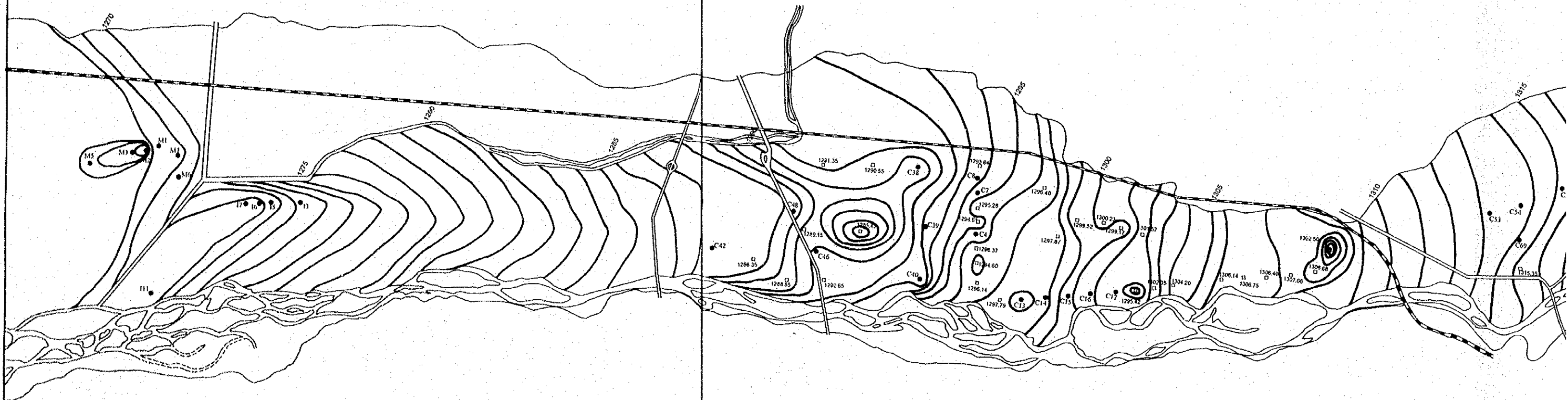





Fig.III.2 Drillhole Logs of JICA Test Wells (C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8)

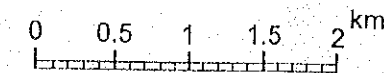


The results of water level measurement.

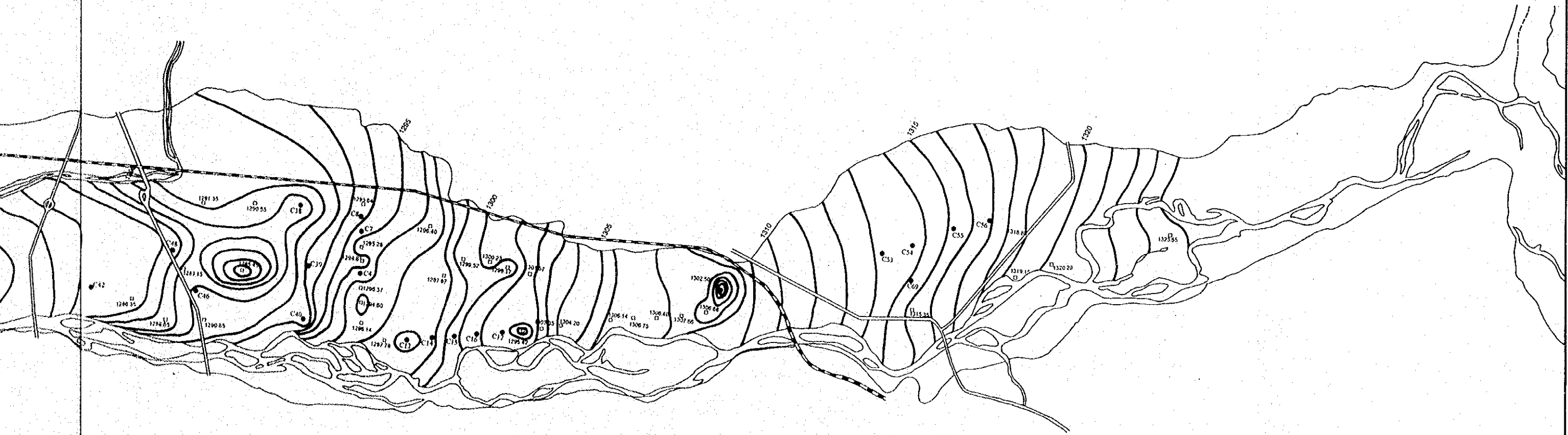
DATE	Well No		Elevation Ground Level (G.L.) (m)	Elevation Water Level (m)	Static or Pumping Water Level	Depth of water table from G.L. (m)	Depth of water table from measuring point (m)	Height of measuring point from G.L. (m)
1991/9/13	M5	5	1267.58	1265.37	p.w.l	2.51	3.12	0.61
1991/9/16	M2	2	1269.33	1267.29	p.w.l	6.54	7.09	0.55
1991/9/16	M1	1	1269.74	1267.06	p.w.l	6.65	7.27	0.59
1991/9/16	M4	4	1270.14	1267.54	p.w.l	2.50	3.24	0.54
1991/9/16	M6	6	1271.06	1269.95	p.w.l	2.95	2.64	0.56
1991/9/16	M7	7	1272.00	1268.76	p.w.l	3.24	3.81	0.57
1991/9/16	M11	11	1269.77	1269.16	p.w.l	0.61	1.28	0.67
1991/9/16	M7	9	1272.58	1269.94	p.w.l	2.64	3.23	0.59
1991/9/16	M6	8	1273.33	1269.22	p.w.l	4.01	4.40	0.39
1991/9/16	M5	7	1273.69	1270.67	p.w.l	3.02	3.99	0.57
1991/9/16	M3	3	1274.60	1272.07	p.w.l	2.53	3.18	0.65
1991/9/14	C32	47/81	1288.00	1286.81	p.w.l	1.16	1.72	0.56
1991/9/14	C38	38/52	1291.76	1287.04	p.w.l	4.66	5.06	0.40
1991/9/14	C36	46/59	1291.59	1290.18	p.w.l	1.73	2.09	0.37
1991/9/14	C40	40/51	1294.40	1291.57	p.w.l	3.15	3.65	0.52
1991/9/14	C28	38/49	1294.80	1289.45	p.w.l	5.35	5.90	0.55
1991/9/14	C39	39/50	1295.55	1292.40	p.w.l	3.15	3.74	0.59
1991/9/16	C8	8	1296.63	1291.88	p.w.l	2.76	3.35	0.59
1991/9/16	C7	7	1297.58	1291.61	p.w.l	2.67	3.58	0.91
1991/9/16	C4	4	1298.03	1295.31	p.w.l	3.72	3.40	0.68
1991/9/14	C13	13	1298.77	1296.76	p.w.l	2.01	2.51	0.52
1991/9/14	C14	14	1298.92	1297.69	p.w.l	1.26	1.79	0.53
1991/9/14	C15	15	1299.77	1299.00	p.w.l	0.87	1.33	0.46
1991/9/14	C16	16	1302.05	1300.91	p.w.l	1.14	1.65	0.51
1991/9/14	C17	17	1302.62	1301.41	p.w.l	1.18	1.61	0.45
1991/9/15	C34	45/7	1315.70	1311.05	p.w.l	2.65	3.39	0.74
1991/9/15	C33	36/6	1314.70	1311.21	p.w.l	1.49	2.37	0.78
1991/9/15	C39	18/4	1315.10	1311.01	p.w.l	1.10	1.71	0.61
1991/9/15	C35	5/8	1317.20	1315.10	p.w.l	2.10	2.79	0.69
1991/9/15	C36	6/9	1317.70	1316.87	p.w.l	0.83	1.31	0.71
1991/9/13	U29	29(116)	1432.05	1429.27	p.w.l	2.82	3.38	0.75
1991/9/13	U30	30(156)	1432.86	1426.68	p.w.l	6.18	6.58	0.70
1991/9/13	U31	31(190)	1433.75	1431.06	p.w.l	2.69	3.45	0.76
1991/9/13	U32	32(320)	1434.65	1432.77	p.w.l	1.88	2.38	0.50
1991/9/13	U33	33(330)	1435.54	1428.71	p.w.l	6.83	7.40	0.57
1991/9/13	U34	34(359)	1436.43	1430.88	p.w.l	5.85	6.48	0.63

