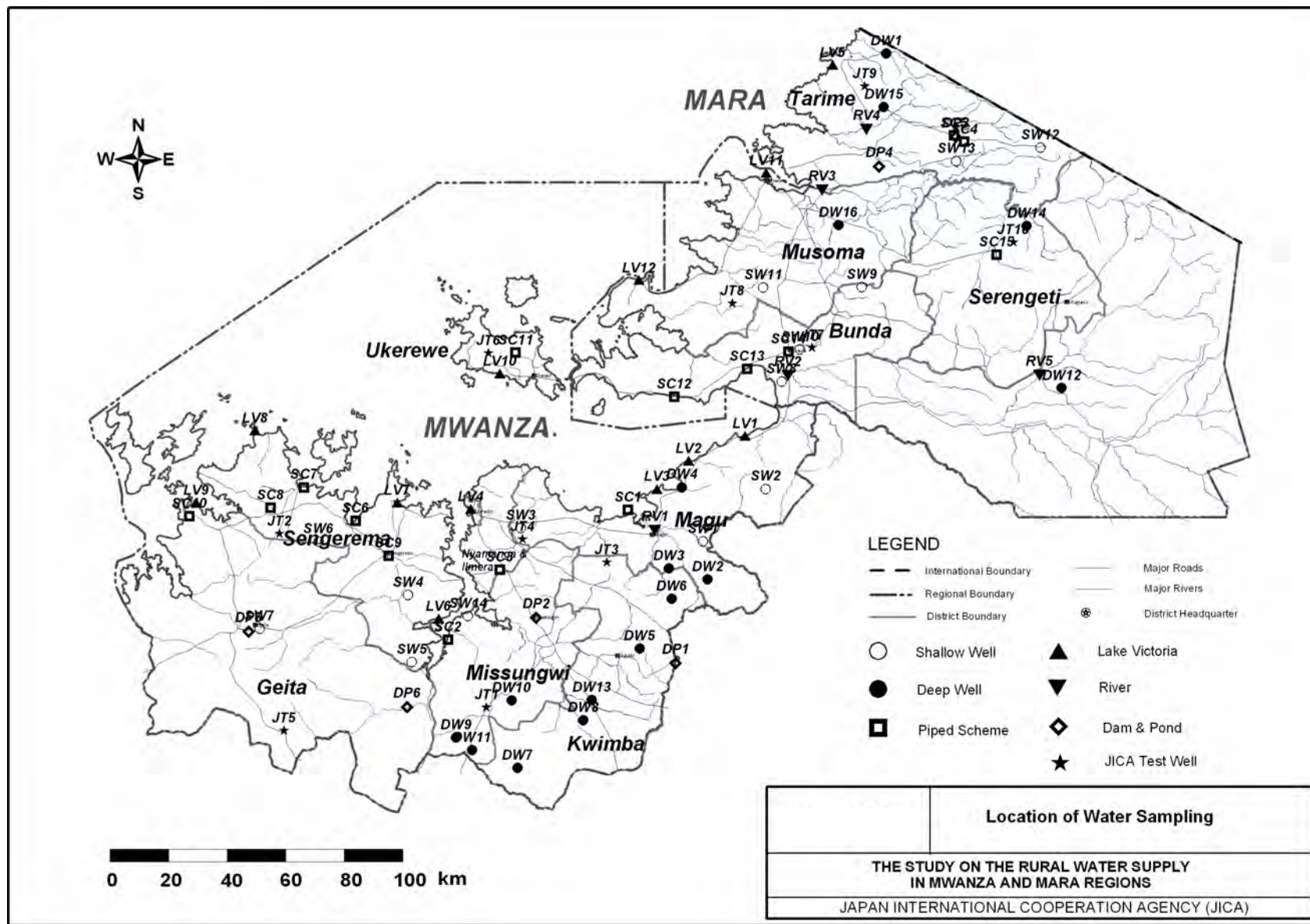


3 Water Quality

① Analysis List



Water Quality Test Result (Laboratory 1 – Wet Season)

Type	District	Name of Location	Sampling Date	Field										Laboratory												
				T. Coliform count/100ml	Esc. Colif count/100ml	pH	As	Se	Cr	Cyanide	Cd	Ba	Hg	F	NO3	Color	Turbidity	PH	TSS	TDS	Hardness	Ca	Mg			
Shallow Well	Magu	Bugini Shallow Well	08/06/2005	5	3	<0.01	<0.05	0.37	<0.01	0.000	<0.001	0	<0.05	3.8	7	0	0	7.13	291.00	439.00	129.0	102.00	6.56			
	Magu	Mali Shallow Well	09/06/2005	9	5	<0.01	<0.05	0.32	<0.01	0.002	0.001	0	<0.05	7.9	55	0	3	8.6	326.00	675.00	199.0	187.00	2.92			
	Deep Well	Magu	Kimba Shallow Well	10/06/2005	0	0	<0.01	<0.05	0.09	<0.01	0.001	<0.001	3	<0.05	1.1	50	0	0	7.23	271.00	249.00	153.0	194.00	11.91		
		Sengerema	Kishanda	18/10/2005	3	9	<0.01	<1	<1	<0.01	0.001	<0.001	0	<1	1.1	37	0	0	6.56	150.00	295.00	172.0	83.00	21.63		
		River	Magu	Simiyu River Bridge	10/06/2005	14	5	<0.01	<0.05	0.07	<0.01	0.001	<0.001	1	<0.05	7.9	0	176	38	8.07	413.00	187.20	107.0	77.00	7.29	
			Bunda	Rubano River Bunda	16/06/2005	0	0	0.04	<0.05	0.07	<0.01	0.002	<0.001	0	<0.05	0.6	4	584	162	7.35	403.00	95.80	58.0	43.00	3.65	
			Dam and Pond	Magu	Majya Dam Pump-H	11/06/2005	18	4	<0.01	<0.05	0.12	<0.01	0.002	<0.001	1	<0.05	0.5	2	75	16	8.24	19.00	60.60	44.0	31.00	3.16
				Sengerema	Nyakahalo	17/10/2005	10	17	<0.01	<1	<1	<0.01	0.001	<0.001	0	<1	1.0	2	456	63	5.66	400.00	19.00	14.0	5.00	2.19

WET

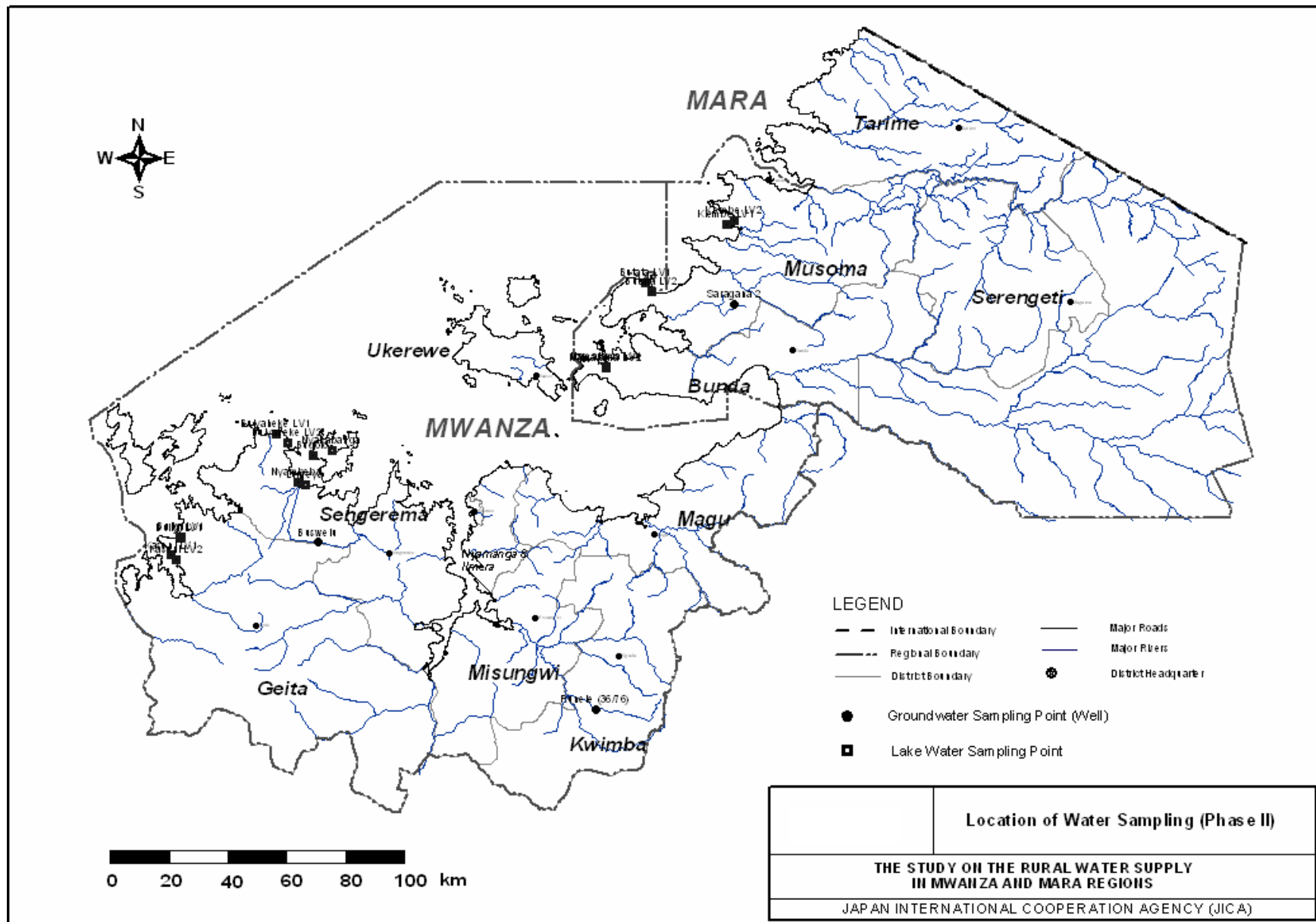
> Tanzania Upper Limit

> Tanzanian Allowable Value

> WHO GV & ACV

> Tanzanian Allowable Value

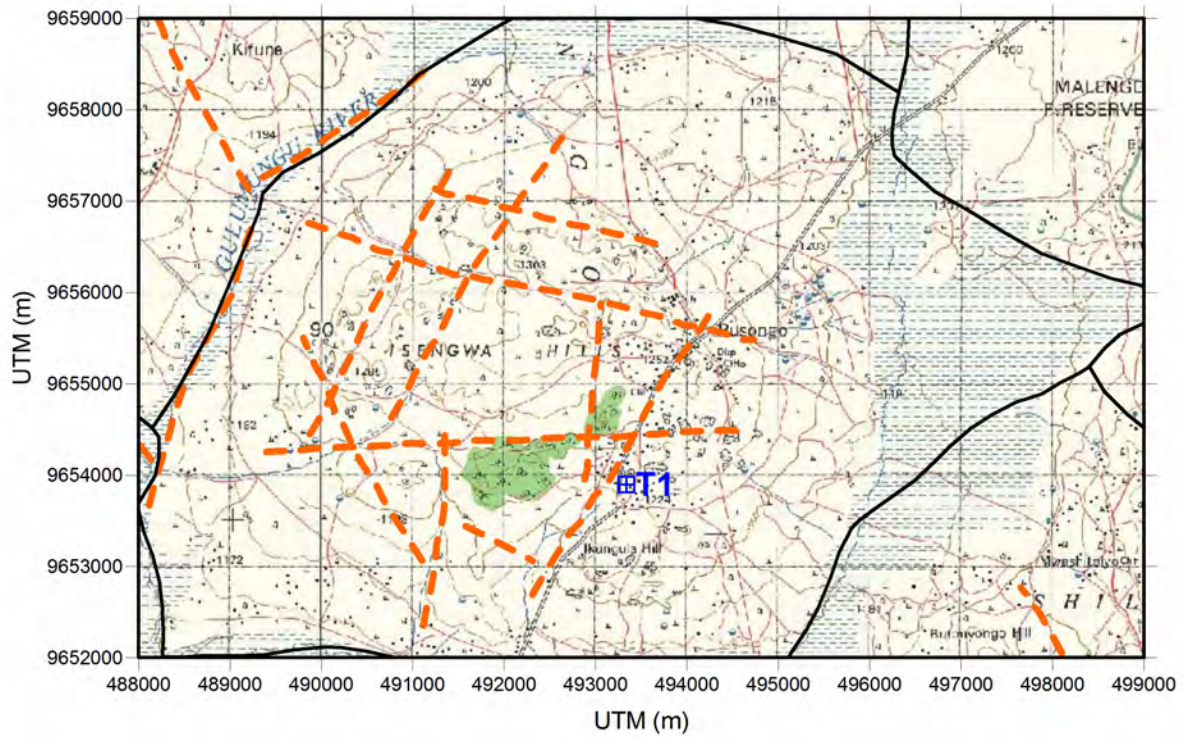
② **Supplementary Survey**



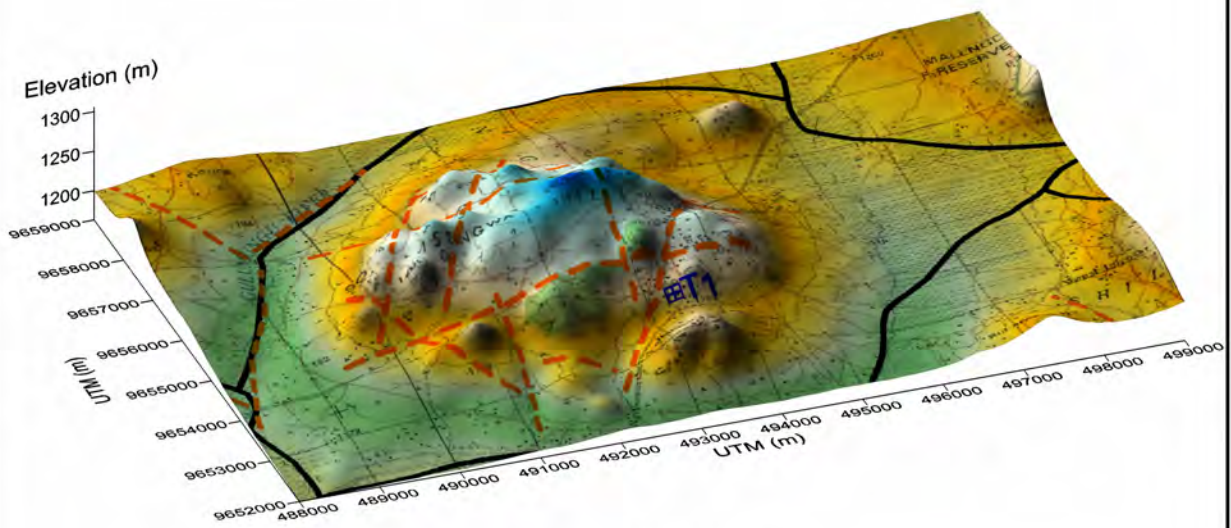
S/No		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Northings		9713222	9712829	9771156	9770623	9819754	9820876	9799843	9796774	9742585	9741042	9748207	9745164	973003	9731919	9706914	9705330	
Eastings		36389297	36388738	36534078	36533732	36574890	36577467	36547470	36549395	36440454	36434060	36421523	36425305	36431337	36429075	36385880	36387477	
Name of Location		Buligi site 1	Buligi site 2	Namalama site 1	Namalama site 2	Kiembe site 1	Kiembe site 2	Butata site 1	Butata site 2	Nyakabanga site 1	Bugolo site 2	Bulyaheke site 1	Bulyaheke 2	Lumeya site 1	Nyambeba site 2	Kaseni site 1	Kaseni site 2	
District		Geita	Geita	Bunda	Bunda	Musoma (R)	Musoma (R)	Musoma (R)	Musoma (R)	Sengerema	Sengerema	Sengerema	Sengerema	Sengerema	Sengerema	Geita	Geita	
Sampling Date		28/2/2006	28/2/2006	2006/2/3	2006/2/3	2006/3/3	2006/3/3	2006/4/3	2006/4/3	2006/6/3	2006/6/3	2006/6/3	2006/6/3	2006/6/3	2006/6/3	2006/1/3	2006/1/3	
FIELD	Temp	°C	21.3	21.6	27.3	27.6	25.3	25.6	24.6	24.8	23.5	26.9	27.5	27.2	24.9	29.6	23.5	24.1
	EC	mS/m	7.61	7.70	7.35	7.29	7.83	7.66	7.37	7.33	8.63	7.33	7.36	7.46	8.22	8.01	7.64	7.66
	pH		8.40	8.47	8.30	8.50	8.20	9.30	7.90	8.00	9.20	7.90	9.10	8.50	9.70	9.20	8.60	8.65
	ORP	mv	10	15	12	9	62	19	39	47	10	31	-48	18	-46	-71	24	31
	Taste		Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable
	Odour		Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable
	CN	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Fe	mg/l	0.13	0.05	0.05	0.02	0.05	0.06	0.03	0.01	0.03	0.02	0.02	0.00	0.08	0.04	0.12	0.08
	Mn	mg/l	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	F	mg/l	0.590	0.350	0.210	0.310	0.360	0.260	0.550	0.900	0.900	0.310	0.260	0.260	0.210	0.110	0.210	0.160
	pH		7.97	8.55	8.52	8.32	8.35	9.41	8.08	8.23	8.98	8.59	8.20	8.32	9.55	8.93	8.45	8.36
	Ba	mg/l	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NH4	mg/l	0.10	0.06	0.03	0.01	0.01	0.03	0.06	0.05	0.12	0.06	0.06	0.06	0.17	0.21	0.06	0.05
	NO3	mg/l	1.72	1.81	1.33	0.66	0.66	2.03	0.84	1.90	0.75	1.81	1.50	1.81	2.12	1.64	2.03	1.72
	Color	mg P/l	0	7	0	0	0	7	7	14	14	14	14	7	7	22	36	22
	Turbidity	NTU	5	3	0	0	0	2	2	3	8	3	2	3	2	6	6	8
	TSS	mg/l	80.0	70.0	30.0	50.0	50.0	60.0	90.0	60.0	50.0	60.0	20.0	40.0	100.0	70.0	80.0	110.0
	TDS	mg/l	38.10	38.50	36.80	36.40	39.20	38.30	36.90	36.60	43.10	36.60	36.80	37.30	41.10	40.10	38.20	38.40
	Coliform	count/100ml	2	5	4	2	7	0	0	8	2	0	7	0	18	11	5	3
T-Hardness	mg/l	38	39	35	27	28	27	27	21	25	25	26	29	34	27	20	29	
Ca	mg/l	17	26	11	16	15	13	14	15	15	15	12	14	15	13	13	22	
Mg	mg/l	5.103	3.159	5.832	2.673	3.159	3.402	3.159	1.458	2.43	2.43	3.402	3.645	4.617	3.402	1.701	1.701	
PO4	mg/l	0.07	0.09	0.13	0.10	0.09	0.09	0.13	0.14	0.11	0.14	0.13	0.13	0.15	0.10	0.20	0.11	
SO4	mg/l	4.9	6.6	3.3	0.0	4.9	6.6	3.3	0.0	3.3	0.0	3.3	1.6	8.3	3.3	8.3	10.6	
Cl	mg/l	16	17	16	17	21	19	23	23	13	17	15	13	11	14	13	14	
BOD	mg/l	0	0	0	0	0	2	0	3	0	0	0	3	8	6	0	0	
COD	mg/l	0	0	0	0	0	0	0	10	0	0	0	10	12	15	0	0	
B	mg/l	0.05	0.03	0.01	0.01	0.03	0.01	0.01	0.04	0.01	0.01	0.06	0.03	0.06	0.01	0.01	0.01	
HCO3	mg/l	46	35	47	42	41	41	49	44	51	49	43	45	58	42	46	56	
Na	mg/l	18.90	13.80	34.20	12.80	13.80	16.30	11.60	10.80	11.70	18.50	10.40	10.50	10.80	20.70	13.60	7.20	
Cd	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Cr	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
As	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	
Pb	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Zn	mg/l	0.05	0.03	0.03	0.03	0.02	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.23	0.06	0.03	0.02	
Se	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	
k	mg/l	2.00	1.90	2.04	1.81	1.81	1.96	1.85	1.84	1.82	2.17	1.74	1.75	1.65	1.57	1.68	1.79	
Hg	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	
Organic Phosphate	mg/l	<0.01	0.01	0.01	<0.01	0.01	<0.01	0.01	<0.01	0.01	0.02	0.01	<0.01	0.02	<0.01	0.01	<0.01	

