

APPENDIX IV

TRAVERSE COMPUTATIONS

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

FROM	TO	OBSD BRG	FINAL BRG	ADJ BRG	REMARKS
BM1	RO	231.4500	231.4500		
	T100	183.4230	183.4228		
T100	BM1	3.4237			
	T101	172.3642	172.3631		
T101	T100	352.3647			
	T102	226.3918	226.3900		
T102	T101	46.3922			
	T103	216.0739	216.0715		
T103	T102	36.0739			
	T104	187.3040	187.3014		
T104	T103	7.3049			
	T105	156.2100	156.2023		
T105	T104	336.2100			
	T106	167.3209	167.3130		
T106	T105	347.3210			
	T107	132.1145	132.1104		
T107	T106	312.1142			
	T108	194.5515	194.5435		
T108	T107	14.5521			
	T109	186.2116	186.2028		
T109	T108	6.2118			
	T110	154.1619	154.1527		
T110	T109	334.1624			
	T111	138.5540	138.5441		
T111	T110	318.5542			
	T112	163.5942	163.5839		
T112	T111	343.5942			
	T113	162.4536	162.4431		
T113	T112	342.4539			
	T114	178.0258	178.0148		
T114	T113	358.0300			
	T115	121.2245	121.2131		
T115	T114	301.2249			
	T116	144.2139	144.2019		
T116	T115	324.2142			
	T117	221.2048	221.1923		
T117	T116	41.2054			
	T118	170.1619	170.1446		
T118	T117	350.1618			
	T119	165.2949	165.2815		

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

FROM	TO	OBSD BRG	FINAL BRG	ADJ BRG	REMARKS
T119	T118	345.2951			
	T120	113.5137	113.4959		
T120	T119	293.5139			
	T121	107.4027	107.3346		
T121	T120	287.4030			
	T122	126.1554	186.1408		
T122	T121	6.1601			
	T145	254.0658	254.0516		
T145	T122	74.0700			
	T146	8.5131	8.4945		
T146	T145	188.5136			
	T147	310.4343	310.4150		
T147	T146	130.4343			
	T148	348.1657	348.1702		
T148	T147	168.1854			
	BM1	39.1145	39.0951		
BM1	T148	219.1145			
	RD	231.4709	231.4500		

CORR. = -56

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRD SCHEME

STATION	BEARING	DISTANCE	SF	EASTING	NORTHING	REMARKS
BM 1				2,344,348.730	5,205,065.270	
T100	183.4228	56.674	0.999862	2,344,345.064	5,205,008.724	
T101	172.3631	24.692	0.999862	2,344,348.239	5,204,984.242	
T102	226.3900	15.401	0.999862	2,344,337.041	5,204,973.672	
T103	216.0715	68.948	0.999862	2,344,296.401	5,204,917.987	
T104	187.3014	56.423	0.999863	2,344,289.032	5,204,862.057	
T105	156.2023	31.582	0.999863	2,344,301.704	5,204,833.135	
T106	167.3131	42.564	0.999863	2,344,310.895	5,204,791.583	
T107	132.1104	32.670	0.999863	2,344,335.099	5,204,769.649	
T108	194.5435	27.968	0.999863	2,344,327.903	5,204,742.627	
T109	186.2028	51.667	0.999863	2,344,322.196	5,204,691.285	
T110	154.1527	78.331	0.999863	2,344,356.211	5,204,620.740	
T111	138.5441	52.800	0.999863	2,344,390.906	5,204,580.952	
T112	163.5829	72.204	0.999863	2,344,410.834	5,204,511.566	
T113	162.4431	57.182	0.999863	2,344,427.795	5,204,456.968	
T114	178.0147	35.474	0.999863	2,344,429.013	5,204,421.521	
T115	121.2131	27.891	0.999863	2,344,452.826	5,204,407.010	
T116	144.2019	16.921	0.999863	2,344,462.689	5,204,393.265	
T117	221.1923	20.133	0.999863	2,344,449.397	5,204,378.147	
T118	170.1446	23.401	0.999863	2,344,453.360	5,204,355.089	
T119	165.2815	38.445	0.999863	2,344,463.003	5,204,317.880	
T120	113.5000	34.782	0.999863	2,344,494.813	5,204,303.828	
T121	107.3846	19.686	0.999863	2,344,513.570	5,204,297.862	
T122	186.1408	32.706	0.999863	2,344,510.017	5,204,265.353	
T145	254.0503	95.033	0.999863	2,344,418.637	5,204,239.300	
T146	6.4932	86.443	0.999863	2,344,431.895	5,204,324.710	
T147	310.4137	129.042	0.999863	2,344,334.065	5,204,408.841	
T148	348.1649	519.684	0.999863	2,344,228.505	5,204,517.639	
BM1	39.0938	190.416	0.999862	2,344,348.730	5,205,065.270	
				1,939.165	-0.052	0.067
CLOSURE 1:				22,780		

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

FROM	TO	OBSD BRG	FINAL BRG	ADJ BRG	REMARKS
T122	T121	6.1557	6.1408		
	T123	182.2457	182.2308		
T123	T122	2.2454			
	T124	154.0246	154.0060		
T124	T123	334.0252			
	T125	112.2900	112.2708		
T125	T124	292.2901			
	T126	171.0849	171.0656		
T126	T125	351.0848			
	T127	277.5621	277.5429		
T127	T126	97.5618			
	T128	221.4815	221.4626		
T128	T127	41.4815			
	T129	222.4952	222.4803		
T129	T128	42.4949			
	T130	170.0151	170.0005		
T130	T129	350.0152			
	T131	158.3212	158.3025		
T131	T130	338.3212			
	T132	239.3810	239.3623		
T132	T131	59.3818			
	T133	265.2246	265.2051		
T133	T132	85.2243			
	T134	184.5443	184.5251		
T134	T133	4.5443			
	T135	202.2137	202.1942		
T135	T134	22.2136			
	T136	277.5327	277.5132		
T136	T135	97.5325			
	T137	229.2255	229.2102		
T137	T136	49.2300			
	T138	220.3933	220.3735		
T138	T137	40.3930			
	T139	232.0157	232.0002		
T139	T138	52.0200			
	T140	312.2731	312.2533		
T140	T139	132.2733			
	BM2	193.2136	193.1956		

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

FROM	TO	OBSD BRG	FINAL BRG	ADJ BRG	REMARKS
BM2	T140	13.2142			
	T141	12.4515	12.4309		
T141	BM2	192.4515			
	T142	54.4954	54.4748		
T142	T141	234.4954			
	T143	8.5215	8.5009		
T143	T142	188.5213			
	T144	77.3010	77.2806		
T144	T143	257.3018			
	T145	349.3112	349.2900		
T145	T144	169.3055			
	T122	74.0700	74.0505		
T122	T145	254.0658			
	T121	6.1601	6.1408		

CORR. = -1

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

STATION	BEARINGS	DISTANCE	SF	EASTING	NORTHING	REMARKS
T122				2,344,509.990	5,204,265.350	
T123	182.2308	19.668	0.999863	2,344,509.170	5,204,245.701	
T124	154.0100	20.659	0.999863	2,344,518.219	5,204,227.132	
T125	112.2708	30.557	0.999863	2,344,546.454	5,204,215.463	
T126	171.0656	49.995	0.999863	2,344,554.172	5,204,166.073	
T127	277.5429	16.548	0.999863	2,344,537.783	5,204,168.349	
T128	221.4626	14.474	0.999863	2,344,528.141	5,204,157.556	
T129	222.4903	52.917	0.999863	2,344,492.177	5,204,118.744	
T130	170.0004	22.676	0.999863	2,344,496.113	5,204,096.414	
T131	158.3024	27.843	0.999863	2,344,506.312	5,204,070.510	
T132	239.3622	35.778	0.999863	2,344,475.453	5,204,052.410	
T133	265.2050	37.436	0.999863	2,344,438.144	5,204,049.373	
T134	184.5250	41.120	0.999863	2,344,434.644	5,204,008.406	
T135	202.1941	46.775	0.999863	2,344,416.973	5,203,965.143	
T136	277.5132	22.585	0.999863	2,344,394.502	5,203,968.230	
T137	229.2102	61.084	0.999863	2,344,332.987	5,203,915.414	
T138	220.3735	57.286	0.999863	2,344,295.689	5,203,871.940	
T139	232.0002	55.963	0.999863	2,344,251.593	5,203,837.487	
T140	312.2533	51.768	0.999863	2,344,213.383	5,203,872.408	
BM2	193.1936	254.455	0.999863	2,344,154.735	5,203,624.831	
T141	12.4309	272.617	0.999863	2,344,214.726	5,203,890.714	
T142	34.4747	169.455	0.999863	2,344,369.501	5,203,999.911	
T143	8.5008	123.393	0.999863	2,344,388.445	5,204,121.620	
T144	77.2806	51.155	0.999863	2,344,438.372	5,204,132.916	
T145	349.2900	108.216	0.999863	2,344,418.617	5,204,239.297	
T122	74.0505	95.033	0.999863	2,344,509.990	5,204,265.350	
				1,779.456	-0.090	-0.032
CLOSURE 1:				17,000		

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

FROM	TO	OBSD BRG	FINAL BRG	ADJ BRG	REMARKS
BMI	RD	231.4503	231.4500		
	T200	244.1645	244.1642		
T200	BMI	64.1646			
	T201	1.1542	1.1539		
T201	T200	181.1542			
	T202	358.3813	358.3810		
T202	T201	178.3815			
	T203	65.5652	65.5648		
T203	T202	245.5652			
	T204	63.0443	63.0439		
T204	T203	243.0445			
	T205	64.1131	64.1126		
T205	T204	244.1134			
	T206	66.4706	66.4658		
T206	T205	245.4709			
	T207	63.2233	63.2223		
T207	T206	243.2236			
	T208	63.3730	63.3717		
T208	T207	243.3736			
	T209	181.0224	181.0205		
T209	T208	1.0230			
	T210	238.2810	238.2746		
T210	T209	58.2806			
	T211	209.2339	209.2319		
T211	T210	29.2339			
	T212	251.2325	251.2306		
T212	T211	71.2324			
	T213	173.3942	173.3924		
T213	T212	353.3951			
	T214	189.2701	189.2635		
T214	T213	9.2700			
	T215	263.1340	263.1315		
T215	T214	83.1343			
	T216	251.5332	251.5325		
T216	T215	71.5354			
	T217	244.2046	244.2017		
T217	T216	64.2048			
	T101	228.4212	228.4141		
T101	T217	48.4212			
	T100	352.3701	352.3631		

CORR. = 9

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

STATION	BEARING	DISTANCE	SF	EASTING	NORTHING	REMARKS
BM1				2,344,348.730	5,205,065.270	
T200	244.1642	88.635	0.999862	2,344,268.889	5,205,026.804	
T201	1.1539	22.264	0.999862	2,344,269.379	5,205,049.058	
T202	358.3810	26.652	0.999862	2,344,268.745	5,205,075.698	
T203	65.5648	29.495	0.999862	2,344,295.675	5,205,087.717	
T204	63.0439	53.828	0.999862	2,344,343.663	5,205,112.084	
T205	64.1126	68.753	0.999862	2,344,405.550	5,205,142.010	
T206	66.4658	65.901	0.999862	2,344,466.106	5,205,167.983	
T207	63.2223	43.101	0.999862	2,344,504.631	5,205,187.296	
T208	63.3717	59.489	0.999862	2,344,557.918	5,205,213.721	
T209	131.0205	74.325	0.999862	2,344,556.577	5,205,139.415	
T210	238.2746	22.539	0.999862	2,344,537.370	5,205,127.626	
T211	209.2319	25.306	0.999862	2,344,524.953	5,205,105.579	
T212	251.2306	27.170	0.999862	2,344,499.208	5,205,096.906	
T213	171.3924	28.951	0.999862	2,344,503.409	5,205,068.264	
T214	189.2635	33.858	0.999863	2,344,497.855	5,205,034.868	
T215	263.1315	61.975	0.999863	2,344,436.322	5,205,027.551	
T216	251.5325	36.353	0.999863	2,344,401.775	5,205,016.251	
T217	244.2017	41.884	0.999862	2,344,364.027	5,204,998.113	
T101	228.4141	21.019	0.999862	2,344,348.240	5,204,984.240	
		531.498		0.005	-0.036	

CLOSURE 1: 22,917

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL HYDRO SCHEME

FROM	TO	OBSD BRG	FINAL BRG	ADJ BRG	REMARKS
T209	T210	238.2745	238.2746		
	T400	28.2027	28.2023		
T400	T209	208.2015			
	T401	53.0230	53.0234		
T401	T400	233.0230			
	T402	149.1454	149.1453		
T402	T401	329.1454			
	T403	148.4409	148.4403		
T403	T402	328.4403			
	T404	205.0924	205.0919		
T404	T403	25.0942			
	T405	203.1740	203.1713		
T405	T404	23.1757			
	T406	206.2848	206.2759		
T406	T405	26.2848			
	T407	206.1715	206.1621		
T407	T406	26.1706			
	T408	208.2145	208.2056		
T408	T407	28.2142			
	T409	226.2917	226.2826		
T409	T408	46.2851			
	T410	345.2024	345.1954		
T410	T409	165.2024			
	T411	1.3918	1.3843		
T411	T410	181.3906			
	T211	329.4721	329.4654		
T211	T411	149.4657			
	T210	29.2327	29.2319		

CORR. = -66 " in 14 stations

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL HYDRO SCHEME

STATION	BEARING	DISTANCE	SF	EASTING	NORTHING	REMARKS
T209				2,344,556.577	5,205,139.415	
T400	28.2023	28.575	0.999862	2,344,570.135	5,205,164.564	
T401	53.0234	54.753	0.999862	2,344,613.874	5,205,197.481	
T402	149.1453	38.868	0.999862	2,344,633.739	5,205,164.086	
T403	148.4403	20.714	0.999863	2,344,644.486	5,205,146.384	
T404	205.0919	47.268	0.999863	2,344,624.389	5,205,103.608	
T405	203.1713	34.892	0.999863	2,344,610.592	5,205,071.565	
T406	206.2759	17.616	0.999863	2,344,602.739	5,205,055.799	
T407	206.1621	25.57	0.999863	2,344,591.419	5,205,032.875	
T408	208.2056	27.475	0.999863	2,344,578.370	5,205,008.701	
T409	226.2826	27.539	0.999863	2,344,558.402	5,204,989.739	
T410	345.1954	41.537	0.999863	2,344,547.879	5,205,029.920	
T411	1.3843	34.625	0.999863	2,344,548.868	5,205,064.528	
T211	329.4654	47.509	0.999863	2,344,524.953	5,205,105.579	
		446.941		-0.065	0.031	
CLOSURE 1:				6,186		

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

FROM	TO	OBSD BRG	FINAL BRG	ADJ BRG	REMARKS
BM1	RO	231.4503	231.4500		
	A11	69.2854	69.2858		
A11	BM1	249.2900			
	A12	68.2755	68.2759		
A12	A11	248.2749			
	A1	66.5851	66.5908		
A1	A12	246.5918			
	A2	46.4648	46.4645		
A2	A1	226.4634			
	A3	44.5146	44.5203		
A3	A2	224.5154			
	A4	56.5149	56.5205		
A4	A3	236.5148			
	A5	242.0124	242.0148		
A5	A4	62.0113			
	BM1	237.5109	237.5150		
BM1	A5	57.5109			
	RO	231.4412	231.4500		
CORR. =		60			

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

STATION	BEARING	DISTANCE	SF	EASTING	NORTHING	REMARKS
BM1				2,344,348.730	5,205,065.270	
A11	69.2858	37.548	0.999862	2,344,383.891	5,205,078.429	
A12	68.2759	39.251	0.999862	2,344,420.397	5,205,092.834	
A1	66.5908	19.419	0.999862	2,344,438.267	5,205,100.425	
A2	46.4645	19.238	0.999862	2,344,452.284	5,205,113.598	
A3	44.5203	43.359	0.999862	2,344,482.868	5,205,144.325	
A4	56.5205	43.777	0.999862	2,344,519.522	5,205,168.249	
A5	242.0148	50.191	0.999862	2,344,475.199	5,205,144.712	
BM1	237.5150	149.370	0.999862	2,344,348.730	5,205,065.270	
		402.153		-0.005	0.004	
CLOSURE 1:				63,710		

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

FROM	TO	QBSD BRG	FINAL BRG	ADJ BRG	REMARKS
T202	T201	178.3815	178.3810		
	T300	215.3757	215.3754		
T300	T202	35.3754			
	T301	209.4748	209.4750		
T301	T300	29.4751			
	BM1	174.4337	174.4334		
T302	T301	354.4324			
	BM1	56.5216	56.5228		
BM1	T302	236.5212			
	RD	231.4437	231.4500		
CDRR. =		11			

SALAND SURVEY SERVICES

PROJECT : MUKGH SMALL-HYDRO SCHEME

STATION	BEARING	DISTANCE	SF	EASTING	NORTHING	REMARKS
T202				2,344,268.740	5,205,075.700	
T300	215.3754	45.275	0.999862	2,344,242.368	5,205,038.906	
T301	209.475	37.277	0.999862	2,344,223.846	5,205,006.562	
T302	174.4339	21.577	0.999862	2,344,225.829	5,204,985.079	
BM1	56.5233	146.770	0.999862	2,344,348.730	5,205,065.270	
		250.899		0.000	-0.002	
			CLOSURE 1:	137,722		

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

FROM	TO	OBSD BRG	FINAL BRG	ADJ BRG	REMARKS
T400	T209	208.2029	208.2025		
	T500	148.0025	148.0025		
T500	T400	328.0049			
	BH 4	142.5440	142.5420		
BH 4	T500	322.5432			
	T501	305.3015	305.3006		
T501	BH 4	125.3013			
	T209	251.1427	251.1424		
T209	T501	71.1427			
	T400	28.2024	28.2025		
=====					
CORR. =	19	"	in	5	stations

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

STATION	BEARING	DISTANCE	SF	EASTING	NORTHING	REMARKS
T400				2,344,570.136	5,205,164.563	
T500	148.0025	14.440	0.999862	2,344,577.786	5,205,152.318	
BH 4	142.5420	36.8850	0.999862	2,344,600.031	5,205,122.900	
T501	305.3006	36.489	0.999863	2,344,570.331	5,205,144.087	
T209	251.1424	14.528	0.999862	2,344,556.577	5,205,139.415	
		102.342		0.004	-0.002	
			CLOSURE 1:	24,184		

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

FROM	TO	OBSD BRG	FINAL BRG	ADJ BRG	REMARKS
T409	T410	345.2018	345.2015		
	T600	313.5248	313.5247		
T600	T409	133.5251			
	T601	215.1642	215.1639		
T601	600	35.1650			
	602	149.3019	149.3010		
T602	T601	329.3030			
	T409	76.5721	76.5702		
T405	T602	256.5727			
	T410	345.2038	345.2015		
=====					
CORR. =	8	"	in	5	stations

SALAND SURVEY SERVICES

PROJECT : MUKOH SMALL-HYDRO SCHEME

STATION	BEARING	DISTANCE	SF	EASTING	NORTHING	REMARKS
T409				2,344,558.389	5,204,989.738	
T600	313.5247	41.076	0.999863	2,344,528.786	5,205,018.205	
T601	215.1639	6.5140	0.999863	2,344,525.024	5,205,012.888	
T602	149.3010	31.541	0.999863	2,344,541.029	5,204,985.714	
T409	76.5702	17.823	0.999863	2,344,558.389	5,204,989.738	
		96.954		0.000	-0.001	
			CLOSURE 1:	123,602		

SALIND SURVEY SERVICES

PROJECT: MUNDI SMALL HYDRO SCHEME

FROM	TO	OBSD BNS	FINAL BNS	ADJ BNS	REMARKS
BM 1	T140	13.1911	13.1911		
	P1	205.5107	205.5107		
P1	BM2	25.5101			
	P2	157.5736	157.5730		
P2	P1	337.5137			
	BM2	11.4021	11.4009		
BM 2	P2	191.4021			
	T140	13.1931	13.1936		

CORR. = 12 " in 1 station

SALAND SURVEY SERVICES

PROJECT: INUKOH SMALL HYDRO SCHEME

STATION	BEARING	DISTANCE	SF	EASTING	NORTHING	REMARKS
BM 2				2,344,154.725	5,203,624.831	
P 1	205.5100	83.810	0.999864	2,344,118.186	5,203,549.418	
P 2	157.5776	38.754	0.999864	2,344,132.067	5,203,515.131	
BM 2	11.4000	112.031	0.999864	2,344,154.725	5,203,624.831	
		232.837		0.002	0.000	

CLOSURE 1: 94,763

SMALL HYDRO POWER DEVELOPMENT SCHEME AT MUKOH

	E	N	HT
EM 1	2344348.730	5205065.270	60.000 (Drg.-1000)
EM 2	2344154.725	5203624.831	74.541 (Drg.-1000)
EM A	2344556.577	5205139.415	67.111 (Drg.-1002)
EM B	2344251.593	5203837.489	82.365 (Drg.-1004)
EH 1	2344116.819	5203514.868	79.640 (Drg.-1000)
EH 2	2344171.777	5203519.936	81.100 (Drg.-1000)
EH 3	2344526.922	5205028.567	99.818 (Drg.-1002)
EH 4	2344600.031	5205122.900	88.963 (Drg.-1002)
EH 5	2344543.295	5205140.053	56.269 (Drg.-1002)
EH 6	2344582.028	5205154.325	69.944 (Drg.-1002)

