING LEVEE

STUDY FOR MAKING MASTER PLAN
FOR LAND EROSION
AND VOLCANIC DEBRIS CONTROL
IN THE AREA OF MT. MERAPI

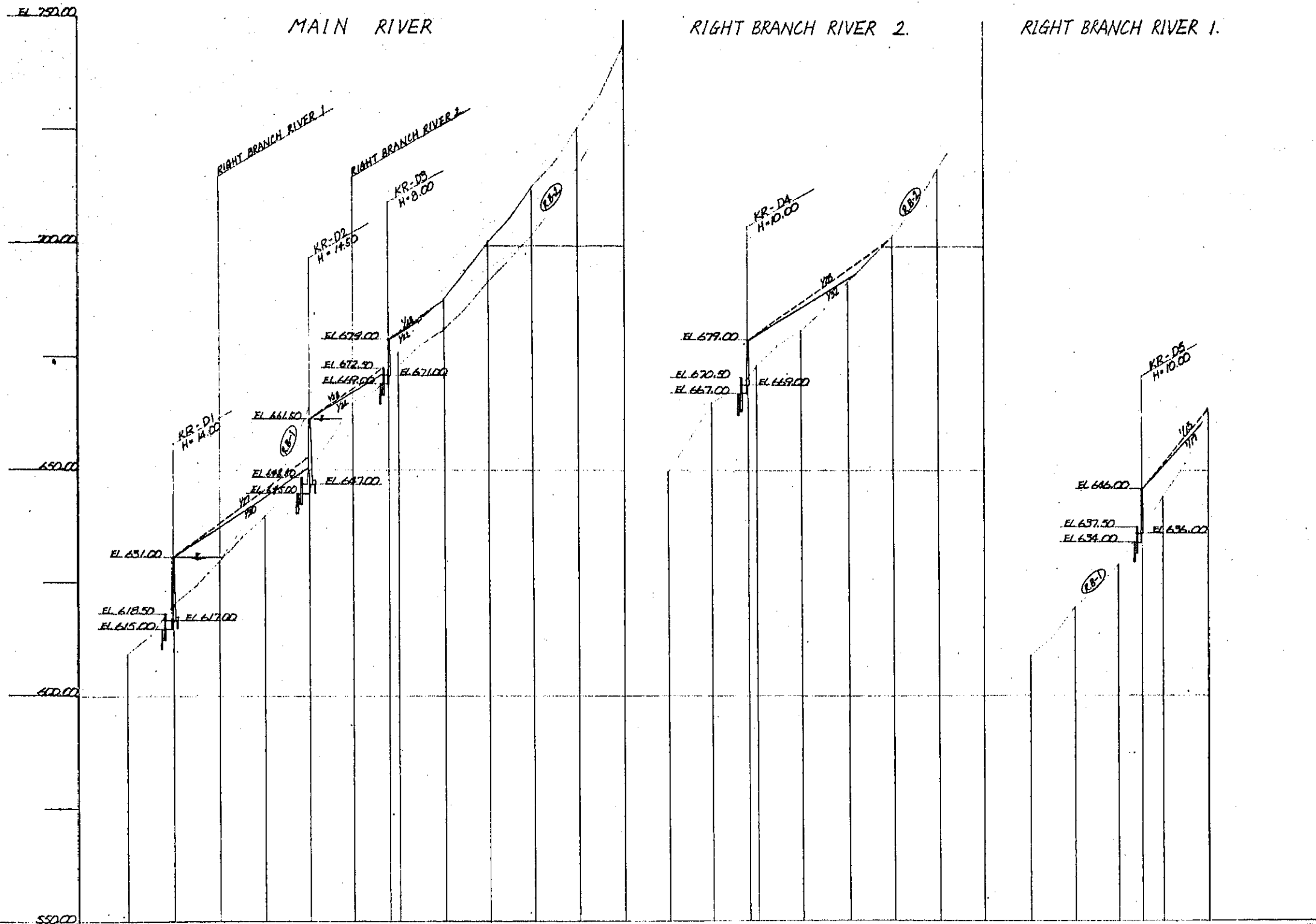
TITLE OF DRAWING
LOCATION MAP OF THE SABO FACILITIES
(K. BOYOG)

SCALE 1:25,000	DRAWING NO. 03
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— Proposed River Bed
 - - - Original River Bed (Found)

STUDY FOR MAKING MASTER PLAN FOR LAND EROSION AND VOLCANIC DEBRIS CONTROL IN THE AREA OF MT. MERAPI
 TITLE OF DRAWING: LONGITUDINAL PROFILE
 K. GREENE
 SCALE: VERTICAL: 1"=20' HORIZONTAL: 1"=100'



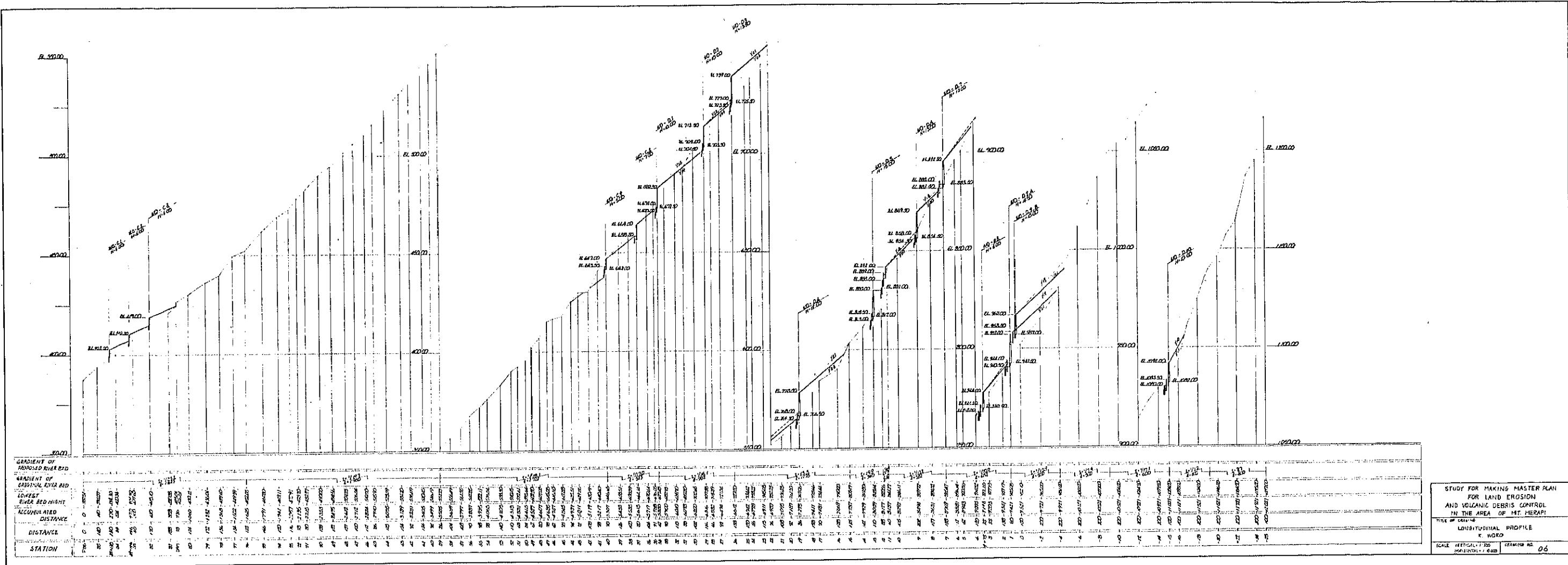
GRADIENT OF PROPOSED RIVER BED																																
GRADIENT OF ORIGINAL RIVER BED	1:1139 2:500										1:210 2:500										1:175 2:500											
LOWEST RIVER BED HEIGHT	0-609.20	200-620.00	400-629.65	600-640.00	800-650.10	1000-665.25	1100-673.00	1200-678.20	1400-688.55	1600-701.05	1800-713.10	2000-726.05	0-650.10	200-665.25	300-671.00	400-673.70	600-681.20	800-692.20	1000-702.40	1200-711.00	0-609.20	200-620.00	400-629.65	500-632.80	600-644.70	800-665.00	9.00-673.00	9.20-678.20	9.40-688.55	9.60-701.05	9.80-713.10	10.00-726.05
ACCUMULATED DISTANCE	0	200	400	600	800	1000	1100	1200	1400	1600	1800	2000	0	200	300	400	600	800	1000	1200	0	200	400	500	600	800	9.00	9.20	9.40	9.60	9.80	10.00
DISTANCE	0	200	200	200	200	200	100	100	200	200	200	200	0	200	100	100	200	200	200	200	0	200	200	100	100	200	200	200	200	200	200	
STATION	10.20	10.00	9.80	9.60	9.40	9.20	9.05	9.00	8.80	8.60	8.40	8.20	9.40	9.20	9.05	9.00	8.80	8.60	8.40	8.20	10.20	10.00	9.80	9.70	9.60	9.40	9.20	9.00				