4 Test Well Drilling and Pumping Test

① Location Map and Columnar Section



(a) Plain View



(b) Bird's Eye View



Figure	Test Well Drilling Point (T1 Test Well: Busongo Vil.)
	THE STUDY ON THE RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

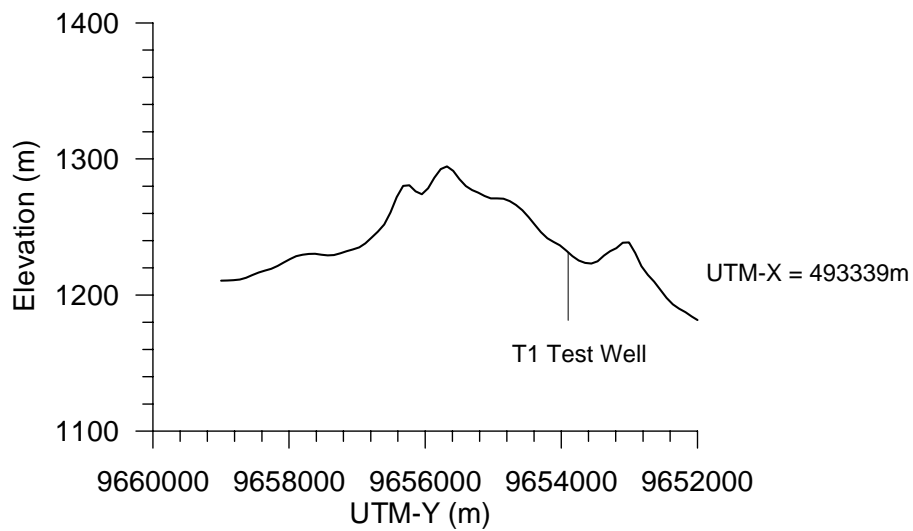
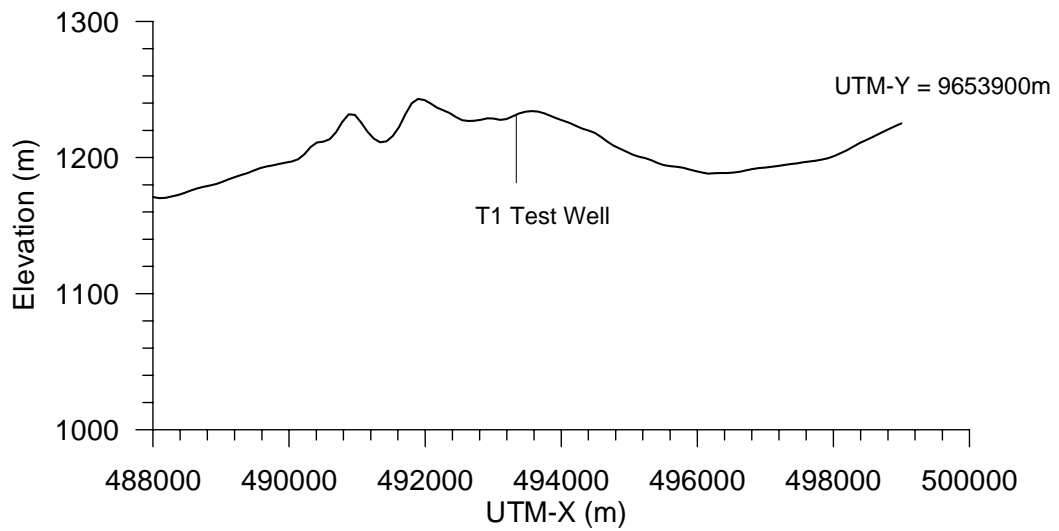
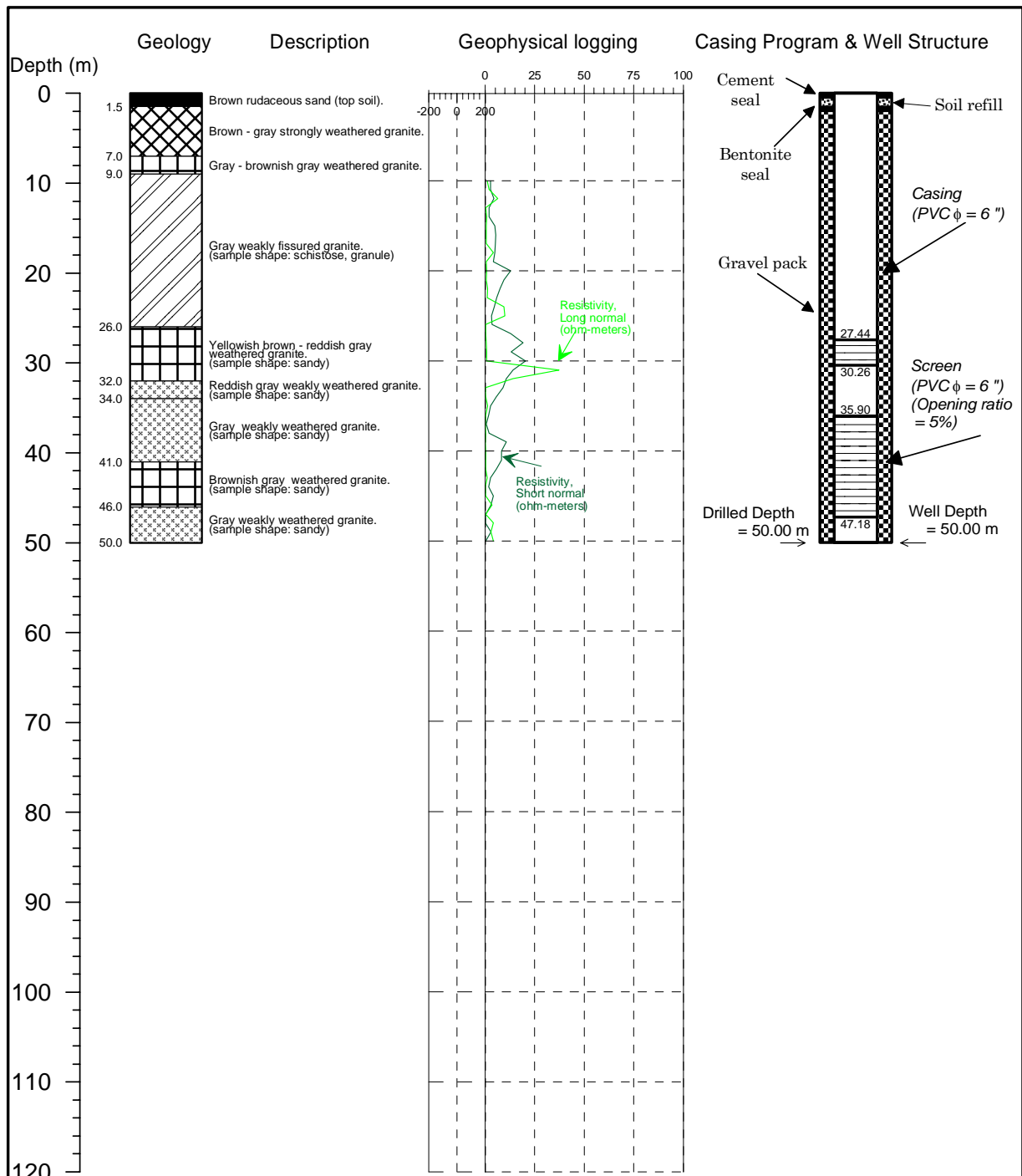


Figure	Test Well Drilling Point - Topographic Profile (T1 Test Well: Busongo VII.)
THE BASIC DESIGN STUDY ON THE PROJECT ON PROVINCE OF POTABLE WATER FOR ERADICATION OF GUNIAWORM (PHASE 2) IN THE ISLAMIC REPUBLIC OF MAURITANIA	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	



WELL LOCATION

Location: Busongo,
Misungwi District, Mwanza Region
Site No.: Misungwi 25
Well No.: T1

WELL SPECIFICATION

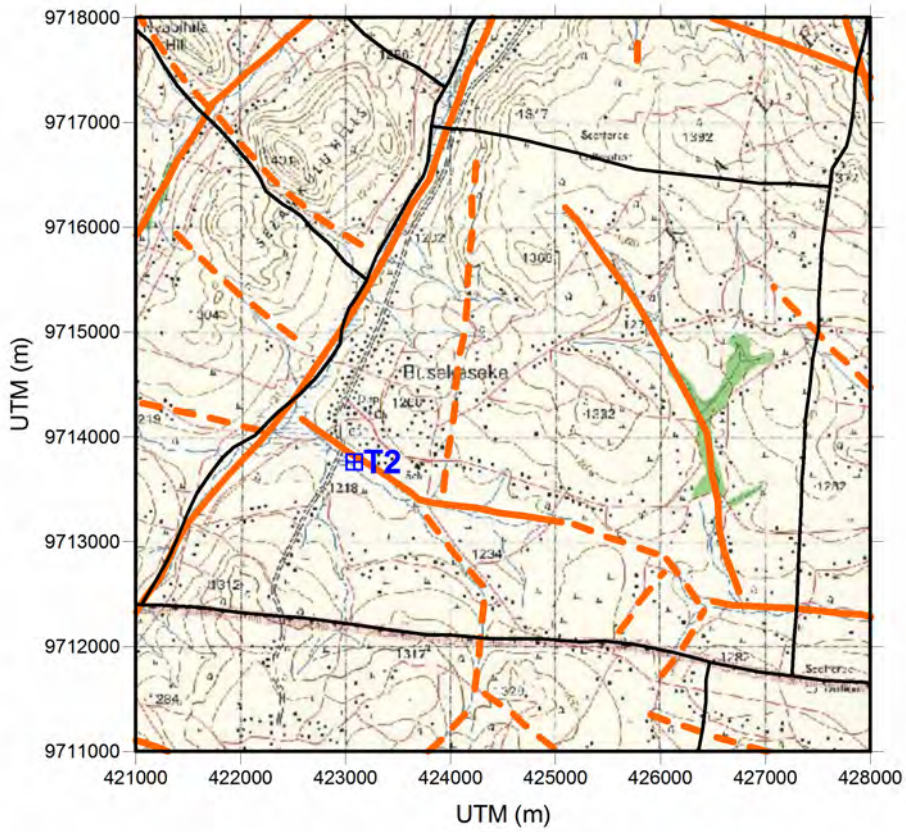
Well Depth: 50.00 m
Well Diameter: 6"
Screen Depths: 27.44-30.26, 35.90-47.18 m
Screen Length: 14.10 m
SWL: GL- 8.07 m
on 29-09-2005

Figure

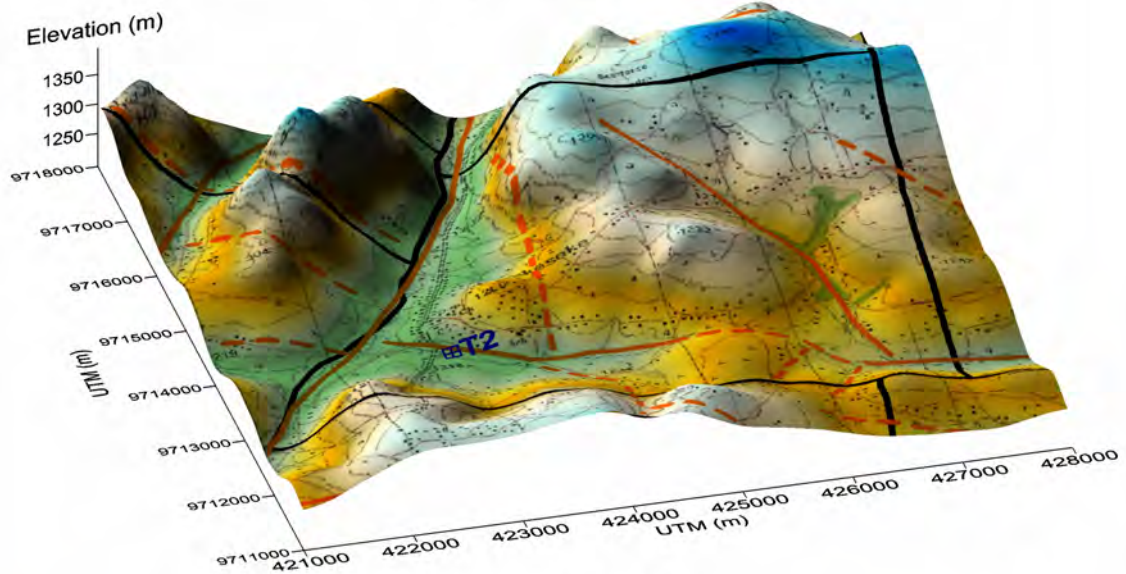
**Columnar Section and Well Structure
at T1 Test Well (BUSONGO)**

**THE STUDY ON RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
IN THE UNITED REPUBLIC OF TANZANIA**

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)



(a) Plain View



(b) Bird's Eye View



Figure	Test Well Drilling Point (T2 Test Well: Busekesoke Vil.)
	THE STUDY ON THE RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

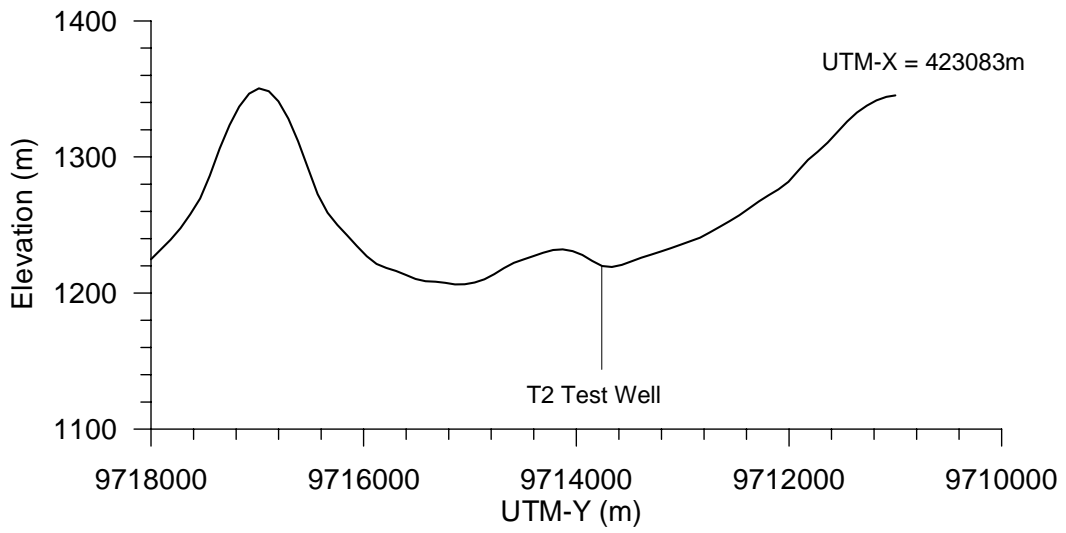
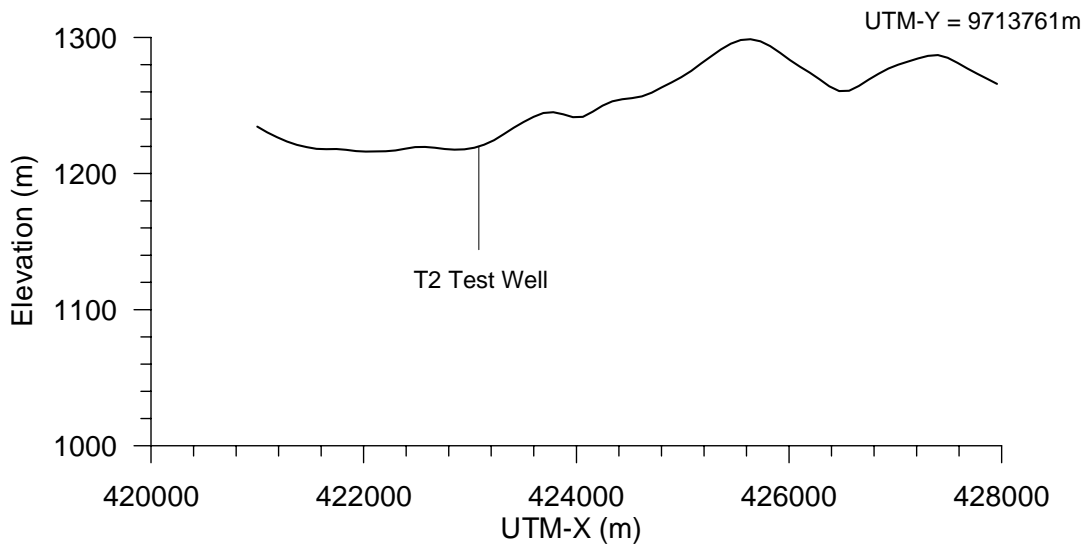