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH
 TOPOGRAPHICAL SURVEY AT INTAKE SITE
 SCALE 1:500

3203 475.00

3203 475.00

3203 450.00

3203 450.00

3203 450.00

3203 600.00

3203 585.00

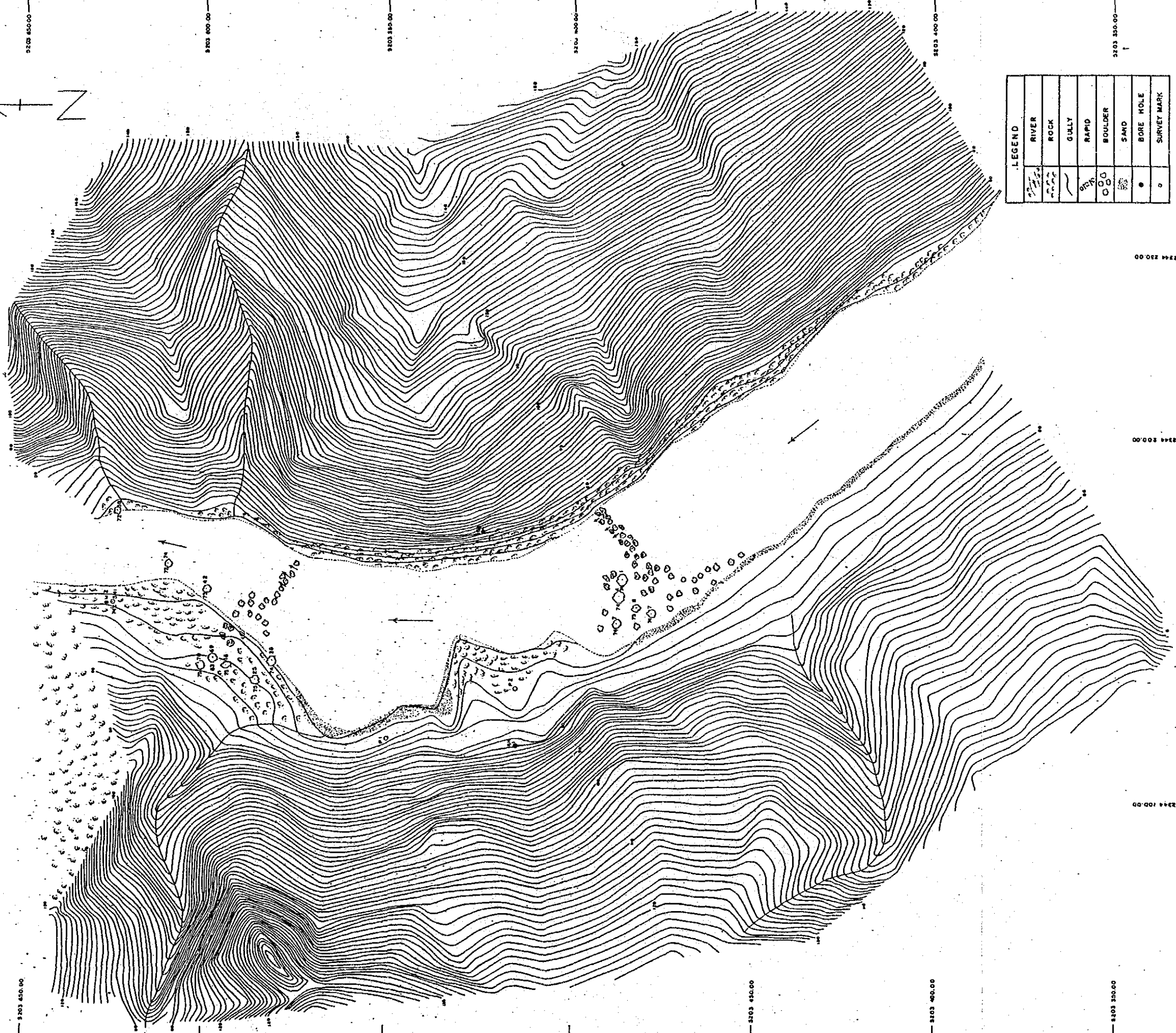
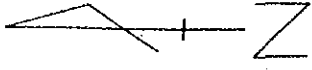
3203 570.00

3203 450.00

3203 400.00

3203 350.00

3203 350.00



LEGEND	
	RIVER
	ROCK
	GULLY
	RAPID
	BOULDER
	SAND
	BORE HOLE
	SURVEY MARK

PROJECT

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALLAND SURVEY SERVICES

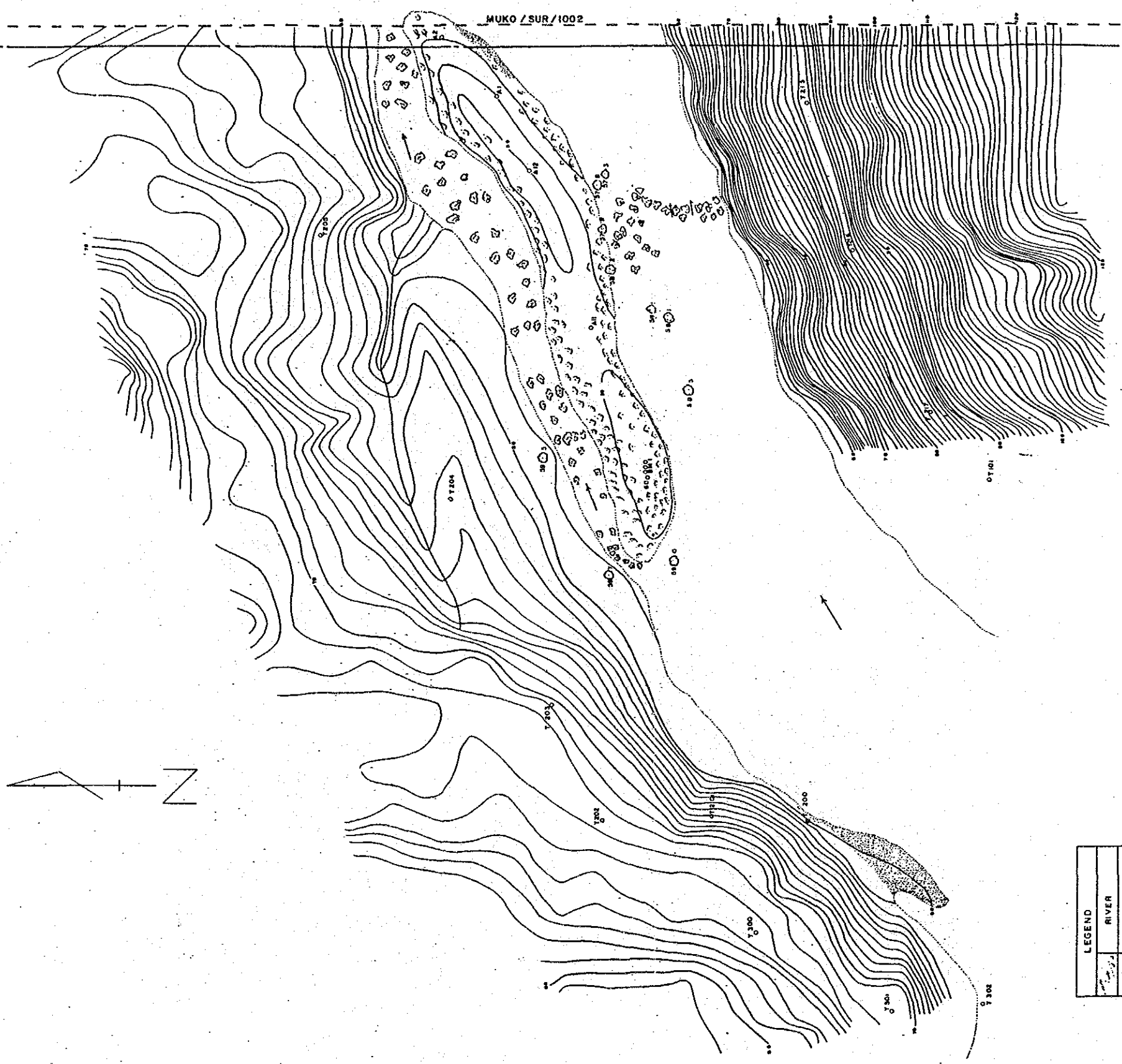
SURVEYED BY: JACOBA LIA DATE: MAY 1987
 DRAWN BY: JACOBA LIA DATE: 6-8-1987
 EXAMINED BY: [Signature] DATE: 8-8-1987

CLIENT:

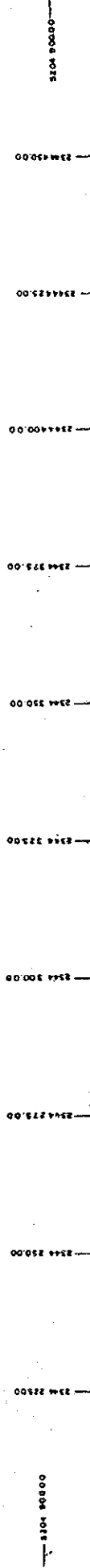
SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO: MUKO/SUR /1000

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH
 TOPOGRAPHICAL SURVEY AT POWERHOUSE SITE
 SCALE 1:500



LEGEND	
	RIVER
	ROCK
	GULLY
	RAPID
	BOULDER
	SAND
	BORE HOLE
	SURVEY MARK
	HUT



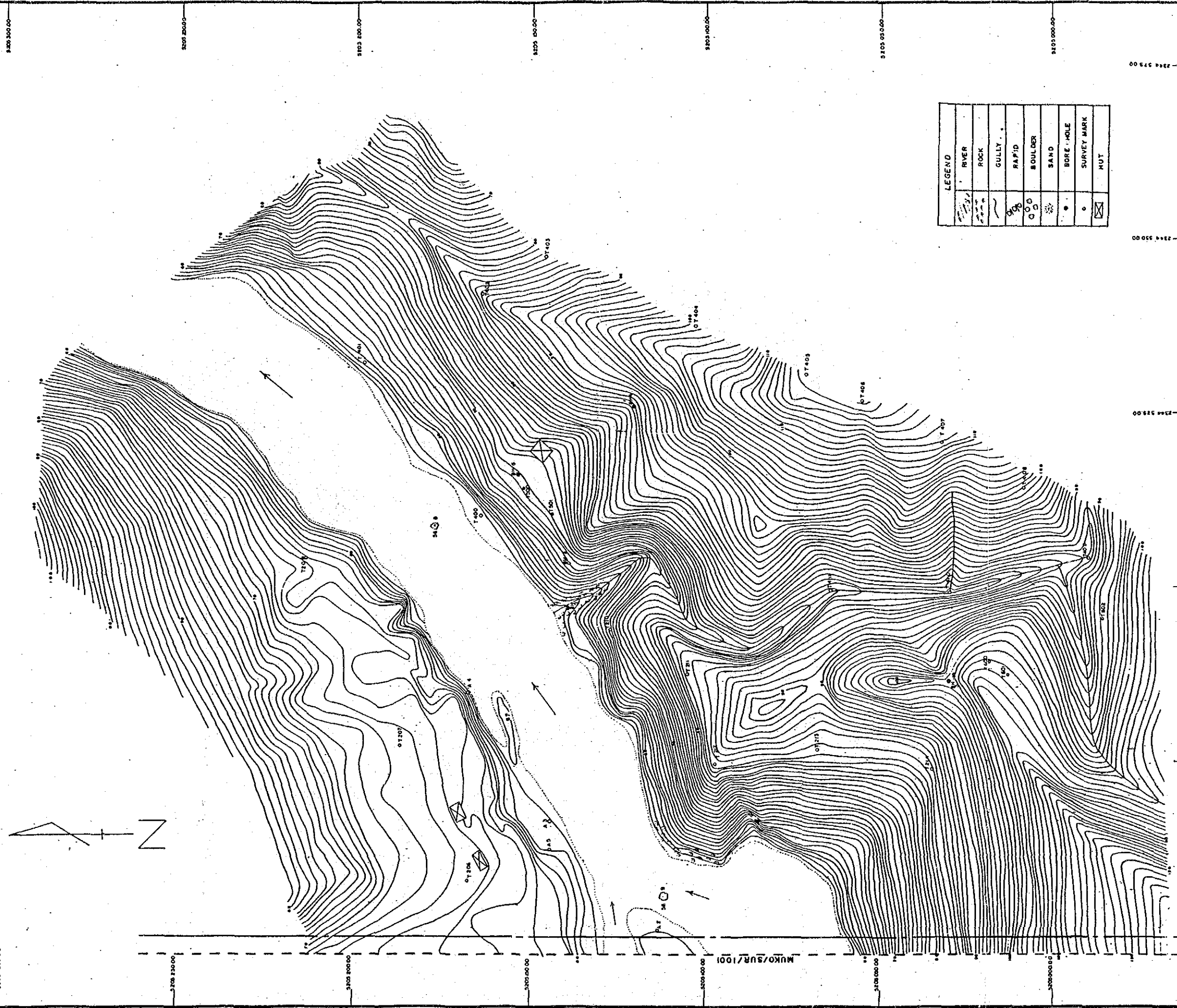
PROJECT : SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

CLIENT : SARAWAK ELECTRICITY SUPPLY CORPORATION

SALAND SURVEY SERVICES
 SURVEYED BY : LARA LIA... DATE : May 1987
 DRAWN BY : LURELIA... DATE : 1-8-1987
 EXAMINED BY : ... DATE : 2-2-1987

PLAN NO: MUKO/SUR /1001

TOPOGRAPHICAL SURVEY AT POWERHOUSE SITE SCALE 1:500



LEGEND	
	RIVER
	ROCK
	GULLY
	RAPID
	BOULDER
	SAND
	BORE HOLE
	SURVEY MARK
	MUT

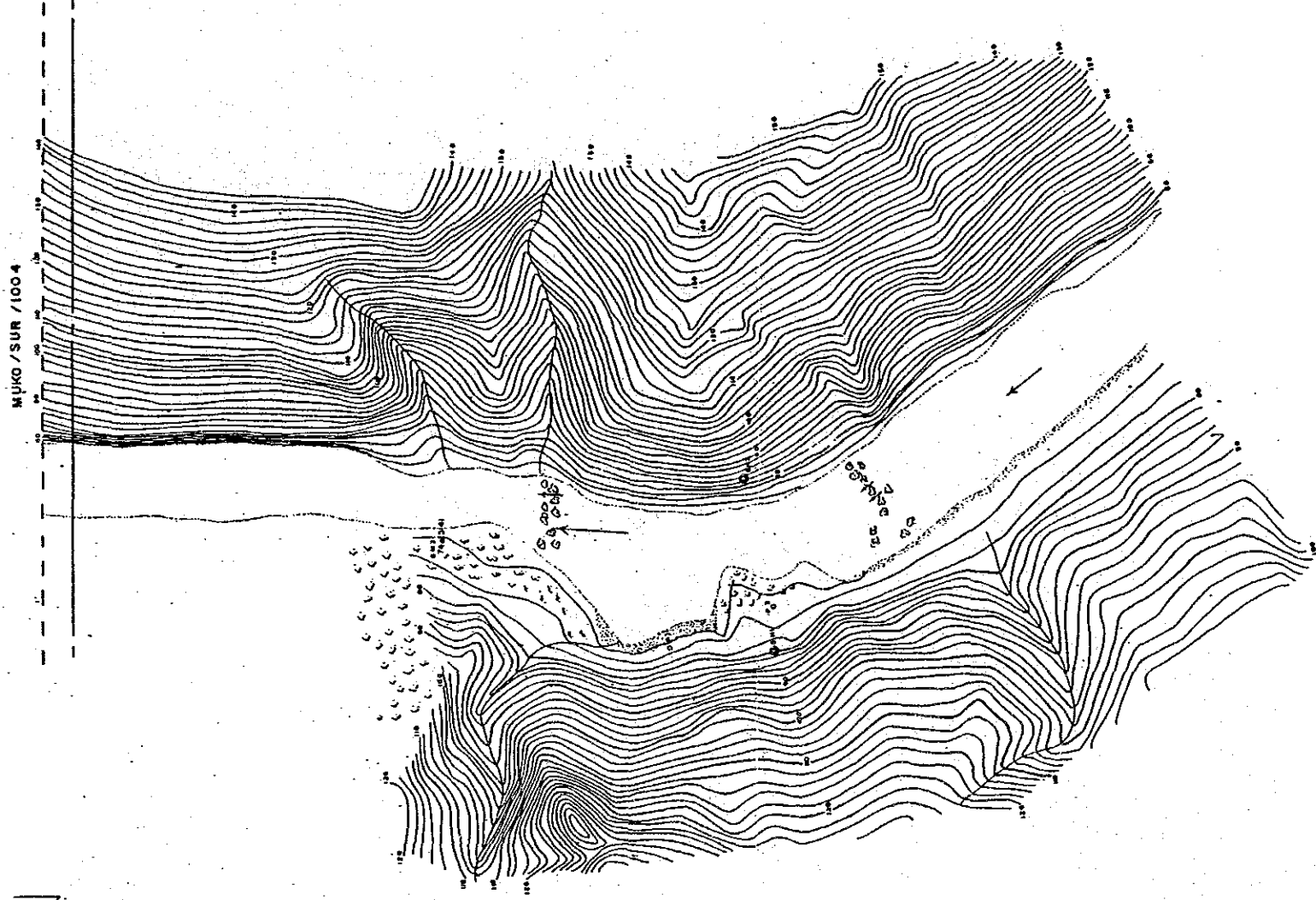
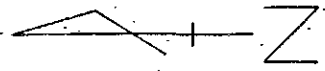
PROJECT: **SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH**

CLIENT: **SARAWAK ELECTRICITY SUPPLY CORPORATION**

PLAN NO: **MUKO/SUR /1002**

SALAND SURVEY SERVICES
 SURVEYED BY: LUCAS LEE DATE: MAY 1987
 DRAWN BY: LUCAS LEE DATE: 7-8-1987
 EXAMINED BY: DATE: 8-8-1987

TOPOGRAPHICAL SURVEY OF WATERWAY SCALE 1:1000



LEGEND	
	RIVER
	ROCK
	GULLY
	RAPID
	BOULDER
	SAND
	BORE HOLE
	SURVEY MARK
	HUT

3203 800.00
3203 700.00
3203 600.00
3203 500.00
3203 400.00
3203 300.00

3203 800.00
3203 700.00
3203 600.00
3203 500.00
3203 400.00
3203 300.00

234 400.00
234 300.00
234 200.00
234 100.00

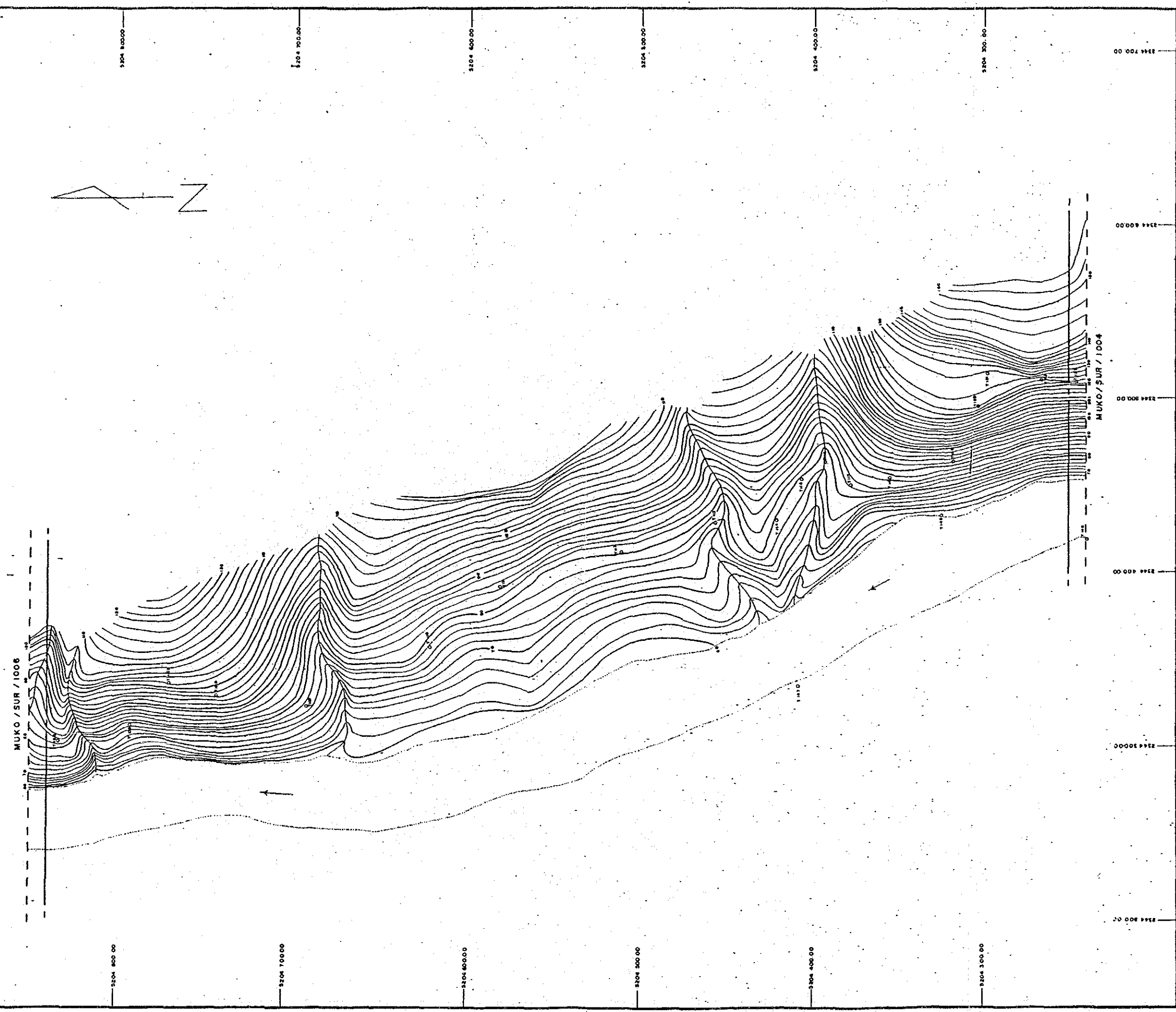
SALAND SURVEY SERVICES
SURVEYED BY: LUKOS, L.R. DATE: MAY 1987.
DRAWN BY: LUKOS, L.R. DATE: 10.8.1987.
EXAMINED BY: DATE: 21.8.1987.