STUDY FOR MAKING MASTER PLAN
FOR LAND EROSION
AND VOLCANIC DEBRIS CONTROL
IN THE AREA OF MT. MERAPI

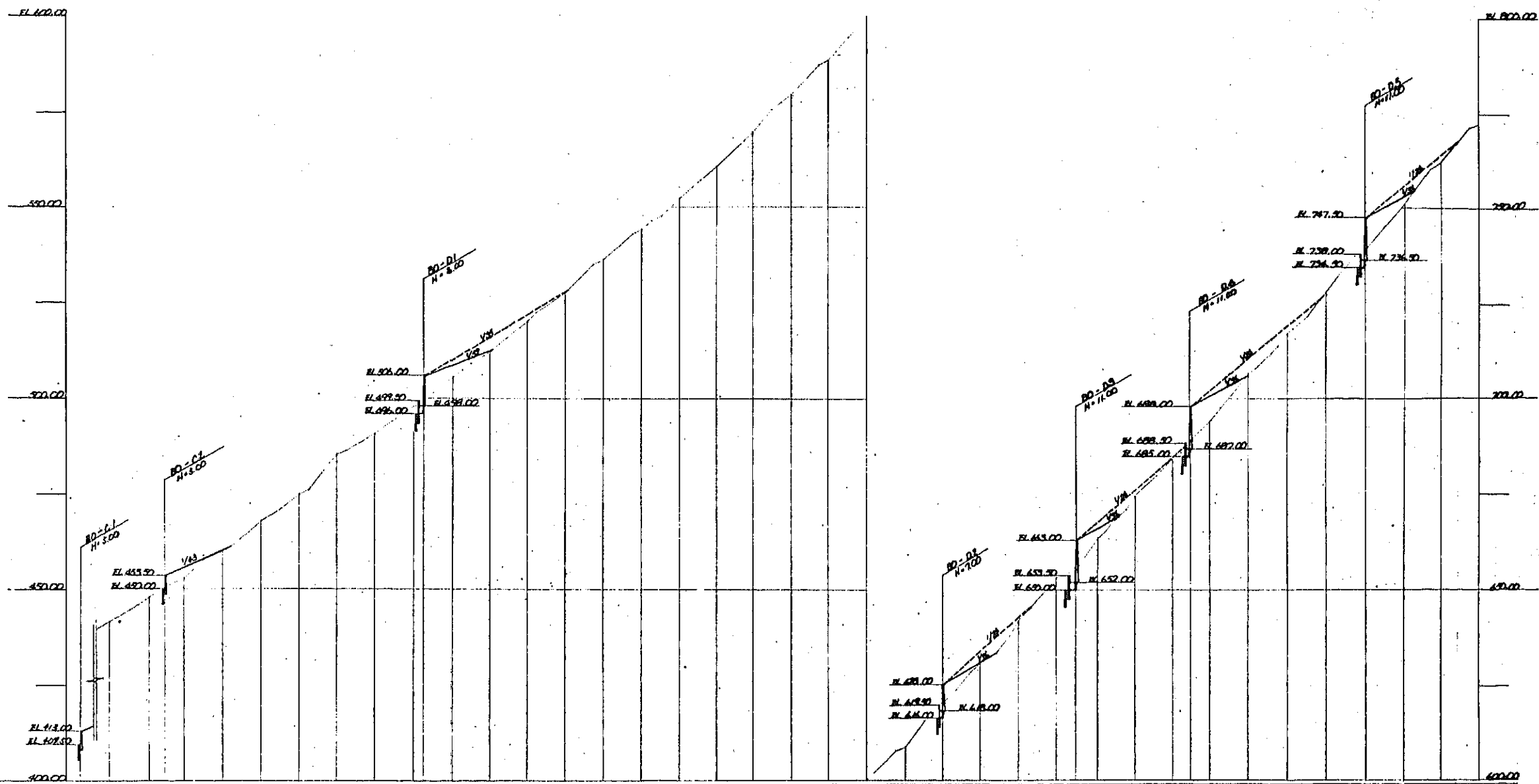
TITLE OF DRAWING
LONGITUDINAL PROFILE
K. KRASAK

SCALE VERTICAL = 1:500
HORIZONTAL = 1:10,000

DRAWING NO. 05



STUDY FOR MAKING MASTER PLAN
 FOR LAND EROSION
 AND VOLCANIC DEBRIS CONTROL
 IN THE AREA OF MT. MERAPI
 TITLE OF DRAWING
 LONGITUDINAL PROFILE
 K. WARD
 SCALE: VERTICAL 1:500 HORIZONTAL 1:5000 DRAWING NO. 06



STATION	DISTANCE	ACCUMULATED DISTANCE	LOWEST RIVER BED HEIGHT	GRADIENT OF ORIGINAL RIVER BED	GRADIENT OF PROPOSED RIVER BED
P 0	0	0	413.00		
P 5	200	200	480.00	1:1.5	1:1.5
P 10	400	400	500.00	1:1.5	1:1.5
P 15	600	600	520.00	1:1.5	1:1.5
P 20	800	800	540.00	1:1.5	1:1.5
P 25	1000	1000	560.00	1:1.5	1:1.5
P 30	1200	1200	580.00	1:1.5	1:1.5
P 35	1400	1400	600.00	1:1.5	1:1.5
P 40	1600	1600	620.00	1:1.5	1:1.5
P 45	1800	1800	640.00	1:1.5	1:1.5
P 50	2000	2000	660.00	1:1.5	1:1.5
P 55	2200	2200	680.00	1:1.5	1:1.5
P 60	2400	2400	700.00	1:1.5	1:1.5
P 65	2600	2600	720.00	1:1.5	1:1.5
P 70	2800	2800	740.00	1:1.5	1:1.5
P 75	3000	3000	760.00	1:1.5	1:1.5
P 80	3200	3200	780.00	1:1.5	1:1.5
P 85	3400	3400	800.00	1:1.5	1:1.5
P 90	3600	3600	820.00	1:1.5	1:1.5
P 95	3800	3800	840.00	1:1.5	1:1.5
P 100	4000	4000	860.00	1:1.5	1:1.5
P 105	4200	4200	880.00	1:1.5	1:1.5
P 110	4400	4400	900.00	1:1.5	1:1.5
P 115	4600	4600	920.00	1:1.5	1:1.5
P 120	4800	4800	940.00	1:1.5	1:1.5
P 125	5000	5000	960.00	1:1.5	1:1.5
P 130	5200	5200	980.00	1:1.5	1:1.5
P 135	5400	5400	1000.00	1:1.5	1:1.5
P 140	5600	5600	1020.00	1:1.5	1:1.5
P 145	5800	5800	1040.00	1:1.5	1:1.5

STUDY FOR MAKING MASTER PLAN
FOR LAND EROSION
AND VOLCANIC DEBRIS CONTROL
IN THE AREA OF MT. MERAPI

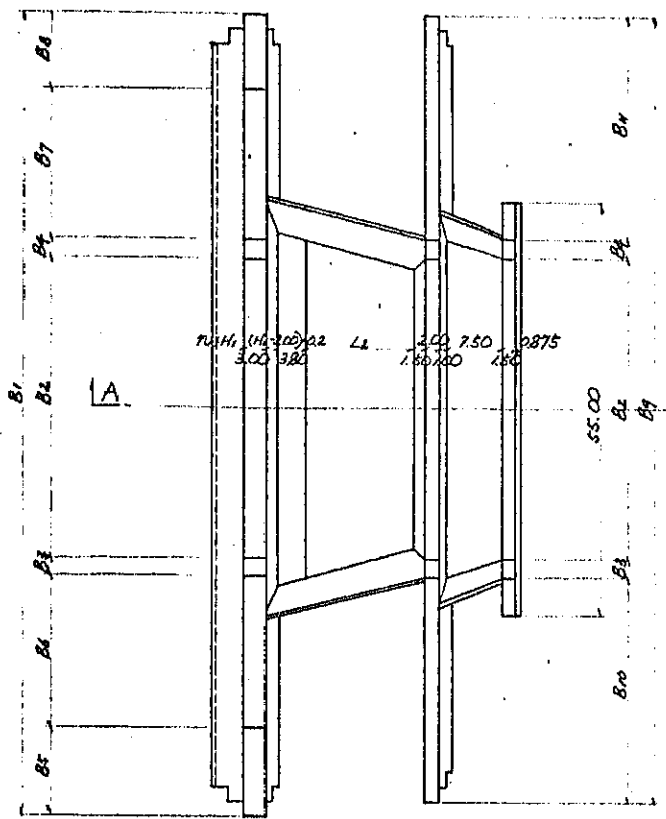
TITLE OF DRAWING
LONGITUDINAL PROFILE
K. BOYONG

