TABLE 4.1 (1/3) RESULT OF SOIL TESTS (CONSTRUCTION MATERIAL)

LOCATION (TEST PIT NO.)	SAMPLE NO.	DEPTH m.	SOIL DESCRIPTION	UNIFIED SOIL CLASSIFICATION	SIEVE ANALYSIS % PASSING 3/4"	1/2"	3/8"	#4	#10	#40	#200	SPECIFIC GRAVITY	NATURAL MOISTURE CONTENT %	ATTERBERG LIMIT LL	PL	PI	MOISTURE-DENSITY RELATION OF SOIL OMC %	MDD g/cc	COEFFICIENT OF PERMEABILITY cm/sec.	UNCONFINED COMPRESSION qu kg/cm2	CONSOLIDATION Cc	Pc	eo	REMARKS
	1	1.00-1.05	Silty clay	CL			100	92	83	70	54	2.61	18.3	44	18	26	23.1	1.53	2.6 x 10	0.68	0.21	1.1	0.74	e- log P curves & Cw, r log P Curves are shown in Appendix.
TS1-1							100	92	81	68	58	2.62	18.5	43	17	26								
	2	4.90-5.00	Silty clay	CL			100	91	88	81	72	2.79	24.5	50	14	36	23.0	1.67	3.0 x 10					
TS 1																								
	1	0.90-1.20	Sandy silt w/ clay	ML			100	91	86	76	61	55	2.78	26.9	42	30	12	19.6	1.76	1.3 x 10	1.09	0.24	1.0	0.90	
TS1-2							100	96	86	77	63	57	2.72	26.0	39	30	9							
	2	5.00-5.10	Silty clay	CL			100	94	85	79	66	52	2.54	24.7	48	27	21	19.2	1.64	4.0 x 10				
	1	1.00-1.20	Clayey silt	ML				100	93	83	69	2.45	19.3	48	27	21	18.3	1.60	2.8 x 10	2.25	0.26	2.5	0.86	
TS2-1								100	97	89	63	2.51	19.1	45	22	23								
	2	4.50-5.00	Sandy silt w/ clay	ML				100	95	84	59	2.49	29.8	47	28	19	17.3	1.68	-------					
TS 2																								
	1	1.90-2.05	Silty clay	CH			100	98	97	87	61	2.69	24.6	53	24	29	23.6	1.58	2.4 x 10	3.88	0.25	2.5	0.75	
TS2-2							100	97	95	82	61	2.68	24.0	49	17	32								
	2	5.00-5.10	Clayey silt	ML			100	94	88	78	63	2.64	20.6	43	29	14	18.7	1.70	1.3 x 10					
	1	0.90-1.40	Clayey silt	ML			100	98	90	89	77	2.74	12.9	39	28	11	19.0	1.72	1.0 x 10	0.62	0.21	2.3	0.94	
TS3-1							100	96	92	88	72	2.74	11.8											
	2	2.80-3.80	Clayey silt	MH						100	95	2.50	55.5	52	29	23	31.5	1.32	1.3 x 10					
TS 3														54	29	25								
	1	0.90-1.10	Silt	ML						100	92	2.70	27.4	33	26	7	24.1	1.52	----					
TS3-2										100	92	2.69	26.8											
	2	2.60-3.60	Clayey silt	ML						100	94	2.68	28.5	32	26	6	21.6	1.60	1.3 x 10	3.13	0.19	2.6	0.66	
														33	28	5								
	1	1.90-2.00	Silty sand	SM						100	27	2.74	4.5	32	27	5	12.6	1.94	----					
TS4-1										100	30	2.74	4.7											
	2	4.50-5.00	Silt	ML					100	99	78	2.74	30.1	---	NP	---	20.6	1.70	----					
TS 4																								
	1	0.95-1.10	Silty sand	SM			100	98	98	90	29	2.62	5.1	---	NP	---	13.0	1.91	----					
TS4-2							100	96	95	88	26	2.61	5.0											
	2	13.69-4.69	Silty clay	CL					100	98	63	2.64	20.6	41	22	19	17.1	1.76	2.6 x 10	2.98	0.10	3.0	0.75	
														40	20	20								

Note: Sieve sizes converted to millimeter, 3/4"=19.05 mm, 1/2 " = 12.7 mm, 3/8" = 9.595 mm, #4=4.75 mm, #10 =2.0 mm, #40 = 0.0425, #200 = 0.075

TABLE 4.1 (2/3) RESULT OF SOIL TESTS (CONSTRUCTION MATERIAL)

LOCATION (TEST PIT NO.)	SAMPLE NO.	DEPTH m.	SOIL DESCRIPTION	UNIFIED SOIL CLASSIFICATION	SIEVE ANALYSIS % PASSING 3/4"	1/2"	3/8"	#4	#10	#40	#200	SPECIFIC GRAVITY	NATURAL MOISTURE CONTENT %	ATTERBERG LIMIT LL	PL	PI	MOISTURE-DENSITY RELATION OF SOIL OMC %	MDD g/cc	COEFFICIENT OF PERMEABILITY cm/sec.	UNCONFINED COMPRESSION qu kg/cm2	CONSOLIDATION Cc	Pc	eo	REMARKS
	1	0.95-1.05	Silty sand	SM				100	99	96	49	2.68	31.1	---	NP	---	14.6	1.84	-----					e- log P curves & Cv, r log P: Curves are shown in Appendix.
TS5-1								100	96	94	37	2.65	31.7											
	2	1.20-2.20	Silty clay	CL					100	99	97	2.56	41.1	45	24	21	19.4	1.69	3.0 x 10	1.14	0.35	2.2	0.94	
TS 5														46	25	21								
	1	0.90-1.10	Silty clay	CL					100	99	96	2.67	45.9	40	22	18	24.3	1.54	2.8 x 10	0.88				
TS5-2									100	95	89	2.64	44.3	39	21	18								
	2	4.00-5.00	Clayey silt	MH						100	92	2.67	46.6	56	34	22	21.6	1.62	3.6 x 10		0.22	4.0	0.82	
	1	0.90-1.00	Silty clay	CH			100	97	94	85	79	2.52	42.3	59	27	32	24.5	1.44	3.5 x 10	0.82	0.25	1.2	0.89	
TS6-1							100	96	93	86	80	2.52	41.9	61	29	32								
	2	1.16-2.16	Silty fine sand	SM				100	97	88	46	2.60	45.7	---	NP	---	14.4	1.85						
TS 6																								
	1	0.90-1.00	Silty clay	CH					100	88	71	2.64	42.4	65	27	38	27.0	1.50	3.8 x 10	2.12	0.31	1.8	0.85	
TS6-2									100	90	70	2.64	41.2	64	26	38								
	2	1.60-2.60	Silty sand	SM				100	98	73	42	2.60	36.7	---	NP	---	16.4	1.77	----					
	1	0.80-1.10	Clayey silt	ML					100	99	97	73	2.68	27.9	36	32	4	21.3	1.66	6.0 x10	1.19	0.20	1.9	0.71	
TS7-1									100	98	95	71	2.66	26.8	35	31	4							
	2	1.90-2.90	Silty sand	SM					100	90	83	42	2.66	36.3	---	NP	---	14.8	1.83	----					
TS 7																								
	1	1.00-1.05	Silt	ML							100	86	2.78	24.1	---	NP	---	19.6	1.69	----					
TS7-2											100	88	2.81	23.8										
	2	2.60-3.60	Clayey silt	MH					100	99	89	2.55	35.9	64	42	22	26.4	1.48	1.1 x 10	3.09	0.17	1.0	0.76	
														62	40	22								
	1	0.90-1.05	Sandy silt w/ clay	ML					100	99	98	57	2.69	22.0	38	20	18	14.0	1.84	2.9 x 10	3.10	0.24	3.6	0.75	
TS8-1									100	98	96	57	2.71	20.6	40	22	18							
	2	2.84-3.84	Silty sand	SM			100	94	90	73	65	21	2.71	29.4	---	NP	---	12.5	1.95	----					
TS 8																								
	1	0.90-1.10	Silty clay	CL					100	99	99	64	2.76	21.4	34	13	21	19.5	1.74	2.6 x 10	2.24	0.20	1.3	0.79	
TS8-2									100	97	97	62	2.61	20.1	36	15	21							
	2	2.30-3.30	Clayey silt	MH						100	99	83	2.62	21.6	54	42	12	26.6	1.48	1.1 x 10					

Note: Sieve sizes converted to milliter, 3/4"-19.05 mm, 1/2 mm, -12.7 mm, 3/8" - 9.595 mm, #4 - 4.75 mm, #10 - 2.0 mm, # 40 - 0.0425, # 200 - 0.075

TABLE 4.1 (3/3) RESULT OF SOIL TESTS (CONSTRUCTION MATERIAL)

LOCATION (TEST PIT NO.)	SAMPLE NO.	DEPTH M.	SOIL DESCRIPTION	UNIFIED SOIL CLASSIFICATION	SIEVE ANALYSIS % PASSING 3/4"	1/2"	3/8"	#4	#10	#40	#200	SPECIFIC GRAVITY	NATURAL MOISTURE CONTENT %	ATTERBERG LIMIT LL	PL	PI	MOISTURE-DENSITY RELATION OF SOIL OMC %	MDD g/cc	COEFFICIENT OF PERMEABILITY cm/sec.	UNCONFINED COMPRESSION qu kg/cm2	CONSOLIDATION Cc	Pc	eo	REMARKS
	1	0.95-1.10	Silty clay	CH				100	98	81	63	2.67	23.8	60	29	31	25.2	1.52	3.8 x 10	1.17	0.24	2.5	0.84	e- log P curves & Cv, z log P: Curves are shown in Appendix.
TS9-1								100	96	80	64	2.60	22.9	59	29	30								
	2	4.90-5.00	Sandy silt	ML				100	85	74	55	2.67	20.5	---	NP	---	16.3	1.76	----					
TS 9																								
	1	1.50-2.50	Clayey sand	SC				100	83	33	2.58	26.4	37	21	16	18.5	1.69	2.3 x 10	2.01				
TS9-2								100	88	77	2.64	25.9	37	22	15									
	2	3.50-5.00	Silty clay	CL				100	89	78	2.63	16.5	40	23	17	20.3	1.65	2.9 x 10		0.23	1.4	0.84	
	1	0.90-1.00	Silty clay	CL					100	96	2.54	21.7	45	26	19	23.8	1.46	6.0 x 10	2.33	0.22	0.5	1.01	
TS10-1					100	88	85	73	65	2.52	21.6	43	24	19										
	2	1.65-2.80	Clayey silt	MH			100	87	85	75	65	2.67	30.6	64	37	27	21.7	1.64	1.1 x 10					
TS 10																								
	1	0.90-1.10	Clayey sand	SC			100	97	94	60	45	2.59	25.4	60	28	32	17.1	1.77	2.3 x 10	2.79	0.22	2.4	0.97	
TS10-2					100	96	94	61	45	2.59	24.9	59	28	31										
	2	1.68-2.03	Siltstone	(Retrieved sample can not be tested as soil material)																				
	1	1.00	Silty sand	SM				100	94	87	36	2.64	23.1	----	NP	----	11.2	1.93	----	----	----	----	----	
TA 1 : TA1-2												2.64												
	1	1.00-1.10	Sandy silt	ML				100	99	67	2.53	38.7	42	31	11	21.6	1.54	----	1.98	----	----	----	
TA 3 : TA3-2											2.53													
	1	0.90-1.10	Sandy silt	ML				100	91	2.73	32.4	58	39	19	29.9	1.44	----	2.39	----	----	----	
TA 5 : TA5-2											2.73													
	1	2.00-5.00	Silty sand	SM				100	88	19	2.80	10.2	----	NP	----	12.4	1.99	----	----	----	----	----	
TA 6 : TA6-1											2.80													
	1	0.00-0.84	Silty sand	SM				100	98	41	2.72	31.8	----	NP	----	22.3	1.63	----	----	----	----	----	
TA 7 : TA7-1											2.71													

Note: Sieve sizes converted to millimeter, 3/4" = 19.05 mm, 1/2 " = 12.7 mm, 3/8" = 9.595 mm, #4 = 4.75 mm, #10 = 2.0 mm, #40 = 0.0425, #200 = 0.075

TABLE 4.2 (1/2) RESULTS OF AGGREGATE TESTS (CONSTRUCTION MATERIAL)

LOCATION (TEST PIT NO.)	DEPTH m.	SOIL DESCRIPTION	UNIFIED SOIL CLASSIFICATION	SAMPLE: TYPE	SIEVE ANALYSIS % PASSING COARSE AGGREGATES 2-1/2"	2"	1-1/2"	1"	3/4"	1/2"	3/8"	FINE AGGREGATES #4	#8	#16	#30	#50	#100	#200	BULK SPECIFIC GRAVITY (DRY)	BULK SPECIFIC GRAVITY (SSD)	APPARENT SPECIFIC GRAVITY	ABSORPTION %	SOUNDNESS	ORGANIC IMPURITIES
TA 1	TA1-1	0.00-2.10	Sandy gravel (Brown to grayish brown)	CP	FINE							5	4	2	2	1	0	0	2.56	2.67	2.88	4.3	5.0	Nil
					COARSE	100	96	83	83	60	32	17							2.75	2.79	2.86	1.4	4.7	
	TA1-2	5.00	Poorly graded sand (Brownish gray)	SP	FINE							5	4	2	1	1	0	0	2.60	2.69	2.87	3.7	6.1	Substantial
					COARSE	100	93	61	61	43	22	13							2.69	2.75	2.86	2.2	2.4	
TA 2	TA2-1	0.30-1.30	Poorly graded sand with silt (Brown to grayish brown)	SP-SM	FINE							4	4	3	2	0	0	0	2.47	2.58	2.78	4.4	7.7	Nil
					COARSE		100	88	78	73	44	30							2.75	2.78	2.84	1.2	8.5	
	TA2-2	0.33-1.00	Poorly graded sand (Gray)	SP	FINE							4	4	3	3	1	0	0	2.61	2.68	2.81	2.7	7.3	Substantial
					COARSE		100	88	77	66	54	35							2.70	2.75	2.84	1.9	7.8	
TA 3	TA3-1	1.00-1.50	Poorly graded sand with silt (Brown to grayish brown)	SP-SM	FINE							7	5	4	3	2	0	0	2.43	2.52	2.67	3.7	6.8	Substantial
					COARSE		100	92	83	72	44								2.69	2.73	2.81	1.6	9.7	
	TA3-2		Tested as soil samples																					
TA 4	TA4-1	2.00-3.00	Silty sand (Grayish brown)	SM	FINE										100	88	63	12	2.57	2.65	2.79	3.1	2.4	Substantial
					COARSE																			
	TA4-2	1.70-3.68	Poorly graded sand (Gray to light gray)	SP	FINE									100	98	84	52	13	2.60	2.69	2.86	3.5	3.9	Nil
					COARSE																			
TA 5	TA5-1	1.00-2.00	Poorly graded sand (Light gray)	SP	FINE								100	89	76	28	10	4	2.40	2.48	2.61	3.3	7.7	Nil
					COARSE																			
	TA5-2		Tested as soil samples																					

Note: Sieve sizes converted to millimeter, 3/4"= 19.05 mm, 1/2"=12.7 mm, 3/8" = 9.595 mm, #4= 4.75 mm, #10=2.0 mm, #40= 0.0425, #200= 0.075

TABLE 4.2 (2/2) RESULTS OF AGGREGATE TESTS (CONSTRUCTION MATERIAL)

LOCATION (TEST PIT NO.)	DEPTH M.	SOIL DESCRIPTION	UNIFIED SOIL CLASSIFICATION	SAMPLE TYPE	SIEVE ANALYSIS % PASSING: COARSE AGGREGATES 2-1/2"	2"	1-1/2"	1"	3/4"	1/2"	3/8"	FINE AGGREGATES #4	#8	#16	#30	#50	#100	#200	BULK SPECIFIC GRAVITY (D&Y)	BULK SPECIFIC GRAVITY (SSD)	APPARENT SPECIFIC GRAVITY	ABSORPTION %	SOUNDNESS	ORGANIC IMPURITIES
	TA6-1	Tested as soil samples																						
TA 6																								
	TA6-2	1.50-3.00 Silty sand (Light gray)	SM	FINE / COARSE								100	99	95	80	25	10	2.60	2.66	2.75	2.1	4.0		
	TA7-1	Tested as soil samples																						
TA 7																								
	TA7-2	0.80-1.80 Sandy gravel (Dark gray)	GP	FINE / COARSE		100	93	89	85	76	62	4	4	3	2	1	1	0	2.45 2.61	2.58 2.68	2.84 2.81	5.2 2.8	6.1 8.0		
	TA8-1	0.70-3.60 Poorly graded sand with silt (Gray)	SP-SM	FINE / COARSE							100	98	97	95	91	87	22	9	2.39	2.52	2.74	5.3	6.8	
TA 8																								
	TA8-2	0.00-1.50 Silty sand (Light gray)	SM	FINE / COARSE				100	89	64	41	8	7	5	2	2	1	0	2.53 2.73	2.62 2.79	2.78 2.89	3.6 2.0	5.2 4.9		
	TA9-1	0.00-2.00 Poorly graded sand (Gray)	SP	FINE / COARSE											100	92	87	10	2.43	2.54	2.72	4.3	0.7	Substantial
TA 9																								
	TA9-2	0.00-1.00 Poorly graded sand with silt (Brown to gray)	SP	FINE / COARSE							100	99	87	80	64	55	42	10	2.67	2.79	2.87	4.7	3.3	Substantial
	TA10-1	1.00-1.50 Poorly graded sand with silt (Brown)	SP-SM	FINE / COARSE					100	80		24	23	20	18	17	7	2	2.33 2.65	2.38 2.71	2.47 2.83	2.5 2.5	5.3 4.1	Nil
TA 10																								
	TA10-2	1.00-1.20 Poorly graded sand (Gray)	SP	FINE / COARSE				100	90	75		18	15	14	12	11	4	3	2.59 2.77	2.67 2.81	2.81 2.88	3.1 1.3	4.6 5.5	Substantial	

Note: Sieve sizes converted to millimeter, 3/4" = 19.05 mm, 1/2" = 12.7 mm, 3/8" = 9.595 mm, #4 = 4.75 mm, #10=2.0 mm, #40= 0.0425, #200 = 0.075

Table 4.3 EVALUATION OF DIKE MATERIALS

Test Pit No.	Item	Grain Size	Coefficient of Permeability	Plasticity Index	NMC OMC	Organic Material	Soil Mechanical Assessment	Remarks
TS 1	TS1-1	B	A	A	B	B	A	
	TS1-2	B	A	C	C	B		
TS 2	TS2-1	B	C	B	C	B	B	
	TS2-2	B	A	B	B	A		
TS 3	TS3-1	C	A	C	D	B	D (C)	. Trafficability problem . Be careful for Moisture Content
	TS3-2	C	C	D	C	B		
TS 4	TS4-1	C	C	D	C	C	C	. Be careful for Moisture Content
	TS4-2	B	C	C	C	C		
TS 5	TS5-1	C	C	C	D (C)	B	D (C)	. Trafficability problem . Be careful for Moisture Content
	TS5-2	C	A	B	D	B		
TS 6	TS6-1	C	C	C	D (C)	B	C	. Be careful for Moisture Content
	TS6-2	B	C	C	D (C)	B		
TS 7	TS7-1	C	C	D	C	B	C	. Be careful for Moisture Content
	TS7-2	C	B	C	C	B		
TS 8	TS8-1	B	C	C	C	B	B	. Soil of TS8-2 Area; Excellent
	TS8-2	A	A	B	B	A		
TS 9	TS9-1	B	B	C	B	B	A	
	TS9-2	A	A	B	B	B		
TS10	TS10-1	C	A	B	B	B	A	
	TS10-2	A	A	B	C	B		

