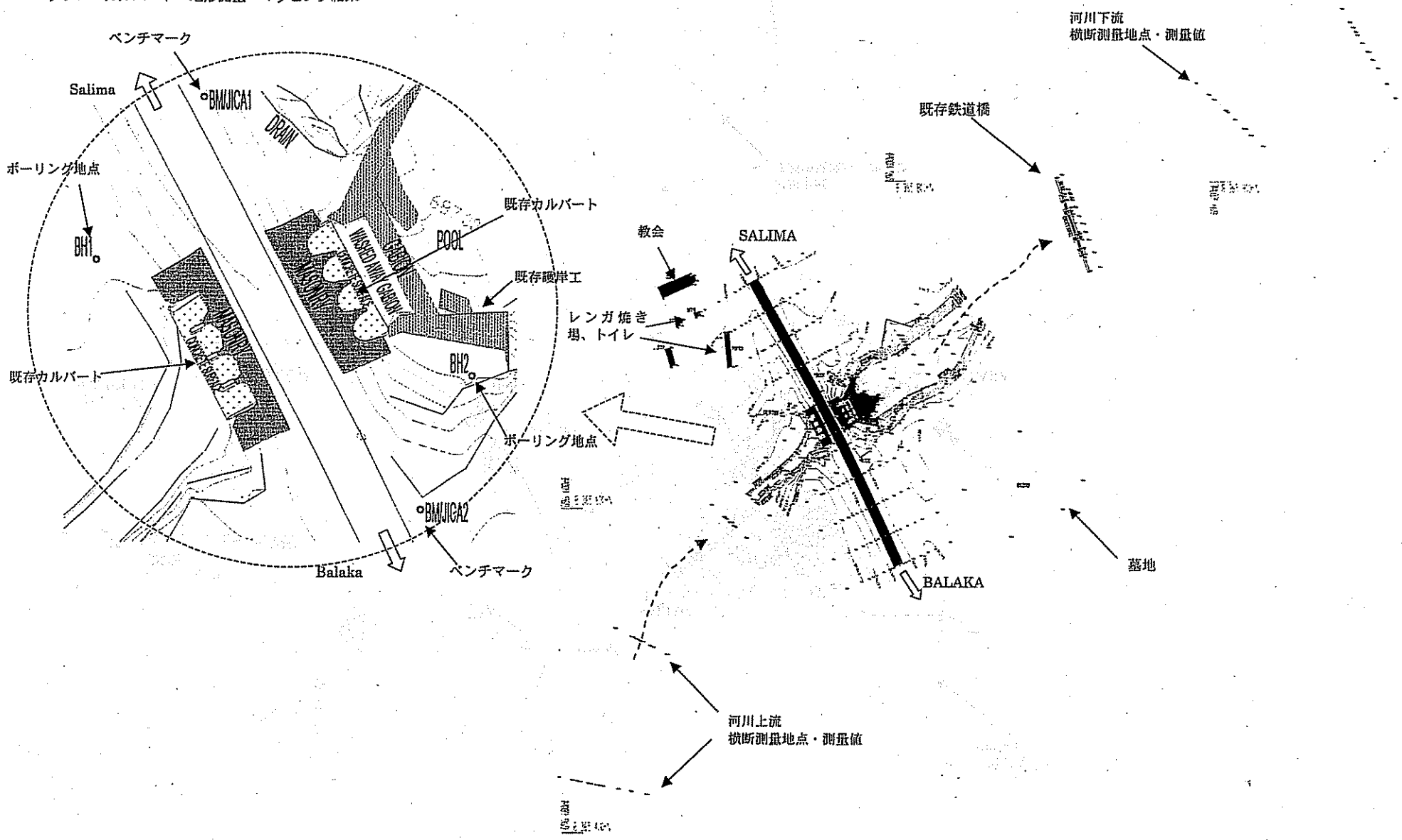