LEGEND

-  Water Level Contour (Sep. 1993)
-  Well, Well No.
-  Well, Altitude of water level






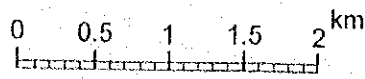
1:25,000



Depth of water table from measuring point (m)	Height of measuring point from C.I.A. (m)
1.15	0.81
2.00	0.84
2.10	0.89
2.31	0.84
2.61	0.89
1.81	0.87
1.34	0.67
1.31	0.89
1.49	0.89
1.44	0.87
1.44	0.85
1.35	0.85
1.58	0.80
2.00	0.87
1.65	0.82
1.99	0.84
1.34	0.89
1.18	0.89
1.45	0.81
1.40	0.88
2.32	0.81
1.74	0.81
1.51	0.85
1.63	0.81
1.39	0.84
2.27	0.84
1.71	0.61
1.29	0.89
1.34	0.84
1.44	0.81
1.35	0.86
2.19	0.89
1.33	0.87
0.41	0.63

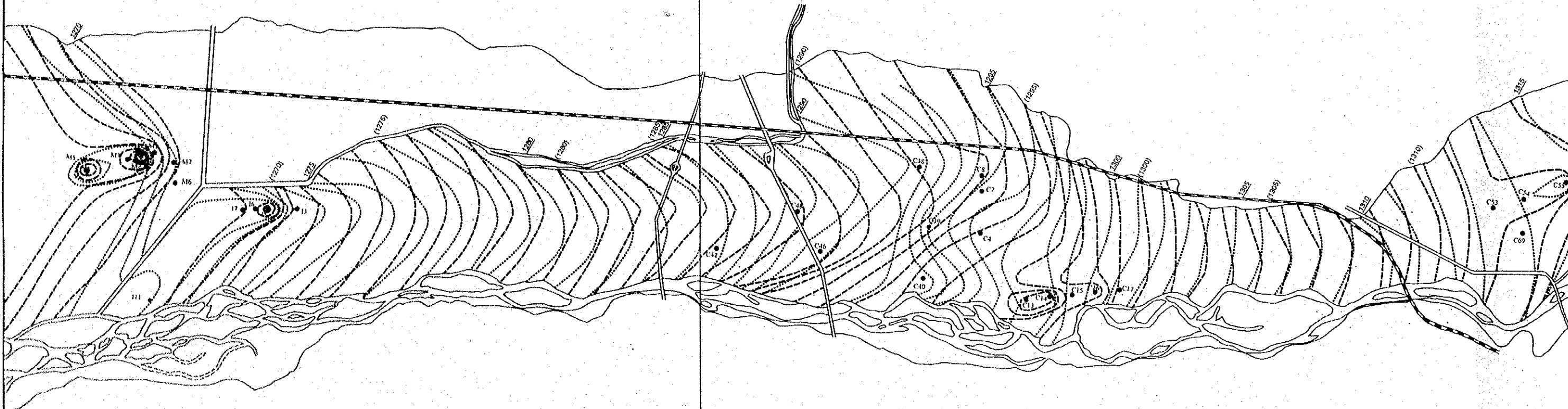
**LEGEND**

-  Water Level Contour (Sep. 1993)
-  Well, Well No.
-  Well, Altitude of water level



