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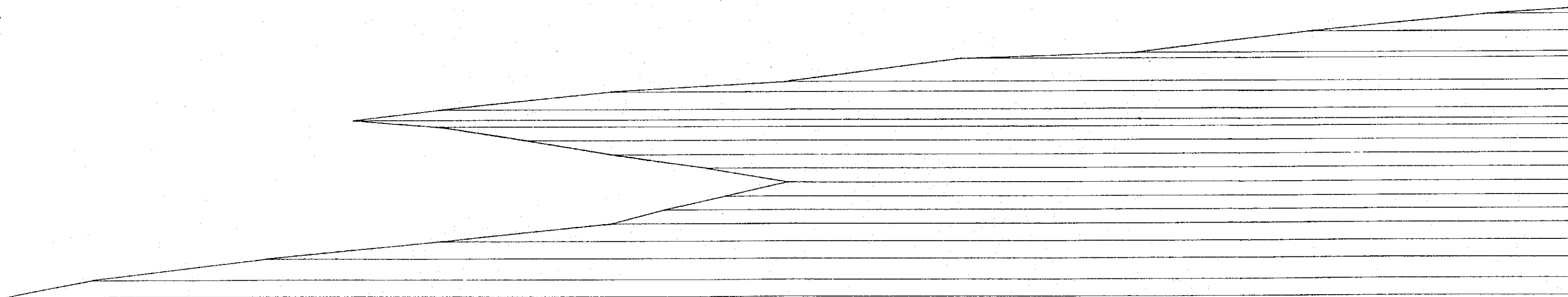
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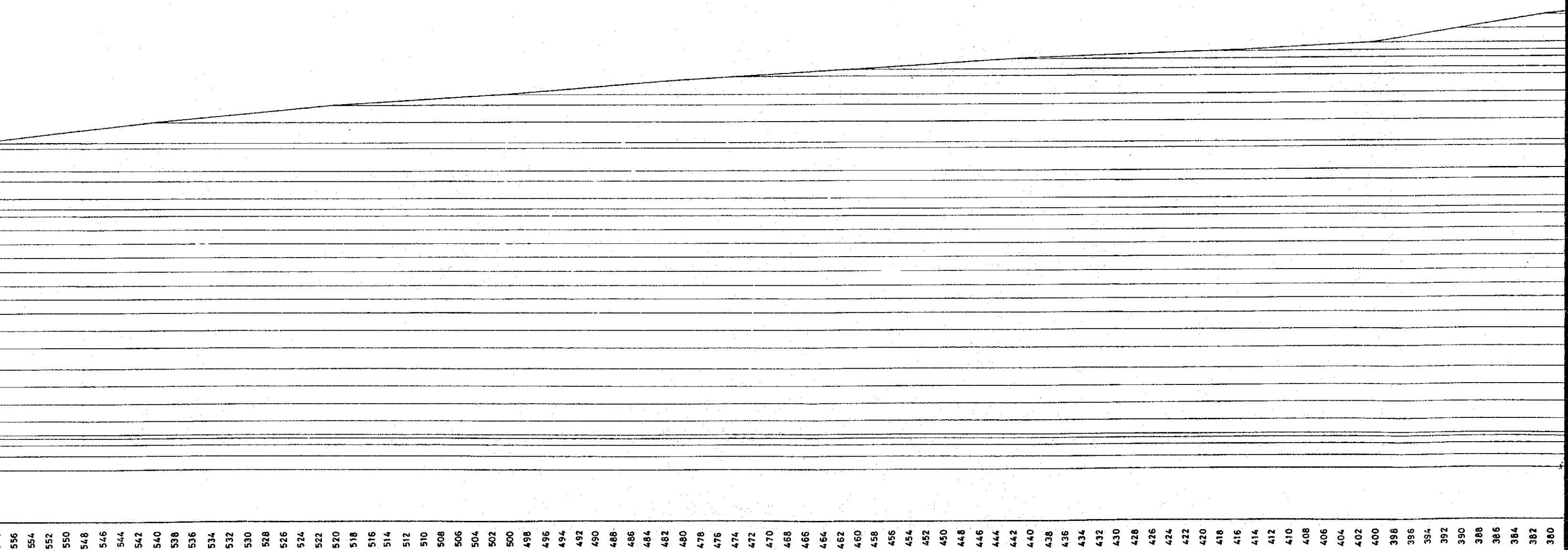
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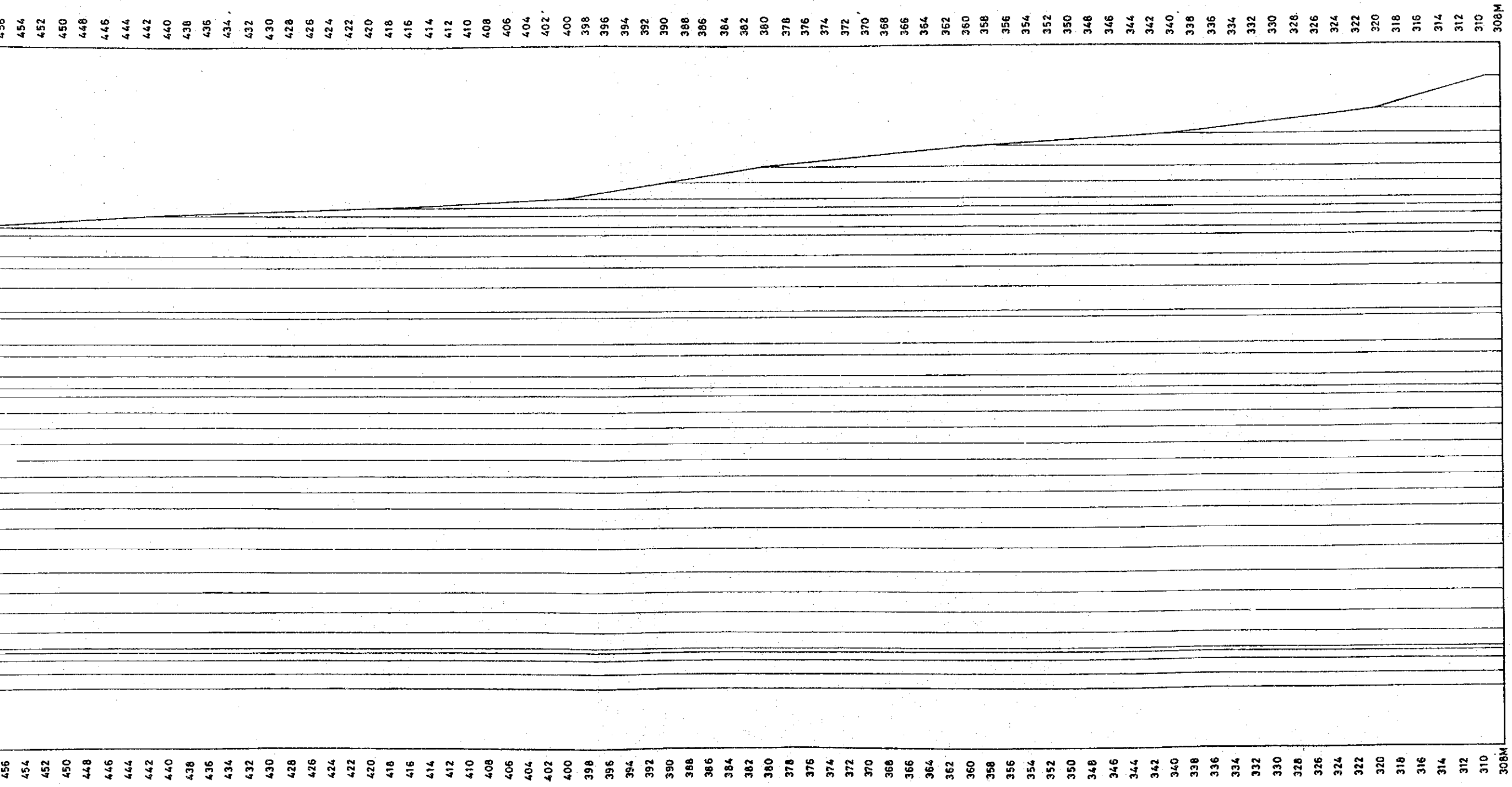


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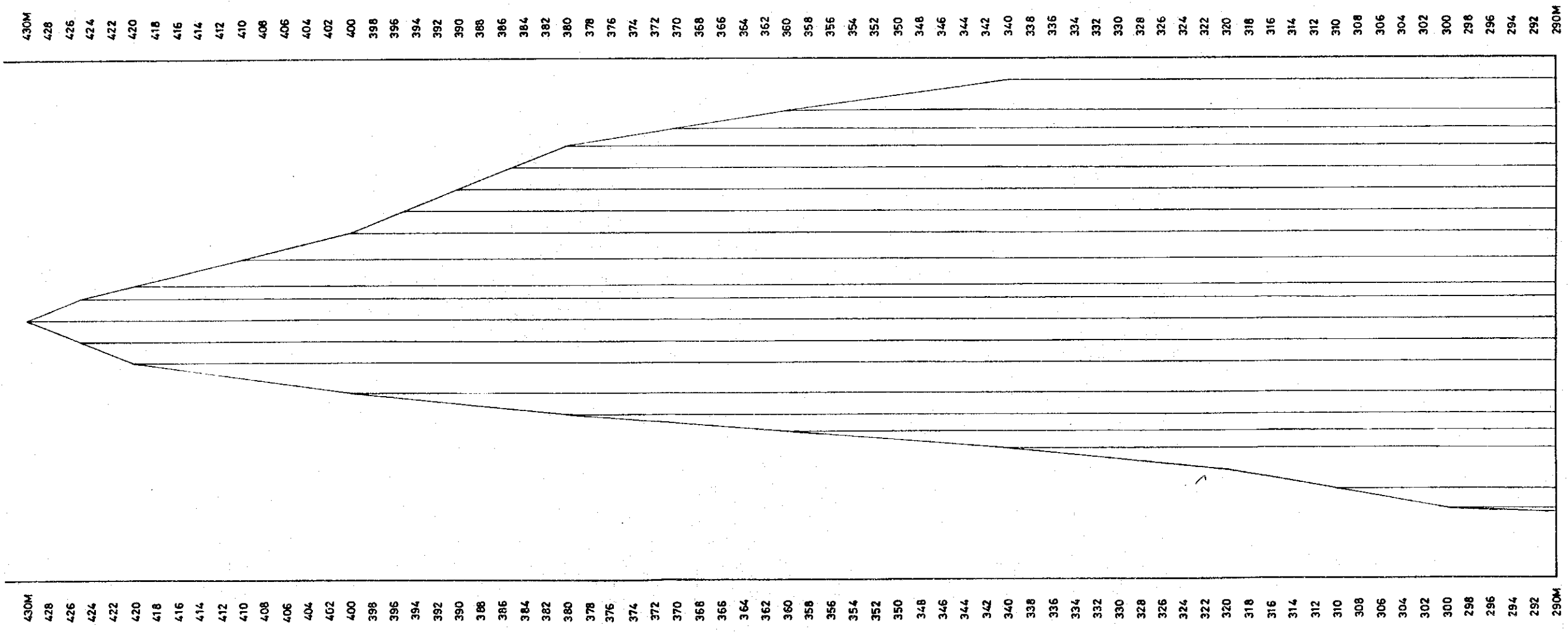


GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
1060.00	308M	
1050.00		
1040.00		
1030.00		
1020.00		
1010.00		
1000.00		
990.00		
980.00		
970.00		
960.00		
950.00		
940.00		
930.00		
920.00		
910.00		
900.00		
890.00		
880.00		
870.00		
860.00		
850.00		
840.00		
830.00		
820.00		
810.00		
800.00		

THE STUDY ON WATER RESOURCES
 DEVELOPMENT IN THE RURU RIVER BASIN
 RIVER CROSS SECTION
 AT
 DAMSITE MGETA A LEFT
 H.S: 1:5000 V.S: 1:200
 H.S: 1:500 V.S: 1:200

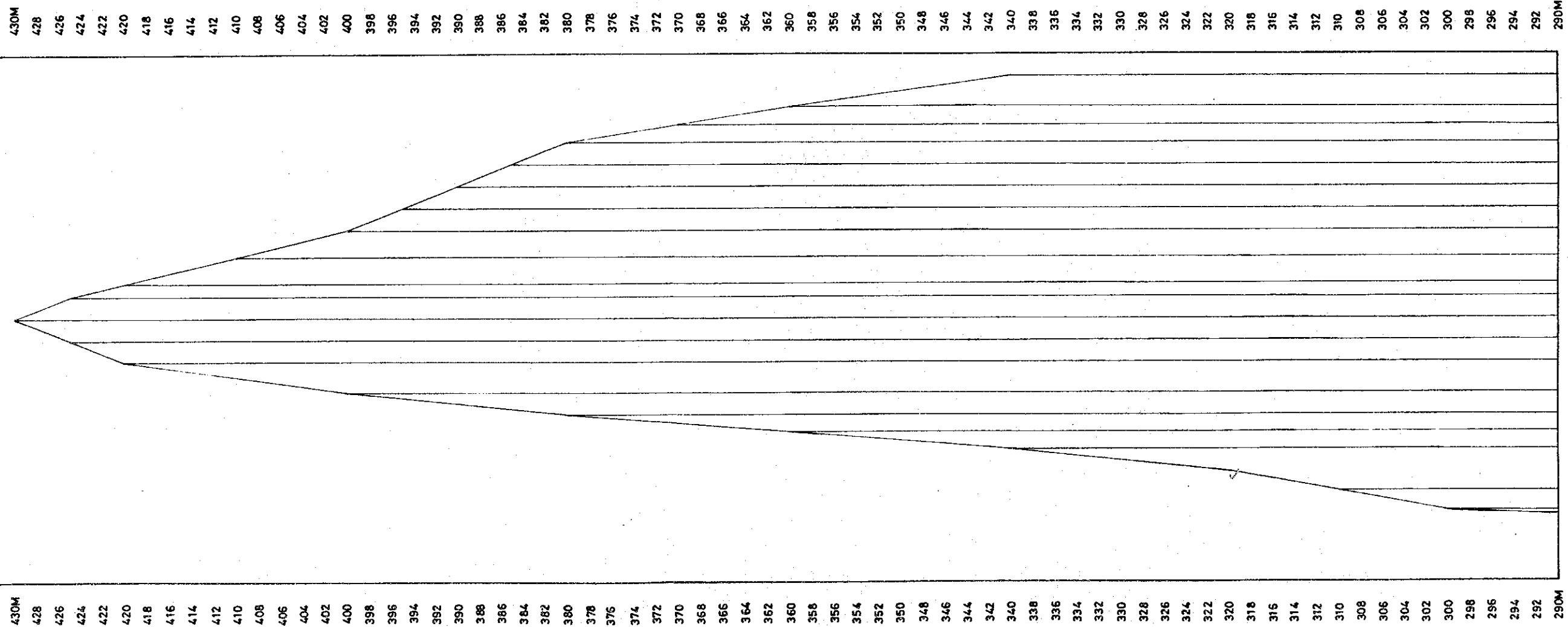
SCALE: HORIZONTAL 1:5000
 VERTICAL 1:200

1993 JICA



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294
292
290M

GROUND HEIGHT	ACCUMULATED DISTANCE
428.0	0.0000
426.0	0.0000
424.0	0.0000
422.0	0.0000
420.0	0.0000
418.0	0.0000
416.0	0.0000
414.0	0.0000
412.0	0.0000
410.0	0.0000
408.0	0.0000
406.0	0.0000
404.0	0.0000
402.0	0.0000
400.0	0.0000
398.0	0.0000
396.0	0.0000
394.0	0.0000
392.0	0.0000
390.0	0.0000
388.0	0.0000
386.0	0.0000
384.0	0.0000
382.0	0.0000
380.0	0.0000
378.0	0.0000
376.0	0.0000
374.0	0.0000
372.0	0.0000
370.0	0.0000
368.0	0.0000
366.0	0.0000
364.0	0.0000
362.0	0.0000
360.0	0.0000
358.0	0.0000
356.0	0.0000
354.0	0.0000
352.0	0.0000
350.0	0.0000
348.0	0.0000
346.0	0.0000
344.0	0.0000
342.0	0.0000
340.0	0.0000
338.0	0.0000
336.0	0.0000
334.0	0.0000
332.0	0.0000
330.0	0.0000
328.0	0.0000
326.0	0.0000
324.0	0.0000
322.0	0.0000
320.0	0.0000
318.0	0.0000
316.0	0.0000
314.0	0.0000
312.0	0.0000
310.0	0.0000
308.0	0.0000
306.0	0.0000
304.0	0.0000
302.0	0.0000
300.0	0.0000
298.0	0.0000
296.0	0.0000
294.0	0.0000
292.0	0.0000
290.0	0.0000



GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
428	0+00	
426	0+20	
424	0+40	
422	0+60	
420	0+80	
418	1+00	
416	1+20	
414	1+40	
412	1+60	
410	1+80	
408	2+00	
406	2+20	
404	2+40	
402	2+60	
400	2+80	
398	3+00	
396	3+20	
394	3+40	
392	3+60	
390	3+80	
388	4+00	
386		
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298		
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294		
292		
290M		

THE STUDY ON WATER RESOURCES
DEVELOPMENT IN THE RUNU RIVER BASIN
RIVER CROSS SECTION
AT
DAM SITE MGETA A RIGHT
SCALE H=1:5000 V=1:200

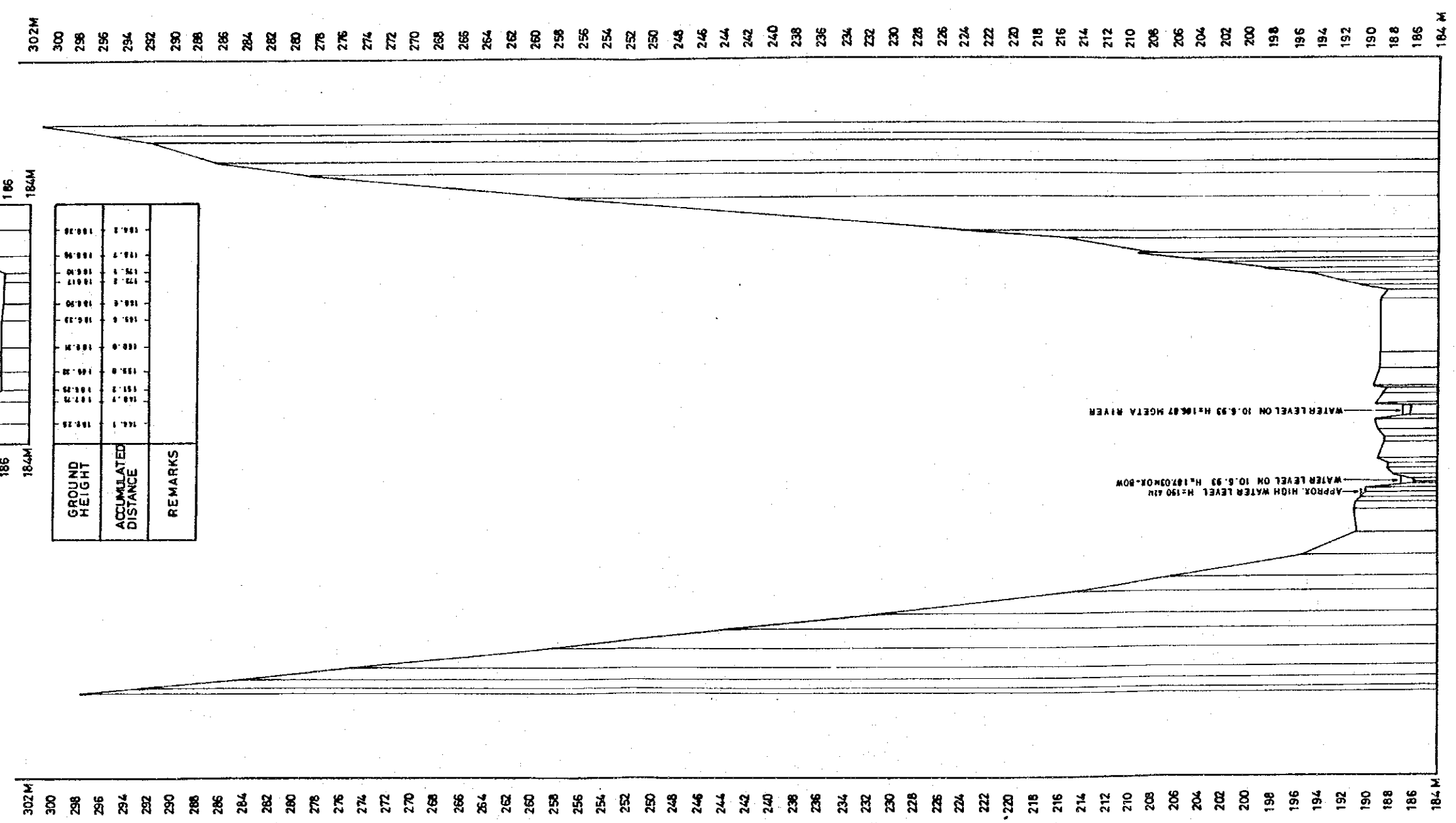
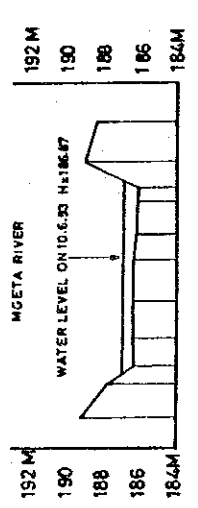
SCALE HORIZONTAL 1:5000
VERTICAL 1:200