A: Excellent B: Good C: Available D: Not Good

Table 4.4 EVALUATION OF AGGREGATES

Test Pit No.		Item	Specific Gravity	Absorbtion	Soundness	Organic Impurity	Soil Mechanical Assessment		Remarks
TA 1	TA1-1	Fine	A	D	A	A	Fine	C	. Aggregate should be washed
		Coarse	A	A	A			C	
	TA1-2	Fine	A	D	A	C	Coarse	B	
		Coarse	A	B	A				
TA 2	TA2-1	Fine	A	D	B	A	Fine	C	. Aggregate should be washed
		Coarse	A	A	B			C	
	TA2-2	Fine	A	B	B	C	Coarse	B	
		Coarse	A	A	B				
TA 3	TA3-1	Fine	B	D	B	C	Fine	D	. TA3-2: Soil
		Coarse	A	A	B			D	
	TA3-2	---	---	---	---	---	Coarse	D	
TA 4	TA4-1	Fine	A	C	A	C	Fine	C	. Aggregate should be washed
	TA4-2	Fine	A	D	A	A			
TA 5	TA5-1	Fine	D	D	B	A	Fine	D	. TA5-2: Soil
	TA5-2	---	---	---	---	---			
TA 6	TA6-1	---	---	---	---	---	Fine	D	. TA6-1: Soil
	TA6-2	Fine	A	B	A	C			
TA 7	TA7-1	---	---	---	---	---	Fine	C	. TA7-1: Gravel below soil
	TA7-2	Fine	A	D	B	A		B	
		coarse	A	B	B		Coarse	A	
TA 8	TA8-1	Fine	B	D	B	C	Fine	D	
	TA8-2	Fine	A	D	B	D		D	
		Coarse	A	A	A		Coarse	D	
TA 9	TA9-1	Fine	B	D	A	C	Fine	C	. Aggregate should be washed
	TA9-2	Fine	A	D	A	C			
TA10	TA10-1	Fine	D	B	B	A	Fine	C	. Aggregate should be washed
		Coarse	A	B	A			B	
	TA10-2	Fine	A	C	A	C	Coarse	A	
		Coarse	A	A	A				

A: Excellent B: Good C: Available D: Not Good

Table 4.5 CHARACTERISTICS OF SELECTED DIKE MATERIAL

Selected Site No.	Soil Mechanical Assessment(1)	Proposed Area (km)	Excavate Depth (m)	Potential Quantity (x10 m)	Remarks
TS 1	A	0.55	2.0	1.1	. Residual soil of Terrus . More available area . Problem of land use (cultivate land & - residence)
TS 2	B	1.5	2.0	3.0	. Residual soil of hilly area . Problem of land use
TS 4	C	0.50	2.0	1.0	. Alluvial deposit of swamp . Along Flood way channel
TS 8	B	2.50	1.0	2.5	. Alluvial deposit of plain . Land use (Rice field)
TS 9	A	1.20	2.5	3.0	. Residual soil of undulating to hilly area . Problem of land use (cultivate land)
TS10	A	1.50	1.2	1.8	. Thin residual soil of hilly area . Problem of land use
(Total)	-	-	-	12.4 (x10 m)	-

(1) A: Excellent B: Good C: Available

Table 4.6 CHARACTERISTICS OF SELECTED CONCRETE AGGREGATE

Selected Site No.	Soil Mechanical Assessment (1)	Proposed Area (km)	Excavate Depth (m)	Source	Potential Quantity		Remarks
					% of Volume	Volume (m) (x10 m)	
TA 1	C	0.40	2.0	Fine	5%	0.04	. River bank of Upper Agno River
				Coarse	70%	0.5	. Land use (Rice Field)
TA 2	C	0.50	1.0	Fine	5%	0.02	. River bed of Upper Agno River
				Coarse	70%	0.3	
TA 4	C	0.70	2.0	Fine	50%	0.7	. River bank of Middle Agno R. (Carmen Br.)
TA 7	B	1.10	1.5	Fine	5%	0.08	. River bed of Bued R.
				Coarse	50%	0.8	. More available area
TA 9	C	0.15	2.0	Fine	80%	0.24	. River bed of Aloragat River
TA10	B	0.25	1.0	Fine	15%	0.03	. River bed of Aloragat River
				Coarse	60%	0.1	
(Total)				Fine		11.8	(x10 m)
				Coarse		1.7	(x10 m)