PROJECT: SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

CLIENT: SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO: MUKO/SUR /1003

TOPOGRAPHICAL SURVEY OF WATERWAY
SCALE 1:1000



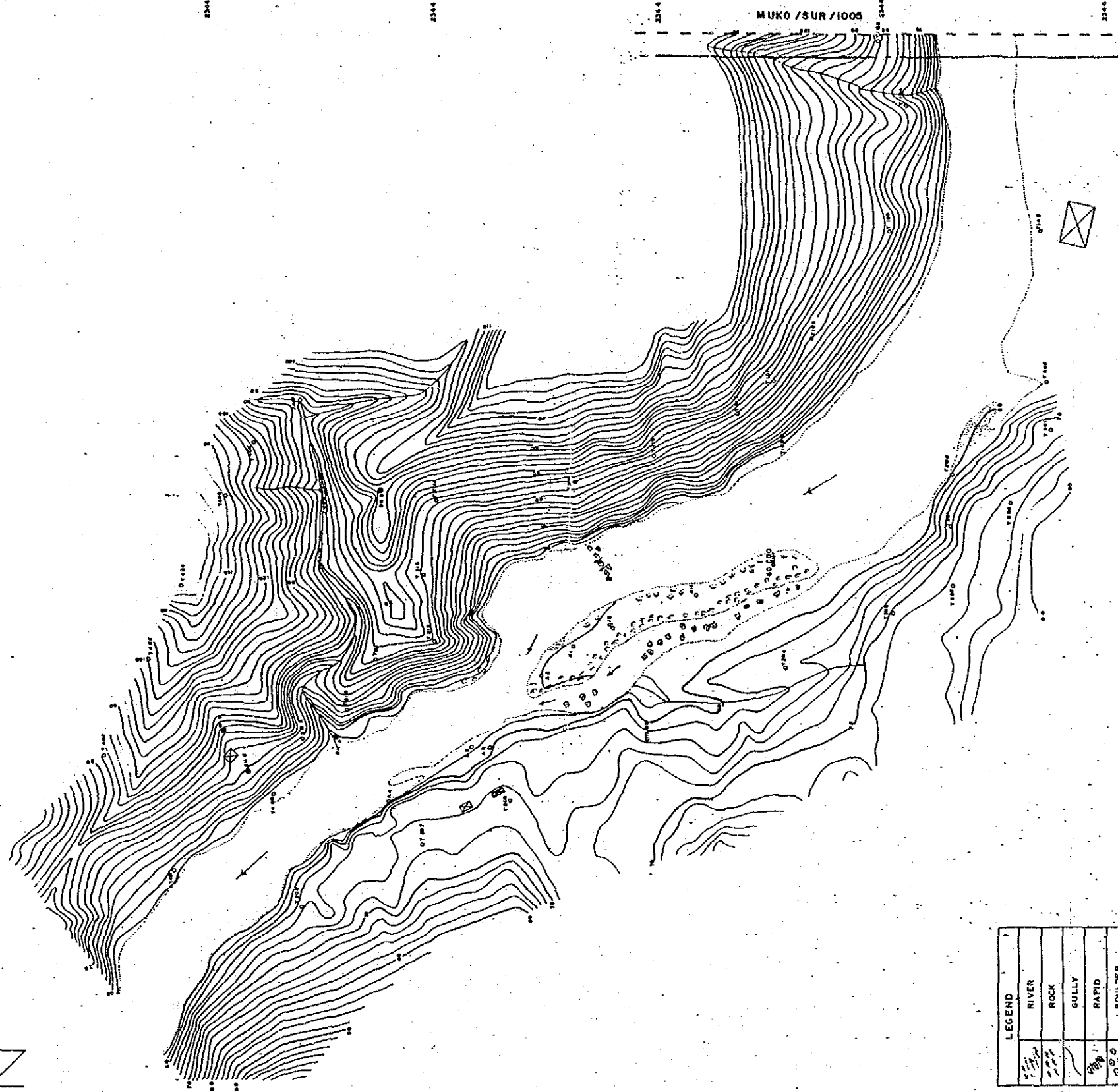
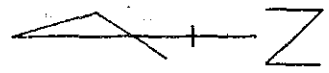
PROJECT: SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES
 SURVEYED BY: Lucas Lim DATE: May 1987
 DRAWN BY: Lucas Lim DATE: 7-9-1987
 EXAMINED BY: DATE: 27-9-1987

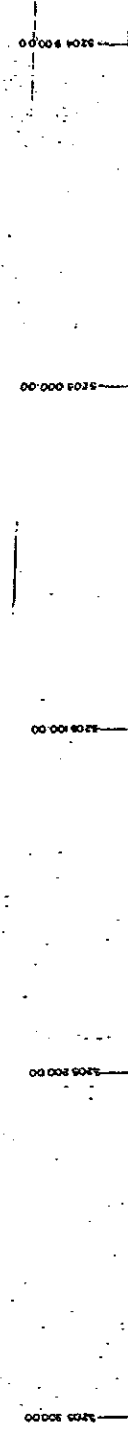
CLIENT: SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO: MUKO/SUR /1005

TOPOGRAPHICAL SURVEY OF WATERWAY SCALE 1:1000



LEGEND	
	RIVER
	ROCK
	GULLY
	RAPID
	BOULDER
	SAND
	BORE HOLE
	SURVEY MARK
	HUT

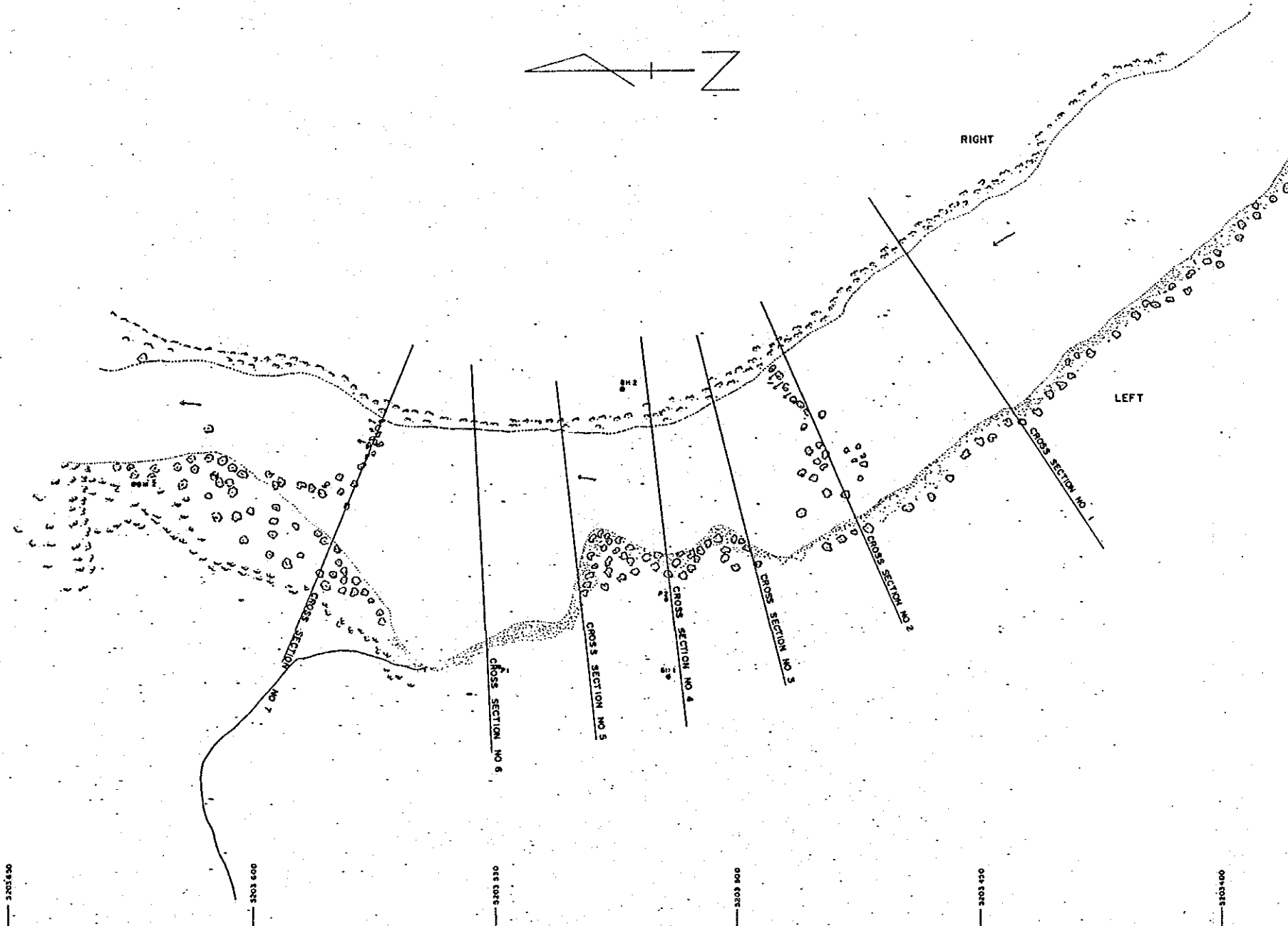


<p>PROJECT: SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH</p>	<p>SALAND SURVEY SERVICES SURVEYED BY: Lucas Loh DATE: MAR 1987 DRAWN BY: Lucas Loh DATE: 02-5-1987 EXAMINED BY: DATE: 2-7-8-1987</p>
<p>CLIENT: SARAWAK ELECTRICITY SUPPLY CORPORATION</p>	<p>PLAN NO: MUKO/SUR /1006</p>

SMALL HYDRO-POWER DEVELOPMENT SCHEME AT MUKOH

RIVER CROSS SECTIONS AT INTAKE SITE

SCALE 1:500



LEGEND	
	RIVER
	ROCK
	STREAM
	RAPID
	BOULDER
	SAND
	BORE HOLE
	SURVEY MARK

PROJECT: SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES
 SURVEYED BY: Lucas Loh DATE: June, 1987
 DRAWN BY: Lucas Loh DATE: 23-7-1987
 EXAMINED BY: [Signature] DATE: 21-8-1987

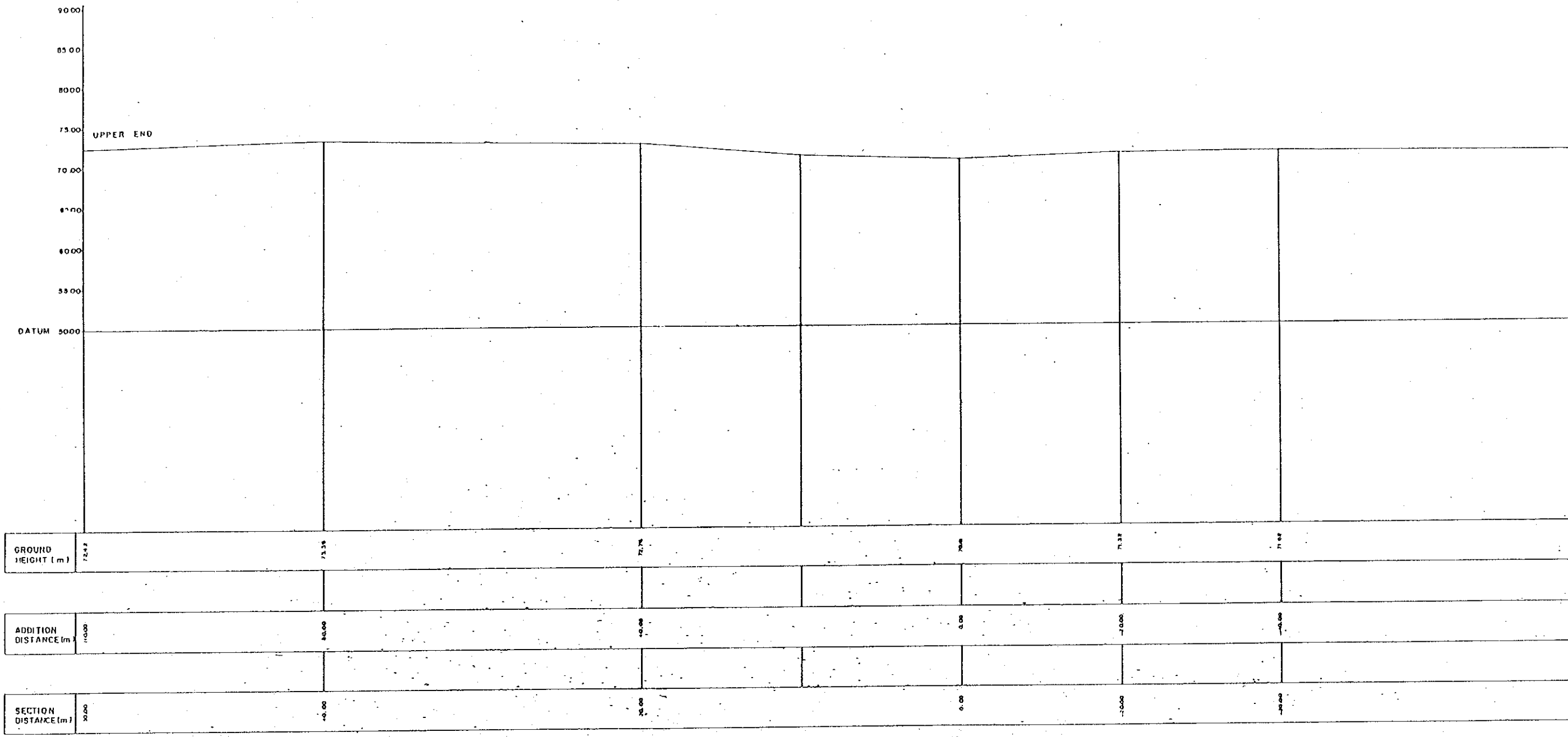
CLIENT: SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO : MUKO/SUR/1007

SMALL HYDRO-POWER DEVELOPMENT SCHEME AT MUKOH

LONGITUDINAL SECTION OF RIVER AT INTAKE SITE

SCALE 1:250



PROJECT

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

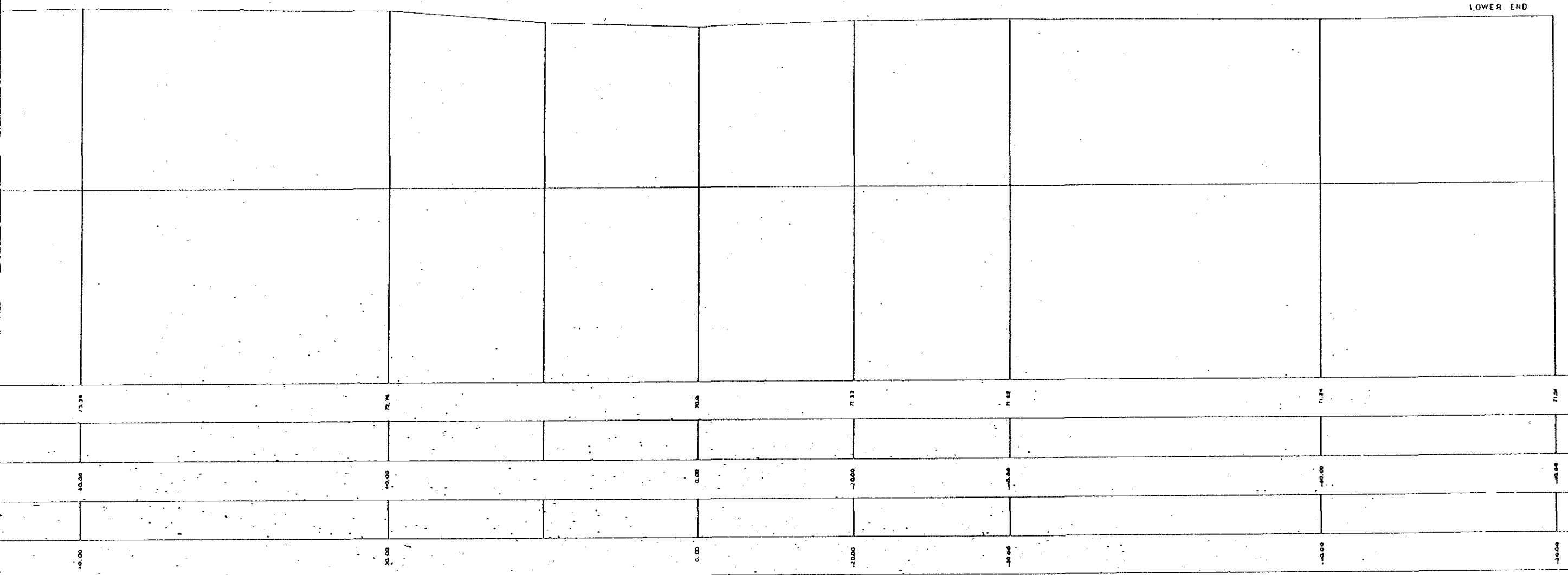
SALAND SURVEY SER
 SURVEYED BY Lucas
 DRAWN BY Lucas
 EXAMINED BY [Signature]

CLIENT

SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO

SMALL HYDRO-POWER DEVELOPMENT SCHEME AT MUKOH
 LONGITUDINAL SECTION OF RIVER AT INTAKE SITE
 SCALE 1:250



SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SAWAK ELECTRICITY SUPPLY CORPORATION

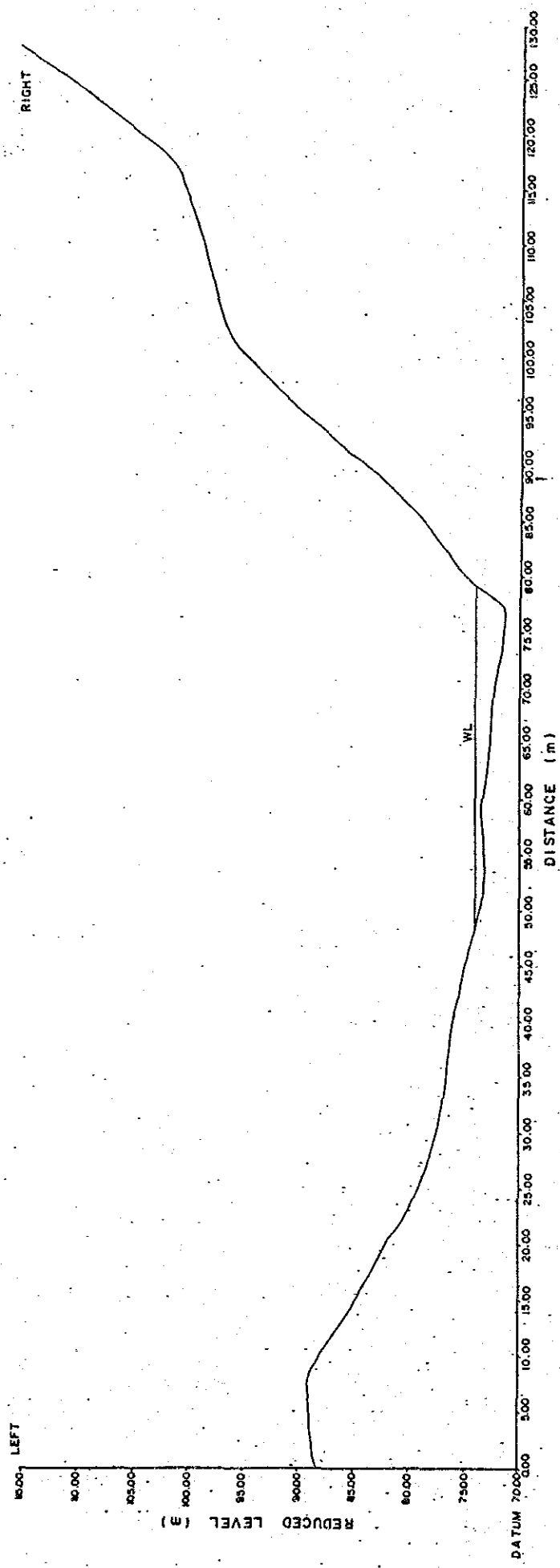
SALAND SURVEY SERVICES

SURVEYED BY: Lucas Loi DATE: June 1987
 DRAWN BY: Lucas Loi DATE: 23-7-1987
 EXAMINED BY: [Signature] DATE: 21-8-1987