1993 JICA

THE STUDY ON WATER RESOURCES
DEVELOPMENT IN THE RUPU RIVER BASIN

RIVER CROSS SECTION
AT
DAMSITE MGETA

SCALE H:1:500 V:1:200



GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
302	0.00	
300	0.00	
298	0.00	
296	0.00	
294	0.00	
292	0.00	
290	0.00	
288	0.00	
286	0.00	
284	0.00	
282	0.00	
280	0.00	
278	0.00	
276	0.00	
274	0.00	
272	0.00	
270	0.00	
268	0.00	
266	0.00	
264	0.00	
262	0.00	
260	0.00	
258	0.00	
256	0.00	
254	0.00	
252	0.00	
250	0.00	
248	0.00	
246	0.00	
244	0.00	
242	0.00	
240	0.00	
238	0.00	
236	0.00	
234	0.00	
232	0.00	
230	0.00	
228	0.00	
226	0.00	
224	0.00	
222	0.00	
220	0.00	
218	0.00	
216	0.00	
214	0.00	
212	0.00	
210	0.00	
208	0.00	
206	0.00	
204	0.00	
202	0.00	
200	0.00	
198	0.00	
196	0.00	
194	0.00	
192	0.00	
190	0.00	
188	0.00	
186	0.00	
184	0.00	

GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
302	0.00	
300	0.00	
298	0.00	
296	0.00	
294	0.00	
292	0.00	
290	0.00	
288	0.00	
286	0.00	
284	0.00	
282	0.00	
280	0.00	
278	0.00	
276	0.00	
274	0.00	
272	0.00	
270	0.00	
268	0.00	
266	0.00	
264	0.00	
262	0.00	
260	0.00	
258	0.00	
256	0.00	
254	0.00	
252	0.00	
250	0.00	
248	0.00	
246	0.00	
244	0.00	
242	0.00	
240	0.00	
238	0.00	
236	0.00	
234	0.00	
232	0.00	
230	0.00	
228	0.00	
226	0.00	
224	0.00	
222	0.00	
220	0.00	
218	0.00	
216	0.00	
214	0.00	
212	0.00	
210	0.00	
208	0.00	
206	0.00	
204	0.00	
202	0.00	
200	0.00	
198	0.00	
196	0.00	
194	0.00	
192	0.00	
190	0.00	
188	0.00	
186	0.00	
184	0.00	

SCALE HORIZONTAL 1:5000
VERTICAL 1:200

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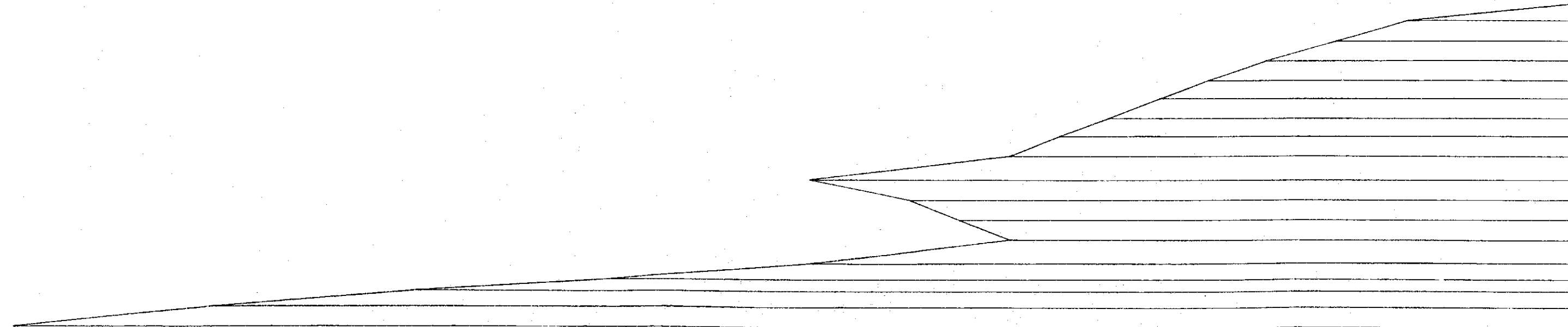
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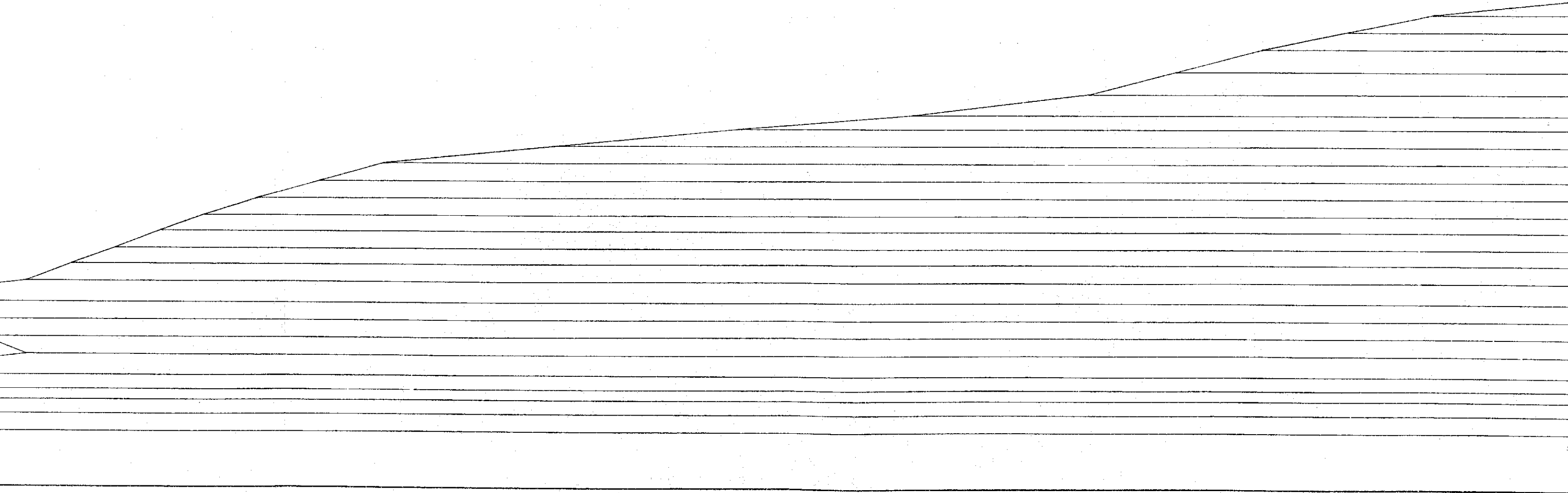
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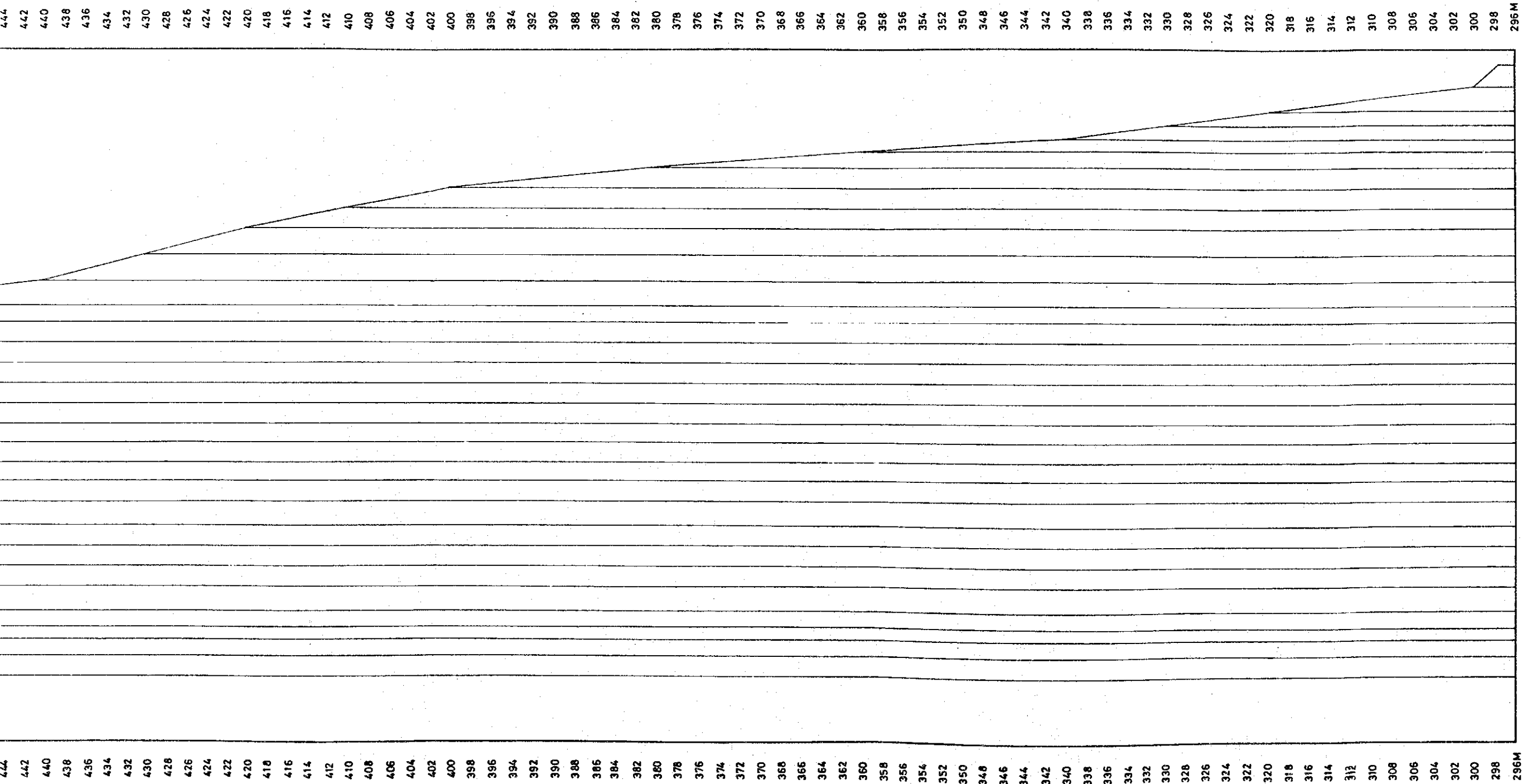
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GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
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298		
296M		

THE STUDY ON WATER RESOURCES
DEVELOPMENT IN THE RURU RIVER BASIN
RIVER CROSS SECTION
AT
DAM SITE MGETA B LEFT
SCALE H=1:5000 V=1:200

SCALE HORIZONTAL 1:5000
VERTICAL 1:200

410 M

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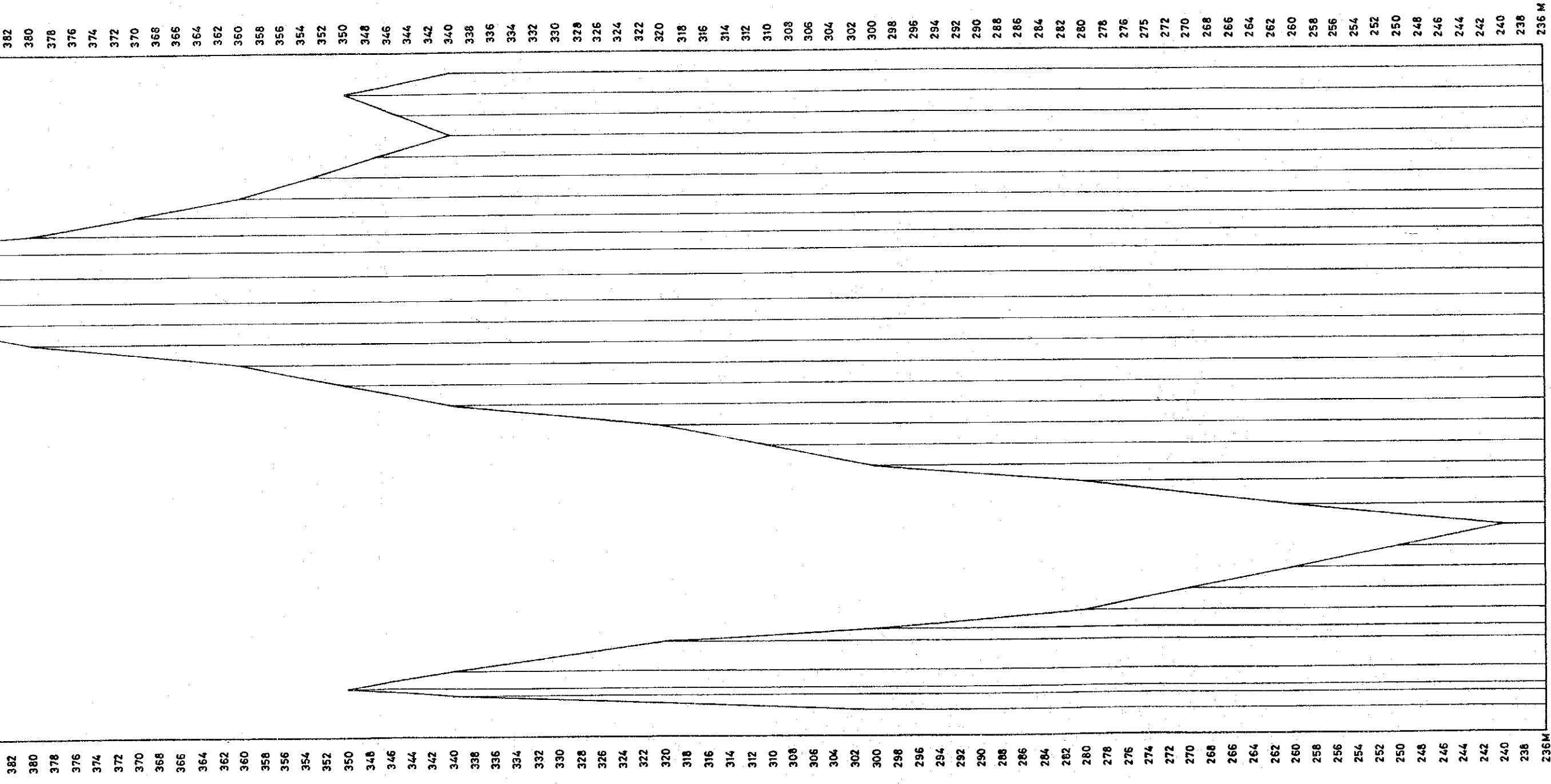
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256



GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
382	0	
380	0	
378	0	
376	0	
374	0	
372	0	
370	0	
368	0	
366	0	
364	0	
362	0	
360	0	
358	0	
356	0	
354	0	
352	0	
350	0	
348	0	
346	0	
344	0	
342	0	
340	0	
338	0	
336	0	
334	0	
332	0	
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328	0	
326	0	
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320	0	
318	0	
316	0	
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310	0	
308	0	
306	0	
304	0	
302	0	
300	0	
298	0	
296	0	
294	0	
292	0	
290	0	
288	0	
286	0	
284	0	
282	0	
280	0	
278	0	
276	0	
274	0	
272	0	
270	0	
268	0	
266	0	
264	0	
262	0	
260	0	
258	0	
256	0	
254	0	
252	0	
250	0	
248	0	
246	0	
244	0	
242	0	
240	0	
238	0	
236	0	

THE STUDY ON WATER RESOURCES
DEVELOPMENT IN THE RUWU RIVER BASIN

RIVER CROSS SECTION
AT
DAM SITE MGETA B RIGHT

SCALE H:1 500 V:1:200

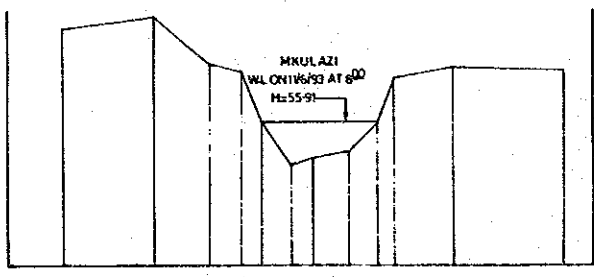
HORIZONTAL 1: 5000
SCALE VERTICAL 1: 200

68M
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64
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48M

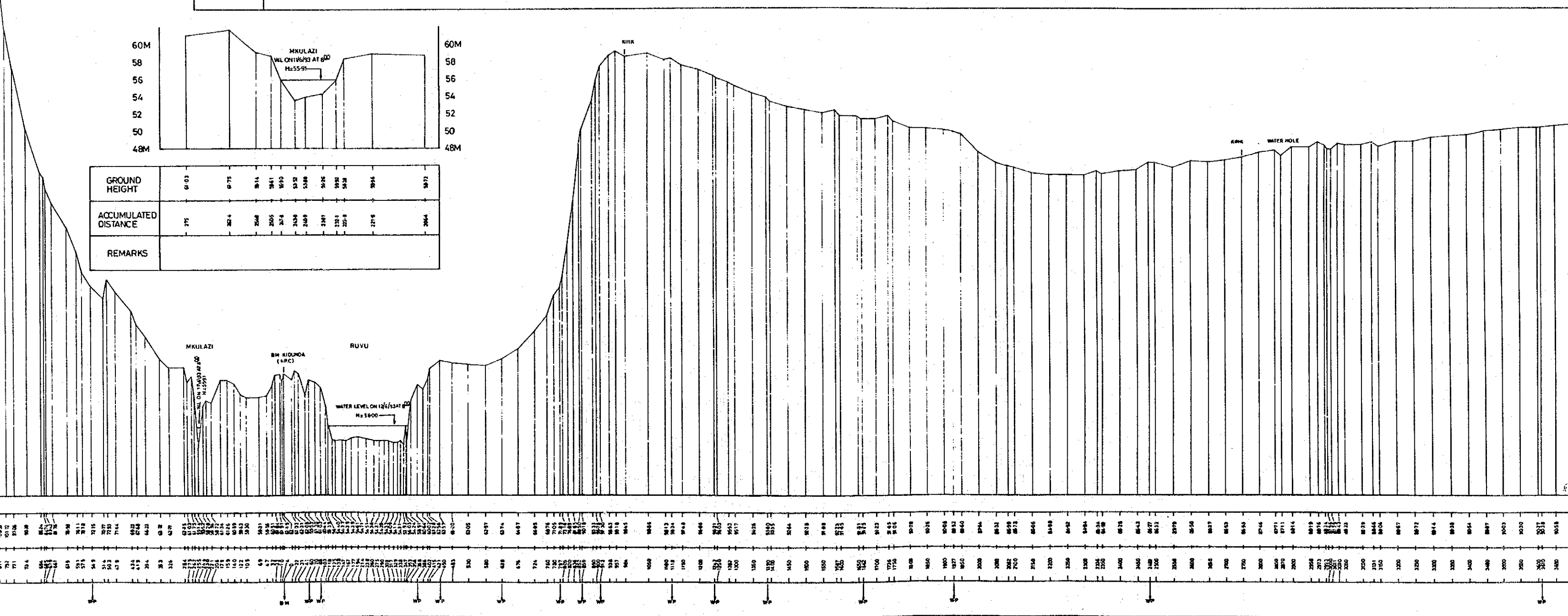
OBLIQUE CROSS SECTION OF RUVU RIVER
WATER LEVEL ON 12/6/43 AT 800
H=5600