(1) A: Excellent B: Good C: Available

FIGURES

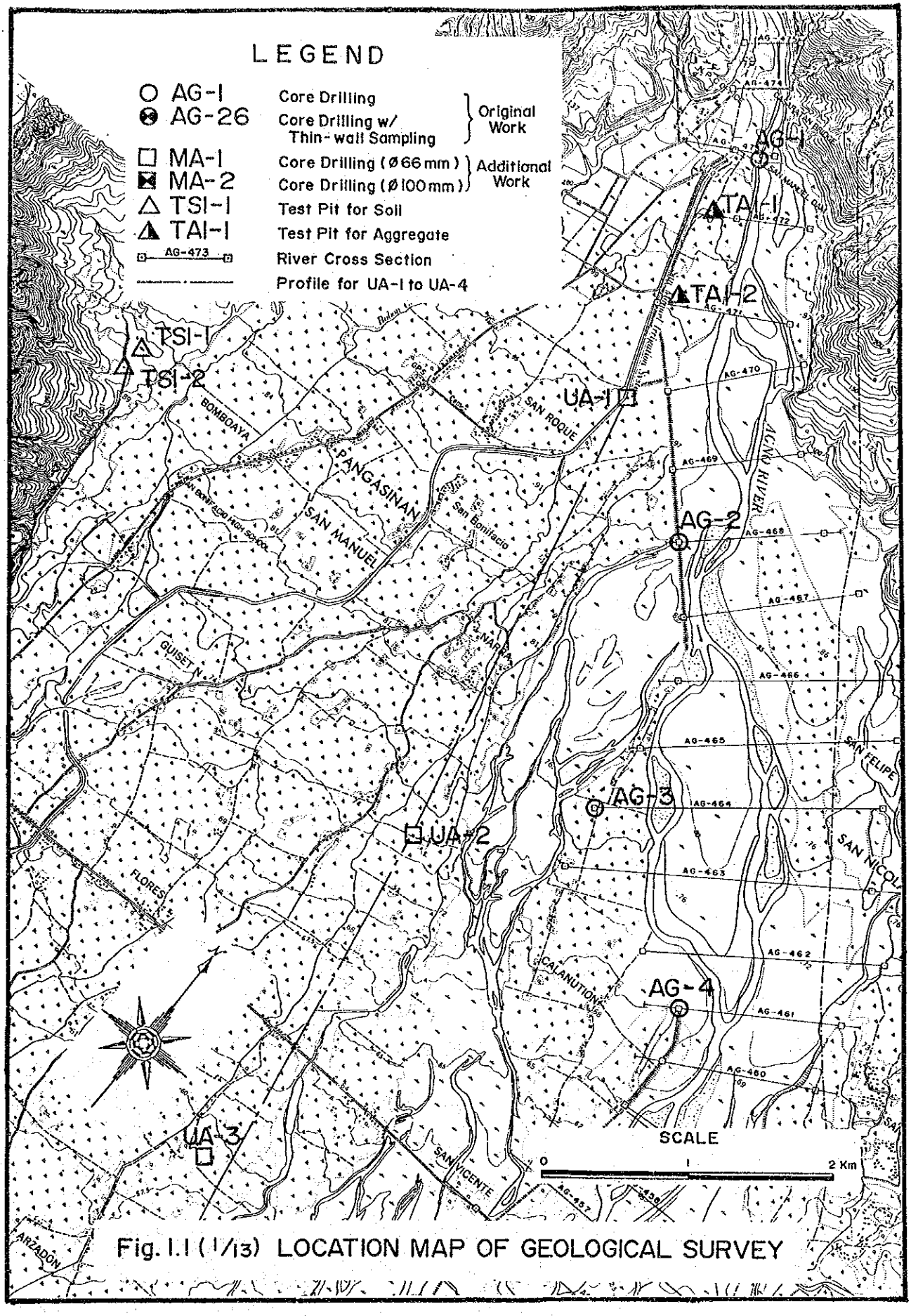


Fig. I.1 (1/13) LOCATION MAP OF GEOLOGICAL SURVEY

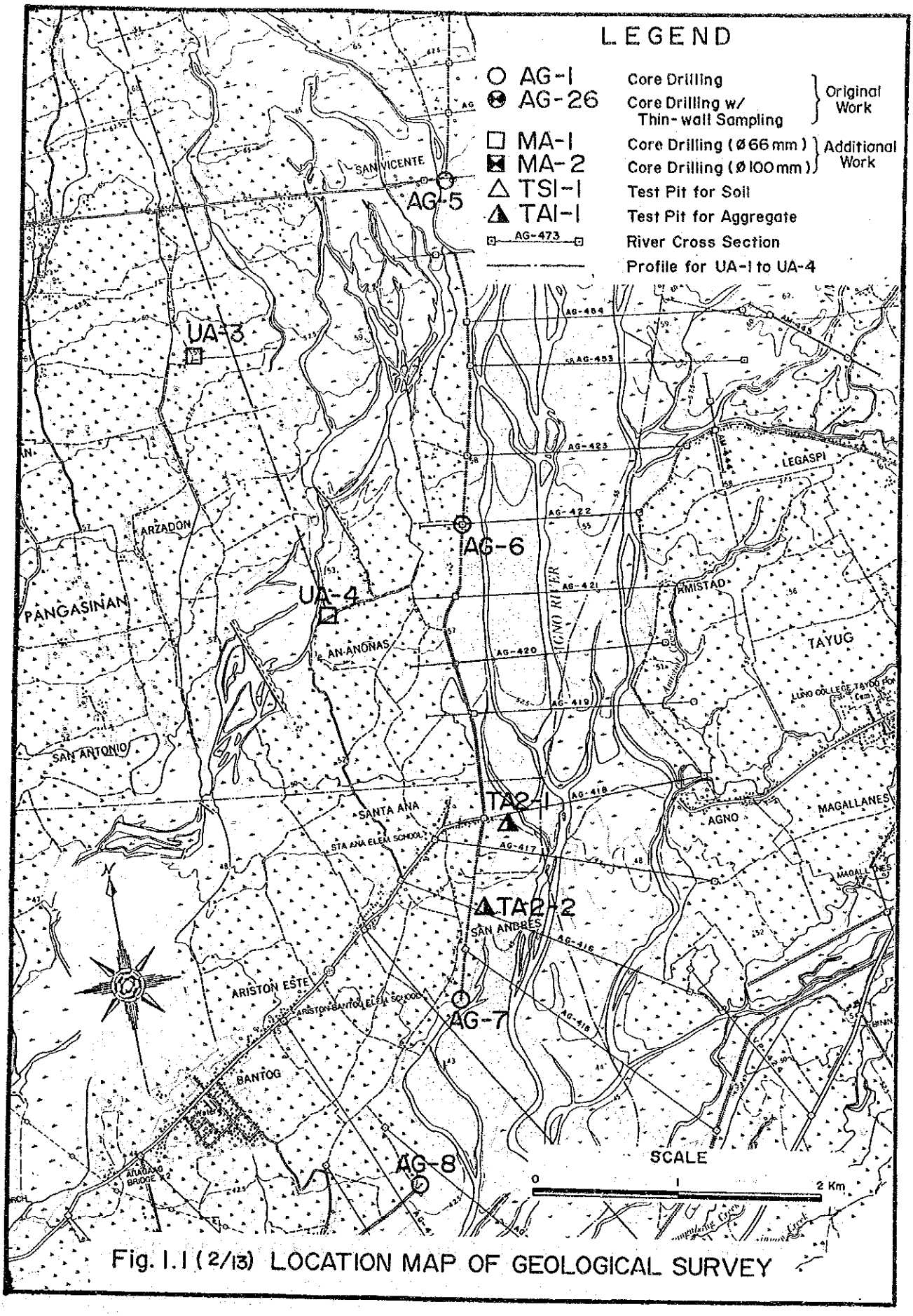


Fig. I.1 (2/13) LOCATION MAP OF GEOLOGICAL SURVEY

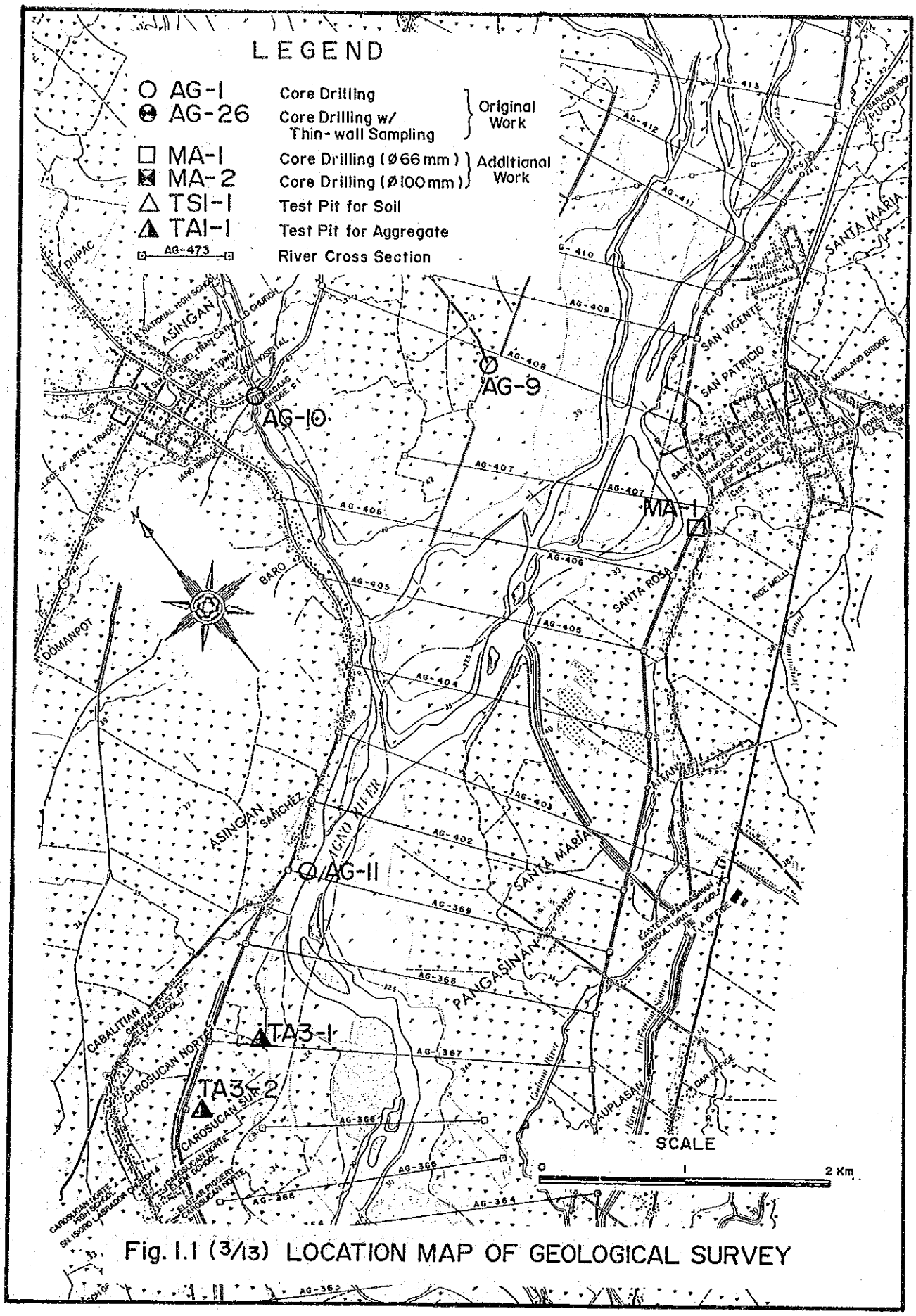


Fig. I.1 (3/13) LOCATION MAP OF GEOLOGICAL SURVEY

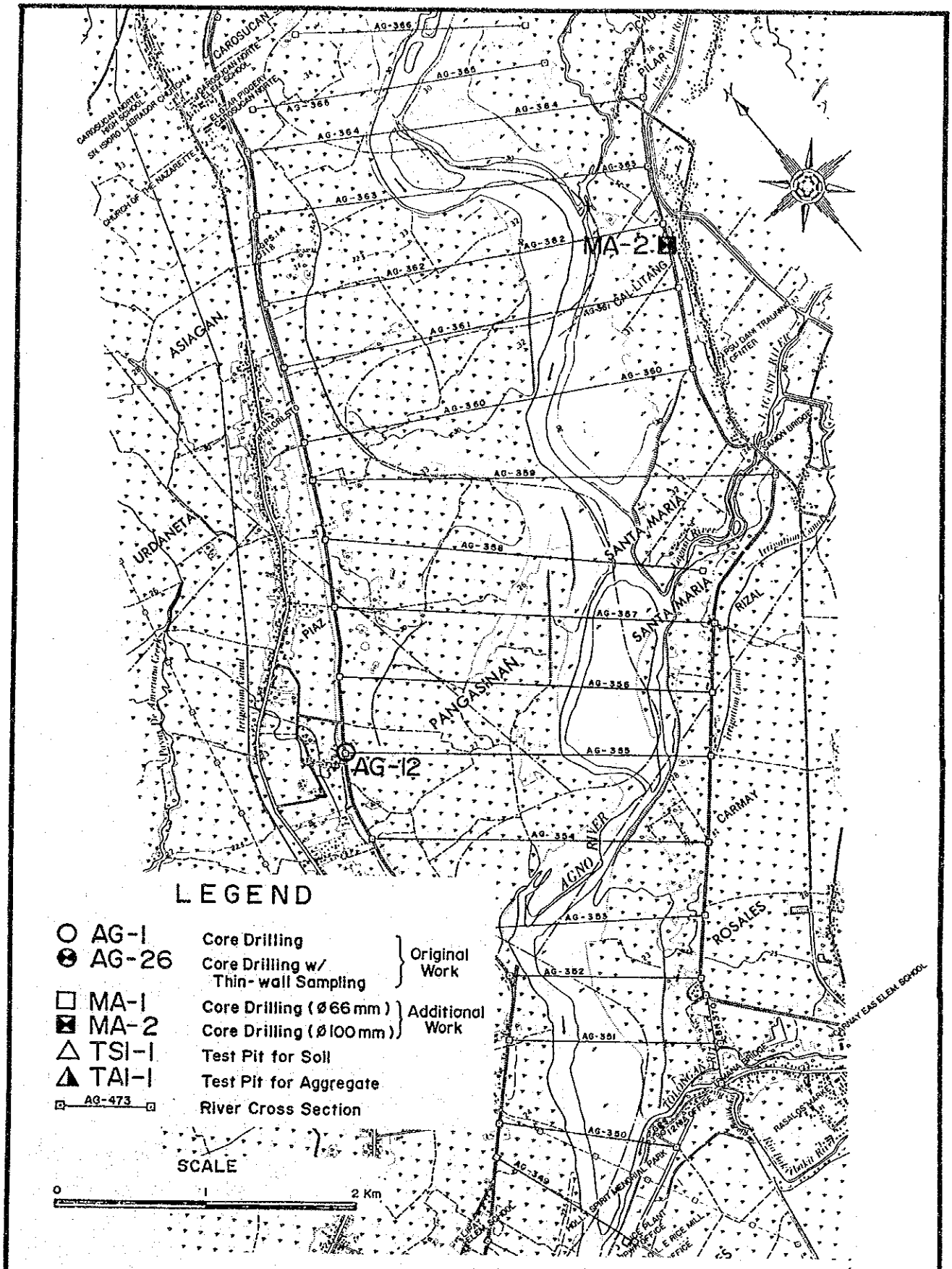


Fig. I.1 (4/13) LOCATION MAP OF GEOLOGICAL SURVEY

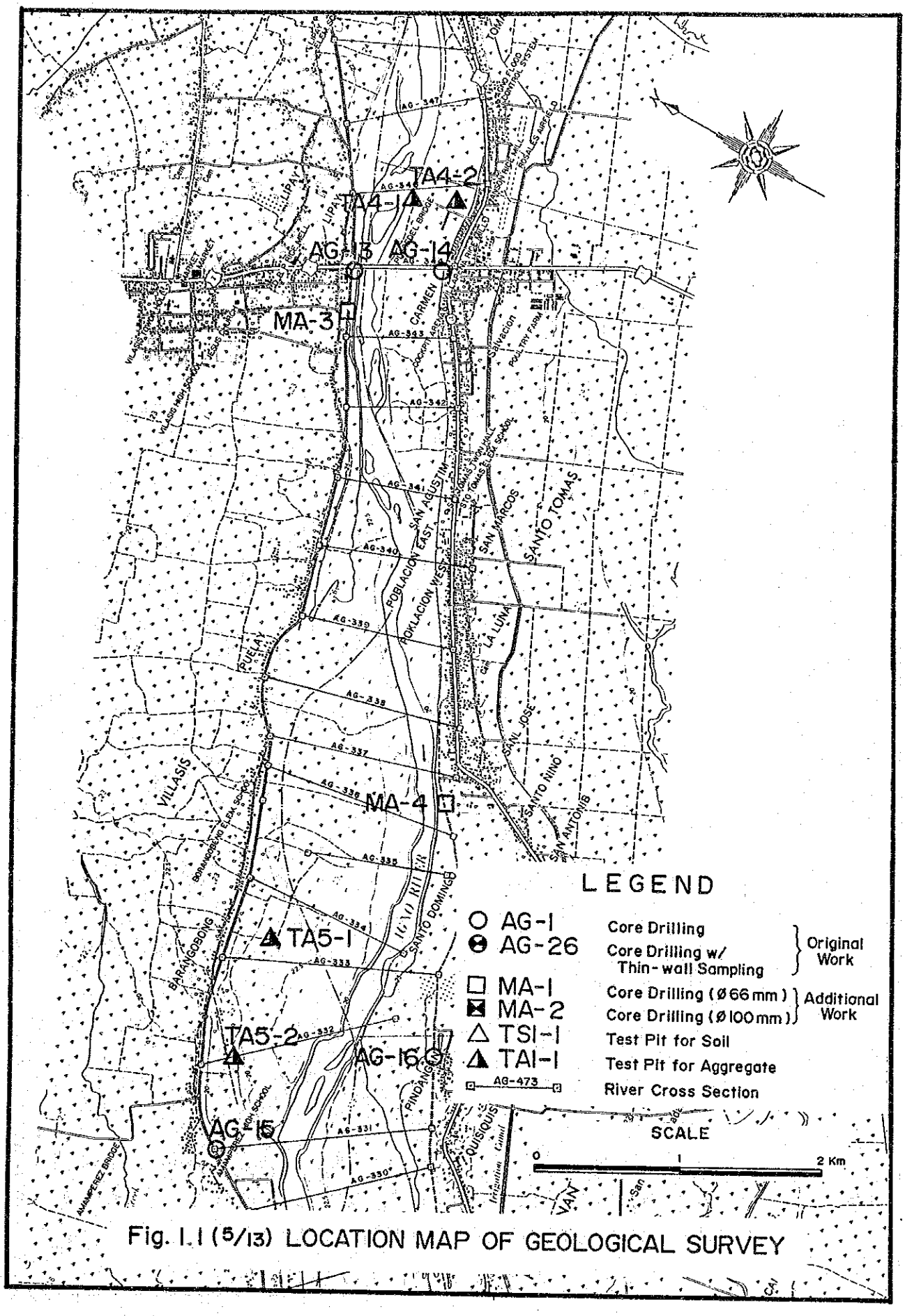


Fig. I.1 (5/13) LOCATION MAP OF GEOLOGICAL SURVEY

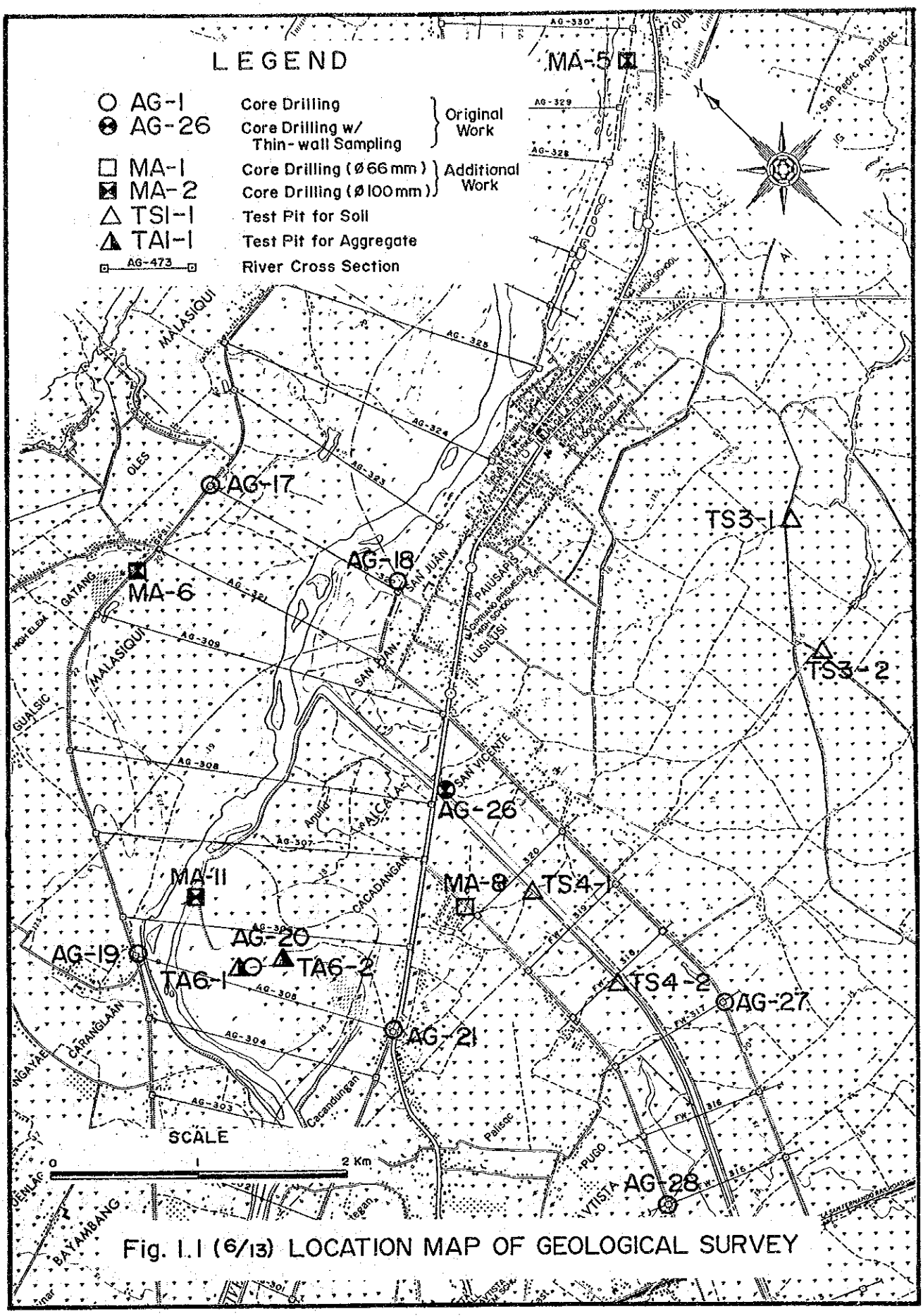


Fig. I.1 (6/13) LOCATION MAP OF GEOLOGICAL SURVEY

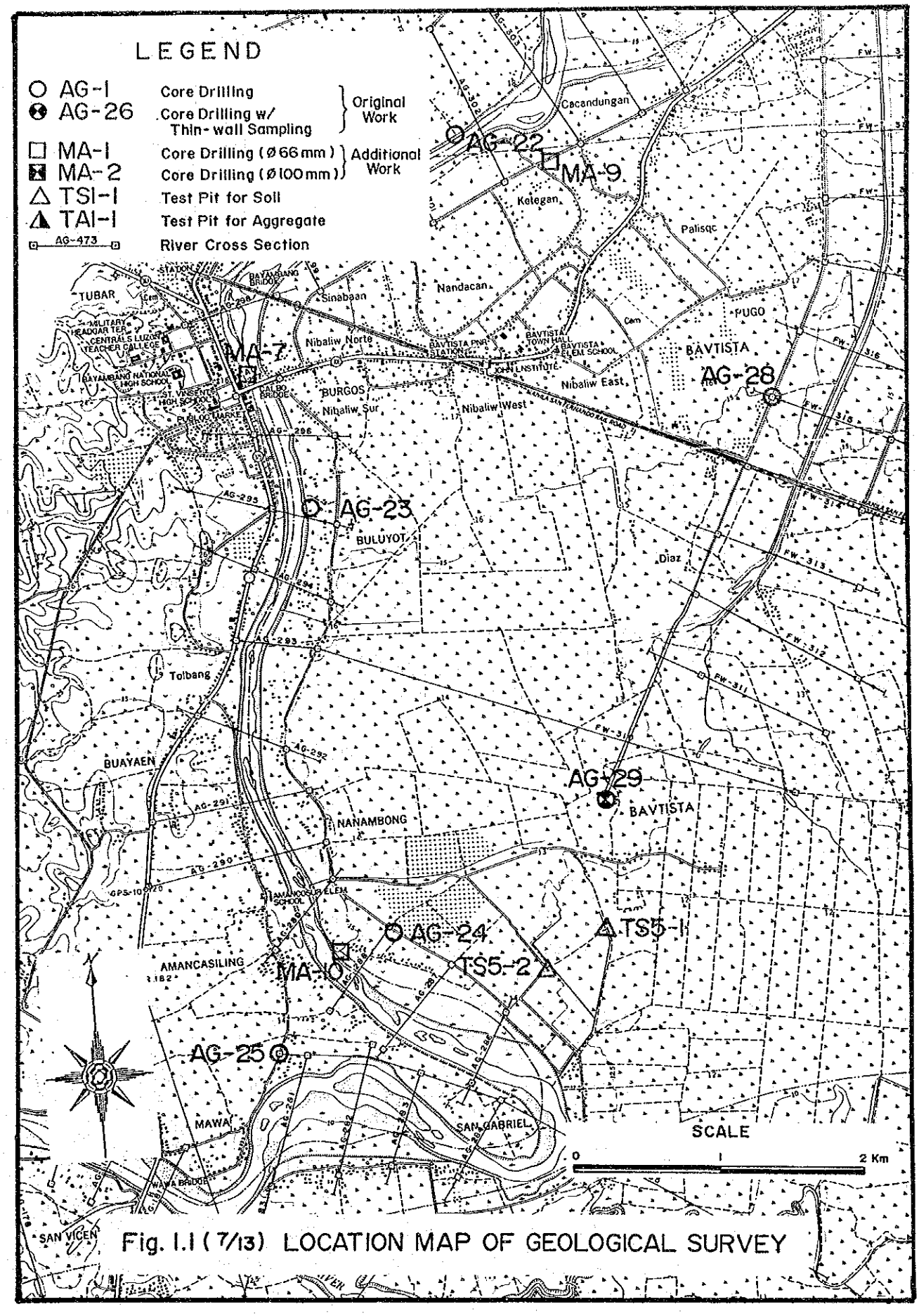


Fig. I.1 (7/13) LOCATION MAP OF GEOLOGICAL SURVEY

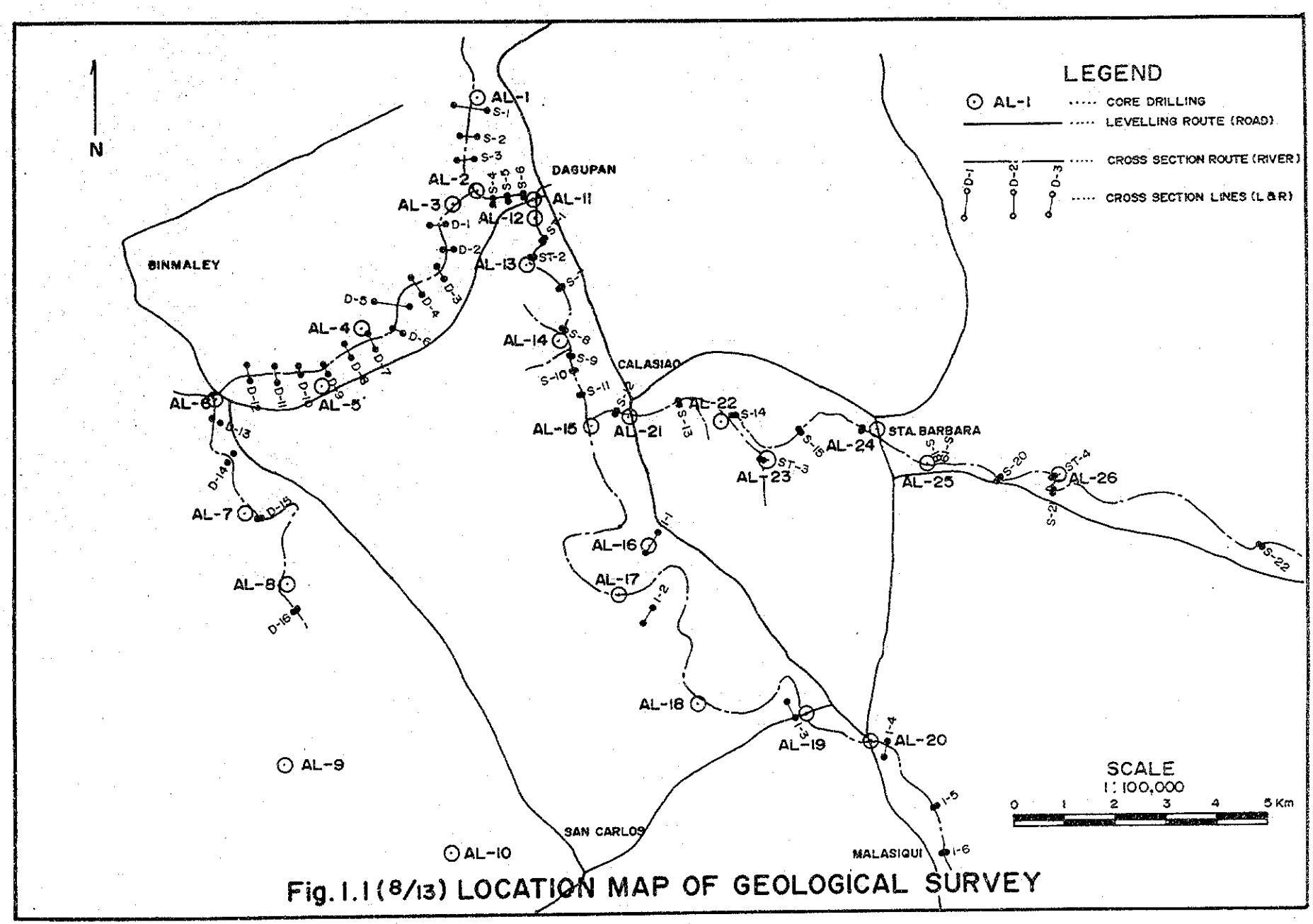