1:25,000

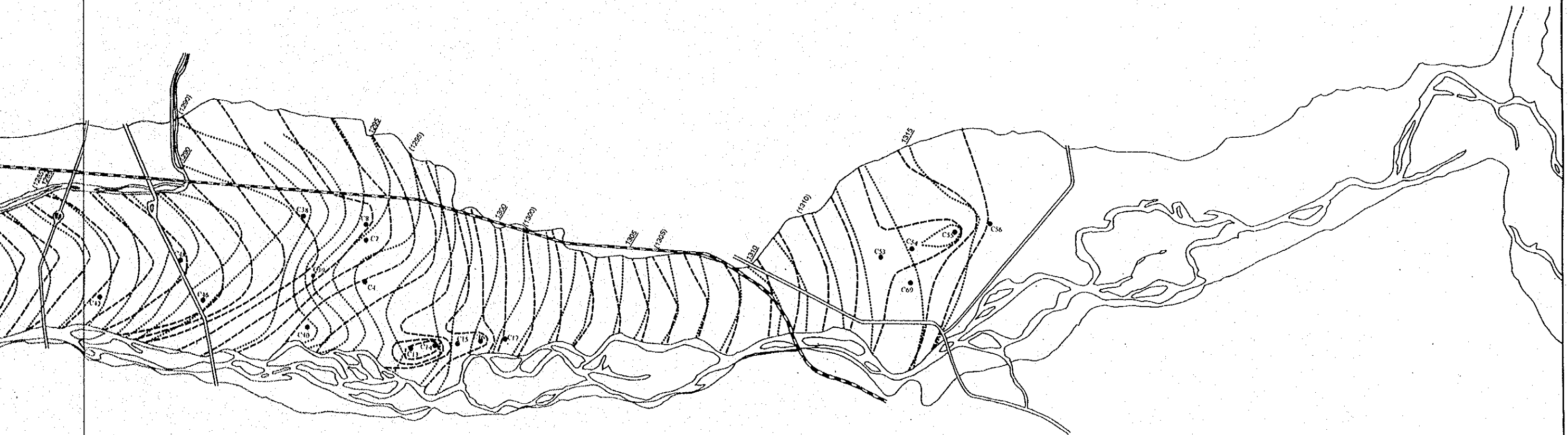
Fig.IV.1 Groundwater Table in the Central Area (Sep. 1993)  
 JICA | The Study on Water Supply System in Ulaanbaatar and Surroundings



The results of water level measurement.




DATE	Well No.	Elevation Ground Level (G.L.) (m)	Elevation Water Level (m)	Static or Pumping Water Level (m)	Depth of water table from G.L. (m)	Depth of water table from measuring point (m)	Height of measuring point from G.L. (m)
1994/1/1	M1	1261.88	1262.81	p.w.l.	5.95	5.69	0.61
1994/1/1	M2	1262.31	1261.17	p.w.l.	5.96	6.53	0.55
1994/1/1	M3	1262.74	1259.88	p.w.l.	9.49	10.45	0.59
1994/1/1	M4	1270.31	1265.66	p.w.l.	4.68	5.27	0.54
1994/1/1	M5	1272.00	1268.14	p.w.l.	3.85	4.25	0.59
1994/1/1	M6	1272.00	1267.26	p.w.l.	4.74	5.31	0.57
1994/1/1	M7	1269.22	1268.11	p.w.l.	1.11	1.11	0.59
1994/1/1	M8	1271.58	1265.15	p.w.l.	6.43	6.58	0.59
1994/1/1	M9	1271.33	1262.28	p.w.l.	9.03	9.30	0.59
1994/1/1	M10	1271.82	1267.91	p.w.l.	5.28	6.15	0.57
1994/1/1	M11	1274.60	1271.30	p.w.l.	3.30	3.94	0.65
1994/1/1	M12	1285.00	1285.00	p.w.l.	0.00	0.00	0.56
1994/1/1	M13	1291.20	1285.75	p.w.l.	5.45	5.37	0.40
1994/1/1	M14	1291.98	1287.42	p.w.l.	4.56	4.83	0.27
1994/1/1	M15	1294.40	1291.40	p.w.l.	3.00	3.00	0.52
1994/1/1	M16	1294.80	1293.80	p.w.l.	1.00	1.00	0.55
1994/1/1	M17	1294.51	1292.51	p.w.l.	2.00	2.00	0.59
1994/1/1	M18	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M19	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M20	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M21	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M22	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M23	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M24	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M25	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M26	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M27	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M28	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M29	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M30	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M31	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M32	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M33	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M34	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M35	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M36	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M37	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M38	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M39	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M40	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M41	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M42	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M43	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M44	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M45	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M46	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M47	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M48	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M49	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M50	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M51	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M52	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M53	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M54	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M55	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M56	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M57	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M58	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M59	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M60	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M61	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M62	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M63	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M64	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M65	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M66	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M67	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M68	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M69	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M70	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M71	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M72	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M73	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M74	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M75	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M76	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M77	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M78	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M79	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M80	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M81	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M82	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M83	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M84	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M85	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M86	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M87	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M88	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M89	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M90	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M91	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M92	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M93	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M94	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M95	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M96	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M97	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M98	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M99	1291.28	1291.28	p.w.l.	0.00	0.00	0.59
1994/1/1	M100	1291.28	1291.28	p.w.l.	0.00	0.00	0.59