GROUND HEIGHT	62.00	61.33	61.11	60.8	59.3	60.0	60.0	60.4	58.8	58.0	58.43	58.7	58.8	58.9	58.1	58.1	58.5	58.6	58.7	58.8	58.3	58.5	58.1	58.1	58.7	58.2	58.4	58.03	58.1	
ACCUMULATED DISTANCE	0	21	26	41	78	86	88	100	182	18	179	184	18	174	187	201	226	236	238	239	286	288	308	377	389	382	341	354	362	363
REMARKS																														

60M
58
56
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48M



GROUND HEIGHT	61.03	60.75	60.14	60.1	59.0	58.5	58.8	58.2	58.2	58.5	58.73
ACCUMULATED DISTANCE	75	82.4	208	205	208	209	209	201	201	221.5	264
REMARKS											



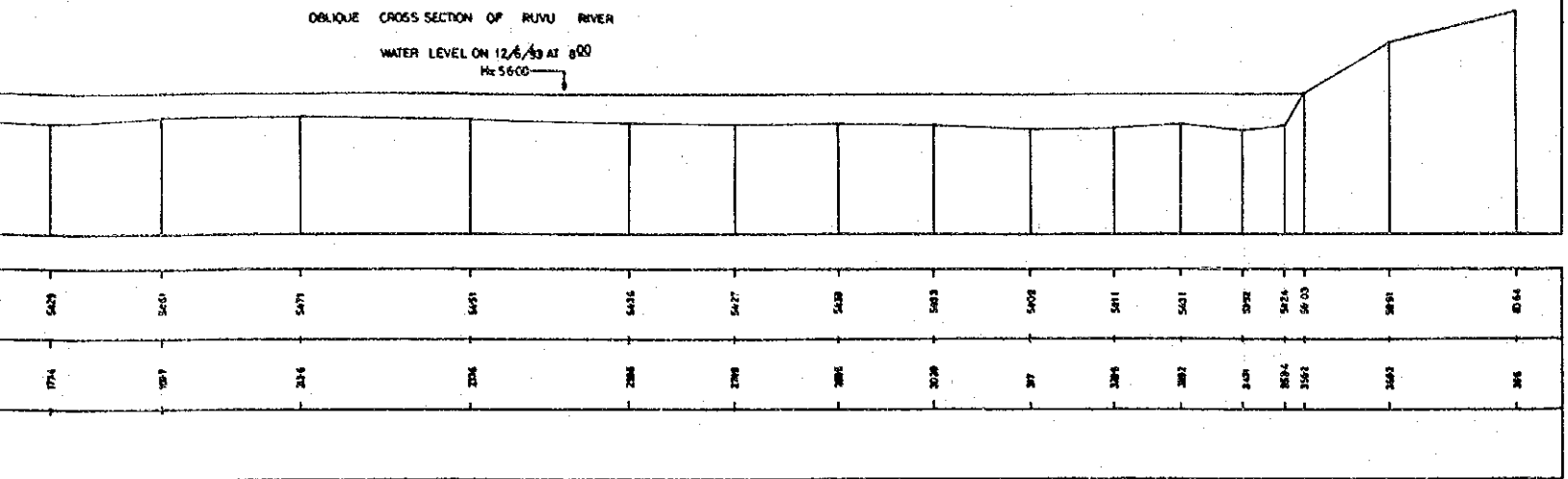
62.00 61.33 61.11 60.8 59.3 60.0 60.0 60.4 58.8 58.0 58.43 58.7 58.8 58.9 58.1 58.1 58.5 58.6 58.7 58.8 58.3 58.5 58.1 58.1 58.7 58.2 58.4 58.03 58.1

SCALE HORIZONTAL 1:5000
VERTICAL 1:200

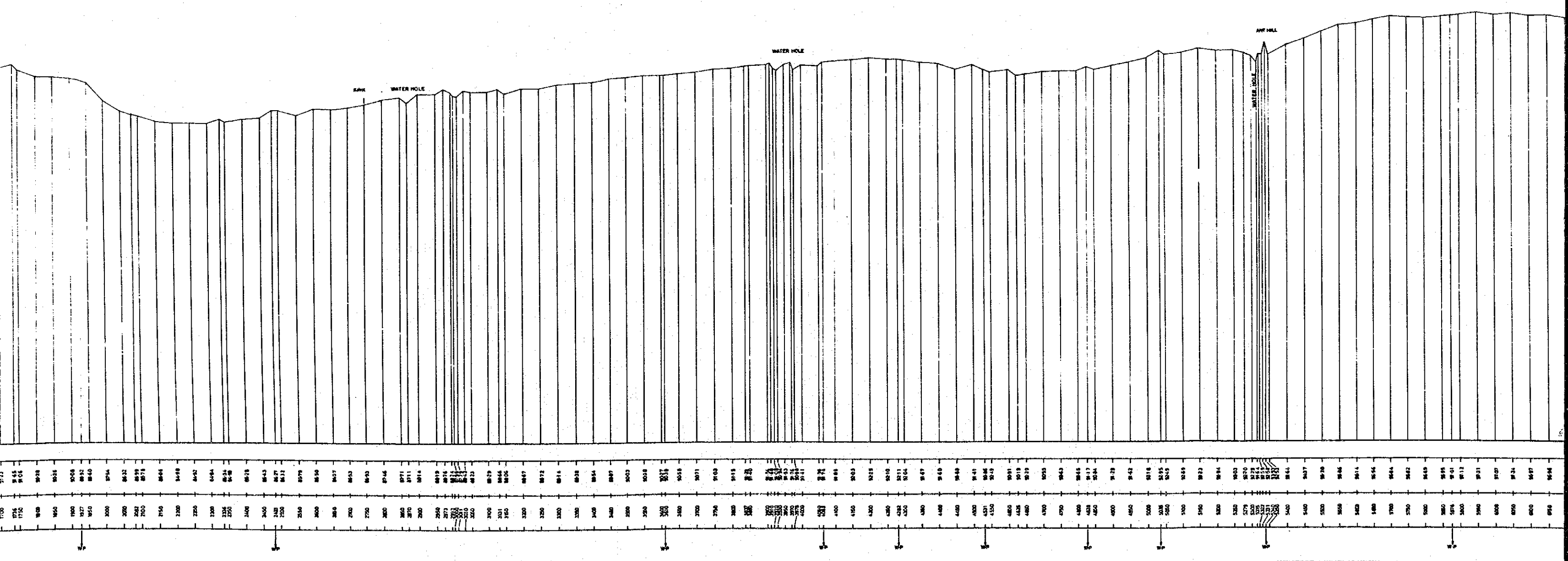
OBLIQUE CROSS SECTION OF RUVU RIVER

WATER LEVEL ON 12/6/93 AT 0900
Hr 5600

68M
66
64
62
60
58
56
54
52
50
48M

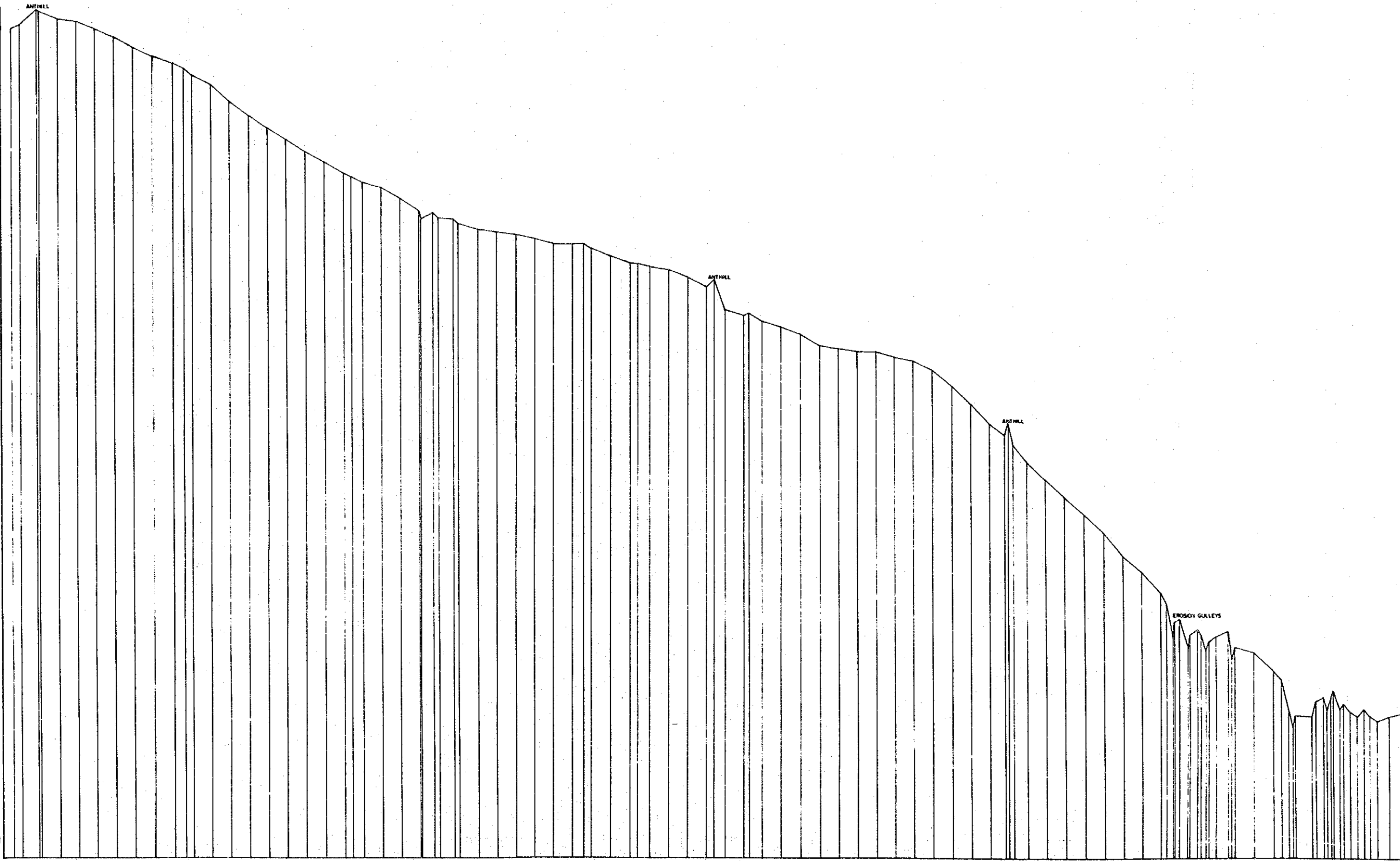


543	545	547	549	551	553	555	557	559	561	563	565	567	569	571	573	575	577	579	581	583	585	587	589	591	593	595	597	599	601	603	605	607	609	611	613	615	617	619	621	623	625	627	629	631	633	635	637	639	641	643	645	647	649	651	653	655	657	659	661	663	665	667	669	671	673	675	677	679	681	683	685	687	689	691	693	695	697	699	701	703	705	707	709	711	713	715	717	719	721	723	725	727	729	731	733	735	737	739	741	743	745	747	749	751	753	755	757	759	761	763	765	767	769	771	773	775	777	779	781	783	785	787	789	791	793	795	797	799	801	803	805	807	809	811	813	815	817	819	821	823	825	827	829	831	833	835	837	839	841	843	845	847	849	851	853	855	857	859	861	863	865	867	869	871	873	875	877	879	881	883	885	887	889	891	893	895	897	899	901	903	905	907	909	911	913	915	917	919	921	923	925	927	929	931	933	935	937	939	941	943	945	947	949	951	953	955	957	959	961	963	965	967	969	971	973	975	977	979	981	983	985	987	989	991	993	995	997	999
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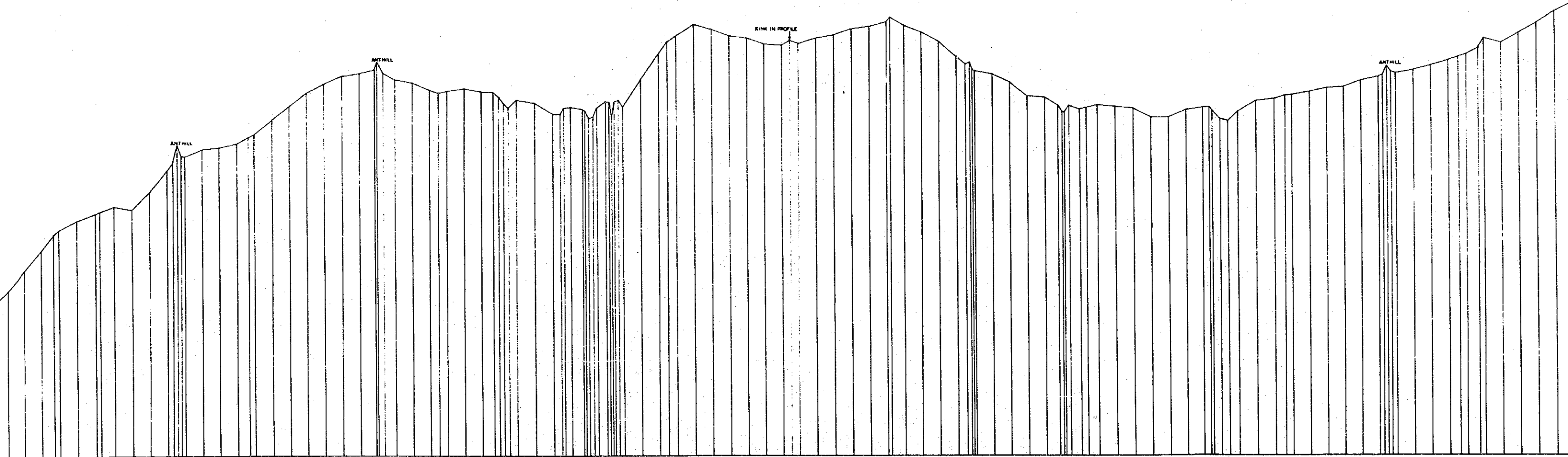


SCALE HORIZONTAL 1:500
VERTICAL 1:200

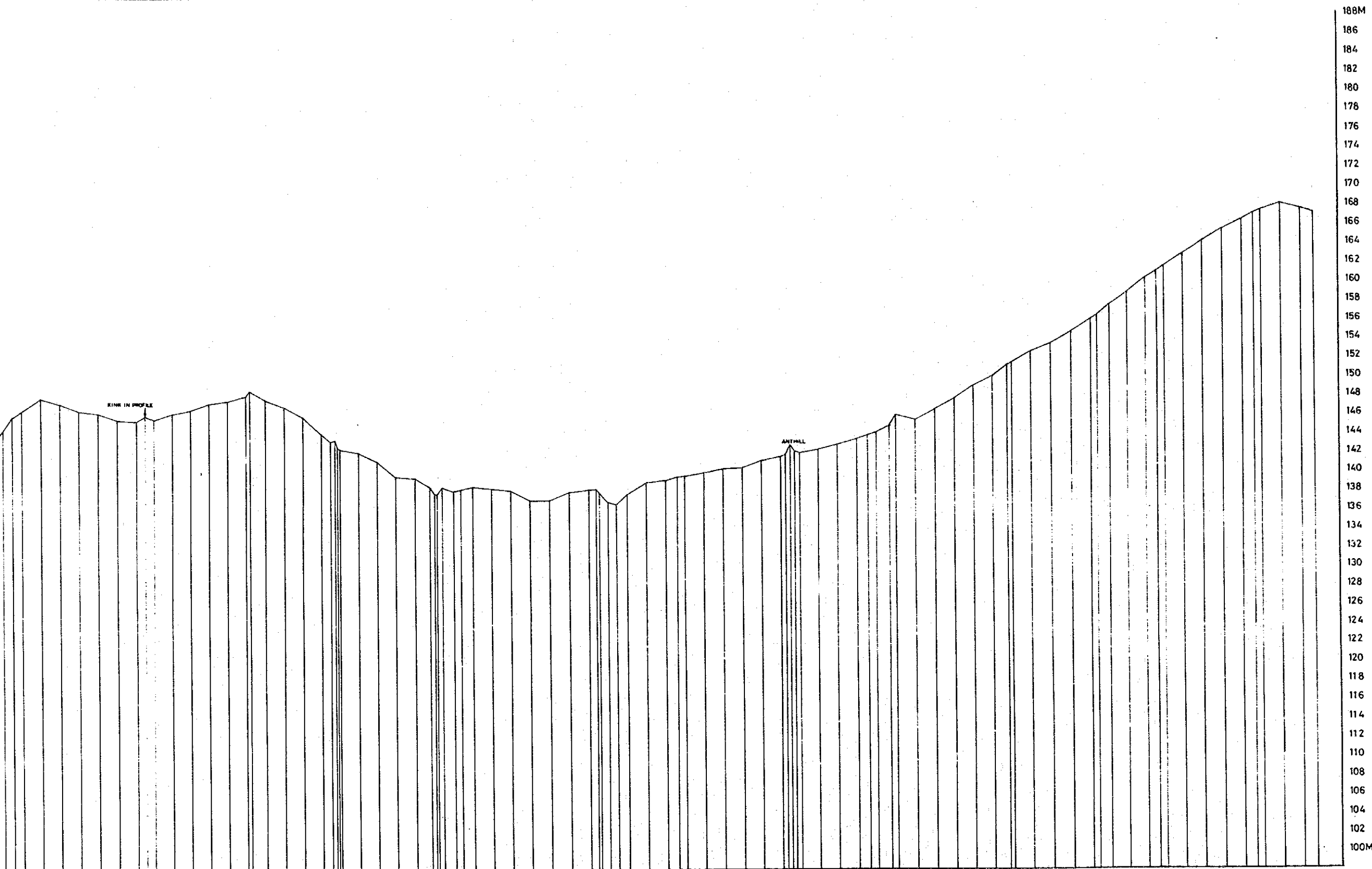
188M
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106
104
102
100M



GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
188.0	4.02	
187.8	4.05	
187.6	4.08	
187.4	4.11	
187.2	4.14	
187.0	4.17	
186.8	4.20	
186.6	4.23	
186.4	4.26	
186.2	4.29	
186.0	4.32	
185.8	4.35	
185.6	4.38	
185.4	4.41	
185.2	4.44	
185.0	4.47	
184.8	4.50	
184.6	4.53	
184.4	4.56	
184.2	4.59	
184.0	4.62	
183.8	4.65	
183.6	4.68	
183.4	4.71	
183.2	4.74	
183.0	4.77	
182.8	4.80	
182.6	4.83	
182.4	4.86	
182.2	4.89	
182.0	4.92	
181.8	4.95	
181.6	4.98	
181.4	5.01	
181.2	5.04	
181.0	5.07	
180.8	5.10	
180.6	5.13	
180.4	5.16	
180.2	5.19	
180.0	5.22	
179.8	5.25	
179.6	5.28	
179.4	5.31	
179.2	5.34	
179.0	5.37	
178.8	5.40	
178.6	5.43	
178.4	5.46	
178.2	5.49	
178.0	5.52	
177.8	5.55	
177.6	5.58	
177.4	5.61	
177.2	5.64	
177.0	5.67	
176.8	5.70	
176.6	5.73	
176.4	5.76	
176.2	5.79	
176.0	5.82	
175.8	5.85	
175.6	5.88	
175.4	5.91	
175.2	5.94	
175.0	5.97	
174.8	6.00	
174.6	6.03	
174.4	6.06	
174.2	6.09	
174.0	6.12	
173.8	6.15	
173.6	6.18	
173.4	6.21	
173.2	6.24	
173.0	6.27	
172.8	6.30	
172.6	6.33	
172.4	6.36	
172.2	6.39	
172.0	6.42	
171.8	6.45	
171.6	6.48	
171.4	6.51	
171.2	6.54	
171.0	6.57	
170.8	6.60	
170.6	6.63	
170.4	6.66	
170.2	6.69	
170.0	6.72	
169.8	6.75	
169.6	6.78	
169.4	6.81	
169.2	6.84	
169.0	6.87	
168.8	6.90	
168.6	6.93	
168.4	6.96	
168.2	6.99	
168.0	7.02	
167.8	7.05	
167.6	7.08	
167.4	7.11	
167.2	7.14	
167.0	7.17	
166.8	7.20	
166.6	7.23	
166.4	7.26	
166.2	7.29	
166.0	7.32	
165.8	7.35	
165.6	7.38	
165.4	7.41	
165.2	7.44	
165.0	7.47	
164.8	7.50	
164.6	7.53	
164.4	7.56	
164.2	7.59	
164.0	7.62	
163.8	7.65	
163.6	7.68	
163.4	7.71	
163.2	7.74	
163.0	7.77	
162.8	7.80	
162.6	7.83	
162.4	7.86	
162.2	7.89	
162.0	7.92	
161.8	7.95	
161.6	7.98	
161.4	8.01	
161.2	8.04	
161.0	8.07	
160.8	8.10	
160.6	8.13	
160.4	8.16	
160.2	8.19	
160.0	8.22	
159.8	8.25	
159.6	8.28	
159.4	8.31	
159.2	8.34	
159.0	8.37	
158.8	8.40	
158.6	8.43	
158.4	8.46	
158.2	8.49	
158.0	8.52	
157.8	8.55	
157.6	8.58	
157.4	8.61	
157.2	8.64	
157.0	8.67	
156.8	8.70	
156.6	8.73	
156.4	8.76	
156.2	8.79	
156.0	8.82	
155.8	8.85	
155.6	8.88	
155.4	8.91	
155.2	8.94	
155.0	8.97	
154.8	9.00	
154.6	9.03	
154.4	9.06	
154.2	9.09	
154.0	9.12	
153.8	9.15	
153.6	9.18	
153.4	9.21	
153.2	9.24	
153.0	9.27	
152.8	9.30	
152.6	9.33	
152.4	9.36	
152.2	9.39	
152.0	9.42	
151.8	9.45	
151.6	9.48	
151.4	9.51	
151.2	9.54	
151.0	9.57	
150.8	9.60	
150.6	9.63	
150.4	9.66	
150.2	9.69	
150.0	9.72	
149.8	9.75	
149.6	9.78	
149.4	9.81	
149.2	9.84	
149.0	9.87	
148.8	9.90	
148.6	9.93	
148.4	9.96	
148.2	9.99	
148.0	10.02	
147.8	10.05	
147.6	10.08	
147.4	10.11	
147.2	10.14	
147.0	10.17	
146.8	10.20	
146.6	10.23	
146.4	10.26	
146.2	10.29	
146.0	10.32	
145.8	10.35	
145.6	10.38	
145.4	10.41	
145.2	10.44	
145.0	10.47	
144.8	10.50	
144.6	10.53	
144.4	10.56	
144.2	10.59	
144.0	10.62	
143.8	10.65	
143.6	10.68	
143.4	10.71	
143.2	10.74	
143.0	10.77	
142.8	10.80	
142.6	10.83	
142.4	10.86	
142.2	10.89	
142.0	10.92	
141.8	10.95	
141.6	10.98	
141.4	11.01	
141.2	11.04	
141.0	11.07	
140.8	11.10	
140.6	11.13	
140.4	11.16	
140.2	11.19	
140.0	11.22	
139.8	11.25	
139.6	11.28	
139.4	11.31	
139.2	11.34	
139.0	11.37	
138.8	11.40	
138.6	11.43	
138.4	11.46	
138.2	11.49	
138.0	11.52	
137.8	11.55	
137.6	11.58	
137.4	11.61	
137.2	11.64	
137.0	11.67	
136.8	11.70	
136.6	11.73	
136.4	11.76	
136.2	11.79	
136.0	11.82	
135.8	11.85	
135.6	11.88	
135.4	11.91	
135.2	11.94	
135.0	11.97	
134.8	12.00	
134.6	12.03	
134.4	12.06	
134.2	12.09	
134.0	12.12	
133.8	12.15	
133.6	12.18	
133.4	12.21	
133.2	12.24	
133.0	12.27	
132.8	12.30	
132.6	12.33	
132.4	12.36	
132.2	12.39	
132.0	12.42	
131.8	12.45	
131.6	12.48	
131.4	12.51	
131.2	12.54	
131.0	12.57	
130.8	12.60	
130.6	12.63	
130.4	12.66	
130.2	12.69	
130.0	12.72	
129.8	12.75	
129.6	12.78	
129.4	12.81	
129.2	12.84	
129.0	12.87	
128.8	12.90	
128.6	12.93	
128.4	12.96	
128.2	12.99	
128.0	13.02	
127.8	13.05	
127.6	13.08	
127.4	13.11	
127.2	13.14	
127.0	13.17	
126.8	13.20	
126.6	13.23	
126.4	13.26	
126.2	13.29	
126.0	13.32	
125.8	13.35	
125.6	13.38	
125.4	13.41	
125.2	13.44	
125.0	13.47	
124.8	13.50	
124.6	13.53	
124.4	13.56	
124.2	13.59	
124.0	13.62	
123.8	13.65	
123.6	13.68	
123.4	13.71	
123.2	13.74	
123.0	13.77	
122.8	13.80	
122.6	13.83	
122.4	13.86	
122.2	13.89	
122.0	13.92	
121.8	13.95	
121.6	13.98	
121.4	14.01	
121.2	14.04	
121.0	14.07	
120.8	14.10	
120.6	14.13	
120.4	14.16	
120.2	14.19	
120.0	14.22	
119.8	14.25	
119.6	14.28	
119.4	14.31	
119.2	14.34	
119.0	14.37	
118.8	14.40	
118.6	14.43	
118.4	14.46	
118.2	14.49	
118.0	14.52	
117.8	14.55	
117.6	14.58	
117.4	14.61	
117.2	14.64	
117.0	14.67	
116.8	14.70	
116.6	14.73	
116.4	14.76	
116.2	14.79	
116.0	14.82	
115.8	14.85	
115.6	14.88	
115.4	14.91	
115.2	14.94	
115.0	14.97	
114.8	15.00	
114.6	15.03	
114.4	15.06	
114.2	15.09	
114.0	15.12	
113.8	15.15	
113.6	15.18	
113.4	15.21	
113.2	15.24	
113.0	15.27	
112.8	15.30	
112.6	15.33	
112.4	15.36	
112.2	15.39	
112.0	15.42	
111.8	15.45	
111.6	15.48	
111.4	15.51	
111.2	15.54	
111.0	15.57	
110.8	15.60	
110.6	15.63	
110.4	15.66	
110.2	15.69	
110.0	15.72	
109.8	15.75	
109.6	15.78	
109.4	15.81	
109.2	15.84	
109.0	15.87	
108.8	15.90	
108.6	15.93	
108.4	15.96	
108.2	15.99	
108.0	16.02	
107.8	16.05	
107.6	16.08	
107.4	16.11	
107.2	16.14	
107.0	16.17	
106.8	16.20	
106.6	16.23	
106.4	16.26	
106.2	16.29	
106.0	16.32	
105.8	16.35	
105.6	16.38	
105.4	16.41	
105.2	16.44	
105.0	16.47	
104.8	16.50	
104.6	16.53	
104.4		



750	117.46	800	119.40	650	121.47	500	123.54	350	125.65	200	127.82	50	130.05	0	132.34	100	134.69	200	137.10	300	139.57	400	142.10	500	144.69	600	147.34	700	150.05	800	152.82	900	155.65	1000	158.54	1100	161.49	1200	164.50	1300	167.57	1400	170.70	1500	173.99	1600	177.34	1700	180.75	1800	184.22	1900	187.75	2000	191.34	2100	194.99	2200	198.70	2300	202.47	2400	206.30	2500	210.19	2600	214.02	2700	217.91	2800	221.86	2900	225.87	3000	229.94	3100	234.07	3200	238.26	3300	242.51	3400	246.82	3500	251.19	3600	255.62	3700	260.11	3800	264.66	3900	269.27	4000	273.94	4100	278.67	4200	283.46	4300	288.31	4400	293.22	4500	298.09	4600	303.02	4700	307.91	4800	312.86	4900	317.87	5000	322.94	5100	328.07	5200	333.26	5300	338.61	5400	344.02	5500	349.49	5600	355.02	5700	360.61	5800	366.26	5900	372.07	6000	377.64	6100	383.27	6200	389.06	6300	395.01	6400	400.92	6500	406.89	6600	412.92	6700	419.01	6800	425.16	6900	431.46	7000	438.02	7100	444.64	7200	451.43	7300	458.88	7400	466.49	7500	474.16	7600	481.99	7700	489.88	7800	497.93	7900	506.14	8000	514.51	8100	523.04	8200	531.63	8300	540.38	8400	549.29	8500	558.36	8600	567.59	8700	576.98	8800	586.63	8900	595.44	9000	604.41	9100	613.44	9200	622.63	9300	631.98	9400	641.49	9500	651.16	9600	660.99	9700	670.78	9800	680.83	9900	691.04	10000	701.41	10100	711.94	10200	722.63	10300	733.48	10400	744.49	10500	755.76	10600	767.29	10700	779.08	10800	791.13	10900	803.44	11000	815.91	11100	828.54	11200	841.43	11300	854.17	11400	867.16	11500	880.61	11600	894.32	11700	907.19	11800	920.37	11900	933.66	12000	946.16	12100	959.66	12200	972.86	12300	985.76	12400	999.06	12500	1012.56	12600	1026.26	12700	1040.16	12800	1058.26	12900	1076.56	13000	1095.16	13100	1113.86	13200	1132.86	13300	1152.16	13400	1171.76	13500	1191.56	13600	1211.56	13700	1231.76	13800	1252.16	13900	1272.86	14000	1293.66	14100	1314.76	14200	1336.16	14300	1357.86	14400	1379.76	14500	1402.96	14600	1428.26	14700	1453.76	14800	1484.86	14900	1516.26	15000	1548.16	15100	1580.46	15200	1613.16	15300	1648.26	15400	1683.76	15500	1724.66	15600	1766.96	15700	1811.56	15800	1861.16	15900	1913.56	16000	1968.96	16100	2027.76	16200	2095.76	16300	2166.66	16400	2241.46	16500	2320.16	16600	2402.76	16700	2487.56	16800	2575.96	16900	2668.06	17000	2763.86	17100	2862.46	17200	2964.86	17300	3070.16	17400	3180.46	17500	3293.76	17600	3411.16	17700	3532.46	17800	3657.26	17900	3787.56	18000	3922.46	18100	4061.96	18200	4206.16	18300	4359.26	18400	4521.46	18500	4692.86	18600	4869.56	18700	5051.56	18800	5243.76	18900	5438.46	19000	5640.76	19100	5848.76	19200	6062.76	19300	6288.76	19400	6518.76	19500	6765.76	19600	7023.76	19700	7288.76	19800	7563.76	19900	7858.76	20000	8163.76	20100	8468.76	20200	8783.76	20300	9108.76	20400	9463.76	20500	9828.76	20600	10203.76	20700	10598.76	20800	11003.76	20900	11418.76	21000	11843.76	21100	12288.76	21200	12753.76	21300	13238.76	21400	13743.76	21500	14268.76	21600	14813.76	21700	15378.76	21800	15963.76	21900	16568.76	22000	17193.76	22100	17838.76	22200	18503.76	22300	19188.76	22400	19873.76	22500	20588.76	22600	21313.76	22700	22068.76	22800	22843.76	22900	23548.76	23000	24253.76	23100	25008.76	23200	25793.76	23300	26608.76	23400	27443.76	23500	28228.76	23600	29033.76	23700	29848.76	23800	30683.76	23900	31558.76	24000	32453.76	24100	33348.76	24200	34273.76	24300	35218.76	24400	36123.76	24500	37008.76	24600	37923.76	24700	38858.76	24800	39813.76	24900	40768.76	25000	41743.76	25100	42738.76	25200	43743.76	25300	44778.76	25400	45843.76	25500	46933.76	25600	48058.76	25700	49213.76	25800	50408.76	25900	51643.76	26000	52908.76	26100	54203.76	26200	55438.76	26300	56703.76	26400	58008.76	26500	59343.76	26600	60718.76	26700	62123.76	26800	63533.76	26900	64978.76	27000	66463.76	27100	68028.76	27200	69623.76	27300	71253.76	27400	72908.76	27500	74598.76	27600	76323.76	27700	78083.76	27800	79868.76	27900	81683.76	28000	83508.76	28100	85373.76	28200	87283.76	28300	89228.76	28400	91208.76	28500	93223.76	28600	95273.76	28700	97348.76	28800	99448.76	28900	101573.76	29000	103723.76	29100	105898.76	29200	108098.76	29300	110343.76	29400	112613.76	29500	114908.76	29600	117228.76	29700	119573.76	29800	121943.76	29900	124233.76	30000	126548.76	30100	128888.76	30200	131253.76	30300	133643.76	30400	136058.76	30500	138498.76	30600	140973.76	30700	143483.76	30800	146018.76	30900	148588.76	31000	151193.76	31100	153833.76	31200	156508.76	31300	159218.76	31400	161963.76	31500	164743.76	31600	167558.76	31700	170408.76	31800	173293.76	31900	176213.76	32000	179168.76	32100	182148.76	32200	185163.76	32300	188213.76	32400	191298.76	32500	194518.76	32600	197773.76	32700	201063.76	32800	204488.76	32900	207943.76	33000	211438.76	33100	214923.76	33200	218448.76	33300	222003.76	33400	225598.76	33500	229243.76	33600	232928.76	33700	236643.76	33800	240398.76	33900	244213.76	34000	248078.76	34100	251993.76	34200	255968.76	34300	260003.76	34400	264088.76	34500	268223.76	34600	272418.76	34700	276663.76	34800	280968.76	34900	285323.76	35000	289738.76	35100	294203.76	35200	298728.76	35300	303313.76	35400	307958.76	35500	312653.76	35600	317408.76	35700	322223.76	35800	327098.76	35900	332033.76	36000	336928.76	36100	341883.76	36200	346898.76	36300	351973.76	36400	357118.76	36500	362323.76	36600	367598.76	36700	372933.76	36800	378168.76	36900	383913.76	37000	389778.76	37100	395653.76	37200	401568.76	37300	407553.76	37400	413518.76	37500	419553.76	37600	425668.76	37700	431853.76	37800	438218.76	37900	444663.76	38000	451188.76	38100	457783.76	38200	464458.76	38300	471203.76	38400	477868.76	38500	484583.76	38600	491368.76	38700	498043.76	38800	504788.76	38900	511653.76	39000	518668.76	39100	525723.76	39200	532828.76	39300	540003.76	39400	547248.76	39500	554533.76	39600	561878.76	39700	569573.76	39800	577328.76	39900	585143.76	40000	593018.76	40100	600953.76	40200	608958.76	40300	617023.76	40400	625158.76	40500	633353.76	40600	641608.76	40700	649923.76	40800	658303.76	40900	666748.76	41000	675263.76	41100	684348.76	41200	693493.76	41300	702708.76	41400	711993.76	41500	721348.76	41600	730963.76	41700	740648.76	41800	750403.76	41900	760228.76	42000	770123.76	42100	780098.76	42200	790143.76	42300	800268.76	42400	810473.76	42500	820758.76	42600	831123.76	42700	841568.76	42800	852093.76	42900	862698.76	43000	873383.76	43100	884148.76	43200	894993.76	43300	905918.76	43400	916923.76	43500	927908.76	43600	938973.76	43700	950118.76	43800	961343.76	43900	972648.76	44000	984023.76	44100	995378.76	44200	1006803.76	44300	1018408.76	44400	1030033.76	44500	1041778.76	44600	1053683.76	44700	1065718.76	44800	1077783.76	44900	1089878.76	45000	1102003.76	45100	1114248.76	45200	1126523.76	45300	1138928.76	45400	1151453.76	45500	1164008.76	45600	1176683.76	45700	1189488.76	45800	1202413.76	45900	1215368.76	46000	1228443.76	46100	1241548.76	46200	1254673.76	46300	1267928.76	46400	1281303.76	46500	1294808.76	46600	1308333.76	46700	1321878.76	46800	1335583.76	46900	1349418.76	47000	1363273.76	47100	1377178.76	47200	1391193.76	47300	1405328.76	47400	1419483.76	47500	1433658.76	47600	1447943.76	47700	1462248.76	47800	1476563.76	47900	1490898.76	48000	1505253.76	48100	1519668.76	48200	1534103.76	48300	1548568.76	48400	1563053.76	48500	1577568.76	48600	1592103.76	48700	1606668.76	48800	1621253.76	48900	1635873.76	49000	1650508.76	49100	1665173.76	49200	1679868.76	49300	1694593.76	49400	1709348.76	49500	1724043.76	49600	1738768.76	49700	1753513.76	49800	1768288.76	49900	1783093.76	50000	1797928.76	50100	1812783.76	50200	1827608.76	50300	1842453.76	50400	1857328.76	50500	1872233.76	50600	1887168.76	50700	1902133.76	50800	1917128.76	50900	1932143.76	51000	1947178.76	51100	1962233.76	51200	1977318.76	51300	1992423.76	51400	2007548.76	51500	2022693.76	51600	2037868.76	51700	2053073.76	51800	2068308.76	51900	2083563.76	52000	2098838.76	52100	2114133.76	52200	2129418.76	52300	2144723.76	52400	2160058.76	52500	2175423.76	52600	2190728.76	52700	2206063.76	52800	2
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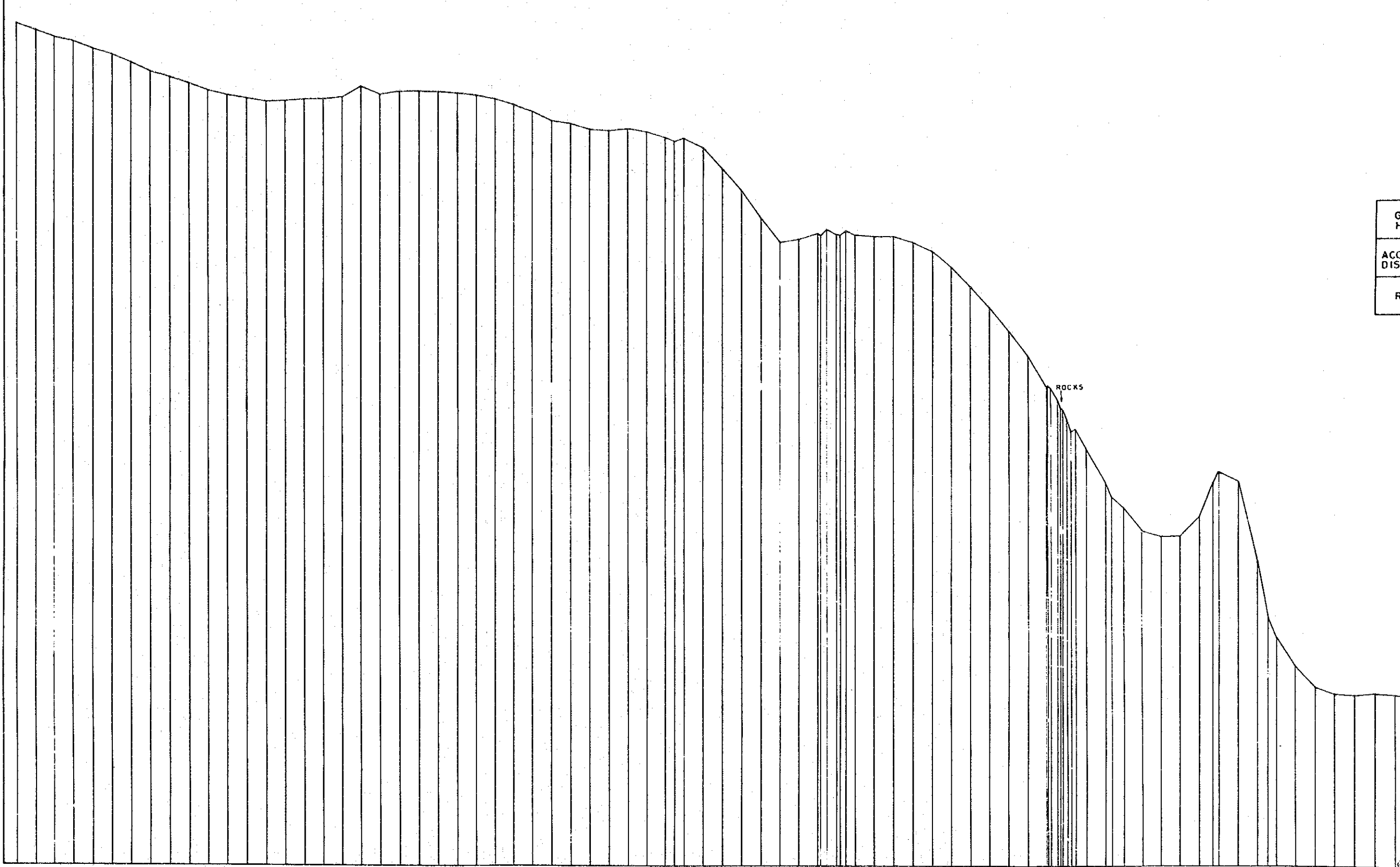
THE STUDY ON WATER RESOURCES
DEVELOPMENT IN THE RUVU RIVER BASIN