Fig. 1.1 (8/13) LOCATION MAP OF GEOLOGICAL SURVEY

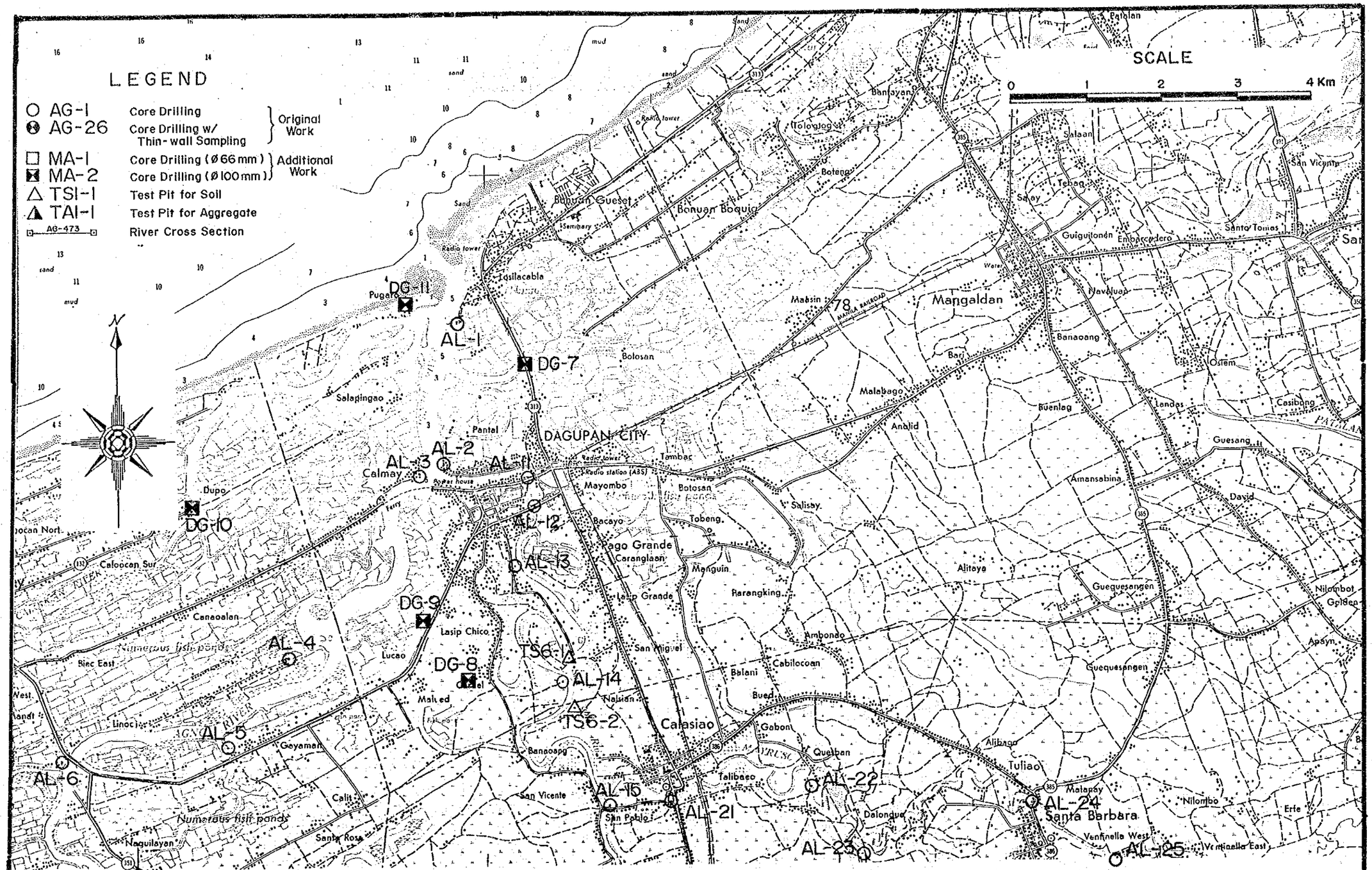


Fig.I.1 (9/13) LOCATION MAP OF GEOLOGICAL SURVEY

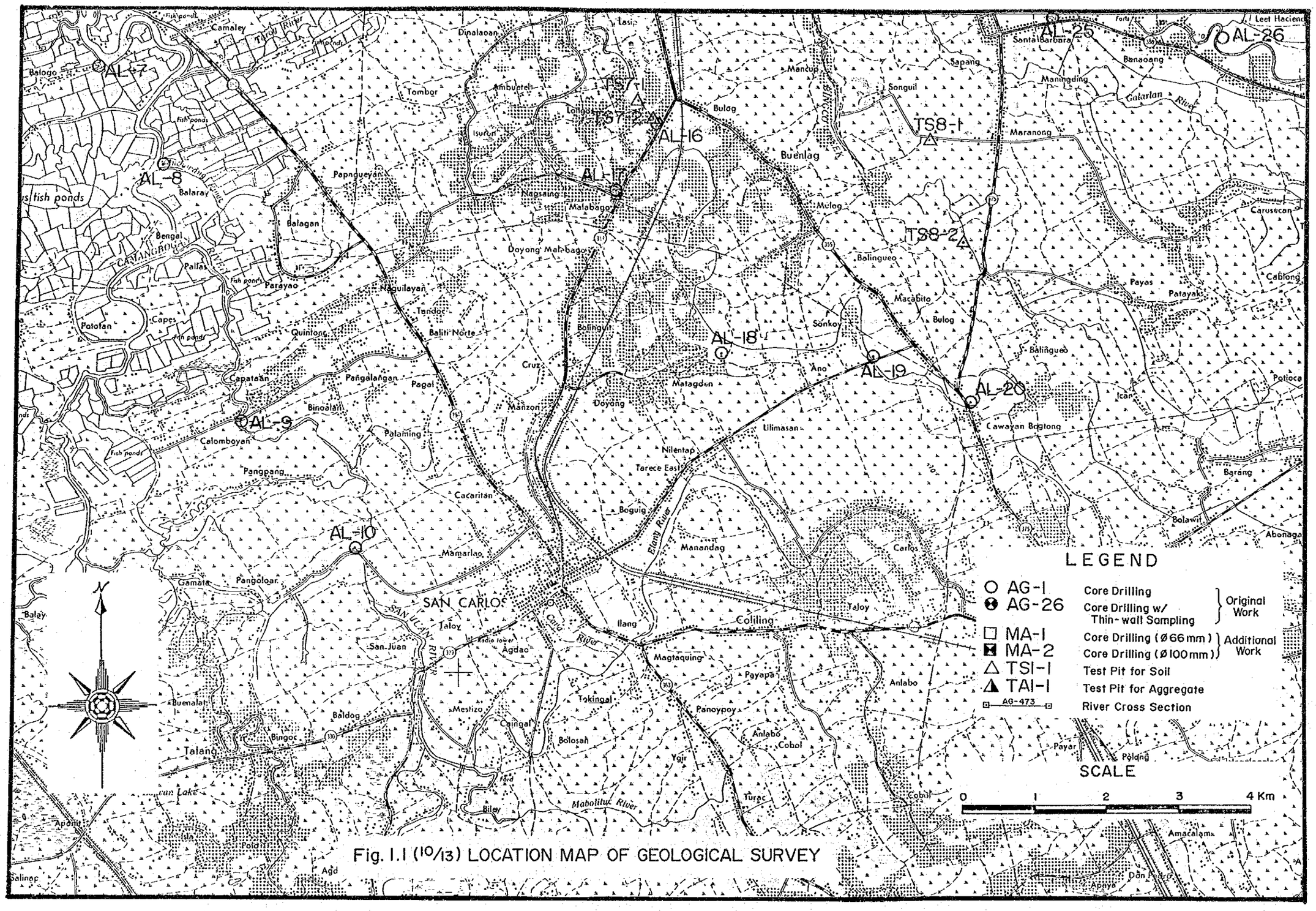


Fig. I.I (10/13) LOCATION MAP OF GEOLOGICAL SURVEY

Fig. I.1 (11/13) LOCATION MAP OF GEOLOGICAL SURVEY

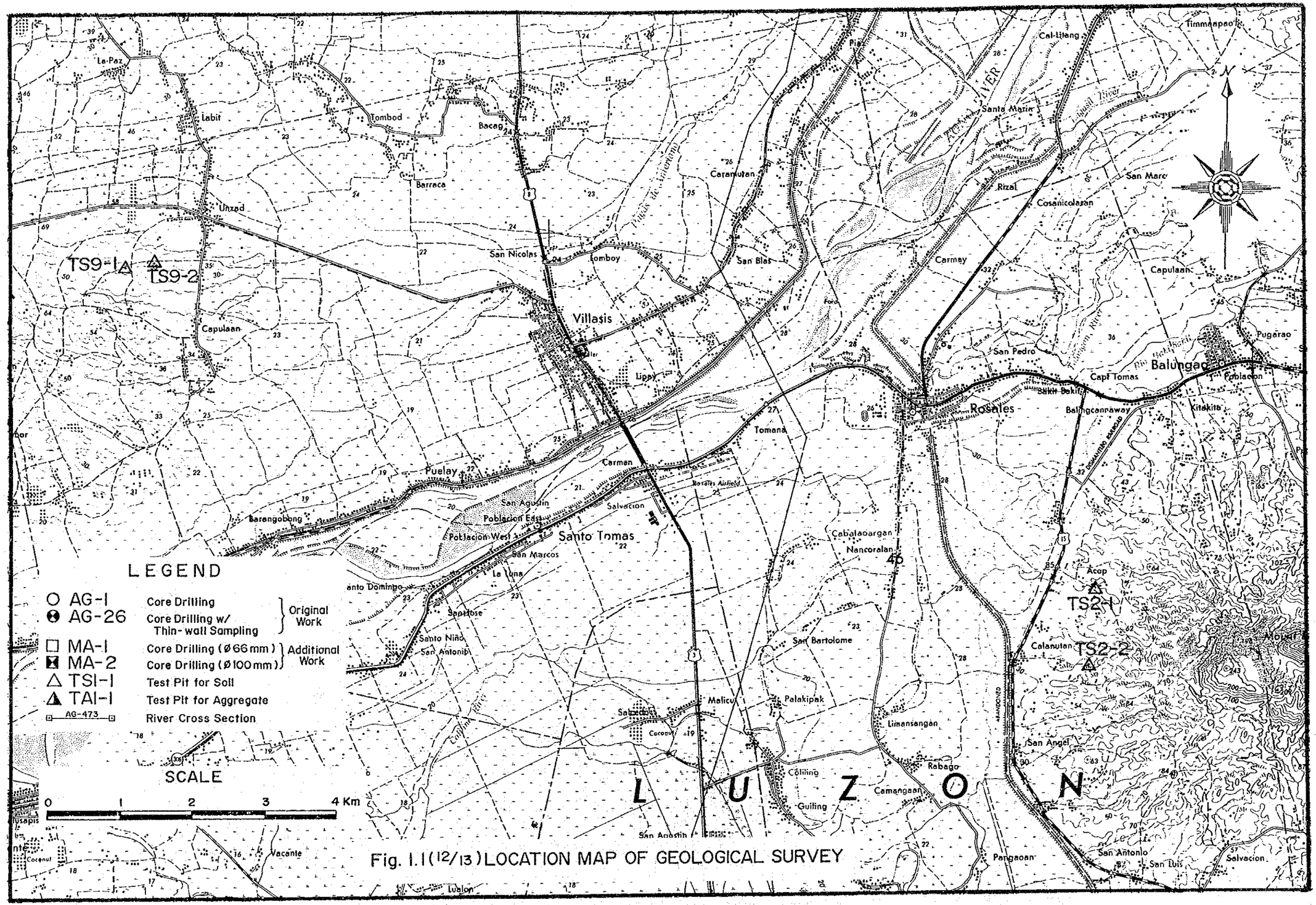


Fig. I.1(12/13) LOCATION MAP OF GEOLOGICAL SURVEY

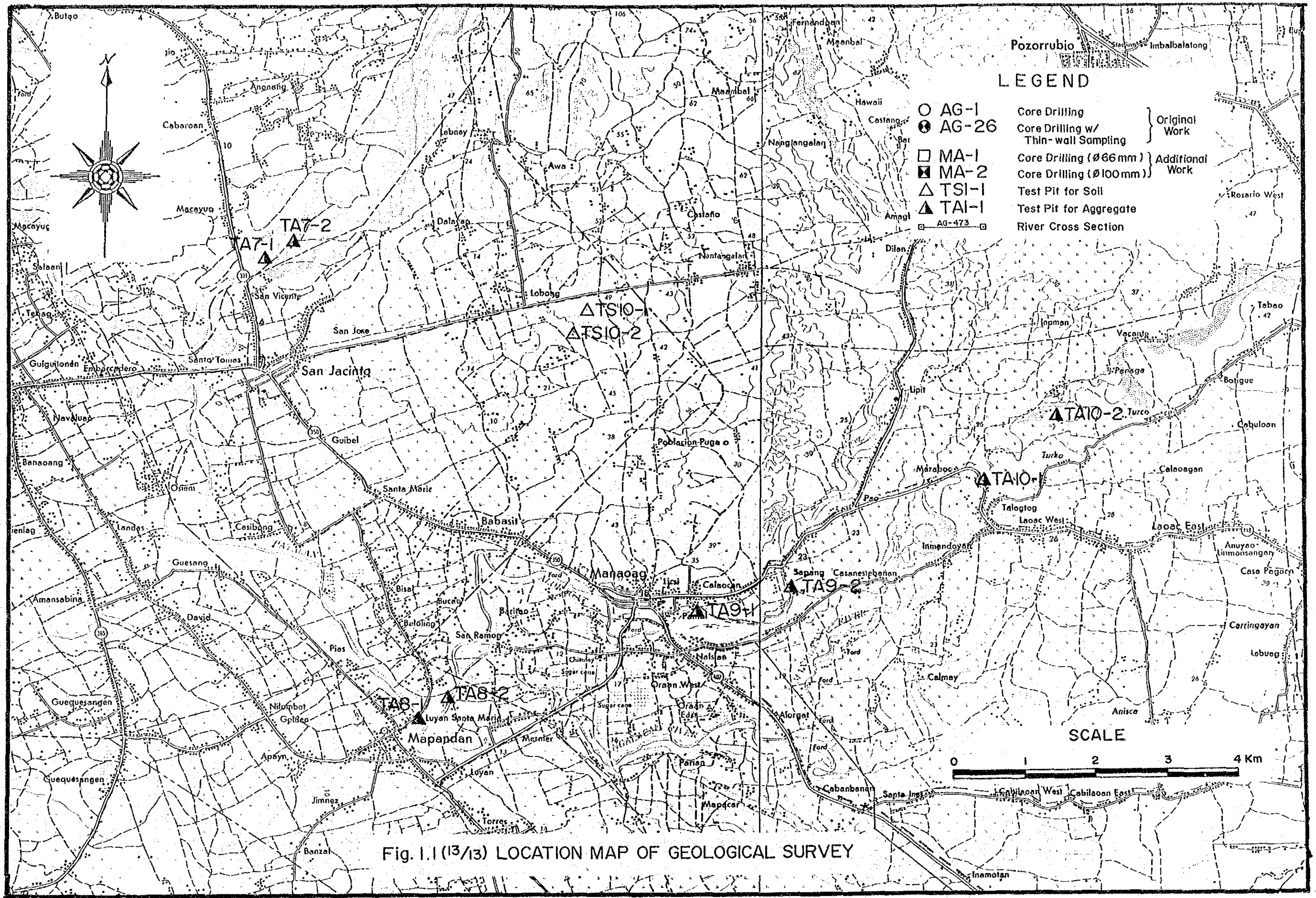
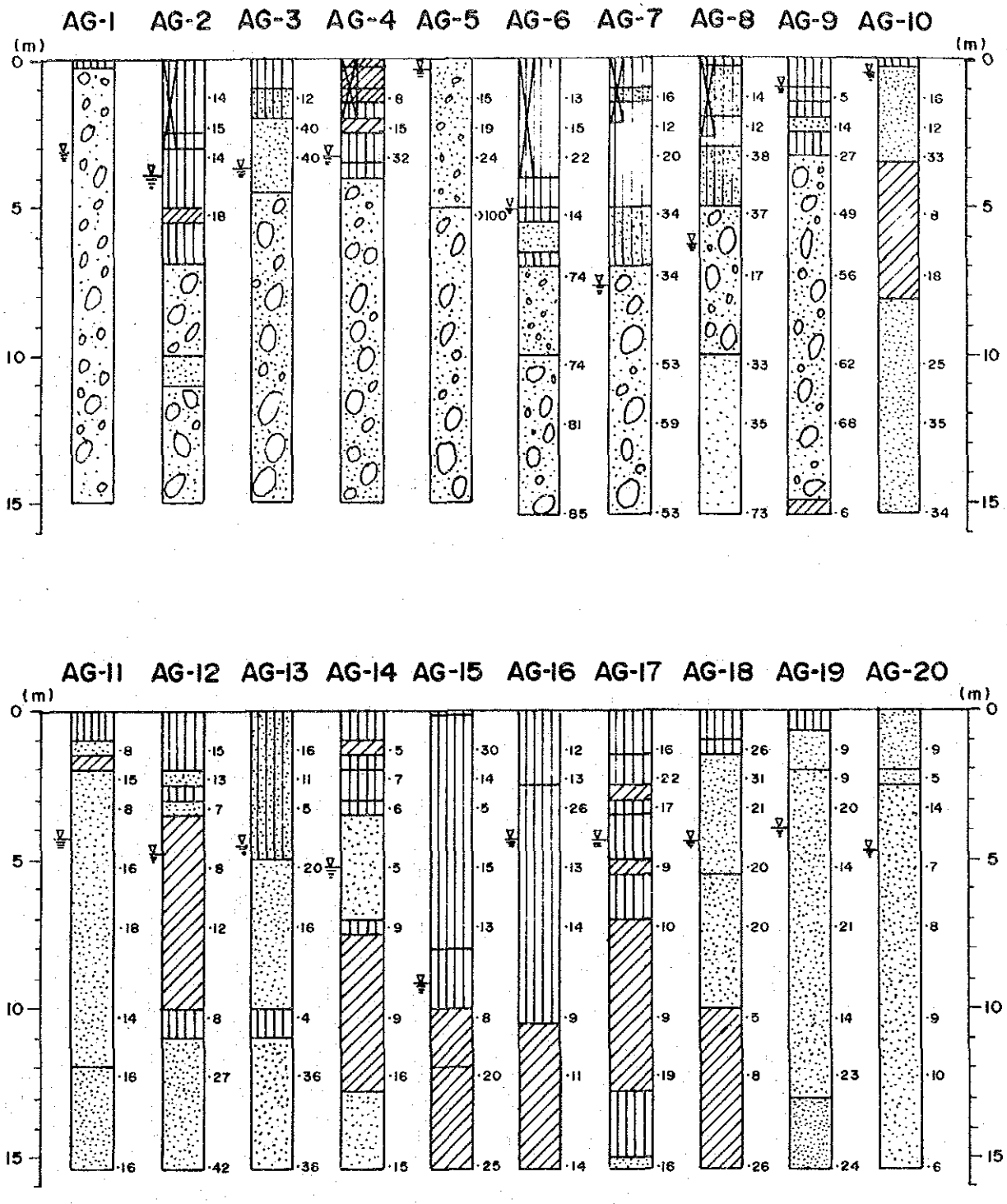


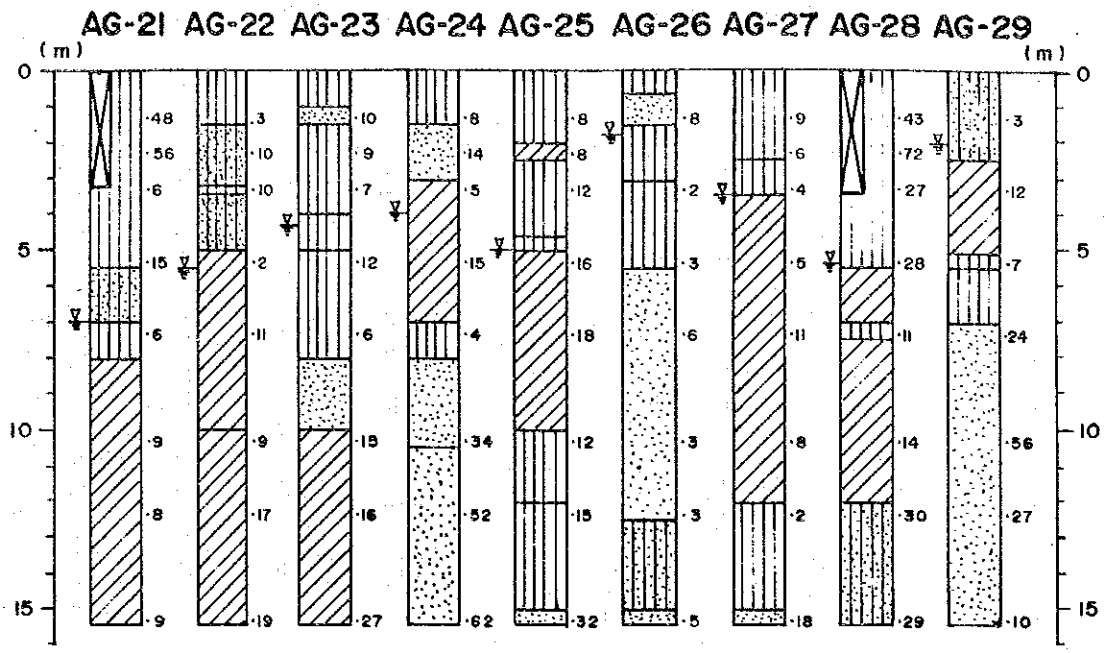
Fig. 1.1 (13/13) LOCATION MAP OF GEOLOGICAL SURVEY



NOTE:

LEGEND SHOWN Fig. 2.1 (2/4)

Fig. 2.1 (1/4) GEOLOGICAL LOG (AGNO RIVER)



LEGEND:

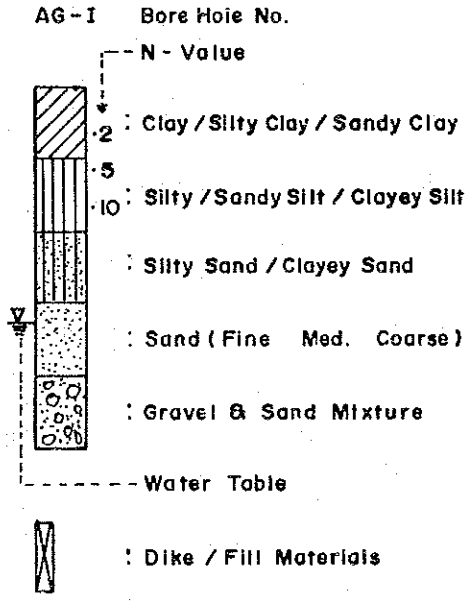
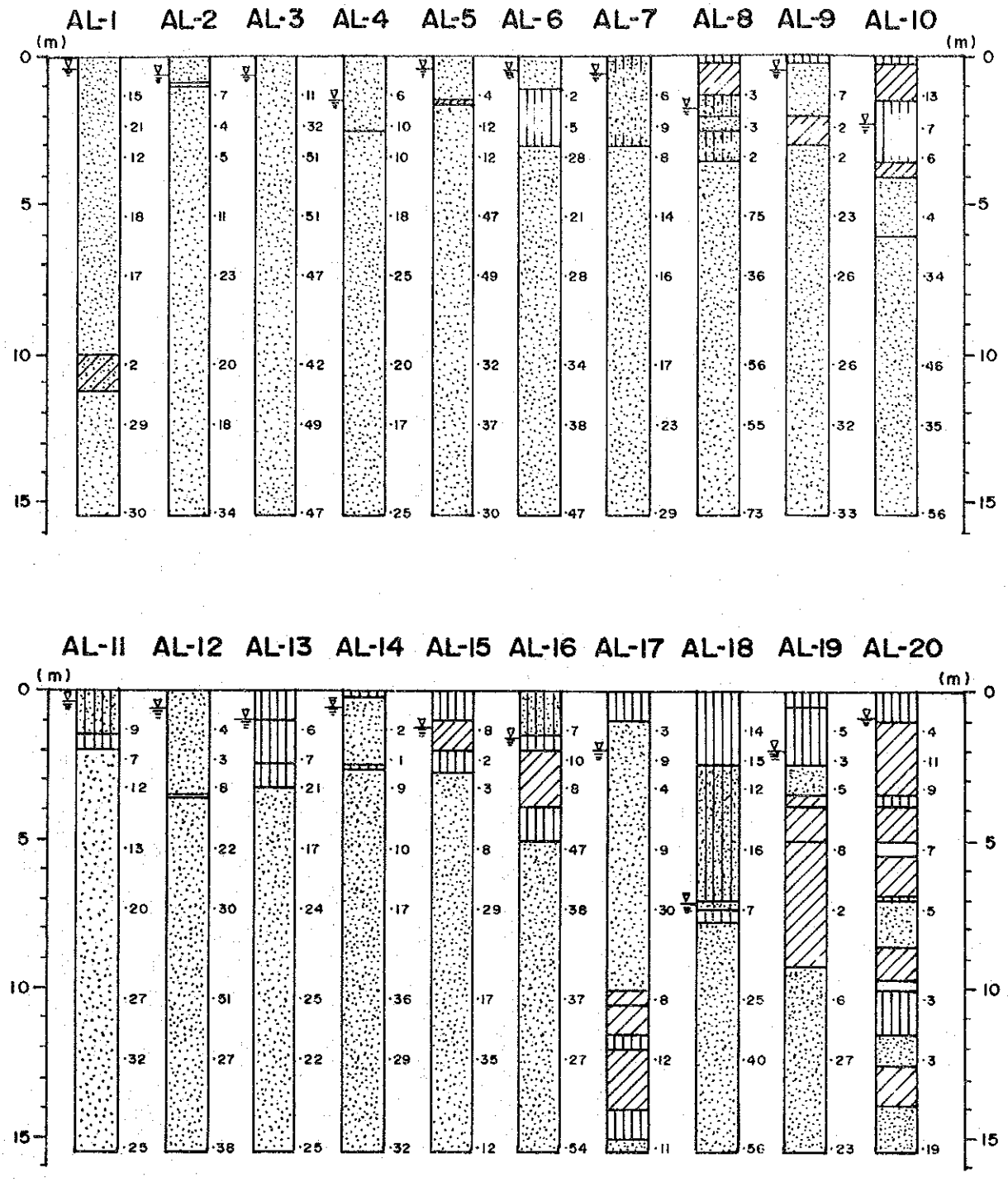
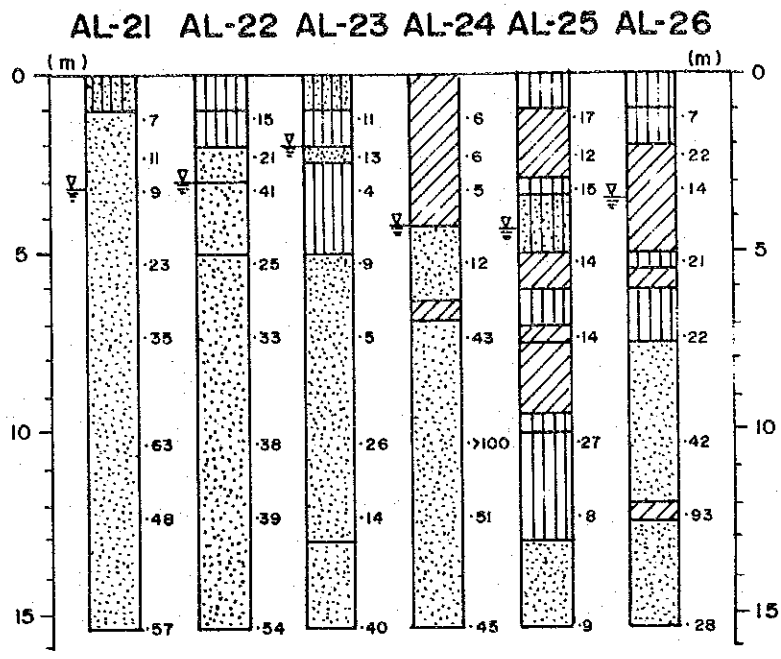