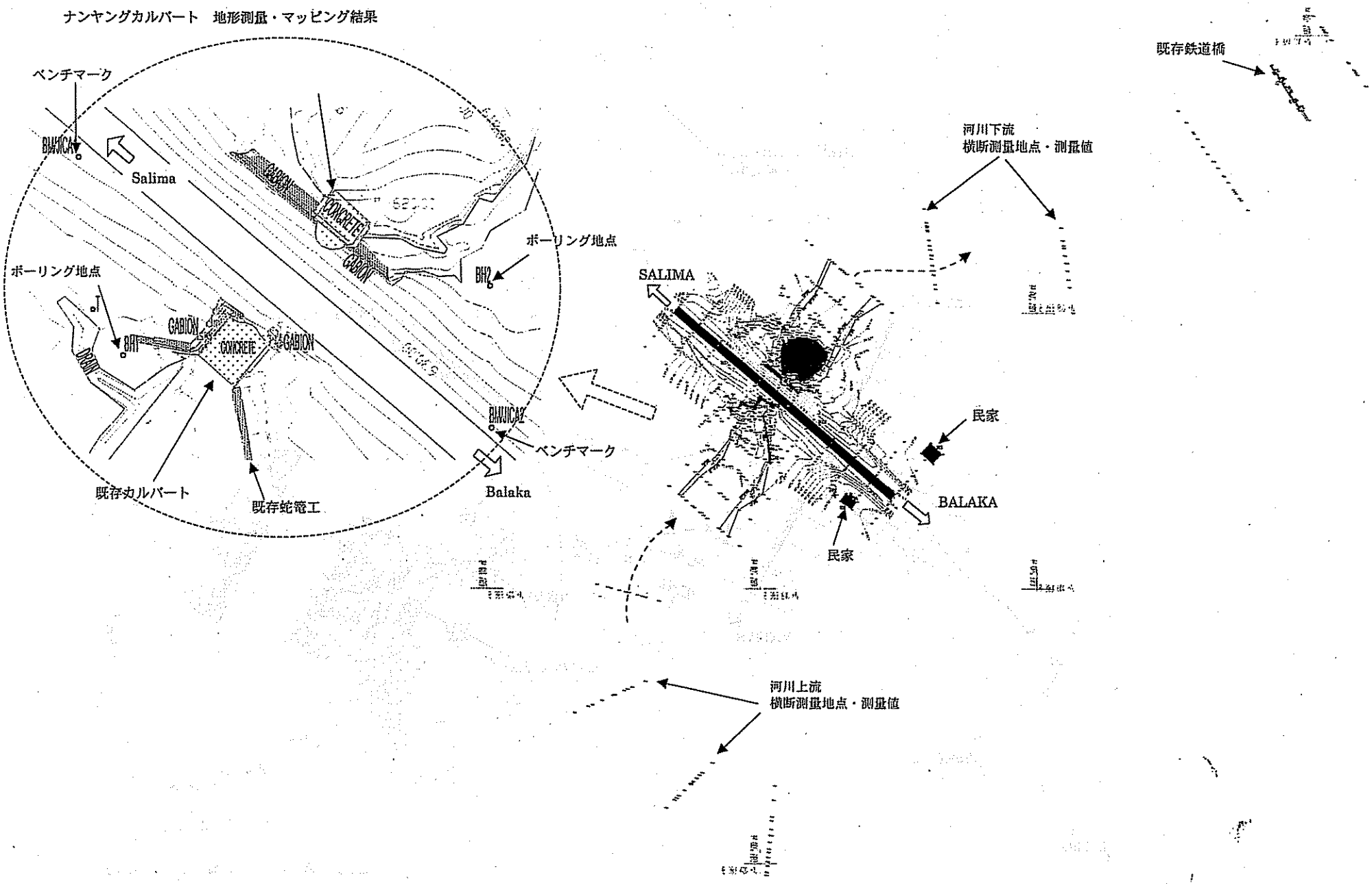
8. その他の資料・情報