SCALE VERTICAL - 1:500
HORIZONTAL - 1:1000

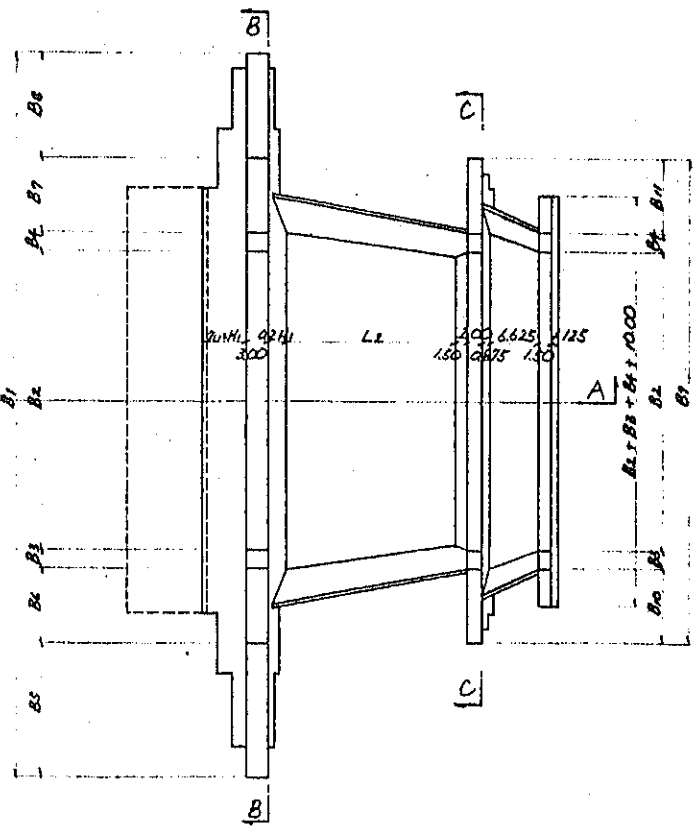
DRAWING NO. 07

PLAN
SCALE 1:500

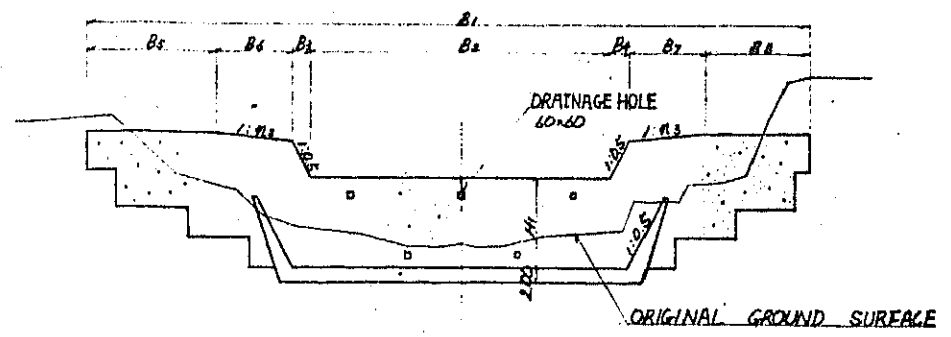
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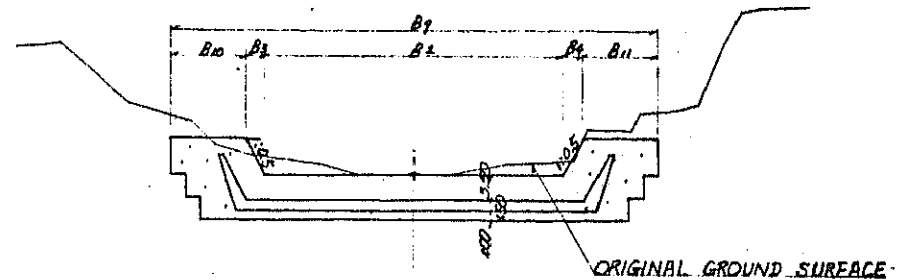
TYPE-1 DAM



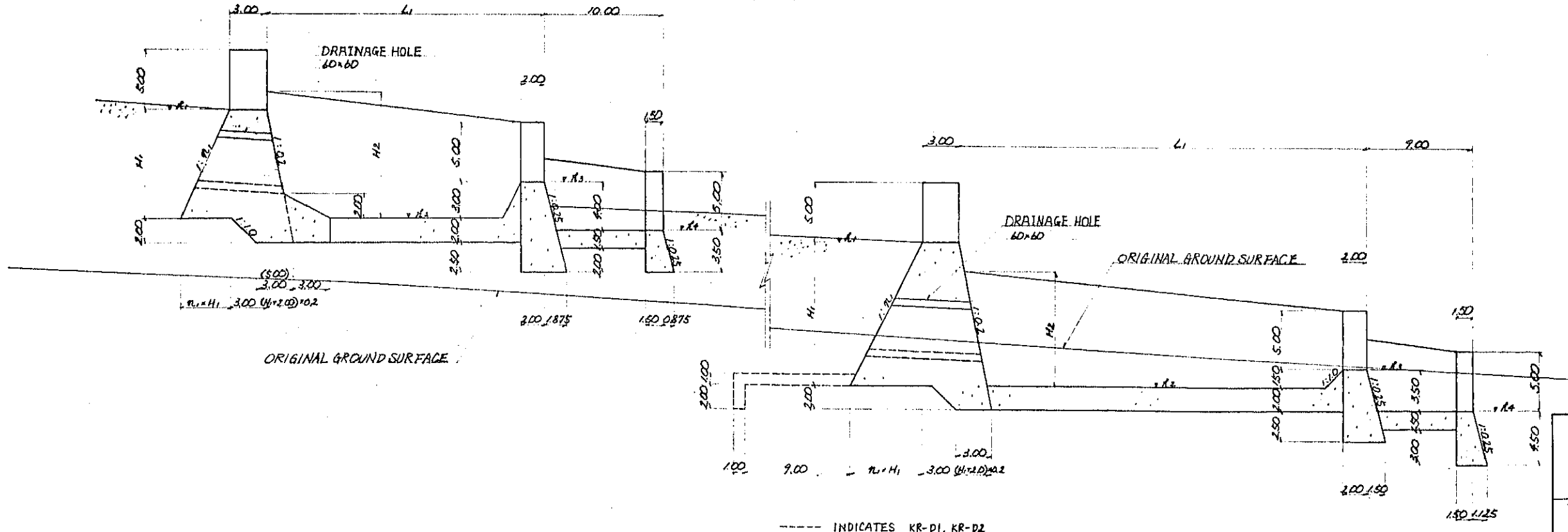
SECTION B-B
SCALE 1:500



SECTION C-C
SCALE 1:500



SECTION A-A
SCALE 1:200

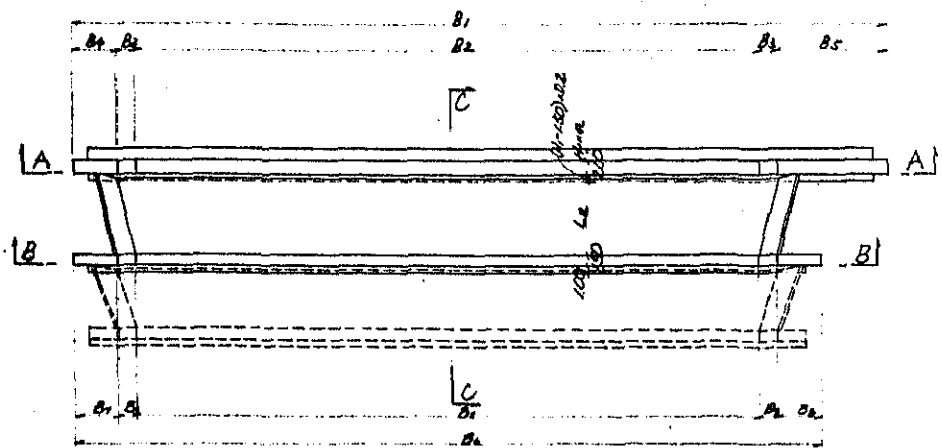


--- INDICATES KR-D1, KR-D2

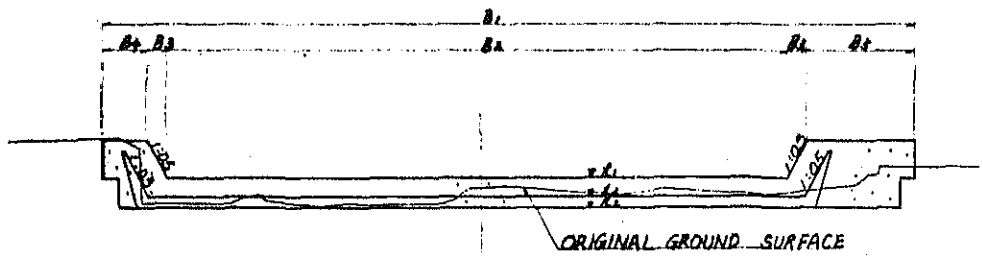
STUDY FOR MAKING MASTER PLAN FOR LAND EROSION AND VOLCANIC DEBRIS CONTROL IN THE AREA OF MT. MERAPI	
TITLE OF DRAWING STRUCTURAL DETAILS OF CHECK DAM	
SCALE 1:500, 1:200	DRAWING NO. 08