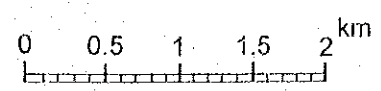
DATE	Well No.	Elevation Ground Level (G.L.) (m)	Elevation Water Level (m)	Static or Pumping Water Level (m)	Depth to water table from G.L. (m)	Depth to water table from measuring point (m)	Height of measuring point from G.L. (m)
1994/1/1	M1	1261.88	1262.81	P	2.91	3.55	0.61
1994/1/1	M2	1262.31	1266.27	P	4.00	4.61	0.55
1994/1/1	M3	1262.74	1264.12	P	3.67	6.21	0.59
1994/1/1	M4	1270.31	1268.21	S	7.11	7.67	0.54
1994/1/1	M5	1272.00	1270.25	P	1.75	7.31	0.59
1994/1/1	M6	1272.00	1269.19	P	2.81	3.38	0.57
1994/1/1	M7	1269.22	1269.39	P	0.77	1.41	0.67
1994/1/1	M8	1272.38	1269.89	P	2.09	1.28	0.59
1994/1/1	M9	1271.31	1268.95	P	4.33	4.74	0.59
1994/1/1	M10	1271.60	1269.77	P	1.92	4.49	0.57
1994/1/1	M11	1274.60	1272.68	S	2.52	3.17	0.65
1994/1/1	M12	1285.00	1284.56	P	1.44	4.00	0.56
1994/1/1	M13	1291.20	1287.55	P	4.15	4.53	0.40
1994/1/1	M14	1291.98	1289.85	P	2.05	2.42	0.37
1994/1/1	M15	1294.40	1291.51	P	2.89	3.41	0.52
1994/1/1	M16	1294.80	1290.22	P	4.58	5.13	0.55
1994/1/1	M17	1294.51	1294.01	P	1.54	2.13	0.59
1994/1/1	M18	1291.28	1291.62	S	2.02	2.61	0.59
1994/1/1	M19	1291.28	1291.79	P	1.49	2.49	0.91
1994/1/1	M20	1291.28	1296.31	S	1.32	2.00	0.68
1994/1/1	M21	1291.28	1292.44	S	1.33	1.85	0.52
1994/1/1	M22	1291.28	1292.65	P	1.30	1.83	0.53
1994/1/1	M23	1300.77	1299.65	P	1.12	1.58	0.46
1994/1/1	M24	1302.05	1300.74	P	1.31	1.82	0.51
1994/1/1	M25	1302.62	1301.35	P	1.27	1.72	0.45
1994/1/1	M26	1311.20	1314.61	S	4.61	7.41	0.74
1994/1/1	M27	1311.20	1313.62	S	1.08	1.86	0.78
1994/1/1	M28	1315.10	1311.85	S	1.75	1.86	0.61
1994/1/1	M29	1317.20	1313.62	P	3.58	4.27	0.69
1994/1/1	M30	1317.20	1315.50	P	2.14	2.85	0.71
1994/1/1	M31	1422.01	1422.11	S	2.92	3.67	0.75
1994/1/1	M32	1430.95	1430.95	S	1.91	2.61	0.70
1994/1/1	M33	1431.39	1431.39	S	2.36	3.12	0.76
1994/1/1	M34	1434.65	1434.65	S	1.73	2.41	0.50
1994/1/1	M35	1435.54	1435.54	P	7.99	8.4	



	Elevation Ground Level (G.L.) (m)	Elevation Water Level (m)	Static or Pumping Water Level	Depth to water table from G.L. (m)	Depth to water table from measuring point (m)	Height of measuring point from G.L. (m)
1	1264.11	1251.91	P	2.84	1.35	0.01
2	1269.11	1266.27	P	1.85	1.01	0.15
3	1269.14	1264.12	P	1.62	0.21	0.39
4	1270.11	1265.11	S	2.11	1.01	0.51
5	1271.09	1250.11	P	1.71	2.11	0.50
6	1271.09	1250.10	P	2.11	1.11	0.13
7	1281.11	1265.51	P	0.71	1.11	0.21
8	1271.11	1263.81	S	2.62	1.18	0.32
9	1271.11	1263.81	S	2.62	1.18	0.10
10	1271.11	1263.81	S	2.62	1.18	0.10
11	1271.11	1263.81	S	2.62	1.18	0.10
12	1271.11	1263.81	S	2.62	1.18	0.10
13	1271.11	1263.81	S	2.62	1.18	0.10
14	1271.11	1263.81	S	2.62	1.18	0.10
15	1271.11	1263.81	S	2.62	1.18	0.10
16	1271.11	1263.81	S	2.62	1.18	0.10
17	1271.11	1263.81	S	2.62	1.18	0.10
18	1271.11	1263.81	S	2.62	1.18	0.10
19	1271.11	1263.81	S	2.62	1.18	0.10
20	1271.11	1263.81	S	2.62	1.18	0.10
21	1271.11	1263.81	S	2.62	1.18	0.10
22	1271.11	1263.81	S	2.62	1.18	0.10
23	1271.11	1263.81	S	2.62	1.18	0.10
24	1271.11	1263.81	S	2.62	1.18	0.10
25	1271.11	1263.81	S	2.62	1.18	0.10
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35	1271.11	1263.81	S	2.62	1.18	0.10
36	1271.11	1263.81	S	2.62	1.18	0.10
37	1271.11	1263.81	S	2.62	1.18	0.10
38	1271.11	1263.81	S	2.62	1.18	0.10
39	1271.11	1263.81	S	2.62	1.18	0.10
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44	1271.11	1263.81	S	2.62	1.18	0.10
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46	1271.11	1263.81	S	2.62	1.18	0.10
47	1271.11	1263.81	S	2.62	1.18	0.10
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50	1271.11	1263.81	S	2.62	1.18	0.10
51	1271.11	1263.81	S	2.62	1.18	0.10
52	1271.11	1263.81	S	2.62	1.18	0.10
53	1271.11	1263.81	S	2.62	1.18	0.10
54	1271.11	1263.81	S	2.62	1.18	0.10
55	1271.11	1263.81	S	2.62	1.18	0.10
56	1271.11	1263.81	S	2.62	1.18	0.10
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58	1271.11	1263.81	S	2.62	1.18	0.10
59	1271.11	1263.81	S	2.62	1.18	0.10
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64	1271.11	1263.81	S	2.62	1.18	0.10
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73	1271.11	1263.81	S	2.62	1.18	0.10
74	1271.11	1263.81	S	2.62	1.18	0.10
75	1271.11	1263.81	S	2.62	1.18	0.10
76	1271.11	1263.81	S	2.62	1.18	0.10
77	1271.11	1263.81	S	2.62	1.18	0.10
78	1271.11	1263.81	S	2.62	1.18	0.10
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80	1271.11	1263.81	S	2.62	1.18	0.10
81	1271.11	1263.81	S	2.62	1.18	0.10
82	1271.11	1263.81	S	2.62	1.18	0.10
83	1271.11	1263.81	S	2.62	1.18	0.10
84	1271.11	1263.81	S	2.62	1.18	0.10
85	1271.11	1263.81	S	2.62	1.18	0.10
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88	1271.11	1263.81	S	2.62	1.18	0.10
89	1271.11	1263.81	S	2.62	1.18	0.10
90	1271.11	1263.81	S	2.62	1.18	0.10
91	1271.11	1263.81	S	2.62	1.18	0.10
92	1271.11	1263.81	S	2.62	1.18	0.10
93	1271.11	1263.81	S	2.62	1.18	0.10
94	1271.11	1263.81	S	2.62	1.18	0.10
95	1271.11	1263.81	S	2.62	1.18	0.10
96	1271.11	1263.81	S	2.62	1.18	0.10
97	1271.11	1263.81	S	2.62	1.18	0.10
98	1271.11	1263.81	S	2.62	1.18	0.10
99	1271.11	1263.81	S	2.62	1.18	0.10
100	1271.11	1263.81	S	2.62	1.18	0.10