Figure	Test Well Drilling Point - Topographic Profile (T2 Test Well: Busekeseke Vil.)
THE BASIC DESIGN STUDY ON THE PROJECT ON PROVINCE OF POTABLE WATER FOR ERADICATION OF GUNIAWORM (PHASE 2) IN THE ISLAMIC REPUBLIC OF MAURITANIA	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

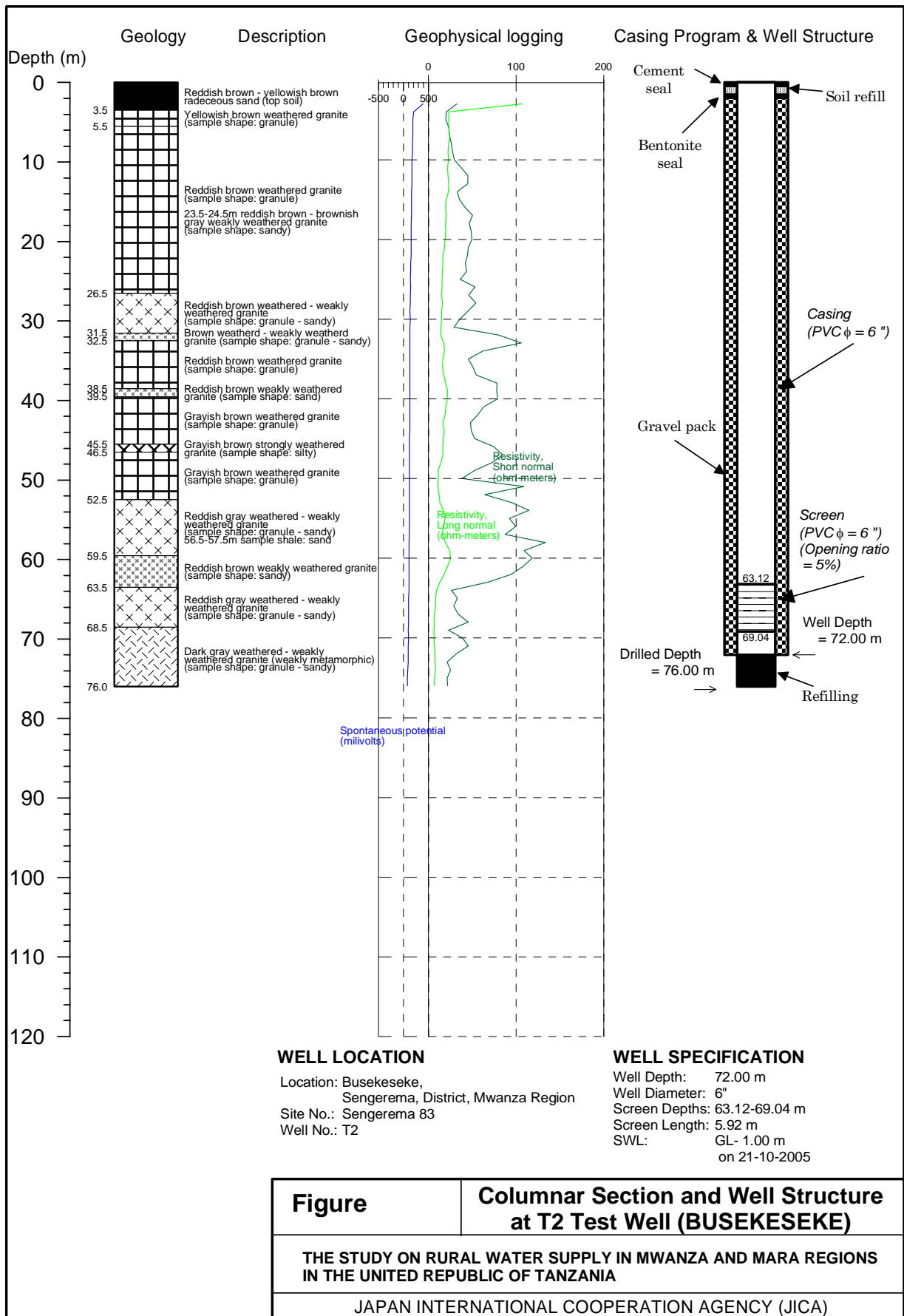
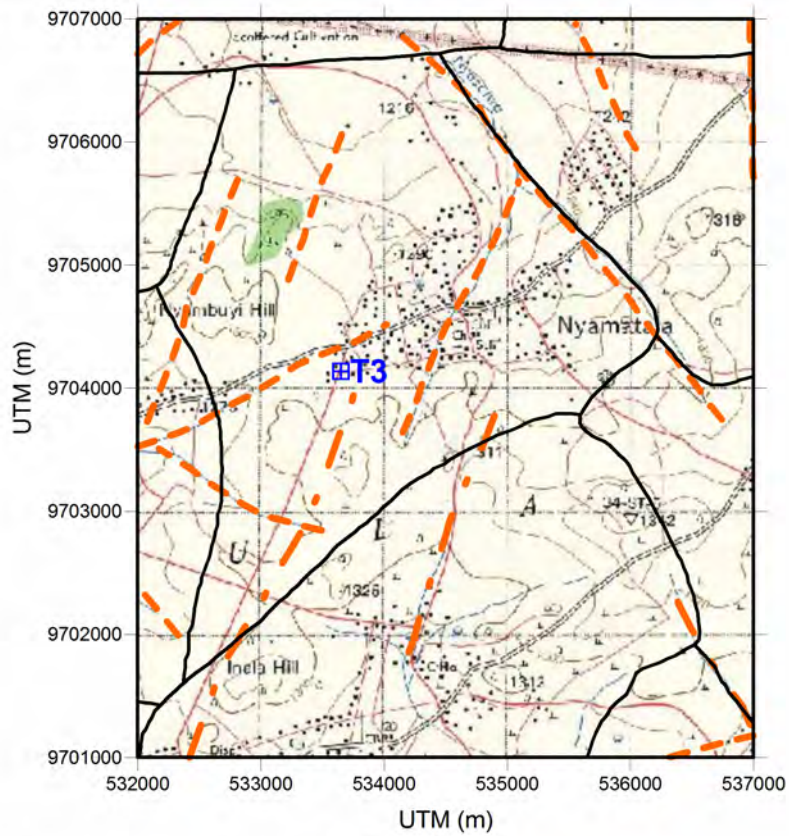


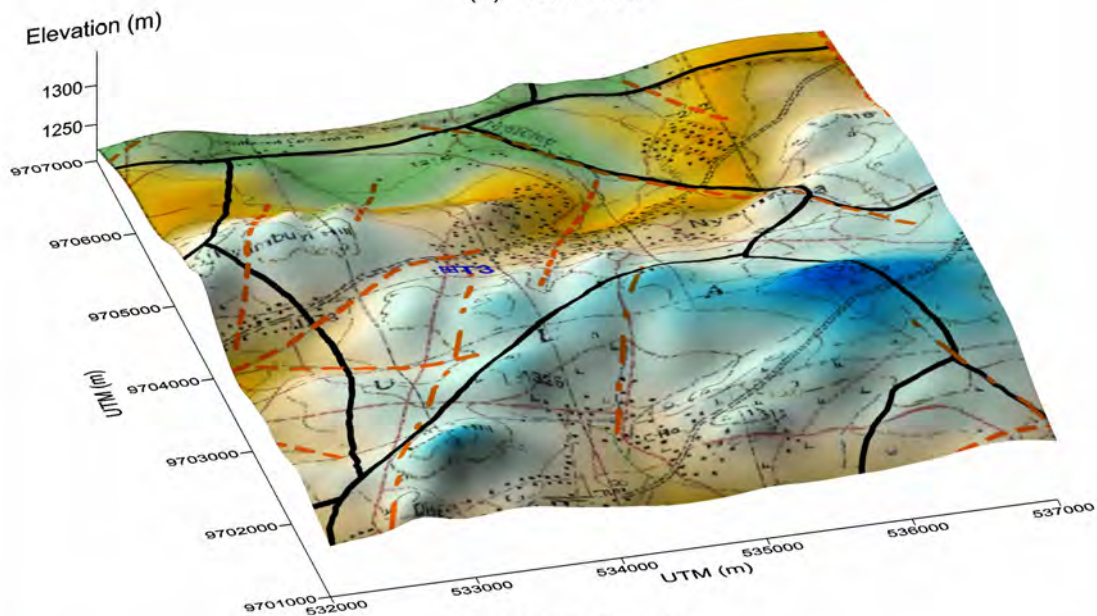
Figure Columnar Section and Well Structure at T2 Test Well (BUSEKESEKE)

THE STUDY ON RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS IN THE UNITED REPUBLIC OF TANZANIA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)



(a) Plain View



(b) Bird's Eye View

- Lineament (Clear)
- - - Lineament (Minor)
- · - · Lineament (Trace)
- Village boundary

Figure	Test Well Drilling Point (T3 Test Well: Nyamataa Vil.)
THE STUDY ON THE RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

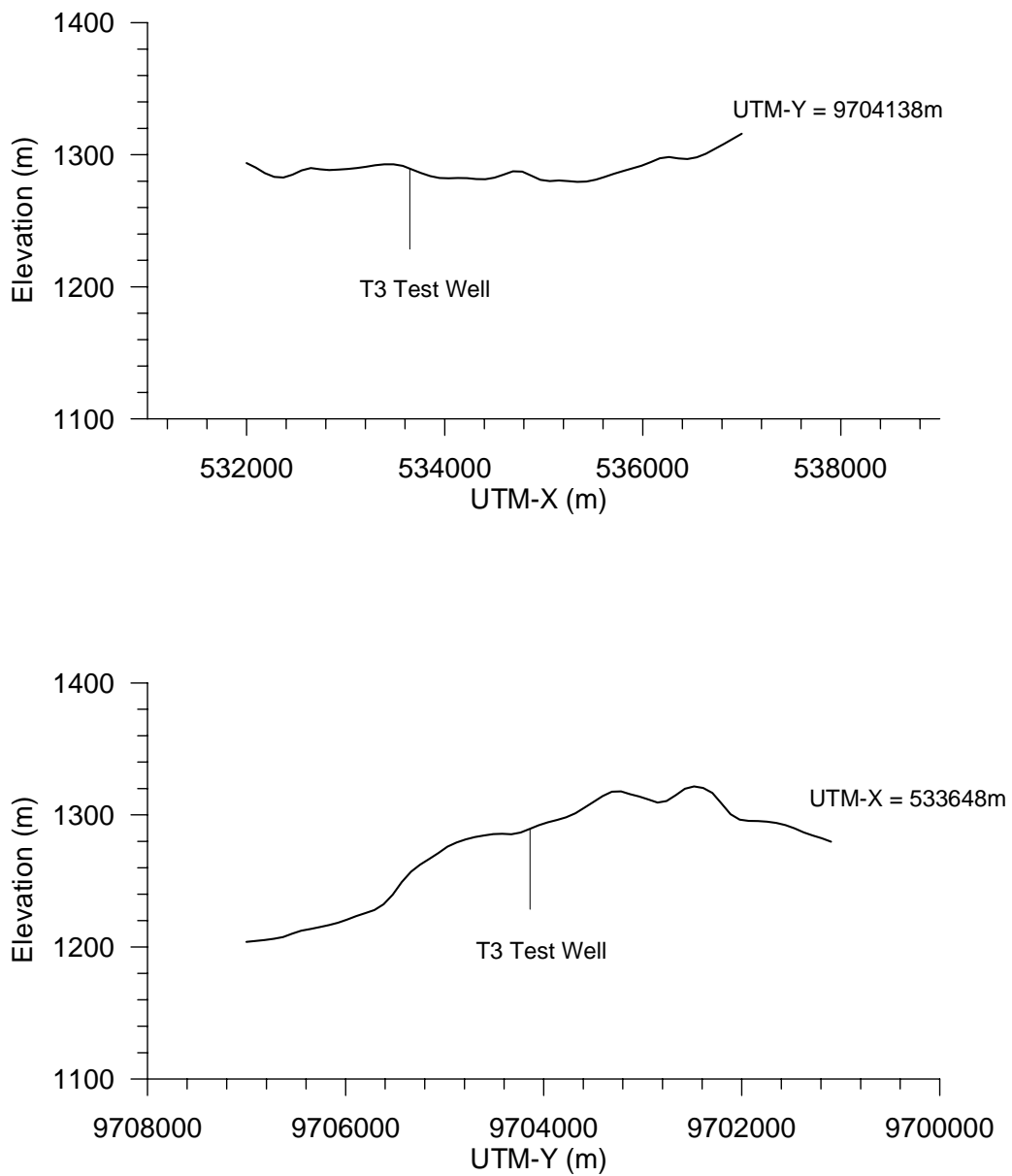
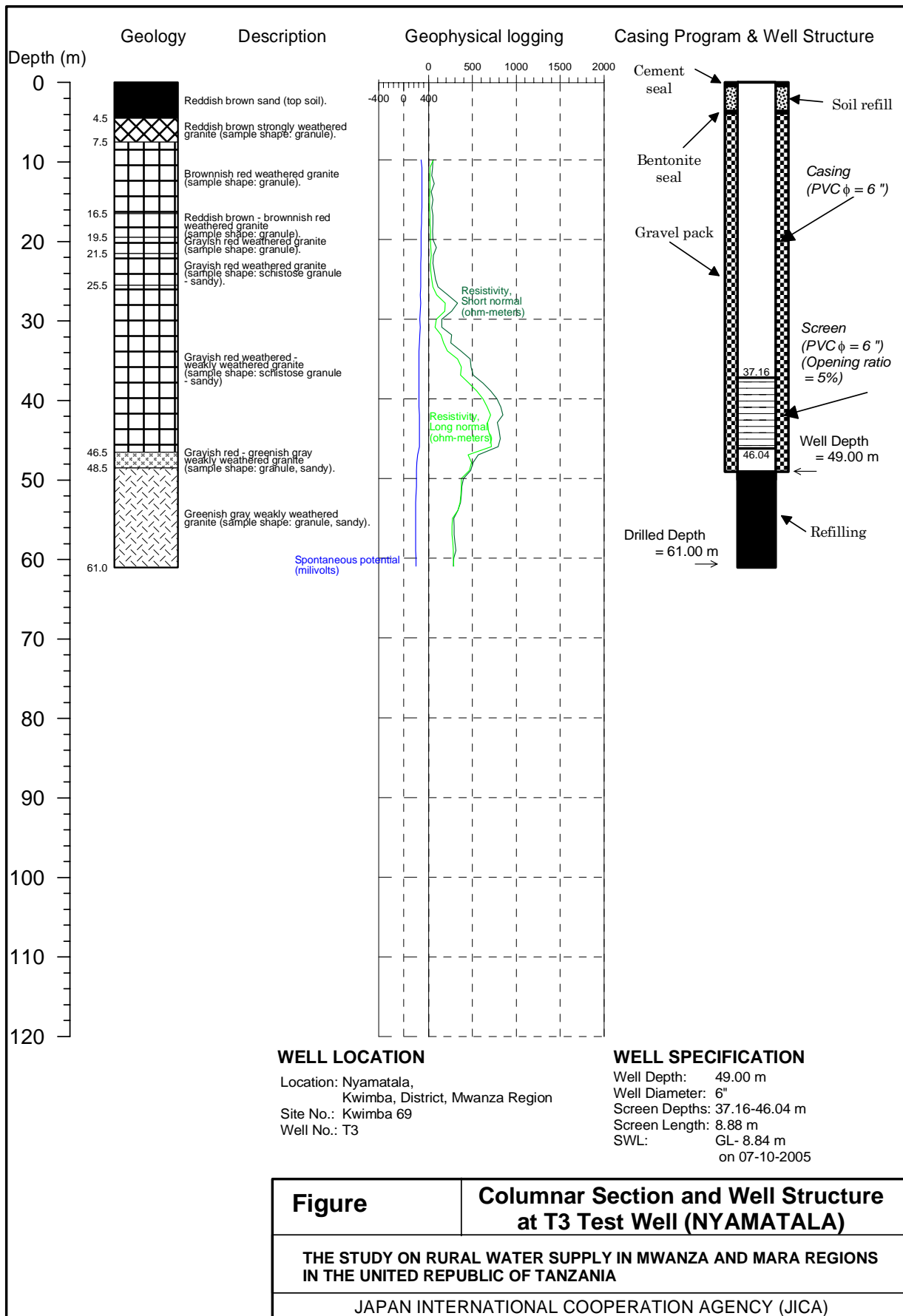
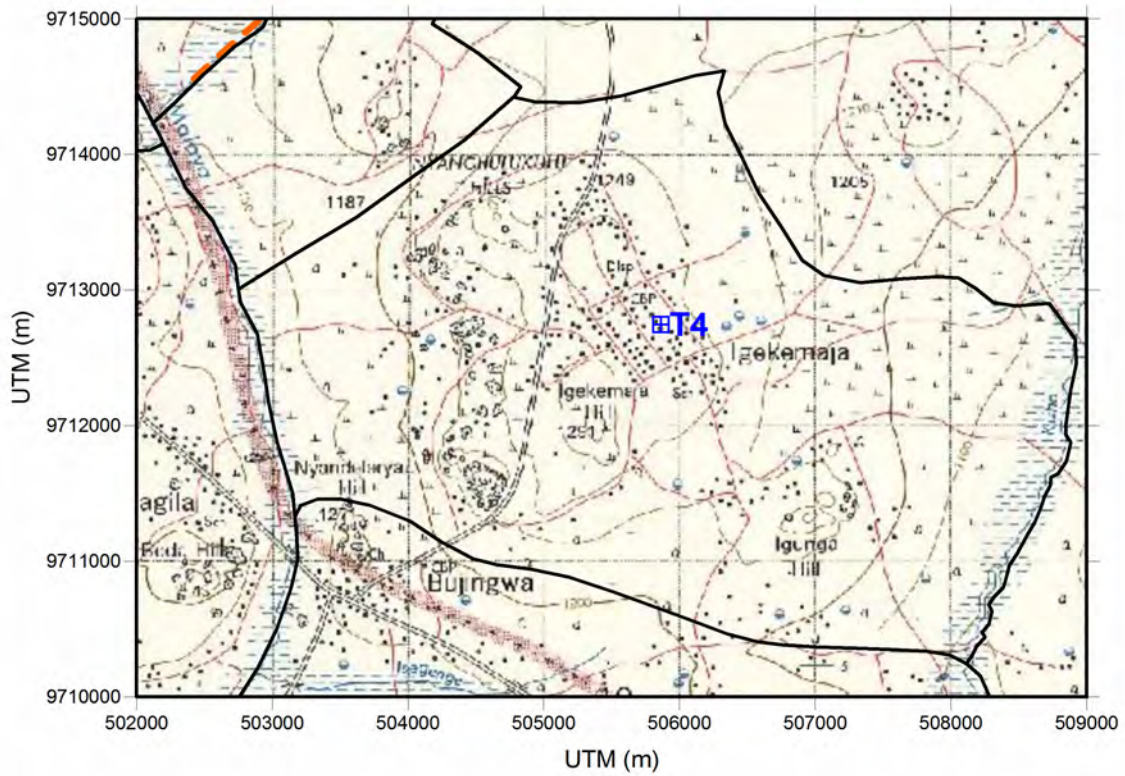
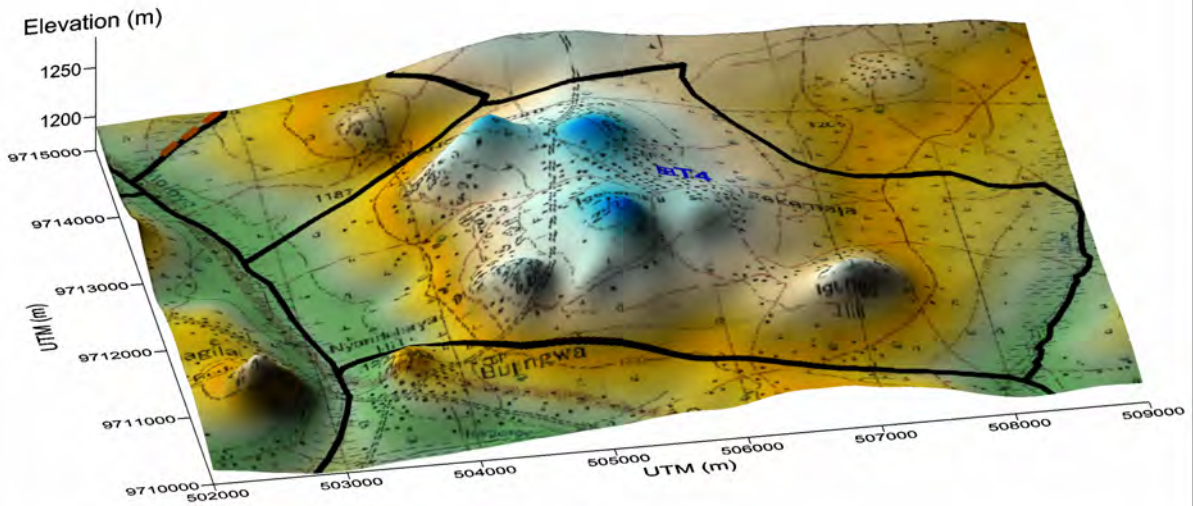