Fig. 2.1 (2/4) GEOLOGICAL LOG (AGNO RIVER)



NOTE:
LEGEND SHOWN Fig. 2.1 (4/4)

Fig. 2.1 (3/4) GEOLOGICAL LOG (ALLIED RIVER)



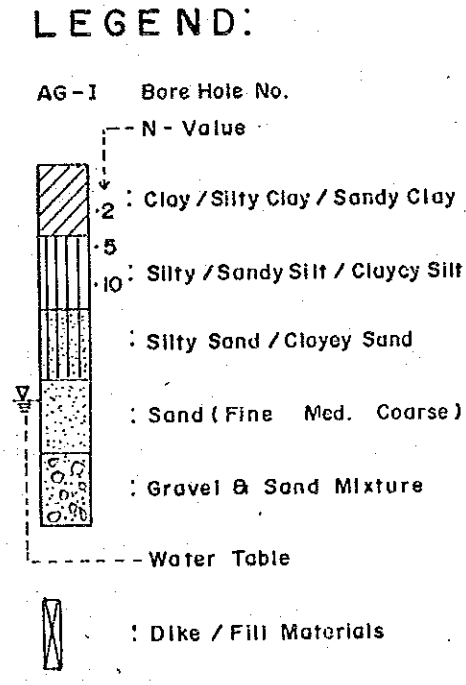
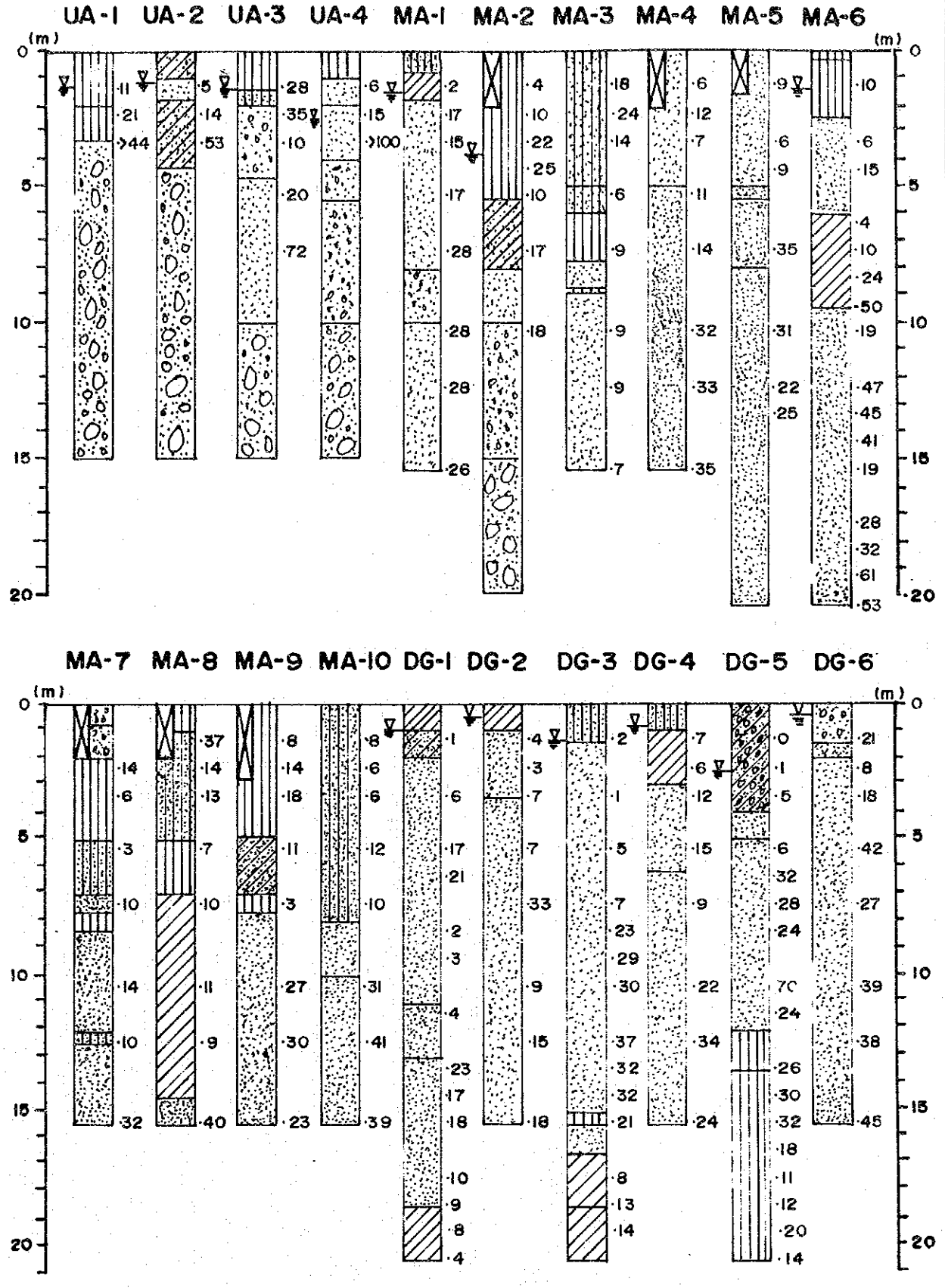
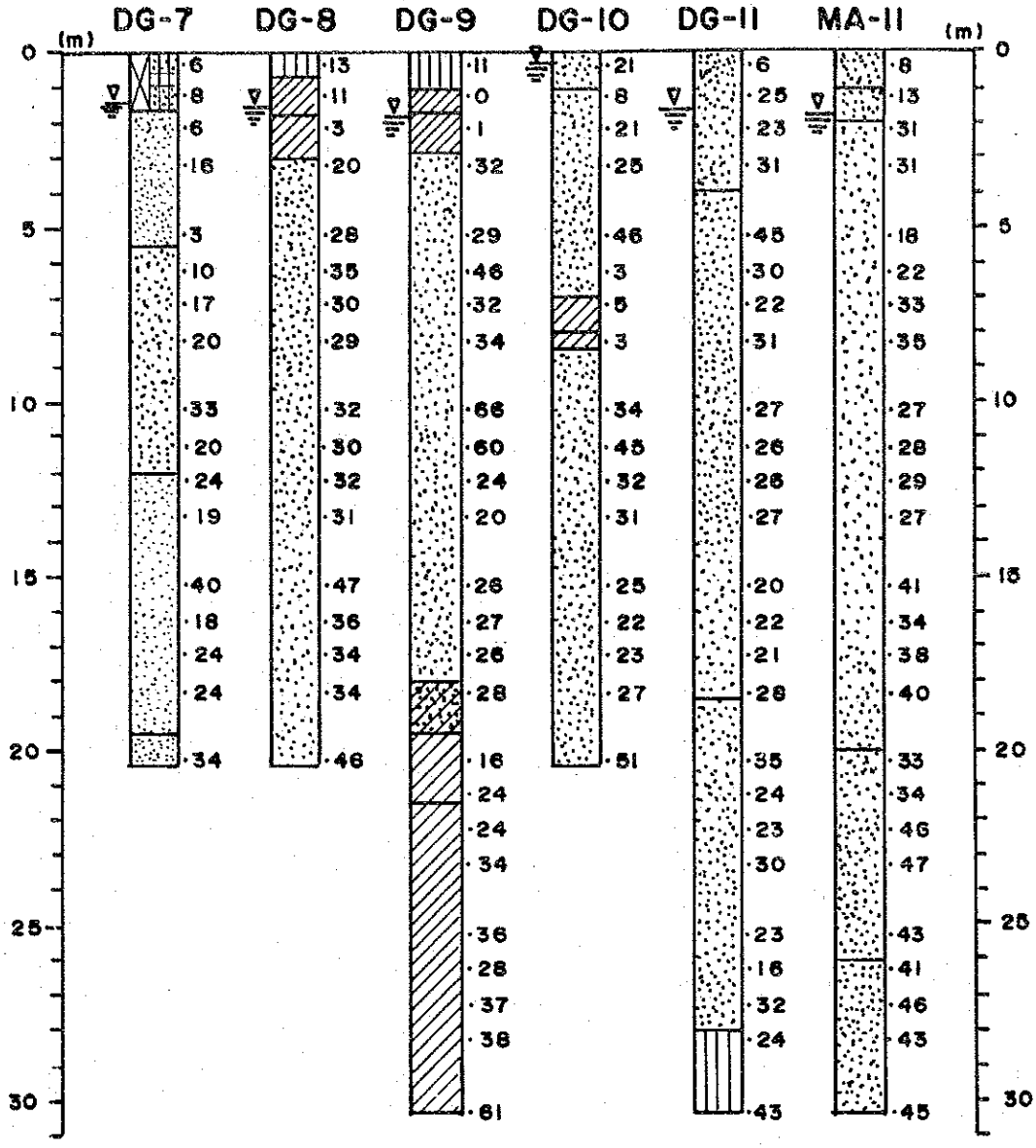


Fig. 2.1 (4/4) GEOLOGICAL LOG (ALLIED RIVER)



NOTE: LEGEND SHOWN Fig. 2.1 (4/4)

Fig. 2.2 (1/2) GEOLOGICAL LOG (ADDITIONAL 1)



NOTE:
LEGEND SHOWN Fig. 2.1 (4/4)

Fig. 2.2(2/2) GEOLOGICAL LOG (ADDITIONAL 2)

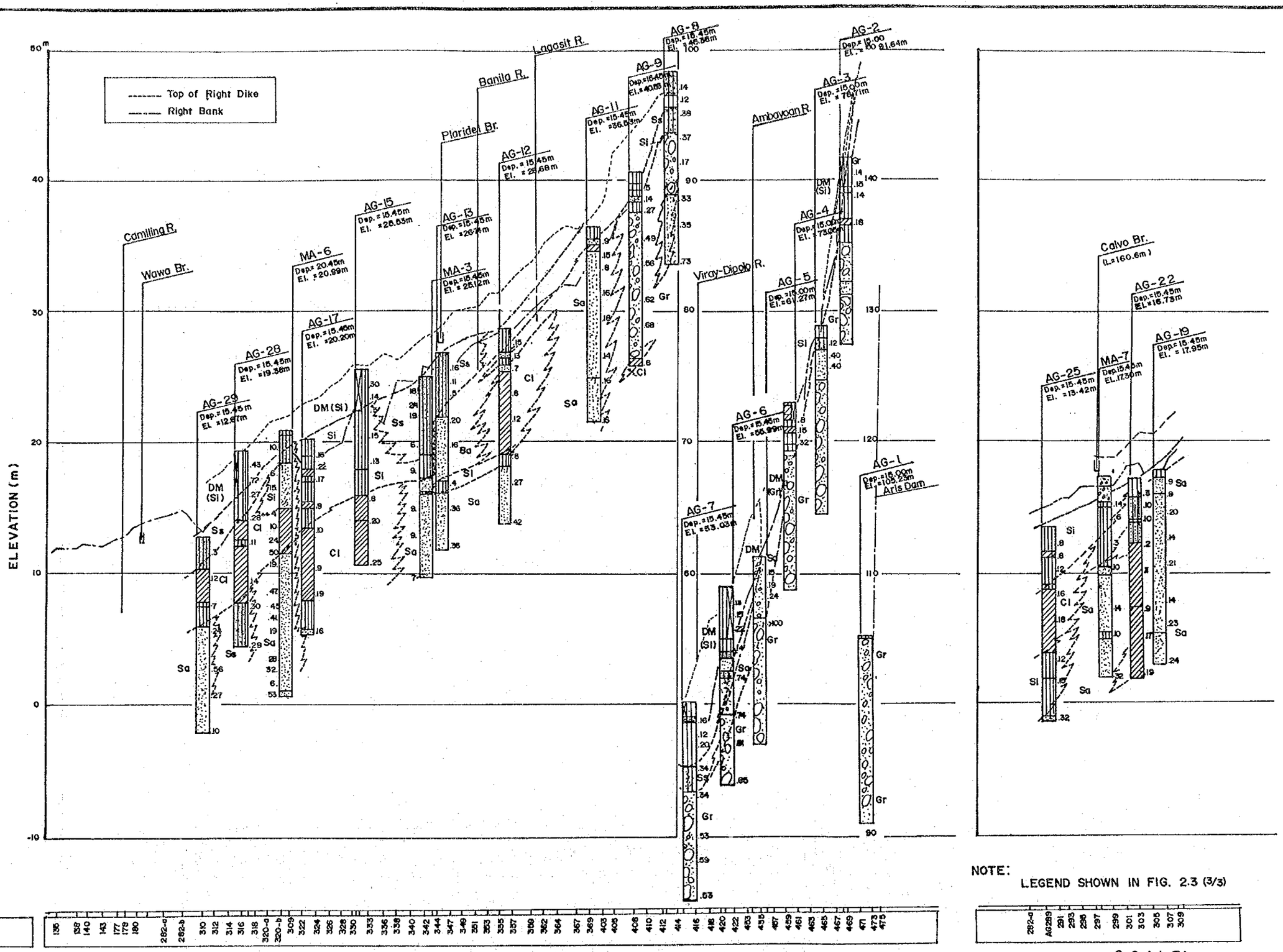
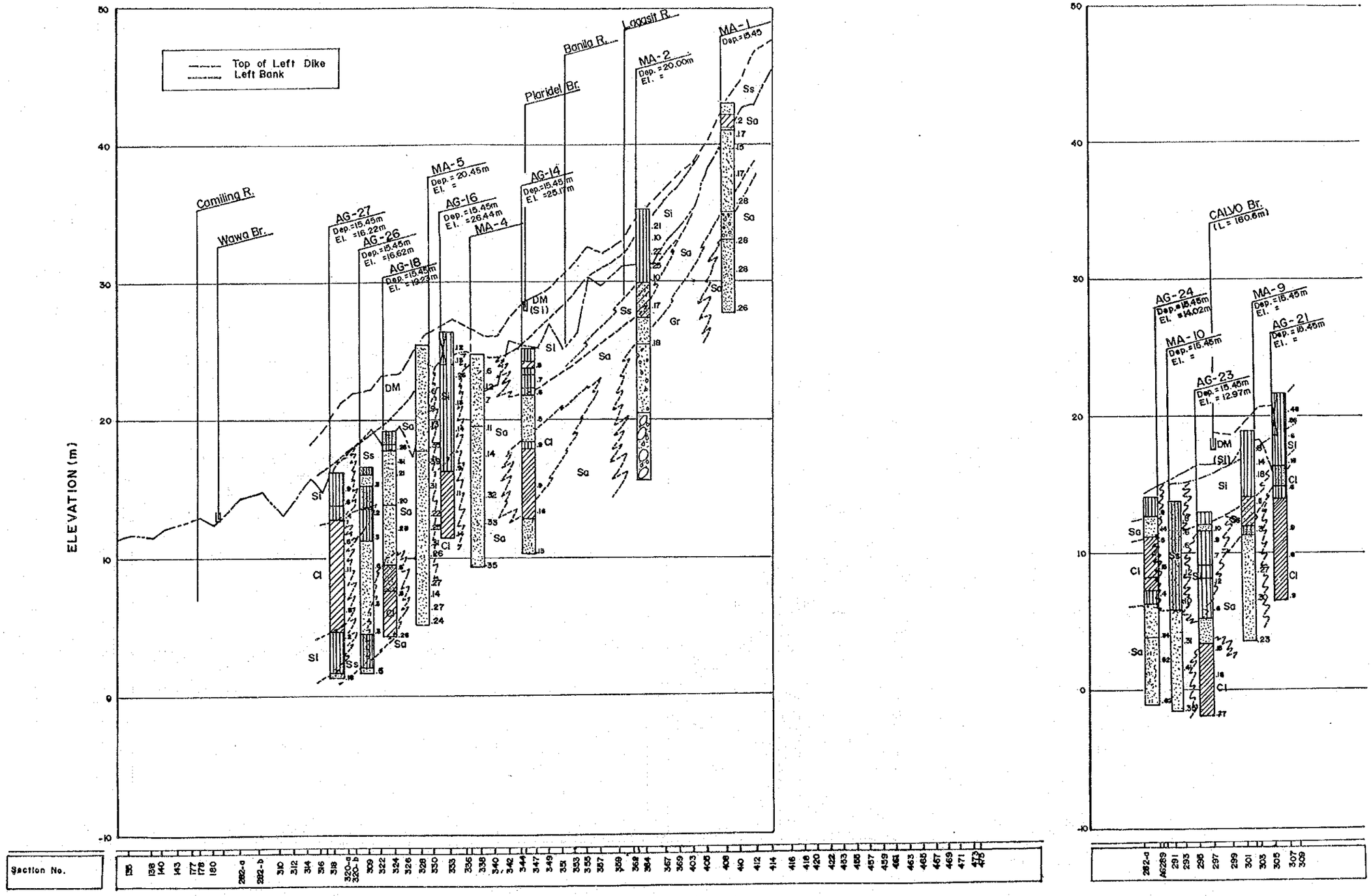


Fig. 2.3 (1/3) GEOLOGICAL PROFILE (AGNO RIVER, RIGHT BANK)



NOTE:
LEGEND SHOWN IN FIG. 2.3 (3/3)

Fig. 2.3 (2/3) GEOLOGICAL PROFILE (AGNO RIVER, LEFT BANK)

SCALE:
H: 0 1 5 10 15 km.
V: 0 1 5 10 15m.