RIVER CROSS SECTION
AT
DAM SITE NGERENGERE

H: 1:5000 V: 1:200
SCALE
H: 1:500 V: 1:200

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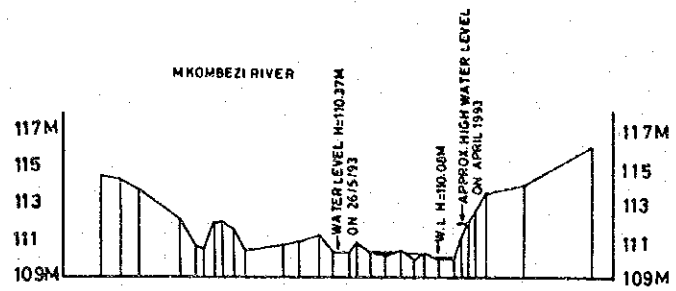


GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
186.89	2400	
186.89	2788	
185.17	2700	
184.82	2688	
183.98	2660	
183.25	2590	
182.45	2500	
181.50	2400	
180.90	2400	
180.31	2350	
179.95	2300	
179.02	2250	
178.64	2200	
178.34	2150	
178.26	2100	
178.44	2050	
178.56	2000	
178.77	1950	
178.88	1900	
178.99	1850	
179.28	1800	
179.32	1750	
179.71	1700	
179.17	1650	
180.99	1600	
179.59	1550	
179.65	1500	
177.29	1450	
176.37	1400	
176.84	1350	
178.26	1300	
178.25	1250	
178.44	1200	
178.18	1150	
176.52	1100	
174.13	1050	
174.43	1000	
173.48	950	
171.60	900	
169.00	850	
168.62	800	
168.48	750	
162.84	700	
161.00	650	
160.75	600	
160.75	550	
160.75	500	
160.75	450	
160.75	400	
160.75	350	
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160.75	250	
160.75	200	
160.75	150	
160.75	100	
160.75	50	
160.75	0	

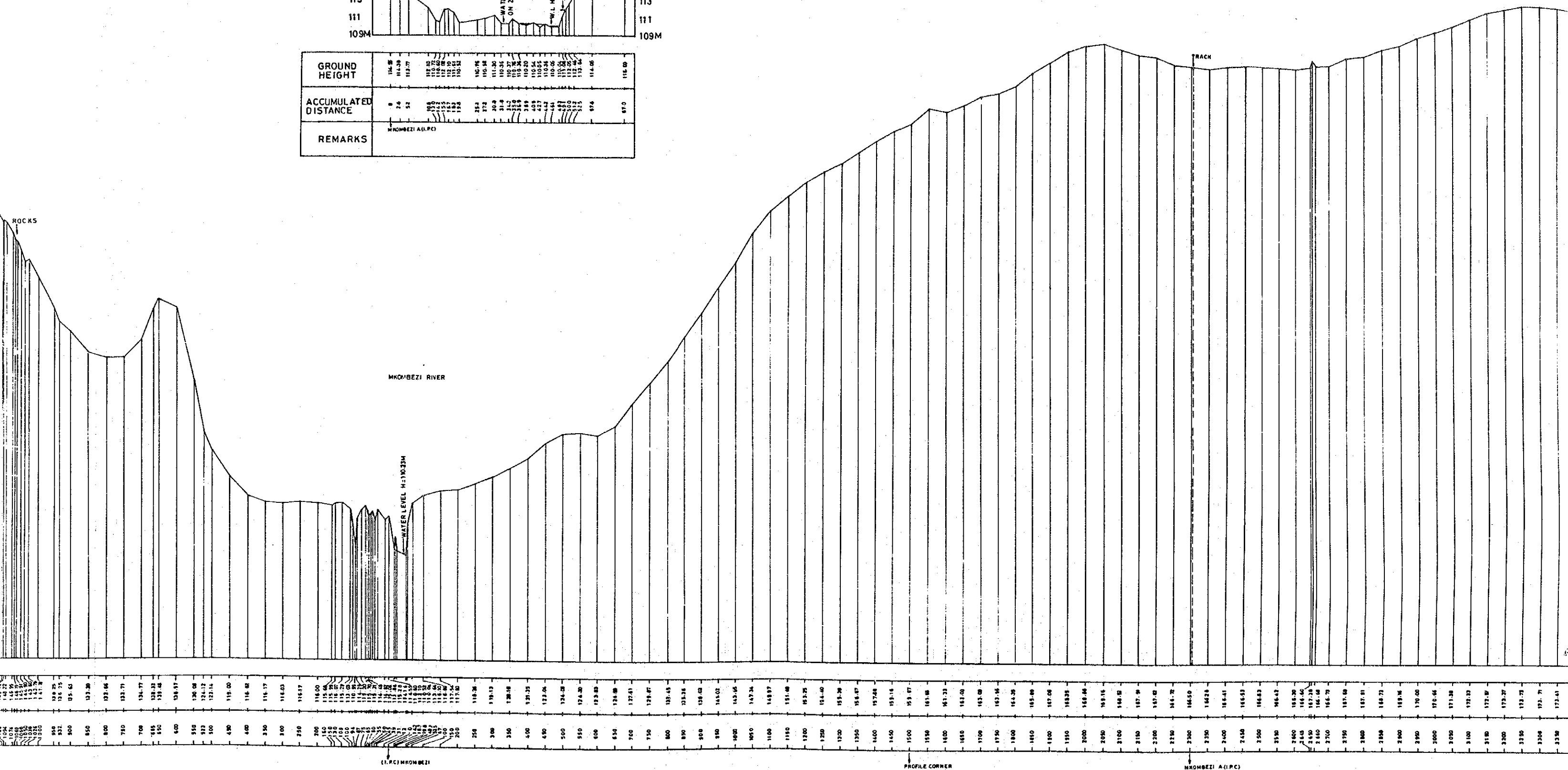
PROFILE CORNER

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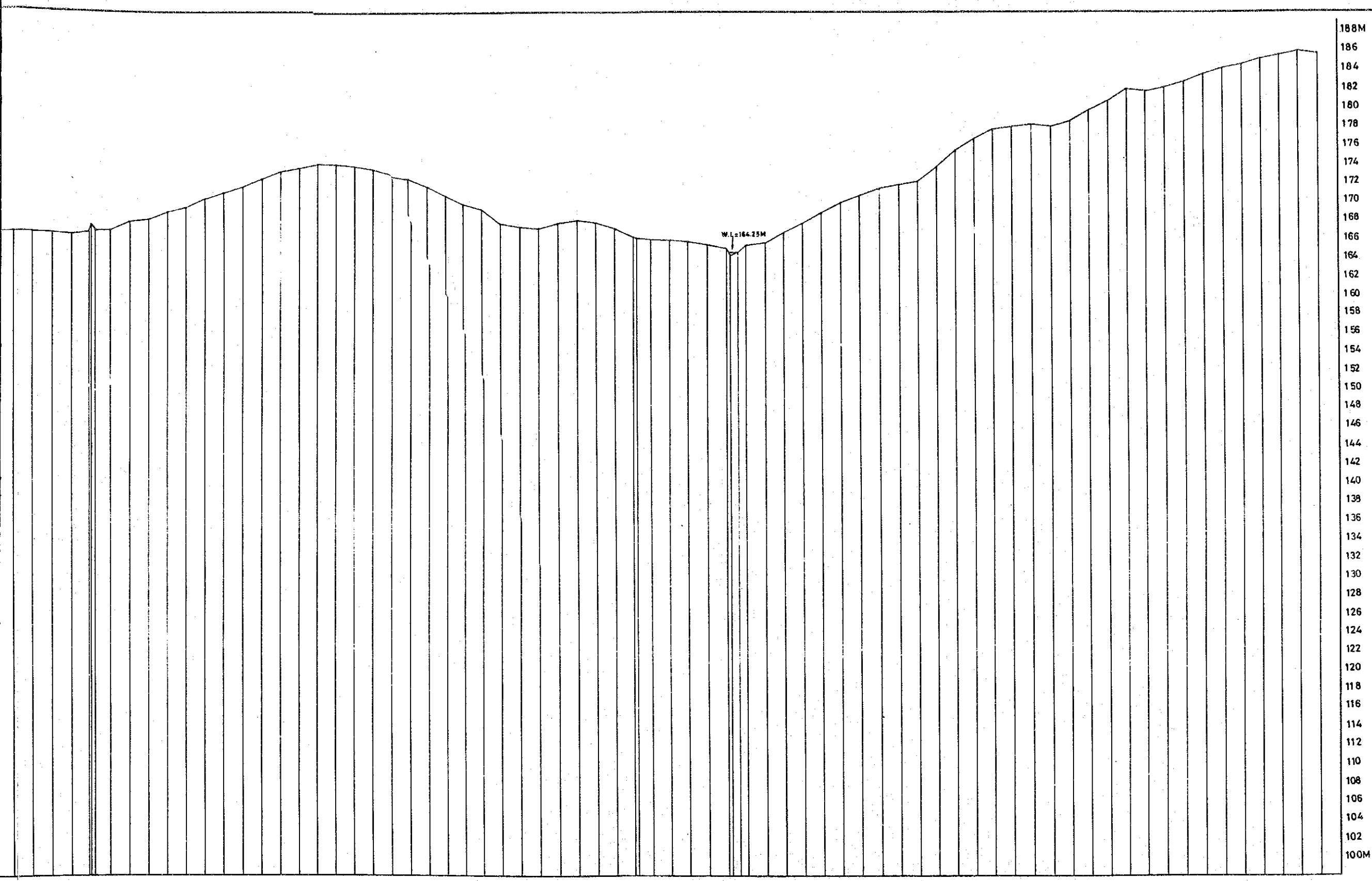


GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
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114.38	7.4	
113.77	52	
112.82	105	
110.82	150	
112.82	155	
112.82	160	
112.82	165	
112.82	170	
112.82	175	
112.82	180	
112.82	185	
112.82	190	
112.82	195	
112.82	200	
112.82	205	
112.82	210	
112.82	215	
112.82	220	
112.82	225	
112.82	230	
112.82	235	
112.82	240	
112.82	245	
112.82	250	
112.82	255	
112.82	260	
112.82	265	
112.82	270	
112.82	275	
112.82	280	
112.82	285	
112.82	290	
112.82	295	
112.82	300	
112.82	305	
112.82	310	
112.82	315	
112.82	320	
112.82	325	
112.82	330	
112.82	335	
112.82	340	
112.82	345	
112.82	350	
112.82	355	
112.82	360	
112.82	365	
112.82	370	
112.82	375	
112.82	380	
112.82	385	
112.82	390	
112.82	395	
112.82	400	
112.82	405	
112.82	410	
112.82	415	
112.82	420	
112.82	425	
112.82	430	
112.82	435	
112.82	440	
112.82	445	
112.82	450	
112.82	455	
112.82	460	
112.82	465	
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112.82	475	
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112.82	490	
112.82	495	
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112.82	510	
112.82	515	
112.82	520	
112.82	525	
112.82	530	
112.82	535	
112.82	540	
112.82	545	
112.82	550	
112.82	555	
112.82	560	
112.82	565	
112.82	570	
112.82	575	
112.82	580	
112.82	585	
112.82	590	
112.82	595	
112.82	600	
112.82	605	
112.82	610	
112.82	615	
112.82	620	
112.82	625	
112.82	630	
112.82	635	
112.82	640	
112.82	645	
112.82	650	
112.82	655	
112.82	660	
112.82	665	
112.82	670	
112.82	675	
112.82	680	
112.82	685	
112.82	690	
112.82	695	
112.82	700	
112.82	705	
112.82	710	
112.82	715	
112.82	720	
112.82	725	
112.82	730	
112.82	735	
112.82	740	
112.82	745	
112.82	750	
112.82	755	
112.82	760	
112.82	765	
112.82	770	
112.82	775	
112.82	780	
112.82	785	
112.82	790	
112.82	795	
112.82	800	
112.82	805	
112.82	810	
112.82	815	
112.82	820	
112.82	825	
112.82	830	
112.82	835	
112.82	840	
112.82	845	
112.82	850	
112.82	855	
112.82	860	
112.82	865	
112.82	870	
112.82	875	
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112.82	885	
112.82	890	
112.82	895	
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112.82	925	
112.82	930	
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112.82	940	
112.82	945	
112.82	950	
112.82	955	
112.82	960	
112.82	965	
112.82	970	
112.82	975	
112.82	980	
112.82	985	
112.82	990	
112.82	995	
112.82	1000	



1034	142.22
1036	141.75
1038	141.28
1040	140.81
1042	140.34
1044	139.87
1046	139.40
1048	138.93
1050	138.46
1052	137.99
1054	137.52
1056	137.05
1058	136.58
1060	136.11
1062	135.64
1064	135.17
1066	134.70
1068	134.23
1070	133.76
1072	133.29
1074	132.82
1076	132.35
1078	131.88
1080	131.41
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1096	127.64
1098	127.17
1100	126.70
1102	126.23
1104	125.76
1106	125.29
1108	124.82
1110	124.35
1112	123.88
1114	123.41
1116	122.94
1118	122.47
1120	122.00
1122	121.53
1124	121.06
1126	120.59
1128	120.12
1130	119.65
1132	119.18
1134	118.71
1136	118.24
1138	117.77
1140	117.30
1142	116.83
1144	116.36
1146	115.89
1148	115.42
1150	114.95
1152	114.48
1154	114.01
1156	113.54
1158	113.07
1160	112.60
1162	112.13
1164	111.66
1166	111.19
1168	110.72
1170	110.25
1172	109.78
1174	109.31
1176	108.84
1178	108.37
1180	107.90
1182	107.43
1184	106.96
1186	106.49
1188	106.02
1190	105.55
1192	105.08
1194	104.61
1196	104.14
1198	103.67
1200	103.20
1202	102.73
1204	102.26
1206	101.79
1208	101.32
1210	100.85
1212	100.38
1214	99.91
1216	99.44
1218	98.97
1220	98.50
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1224	97.56
1226	97.09
1228	96.62
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1234	95.21
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1238	94.27
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1252	90.98
1254	90.51
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1258	89.57
1260	89.10
1262	88.63
1264	88.16
1266	87.69
1268	87.22
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1294	81.11
1296	80.64
1298	80.17
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1304	78.76
1306	78.29
1308	77.82
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1312	76.88
1314	76.41
1316	75.94
1318	75.47
1320	75.00
1322	74.53
1324	74.06
1326	73.59
1328	73.12
1330	72.65
1332	72.18
1334	71.71
1336	71.24
1338	70.77
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1346	68.89
1348	68.42
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1358	66.07
1360	65.60
1362	65.13
1364	64.66
1366	64.19
1368	63.72
1370	63.25
1372	62.78
1374	62.31
1376	61.84
1378	61.37
1380	60.90
1382	60.43
1384	59.96
1386	59.49
1388	59.02
1390	58.55
1392	58.08
1394	57.61
1396	57.14
1398	56.67
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1572	15.78
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1576	14.84
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1580	13.90
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 VERTICAL 1:200