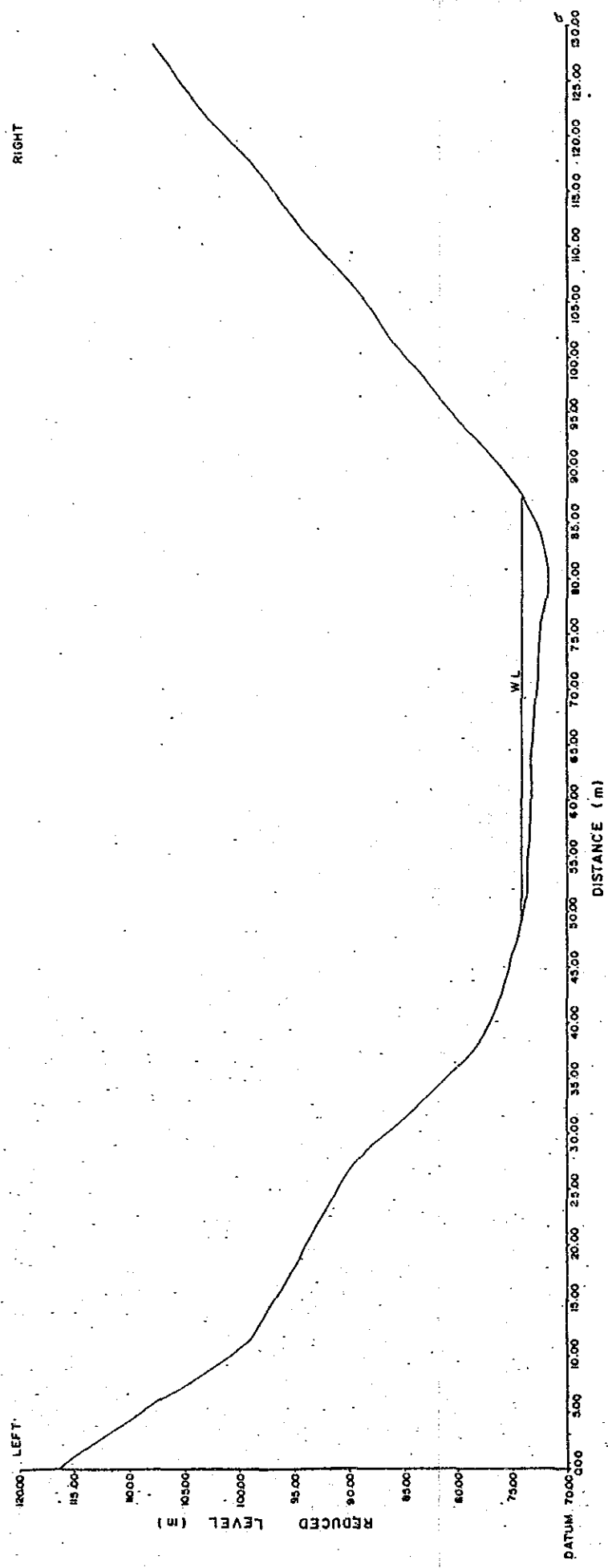
PLAN NO : MUKO/SUR/1008

SMALL HYDROPOWER DEVELOPMENT SCHEME
CROSS SECTIONAL VIEW OF MUKOH INTAKE SITE

CROSS SECTION 1
SCALE 1:250



CROSS SECTION 2
SCALE 1:250



PROJECT:

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAH SURVEY SERVICES

SURVEYED BY: L. Yusoff DATE: MAR 1987
DRAWN BY: Yusoff DATE: 30-7-1987
EXAMINED BY: Yusoff DATE: 2-8-1987

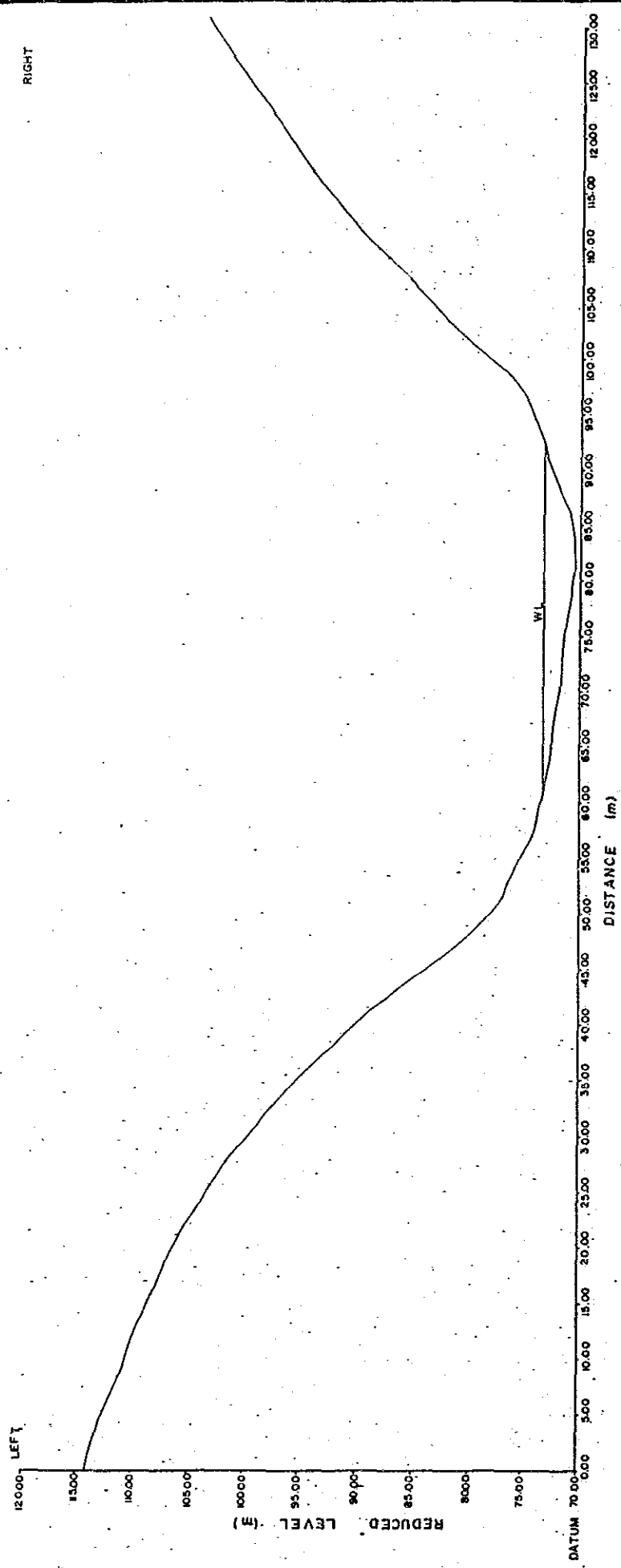
CLIENT:

SARAWAK ELECTRICITY SUPPLY CORPORATION

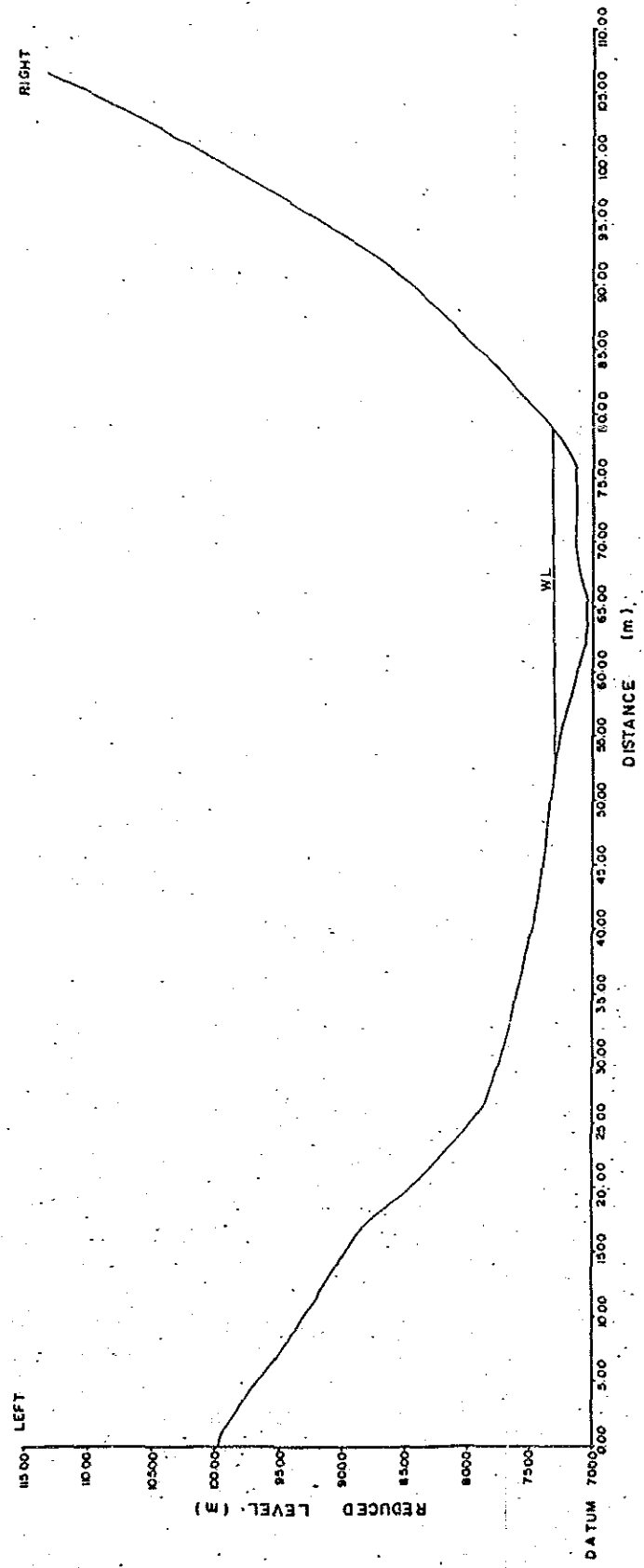
PLAN NO: MUKO/SUR
/1009

CROSS SECTION 3
SCALE 1:250

INTAKE SITE



CROSS SECTION 4
SCALE 1:250



PROJECT:

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES

SURVEYED BY: LUKA LIA DATE: MAR 1987

DRAWN BY: LUKA LIA DATE: 30-7-1987

EXAMINED BY: [Signature] DATE: [Signature]

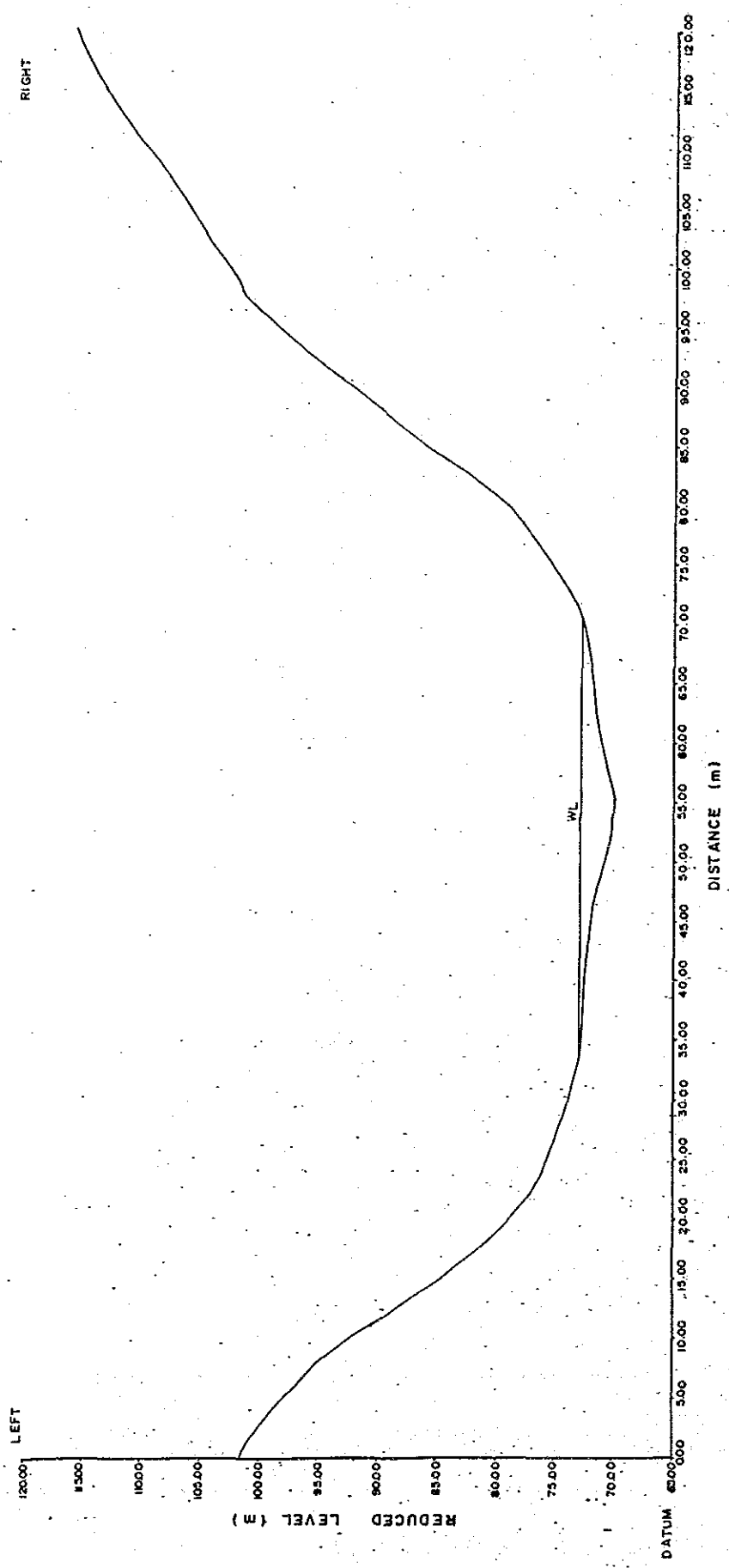
CLIENT:

SARAWAK ELECTRICITY SUPPLY CORPORATION

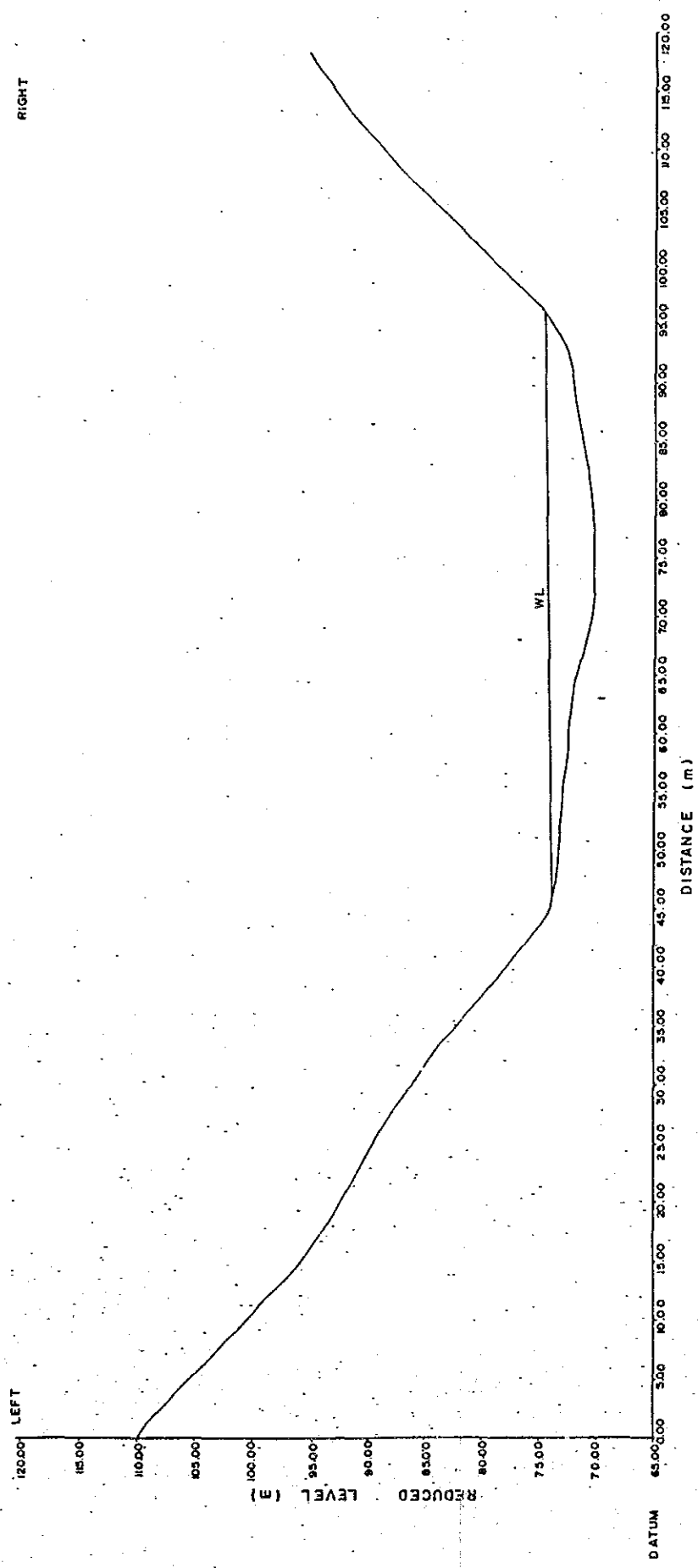
PLAN NO: MUKO/SUR
/1010

CROSS SECTION 5
SCALE 1:250

INTAKE SITE



CROSS SECTION 6
SCALE 1:250



PROJECT

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES

SURVEYED BY: L. S. S. L. DATE: MAY 1987
DRAWN BY: L. S. S. L. DATE: 30-7-1987
EXAMINED BY: L. S. S. L. DATE: 8-8-1987

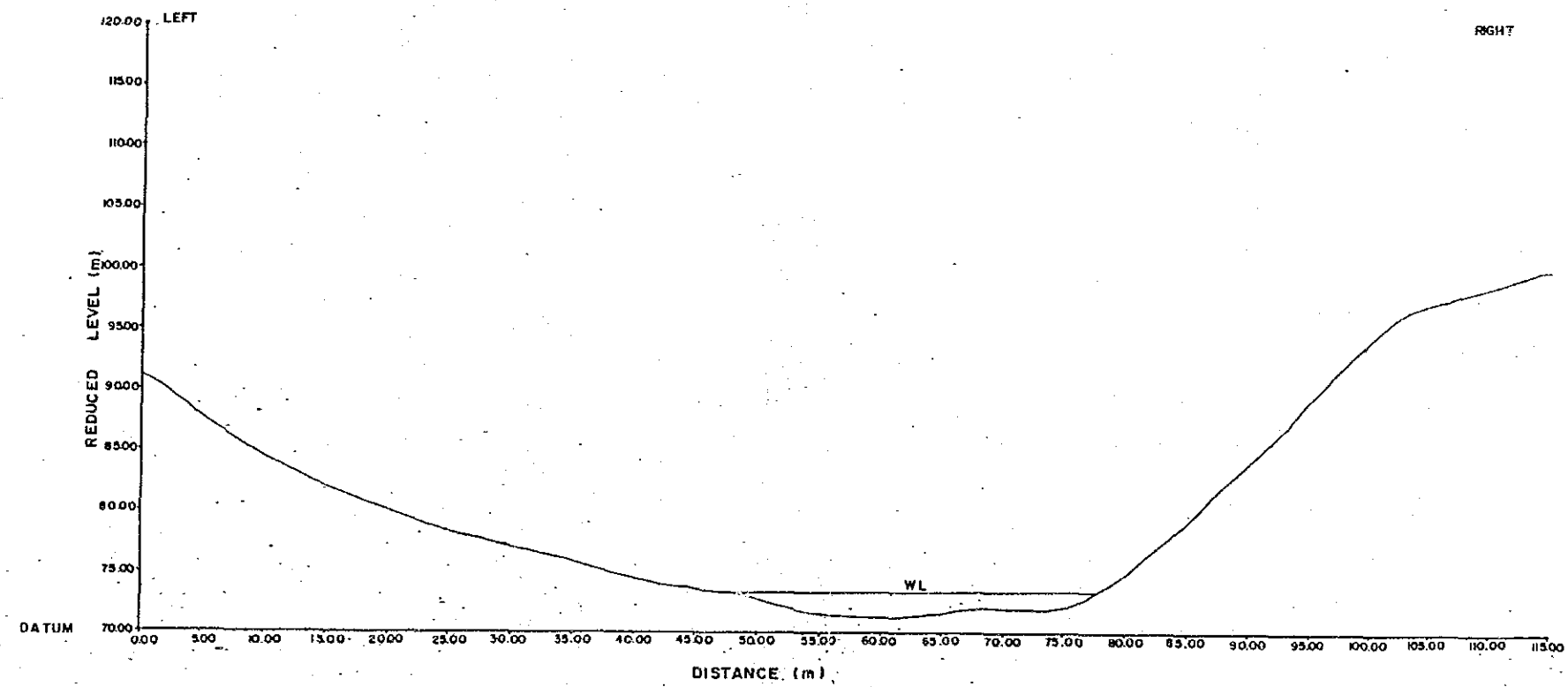
CLIENT

SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO: MUKO/SUR
/1011

INTAKE SITE

CROSS SECTION 7
SCALE 1 : 250



PROJECT :