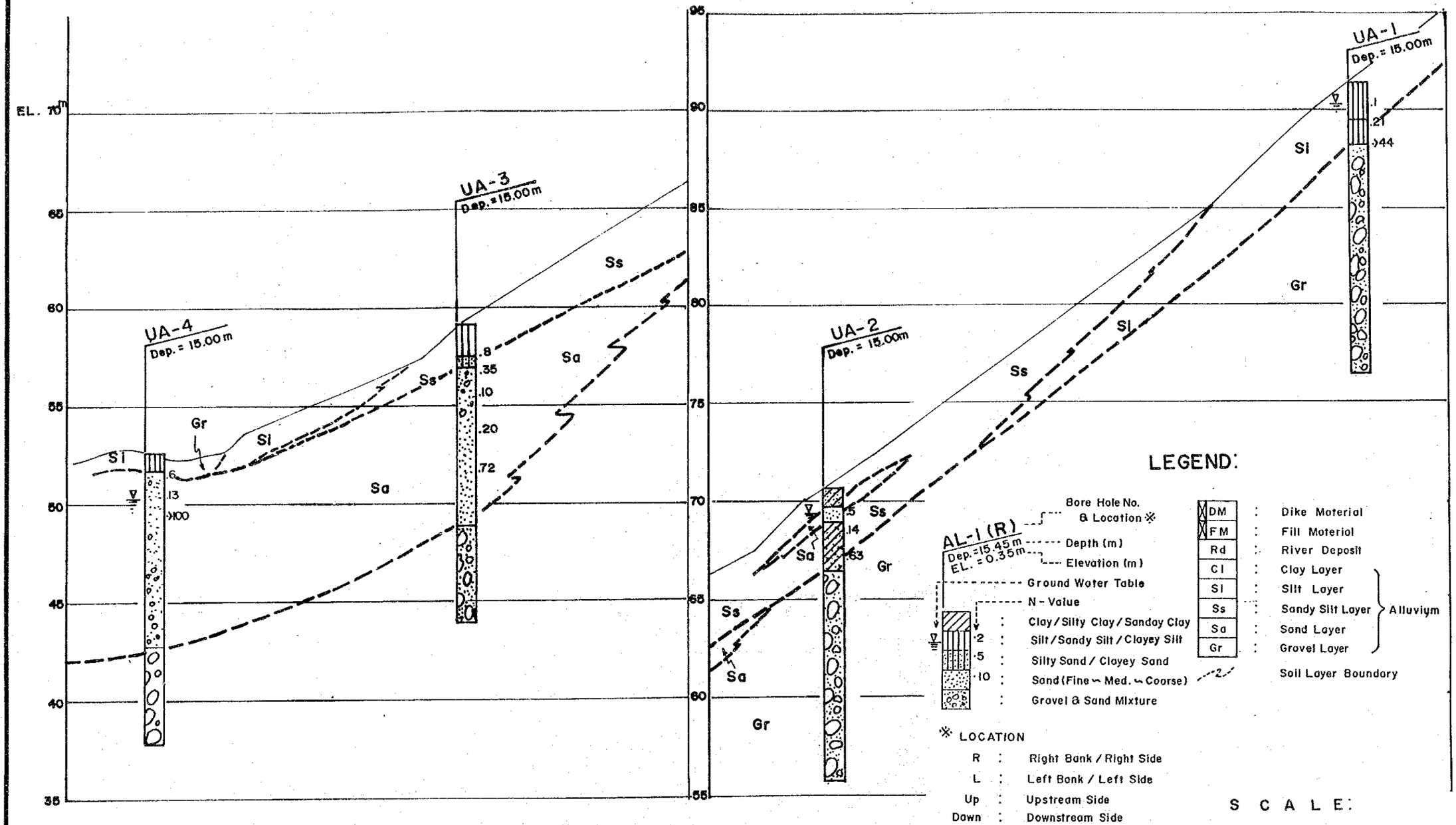
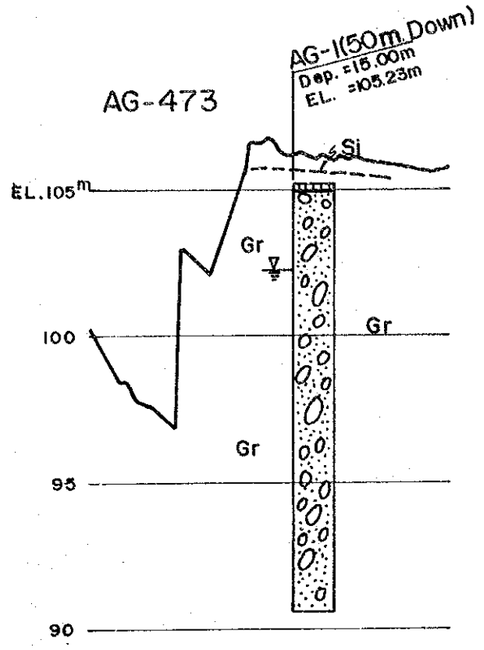
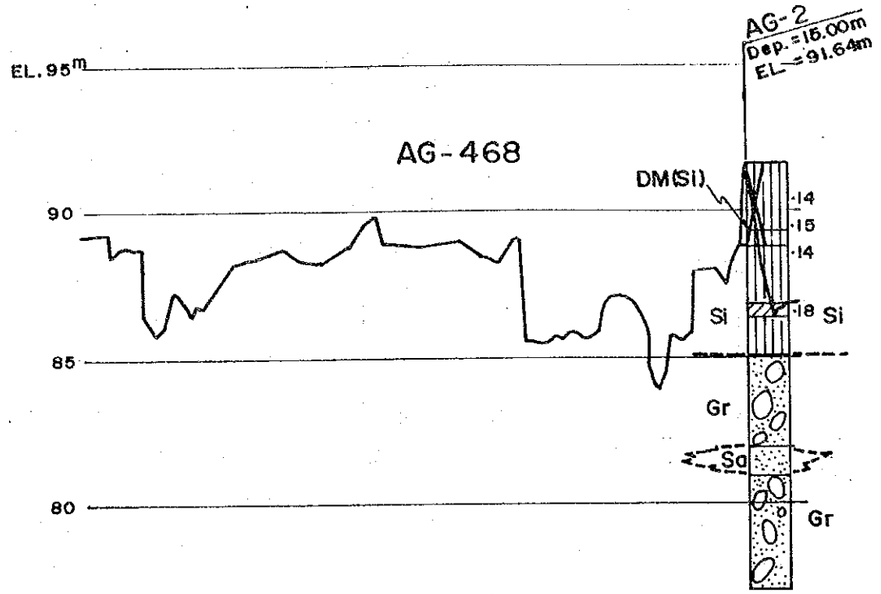
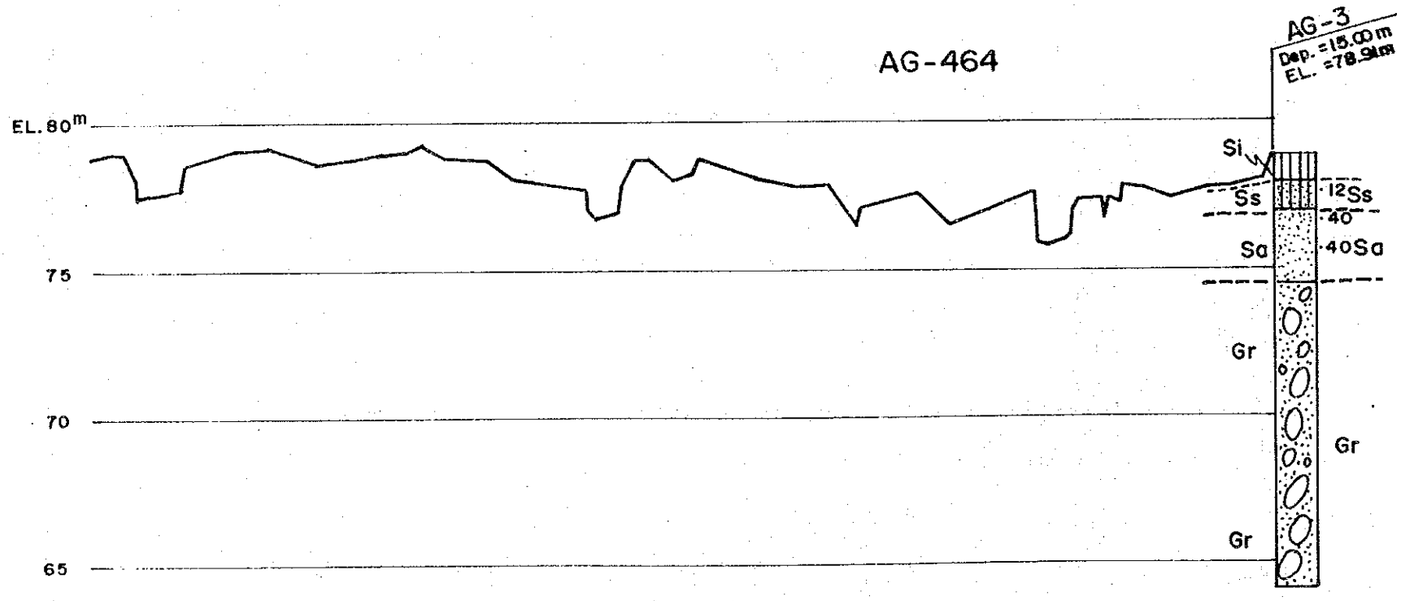


Fig.2.3 (3/3) GEOLOGICAL PROFILE (UPPER AGNO RIVER)







NOTE :
LEGEND SHOWN IN FIG. 2.4(2/12)

SCALE

H: 0 100 500 600m

V: 0 5 10 12m

Fig. 2.4 (1/12) GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-1,2,3)

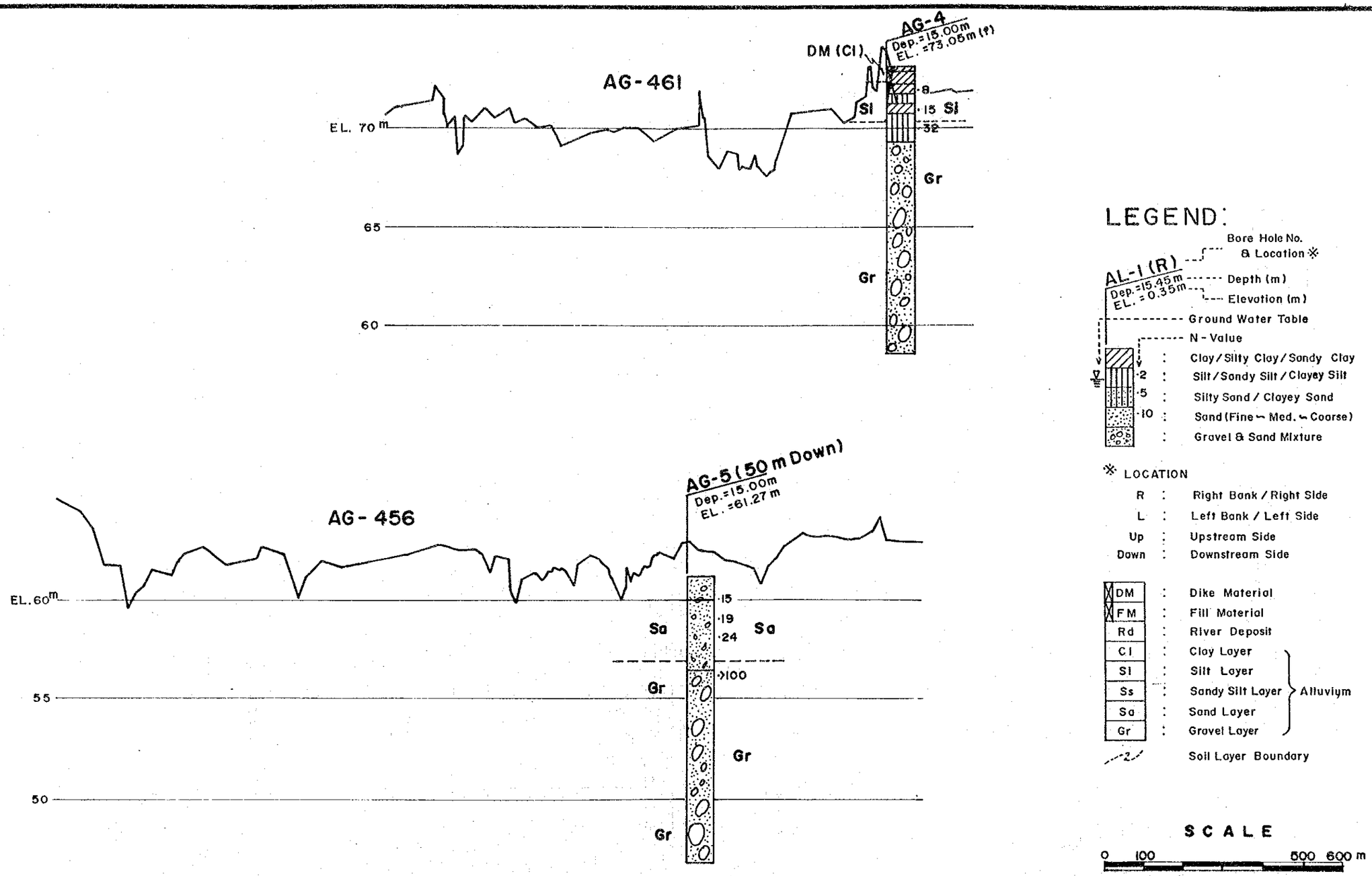
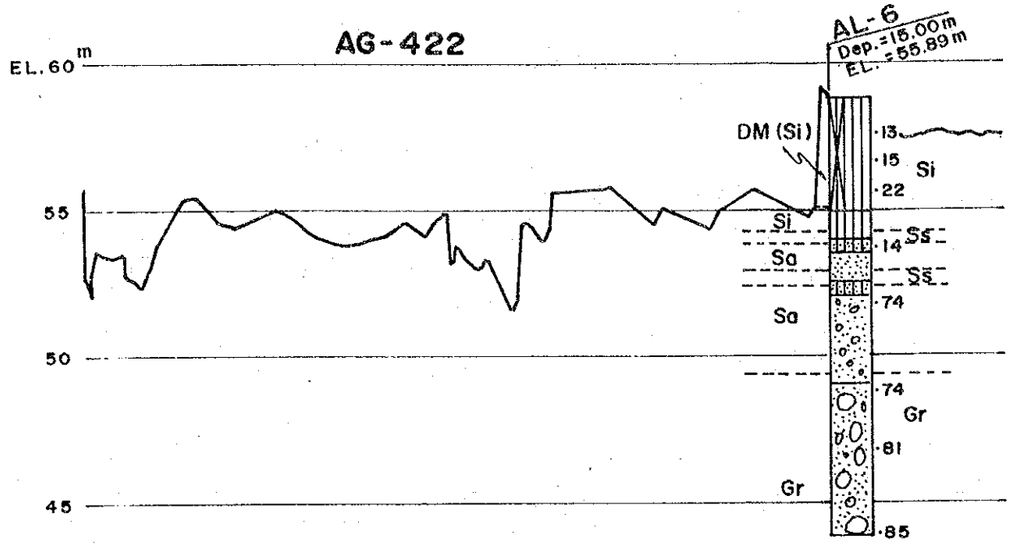
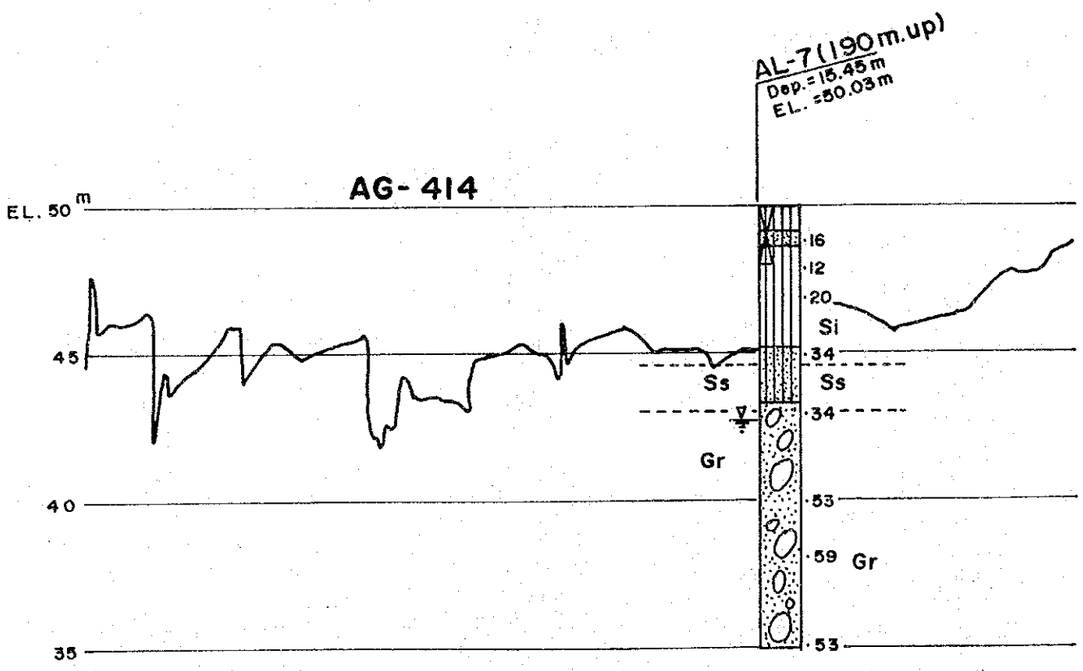
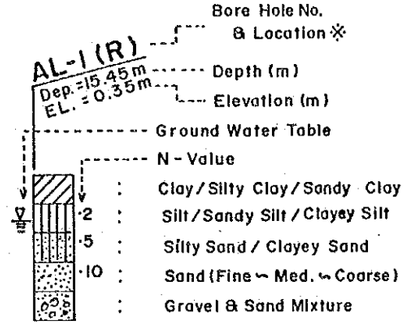


Fig. 2.4 (2/12) GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-4,5)





LEGEND:



Bore Hole No. & Location ※
Depth (m)
Elevation (m)
Ground Water Table
N-Value

: Clay / Silty Clay / Sandy Clay
: Silt / Sandy Silt / Clayey Silt
: Silty Sand / Clayey Sand
: Sand (Fine ∽ Med. ∽ Coarse)
: Gravel & Sand Mixture

※ LOCATION

R : Right Bank / Right Side
L : Left Bank / Left Side
Up : Upstream Side
Down : Downstream Side

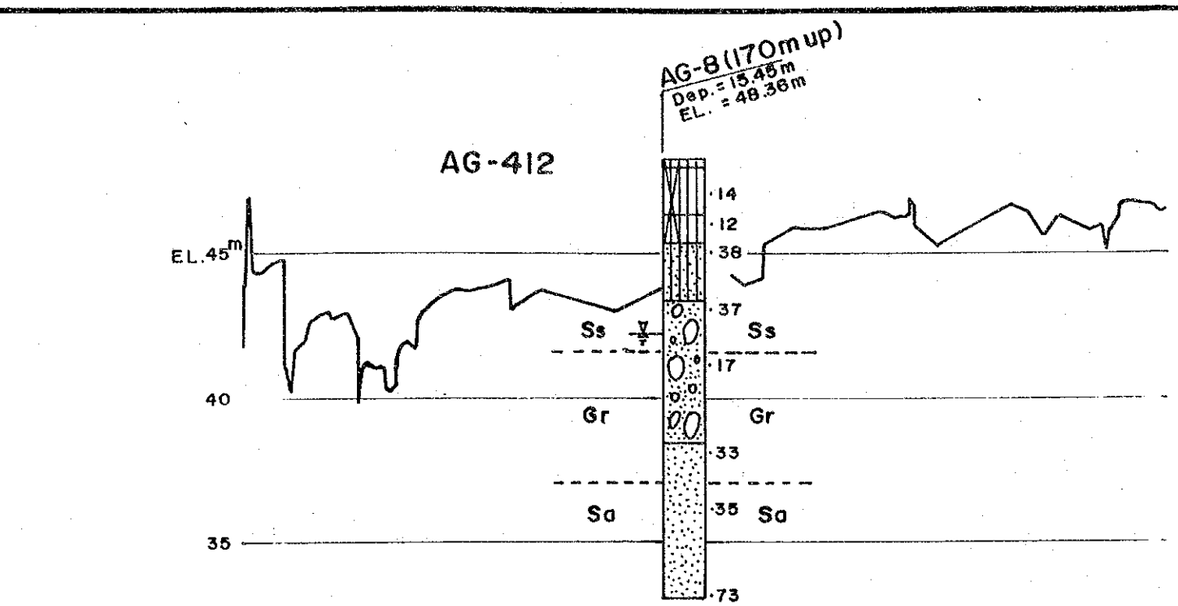
DM	: Dike Material	
FM	: Fill Material	
Rd	: River Deposit	
Cl	: Clay Layer	Alluvium
Si	: Silt Layer	Alluvium
Ss	: Sandy Silt Layer	Alluvium
Sa	: Sand Layer	Alluvium
Gr	: Gravel Layer	Alluvium