8-1　路線測量

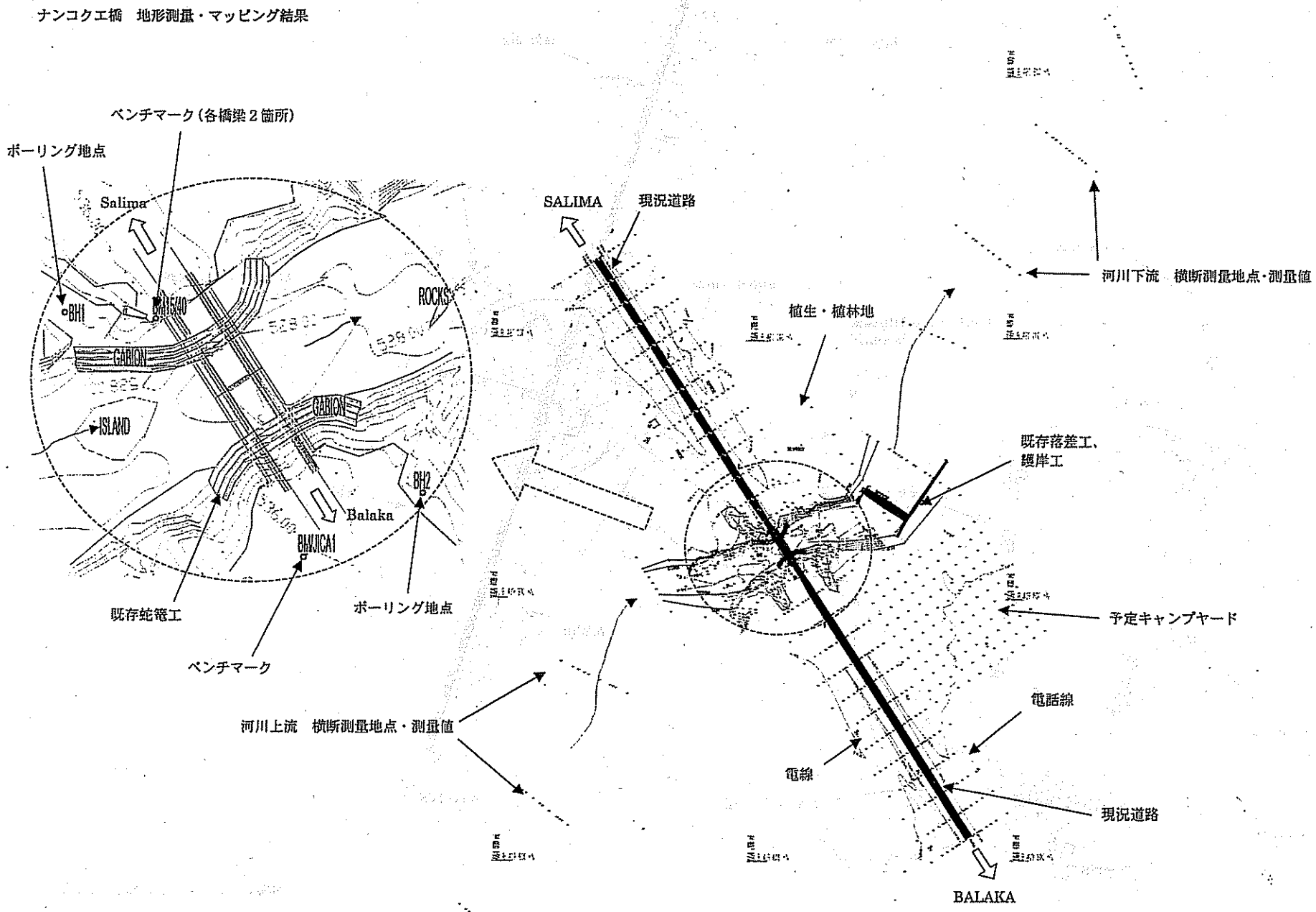
アンゴニカルバート　地形測量・マッピング結果



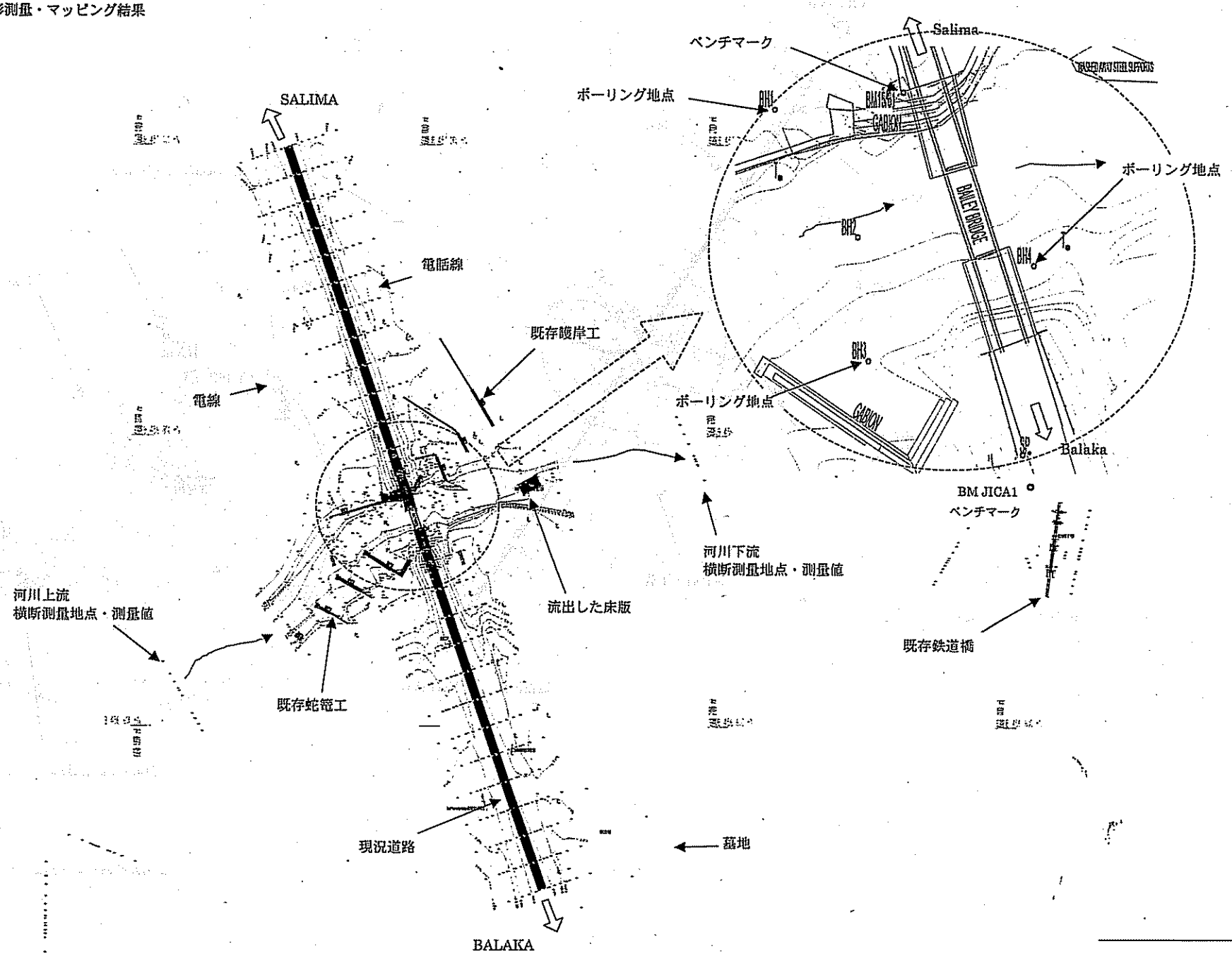
ナンヤングカルバート　地形測量・マッピング結果



ナンコクエ橋　地形測量・マッピング結果



ルワジ橋　地形測量・マッピング結果



8-2　地質調査

MINISTRY OF TRANSPORT AND PUBLIC WORKS
MATERIALS LABORATORY
DRILLING HOLE LOG

PROJECT	:	The Reconstruction on M5 Bridges	
LOCATION	:	Luwadzi Bridge	
GROUND ELEVATION	:	494.630m	SURVEYED BY S.D. Jere/Higa Y.
GROUND WATER LEVE	:	3.6m	DATE: 19-22 December, 2004
BORE HOLE NO.	:	1	

ELEVATION (m)	DEPTH (m)	GRAPHIC	THICKNESS OF STRATUM	DESCRIPTION OF MATERIAL	NO OF BLOWS IN 30cm (N-Value)	NO OF BLOWS (SPT)/LENGTH OF PENETRATION (N/cm)	N - VALUE 0 10 20 30 40 50	REMARKS
494.63	0.00							Percussive Drilling
494.39			0.24	Dark brown clayey SILT				
492.48	2.00		2.15	Light brown sandy SILT	14	14/30		
	4.00			Dark greyish brown sandy	28	28/30		
489.94			4.69	SILT				
	6.00			Yellowish grey clayey	35	35/30		
488.24			6.39	decomposed ROCK				
	8.00				46	45/30		
	10.00			Reddish brown decomposed	55++	55/11		
483.53			11.10	rock with quartz pebbles	-	55/10		
	12.00			Light yellowish grey mottled	99	99/12		
482.63			12.10	decomposed ROCK	-	55/10		
	14.00				-	55/6		
					-	55/5		
	16.00			Yellowish grey highly	-	55/6		
				weathered ROCK	-	55/5		
	18.00				-	55/5		
475.32			19.31		-	55/5		End of BH
	20.00							
	22.00							
	24.00							
	26.00							
	28.00							
	30.00							