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES

SURVEYED BY : Lucas, Loh DATE : May 1987

DRAWN BY : Lucas, Loh DATE : 30-7-1987

EXAMINED BY : [Signature] DATE : 4-8-1987

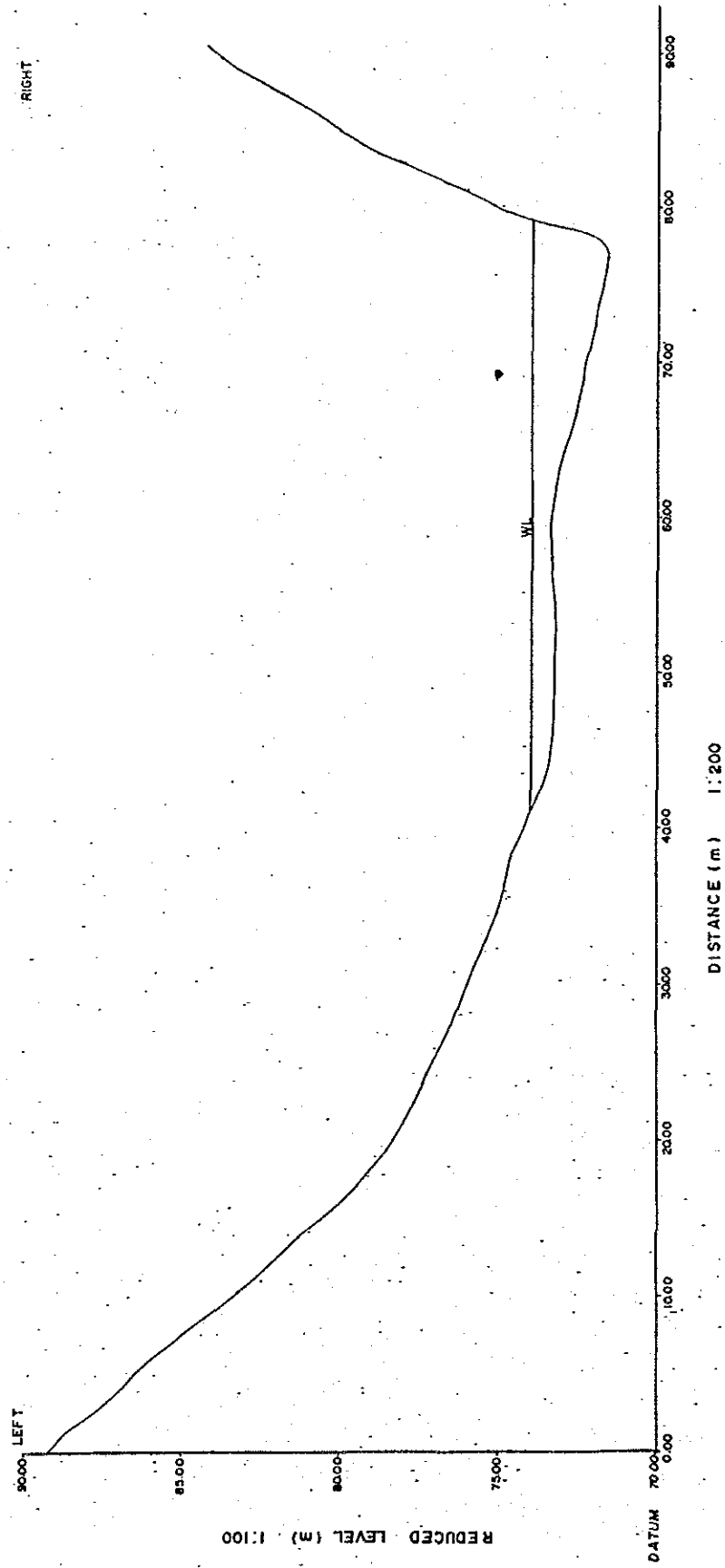
CLIENT :

SARAWAK ELECTRICITY SUPPLY CORPORATION

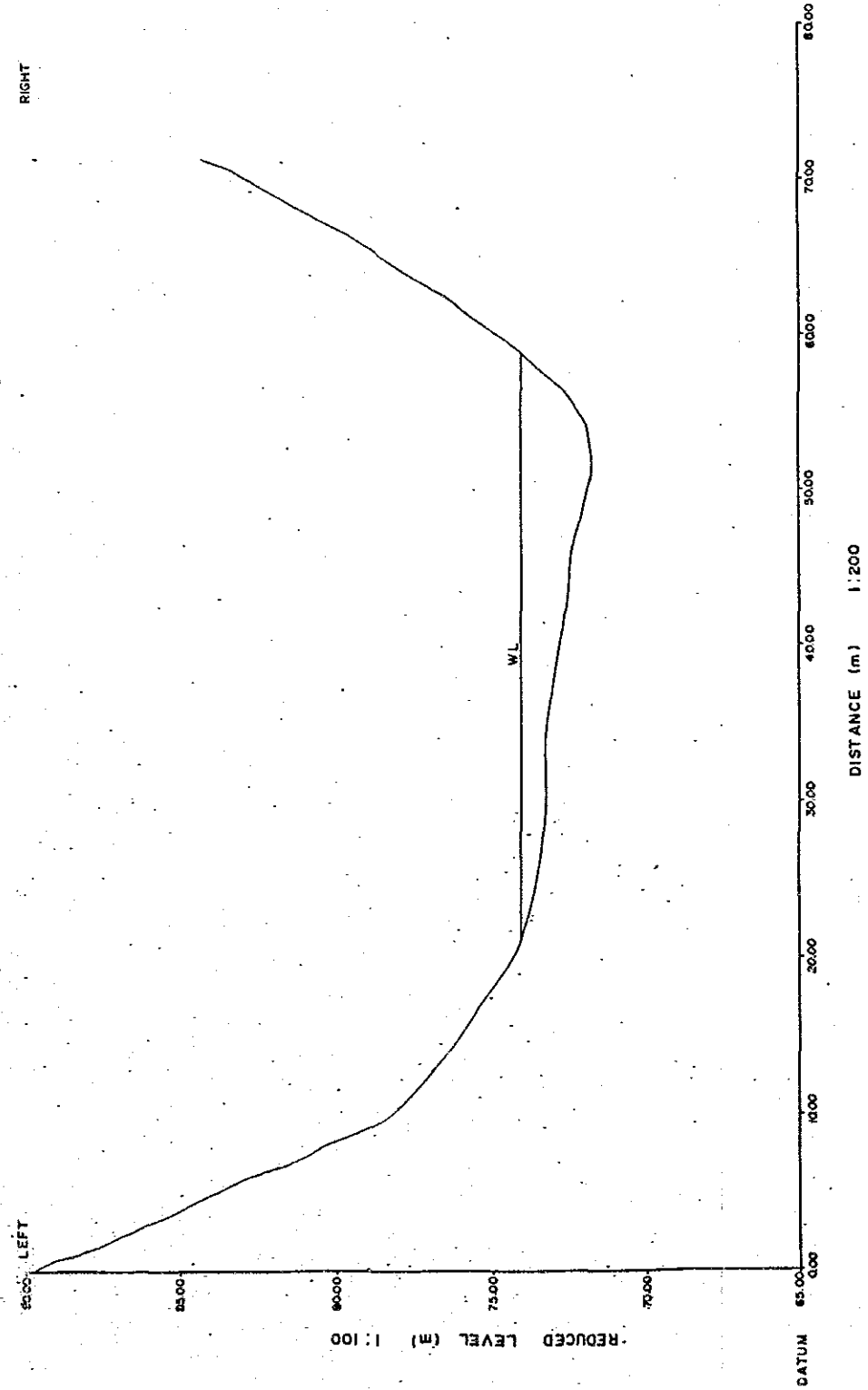
PLAN NO : MUKO/SUR/1012

INTAKE SITE

RIVER CROSS SECTION 1



RIVER CROSS SECTION 2



PROJECT :

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES

SURVEYED BY : Lucas Lee DATE : June 1987
 DRAWN BY : Lucas Lee DATE : 23.7.1987
 EXAMINED BY : [Signature] DATE : 8.8.1987

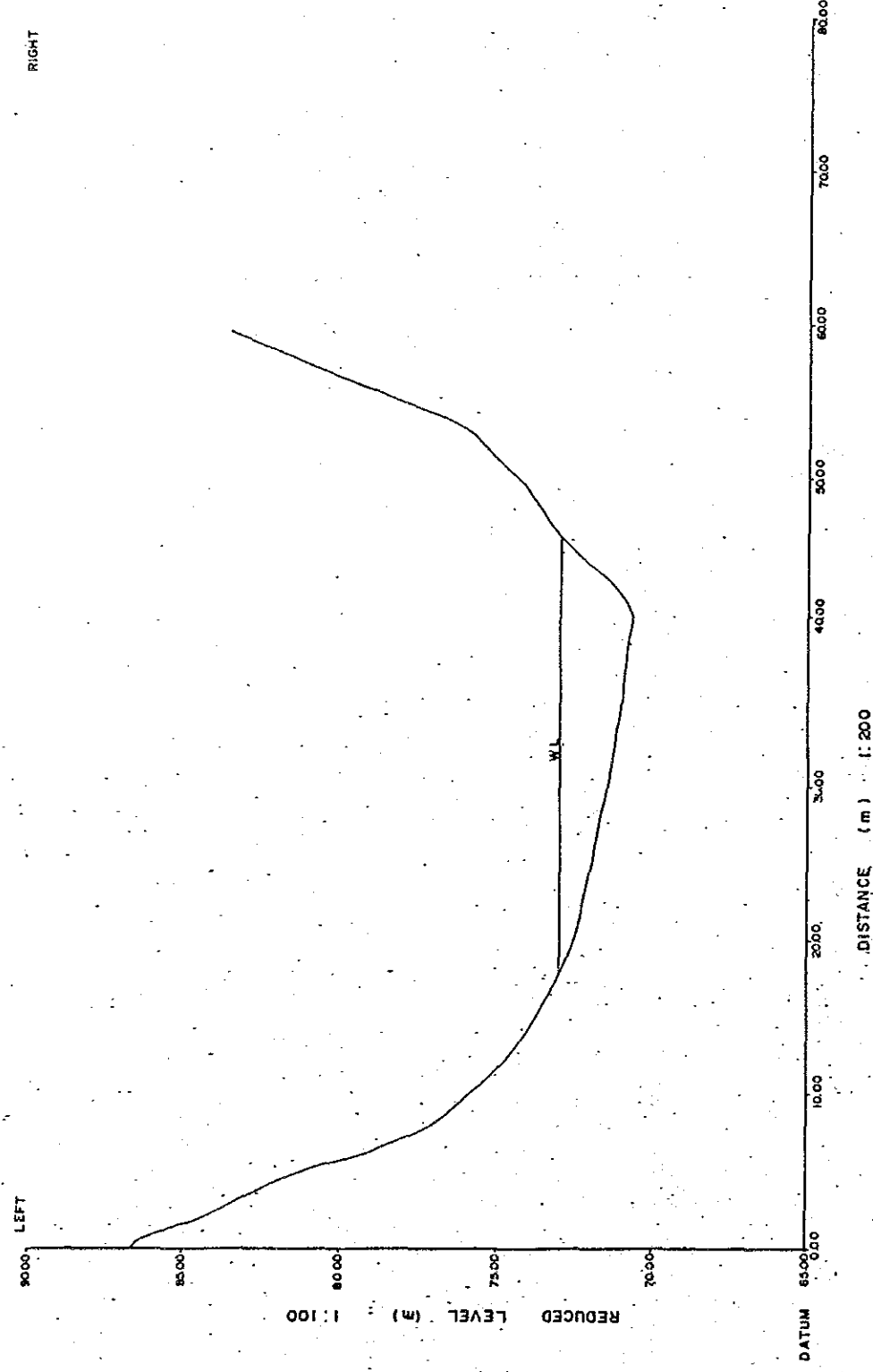
CLIENT :

SARAWAK ELECTRICITY SUPPLY CORPORATION

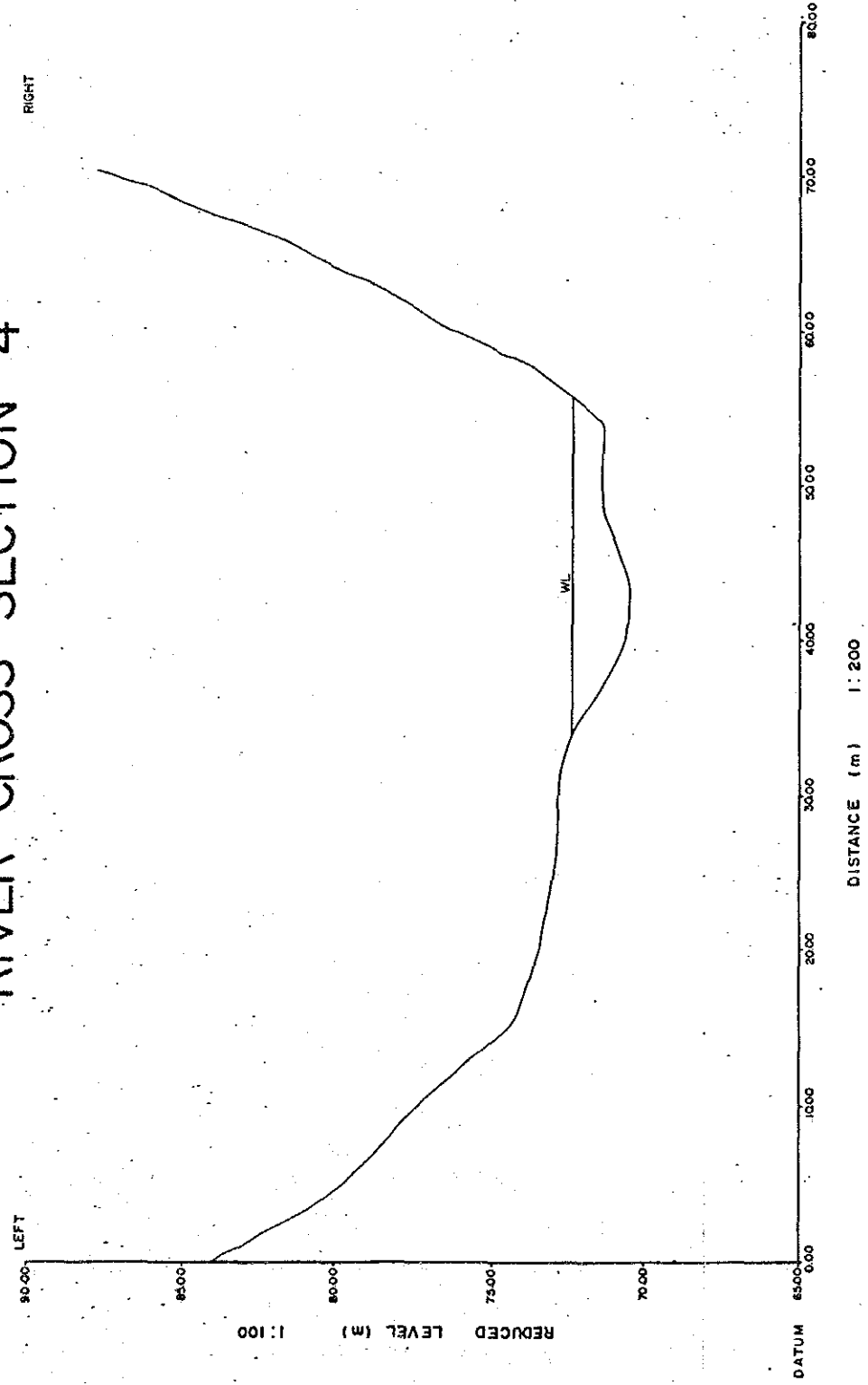
PLAN NO. MUKO/SUR
/1013

INTAKE SITE

RIVER CROSS SECTION 3



RIVER CROSS SECTION 4



PROJECT :

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES

SURVEYED BY : Lucas Lee DATE : June 1987
 DRAWN BY : Lucas Lee DATE : 23-7-1987
 EXAMINED BY : [Signature] DATE : 8-8-1987

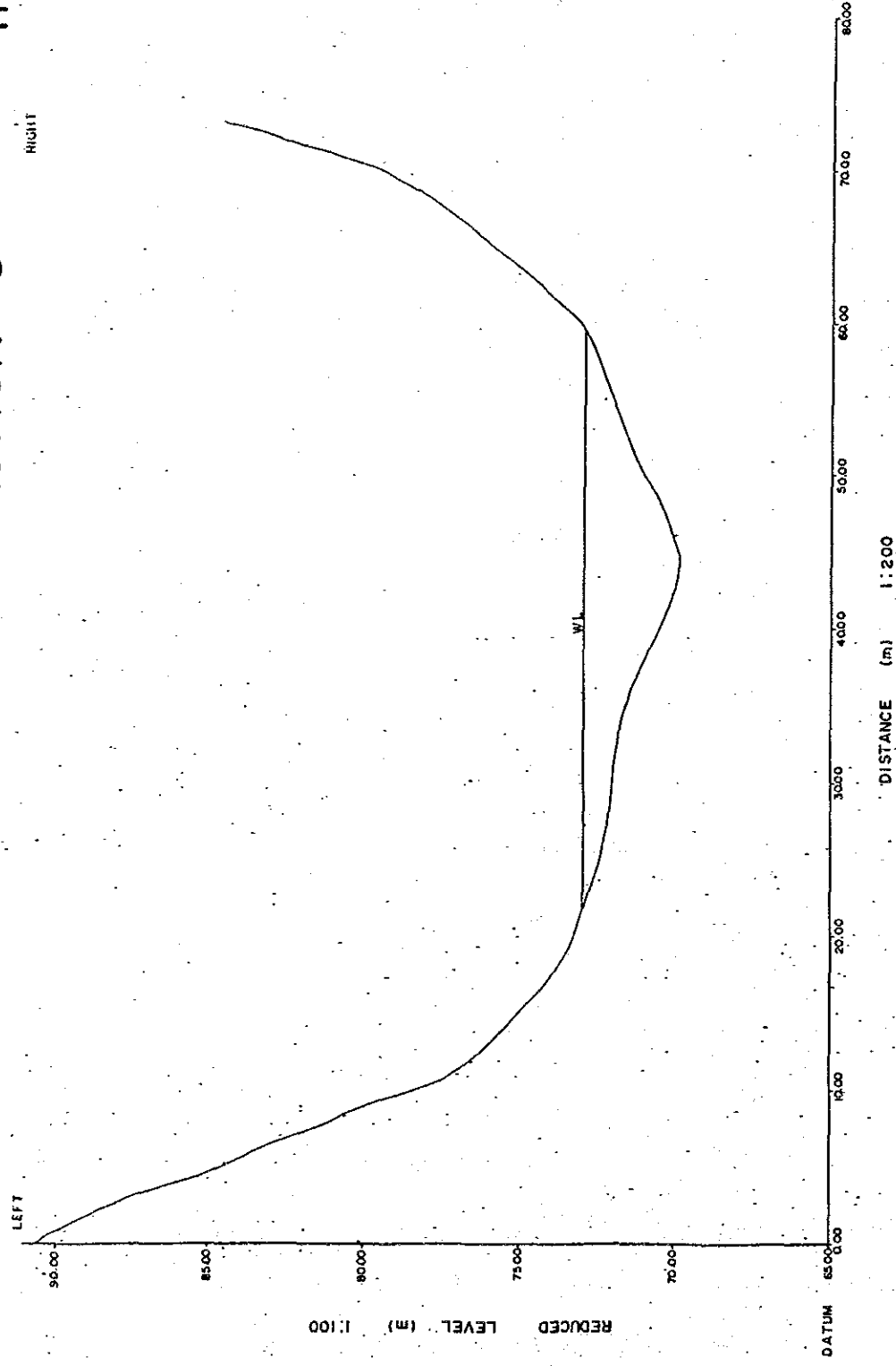
CLIENT :

SARAWAK ELECTRICITY SUPPLY CORPORATION

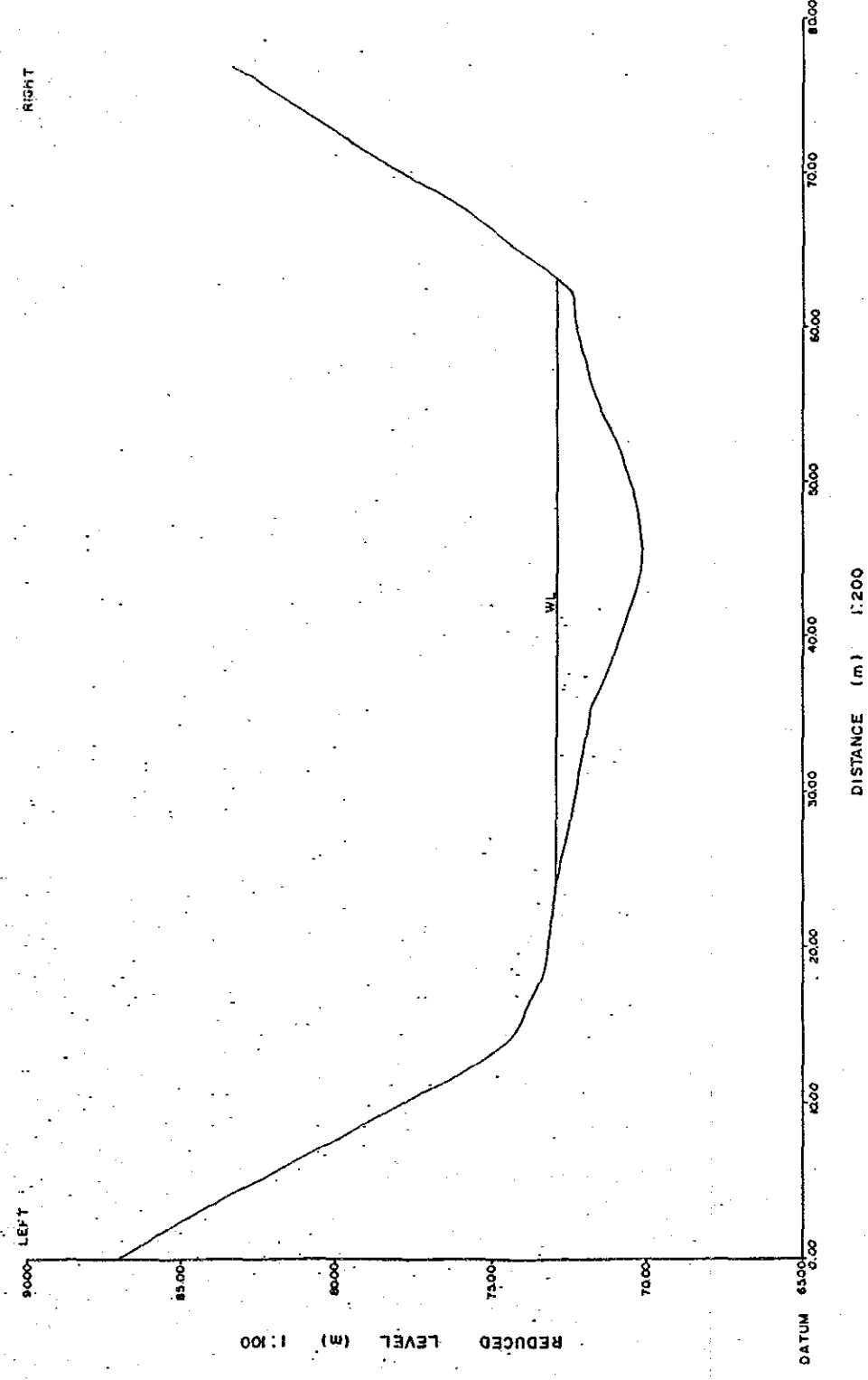
PLAN NO : MUKO/SUR
 /1014

RIVER CROSS SECTION 5

INTAKE SITE



RIVER CROSS SECTION 6



PROJECT :

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES

SURVEYED BY : LUPOR LUI, DATE : JUN 1987.
 DRAWN BY : LUPOR LUI, DATE : 23-7-1987.
 EXAMINED BY : *[Signature]*, DATE : 21-8-1987.