Figure	Test Well Drilling Point - Topographic Profile (T3 Test Well: Nyamatala Vil.)
THE BASIC DESIGN STUDY ON THE PROJECT ON PROVINCE OF POTABLE WATER FOR ERADICATION OF GUNIAWORM (PHASE 2) IN THE ISLAMIC REPUBLIC OF MAURITANIA	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	





(a) Plain View



(b) Bird's Eye View

	Lineament (Clear)
	Lineament (Minor)
	Lineament (Trace)
	Village boundary

Figure	Test Well Drilling Point (T4 Test Well: IgekemajaVil.)
	THE STUDY ON THE RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

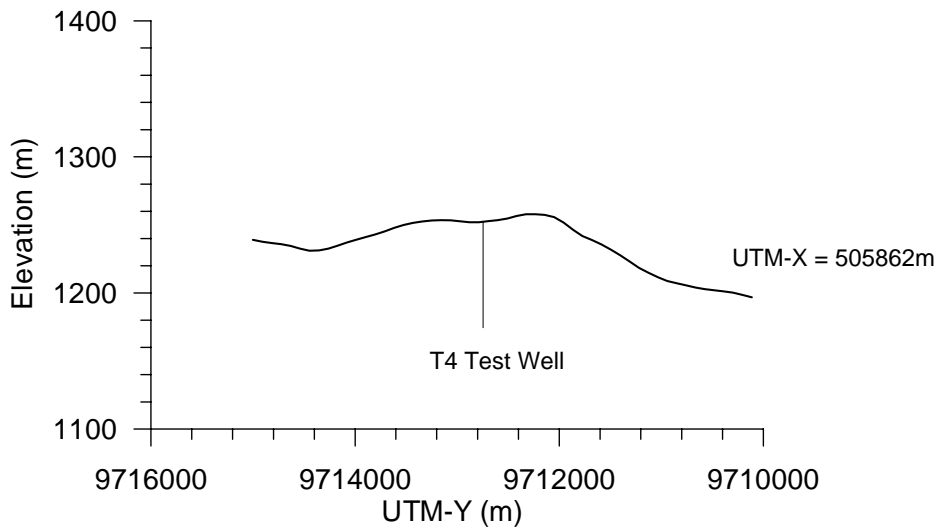
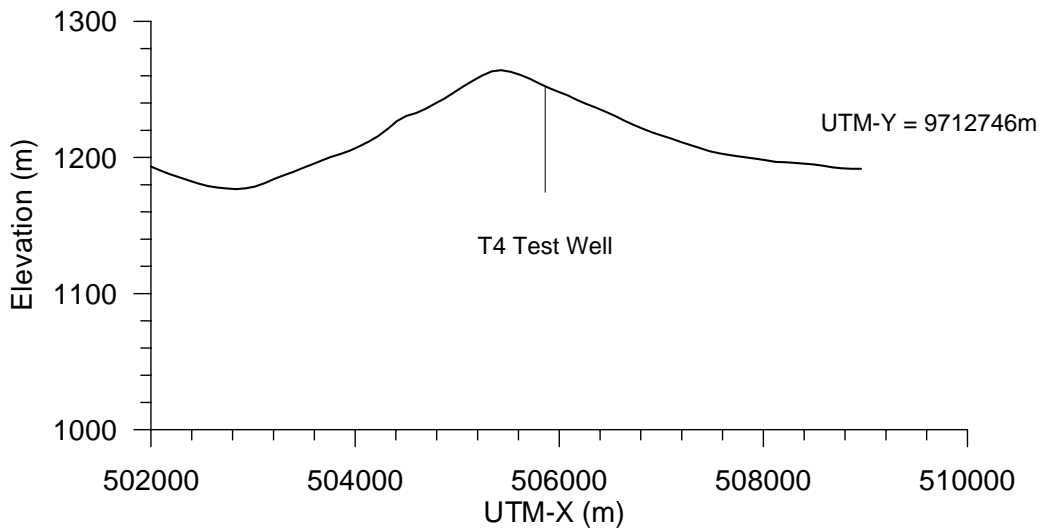
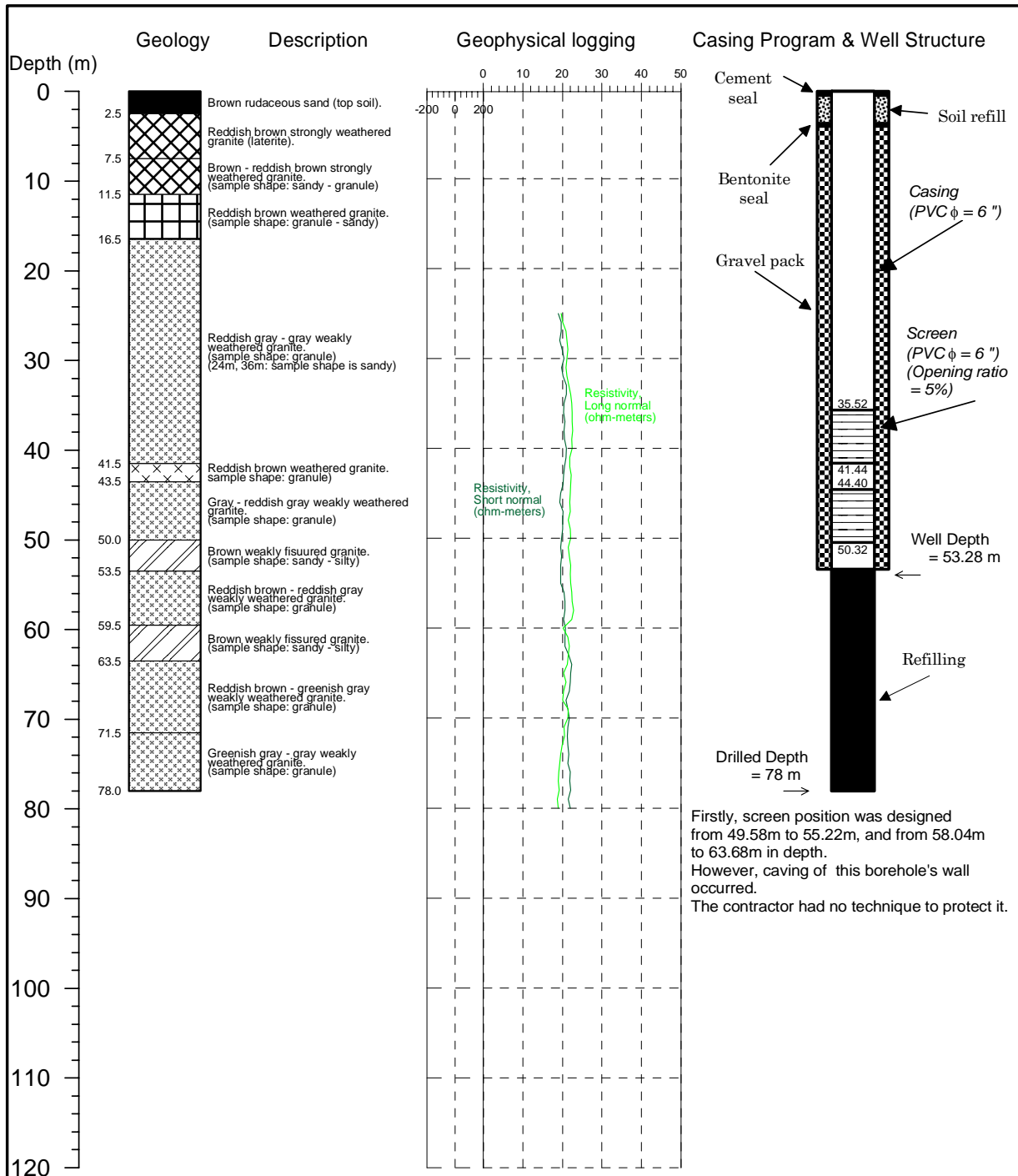


Figure	Test Well Drilling Point - Topographic Profile (T4 Test Well: Igekemaja Vil.)
THE BASIC DESIGN STUDY ON THE PROJECT ON PROVINCE OF POTABLE WATER FOR ERADICATION OF GUNIAWORM (PHASE 2) IN THE ISLAMIC REPUBLIC OF MAURITANIA	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	



WELL LOCATION

Location: Igekemaja,
Magu, District, Mwanza Region
Site No.: Magu 37
Well No.: T4

WELL SPECIFICATION

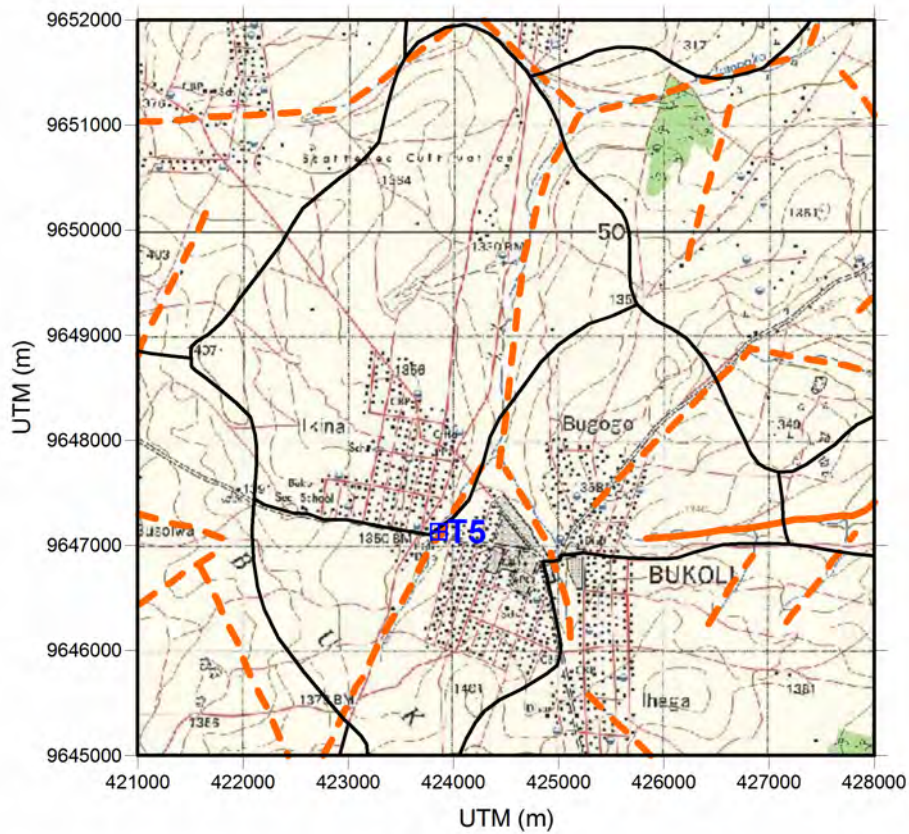
Well Depth: 53.28 m
Well Diameter: 6"
Screen Depths: 35.52-41.44, 44.40-50.32 m
Screen Length: 11.84 m
SWL: GL- 5.49 m
on 03-10-2005

Figure

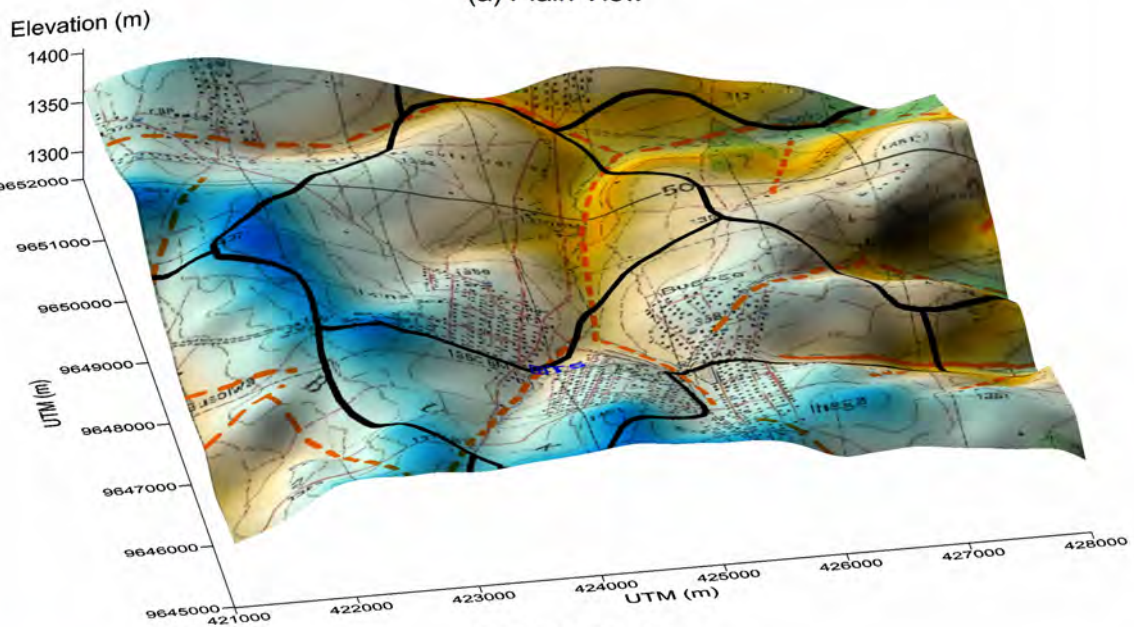
**Columnar Section and Well Structure
at T4 Test Well (IGEKEMAJA)**

**THE STUDY ON RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
IN THE UNITED REPUBLIC OF TANZANIA**

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)