**LEGEND**

-  Water Level Contour (Apr. 1994)
-  Water Level Contour (Sep. 1994)
-  Well, well No.



1:25,000

Fig.IV.2 Groundwater Table in the Central Area (Apr. 1994, Sep. 1994)  
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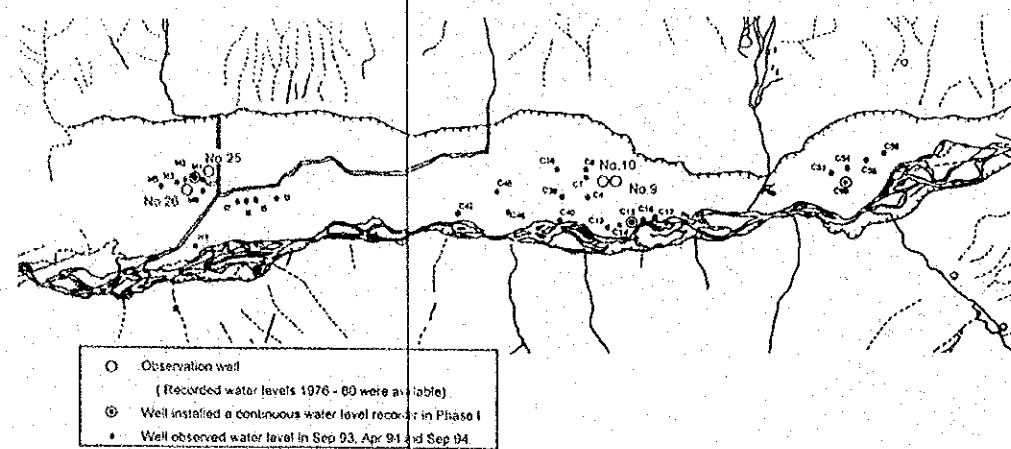
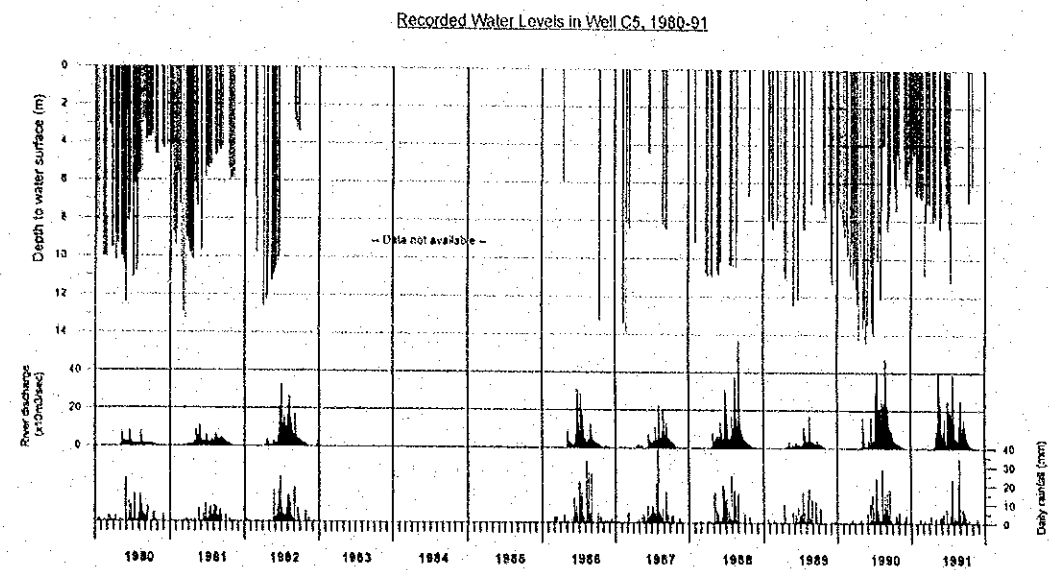
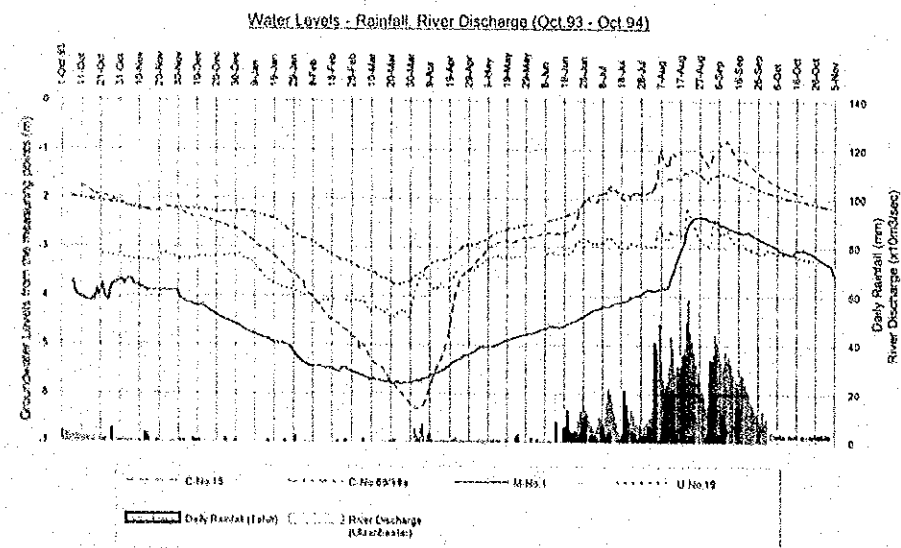
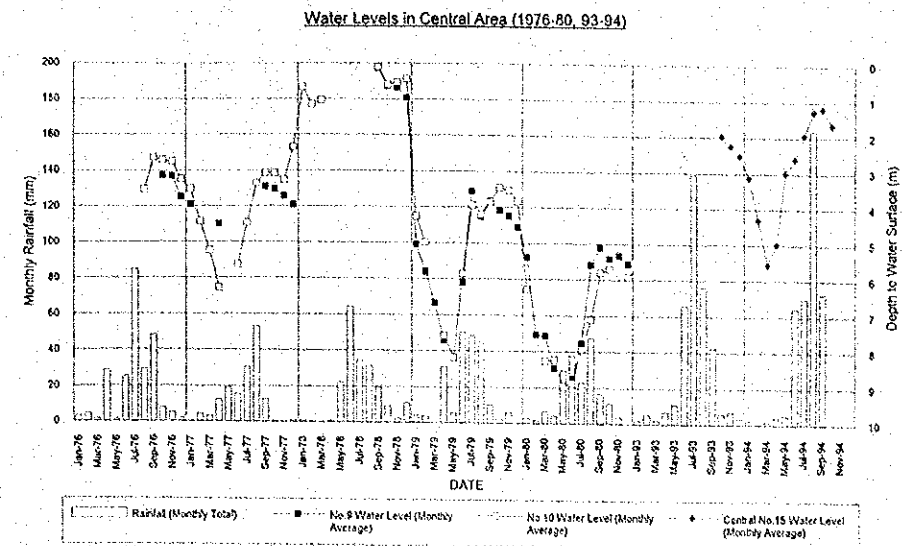
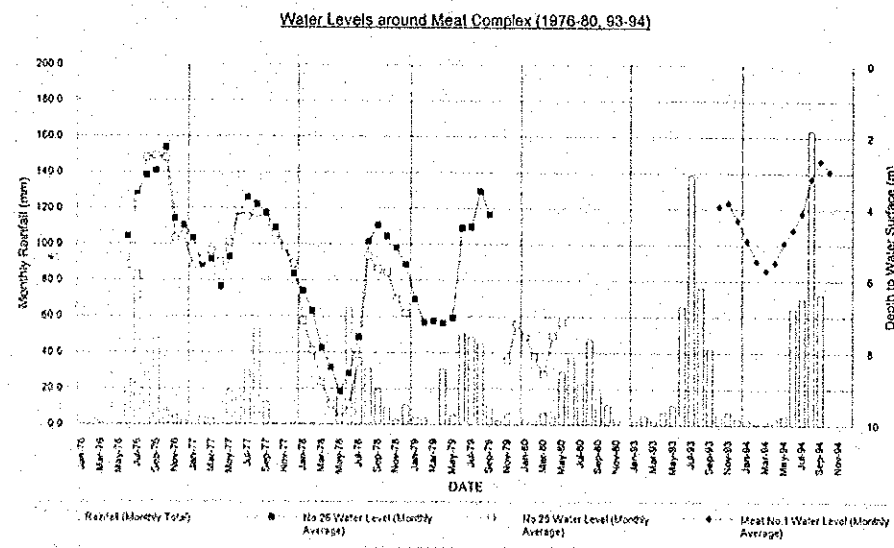
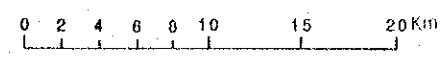
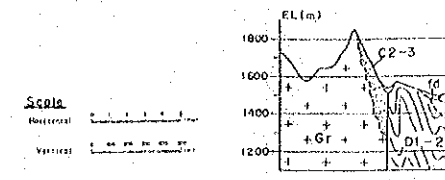
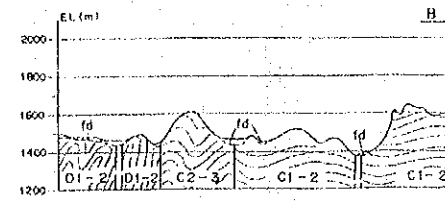
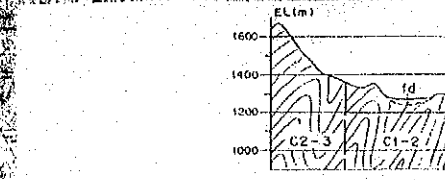
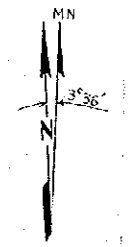


Fig. V Recorded Groundwater Levels and Rainfall

**LEGEND**

Era	Period	Symbol	Thickness (m)	Group	Formation	Lithology and Remarks
Cenozoic	Quaternary	al	5-110			river deposit: sand, pebble to boulder (rounded) with clay
		tl	5-40			fan, talus, valley deposit: clay, sand and pebble to boulder (sub rounded to sub angular)
		tr	6-21			terrace: sand and gravel
	Tertiary	N	10-100			Neogene deposit: reddish clay and sand with pebble to cobble
Mesozoic	Cretaceous	K	72-350		Zoubayan	sandstone and mudstone with coal / fossil
Palaeozoic	Perrulan	P2	300-350		Ulein	conglomerate, sandstone shale
	Carbiferous	C2-3	1200-1500		Oykoich	greywacke, sandstone and tuffaceous sandstone with shale
		C1-2	2500-3000		Altan ovoo	flysch, alternation of sandstone and shale
		D2-3	1500-1900	Hendi		sandstone with shale, chert, diabase and tuffaceous sandstone
	Devonian	D1-2	1500-2000		Cherby	sandstone, slate, phyllite with reddish chert, rarely schistose sandstone, quartzite
Proterozoic	Cambrian - Permian	R	3400	Mandui		semi schists, rarely sandstone, chert, quartzite and rocks andesite/basalt
Mesozoic	Jurassic - Triassic	Or			intrusive rocks	porphyritic granite, granodiorite