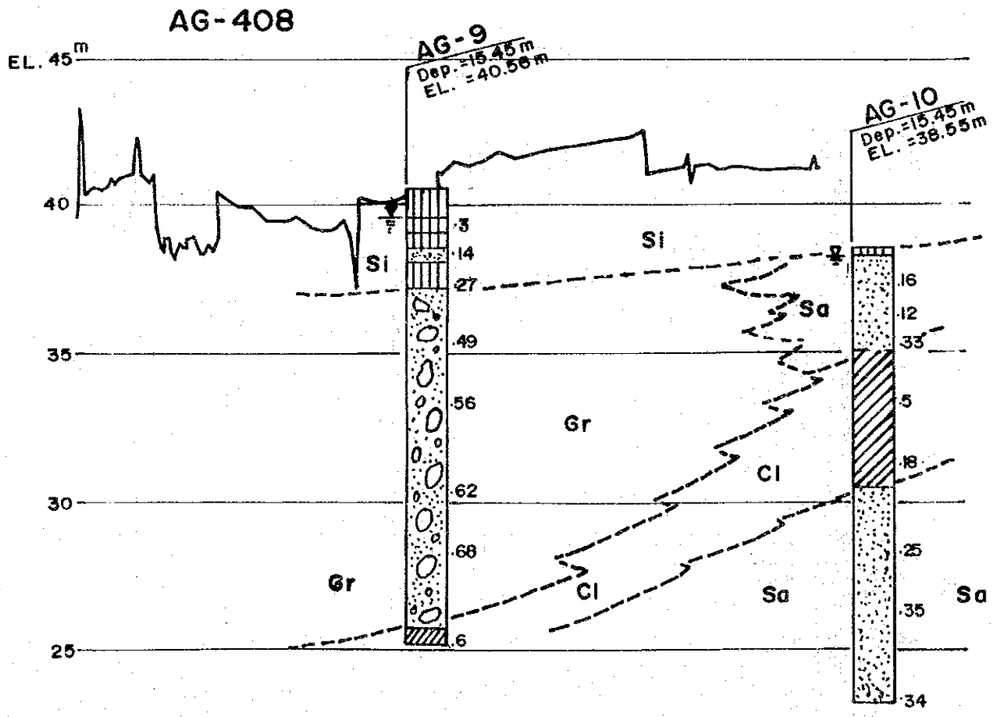
2 : Soil Layer Boundary

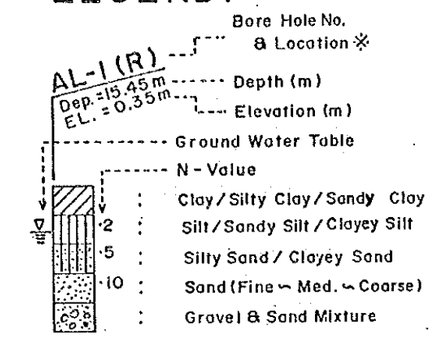
SCALE

H: (AG422) 0 100 500 600m
H: (AG414) 0 200 500 1000 1200m
V: 0 5 10 12 m

Fig. 2.4 (3/12) GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-6,7)







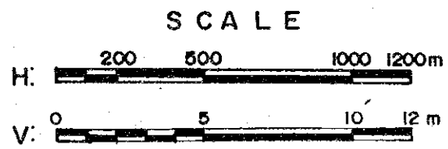
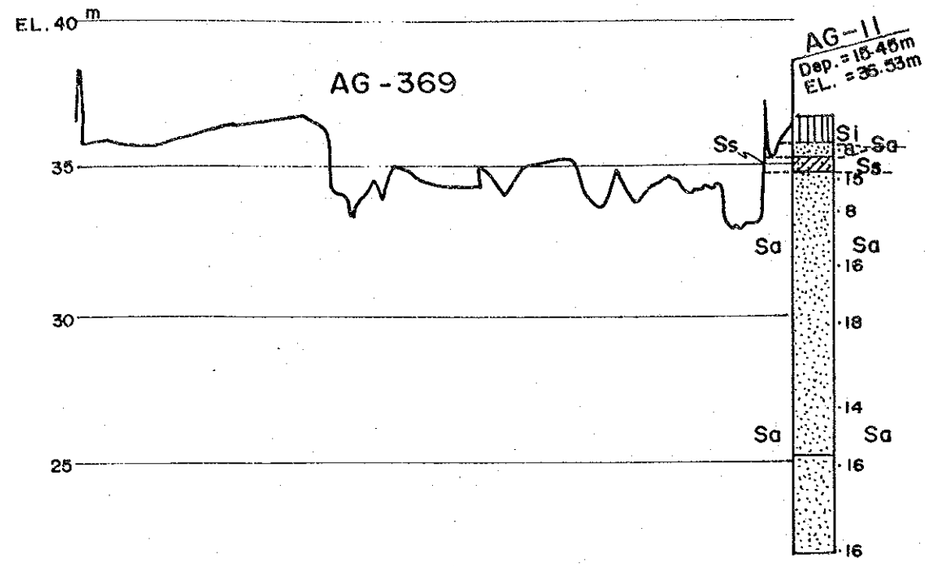
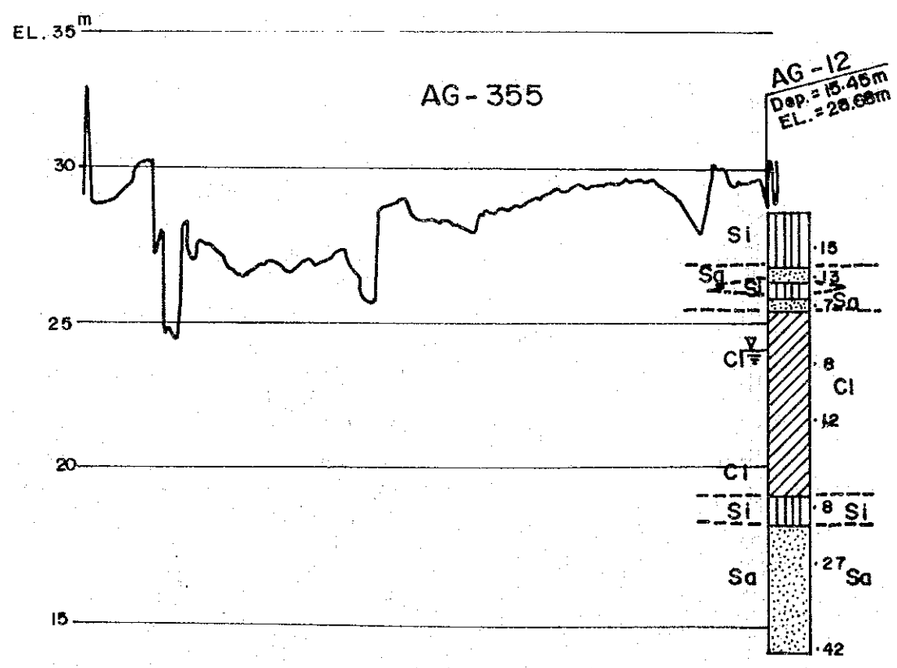


Fig. 2.4 (4/12) GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-8,9,10)





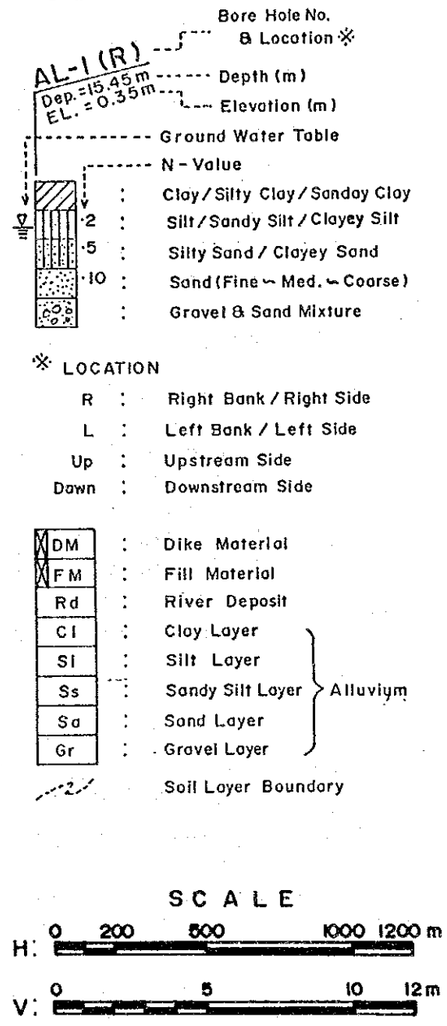
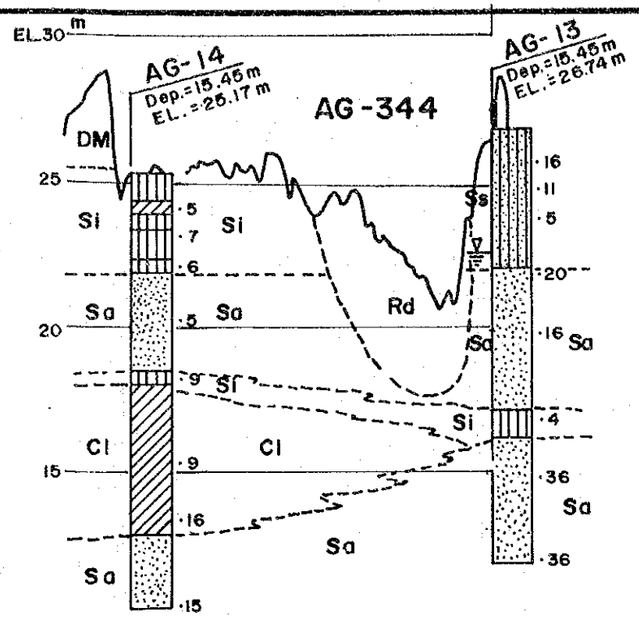
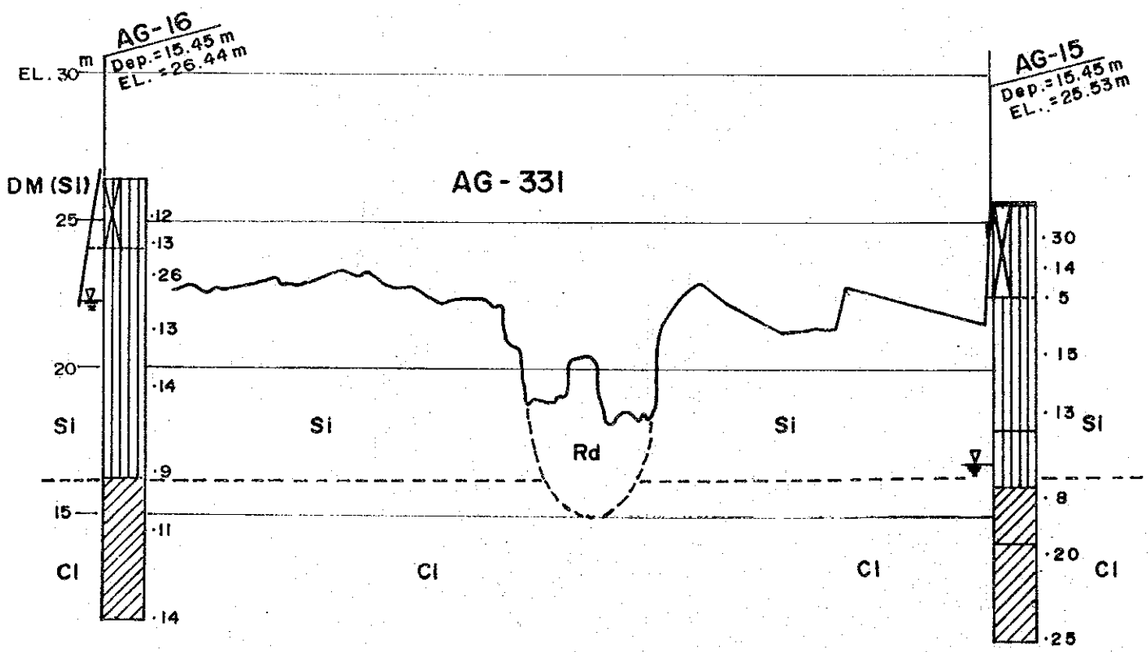
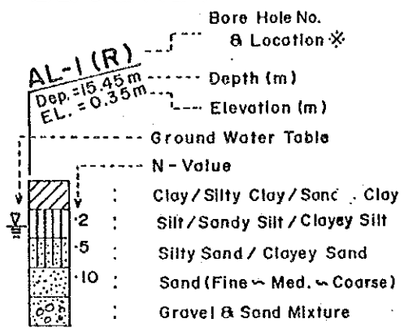


Fig. 2.4 (5/12) GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-11, 12)





LEGEND:



: Clay / Silty Clay / Sandy Clay
: Silt / Sandy Silt / Clayey Silt
: Silty Sand / Clayey Sand
: Sand (Fine ∽ Med. ∽ Coarse)
: Gravel & Sand Mixture

※ LOCATION

R	:	Right Bank / Right Side
L	:	Left Bank / Left Side
Up	:	Upstream Side
Down	:	Downstream Side

DM	:	Dike Material
FM	:	Fill Material
Rd	:	River Deposit
Cl	:	Clay Layer
Si	:	Silt Layer
Ss	:	Sandy Silt Layer } Alluvium
Sa	:	Sand Layer
Gr	:	Gravel Layer

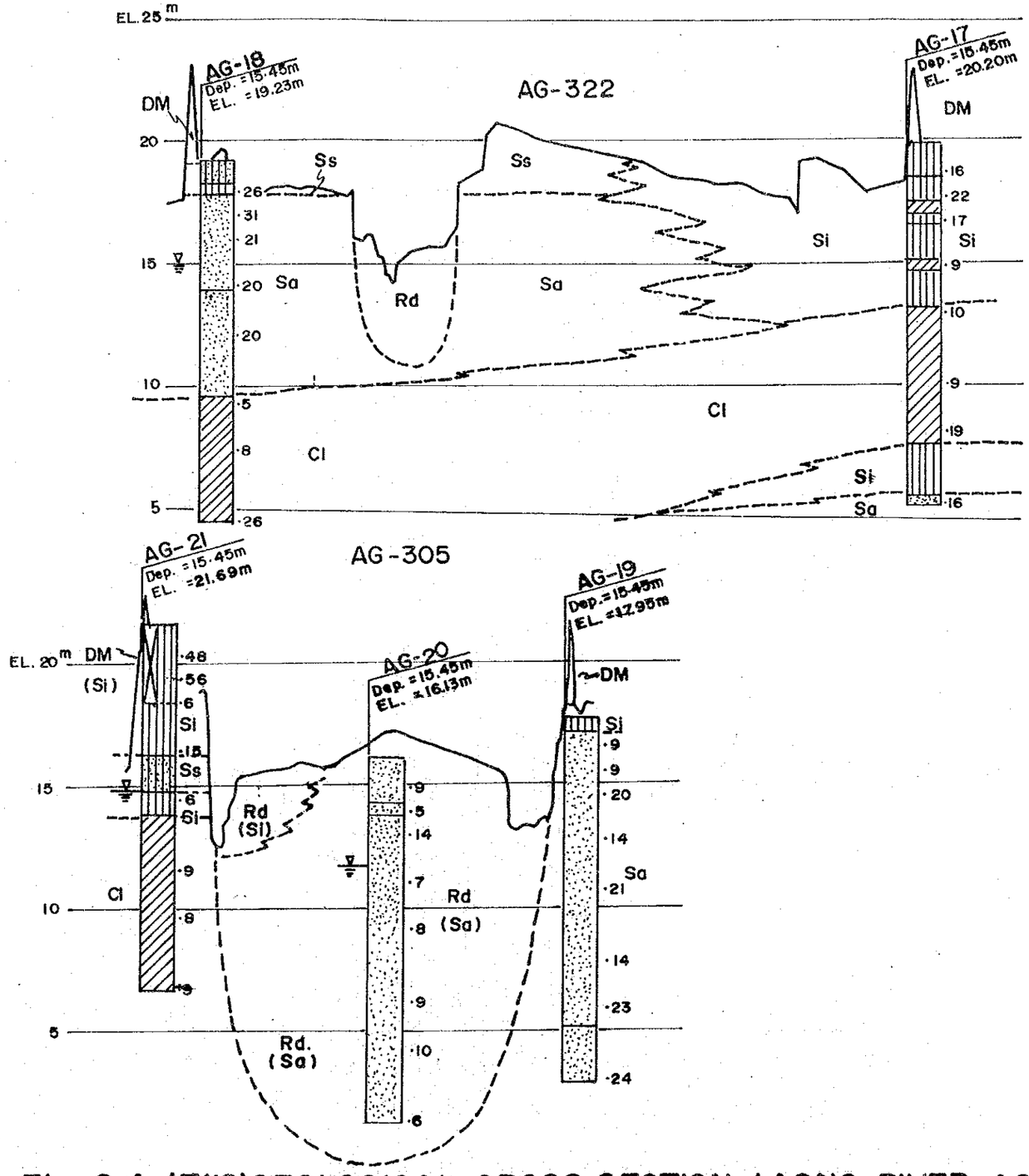
: Soil Layer Boundary

SCALE

H: 0 160 500 600m

V: 0 5 10 12m

Fig. 2.4 (6/12) GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-13,14,15,16)



NOTE:

LEGEND SHOWN IN FIG. 2.4(6/12)

SCALE

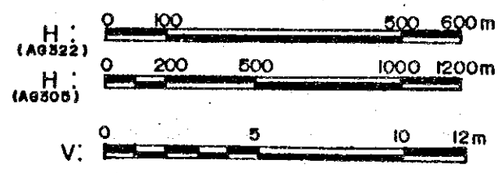
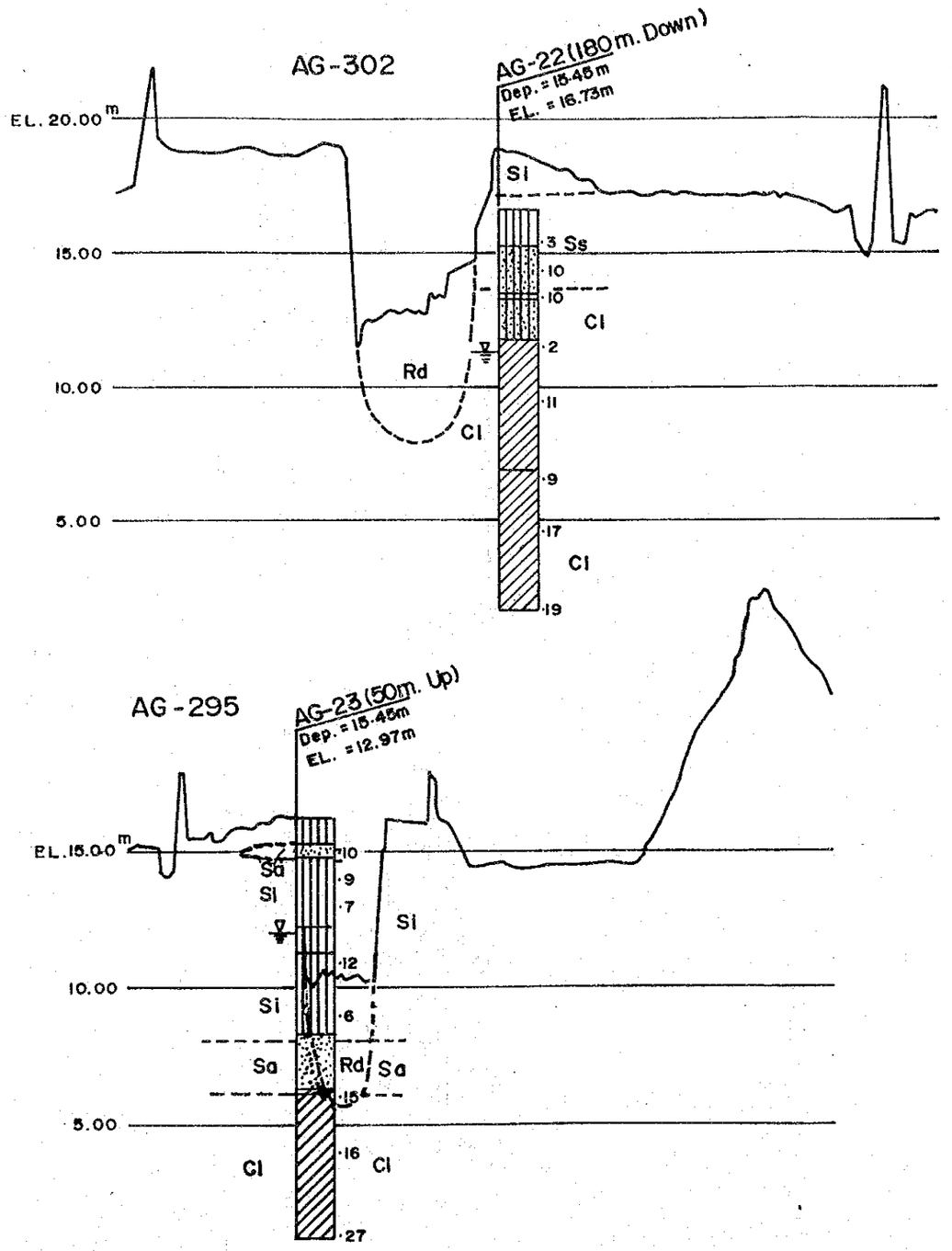


Fig. 2·4 (7/12)GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-17 to 21)



LEGEND:

Bore Hole No. & Location ※

AL-1 (R)
Dep. = 15.45 m
EL. = 0.35 m

- Depth (m)
- Elevation (m)
- Ground Water Table
- N - Value

	:	Clay / Silty Clay / Sandsy Clay
2	:	Silt / Sandy Silt / Clayey Silt
5	:	Silty Sand / Clayey Sand
10	:	Sand (Fine ∽ Med. ∽ Coarse)
	:	Gravel & Sand Mixture