(a) Plain View



(b) Bird's Eye View



Figure	Test Well Drilling Point (T5 Test Well: IkinaVli.)
THE STUDY ON THE RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

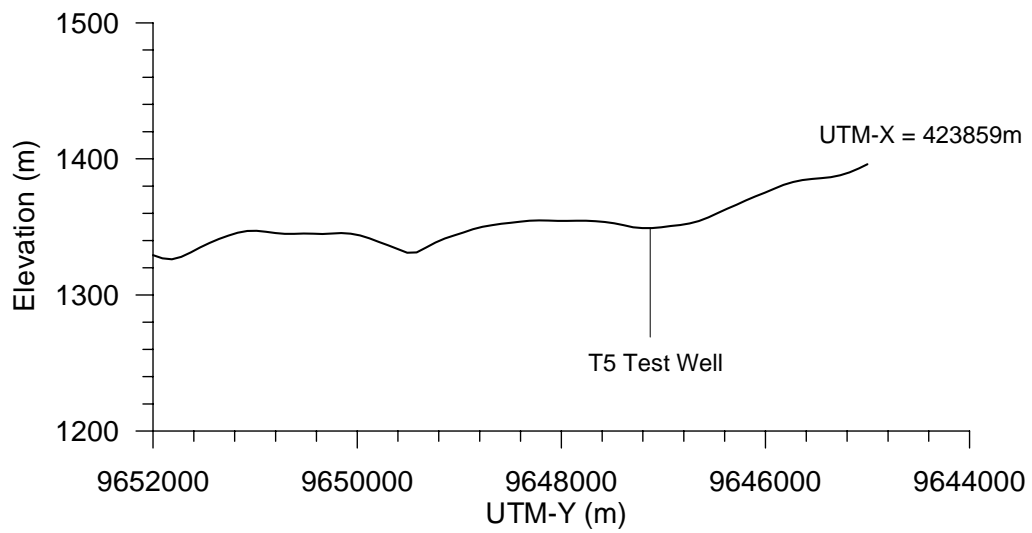
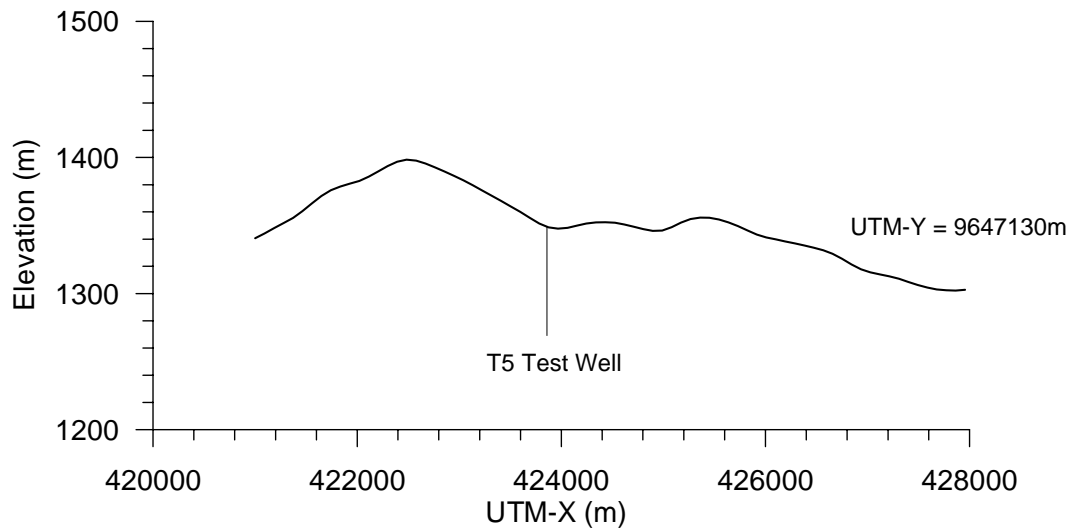
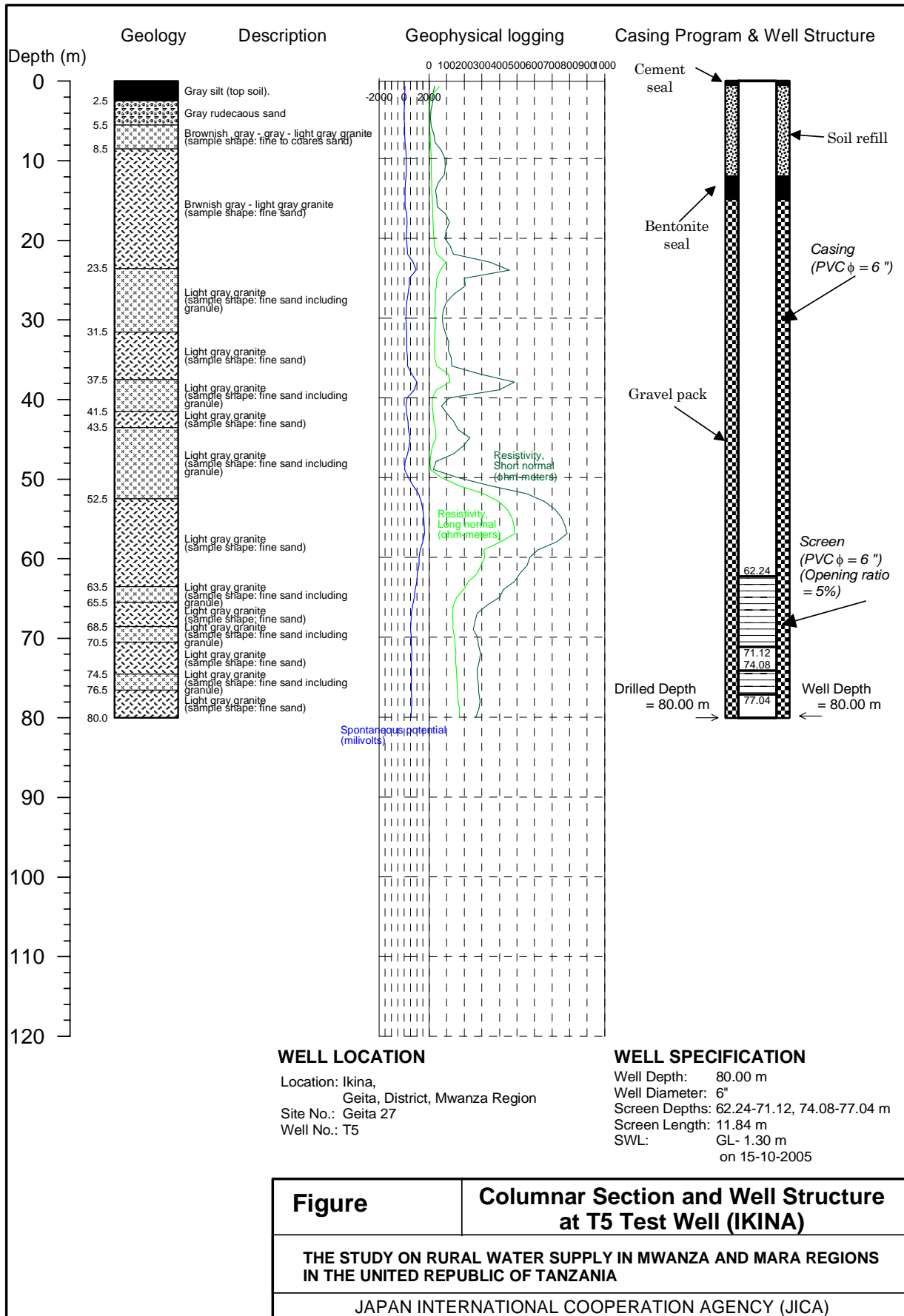
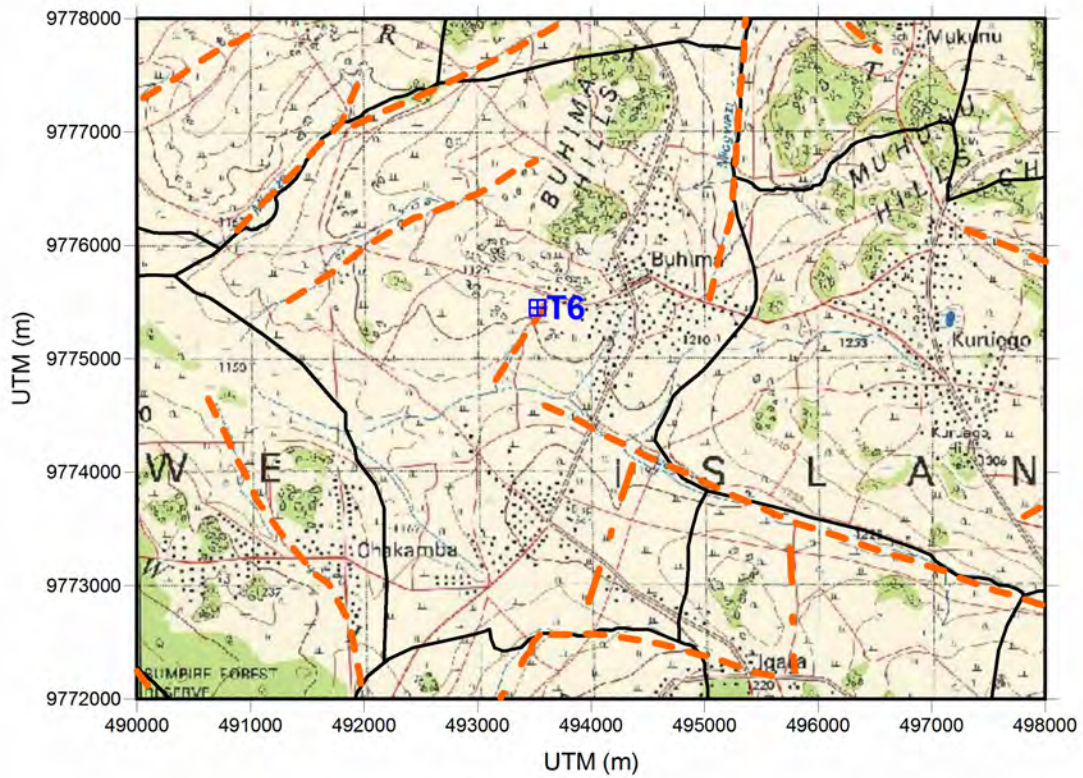
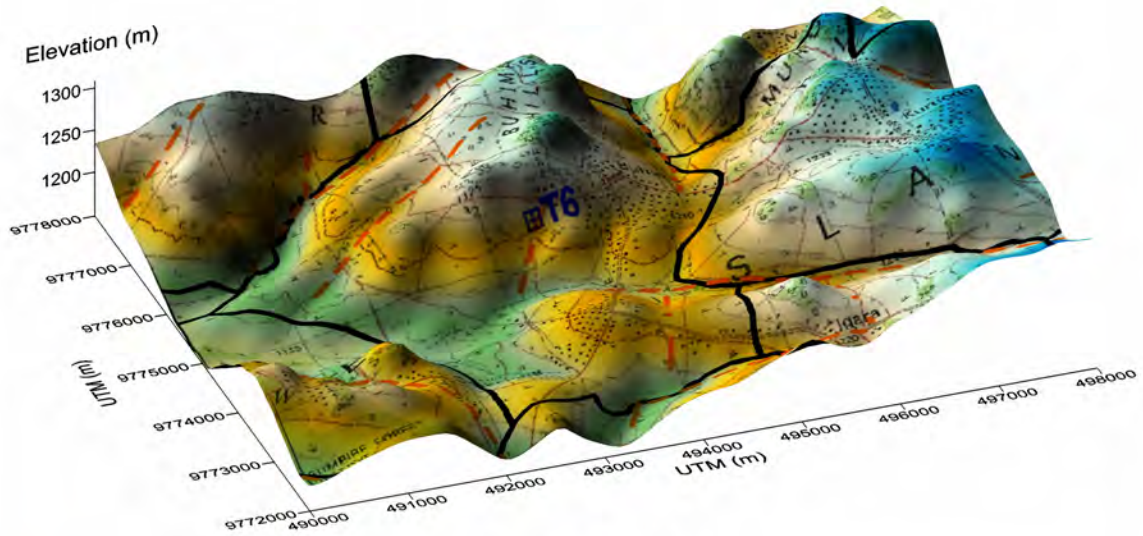


Figure	Test Well Drilling Point - Topographic Profile (T5 Test Well: Ikina Vil.)
THE BASIC DESIGN STUDY ON THE PROJECT ON PROVINCE OF POTABLE WATER FOR ERADICATION OF GUNIAWORM (PHASE 2) IN THE ISLAMIC REPUBLIC OF MAURITANIA	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	





(a) Plain View



(b) Bird's Eye View



Figure	Test Well Drilling Point (T6 Test Well: Buhima Vil.)
	THE STUDY ON THE RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

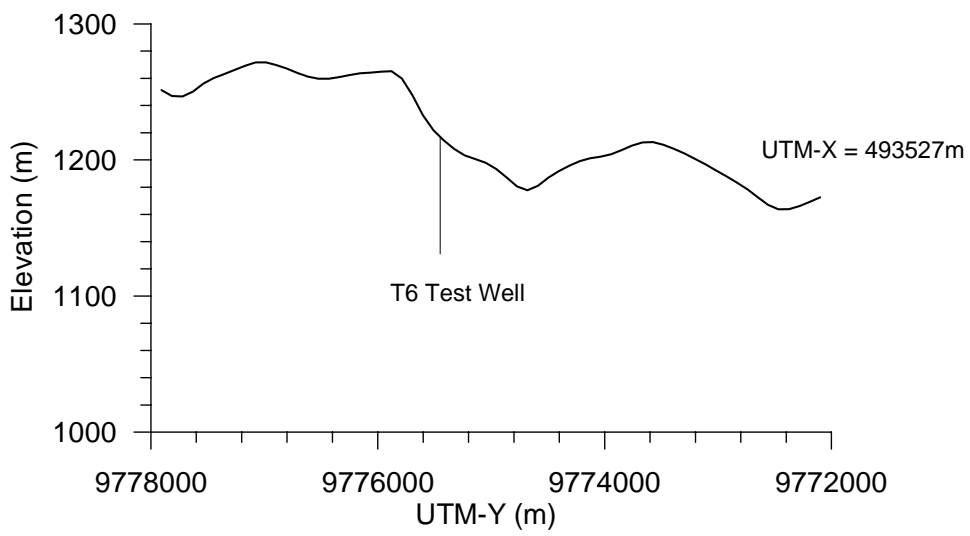
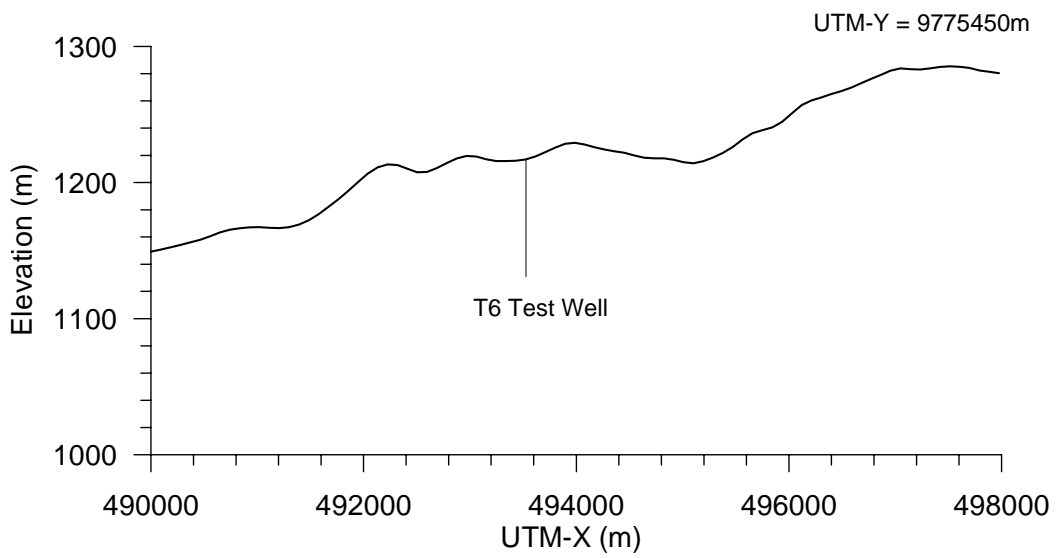
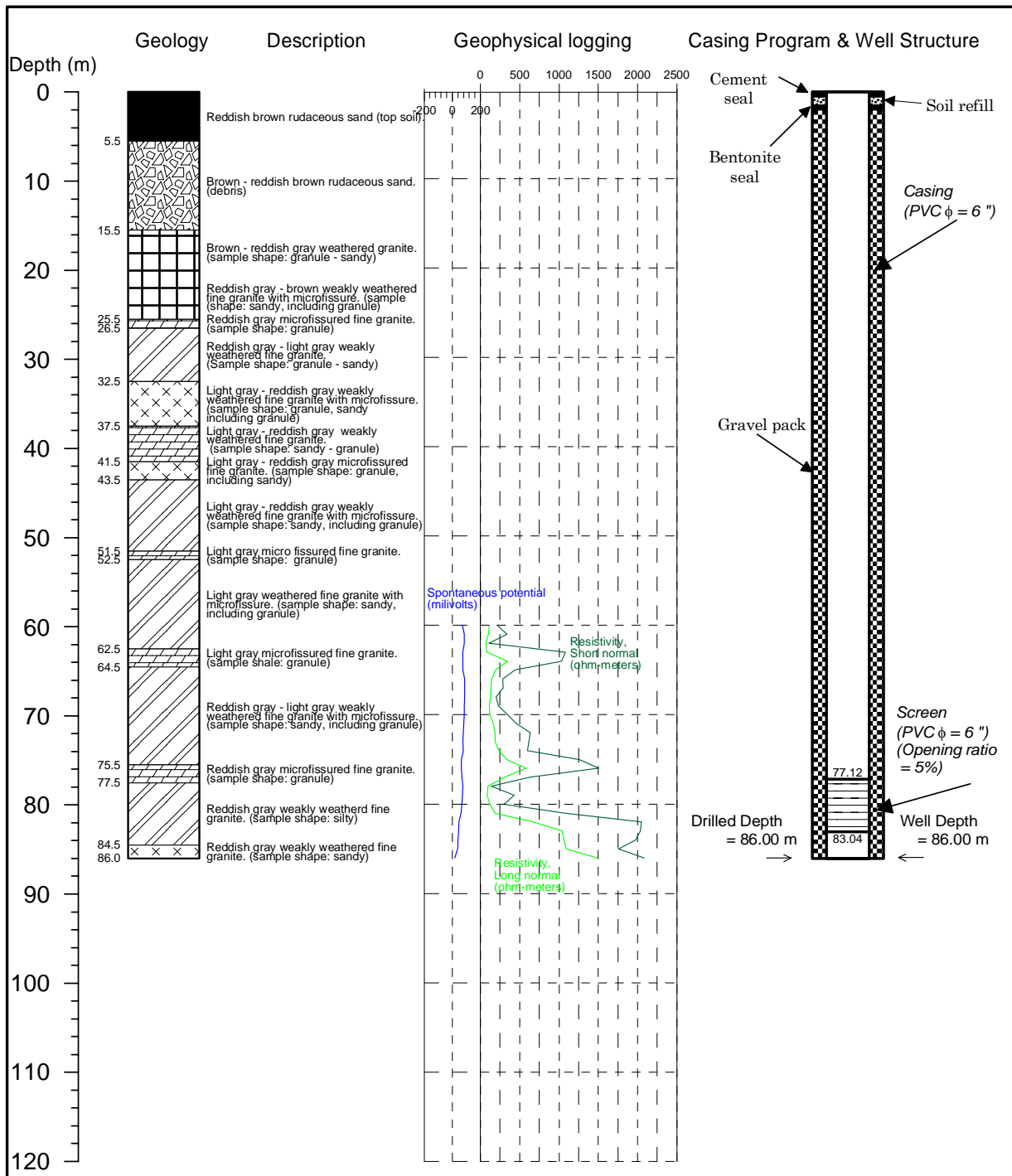