- Geological boundary
- Fault
- Concealed fault
- Inferred fault
- Anticlinal axis
- Synclinal axis
- Strike and dip of bedding
- Strike and dip of fault



**Fig. VI Geological Map**  
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Lithology and Remarks	
river deposit: sand, pebble to boulder (rounded) with clay	
fan, talus, valley deposit: clay, sand and pebble to boulder (sub rounded to sub angular)	
terrace: sand and gravel	
Neogene deposit: reddish clay and sand with pebble to cobble	
sandstone and mudstone with coal / fossil	
carboniferous sandstone shale	
greywacke sandstone and buffaceous sandstone with shale	
Dyack: alternation of sandstone and shale	
sandstone with shale, chert, flint and buffaceous sandstone	
sandstone, silt, phyllite with reddish chert, rarely schistose sandstone	
quartzite	
semi schist, rarely sandstone, chert, quartzite and mica schist/basalt	
porphyritic gneiss, granoblastic	

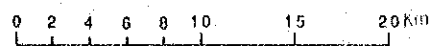
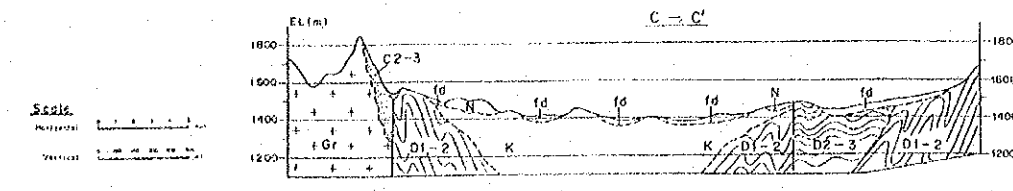
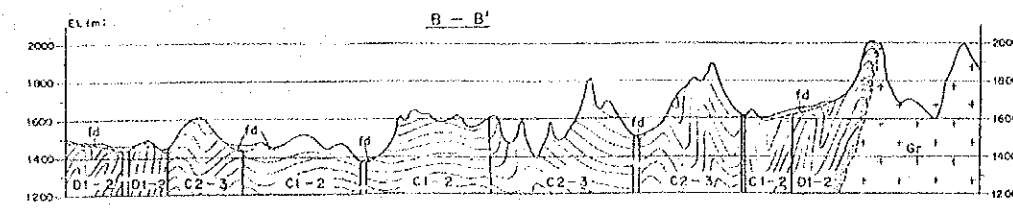
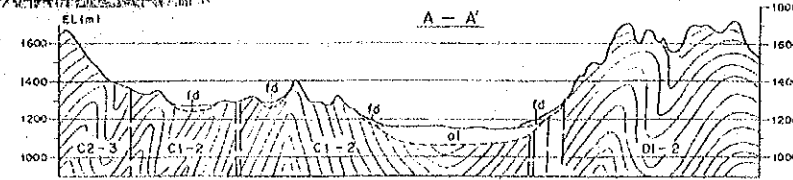
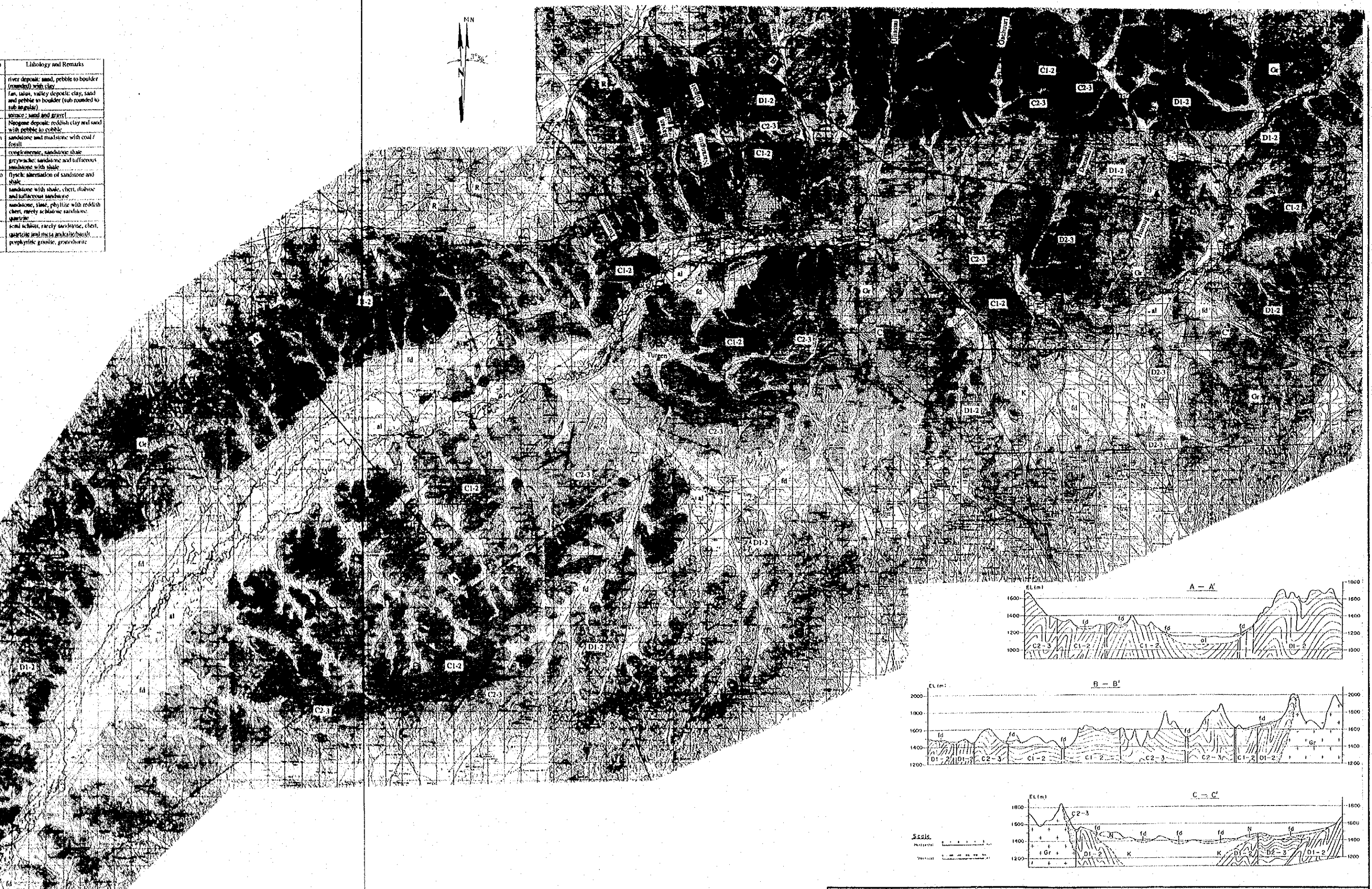