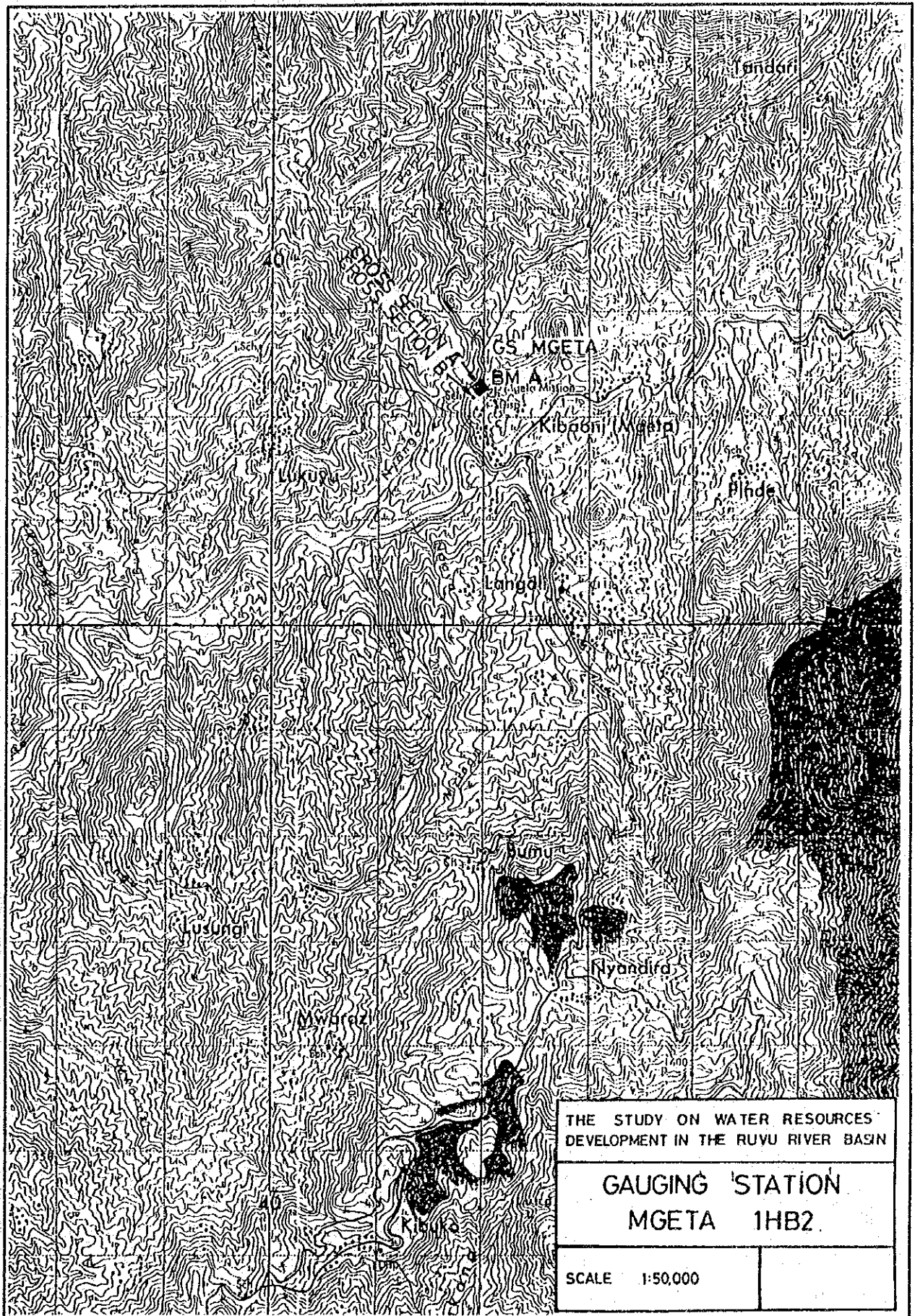
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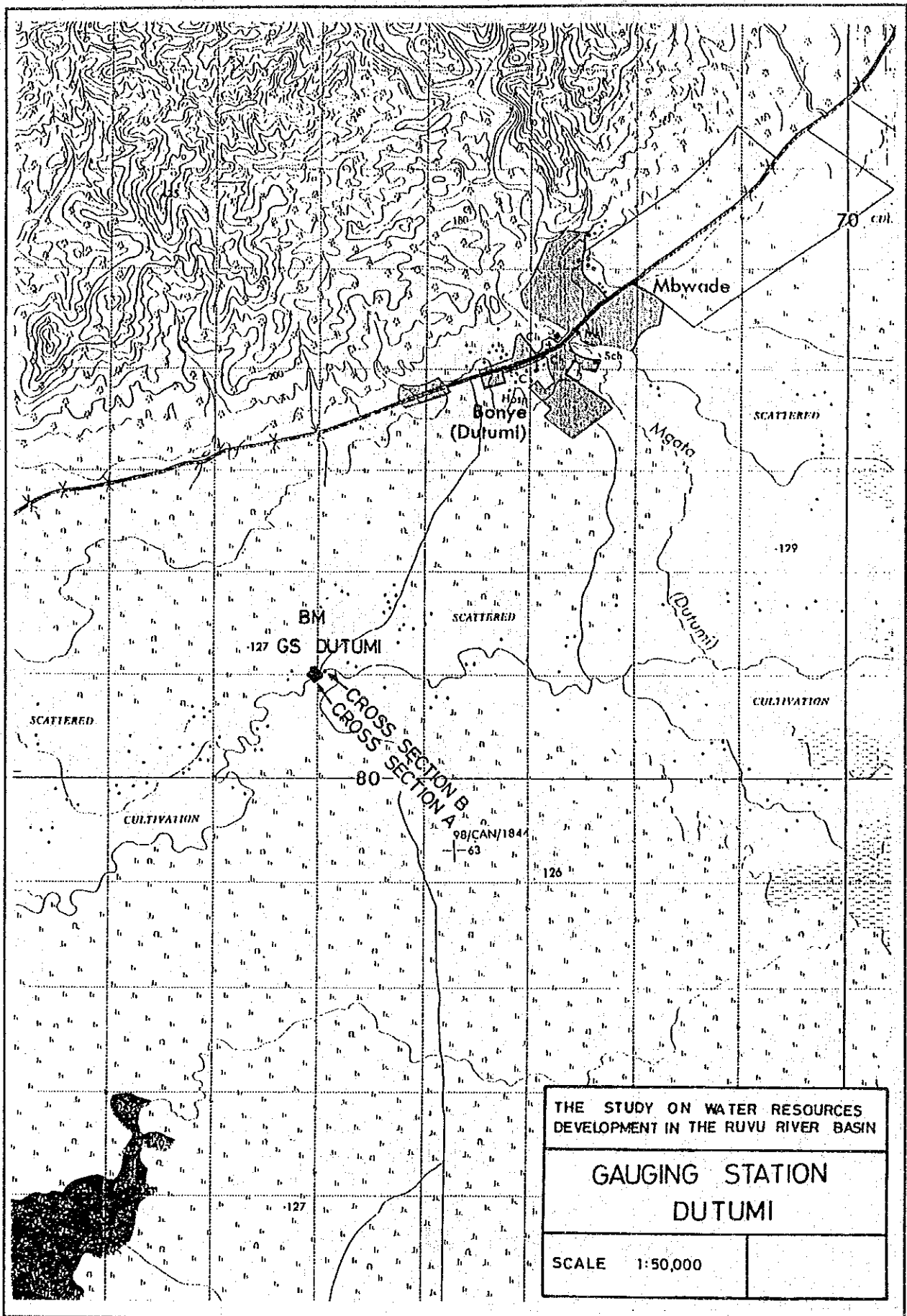
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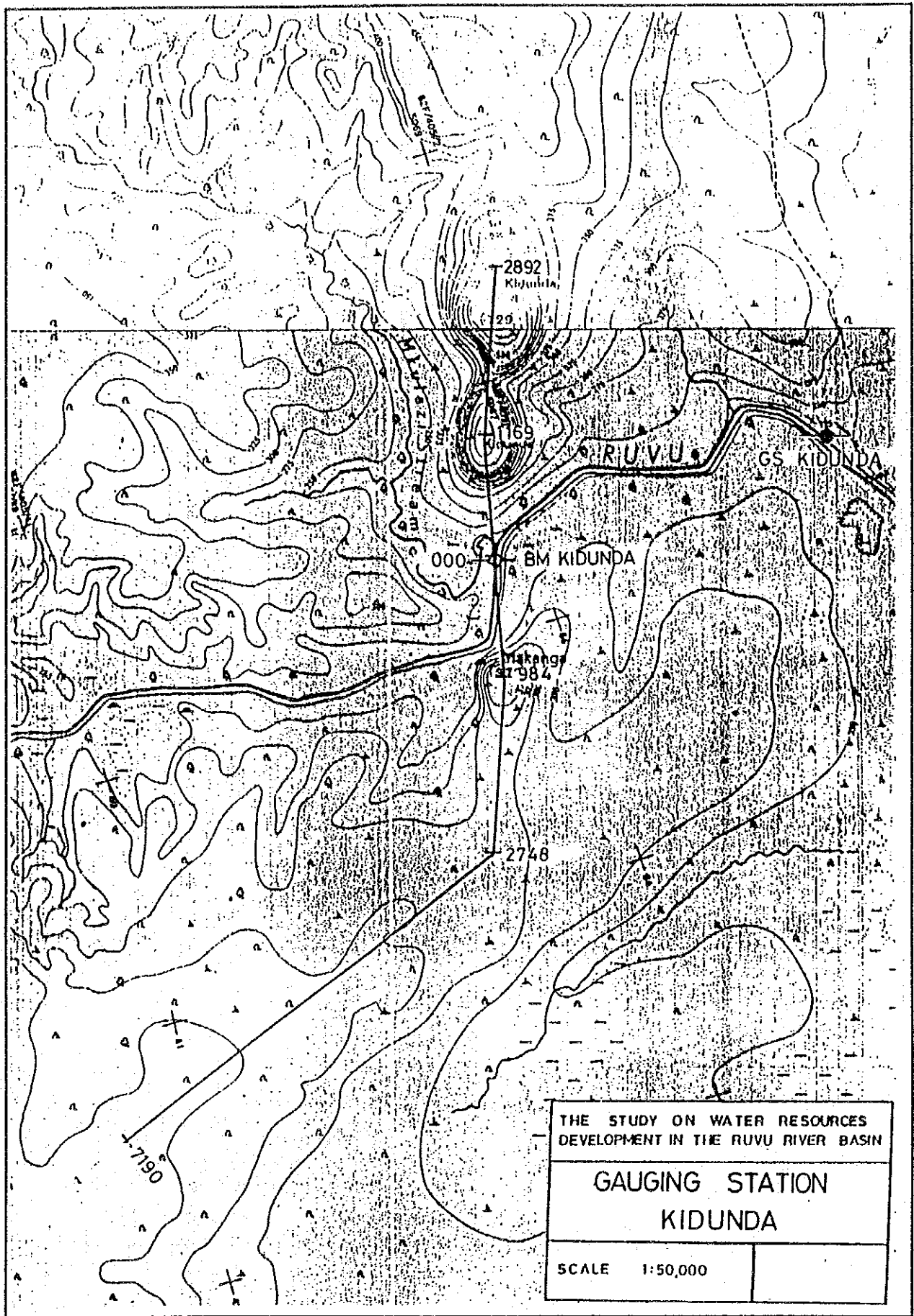
2450	165.53	2500	165.53	2550	166.42	2600	166.30	2650	166.40	2700	167.31	2750	167.48	2800	167.51	2850	168.42	2900	168.42	2950	169.32	3000	169.36	3050	170.00	3100	170.64	3150	171.28	3200	172.02	3250	172.75	3300	173.41	3350	173.12	3400	173.48	3450	173.20	3500	173.27	3550	173.28	3600	174.18	3650	174.18	3700	175.06	3750	175.06	3800	175.96	3850	176.84	3900	177.71	3950	177.71	4000	178.59	4050	178.59	4100	179.47	4150	179.47	4200	180.35	4250	180.35	4300	181.23	4350	181.23	4400	182.11	4450	182.11	4500	182.99	4550	182.99	4600	183.87	4650	183.87	4700	184.75	4750	184.75	4800	185.63	4850	185.63	4900	186.51	4950	186.51	5000	187.39	5050	187.39	5100	188.27	5150	188.27	5200	189.15	5250	189.15	5300	190.03	5350	190.03	5400	190.91	5450	190.91	5500	191.79	5550	191.79	5600	192.67	5650	192.67	5700	193.55	5750	193.55	5800	194.43	5850	194.43	5900	195.31	5950	195.31	6000	196.19	6050	196.19	6100	197.07	6150	197.07	6200	197.95	6250	197.95	6300	198.83	6350	198.83	6400	199.71	6450	199.71	6500	200.59	6550	200.59	6600	201.47	6650	201.47	6700	202.35	6750	202.35	6800	203.23	6850	203.23	6900	204.11	6950	204.11	7000	204.99	7050	204.99	7100	205.87	7150	205.87	7200	206.75	7250	206.75	7300	207.63	7350	207.63	7400	208.51	7450	208.51	7500	209.39	7550	209.39	7600	210.27	7650	210.27	7700	211.15	7750	211.15	7800	212.03	7850	212.03	7900	212.91	7950	212.91	8000	213.79	8050	213.79	8100	214.67	8150	214.67	8200	215.55	8250	215.55	8300	216.43	8350	216.43	8400	217.31	8450	217.31	8500	218.19	8550	218.19	8600	219.07	8650	219.07	8700	219.95	8750	219.95	8800	220.83	8850	220.83	8900	221.71	8950	221.71	9000	222.59	9050	222.59	9100	223.47	9150	223.47	9200	224.35	9250	224.35	9300	225.23	9350	225.23	9400	226.11	9450	226.11	9500	226.99	9550	226.99	9600	227.87	9650	227.87	9700	228.75	9750	228.75	9800	229.63	9850	229.63	9900	230.51	9950	230.51	10000	231.39	10050	231.39	10100	232.27	10150	232.27	10200	233.15	10250	233.15	10300	234.03	10350	234.03	10400	234.91	10450	234.91	10500	235.79	10550	235.79	10600	236.67	10650	236.67	10700	237.55	10750	237.55	10800	238.43	10850	238.43	10900	239.31	10950	239.31	11000	240.19	11050	240.19	11100	241.07	11150	241.07	11200	241.95	11250	241.95	11300	242.83	11350	242.83	11400	243.71	11450	243.71	11500	244.59	11550	244.59	11600	245.47	11650	245.47	11700	246.35	11750	246.35	11800	247.23	11850	247.23	11900	248.11	11950	248.11	12000	248.99	12050	248.99	12100	249.87	12150	249.87	12200	250.75	12250	250.75	12300	251.63	12350	251.63	12400	252.51	12450	252.51	12500	253.39	12550	253.39	12600	254.27	12650	254.27	12700	255.15	12750	255.15	12800	256.03	12850	256.03	12900	256.91	12950	256.91	13000	257.79	13050	257.79	13100	258.67	13150	258.67	13200	259.55	13250	259.55	13300	260.43	13350	260.43	13400	261.31	13450	261.31	13500	262.19	13550	262.19	13600	263.07	13650	263.07	13700	263.95	13750	263.95	13800	264.83	13850	264.83	13900	265.71	13950	265.71	14000	266.59	14050	266.59	14100	267.47	14150	267.47	14200	268.35	14250	268.35	14300	269.23	14350	269.23	14400	270.11	14450	270.11	14500	270.99	14550	270.99	14600	271.87	14650	271.87	14700	272.75	14750	272.75	14800	273.63	14850	273.63	14900	274.51	14950	274.51	15000	275.39	15050	275.39	15100	276.27	15150	276.27	15200	277.15	15250	277.15	15300	278.03	15350	278.03	15400	278.91	15450	278.91	15500	279.79	15550	279.79	15600	280.67	15650	280.67	15700	281.55	15750	281.55	15800	282.43	15850	282.43	15900	283.31	15950	283.31	16000	284.19	16050	284.19	16100	285.07	16150	285.07	16200	285.95	16250	285.95	16300	286.83	16350	286.83	16400	287.71	16450	287.71	16500	288.59	16550	288.59	16600	289.47	16650	289.47	16700	290.35	16750	290.35	16800	291.23	16850	291.23	16900	292.11	16950	292.11	17000	292.99	17050	292.99	17100	293.87	17150	293.87	17200	294.75	17250	294.75	17300	295.63	17350	295.63	17400	296.51	17450	296.51	17500	297.39	17550	297.39	17600	298.27	17650	298.27	17700	299.15	17750	299.15	17800	300.03	17850	300.03	17900	300.91	17950	300.91	18000	301.79	18050	301.79	18100	302.67	18150	302.67	18200	303.55	18250	303.55	18300	304.43	18350	304.43	18400	305.31	18450	305.31	18500	306.19	18550	306.19	18600	307.07	18650	307.07	18700	307.95	18750	307.95	18800	308.83	18850	308.83	18900	309.71	18950	309.71	19000	310.59	19050	310.59	19100	311.47	19150	311.47	19200	312.35	19250	312.35	19300	313.23	19350	313.23	19400	314.11	19450	314.11	19500	314.99	19550	314.99	19600	315.87	19650	315.87	19700	316.75	19750	316.75	19800	317.63	19850	317.63	19900	318.51	19950	318.51	20000	319.39	20050	319.39	20100	320.27	20150	320.27	20200	321.15	20250	321.15	20300	322.03	20350	322.03	20400	322.91	20450	322.91	20500	323.79	20550	323.79	20600	324.67	20650	324.67	20700	325.55	20750	325.55	20800	326.43	20850	326.43	20900	327.31	20950	327.31	21000	328.19	21050	328.19	21100	329.07	21150	329.07	21200	329.95	21250	329.95	21300	330.83	21350	330.83	21400	331.71	21450	331.71	21500	332.59	21550	332.59	21600	333.47	21650	333.47	21700	334.35	21750	334.35	21800	335.23	21850	335.23	21900	336.11	21950	336.11	22000	336.99	22050	336.99	22100	337.87	22150	337.87	22200	338.75	22250	338.75	22300	339.63	22350	339.63	22400	340.51	22450	340.51	22500	341.39	22550	341.39	22600	342.27	22650	342.27	22700	343.15	22750	343.15	22800	344.03	22850	344.03	22900	344.91	22950	344.91	23000	345.79	23050	345.79	23100	346.67	23150	346.67	23200	347.55	23250	347.55	23300	348.43	23350	348.43	23400	349.31	23450	349.31	23500	350.19	23550	350.19	23600	351.07	23650	351.07	23700	351.95	23750	351.95	23800	352.83	23850	352.83	23900	353.71	23950	353.71	24000	354.59	24050	354.59	24100	355.47	24150	355.47	24200	356.35	24250	356.35	24300	357.23	24350	357.23	24400	358.11	24450	358.11	24500	358.99	24550	358.99	24600	359.87	24650	359.87	24700	360.75	24750	360.75	24800	361.63	24850	361.63	24900	362.51	24950	362.51	25000	363.39	25050	363.39	25100	364.27	25150	364.27	25200	365.15	25250	365.15	25300	366.03	25350	366.03	25400	366.91	25450	366.91	25500	367.79	25550	367.79	25600	368.67	25650	368.67	25700	369.55	25750	369.55	25800	370.43	25850	370.43	25900	371.31	25950	371.31	26000	372.19	26050	372.19	26100	373.07	26150	373.07	26200	373.95	26250	373.95	26300	374.83	26350	374.83	26400	375.71	26450	375.71	26500	376.59	26550	376.59	26600	377.47	26650	377.47	26700	378.35	26750	378.35	26800	379.23	26850	379.23	26900	380.11	26950	380.11	27000	380.99	27050	380.99	27100	381.87	27150	381.87	27200	382.75	27250	382.75	27300	383.63	27350	383.63	27400	384.51	27450	384.51	27500	385.39	27550	385.39	27600	386.27	27650	386.27	27700	387.15	27750	387.15	27800	388.03	27850	388.03	27900	388.91	27950	388.91	28000	389.79	28050	389.79	28100	390.67	28150	390.67	28200	391.55	28250	391.55	28300	392.43	28350	392.43	28400	393.31	28450	393.31	28500	394.19	28550	394.19	28600	395.07	28650	395.07	28700	395.95	28750	395.95	28800	396.83	28850	396.83	28900	397.71	28950	397.71	29000	398.59	29050	398.59	29100	399.47	29150	399.47	29200	400.35	29250	400.35	29300	401.23	29350	401.23	29400	402.11	29450	402.11	29500	402.99	29550	402.99	29600	403.87	29650	403.87	29700	404.75	29750	404.75	29800	405.63	29850	405.63	29900	406.51	29950	406.51	30000	407.39	30050	407.39	30100	408.27	30150	408.27	30200	409.15	30250	409.15	30300	410.03	30350	410.03	30400	410.91	30450	410.91	30500	411.79	30550	411.79	30600	412.67	30650	412.67	30700	413.55	30750	413.55	30800	414.43	30850	414.43	30900	415.31	30950	415.31	31000	416.19	31050	416.19	31100	417.07	31150	417.07
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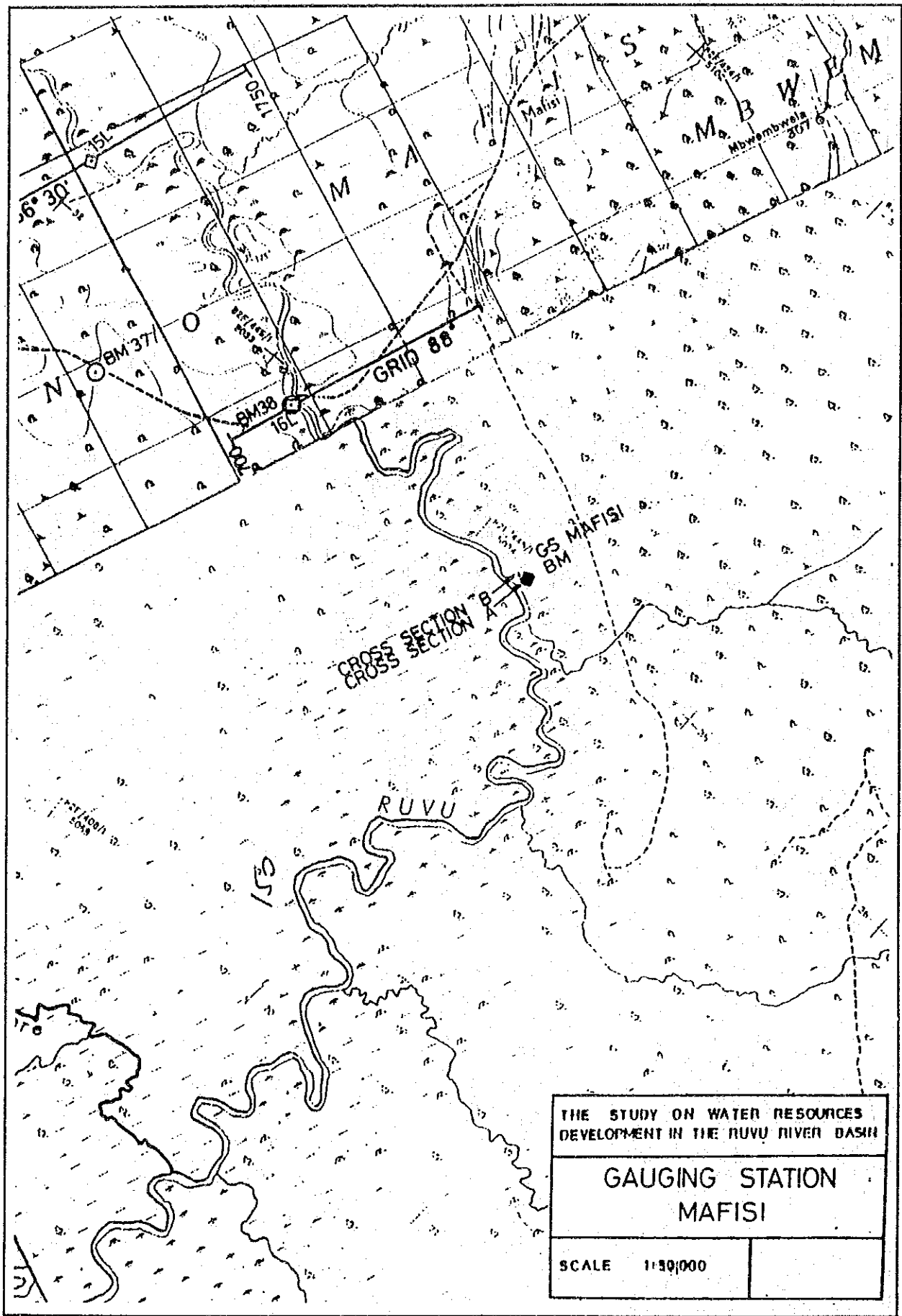
TOPOGRAPHIC DATA