Figure	Test Well Drilling Point - Topographic Profile (T6 Test Well: Buhima Vil.)
THE BASIC DESIGN STUDY ON THE PROJECT ON PROVINCE OF POTABLE WATER FOR ERADICATION OF GUNIAWORM (PHASE 2) IN THE ISLAMIC REPUBLIC OF MAURITANIA	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	



WELL LOCATION

Location: Buhima,
Ukerewe District, Mwanza Region
Site No.: Ukerewe 73
Well No.: T6

WELL SPECIFICATION

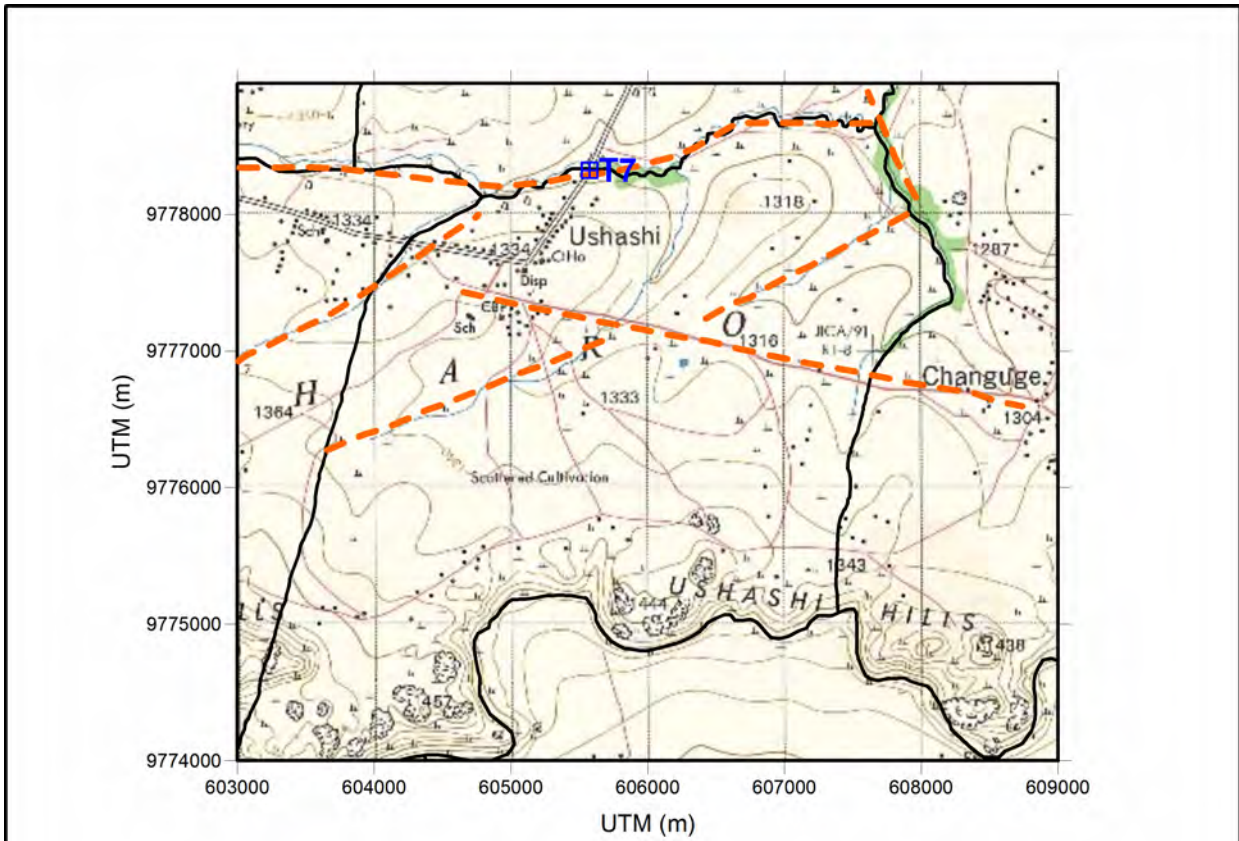
Well Depth: 86.00 m
Well Diameter: 6"
Screen Depths: 77.12-83.04 m
Screen Length: 5.92 m
SWL: GL- 9.23 m
on 09-11-2005

Figure

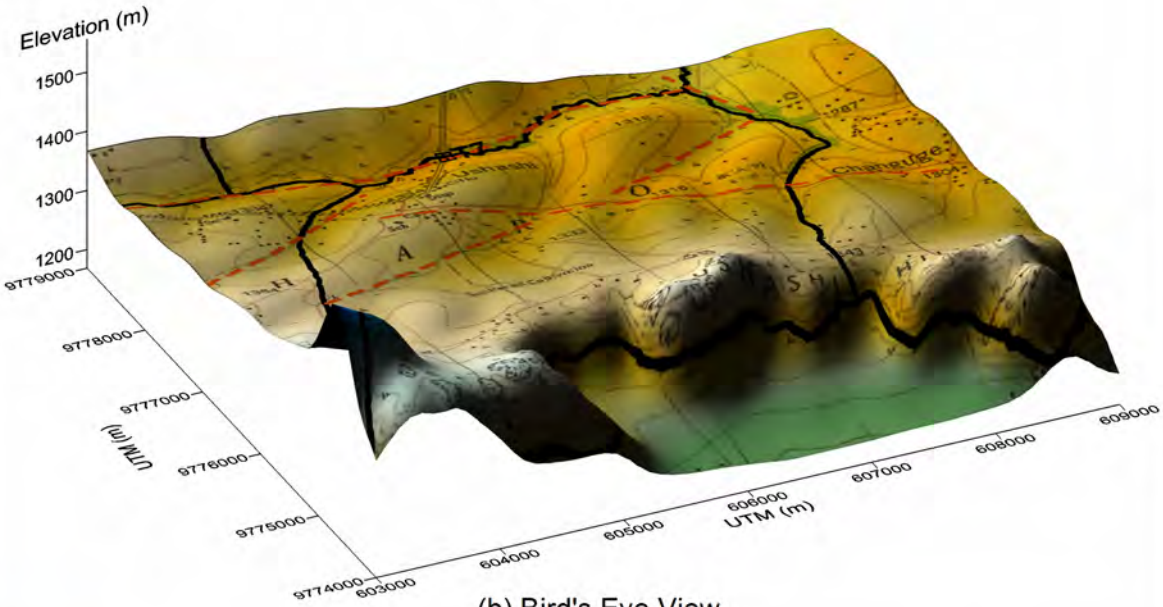
**Columnar Section and Well Structure
at T6 Test Well (BUHIMA)**

**THE STUDY ON RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)



(a) Plain View



(b) Bird's Eye View

	Lineament (Clear)
	Lineament (Minor)
	Lineament (Trace)
	Village boundary

Figure	Test Well Drilling Point (T7 Test Well: Mcharo Vil.)
	THE STUDY ON THE RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

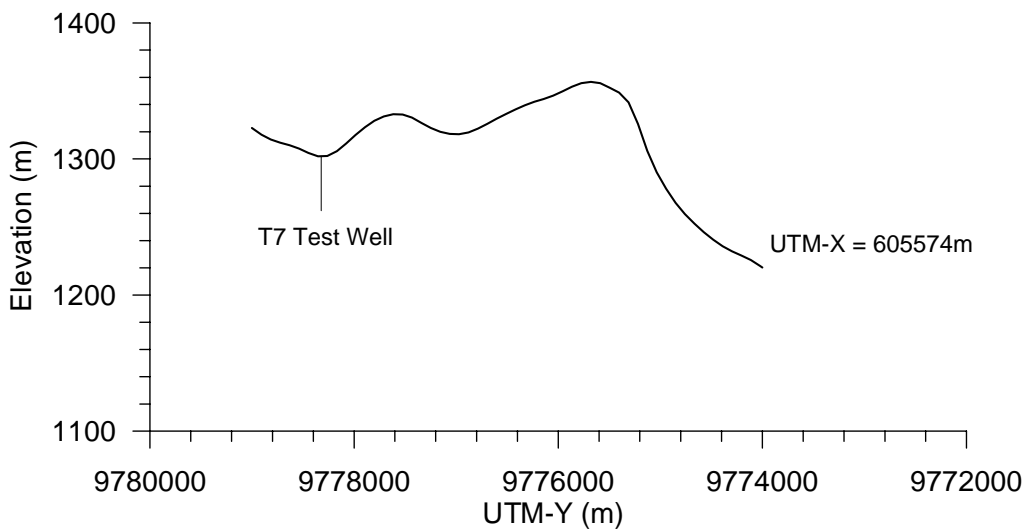
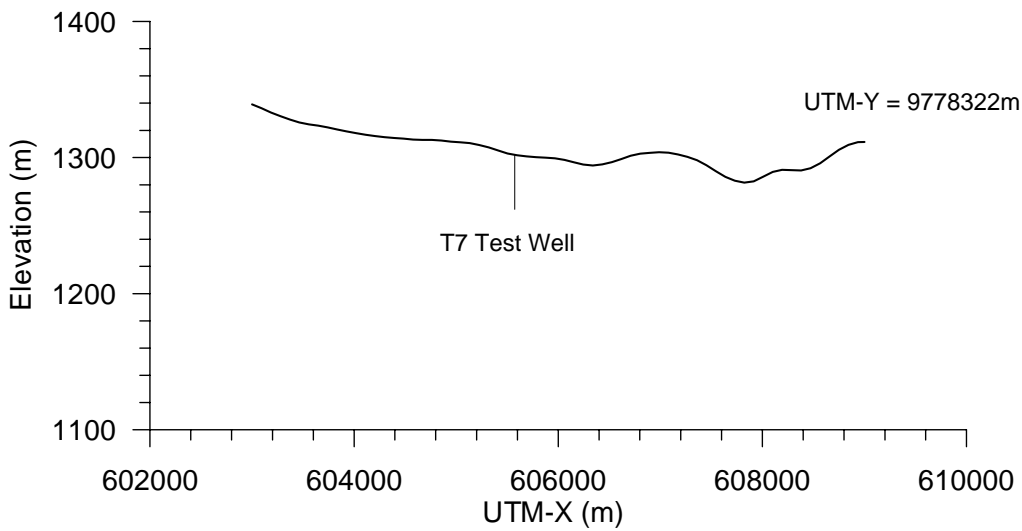
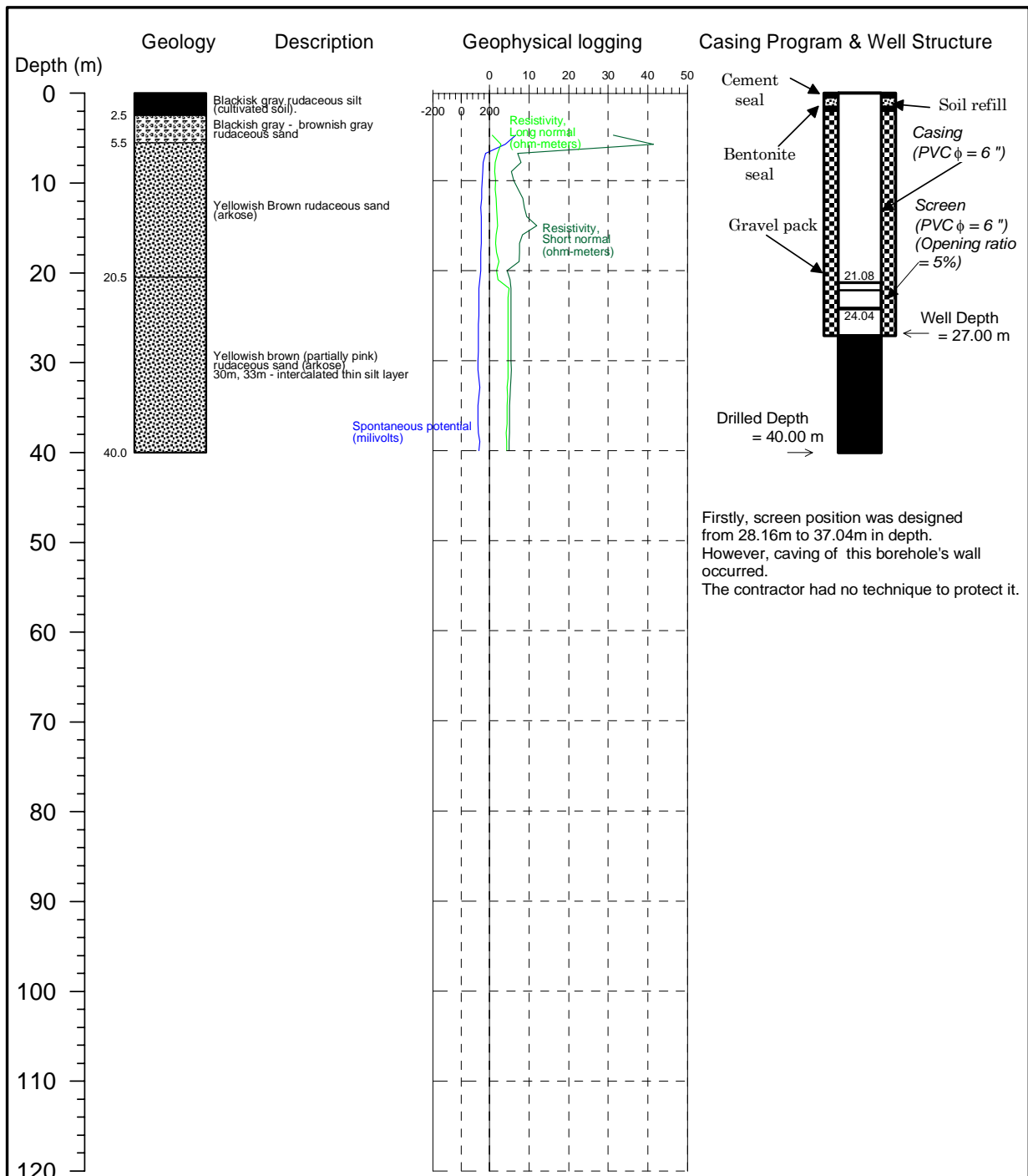


Figure	Test Well Drilling Point - Topographic Profile (T7 Test Well: Mcharo Vil.)
THE BASIC DESIGN STUDY ON THE PROJECT ON PROVINCE OF POTABLE WATER FOR ERADICATION OF GUNIAWORM (PHASE 2) IN THE ISLAMIC REPUBLIC OF MAURITANIA	
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Firstly, screen position was designed from 28.16m to 37.04m in depth. However, caving of this borehole's wall occurred. The contractor had no technique to protect it.