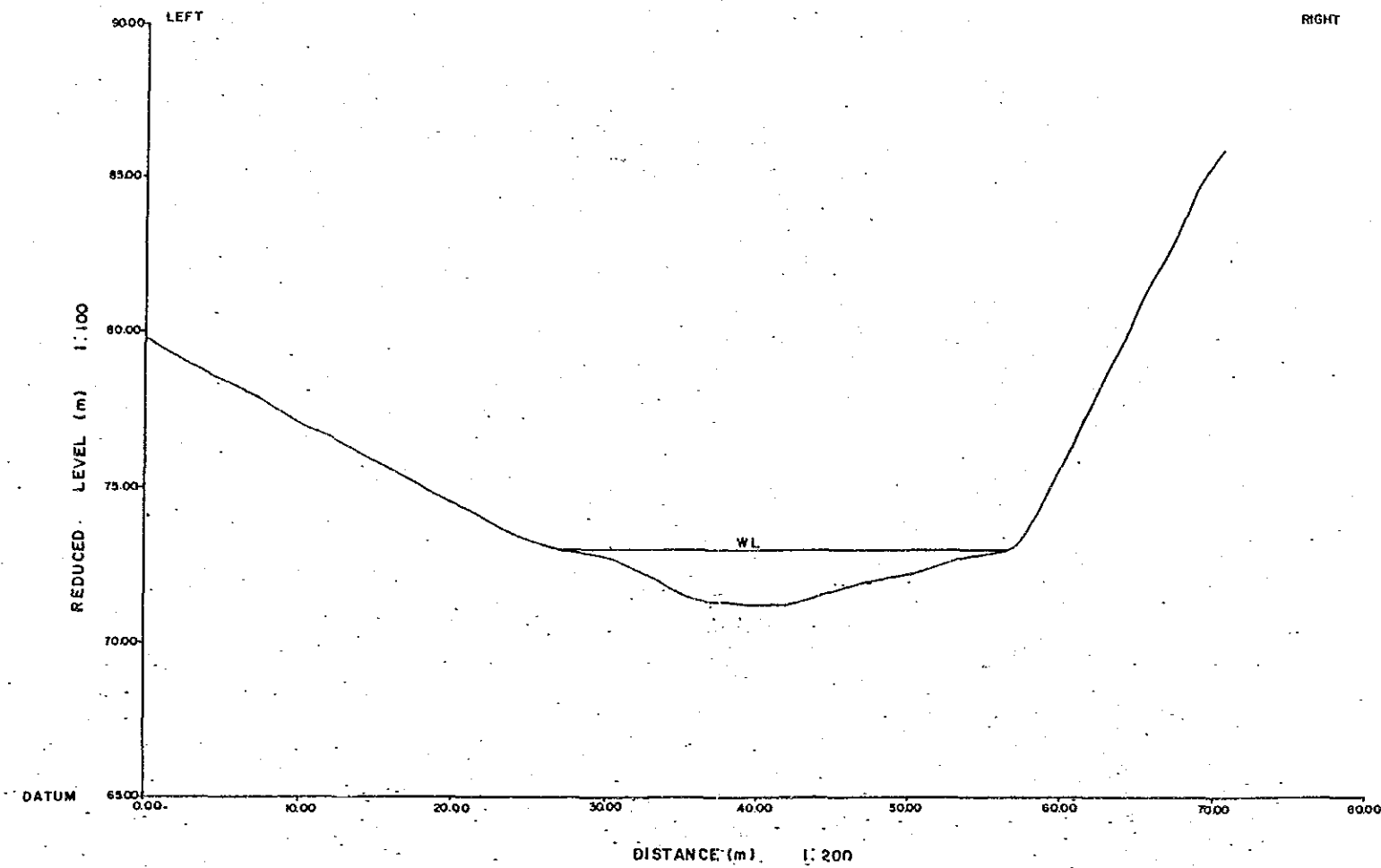
CLIENT :

SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO: MUKO/SUR
 /1015

INTAKE SITE

RIVER CROSS SECTION 7



PROJECT

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES

SURVEYED BY : Lucas, Lal... DATE : June 1987
DRAWN BY : Lucas, Lal... DATE : 23-7-1987
EXAMINED BY : [Signature] DATE : 31-8-1987

CLIENT

SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO : MUKO/SUR/1016

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH
 RIVER CROSS SECTIONS AT POWERHOUSE SITE
 SCALE 1 : 500



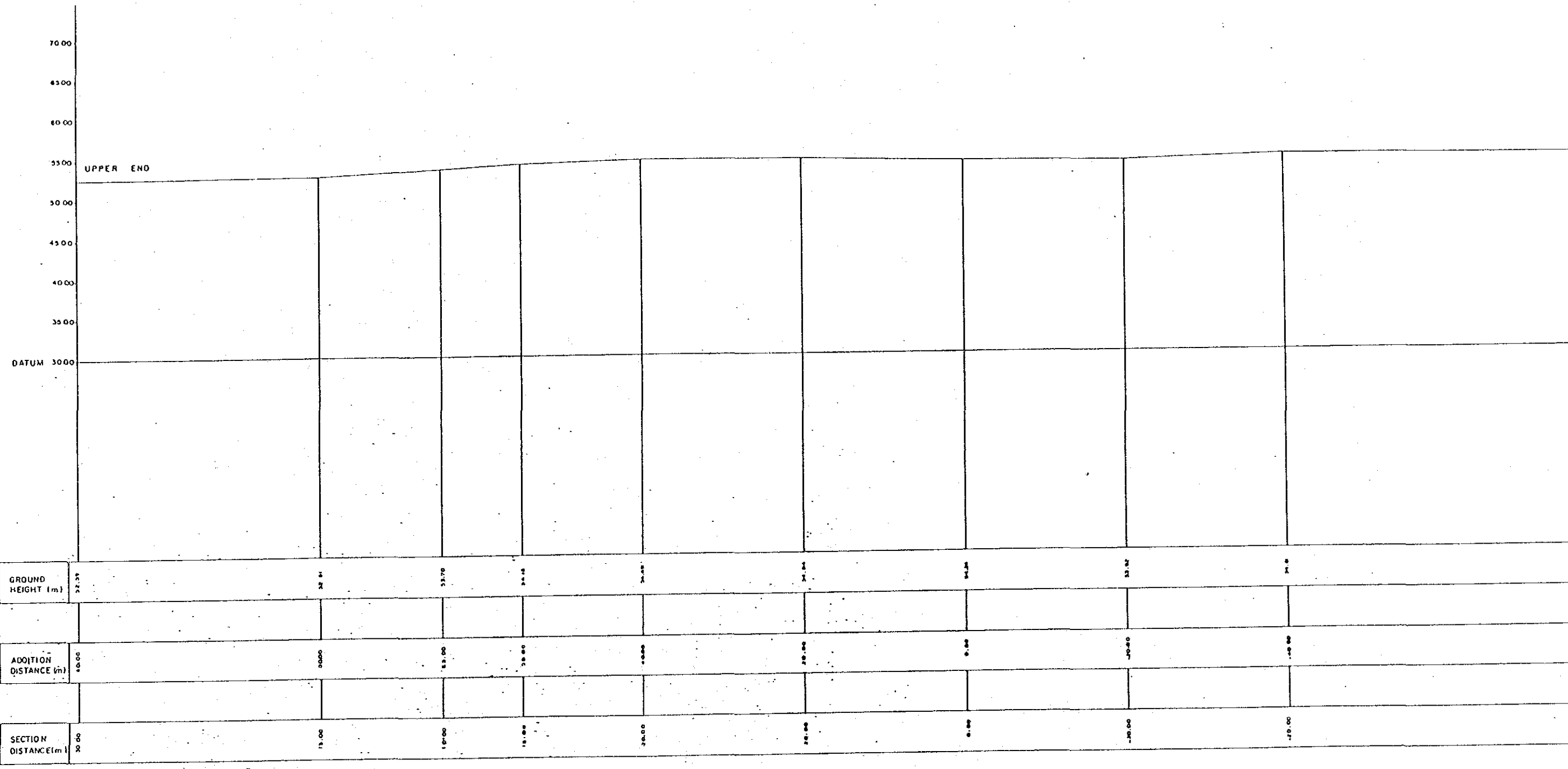
LEGEND	
	RIVER
	ROCK
	STREAM
	BOULDER
	SAND
	SORE HOLE
	SURVEY MARK
	HUT

PROJECT:	SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH
CLIENT:	SARAWAK ELECTRICITY SUPPLY CORPORATION
SALAND SURVEY SERVICES SURVEYED BY: LALISA LUI, DATE: MAY 1987 DRAWN BY: LALISA LUI, DATE: 30-7-1987 EXAMINED BY: MUI, DATE: 2-8-1987	
PLAN NO: MUKO/SUR /1017	

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

LONGITUDINAL SECTION OF RIVER AT POWERHOUSE SITE

SCALE 1:250



PROJECT: SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

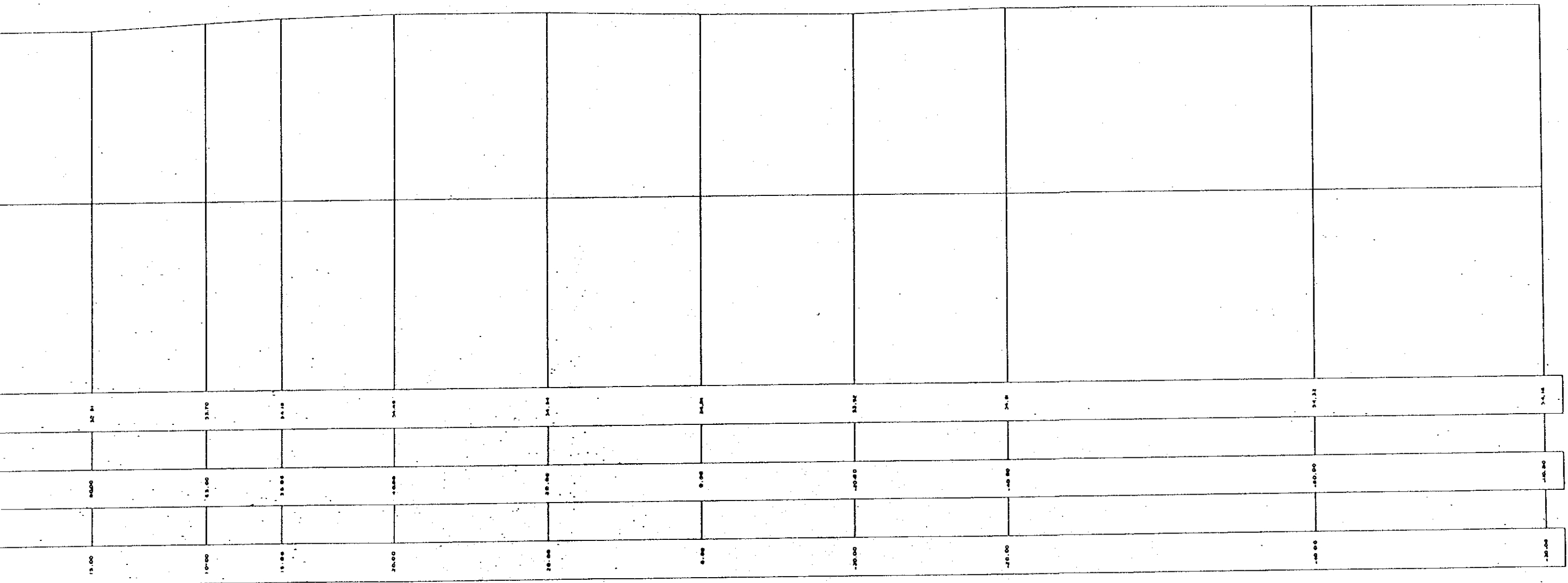
CLIENT: SARAWAK - ELECTRICITY SUPPLY CORPORATION

SALAND SURVEY S
 SURVEYED BY : LK
 DRAWN BY : LK
 EXAMINED BY :

PLAN NO

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH
 LONGITUDINAL SECTION OF RIVER AT POWERHOUSE SITE
 SCALE 1:250

LOWER END



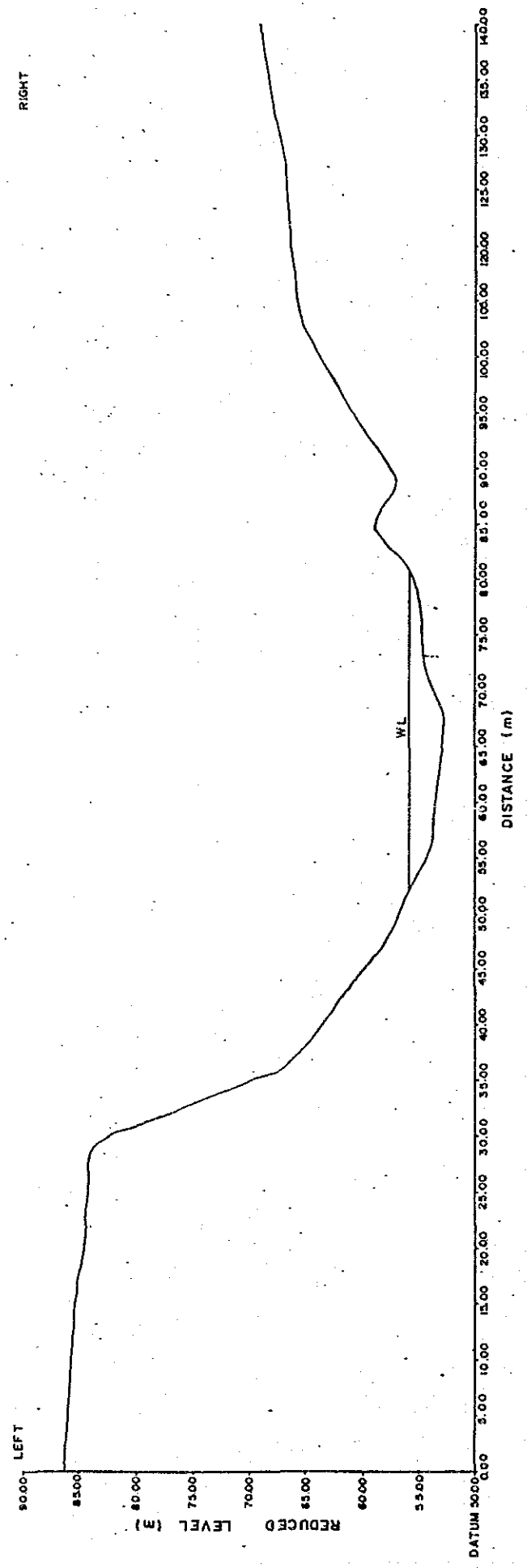
SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

PERAK - ELECTRICITY SUPPLY CORPORATION

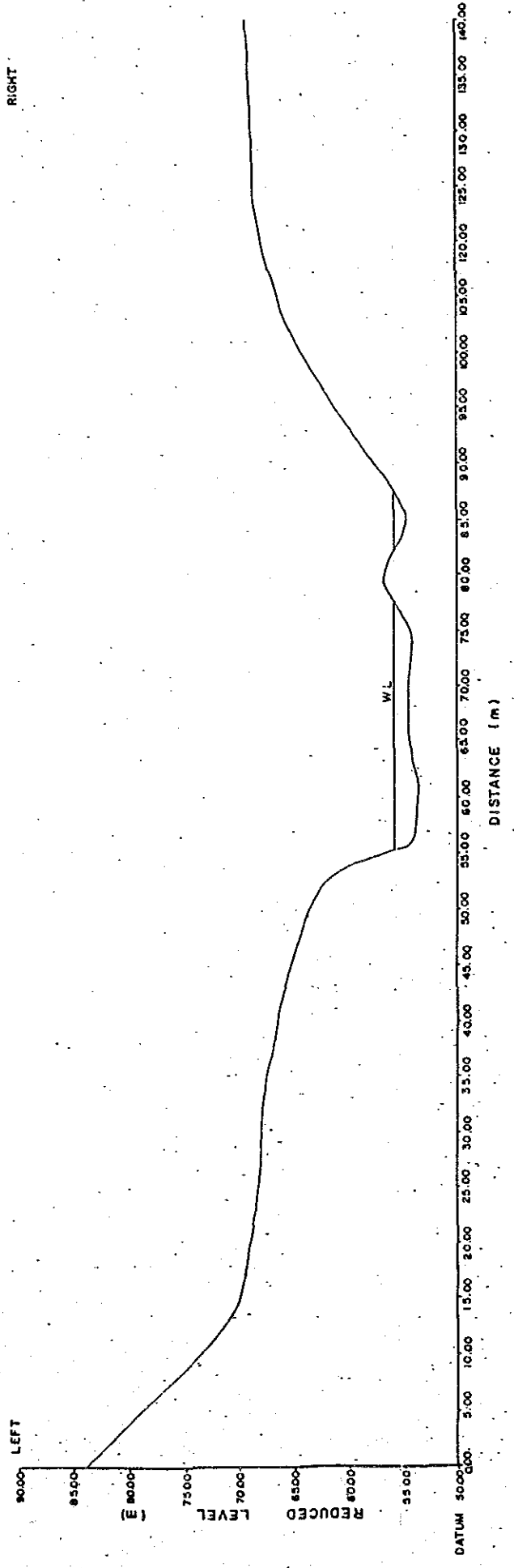
SALAND SURVEY SERVICES
 SURVEYED BY : Lucas Lal DATE : May 1987
 DRAWN BY : Lucas Lal DATE : 28-7-1987
 EXAMINED BY : [Signature] DATE : 27-8-87

PLAN NO : MUKO/SUR/1018

POWERHOUSE SITE
 CROSS SECTION 8
 SCALE 1 : 250



CROSS SECTION 9
 SCALE 1 : 250

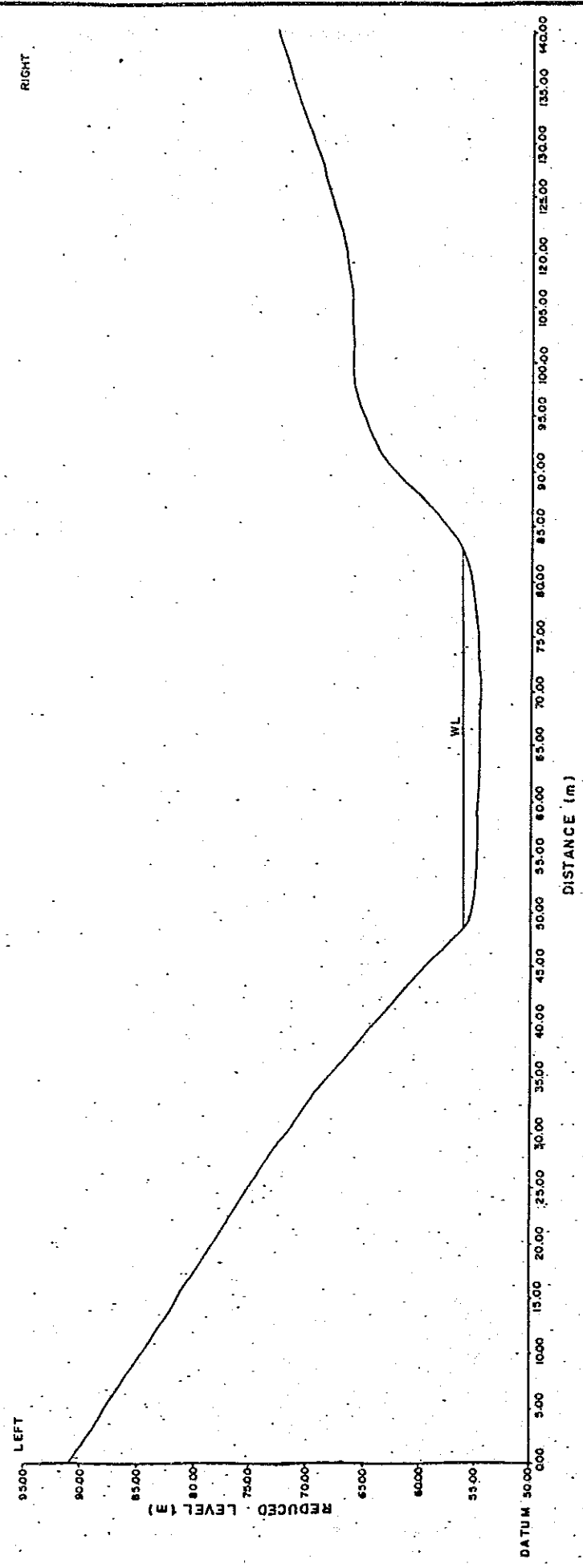


PROJECT:	SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH	SALAND SURVEY SERVICES
CLIENT:	SARAWAK ELECTRICITY SUPPLY CORPORATION	SURVEYED BY: LUKAS LA DATE: 19/1/87
		DRAWN BY: LUKAS LA DATE: 30-7-87
		EXAMINED BY: LUKAS LA DATE: 6-11-87
	PLAN NO: MUKO/SUR/1019	