3. GAUGING STATIONS

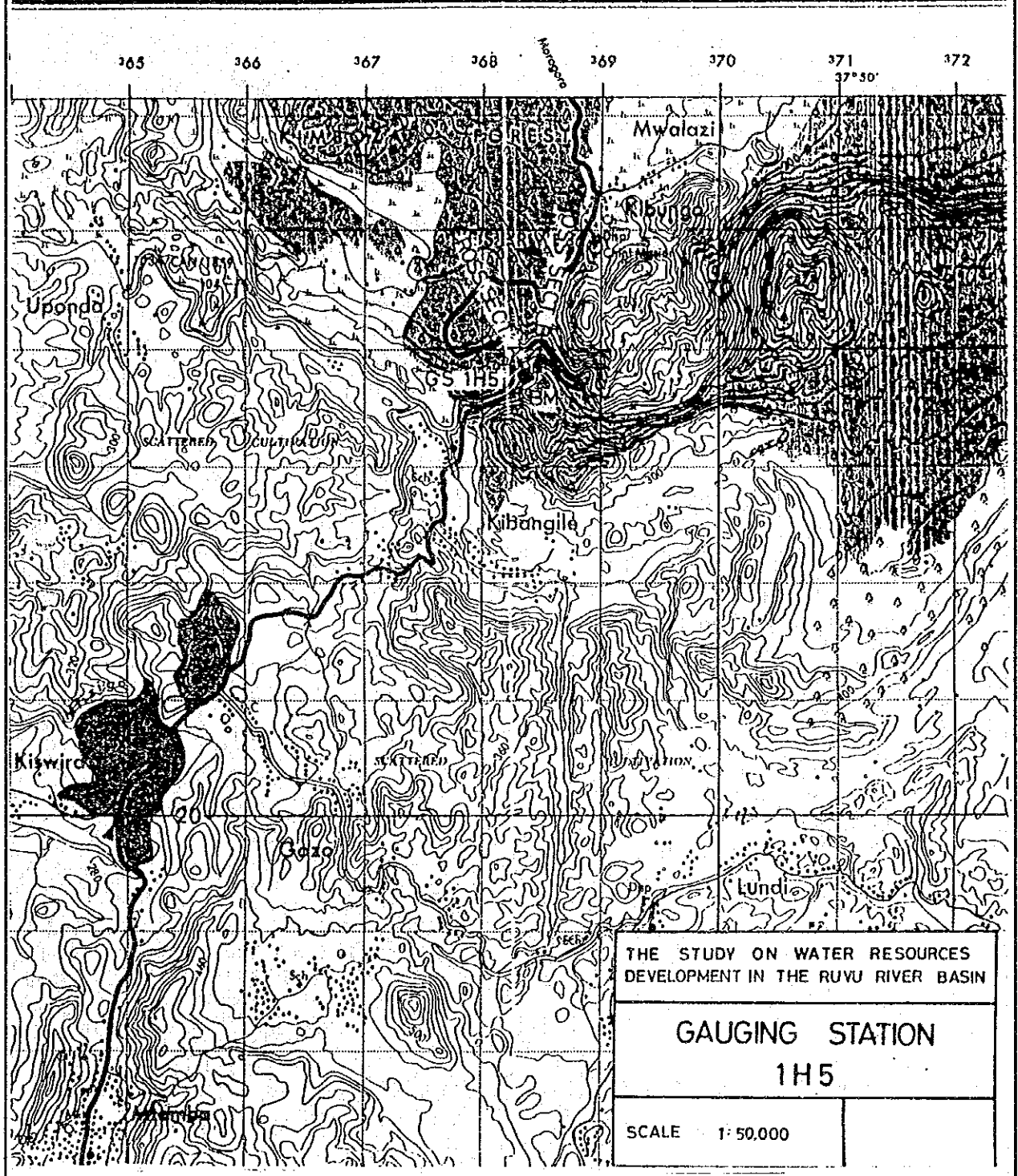


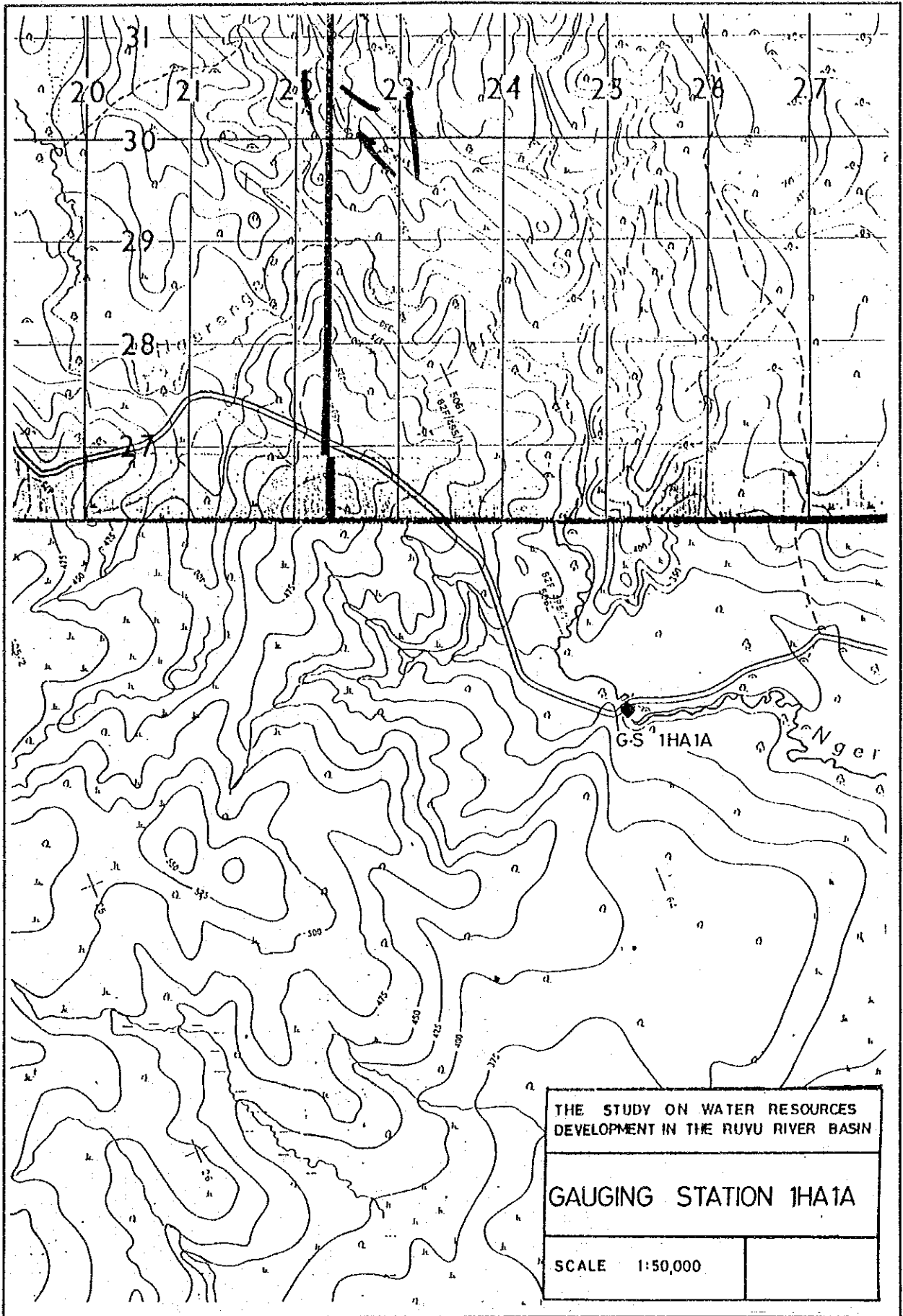


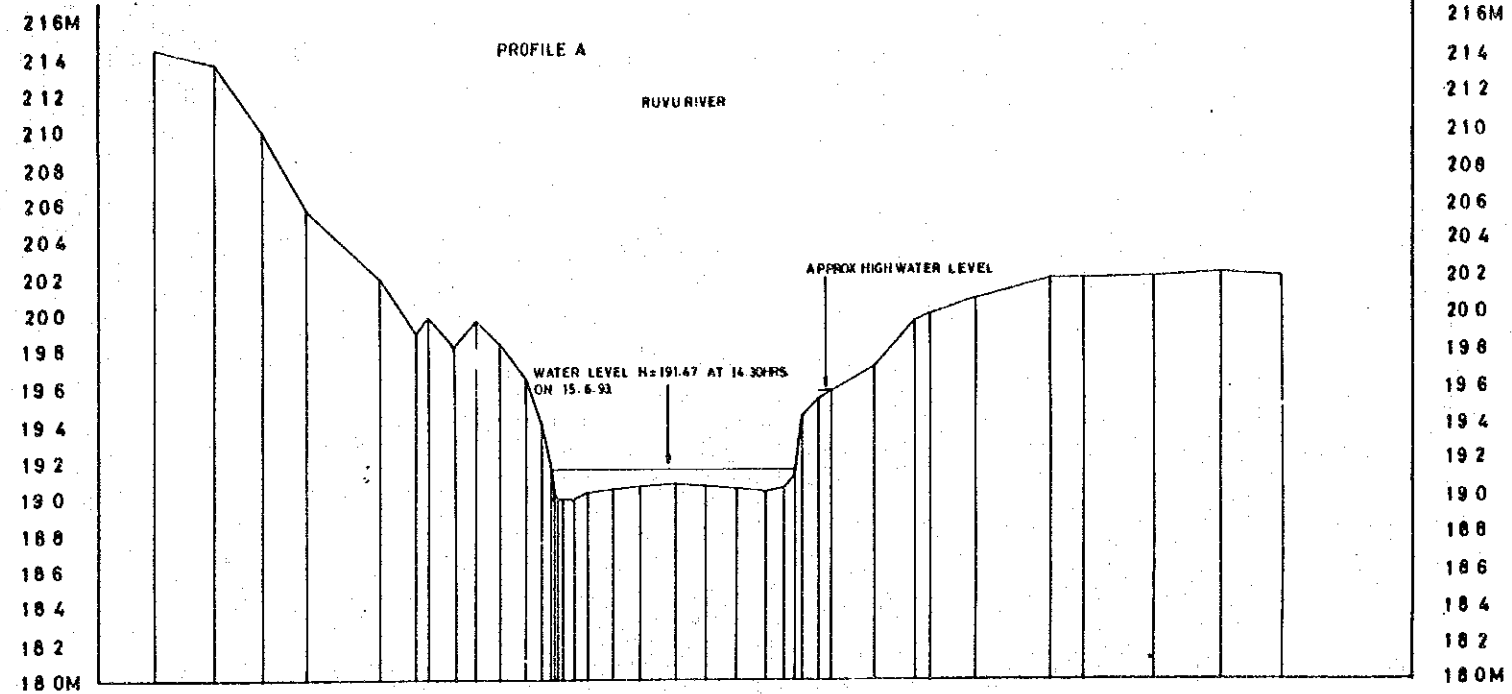




ANZANIA) 1:50,000

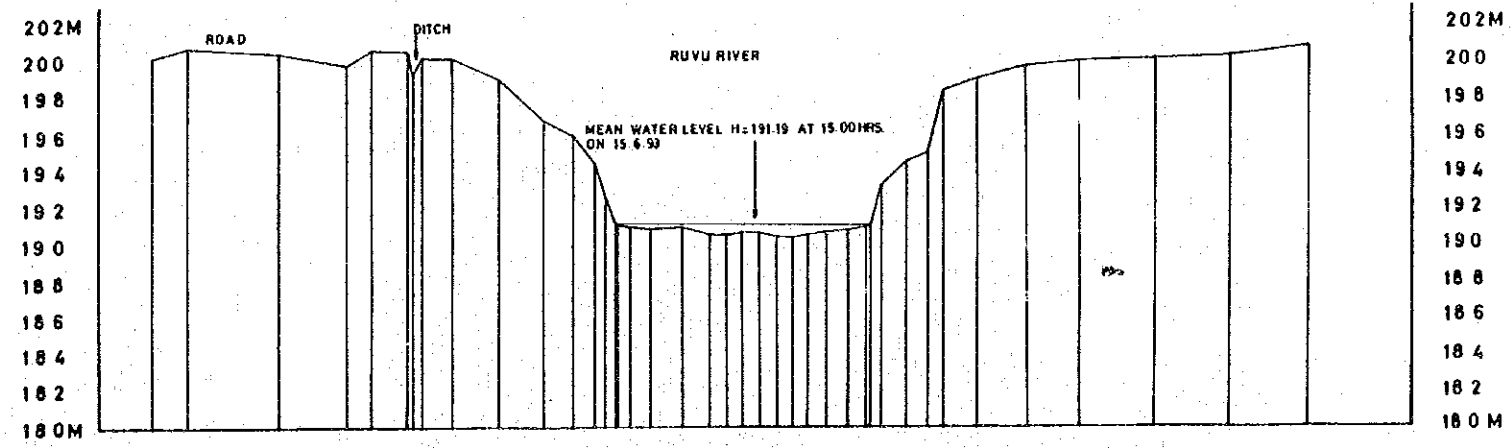






GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
214.27	0.00	
213.91	35.04	
209.04	32.25	
205.57	34.79	
201.84	36.34	
198.94	41.40	
195.81	45.80	
193.15	49.24	
189.86	52.72	
188.47	55.74	
183.80	58.28	
181.00	60.34	
178.27	62.41	
180.48	64.48	
180.85	66.55	
180.55	68.61	
180.48	70.68	
180.38	72.74	
180.45	74.81	
181.17	76.87	
181.20	78.94	
181.30	81.00	
181.14	83.07	
199.44	85.14	
200.88	87.20	
200.84	89.27	
201.88	91.34	
201.89	93.40	
201.89	95.47	
201.89	97.54	
201.89	99.60	
202.30	101.67	
201.89	103.74	
201.89	105.80	
201.89	107.87	

PROFILE B (100M DOWNSTREAM FROM PROFILE A)