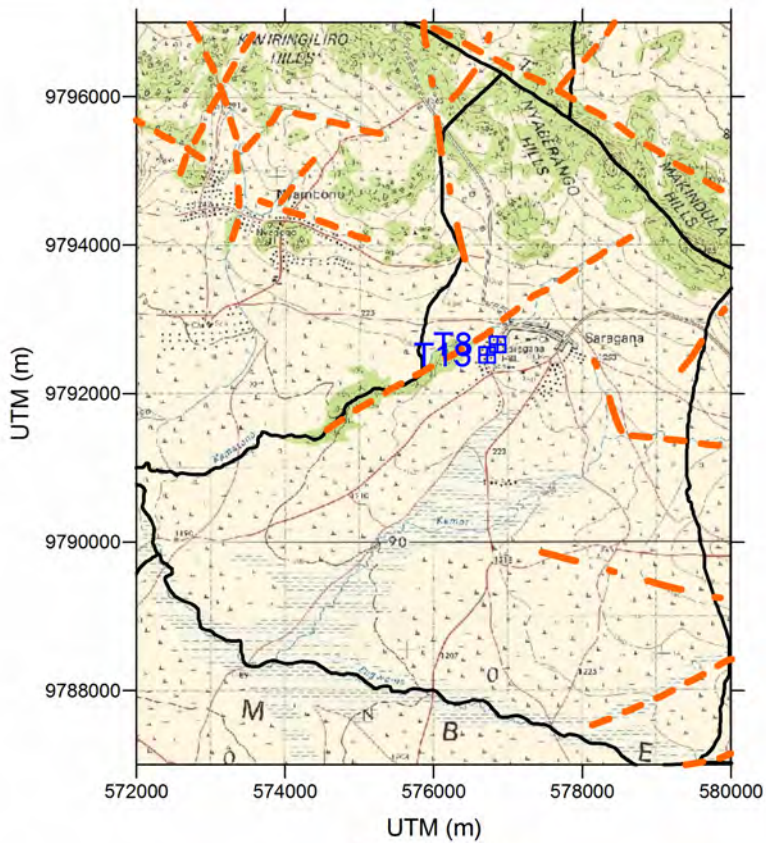
WELL LOCATION

Location: Mcharo,
Bunda District, Mara Region
Site No.: Bunda 33
Well No.: T7

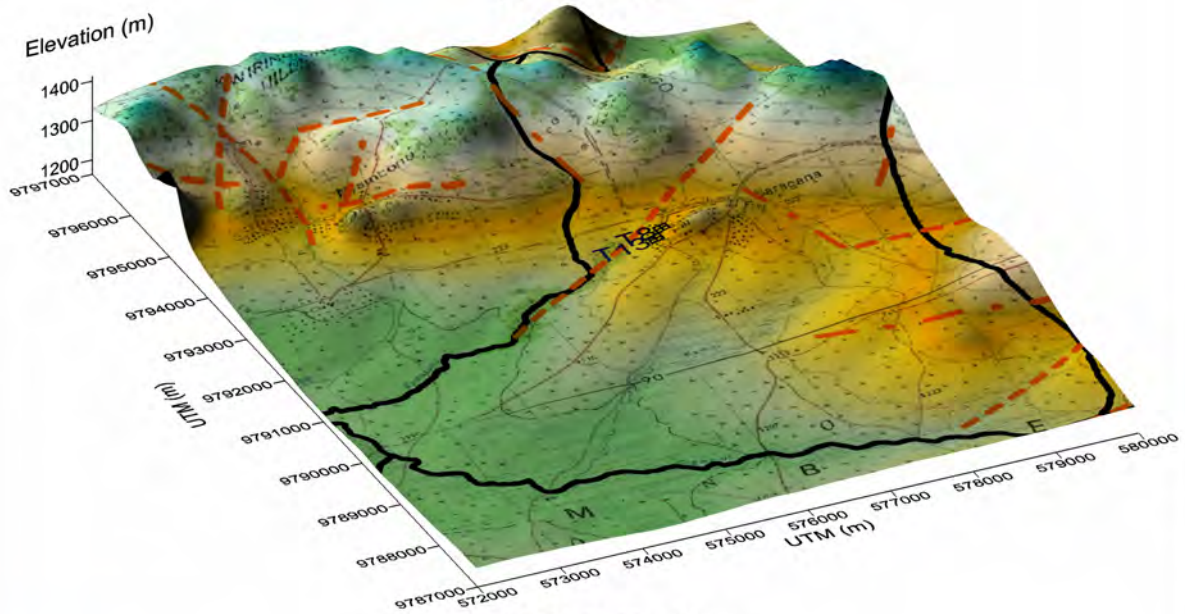
WELL SPECIFICATION

Well Depth: 27.00 m
Well Diameter: 6"
Screen Depths: 21.08-24.04 m
Screen Length: 2.96 m
SWL: GL- 4.07 m
on 10-10-2005

Figure	Columnar Section and Well Structure at T7 Test Well (MCHARO)
THE STUDY ON RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS IN THE UNITED REPUBLIC OF TANZANIA	
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(a) Plain View



(b) Bird's Eye View



Figure	Test Well Drilling Point (T8 and T13 Test Wells: Saragana Vil.)
	THE STUDY ON THE RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

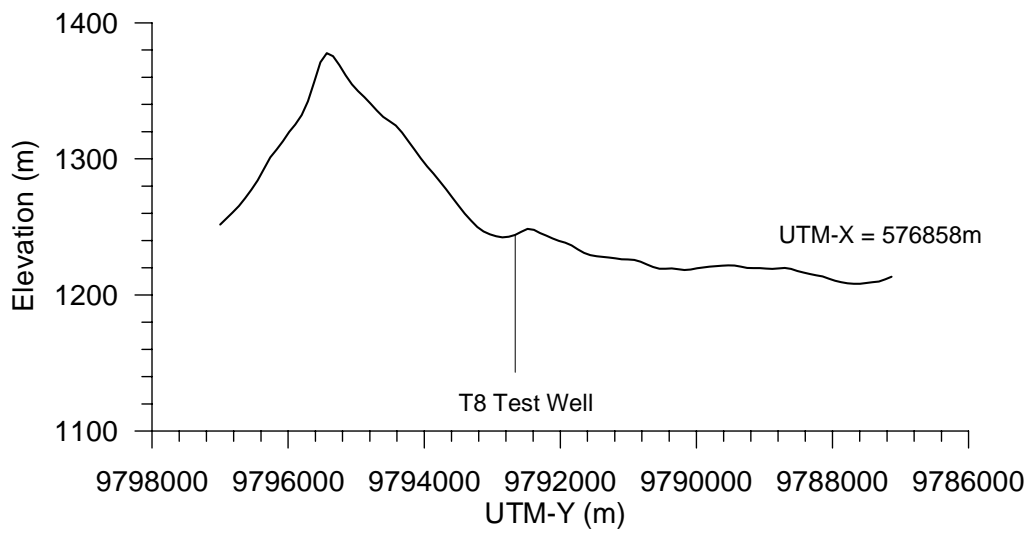
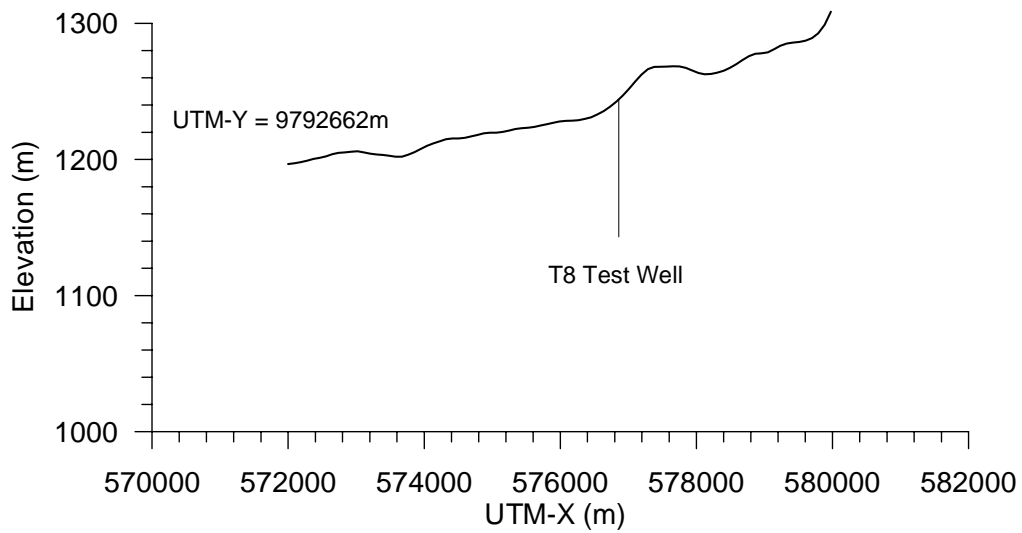
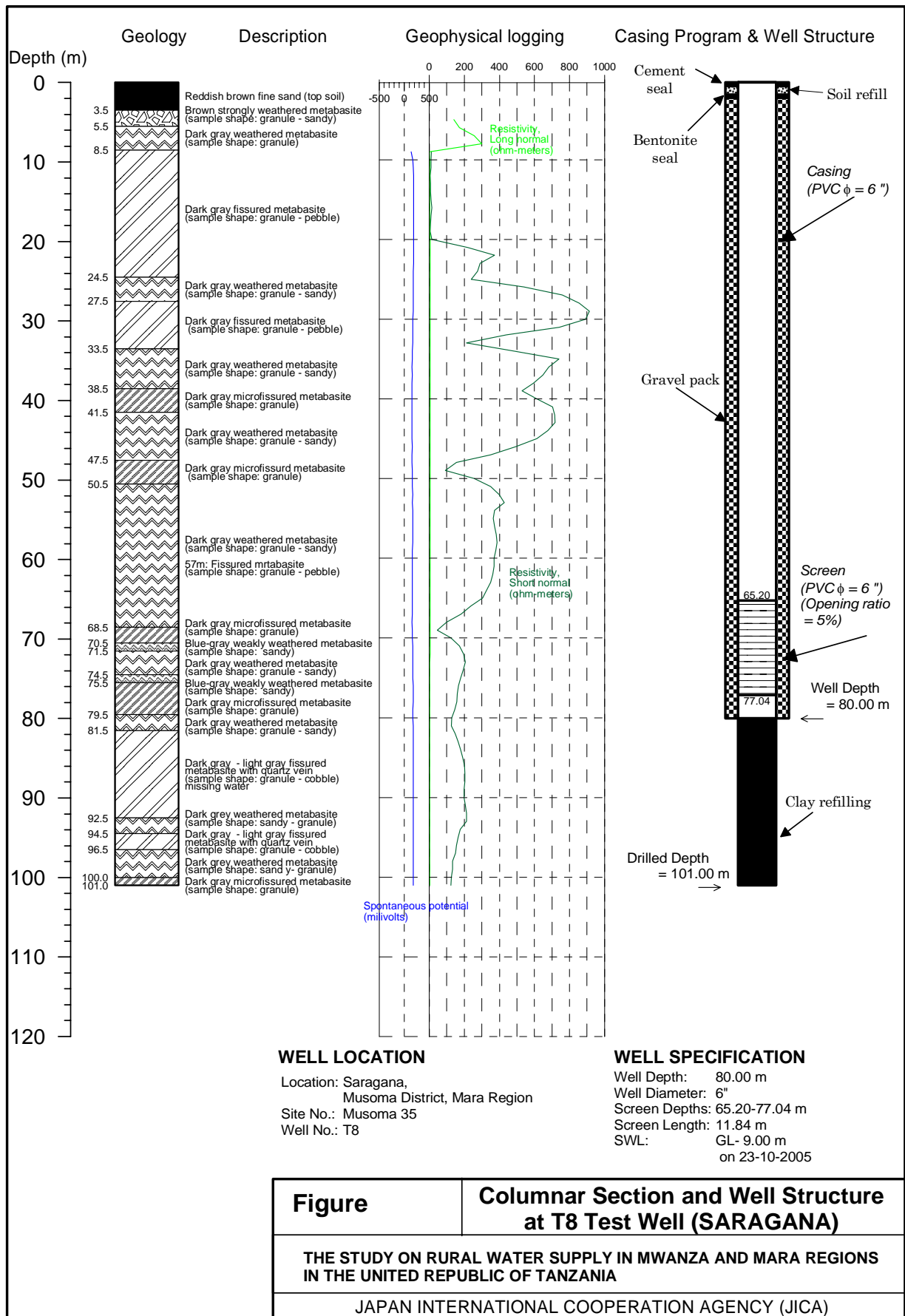
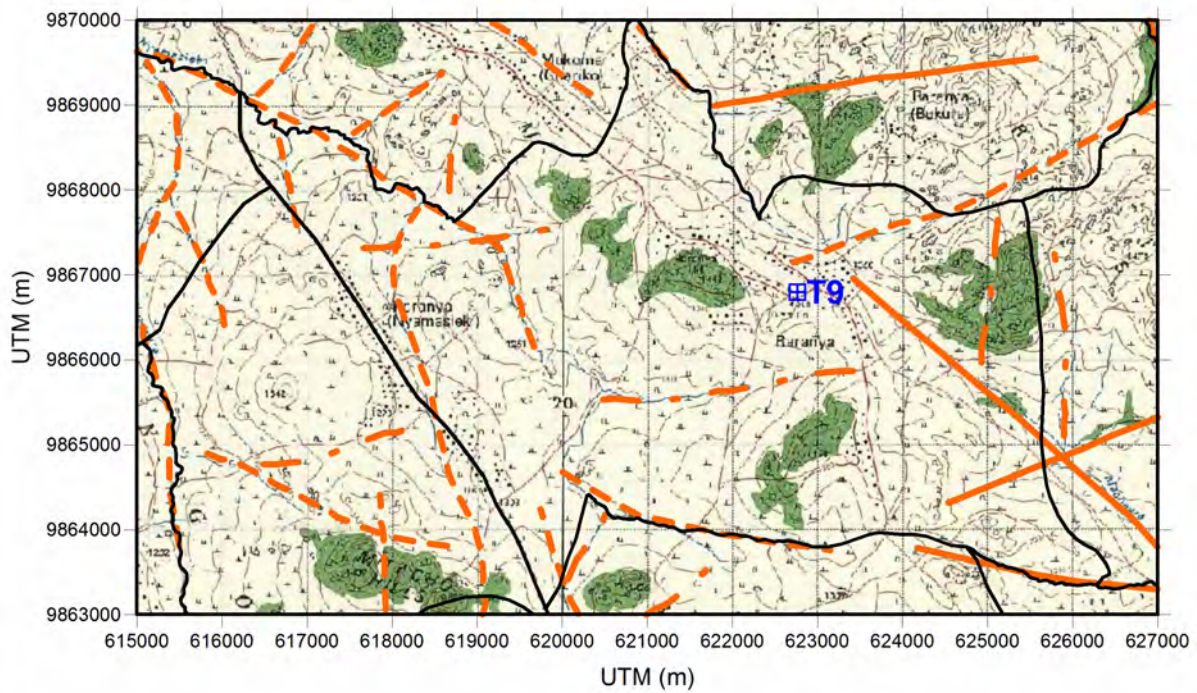
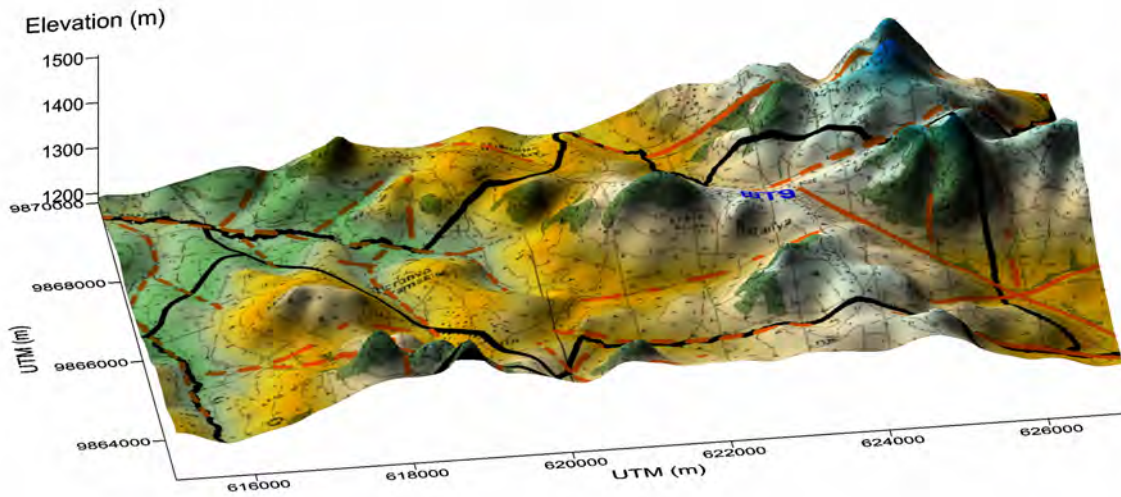


Figure	Test Well Drilling Point - Topographic Profile (T8 Test Well: Saragana VII.)
THE BASIC DESIGN STUDY ON THE PROJECT ON PROVINCE OF POTABLE WATER FOR ERADICATION OF GUNIAWORM (PHASE 2) IN THE ISLAMIC REPUBLIC OF MAURITANIA	
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(a) Plain View



(b) Bird's Eye View



Figure	Test Well Drilling Point (T9 Test Well: Raranya Vil.)
	THE STUDY ON THE RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