CONSOLIDATION WORK

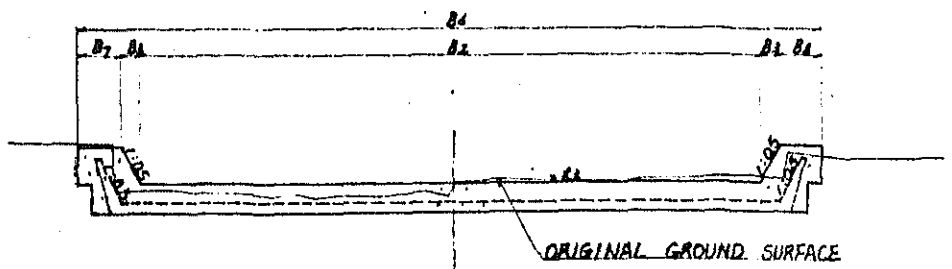
TYPE - 1
SCALE 1:500



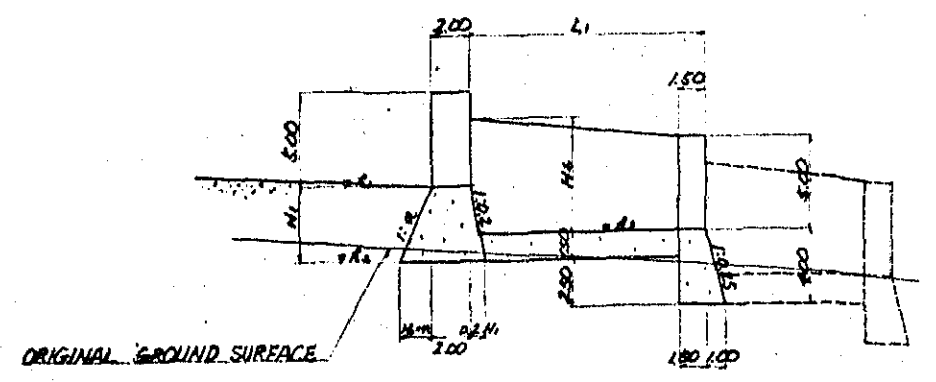
SECTION A-A
SCALE 1:500



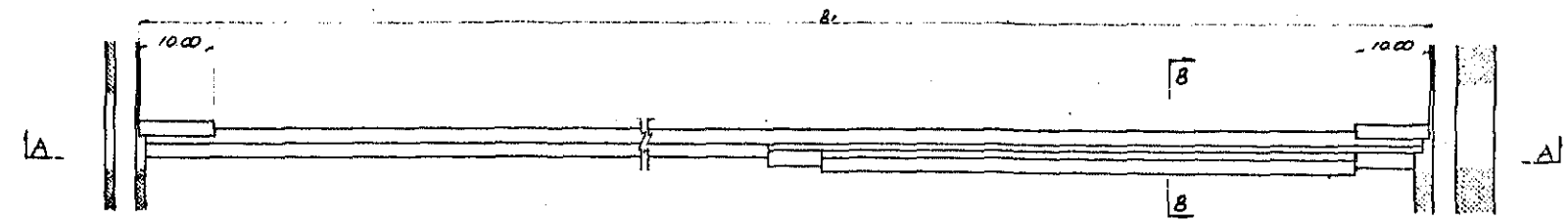
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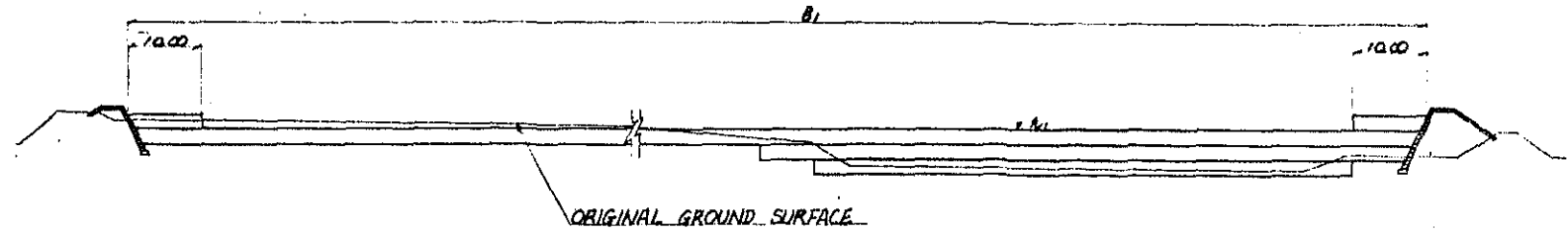
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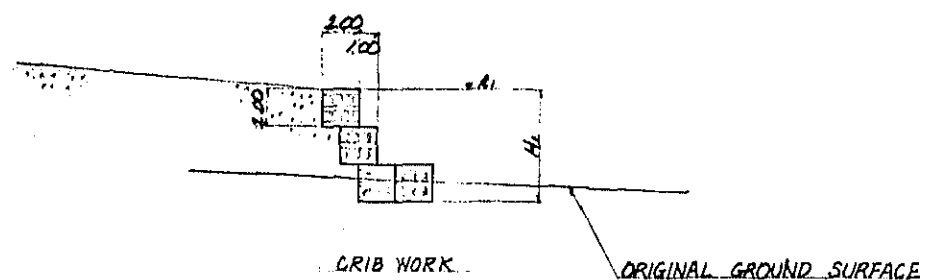
TYPE - 2
SCALE 1:500



SECTION A-A
SCALE 1:500



SECTION B-B
SCALE 1:200

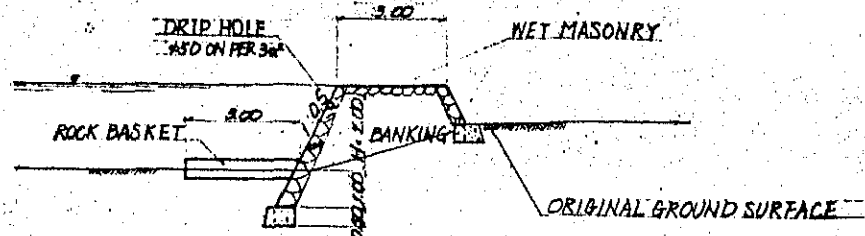


STUDY FOR MAKING MASTER PLAN FOR LAND EROSION AND VOLCANIC DEBRIS CONTROL IN THE AREA OF MT. MERAPI	
TITLE OF DRAWING	
STRUCTURAL DETAILS OF CONSOLIDATION WORK	
SCALE 1:500, 1:200	DRAWING NO. 09

BANKING REVETMENT

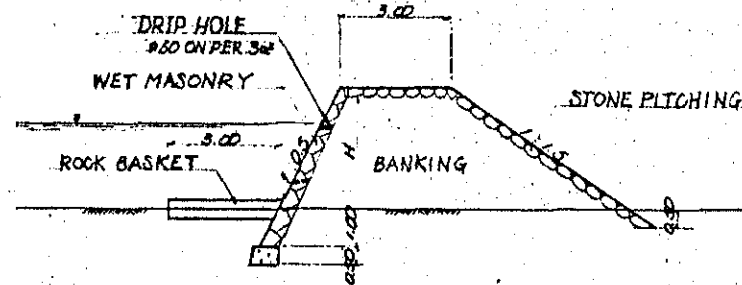
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SCALE 1:100



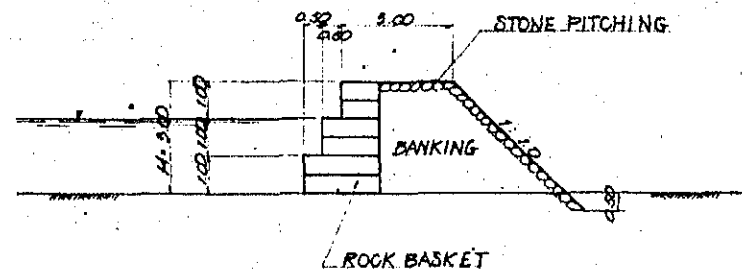
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SCALE 1:100