POWERHOUSE SITE

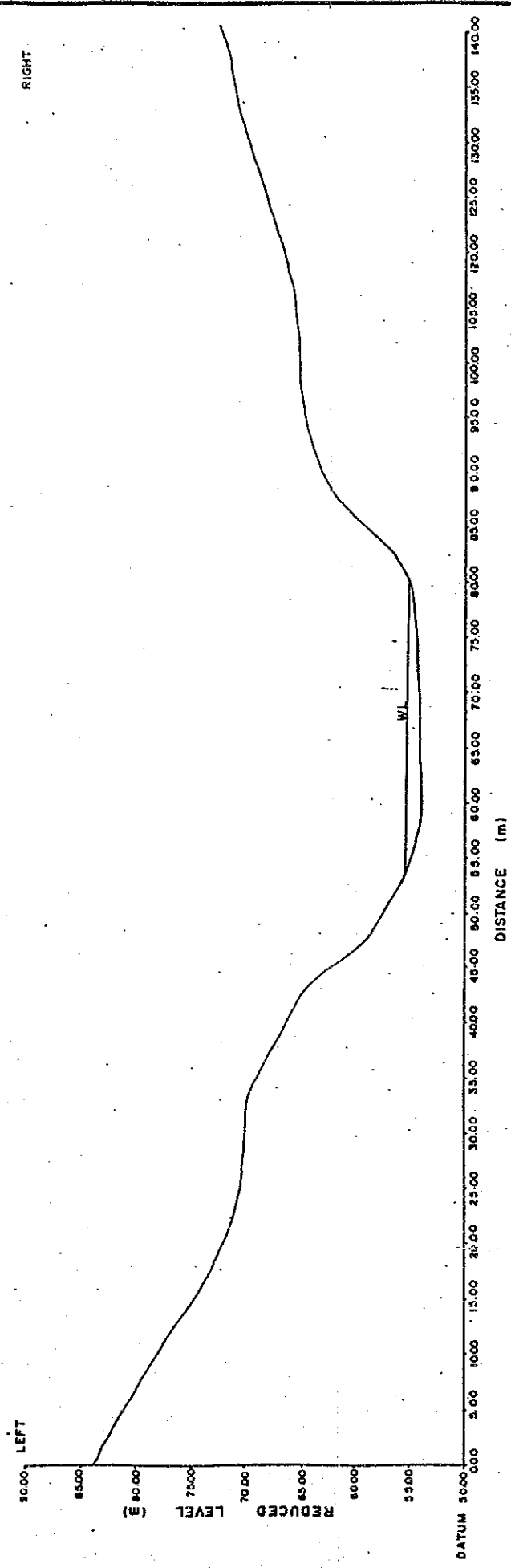
CROSS SECTION 10

SCALE 1 : 250



CROSS SECTION 11

SCALE 1 : 250



PROJECT :

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

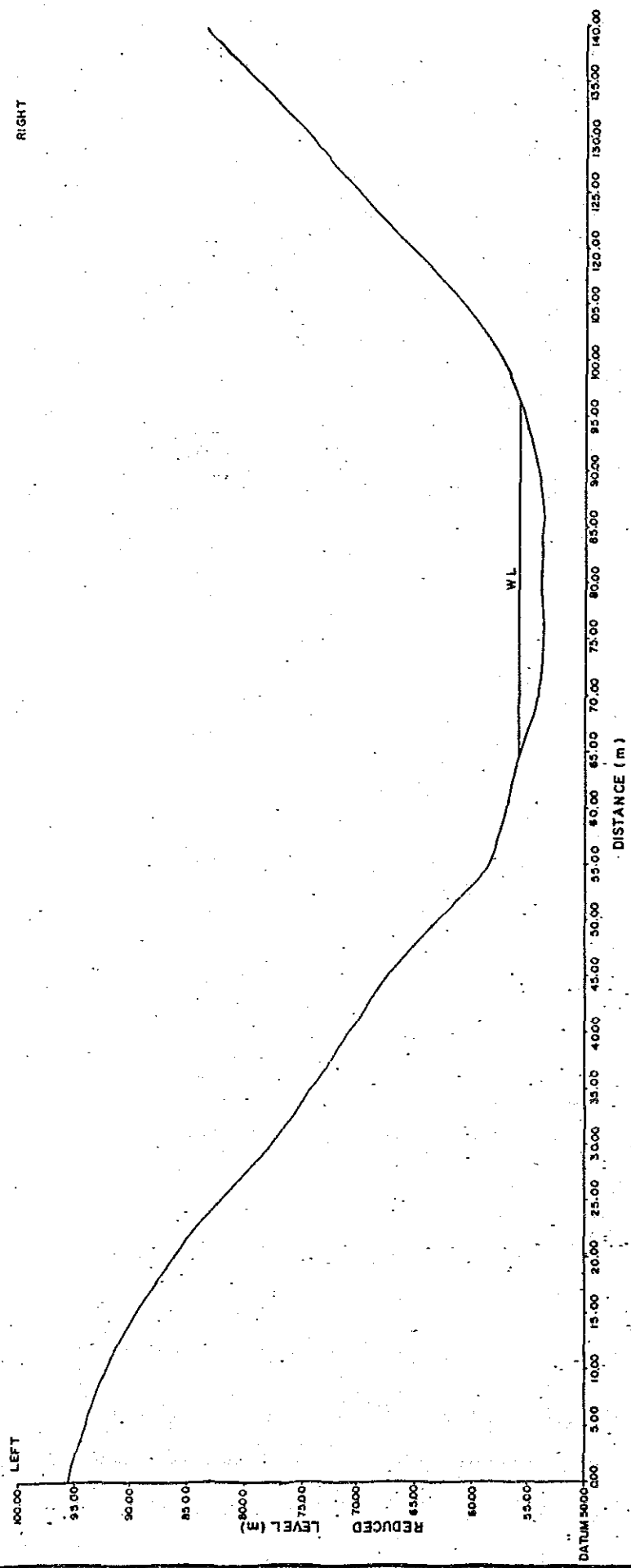
SALAND SURVEY SERVICES
 SURVEYED BY: HARVEY L. ... DATE: MAY 1987...
 DRAWN BY: JAMES L. ... DATE: 30-7-1987.
 EXAMINED BY: ... DATE: ...

CLIENT :

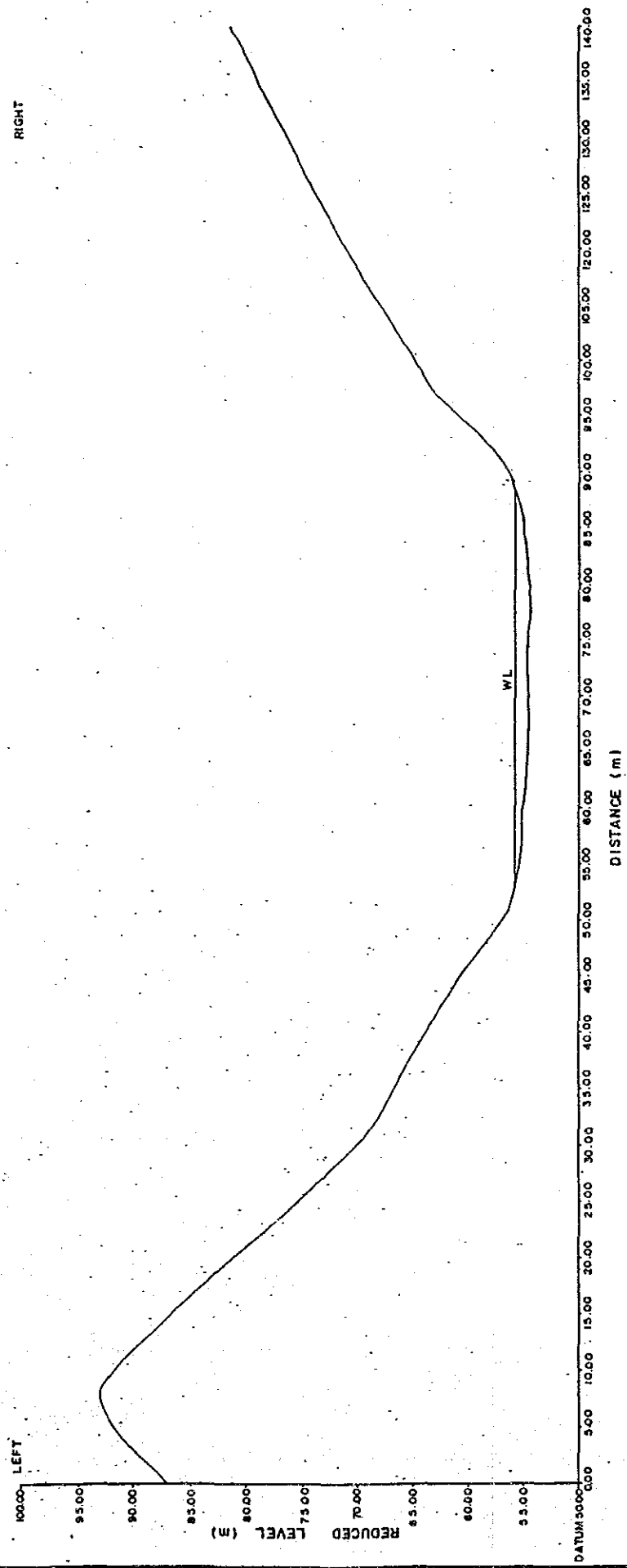
SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO.: MUKO/SUR
 /1020

CROSS SECTION I2 POWERHOUSE SITE
SCALE 1 : 250



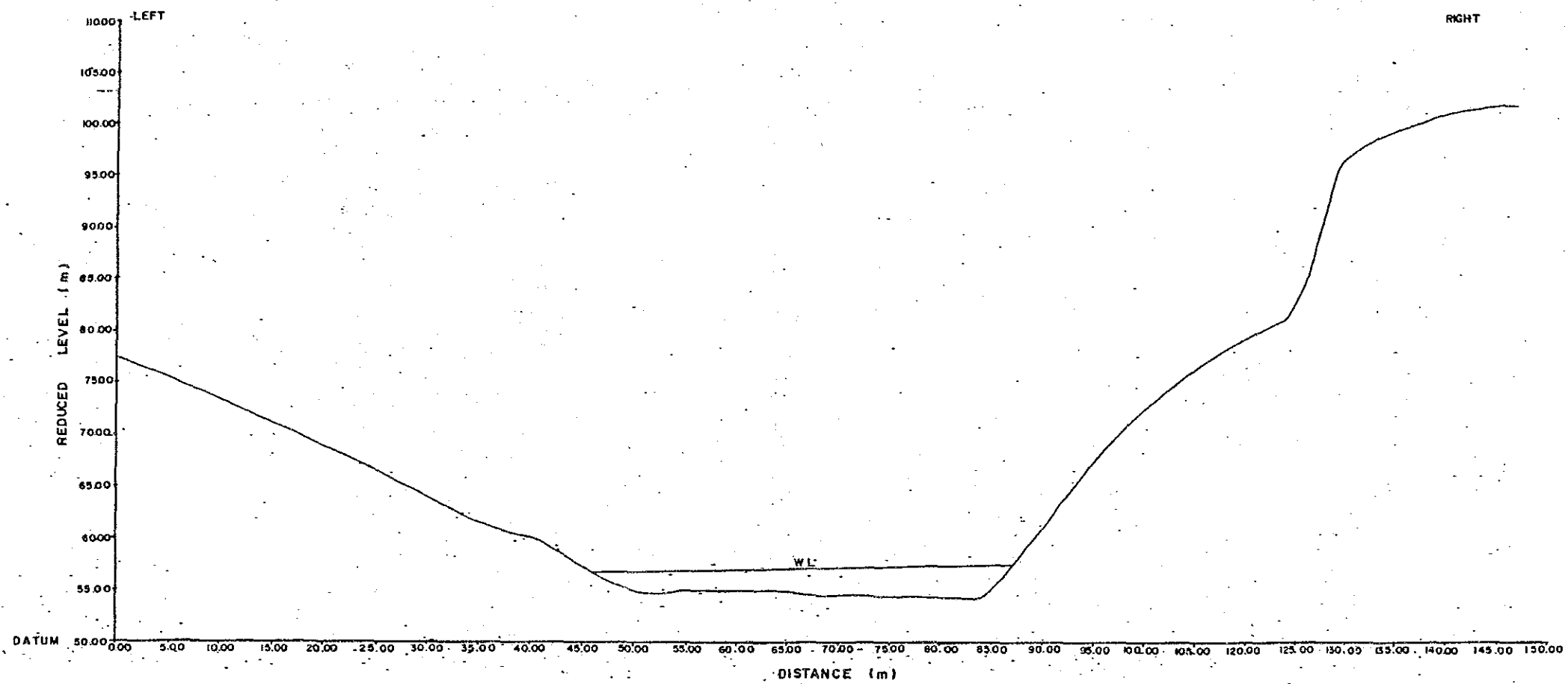
CROSS SECTION I3
SCALE 1 : 250



<p>PROJECT : SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH</p>	<p>SALAND SURVEY SERVICES SURVEYED BY : LUPKIN DATE : MAR 1987 DRAWN BY : LUPKIN DATE : 30-7-1987 EXAMINED BY : DATE : 2-8-87</p>
<p>CLIENT : SARAWAK ELECTRICITY SUPPLY CORPORATION</p>	<p>PLAN NO : MUKO/SUR /1021</p>

POWERHOUSE SITE

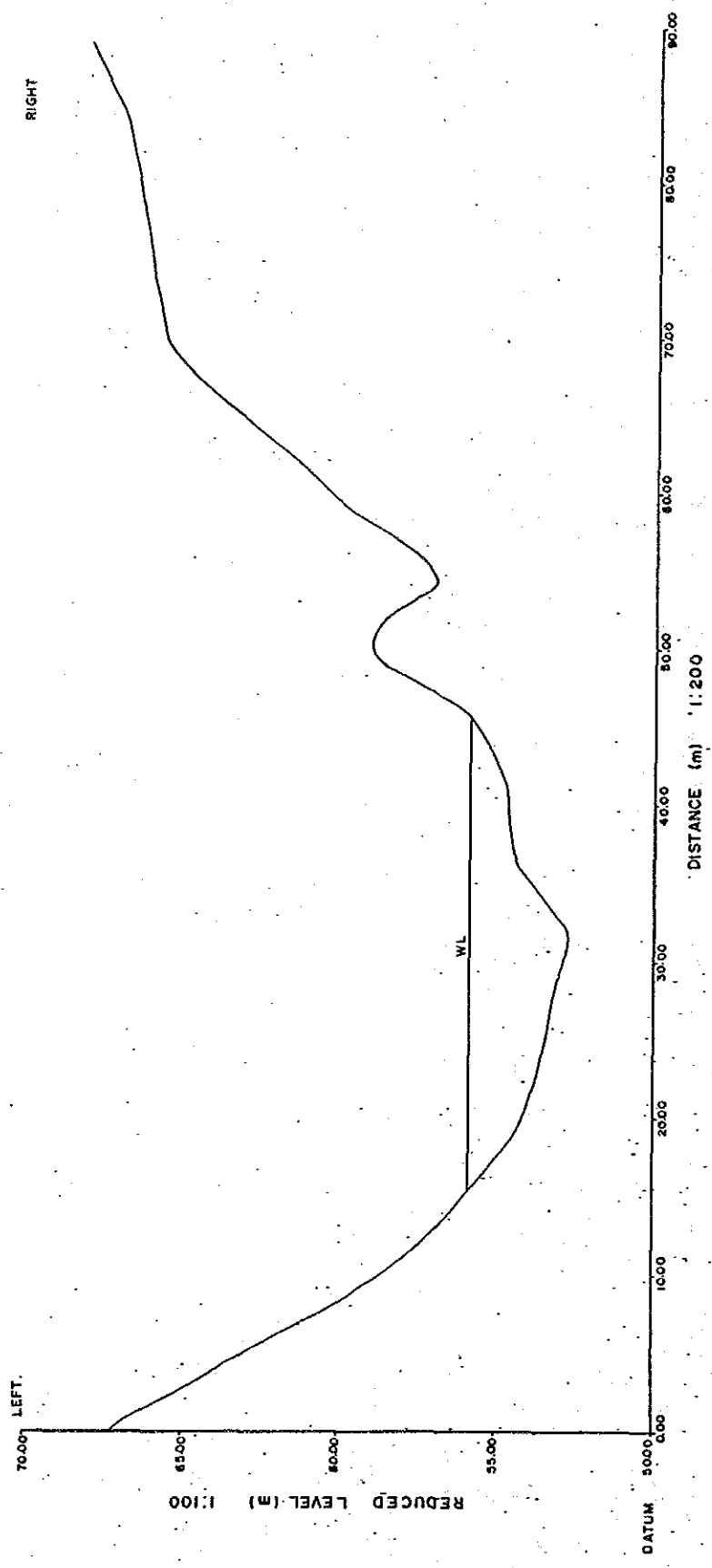
CROSS SECTION 14
SCALE 1 : 250



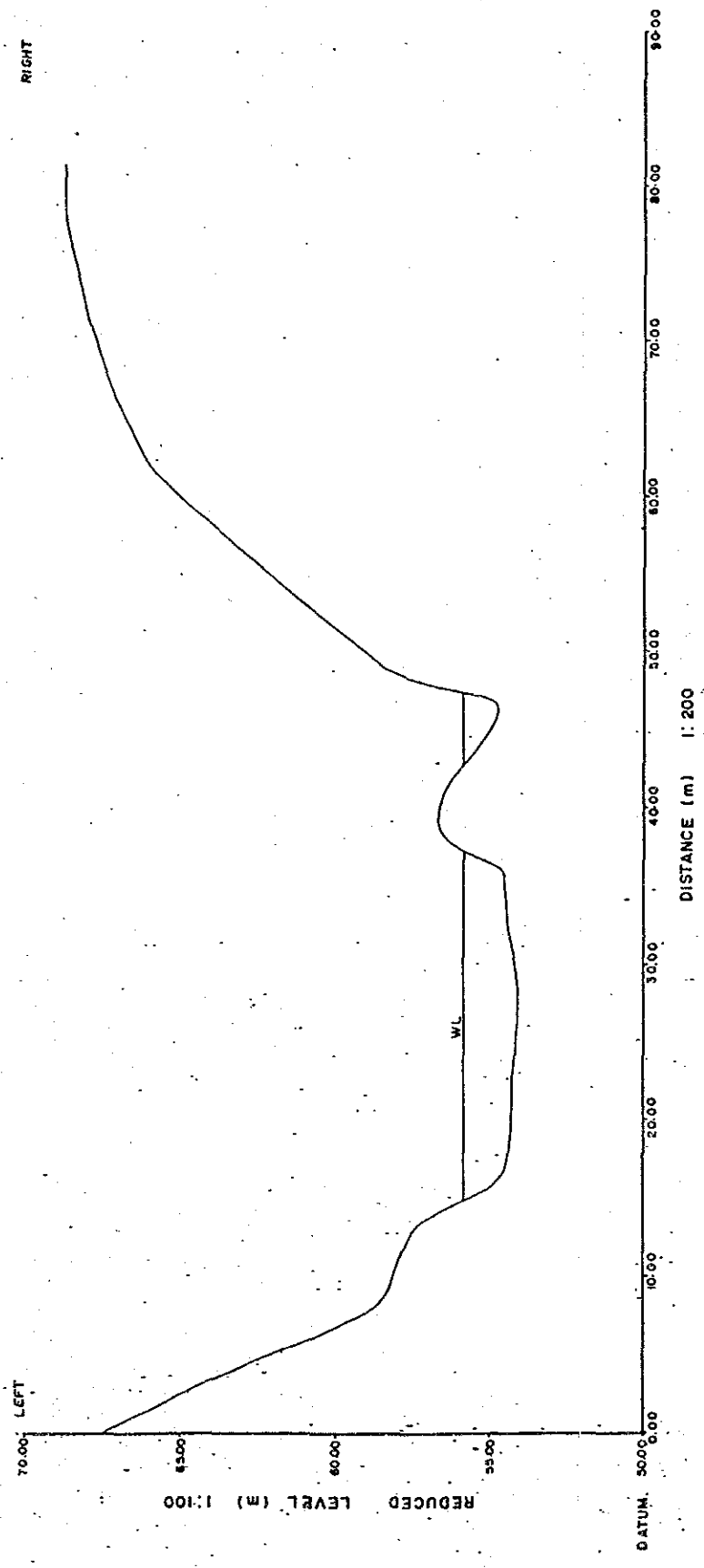
<p>PROJECT :</p> <p>SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH</p>	<p>SALAND SURVEY SERVICES</p> <p>SURVEYED BY : Lucas Lal DATE : May 1987</p> <p>DRAWN BY : Lucas Lal DATE : 30-7-1987</p> <p>EXAMINED BY : [Signature] DATE : 1-8-1987</p>
<p>CLIENT :</p> <p>SARAWAK ELECTRICITY SUPPLY CORPORATION</p>	<p>PLAN NO : MUKO/SUR/1022</p>