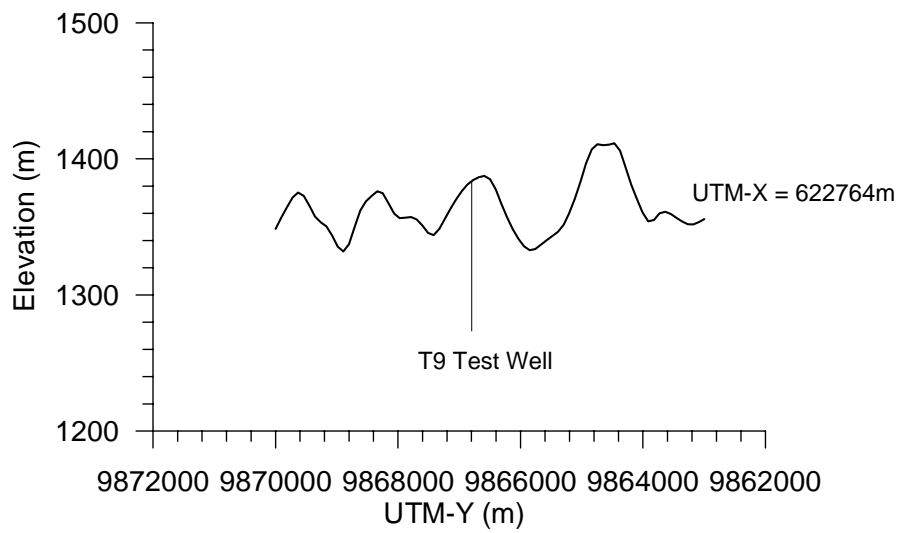
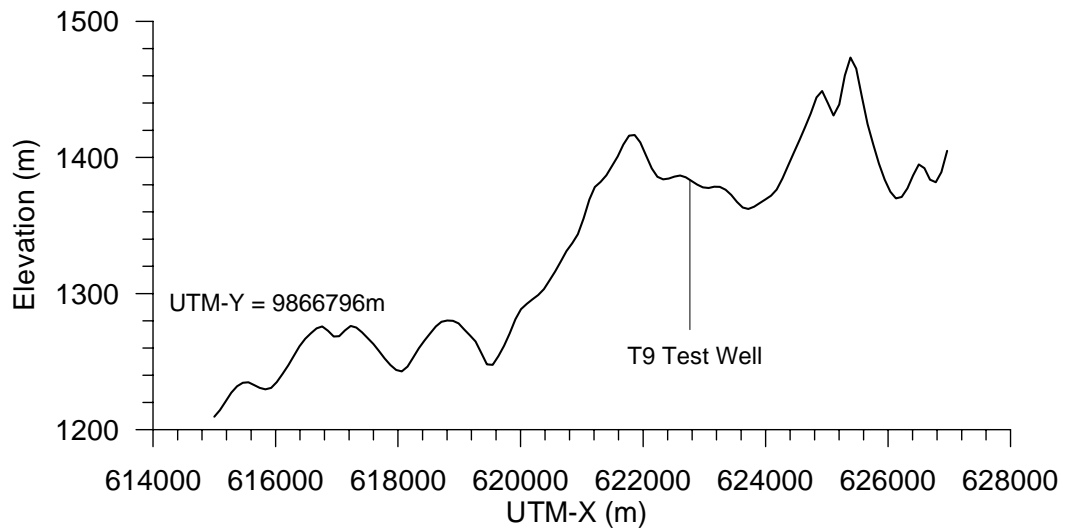
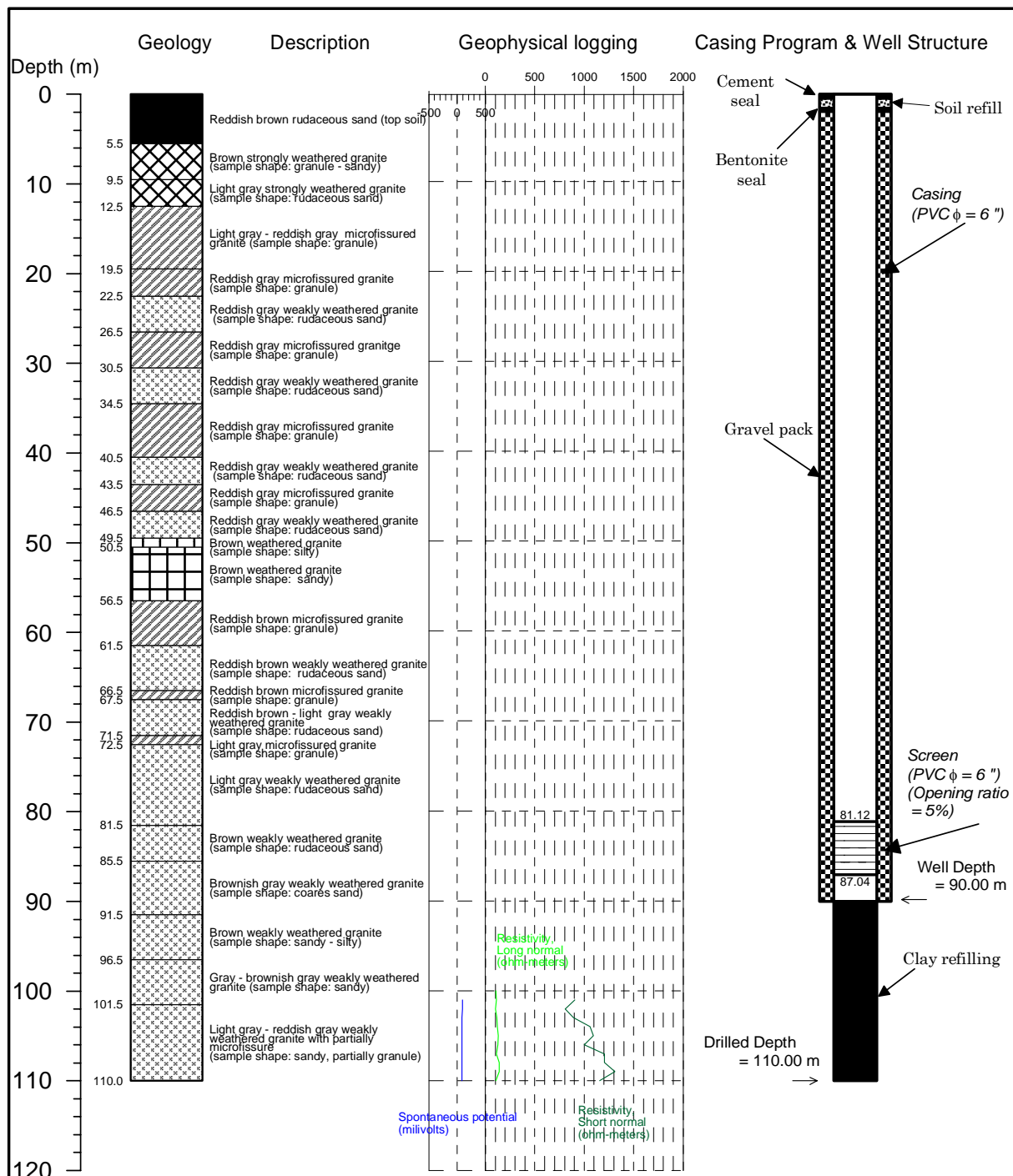


Figure	Test Well Drilling Point - Topographic Profile (T9 Test Well: Raranya Vil.)
THE BASIC DESIGN STUDY ON THE PROJECT ON PROVINCE OF POTABLE WATER FOR ERADICATION OF GUNIAWORM (PHASE 2) IN THE ISLAMIC REPUBLIC OF MAURITANIA	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	



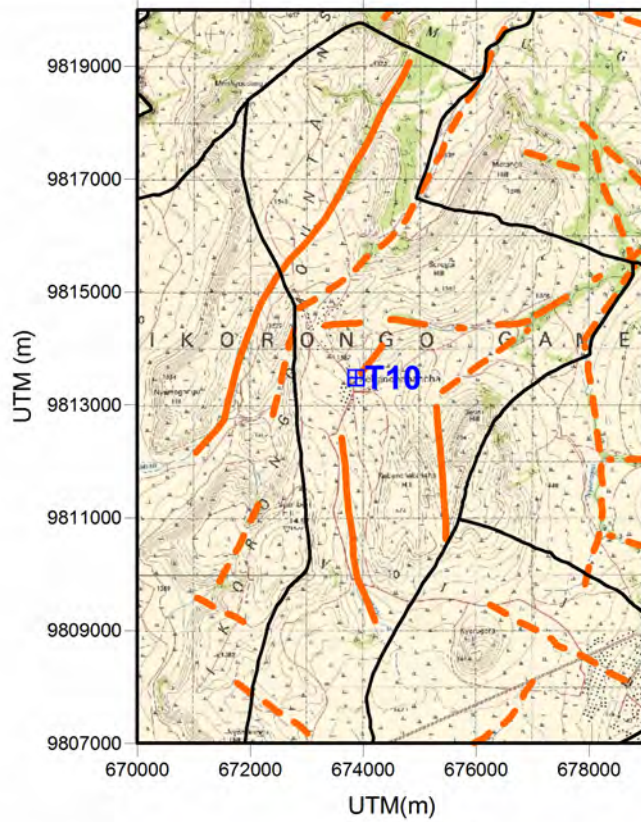
WELL LOCATION

Location: Raranya,
Tarime District, Mara Region
Site No.: Tarime 133
Well No.: T9

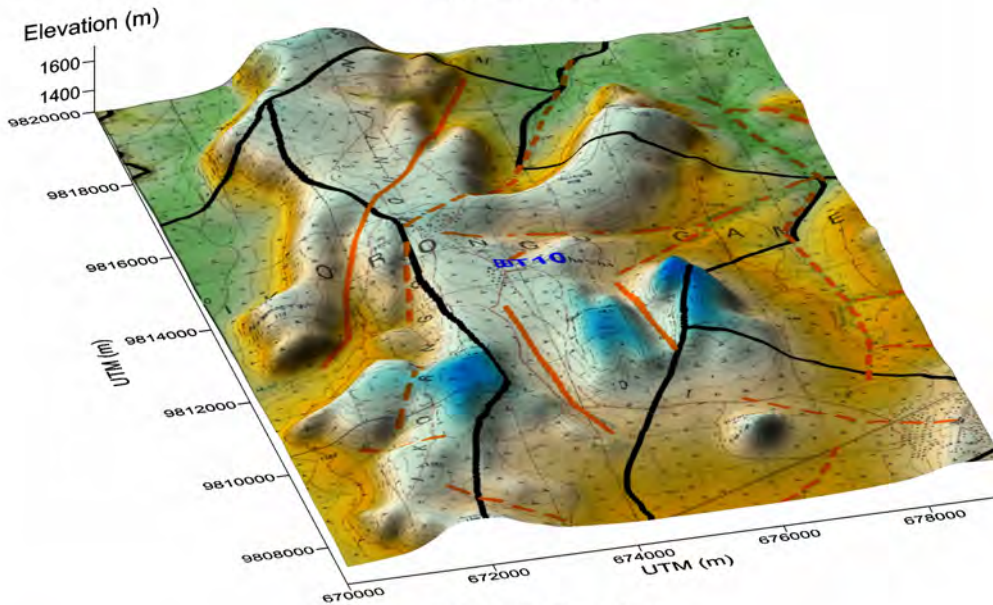
WELL SPECIFICATION

Well Depth: 90.00 m
Well Diameter: 6"
Screen Depths: 81.12-87.04 m
Screen Length: 5.92 m
SWL: GL- 12.58 m
on 14-11-2005

Figure	Columnar Section and Well Structure at T9 Test Well (RARANYA)
THE STUDY ON RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS IN THE UNITED REPUBLIC OF TANZANIA	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	



(a) Plain View



(b) Bird's Eye View



Figure	Test Well Drilling Point (T10 Test Well: KebanchaVil.)
	THE STUDY ON THE RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

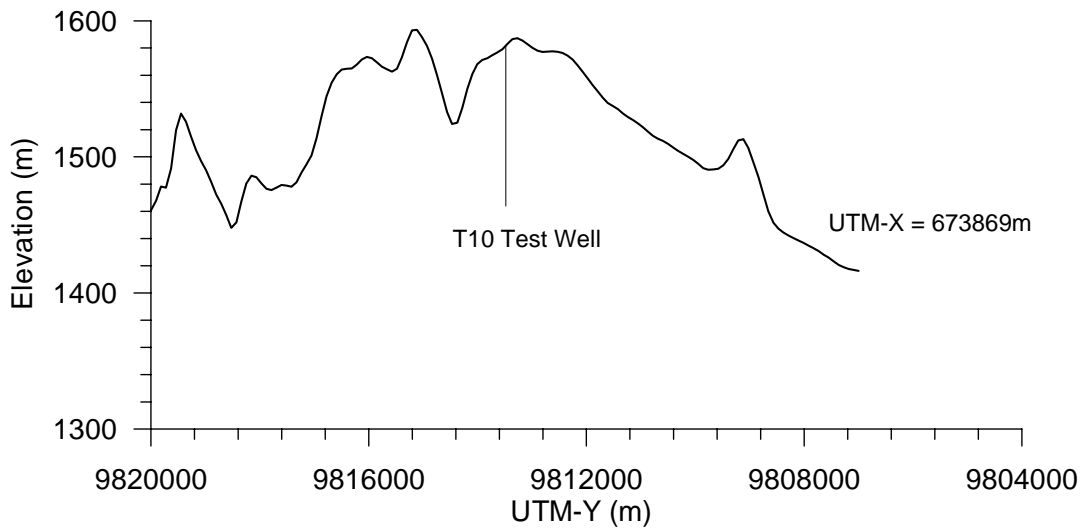
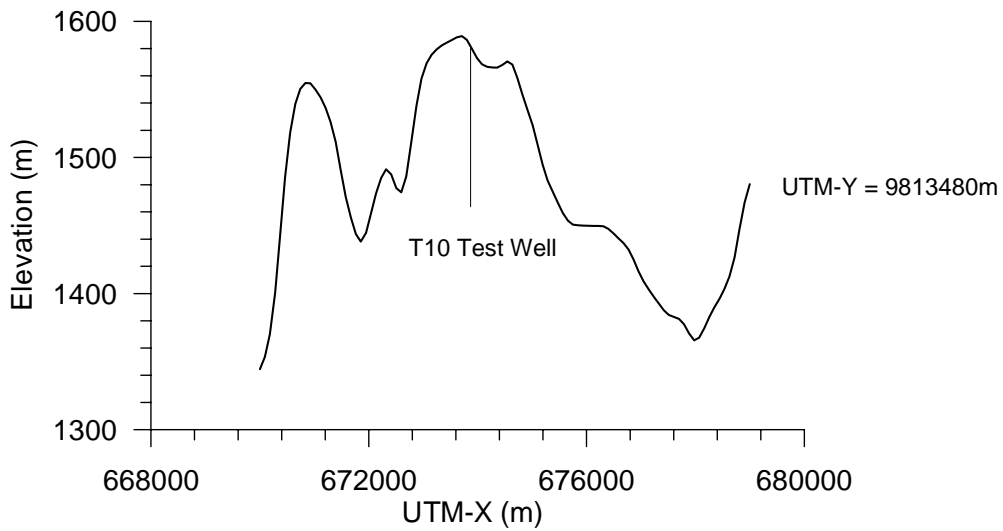
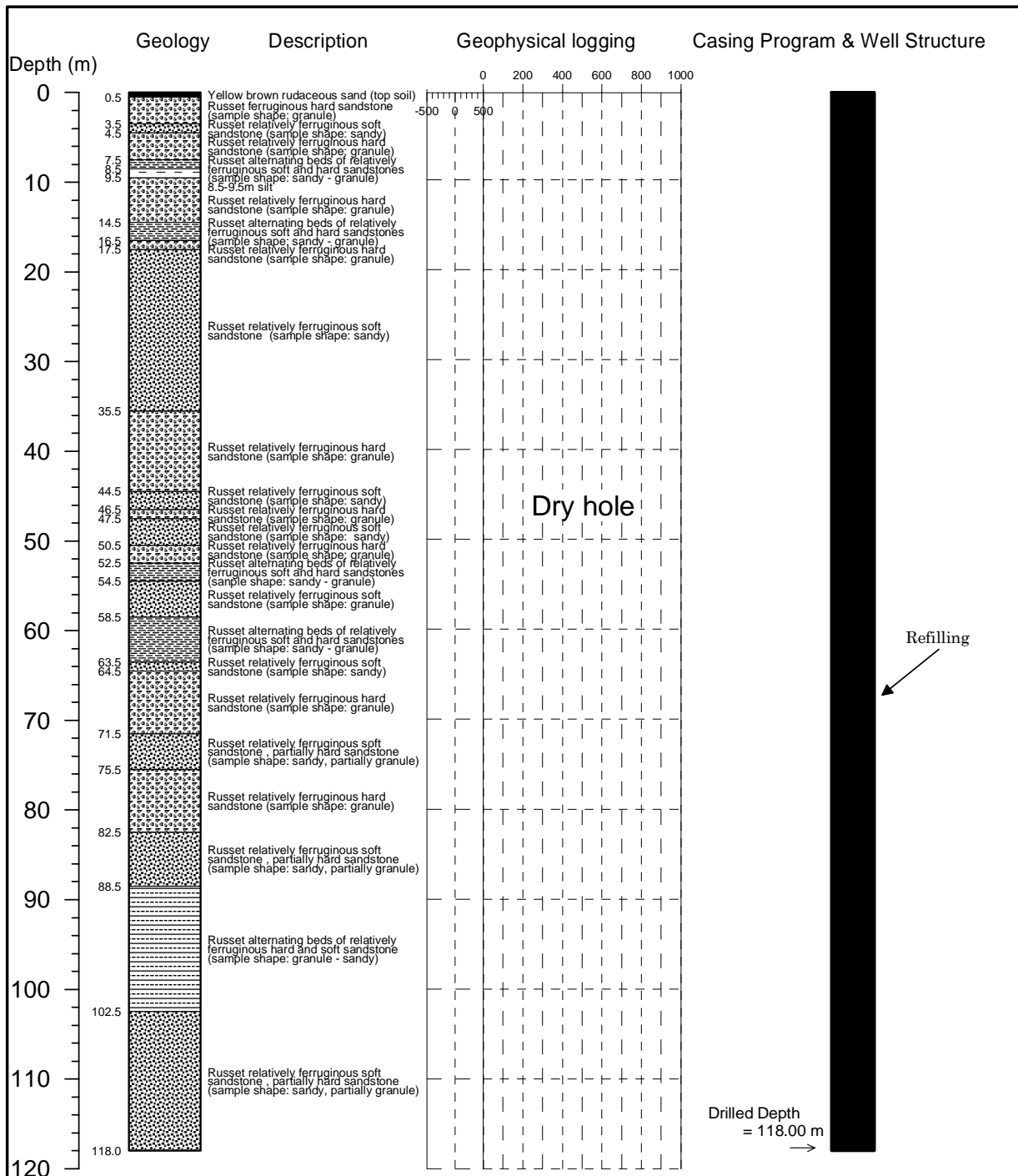


Figure	Test Well Drilling Point - Topographic Profile (T10 Test Well: Kebancha Vil.)
THE BASIC DESIGN STUDY ON THE PROJECT ON PROVINCE OF POTABLE WATER FOR ERADICATION OF GUNIAWORM (PHASE 2) IN THE ISLAMIC REPUBLIC OF MAURITANIA	
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WELL LOCATION

Location: Kebancha,
Serengeti District, Mara Region
Site No.: Serengeti 67
Well No.: T10

WELL SPECIFICATION

Well Depth: -
Well Diameter: -
Screen Depths: -
Screen Length: -
SWL: -

Figure

**Columnar Section and Well Structure
at T10 Test Well (KEBANCHA)**

**THE STUDY ON RURAL WATER SUPPLY IN MWANZA AND MARA REGIONS
IN THE UNITED REPUBLIC OF TANZANIA**

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)