GROUND HEIGHT	ACCUMULATED DISTANCE	REMARKS
200.22	0.00	
200.70	4.89	
200.35	9.78	
198.80	14.67	
200.61	19.56	
200.83	24.45	
198.22	29.34	
200.17	34.23	
200.10	39.12	
198.94	44.00	
196.75	48.89	
195.81	53.78	
194.43	58.67	
192.85	63.56	
191.27	68.45	
189.86	73.34	
188.47	78.23	
187.08	83.12	
185.69	88.01	
184.30	92.90	
183.91	97.79	
183.52	102.68	
183.13	107.57	
182.74	112.46	
182.35	117.35	
181.96	122.24	
181.57	127.13	
181.18	132.02	
180.79	136.91	
180.40	141.80	
180.01	146.69	
198.71	151.58	
198.07	156.47	
198.00	161.36	
198.00	166.25	
198.00	171.14	
198.00	176.03	
198.00	180.92	
198.00	185.81	
198.00	190.70	
198.00	195.59	
198.00	200.48	
198.00	205.37	
198.00	210.26	
198.00	215.15	
198.00	220.04	
198.00	224.93	
198.00	229.82	
198.00	234.71	
198.00	239.60	
198.00	244.49	
198.00	249.38	
198.00	254.27	
198.00	259.16	
198.00	264.05	
198.00	268.94	
198.00	273.83	
198.00	278.72	
198.00	283.61	
198.00	288.50	
198.00	293.39	
198.00	298.28	
198.00	303.17	
198.00	308.06	
198.00	312.95	
198.00	317.84	
198.00	322.73	
198.00	327.62	
198.00	332.51	
198.00	337.40	
198.00	342.29	
198.00	347.18	
198.00	352.07	
198.00	356.96	
198.00	361.85	
198.00	366.74	
198.00	371.63	
198.00	376.52	
198.00	381.41	
198.00	386.30	
198.00	391.19	
198.00	396.08	
198.00	400.97	
198.00	405.86	
198.00	410.75	
198.00	415.64	
198.00	420.53	
198.00	425.42	
198.00	430.31	
198.00	435.20	
198.00	440.09	
198.00	444.98	
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198.00	611.24	
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198.00	640.58	
198.00	645.47	
198.00	650.36	
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198.00	660.14	
198.00	665.03	
198.00	669.92	
198.00	674.81	
198.00	679.70	
198.00	684.59	
198.00	689.48	
198.00	694.37	
198.00	699.26	
198.00	704.15	
198.00	709.04	
198.00	713.93	
198.00	718.82	
198.00	723.71	
198.00	728.60	
198.00	733.49	
198.00	738.38	
198.00	743.27	
198.00	748.16	
198.00	753.05	
198.00	757.94	
198.00	762.83	
198.00	767.72	
198.00	772.61	
198.00	777.50	
198.00	782.39	
198.00	787.28	
198.00	792.17	
198.00	797.06	
198.00	801.95	
198.00	806.84	
198.00	811.73	
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198.00	821.51	
198.00	826.40	
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198.00	855.74	
198.00	860.63	
198.00	865.52	
198.00	870.41	
198.00	875.30	
198.00	880.19	
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198.00	889.97	
198.00	894.86	
198.00	899.75	
198.00	904.64	
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198.00	914.42	
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198.00	924.20	
198.00	929.09	
198.00	933.98	
198.00	938.87	
198.00	943.76	
198.00	948.65	
198.00	953.54	
198.00	958.43	
198.00	963.32	
198.00	968.21	
198.00	973.10	
198.00	977.99	
198.00	982.88	
198.00	987.77	
198.00	992.66	
198.00	997.55	
198.00	1002.44	
198.00	1007.33	
198.00	1012.22	
198.00	1017.11	
198.00	1022.00	
198.00	1026.89	
198.00	1031.78	
198.00	1036.67	
198.00	1041.56	
198.00	1046.45	
198.00	1051.34	
198.00	1056.23	
198.00	1061.12	
198.00	1066.01	
198.00	1070.90	
198.00	1075.79	
198.00	1080.68	
198.00	1085.57	
198.00	1090.46	
198.00	1095.35	
198.00	1100.24	
198.00	1105.13	
198.00	1110.02	

SCALE HORIZONTAL 1:500
VERTICAL 1:200

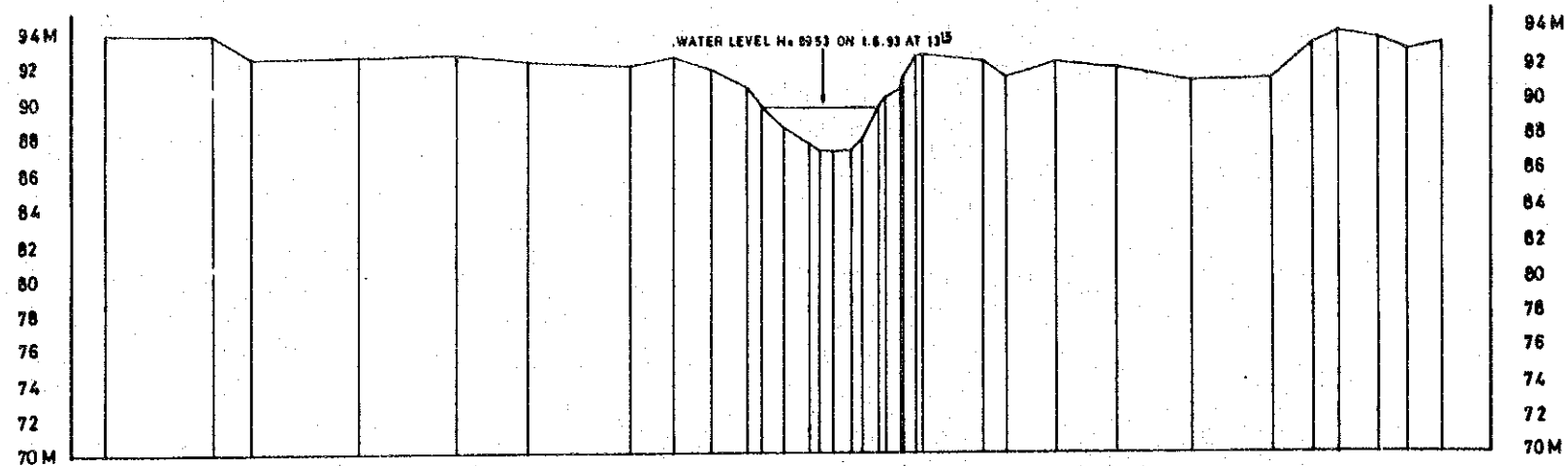
THE STUDY ON WATER RESOURCES
DEVELOPMENT IN THE RUVU RIVER BASIN

RIVER CROSS SECTION
AT
GAUGING STATION 1HS

SCALE H:1:500 V:1:200

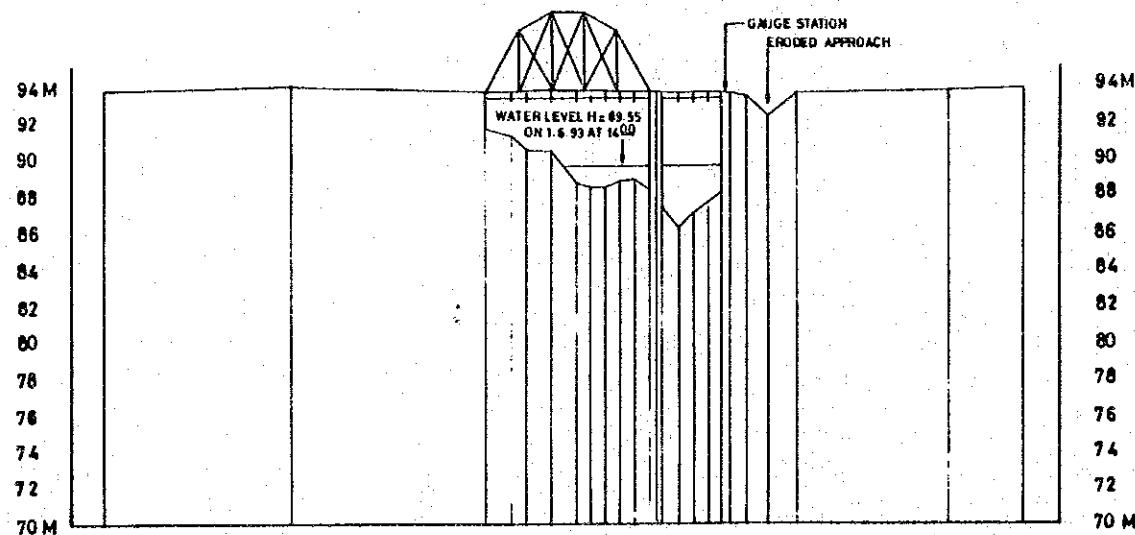
JUNE 1993 JICA

RIVER CROSS SECTION AT UTARI BRIDGE GAUGING STATION (100M DOWNSTREAM OF GAUGE STATION)



GROUND HEIGHT	91.39	91.93	92.28	92.42	92.47	92.12	91.80	92.28	91.53	90.81	90.84	90.28	91.46	91.89	91.78	92.07	91.22	92.04	91.78	90.95	91.28	92.08	92.78	92.37	92.74	92.08
ACCUMULATED DISTANCE	0	0.4	0.6	4.5	20.9	20.8	6.1	0	5.3	10.1	12.1	15.2	18.9	20.4	22.2	24.8	28.7	32.6	35.4	42.8	44.2	48.6	58.4	68.9	102.1	108.9
REMARKS								BP																		

UTARI BRIDGE



GROUND HEIGHT	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04	92.04
ACCUMULATED DISTANCE	71.4	90.0	23.6	25.8	26.9	34.5	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0	54.0	55.0	56.0	57.0
REMARKS																											

HORIZONTAL 1:500
SCALE
VERTICAL 1:200

THE STUDY ON WATER RESOURCES
DEVELOPMENT IN THE RUVU RIVER BASIN

RIVER CROSS SECTION AT
GAUGING STATION IHAIA
(UTARI BRIDGE)

SCALE H:1:500 V:1:200

JUNE 1993 JICA

DATA BOOK

II. METEO-HYDROLOGICAL DATA

II. METEO-HYDROLOGICAL DATA

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METEO-HYDROLOGICAL DATA

1. LIST OF METEO-HYDROLOGICAL STATIONS

List of Rainfall Stations in and Around the Ruvu River Basin

Ser. No.	CODE No.	LATITUDE	LONGITUDE	ALTITUDE (m)	NAME OF STATION	PERIOD OF DATA COLLECTED
1	9637000	6°51'S	37°40'E	500	Morogoro Agri. Station	1995 1990
2	9637002	6°46'S	37°42'E	500	Tungi Sisal Estate	1982 1989
3	9637011	6°45'S	37°48'E	460	Kingolwira Prison Farm	1985 1989
4	9637012	6°47'S	37°49'E	460	Pangawe Sisal Estate	1988 1970
5	9637015	6°45'S	37°46'E	460	Kingolwira Sisal Estate	1988 1989
6	9637017	6°58'S	37°31'E	580	Melela	1988 1966
7	9637020	6°57'S	37°43'E	990	Tegetero Mission	1988 1984
8	9637025	6°56'S	37°36'E	640	Tangeni Mission	1940 1988
9	9637041	6°57'S	37°49'E	370	Mkuyuni	1982 1989
10	9637045	6°57'S	37°38'E	1,120	Mondo	1984 1989
11	9637046	6°54'S	37°40'E	1,450	Morningside Farm	1984 1989
12	9637047	6°59'S	37°34'E	740	Hobwe	1984 1990
13	9637048	6°55'S	37°38'E	880	Luhungo	1984 1989
14	9637049	6°58'S	37°35'E	880	Kwandewa Masa	1984 1989
15	9637051	6°58'S	37°20'E	590	Mlali	1986 1989
16	9637052	6°49'S	37°39'E	510	Morogoro Water Department	1986 1989
17	9637053	6°54'S	37°59'E	520	Mfumbwe	1987 1974
18	9637054	6°57'S	37°33'E	610	Mlali Irrigation Scheme	1987 1976
19	9637062	6°50'S	37°42'E	610	Morogoro Technical T. C.	1984 1973
20	9637069	6°50'S	37°38'E	500	Mafiga Sisal Estate	1967 1978
21	9637070	6°46'S	37°39'E	580	Kihonda Sisal Estate	1967 1989
22	9637076	6°50'S	37°39'E	530	Morogoro Meteo. Station	1970 1989
23	9638000	6°25'S	38°55'E	3	Bagamoyo Agri. Station	1892 1989
24	9638001	6°47'S	38°07'E	210	Ngerengere Agri. Company	1921 1988
25	9638002	6°48'S	38°43'E	250	Ruvu Sisal Estate	1922 1969
26	9638003	6°50'S	38°52'E	160	Alavi Sisal Estate	1922 1989
27	9638005	6°28'S	38°19'E	240	Lugoba Mission	1983 1990
28	9638008	6°47'S	38°10'E	210	Athina Sisal Estate	1984 1990
29	9638010	6°47'S	38°14'E	230	Patemi Sisal Estate	1984 1976
30	9638013	6°47'S	38°08'E	210	Mgudeni Sisal Estate	1988 1967
31	9638017	6°48'S	38°06'E	210	Kiwege Sisal Estate	1988 1967
32	9638018	6°15'S	38°51'E	3	Utondwe Salt Works	1943 1987
33	9638019	6°45'S	38°01'E	270	Kinoko Sisal Estate	1980 1965

Ser. No.	CODE No.	LATITUDE	LONGITUDE	ALTITUDE (m)	NAME OF STATION	PERIOD OF DATA COLLECTED
34	9638020	6°25'S	38°51'E	3	Bagamoyo Salt Works	1949 1990
35	9638022	6°54'S	38°18'E	150	Kikondeni Sisal Estate	1981 1979
36	9638023	6°35'S	38°55'E	60	Chambezi Coast A. Company	1983 1990
37	9638027	6°50'S	38°58'E	150	Kibaha Farmers	1984 1985
38	9638028	6°37'S	38°05'E	300	Ubena Prison Camp	1985 1985
39	9638031	6°38'S	38°09'E	250	Kate Sisal Estate	1986 1973
40	9638033	6°37'S	38°10'E	250	Ubena Zomozi	1986 1989
41	9638034	6°38'S	38°20'E	220	Chalinze Catholic Mission	1967 1990
42	9638035	6°14'S	38°42'E	3	Wami Railway Station	1964 1984
43	9638036	6°47'S	38°49'E	100	Zegereni State Farm	1970 1985
44	9638038	6°45'S	38°45'E	250	Ruvu National Farm	1967 1990
45	9737000	7°23'S	37°48'E	90	Duthumi Estate	1981 1986
46	9737005	7°15'S	37°43'E	460	Singiza Catholic Mission	1985 1989
47	9737006	7°05'S	37°46'E	390	Motombo Mission	1988 1989
48	9737008	7°28'S	37°36'E	180	Kisaki	1899 1980
49	9737009	7°03'S	37°58'E	170	Iunungu Mission	1988 1967
50	9737011	7°13'S	37°33'E	610	Kikeo Mission	1941 1976
51	9737013	7°07'S	37°36'E	1,680	Kienzema Mission	1950 1983
52	9737014	7°12'S	37°51'E	130	Mvuba	1950 1989
53	9737015	7°02'S	37°37'E	1,280	Bunduki	1907 1989
54	9737016	7°04'S	37°35'E	1,100	Mizungu Megeta	1951 1986
55	9737017	7°04'S	37°46'E	320	Mtamba	1951 1987
56	9737019	7°16'S	37°44'E	340	Bwakira Jun	1982 1981
57	9737021	7°48'S	37°55'E	100	Stiegler's Gorge	1961 1989
58	9737024	7°04'S	37°41'E	980	Kibungo Mission	1957 1976
59	9737025	7°06'S	37°33'E	1,500	Kibuko Coffee Plot	1959 1987
60	9737026	7°01'S	37°48'E	270	Kibungo	1956 1990
61	9737027	7°27'S	37°45'E	150	Bwakira Estate	1956 1989
62	9737028	7°02'S	37°44'E	460	Tawa Health Center	1963 1989
63	9738002	7°12'S	38°47'E	360	Maneromango U. P. School	1986 1990
64	9738008	7°16'S	38°18'E	90	Kidunda Village	1956 1969
65	9738009	7°01'S	38°19'E	90	Ng'hesse	1956 1990
66	9738014	7°03'S	38°58'E	300	Sungwi Primary School	1965 1971

List of Meteorological Stations in the Ruvu River Basin

Ser. No.	Station Code	Location		Altitude (m)	Name of Stations	Period of Data Collected		Observed Meteo-Parameter							
		Latitude	Longitude			Tmx	Tmn	Tm	Rh	Sh	Ra	Wv	Ep		
1	9637076	6° 50' S	37° 39' E	530	Morogoro Mete-Station	1971	1992	●	●	●	●	●	●	●	●
2	9638027	6° 50' S	38° 58' E	150	Kibaha Farmers	1974	1992	●	●	●	●	●	●	●	●
3	9000064	7° 15' S	38° 15' E	80	Mikula	1970	1973	●	●	●	●	●	●	●	●
4	-	6° 25' S	38° 53' E	5	Experimental Farm (JICA)	1990	1992	●	●	●	●	●	●	●	●

Note : Tmx - Max. Temperature Sh - Sun Shine
 Tmn - Min. Temperature Ra - Solar Radiation
 Tm - Mean Temperature Wv - Wind Velocity
 Rh - Relative Humidity Ev - Evaporation

List of Hydrological Stations in the Ruvu River Basin

Ser. No.	River Name	Station Code	Name	Location		Altitude (m)	Catchment Area(km2)	Obsevation Period	
				Latitude	Longitude			Established	Closed
1	Ruvu	1H2 *	Ruvu Sisal Estate	6° 48' S	38° 39' E	27	12,488	Aug. 1950	Jun. 1959
2	Ruvu	1H3 *	Kidunda	7° 16' S	38° 18' E	76	6,697	Aug. 1951	Oct. 1963
3	Ruvu	1H5 *	Kibungo	7° 1' S	37° 48' E	473	420	Oct. 1952	Cont.
4	Ruvu	1H8 *	Ruvu Bridge	6° 41' S	38° 41' E	15	15,190	Nov. 1958	Cont.
5	Ruvu	1H10*	Mikula	7° 18' S	38° 10' E	80	5,870	Nov. 1965	Cont.
6	Ngerengere	1HA1A*	Utari Bridge	7° 2' S	38° 22' E	90	2,840	Oct. 1950	Cont.
7	Ngerengere	1HA3	Kingolwira	6° 45' S	37° 48' E	425	690	Sep. 1950	Oct. 1963
8	Ngerengere	1HA4	Kilimanjoro	6° 46' S	37° 42' E	457	630	Apr. 1953	Oct. 1959
9	Ngerengere	1HA5*	Kiluwa	6° 44' S	38° 6' E	198	1,646	Nov. 1953	Aug. 1967
10	Ngerengere	1HA6	Kihonda	6° 47' S	37° 39' E	466	461	Sep. 1950	Oct. 1963
11	Mlali	1HA7	Mlali	6° 58' S	37° 32' E	518	18.1	Oct. 1953	Oct. 1963
12	Morogoro	1HA8	Morogoro	6° 51' S	37° 40' E	543	23.3	Mar. 1954	Cont.
13	Ngerengere	1HA9	Konga	6° 54' S	37° 37' E	530	20.5	Apr. 1954	Mar. 1960
14	Ngerengere	1HA9A	Konga	6° 54' S	37° 37' E	530	20.5	Nov. 1962	Cont.
15	Ngerengere	1HA10	Mgera	6° 56' S	37° 34' E	518	15.4	Apr. 1954	Oct. 1963
16	Ngerengere	1HA15*	Mgude	6° 48' S	38° 9' E	95	2,370	Oct. 1968	Dec. 1975
17	Mgoro	1HB1*	Kisaki	7° 28' S	37° 42' E	152	963	Nov. 1950	Dec. 1962
18	Mgeta	1HB2*	Mgeta	7° 2' S	37° 34' E	975	101	Jun. 1954	Cont.
19	Mgeta	1HB3	Bunduki	7° 2' S	37° 37' E	1,220	46.0	Jun. 1954	1962
20	Mgeta	1HB4	Luhuela	7° 1' S	37° 38' E	1,493	5.0	Dec. 1954	1963
21	Mvuha	1HC2*	Mvuha	7° 12' S	37° 51' E	274	251	Apr. 1954	Cont.

Note * : Stations selected for the Study

List of Hydrological Stations with Newly Installed Water Level Recorders

Ser. No.	River Name	Station Number	Name	Location		Altitude (m)	Catchment Area(km2)	Remark
				Latitude	Longitude			
R-1	Ruvu	1H8	Ruvu Bridge	6° 41' S	38° 41' E	15	15,190	Re-installed by MWEM
A-1	Ruvu	-	Mafisi	6° 59' S	38° 33' E	40	11,407	Newly installed by JICA
A-2	Ruvu	1H3	Kidunda	7° 16' S	38° 18' E	76	6,697	Newly installed by JICA
A-3	Ngerengere	1HA1A	Utari Bridge	7° 2' S	38° 22' E	90	2,840	Newly installed by JICA
A-4	Mgeta	-	Dutuai	7° 24' S	37° 46' E	160	3,201	Newly installed by JICA
R-2	Ruvu	1H5	Kibungo	7° 16' S	38° 18' E	473	420	Re-installed by MWEM