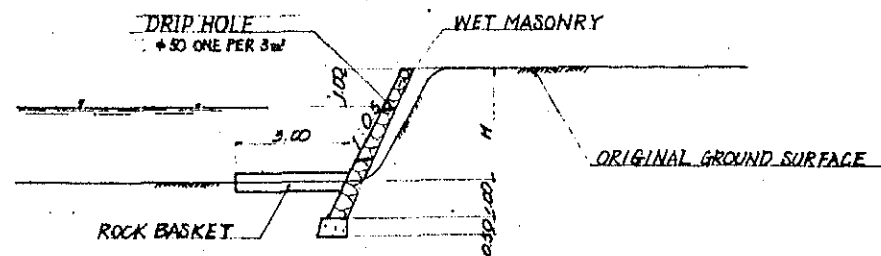
TYPE-C

SCALE 1:100



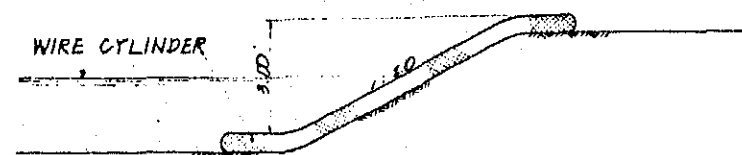
TYPE-D

SCALE 1:100



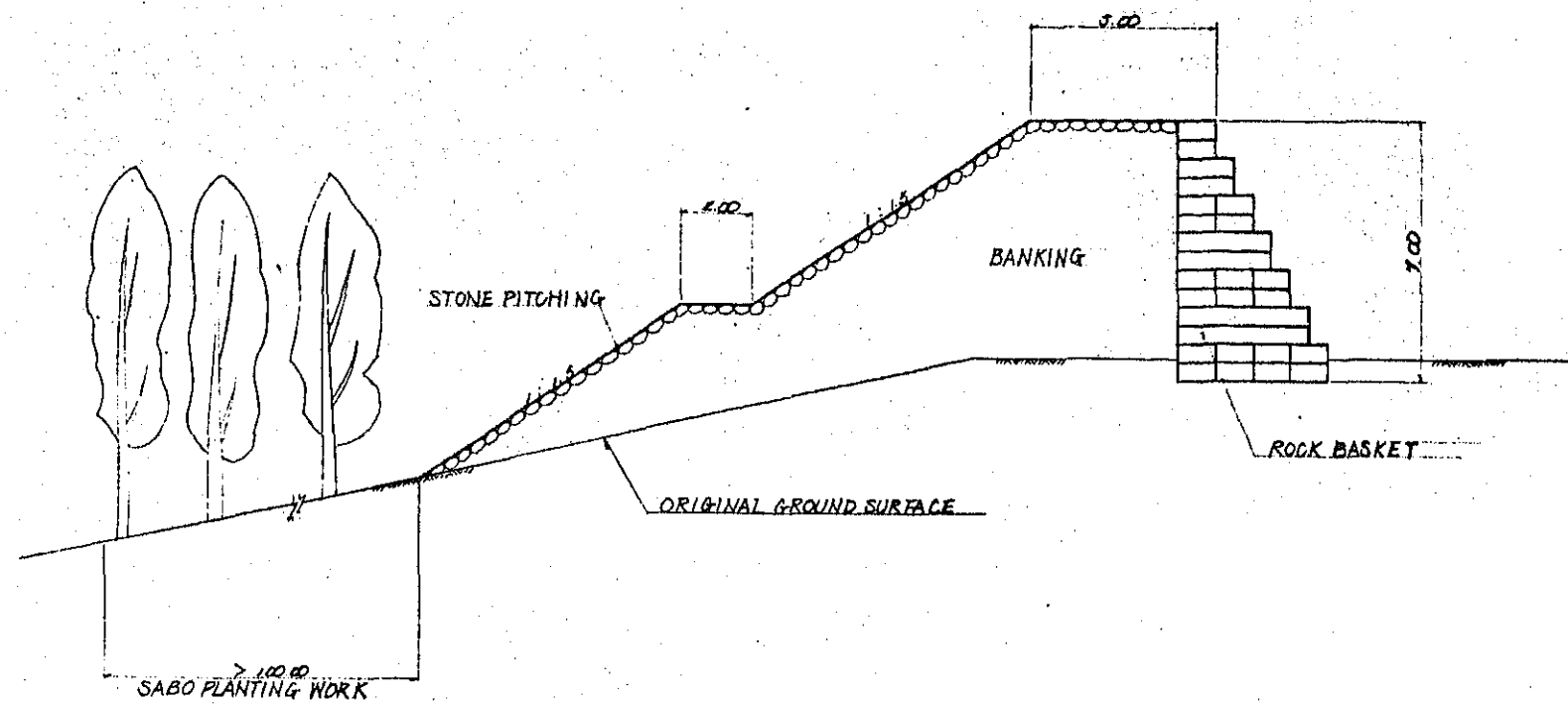
TYPE-E

SCALE 1:100



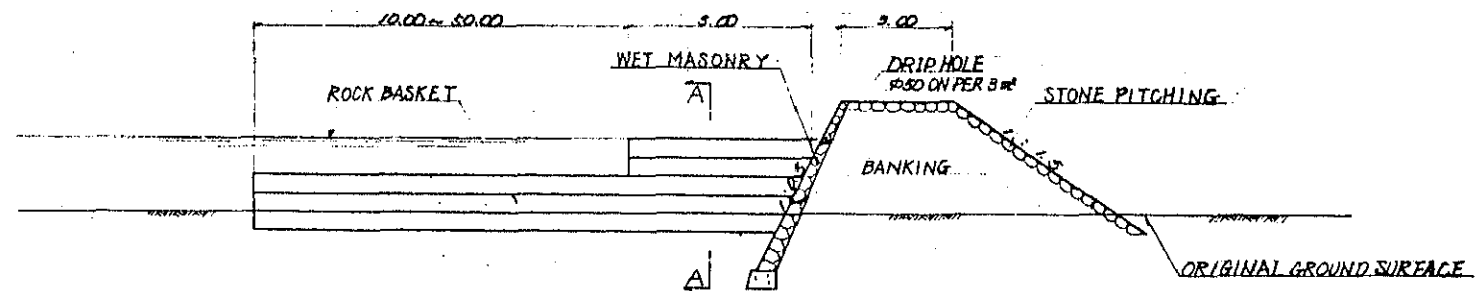
TRAINING LEVEE

SCALE 1:100



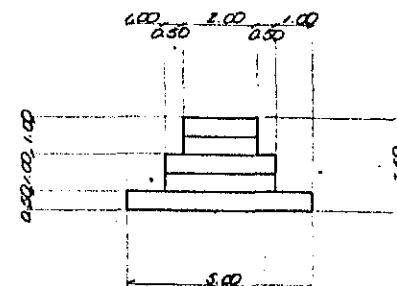
GROIN

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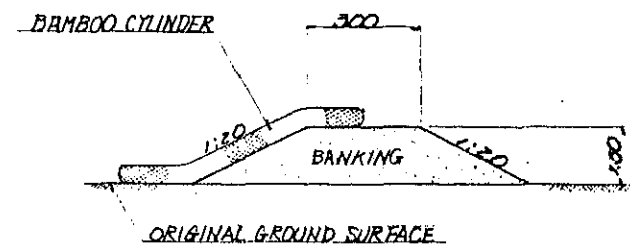
SECTION A-A

SCALE 1:100



TYPE-F

SCALE 1:100



STUDY FOR MAKING MASTER PLAN
FOR LAND EROSION
AND VOLCANIC DEBRIS CONTROL
IN THE AREA OF MT. MERAPI

TITLE OF DRAWING

TYPICAL SECTION OF STRUCTURES

SCALE 1:100

DRAWING NO. 10

**APPENDIX 5. RESULTS OF SOCIO-ECONOMIC IN-DEPTH
INTERVIEWS**

1. Form C : List of Surveyed Areas A5-1
2. Form C-1 : Response from Dukuh Chief A5-2
3. Form C-2 : Reaction from Individual Households A5-14

1. FORM C: Surveyed Area

Type	Location	River	Administrative Unit		Kelurahan	No. of Surveyed Households	Percentage versus total number of households	
			Kabupaten	Kecamatan				
1	Upper-Streams	Putih	Magelan	Srumbung	Srumbung	33	650	5.1
	"	"	"	"	Kemiren			
	"	Krasak	"	"	Kaliurang	17	405	4.2
					(Sub-total)	50		
	Middle-Streams	Krasak	Magelang	Srumbung	Sudimoro	24	610	3.9
	"	"	"	Salam	Salam	19	1,074	1.8
	"	"	Slemang	Tempel	Merdikorejo	24	1,136	2.1
					(Sub-total)	67		
	Down-Streams	Krasak	Magelang	Ngluwar	Pakunden	16	759	2.1
	"	"	Slemang	Tempel	Sumberrejo	15	861	1.7
				(Sub-total)	31			
2	Upper-Streams	Woro	Klaten	Kemalang	Talun	24	462	5.2
	"	"	"	"	Kendalsari	24	405	5.9
					(Sub-total)	48		
	Middle-Streams	Woro	Klaten	Manisrenggo	Sokorini	17	540	3.2
	"	"	"	"	Barukan	28	523	5.4
	"	Gendol	Slemang	Ngeplak	Sindumartani	57	1,227	4.7
					(Sub-total)	102		
	Down-Streams	Sinping	Klaten	Gantiwarno	Muruh	15	499	3
	"	"	"	"	Mutihari	10	715	1.4
	"	"	"	Jogonalan	Sopopuro	25	646	4.6
				(Sub-total)	50			
3		Boyong	Slemang	Paken	Candibinangun	27	1,006	2.7
		"	"	Ngaglik	Donoharjo	25	1,443	1.7
		"	"	"	Sardonoharjo	25	2,120	1.2
		"	"	"	Plosorejo	25		
					(Sub-total)	102		
				(TOTAL)	450			

2. Form C-1: (Categorized Total)

1) Density of Population

Type	Location	Density of Population
1	Upper-streams	995.5
	Middle-streams	133.9
	Down-streams	152.9
2	Upper-streams	631.5
	Middle-streams	1,300.0
	Down-streams	1,562.7
3		702.0

2) Movements of Population (Dynamic)

Type	Location	Movements of Population (Dynamic)
1	Upper-streams	1,009
	Middle-streams	1,006
	Down-streams	1,003
2	Upper-streams	1,011
	Middle-streams	1,006
	Down-streams	1,046
3		1,003

3) Land Use

Type	Location	Land Use Situation (percentage)				Rainy	Dry
		Paddy field	Residential area	Dry field	Others		
1	Upper-streams	44.9	25.2	25	4.9	45.9	45.1
	Middle-streams	58.6	31.3	4.9	5.2		
	Down-streams	58.7	31.4	1.7	8.2	71.4	
2	Upper-streams		52	37.9	10.1	37.2	1.6
	Middle-streams	57	23.5	18	1.5	56.4	56.4
	Down-streams	63.4	21.3	0.7	14.6		
3		61.8	14.5	20.4	3.3	39.8	41.8

4) Major Crops

Type	Location	Paddy	Maize	Cassava	Ground Nut	Sweet Potato	Soya Bean	Tobacco	Sugar Cane	Potato	Vegetable
1	Upper-streams	o		o						o	
	Middle-streams	o		o		o					
	Down-streams	o					o	o			
2	Upper-streams		o	o	o	o					
	Middle-streams	o			o		o	o			
	Down-streams	o		o			o	o			
3		o			o		o	o	o		

5) Crops desired to be grown

Type	Location	Paddy	Maize	Cassava	Ground Nut	Sweet Potato	Soya Bean	Tobacco	Sugar Cane	Potato	Vegetable
1	Upper-streams	o								o	
	Middle-streams	o									o
	Down-streams	o		o	o	o	o				
2	Upper-streams		o	o				o			
	Middle-streams	o		o	o		o	o			
	Down-streams	o		o	o				o		
3		o			o		o	o			

6) Irrigation Water

(1) Water Sources

Type	Location	River	Spring	Well	Reservoir
1	Upper-streams	o	o		
	Middle-streams	o			
	Down-streams	o			o
2	Upper-streams				
	Middle-streams	o	o		o
	Down-streams	o	o	o	
3		o	o		

(2) Availability

Type	Location	Rainy Season			Dry Season		
		Sufficient	Occasionally insufficient	Insufficient	Sufficient	Occasionally insufficient	Insufficient
1	Upper-streams	o			o		
	Middle-streams	o			o		
	Down-streams	o			o		o
2	Upper-streams						
	Middle-streams	o			o		o
	Down-streams	o					o
3		o			o		o

7) Daily Water

(1) Water Sources

Type	Location	River	Spring	Well	Reservoir	Rain	Sumur
1	Upper-streams		o	o			
	Middle-streams						o
	Down-streams		o				o
2	Upper-streams					o	
	Middle-streams						o
	Down-streams						o
3			o				o