Fig. VI Geological Map  
 JICA | The Study on Water Supply System in Ulaanbaatar and Surroundings



**Tereh (1/2)**

Year	Month	Day	pH	Ca	Mg	SO4	Cl	TDS	NH4	NO2	NO3	P	Fe2+3	Cu	Mn	F	Mo	Cadmium
1986	Jan	1	7.8	48	17	127	11	264	0.011	0.21	0.006	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		2	7.7	45	16	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		3	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		4	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		5	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		6	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		7	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		8	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		9	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		10	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		11	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		12	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
Average			7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04

**Ulaanbaatar (1/2)**

Year	Month	Day	pH	Ca	Mg	SO4	Cl	TDS	NH4	NO2	NO3	P	Fe2+3	Cu	Mn	F	Mo	Cadmium
1986	Jan	1	7.8	48	17	127	11	264	0.011	0.21	0.006	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		2	7.7	45	16	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		3	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		4	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		5	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		6	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		7	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
		8	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
		9	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
		10	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
		11	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
		12	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
Average			7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04

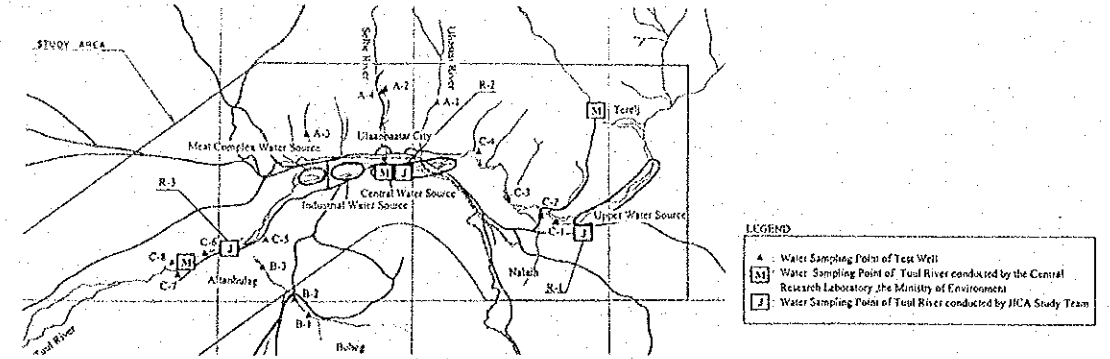
**Altanbulag (1/2)**

Year	Month	Day	pH	Ca	Mg	SO4	Cl	TDS	NH4	NO2	NO3	P	Fe2+3	Cu	Mn	F	Mo	Cadmium
1986	Jan	1	7.8	48	17	127	11	264	0.011	0.21	0.006	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		2	7.7	45	16	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		3	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		4	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		5	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		6	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04
		7	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
		8	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
		9	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
		10	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
		11	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
		12	7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	
Average			7.7	46	17	127	11	252	0.012	0.21	0.007	0.11	0.004	0.04	0.04	0.04	0.04	0.04

Appendix IV-2.2 Original Data of River Water Quality Investigated by JICA Study Team

Location	Sampling date	R-1				R-2				R-3				Standard				
		11.Sep.1993	28.Mar.1994	27.May.1994	18.Aug.1994	13.Sep.1994	13.Sep.1994	10.May.1994	19.Aug.1994	12.Sep.1994	24.Sep.1994	26.May.1994	10.May.1994		16.Aug.1994	15.Sep.1994		
Water temperature	11	7	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
pH	8.3	7.1	7.5	7.6	7.3	7.3	8.5	8.3	7.9	7.8	7.8	7.8	7.8	8.4	8.4	8.4	8.4	6.5-8.5
Conductivity	49	49	50	50	50	50	109	80	120	140	224	120	125	125	125	125	125	125
Dissolved Oxygen	11.1	11.1	11.7	11.5	11.5	11.4	11.3	11.2	11.2	11.5	11.5	11.7	11.7	12.4	12.4	12.4	12.4	12.4
Ca	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Mg	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
SO4	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
Cl	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
TDS	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264
NH4	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
NO2	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
NO3	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
P	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Fe2+3	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Cu	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Mn	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
F	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Mo	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Cadmium	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04

Standard Standard for drinking water in Mongolia  
 R-1-Tereh bridge  
 R-2-Zalam bridge  
 R-3-Chicken factory bridge  
 Exceed the standard limit for drinking water



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