POWERHOUSE SITE

RIVER CROSS SECTION 8



RIVER CROSS SECTION 9



PROJECT :

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES

SURVEYED BY : LUCAS LAI DATE : May, 1997
 DRAWN BY : LUCAS LAI DATE : 22.7.1997
 EXAMINED BY : [Signature] DATE : 27.8.1997

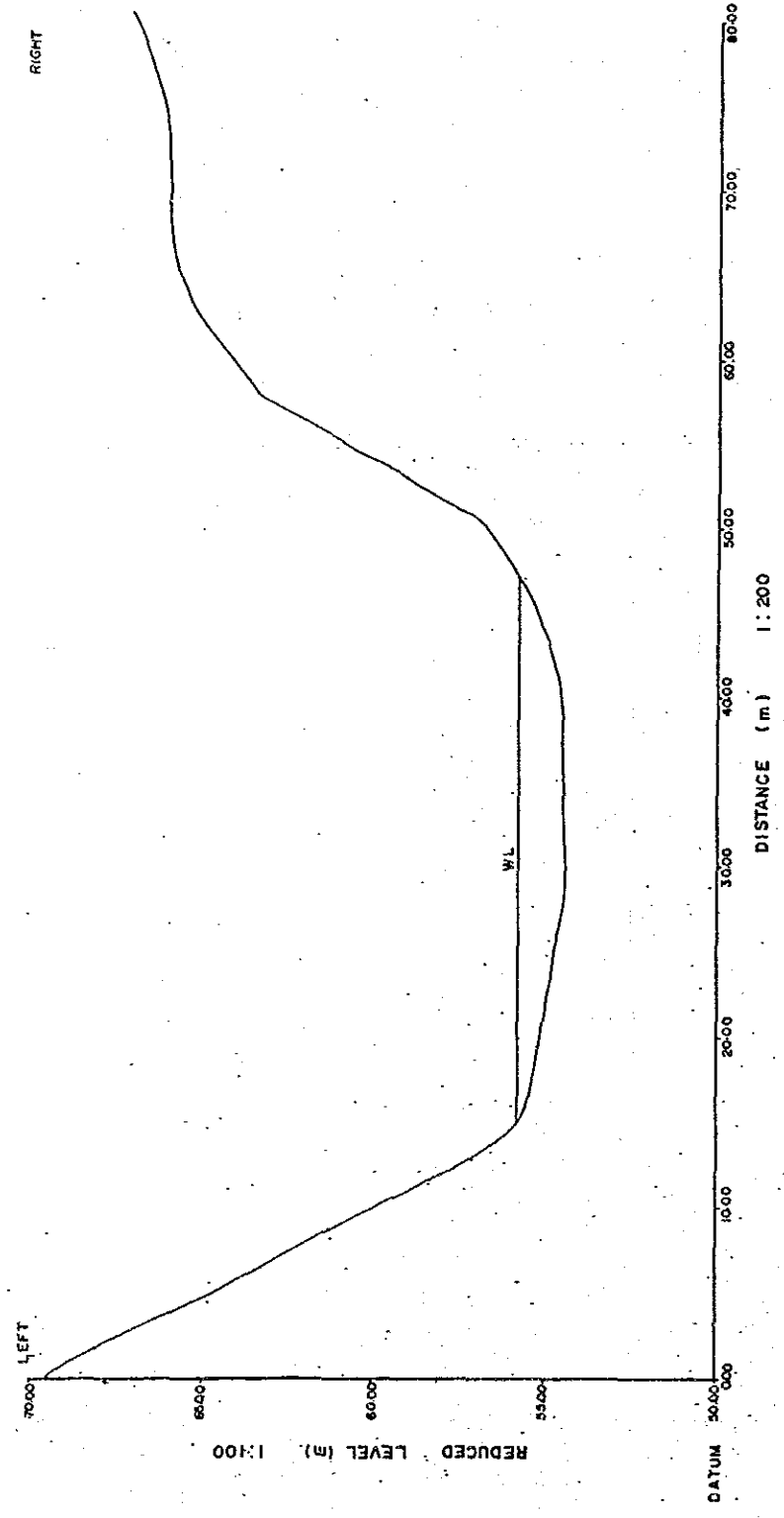
CLIENT :

SARAWAK ELECTRICITY SUPPLY CORPORATION

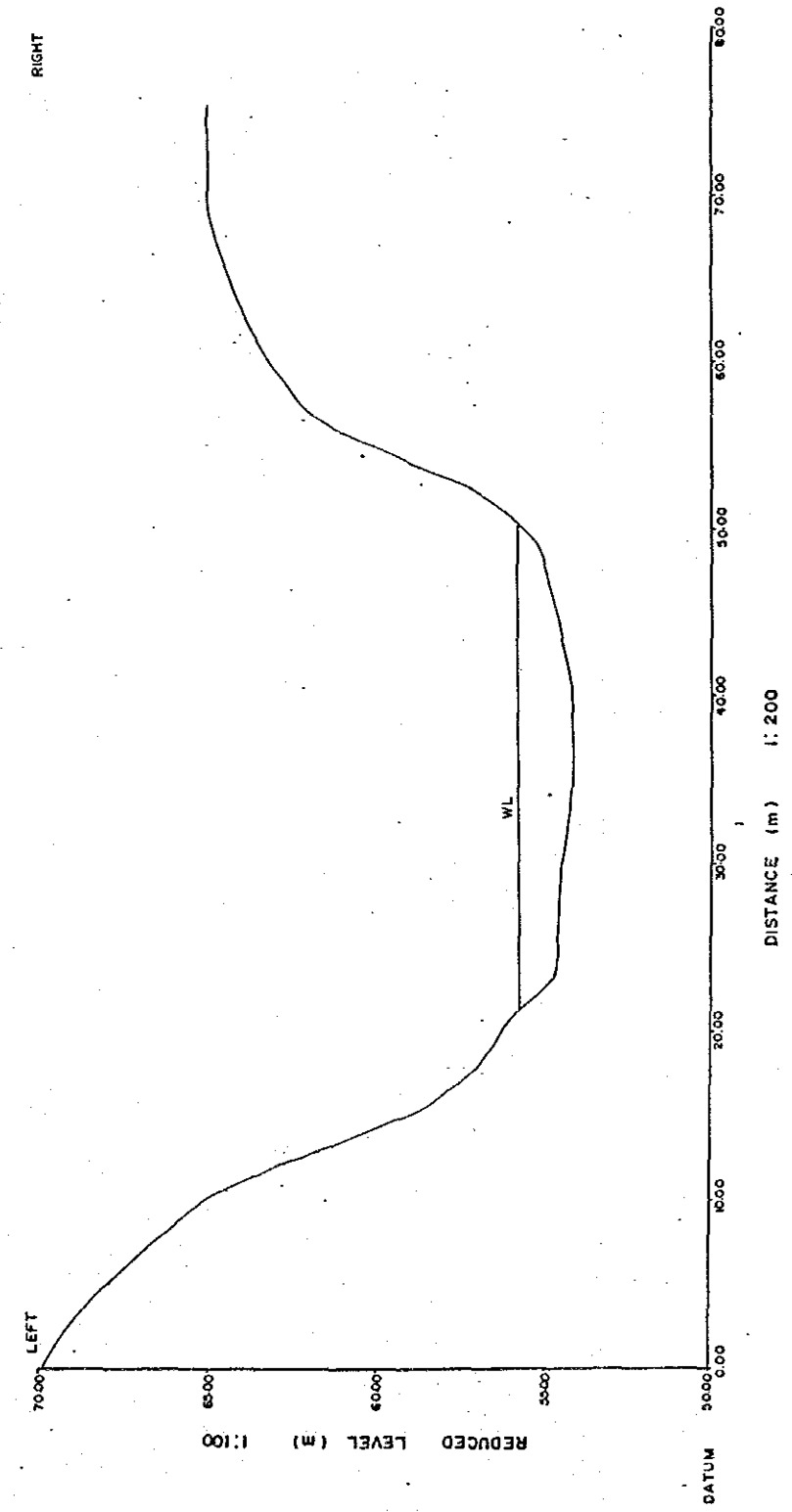
PLAN NO: MUKO/SUR /1023

POWERHOUSE SITE

RIVER CROSS SECTION 10



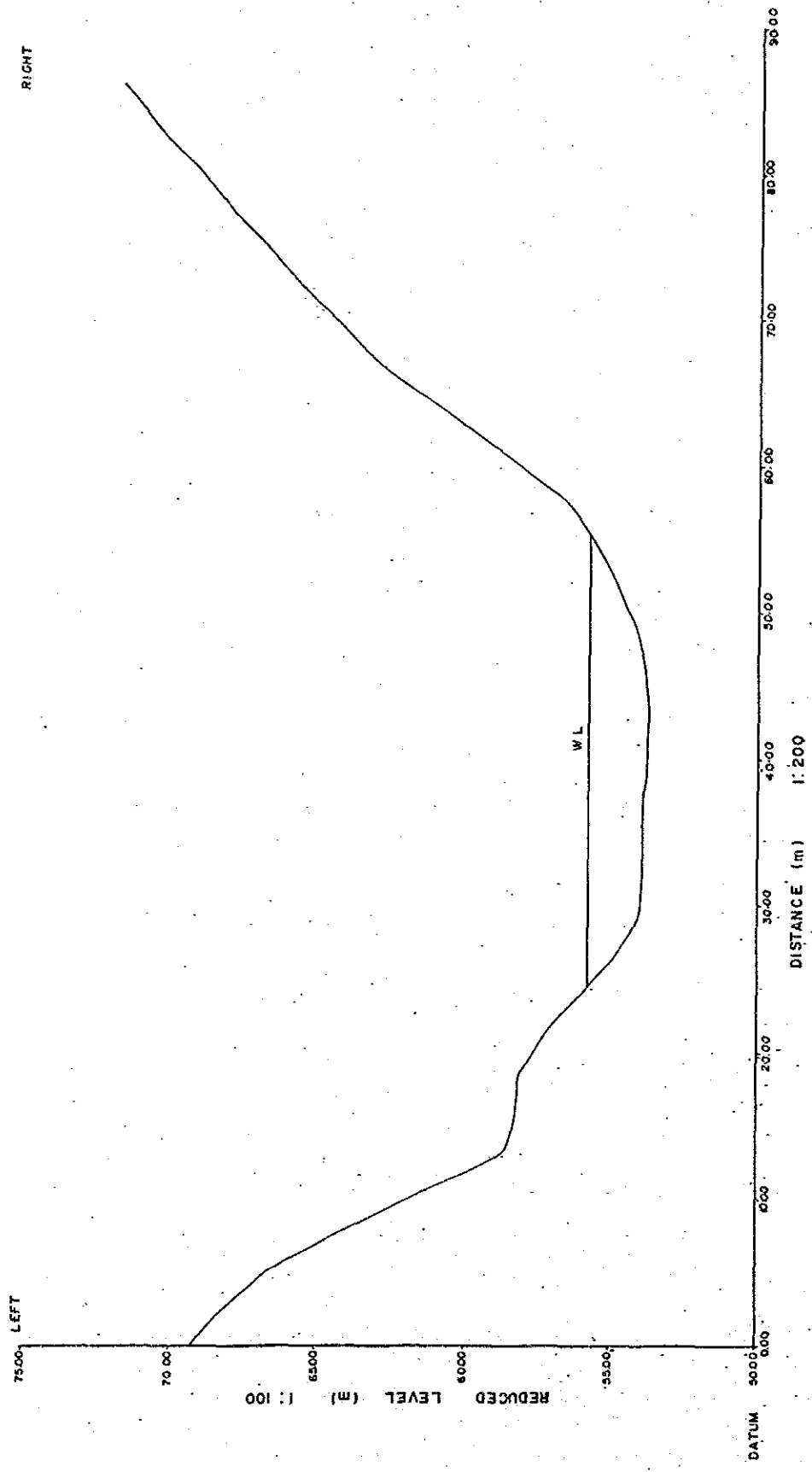
RIVER CROSS SECTION 11



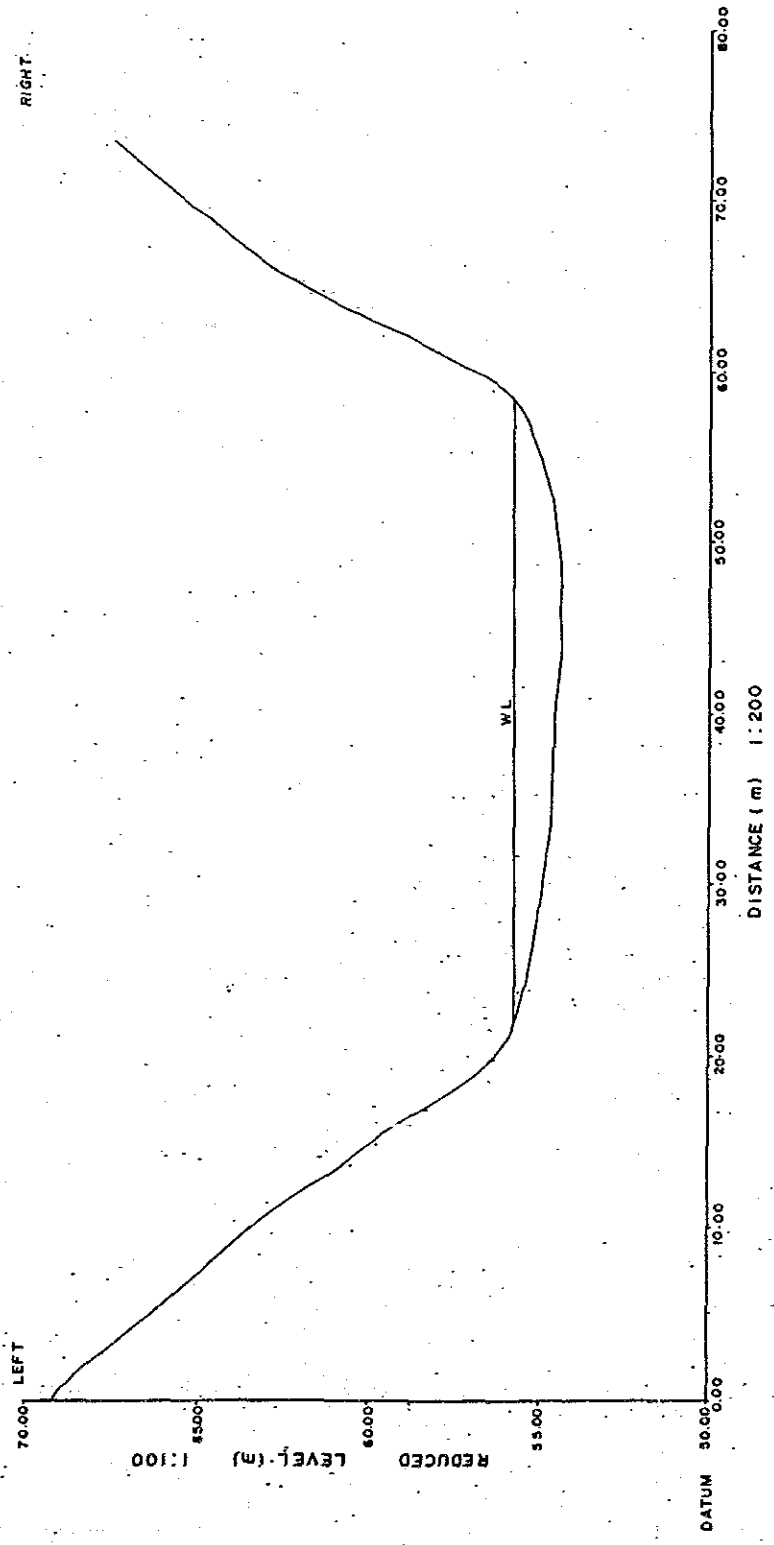
PROJECT:	SALAND SURVEY SERVICES
SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH	SURVEYED BY: LUCAS LA... DATE: May 1987 DRAWN BY: LUCAS LA... DATE: 28-7-1987 EXAMINED BY: ... DATE: 31-7-1987
SARAWAK ELECTRICITY SUPPLY CORPORATION	PLAN NO: MUKO/SUR /1024

POWERHOUSE SITE

RIVER CROSS SECTION 12



RIVER CROSS SECTION 13



PROJECT:

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

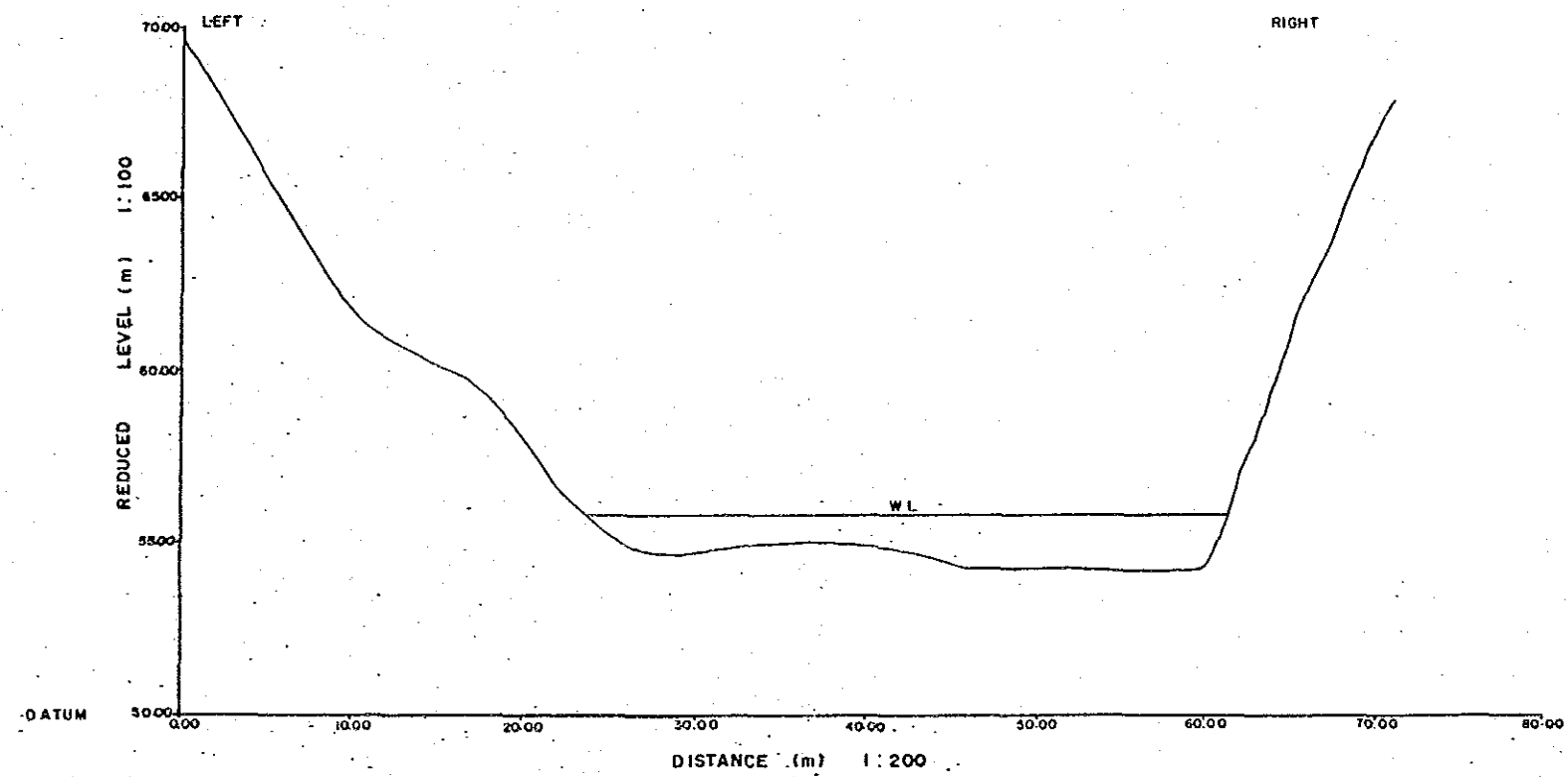
SALAND SURVEY SERVICES
 SURVEYED BY: Lucas Lai DATE: May 1987
 DRAWN BY: Lucas Lai DATE: 29-7-1987
 EXAMINED BY: [Signature] DATE: 1-8-1987

CLIENT:

SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO: MUKO/SUR
 /1025

RIVER CROSS SECTION 14



PROJECT:

SMALL HYDROPOWER DEVELOPMENT SCHEME AT MUKOH

SALAND SURVEY SERVICES

SURVEYED BY Lucas, L.A. DATE: May 1987
 DRAWN BY Lucas, L.A. DATE: 28-7-1987
 EXAMINED BY [Signature] DATE: 21-8-1987

CLIENT:

SARAWAK ELECTRICITY SUPPLY CORPORATION

PLAN NO : MUKO/SUR/1026