(2) Availability

Type	Location	Rainy Season			Dry Season		
		Sufficient	Occasionally insufficient	Insufficient	Sufficient	Occasionally insufficient	Insufficient
1	Upper-streams	o			o		
	Middle-streams	o			o		
	Down-streams	o			o	o	
2	Upper-streams	o					o
	Middle-streams	o			o		
	Down-streams	o			o		o
3		o			o	o	

8) Irrigation System

Type	Location	Continuously-water-flowing-in	Intermittently-water-flowing-in
1	Upper-streams	o	o
	Middle-streams		o
	Down-streams	o	o
2	Upper-streams		
	Middle-streams		o
	Down-streams		o
3		o	o

9) Cropping Pattern

Type	Location	Dry Season						Rainy Season						Dry Season											
		1977												1978											
		4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8							
1	Upper-streams	CASSAVA						PADDY						PADDY											
		PADDY						POTATO						PADDY											
	Middle-streams	CASSAVA						PADDY						PADDY											
		DRY FIELD CROPS						PADDY						DRY FIELD CROPS											
Down-streams	DRY FIELD CROPS						TOBACCO						PADDY												
	TOBACCO						PADDY						PADDY												
2	Upper-streams	MAIZE						MAIZE CASSAVA GROUND NUTS						CASSAVA											
		PADDY						PADDY						PADDY											
	Middle-streams	SWEET POTATO						PADDY						PADDY											
		CASSAVA						PADDY						PADDY											
	Down-streams	CASSAVA						SUGAR CANE						PADDY											
		PADDY						SWEET POTATO SOYA BEAN						PADDY											
3	DRY FIELD CROPS						PADDY						DRY FIELD CROPS												
	TOBACCO						SUGAR CANE						PADDY												

10) Management of Irrigation Water

Type	Location	Managing Body	Operation
1	Upper-streams	Ulu ²	to be regularly supplied to one hectare a day.
	Middle-streams	Ulu ² + Assistants Dukuh Accountant	by negotiation among villagers. by dividing paddy fields into several blocks and supplying water to them in an orderly maner.
	Down-streams	Ulu ² + Dukuh Chief	to be supplied to nearer paddy fields in a daytime and to those in a remote distance in a night-time, which is executed under the responsibility of the chief of Dukuh
2	Upper-streams	Nil	Nil
	Middle-streams	Ulu ² + Dukuh Chief	to be negotaited with the chief of each block for deciding priority of water distribution
		Ulu ²	by arranging a supply day to an individual block which usually covers 24-30 farmers
Down-streams	Ulu ² + Water Control Committee	Paddy fields to be divided into several blocks and then to be supplied at a pre-arranged day	
3		Ulu ²	by setting up a schedule for distribution by priority of shortage of water

11) Intake Situation and Extent of Damages

Type	Location	Damage to Intake		Extent of Damages
		Yes	No	
1	Upper-streams		o	
		o		Damages of dams by floods
	Middle-streams		o	
		o		Damages by Lahar. Water shortage.
		o		Occasional destruction of dam at K. Krasak. Water Shortage
Down-streams	o		Damages of dams and bridges by Lahar.	
2	Upper-streams		o	
			o	
	Middle-streams	o		Dams were broken by Lahar but restored now
			o	
	Down-streams	o		Deposit of sands narrows the width of river, which leads to give a rise to floods.
		o		Water channels were closed down by Lahar.
3		o		Irrigation channels were occasionally damaged. Dry and paddy fields were also damaged.
		o		Dams were broken by Lahar. Water became short.
3		o		Dams were destroyed by Lahar, though once; Four dukuh's were damaged.
		o		

12) Gotong-Royong

Type	1			2			3
	Upper-streams	Middle-streams	Down-streams	Upper-streams	Middle-streams	Down-streams	
Ceremonial occasions	o	o	o	o	o	o	o
Scavengery					o		o
Road maintenance work			o		o		
Road repair work	o	o	o	o	o	o	o
Water channel maintenance work			o				o
Water channel repair work	o	o	o		o	o	
Intake repare work			o		o		
Dike repair work			o	o	o	o	o
Building of a private house		o	o	o	o	o	o
Restoration of damaged farm land		o	o				o
Repair of a broken house			o		o	o	o

13) Year of participating in BUUD/KUD

Type	Location	Participating year
1	Upper-streams	1970
	Middle-streams	1975
	Down-streams	1970
2	Upper-streams	-
	Middle-streams	1974
	Down-streams	1969 ; 1974
3		1973 ; 1974

14) Experience in Damages by Lahar/Banjir

Type	Location	Damages Yes No	Damage-encountered year	Cause			Greatest damages experienced in the past																		
				Nuze Ardentc	Lahar	Banjir	Cause		Land (ha)				Facilities			Irrigation facilities									
							Nuze Ardentc	Lahar	Banjir	Death Toll	Paddy Field	Dry Field	Yard	Forest	Houses	Bridges	Roads	Mosques	Tombs	Water channel	Dam				
1	Upper-streams	o	1961, 1969	o	o				4	30	20														
	Middle-streams	o	1961, 1969, 1973	o	o					10	24														
		o	1969, 1975	o	o					70	2	4			105	1						1			
		o	1969	o	o					11	1				68								o		
Down-streams	o	1969, 1974, 1975	o	o	o				35		11			24										4	
	o	Every three years	o	o					13		2			3											
2	Upper-streams	o									4			8											
	Middle-streams	o	1973, 1974, 1975		o						15														
		o	1969		o						52	30			27	2						1	3		6
		o	1971		o						2														
Down-streams	o	1969		o						4															
	o	In every rainy season		o						65															
3		o	1968, 1976, 1977		o					35				20										o	
		o	1969		o					7					1									6	
		o	1969		o					50														o	

15) Counter-Measures and Warning Systems taken in the Past against Floods

Type	Location	Description
1	Upper-streams	(1) Villages in the dangerous area were ordered to take refuge. Warning posts were set at 50 places. (2) Flood control was executed with villagers led to shelter.
	Middle-streams	(1) Warning posts were set at several places to give warning to villagers. (2) The damaged water channels and farmlands were restored. (3) Warned villagers by way of tom-tom
	Down-streams	(1) Attention was paid to protect lives of people and their property. (2) Joint work to let inunded water go back to a river. (3) Warning was given to villagers by way of warning posts. (4) Refuge camp was set up and foods supplied.
2	Upper-streams	(1) Reinforcement of dike. (2) Reinforcement of dike and warning by tom-tom
	Middle-streams	(1) Villagers were led to shelter and dikes reinforced. (2) In the likelihood of floods, a watcher was set to give a timely warning to villagers. (3) Restoration of farm land and dike.
	Down-streams	(1) Restoration of dike and plantation (2) Sheltering of villagers and strengthening of dike.
3		(1) Giving a refuge camp to people. (2) Warning was given to people by way of tom-tom and foods and medicines supplied by Kelurahan. (3) Joint work to let inundated water back to a river through cooperation of Gotong-Royong.

16) Emergency Measures Taken by Central Government against Floods

Type	Location	Transmigration	Repair/reconstruction of damaged public facilities	Repair/reconstruction of damaged irrigation facilities	Aid Activities by way of food supply, etc.	Relief Work for the unemployed	Construction of dikes	Aid by Contribution
1	Upper-streams	0	0	0				
	Middle-streams	0	0		0		0	
	Down-streams	0		0				0
2	Upper-streams	0						
	Middle-streams	0	0				0	
	Down-streams	0	0	0				
3		0						
		0	0	0				
		0	0	0				

17) Program for Countermeasures to be taken by Administrative Units against Floods

Type	Location	Kelurahan	Local Government	Central Government
1	Upper-streams	Setting of refuge camps		Supply of foods
		Placing of warning posts	Promotion of transmigration	
	Middle-streams	Supply of foods	Supply of foods and clothings Labor supply for restoration of damaged facilities	Promotion of transmigration
		Setting of refuge camps	Lending of lamps, rain coats, etc.	
	Down-streams	Supply of daily necessities. Move of houses to a safe place. Draining of flooded water.	Supply of daily necessities and foods	Construction of dike
		Setting of warning posts		
2	Upper-streams	Reinforcement of dike by Gotong Royong	Various kinds of aid activities. Construction of dike	
		Construction of dike by Gotong Royong		Supply of foods and sandbago
	Middle-streams	Watching system	Control of dike	
		Setting of refuge camps	Supply of foods and clothings	
	Down-streams			Construction of water channel
		Construction of dike		
		Placing of warning posts	Setting of refuge camps and warning posts	
		Execution of embankment		

18) List of Measures to be desired by Kelurahan for Prevention of Disasters

Type	Location	Measures Desired
1	Upper-streams	Construction of stronger dike. Use of optimum dike materials. Improvement of road leading to stocked materials. Consultation with the authority about disaster prevention plans and prediction system.
		Construction of dikes along K. Bebung.
	Middle-streams	Construction of dikes in the check dam area and downward.
		Setting of refuge camp and construction of dikes.
	Down-streams	No reply.
2	Upper-streams	Construction of dikes along K. Woro. Removal of check-dam which is considered as a cause for flood disasters. Prompt repair of broken dikes at Wakir Sari and Sidaroyo.
	Middle-streams	Installation of pumping wells for domestic water. Supply of water to paddy field in case of water shortage caused by floods. Restoration of road. Construction of new primary schools and of bridges connecting individual Kelurahans.
3	Down-streams	Reinforcement of Dike around the curved part of river. Dredging of riverbed.
		Prevention against erosion of K. Panggang. Construction of dikes of permanent structure. Solution of irrigation problem.
		Construction of school buildings as use of refuge shelters when needs arise. Setting of harven in emergency. Improvement of roads.