※ LOCATION

R	:	Right Bank / Right Side
L	:	Left Bank / Left Side
Up	:	Upstream Side
Down	:	Downstream Side

DM	:	Dike Material	
FM	:	Fill Material	
Rd	:	River Deposit	
Cl	:	Clay Layer	Alluvium
Si	:	Silt Layer	
Ss	:	Sandy Silt Layer	
Sa	:	Sand Layer	
Gr	:	Gravel Layer	

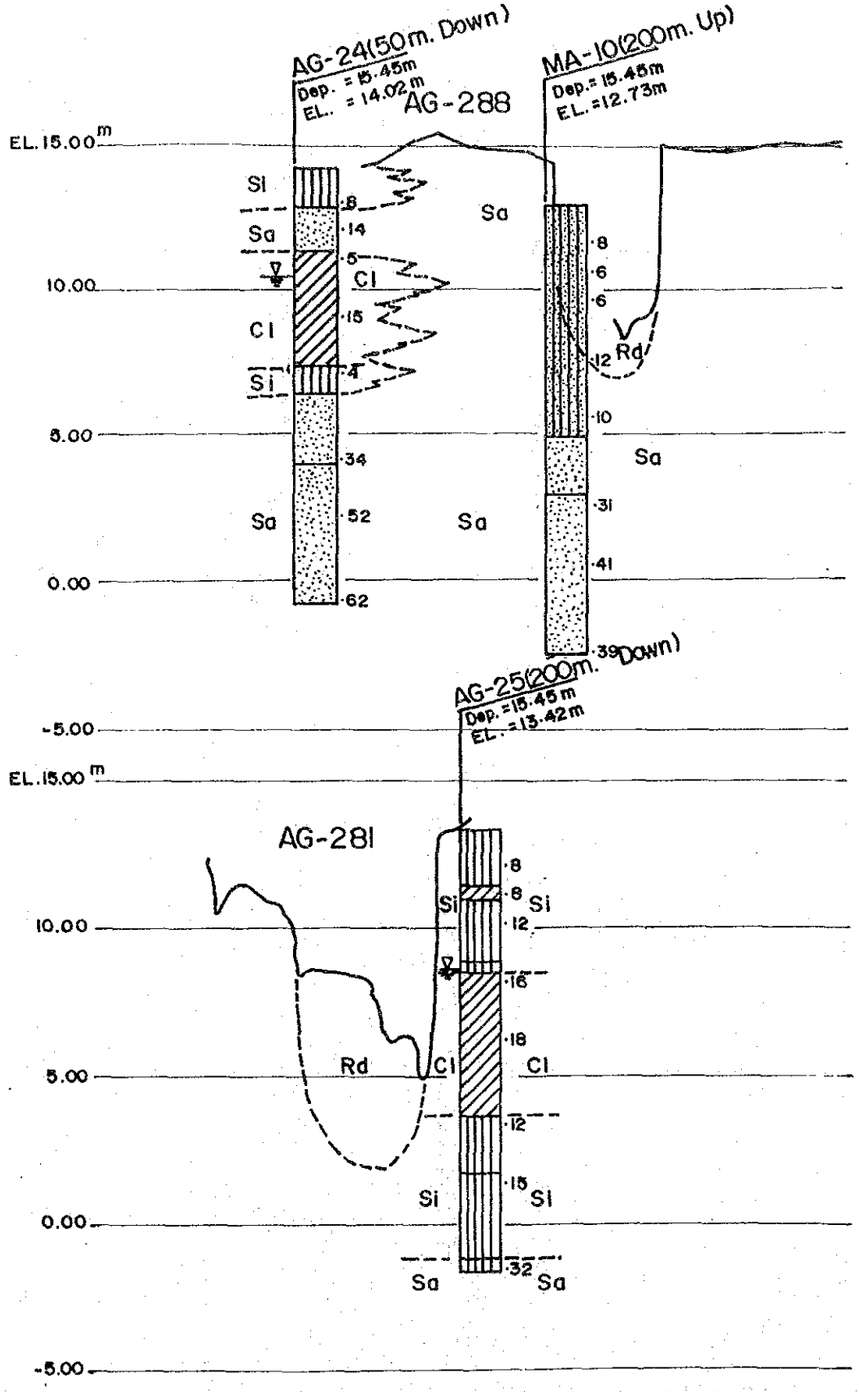
Soil Layer Boundary

SCALE

H: 0 100 500 600 m

V: 0 5 10 12m.

Fig. 2.4 (8/12) GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-22,23)



LEGEND:

Bore Hole No. & Location ※

AL-1 (R)
Dep. =15.45m
EL. = 0.35m

- Depth (m)
- Elevation (m)
- Ground Water Table
- N - Value

	:	Clay / Silty Clay / Sandoy Clay
·2	:	Silt / Sandy Silt / Clayey Silt
·5	:	Silty Sand / Clayey Sand
·10	:	Sand (Fine ~ Med. ~ Coarse)
	:	Gravel & Sand Mixture

※ LOCATION

R	:	Right Bank / Right Side
L	:	Left Bank / Left Side
Up	:	Upstream Side
Down	:	Downstream Side

DM	:	Dike Material
FM	:	Fill Material
Rd	:	River Deposit
Cl	:	Clay Layer
Sl	:	Silt Layer
Ss	:	Sandy Silt Layer } Alluvium
Sa	:	Sand Layer
Gr	:	Gravel Layer

·2 Soil Layer Boundary

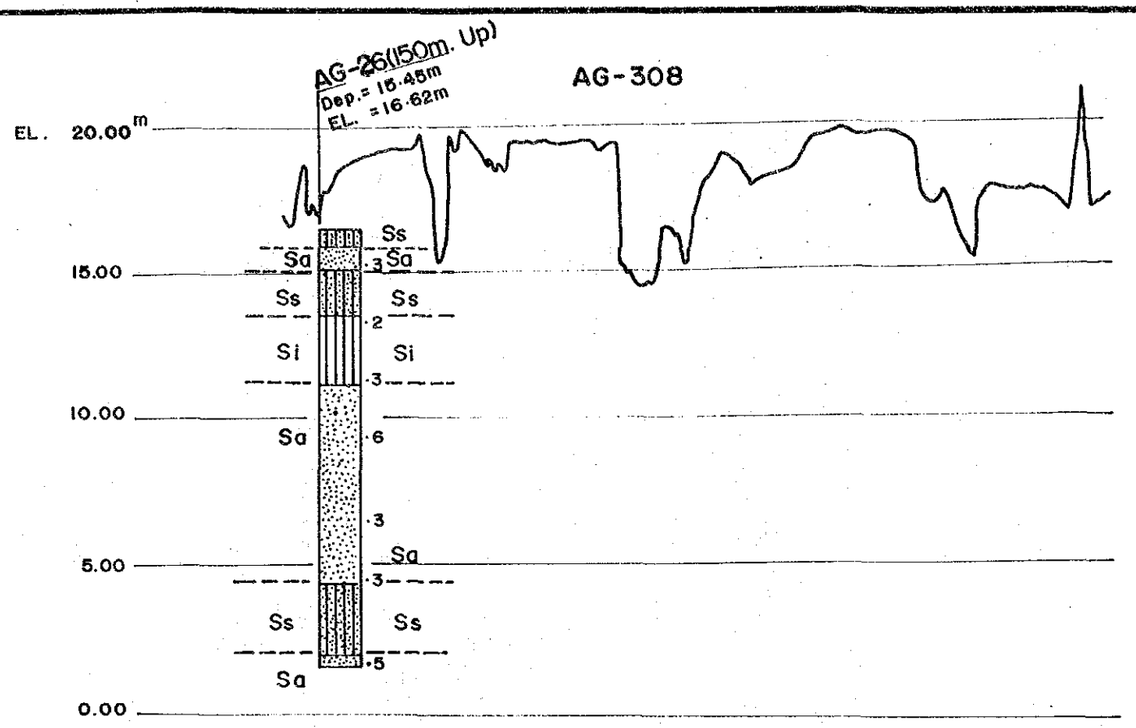
SCALE

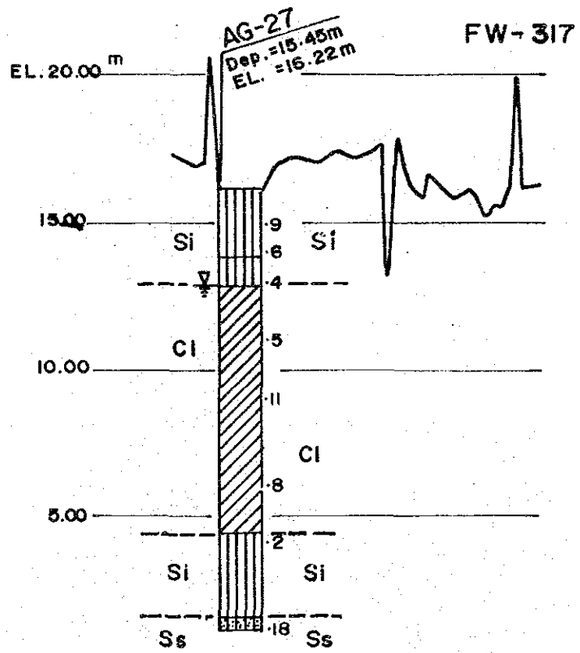
H: (AG288) 0 100 500 600m

H: (AG281) 0 200 500 1000 1200m

V: 0 5 10 12m.

Fig. 2.4 (9/12) GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-24, 25 · MA-10)





LEGEND:

Bore Hole No. & Location ※

AL-1 (R)
Dep. =15.45 m — Depth (m)
EL. = 0.35 m — Elevation (m)

Ground Water Table

N - Value

	:	Clay / Silty Clay / Sandoy Clay
2	:	Silt / Sandy Silt / Clayey Silt
5	:	Silty Sand / Clayey Sand
10	:	Sand (Fine ∽ Med. ∽ Coarse)
	:	Gravel & Sand Mixture

※ LOCATION

R	:	Right Bank / Right Side
L	:	Left Bank / Left Side
Up	:	Upstream Side
Down	:	Downstream Side

DM	:	Dike Material	
FM	:	Fill Material	
Rd	:	River Deposit	
Cl	:	Clay Layer	Alluvium
Si	:	Silt Layer	Alluvium
Ss	:	Sandy Silt Layer	Alluvium
Sa	:	Sand Layer	Alluvium
Gr	:	Gravel Layer	Alluvium

2 — Soil Layer Boundary

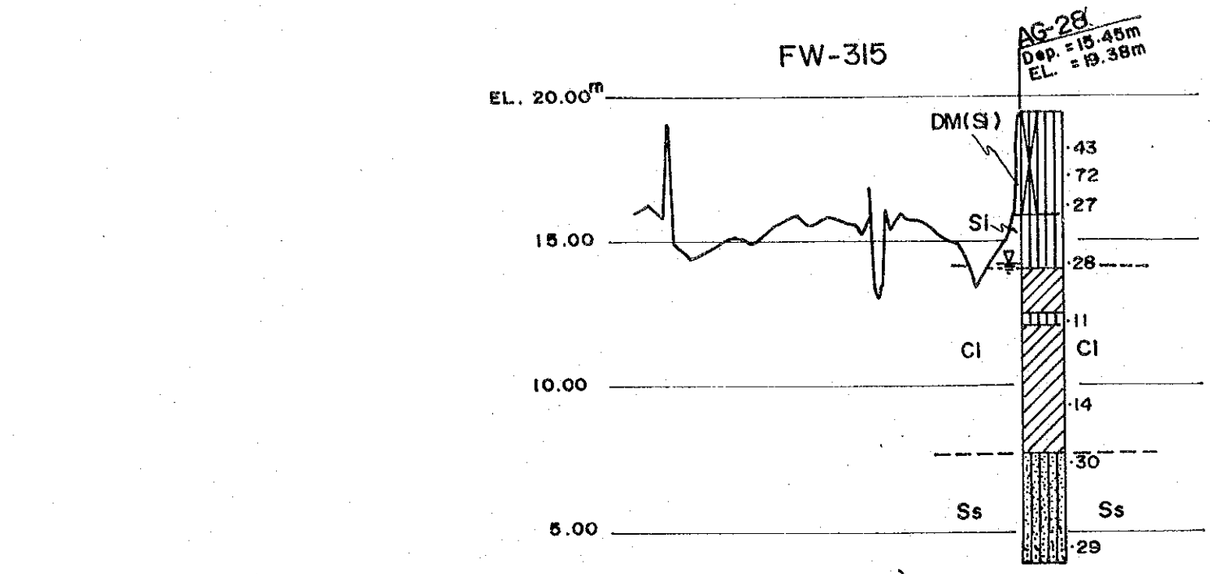
SCALE

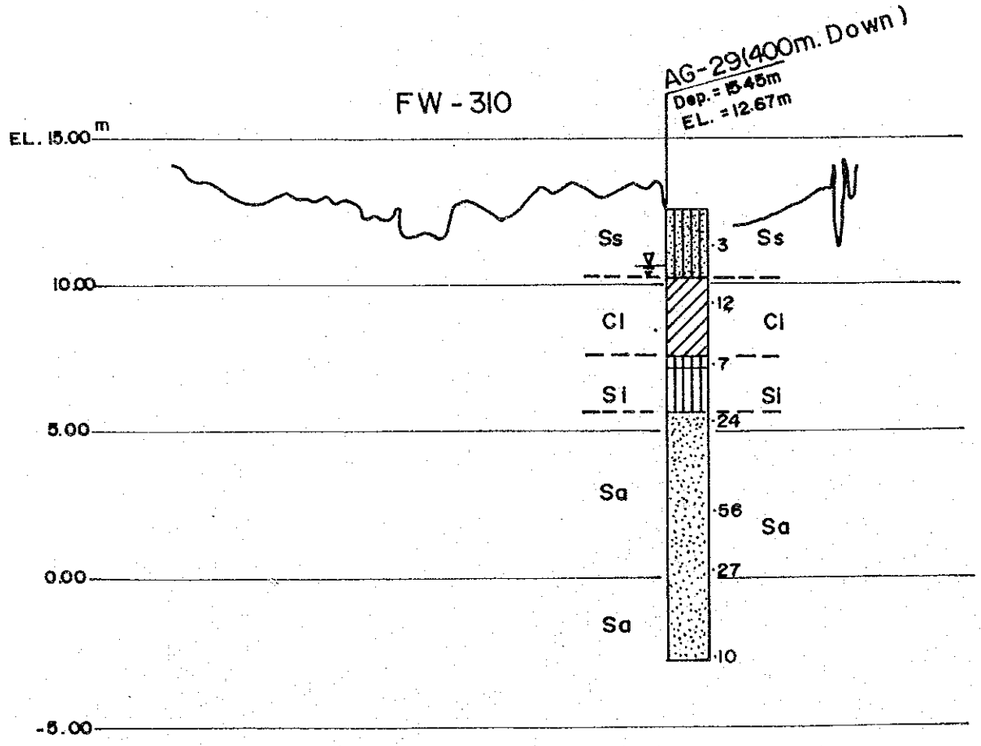
H: (AG508) 0 200 500 1000 1200 m

H: (FW317) 0 100 500 600 m

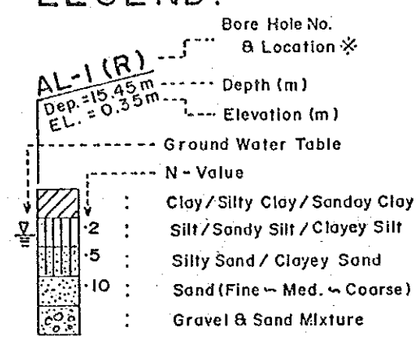
V: 0 5 10 12m.

Fig. 2.4 (10/12) GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-26,27)





LEGEND:



※ LOCATION

R	:	Right Bank / Right Side
L	:	Left Bank / Left Side
Up	:	Upstream Side
Down	:	Downstream Side

DM	:	Dike Material	
FM	:	Fill Material	
Rd	:	River Deposit	
Cl	:	Clay Layer	Alluvium
Sl	:	Silt Layer	
Ss	:	Sandy Silt Layer	
Sa	:	Sand Layer	
Gr	:	Gravel Layer	
-2-		Soil Layer Boundary	

SCALE

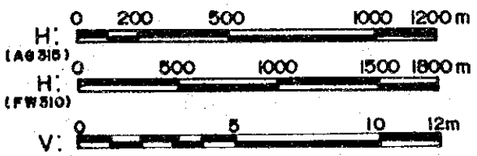


Fig. 2.4 (11/12) GEOLOGICAL CROSS SECTION (AGNO RIVER, AG-28,29)

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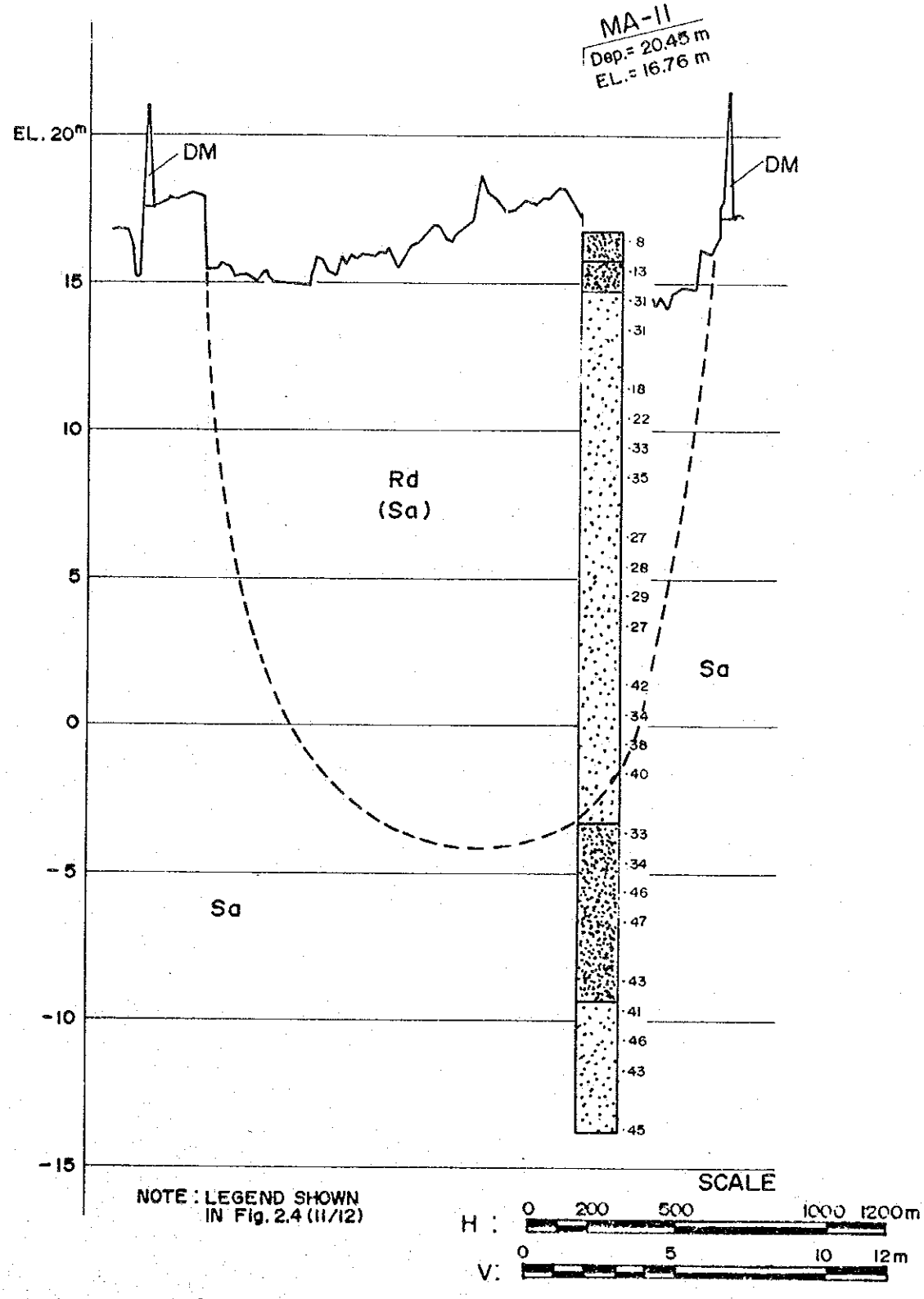

Fig. 2.4 (12/12) GEOLOGICAL CROSS SECTION
(AGNO RIVER MA-11)