3. Form C-2 (Categorized Total)

1) Structure of Family

Type	Location	Number of constituents	1	2	3	4	5	6	7	8	9	Over 10	No answers	Total
1	A	Number of answers %	0 0	7 14.0	4 8.0	15 30.0	12 24.0	6 12.0	3 6.0	0 0	1 2.0	2 4.0	0 0	50 100
	B	Number of answers %	1 1.5	11 16.4	13 19.5	8 11.9	11 16.4	11 16.4	8 11.9	2 3.0	0 0	2 3.0	0 0	67 100
	C	Number of answers %	1 3.2	5 16.1	4 13.0	9 29.0	7 22.6	1 3.2	2 6.5	1 3.2	1 3.2	0 0	0 0	31 100
2	A	Number of answers %	0 0	3 6.3	4 8.3	14 29.1	10 20.8	7 14.6	5 10.4	3 6.3	1 2.1	1 2.1	0 0	48 100
	B	Number of answers %	1 1.0	8 7.8	16 15.7	18 17.6	12 11.8	19 18.6	15 14.7	5 4.9	4 3.9	3 3.0	1 1.0	102 100
	C	Number of answers %	0 0	1 2.0	2 4.0	9 18.0	7 14.0	17 34.0	6 12.0	5 10.0	2 4.0	1 2.0	0 0	50 100
3		Number of answers %	1 1.0	10 9.8	12 11.8	14 13.7	25 24.5	18 17.6	9 8.8	9 8.8	3 3.0	1 1.0	0 0	102 100
Total		Number of answers %	4 0.9	45 10.0	55 12.2	87 19.2	84 18.7	79 17.6	48 10.7	25 5.6	12 2.7	10 2.2	1 0.2	450 100

(Note) A: Upper-streams B: Middle-streams C: Down-streams

2) Level of Education

Type	Location	Level of education	Non-educated	Graduated from Primary School	Graduated from Junior High School	Graduated from High School	Graduated from University	Doctor	No Answer	Total
1	A	Number of answers %	28	15	6	1	0	0	0	50
	B	Number of answers %	33	28	4	2	0	0	0	67
	C	Number of answers %	15	15	0	1	0	0	0	31
2	A	Number of answers %	36	11	0	0	0	0	1	48
	B	Number of answers %	61	35	2	4	0	0	0	102
	C	Number of answers %	24	20	4	1	1	0	0	50
3		Number of answers %	47	39	8	8	0	0	0	102
Total		Number of answers %	244 54.2	163 36.2	24 5.4	17 3.8	1 0.2	0	1 0.2	450 100

(Note) A: Upper-stress B: Middle-streams C: Down-streams

3) Vocation of Family Head

Type	Location	Vocation	Farming				Com- mercial business	Wage- earners	Others	No answer	Total
			Farming alone	Com- merce	Wage- earners	Others					
1	A	Number of answers %	45 90.0	1 2.0	1 2.0	0 0	0 0	3 6.0	0 0	0 0	50 100
	B	Number of answers %	43 64.2	1 1.5	1 1.5	4 6.0	5 7.4	6 9.0	7 10.4	0 0	67 100
	C	Number of answers %	28 90.3	0 0	0 0	0 0	2 6.5	1 3.2	0 0	0 0	31 100
2	A	Number of answers %	42 87.5	1 2.1	0 0	1 2.1	1 2.1	1 2.1	2 4.1	0 0	48 100
	B	Number of answers %	73 71.6	4 3.9	2 2.0	7 6.9	3 2.9	3 2.9	10 9.8	0 0	102 100
	C	Number of answers %	26 52.0	0 0	0 0	7 14.0	5 10.0	3 6.0	8 16.0	1 2.0	50 100
3		Number of answers %	62 60.8	2 2.0	4 3.9	5 4.9	5 4.9	16 15.7	5 4.9	3 2.9	102 100
Total		Number of answers %	319 70.9	9 2.0	8 1.8	24 5.3	21 4.7	33 7.3	32 7.1	4 0.9	450 100

(Note) A: Upper-streams B: Middle-streams C: Down-streams

4) Type of Farming

Type	Location		Independent farmer	Owner + tenant farmer	Tenant farmer	No answer	Total
1	A	Number of answers %	43 87.8	0 0	6 12.2	0 0	49 100
	B	Number of answers %	30 57.7	4 7.7	13 25.0	5 9.6	52 100
	C	Number of answers %	21 77.8	1 3.7	5 18.5	0 0	27 100
2	A	Number of answers %	43 93.5	1 2.2	2 4.3	0 0	46 100
	B	Number of answers %	74 82.2	7 7.8	7 7.8	2 2.2	90 100
	C	Number of answers %	37 90.2	0 0	4 9.8	0 0	41 100
3		Number of answers %	82 94.3	1 1.1	3 3.5	1 1.1	87 100
Total		Number of answers %	33.0 84.2	14 3.6	40 10.2	8 2.0	392 100

(Note) A: Upper-streams B: Middle-streams C: Down-streams

5) Farm Land

Type	Location	Area (ha)	below 0.2	0.2 - 0.4	0.4 - 0.6	0.6 - 1.0	1.0 - 2.0	Over 2.0	Total
1	A	Number of answers %	23 53.4	11 25.6	6 14.0	1 2.3	0 0	2 4.7	43 100
	B	Number of answers %	21 61.8	10 29.4	2 5.9	0 0	1 2.9	0 0	34 100
	C	Number of answers %	13 59.1	5 22.7	3 13.6	1 4.6	0 0	0 0	22 100
2	A	Number of answers %	18 40.9	12 27.3	6 13.6	5 11.4	3 6.8	0 0	44 100
	B	Number of answers %	43 53.1	23 28.4	2 2.5	13 16.0	0 0	0 0	81 100
	C	Number of answers %	11 29.7	14 37.9	4 10.8	7 18.9	1 2.7	0 0	37 100
3		Number of answers %	38 45.8	20 24.1	11 13.3	7 8.4	5 6.0	2 2.4	83 100
Total		Number of answers %	167 48.5	95 27.6	34 9.9	34 9.9	10 2.9	4 1.2	344 100

(Note) A: Upper-streams B: Middle-streams C: Down-streams

6) Annual Income

Type	Location	(Rp.)	below 50,000	50,000 ~99,999	100,000 ~199,999	200,000 ~399,999	400,000 ~599,000	600,000 ~1,000,000	No answer	Total
1	A	Number of answers %	19 38.0	20 40.0	5 10.0	1 2.0	2 4.0	0 0	3 6.0	50 100
	B	Number of answers %	13 19.4	29 43.3	12 17.9	9 13.4	1 1.5	0 0	3 4.5	67 100
	C	Number of answers %	3 9.7	25 80.6	2 6.5	1 3.2	0 0	0 0	0 0	31 100
2	A	Number of answers %	32 66.6	12 25.0	2 4.2	0 0	0 0	0 0	2 4.2	48 100
	B	Number of answers %	40 39.2	47 46.1	13 12.7	2 2.0	0 0	0 0	0 0	102 100
	C	Number of answers %	16 32.0	29 58.0	4 8.0	0 0	0 0	0 0	1 2.0	50 100
3		Number of answers %	15 14.7	49 48.0	20 19.6	9 8.8	2 2.0	1 1.0	6 5.9	102 100
Total		Number of answers %	138 30.7	211 46.9	58 12.9	22 4.9	5 1.1	1 0.2	15 3.3	450 100

(Note) A: Upper-streams B: Middle-streams C: Down-streams

7) Share-Cropping

Type	Location		Cash Payment	Payment by harvested crops					No answer	Total
				25%	30%	33.3%	50%	66.7%		
1	A	Number of answers %	- -	- -	- -	- -	6 100	- -	- -	6 100
	B	Number of answers %	12 66.7	- -	- -	- -	5 27.8	- -	1 5.5	18 100
	C	Number of answers %	4 66.6	- -	- -	- -	1 16.7	- -	1 16.7	6 100
2	A	Number of answers %	- -	- -	- -	1 33.3	1 33.3	1 33.4	- -	3 100
	B	Number of answers %	5 35.7	- -	3 21.5	1 7.1	3 21.5	1 7.1	1 7.1	14 100
	C	Number of answers %	1 25.0	1 25.0	1 25.0	1 25.0	- -	- -	- -	4 100
3		Number of answers %	2 50.0	- -	- -	- -	1 25.0	- -	1 25.0	4 100
Total		Number of answers %	24 43.6	1 1.8	4 7.3	3 5.5	17 30.9	2 3.6	4 7.3	55 100

(Note) A: Upper-streams B: Middle-streams C: Down-streams

8) Major Crops

Type			Paddy	Cassava	Maize	Tobacco	Sweet potato	Potato	Sugar cane	Ground Nuts	Coconut	Dry Field Crops
1	A (49)	Number of answers %	33 67.3	24 49.0	7 14.3	0 -	1 2.0	2 4.1	0 -	0 -	0 -	5 10.2
	B (52)	Number of answers %	40 76.9	3 5.8	1 1.9	22 42.3	1 1.9	0 -	0 -	0 -	0 -	3 5.8
	C (27)	Number of answers %	29 107.4	0 -	0 -	24 88.9	0 -	0 -	0 -	0 -	0 -	5 18.5
2	A (46)	Number of answers %	0 -	43 93.5	43 93.5	0 -	0 -	0 -	0 -	0 -	3 6.5	0 -
	B (90)	Number of answers %	66 73.3	24 26.7	5 5.6	14 15.6	6 6.7	0 -	0 -	0 -	3 3.3	6 6.7
	C (41)	Number of answers %	32 78.0	4 9.8	0 -	9 22.0	0 -	0 -	10 24.4	17 41.5	0 -	13 31.7
3	(87)	Number of answers %	83 95.4	7 8.0	1 1.1	28 32.2	2 2.3	0 -	0 -	3 3.4	0 -	10 11.5
Total (329)		Number of answers %	283 72.3	105 26.8	57 14.5	97 24.7	10 2.6	2 0.5	10 2.6	20 5.1	6 1.5	42 10.7

(Note) A: Upper-streams B: Middle-streams C: Down-streams

9) Rice Yield Per ha

Type	Location	Ton	Below 1.0	1.0-1.5	1.5-2.0	2.0-2.5	2.5-3.0	3.0-3.5	3.5-4.0	4.0-5.0	5.0-6.0	Over 6.0	Total
1	A	No. of answers %	8 26.7	7 23.3	0 -	6 20.0	7 23.3	0 -	2 6.7	0 -	0 -	0 -	30 100
	B	No. of answers %	0 -	3 8.6	3 8.6	8 22.9	10 28.5	10 28.5	1 2.9	0 -	0 -	0 -	35 100
	C	No. of answers %	0 -	0 -	0 -	6 20.7	6 20.7	9 31.0	8 27.6	0 -	0 -	0 -	29 100
2	A	No. of answers %	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	B	No. of answers %	3 4.8	5 8.0	6 9.5	12 19.0	8 12.7	20 31.7	5 8.0	4 6.3	0 -	0 -	63 100
	C	No. of answers %	0 -	0 -	0 -	1 3.3	0 -	2 6.7	0 -	9 30.0	11 36.7	7 23.3	30 100
3		No. of answers %	2 2.6	3 3.9	7 9.1	17 22.0	21 27.3	15 19.5	2 2.6	7 9.1	2 2.6	1 1.3	77 100
Total		No. of answers %	13 4.9	18 6.8	16 6.1	50 18.9	52 19.7	56 21.2	18 6.8	20 7.7	13 4.9	8 3.0	264 100

(Note) A: Upper-streams B: Middle-streams C: Down-streams

10) Farming Instruments (to have or have not)

Type			Broad hoe	Plough	Harrow	Sickle	Others
1	A (50)	Number of answers %	45 90.0	17 34.0	14 28.0	45 90.0	8 16.0
	B (67)	Number of answers %	48 71.6	18 26.9	16 23.9	48 71.6	3 4.5
	C (31)	Number of answers %	29 93.5	13 41.9	7 22.6	26 83.9	1 3.2
2	A (48)	Number of answers %	38 79.2	22 45.8	16 33.3	35 72.9	9 18.8
	B (102)	Number of answers %	90 88.2	54 52.9	42 41.2	90 88.2	5 4.9
	C (50)	Number of answers %	40 80.0	20 40.0	16 32.0	39 78.0	0 0
3	(102)	Number of answers %	86 84.3	61 59.8	53 52.0	86 84.3	9 8.8
Total	(450)	Number of answers %	376 83.6	205 45.6	164 36.4	369 82.0	35 7.8

(Note) A: Upper-streams B: Middle-streams C: Down-streams

11) Years of Residence

Type	Location		Over 15 years	10 - 15	5 - 10	below 5	No answer	Total
1	A	Number of answers %	46 92.0	2 4.0	1 2.0	1 2.0	0 -	50 100
	B	Number of answers %	45 67.2	4 6.0	0 -	18 26.8	0 -	67 100
	C	Number of answers %	31 100	0 -	0 -	0 -	0 -	31 100
2	A	Number of answers %	42 87.4	1 2.1	2 4.2	1 2.1	2 4.2	48 100
	B	Number of answers %	99 97.0	2 2.0	0 -	1 1.0	0 -	102 100
	C	Number of answers %	44 88.0	1 2.0	2 4.0	1 2.0	2 4.0	50 100
3		Number of answers %	97 95.1	4 3.9	0 -	0 -	1 1.0	102 100
Total		Number of answers %	404 89.8	14 3.1	5 1.1	22 4.9	5 1.1	450 100

(Note) A: Upper-streams B: Middle-streams C: Down-streams

12) Experienced Sufferings

Type	Location (Total No. of house holds)	Experienced sufferings	No	Yes				No answer
				Nuee Ardente	Lahar Flood	Banjit	No distric-tion	
1	A (50)	Number of answers %	25 50.0	0 -	21 42.0	1 2.0	2 4.0	2 4.0
	B (67)	Number of answers %	18 26.9	0 -	36 53.7	2 3.0	12 17.9	0 -
	C (31)	Number of answers %	1 3.2	0 -	16 51.6	0 -	14 45.2	0 -
2	A (48)	Number of answers %	41 85.4	0 -	5 10.4	0 -	0 -	2 4.2
	B (102)	Number of answers %	25 24.5	16 15.7	66 64.7	0 -	8 7.8	1 1.0
	C (50)	Number of answers %	28 56.0	0 0	10 20.0	13 26.0	0 -	1 2.0
3	(102)	Number of answers %	19 18.6	0 -	66 64.7	2 2.0	15 14.7	1 1.0
Total (450)		Number of answers %	157 34.9	16 3.6	220 48.9	18 4.0	51 11.3	7 1.6

(Note) A: Upper-streams B: Middle-streams C: Down-streams

13) Status of Damages

Type	Location (Total No. of damaged houses)		Family diath toll	Damaged houses	Damaged farm land	Damaged cattle	No answer
1	A (23)	Number of answers %	0 -	3 13.0	19 82.6	0 -	2 8.7
	B (49)	Number of answers %	0 -	0 -	41 83.7	0 -	8 16.3
	C (30)	Number of answers %	3 10.0	5 16.7	27 90.0	0 -	0 -
2	A (5)	Number of answers %	0 -	0 -	4 80.0	0 -	1 20.0
	B (76)	Number of answers %	0 -	25 32.9	50 65.8	4 5.3	10 13.2
	C (21)	Number of answers %	0 -	2 9.5	18 85.7	0 -	2 9.5
3	(82)	Number of answers %	0 -	9 11.0	62 75.6	1 1.2	18 22.0
Total	(286)	Number of answers %	3 1.0	44 15.4	221 77.3	5 1.7	41 14.3

(Note) A: Upper-streams B: Middle-streams C: Down-streams

14) Emergency Measures

Type	Location (Total No. of damaged houses)		Repair/ reconstruction of damaged houses	Move to safer places within the same village	Immigrants from other village	No answer
1	A (23)	Number of answers %	0 -	1 4.3	3 13.0	19 82.7
	B (49)	Number of answers %	0 -	0 -	13 26.5	36 73.5
	C (30)	Number of answers %	5 16.7	1 3.3	0 -	24 80.0
2	A (5)	Number of answers %	1 20.0	1 20.0	0	3 60.0
	B (76)	Number of answers %	11 14.5	20 26.3	1 1.3	47 61.8
	C (21)	Number of answers %	4 19.0	0 -	1 4.8	16 76.2
3	(82)	Number of answers %	5 6.1	44 53.7	1 1.2	33 40.2
Total	(286)	Number of answers %	26 9.1	67 23.4	19 6.6	178 62.2

(Note) A: Upper-streams B: Middle-streams C: Down-streams

15) Desirables for Enhancing of Living Standards

Type	Location (total No. of house holds)		Stable supply of irrigation water	Security of wider arable land	Improvement of village roads	Disaster prevention measures		No answer
						Construction/ repair of dike	Construction/ repair of dams	
1	A (50)	Number of answers %	1 2.0	15 30.0	9 18.0	36 72.0	1 2.0	0 -
	B (67)	Number of answers %	0 -	1 1.5	12 17.9	58 86.6	2 3.0	1 1.5
	C (31)	Number of answers %	0 -	8 25.8	6 19.4	22 71.0	0 -	1 3.2
2	A (48)	Number of answers %	27 56.3	27 56.3	8 16.7	11 22.9	1 2.1	6 12.5
	B (102)	Number of answers %	21 20.6	12 11.8	15 14.7	72 70.6	3 2.9	2 2.0
	C (50)	Number of answers %	6 12.0	5 10.0	1 2.0	45 90.0	1 2.0	0 -
3	(102)	Number of answers %	16 15.7	16 15.7	21 20.6	55 53.9	12 11.8	3 2.9
Total	(450)	Number of answers %	71 15.8	84 18.7	72 16.0	299 66.4	20 4.4	13 2.9

(Note) A: Upper-streams B: Middle-streams C: Down-streams

16) Who is Responsible for Maintaining Disaster Prevention Facilities?

Total	Location (total No. of house holds)		Villagers	Government	Village and Government	Unnecessary	No answer
1	A (50)	Number of answers %	0 -	49 98.0	1 2.0	0 -	0
	B (67)	Number of answers %	0 -	66 98.5	0 -	1 1.5	0 -
	C (31)	Number of answers %	1 3.2	29 93.6	0 -	0 -	1 3.2
2	A (48)	Number of answers %	2 4.2	21 43.7	19 39.6	0 -	6 12.5
	B (102)	Number of answers %	8 7.8	60 58.8	32 31.4	0 -	2 2.0
	C (50)	Number of answers %	7 14.0	34 68.0	8 16.0	0 -	1 2.0
3	(102)	Number of answers %	10 9.8	75 73.5	14 13.7	0 -	3 3.0
Total	(450)	Number of answers %	28 6.2	334 74.2	74 16.5	1 0.2	13 2.9

(Note) A: Upper-streams B: Middle-streams C: Down-streams

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