UD = Undisturbed Sample
N = SPT N-Value
D = Disturbed Sample

= Silt
= Decomposed Rock

MINISTRY OF TRANSPORT AND PUBLIC WORKS
MATERIALS LABORATORY
DRILLING HOLE LOG

PROJECT	:	The Reconstruction on M5 Bridges		
LOCATION	:	Luwadzi Bridge		
GROUND ELEVATION	:	491.700m	SURVEYED BY	S.D. Jere/Higa Y.
GROUND WATER LEVE	:	0.39m	DATE:	19-20 December, 2004
BORE HOLE NO.	:	2		

ELEVATION (m)	DEPTH (m)	GRAPHIC	THICKNESS OF STRATUM	DESCRIPTION OF MATERIAL	NO OF BLOWS IN 30cm (N-Value)	NO OF BLOWS (SPT)/LENGTH OF PENETRATION (N/cm)	N - VALUE 0 10 20 30 40 50	REMARKS
491.70	0.00			Light brown coarse SAND				Percussive
491.00			0.70	with pebbles				Drilling
489.30	2.00		2.40	Light brown fine SAND	22	22/30		
488.40			3.3	Light brown fine SAND with pebbles				
62.80	4.00		4.20	Brownish grey sandy silty CLAY	65	65/30		
487.38			4.32	Light brown decomposed Rock		55/13		
486.45	6.00		5.25	Reddish brown decomposed Rock		55/5		End of BH
				with Quartz pebbles				
	8.00							
	10.00							
	12.00							
	14.00							
	16.00							
	18.00							
	20.00							
	22.00							
	24.00							
	26.00							
	28.00							
	30.00							

UD	=	Undisturbed Sample		= Sand
N	=	SPT N-Value		= Clay
D	=	Disturbed Sample		= Decomposed Rock

MINISTRY OF TRANSPORT AND PUBLIC WORKS
MATERIALS LABORATORY
DRILLING HOLE LOG

PROJECT	:	The Reconstruction on M5 Bridges	
LOCATION	:	Luwadzi Bridge	
GROUND ELEVATION	:	493.665m	SURVEYED BY S.D. Jere/Higa Y.
GROUND WATER LEVE	:	2.57m	DATE: 20-26 December, 2004
BORE HOLE NO.	:	3	

ELEVATION (m)	DEPTH (m)	GRAPHIC	THICKNESS OF STRATUN	DESCRIPTION OF MATERIAL	NO OF BLOWS IN 30cm (N-Value)	NO OF BLOWS (SPT)/LENGTH OF PENETRATION (N/cm)	N - VALUE 0 10 20 30 40 60	REMARKS
493.665	0.00							Percussive Drilling
				Loose dark grey sandy SILT				
491.165	2.00		2.51		10	10/30		
490.165			3.50	Light brown medium to fine SAND				
489.665	4.00		4.00	Slightly dense light brown coarse SAND with pebbles	24	24/30		
488.165			5.50	Dense yellowish brown coarse SAND with pebbles				
487.435	6.00		6.23	Dense yellowish brown medium SAND	42	42/30		
				Mottled slightly clayey				
485.465	8.00		8.20	decomposed Rock	45	45/30		
483.435	10.00		10.23	Dense yellowish decomposed Rock	55	55/30		
482.615			11.05	Very dense light grey deco. Rock	55++	55/7		
	12.00			Hard yellowish brown	55++	55/14		
480.605			13.06	decomposed Rock	-	55/12		
	14.00			Hard yellowish grey	93	93/20		
477.965			15.70	decomposed Rock with pebbles	55++	55/9		
	16.00			Yellowish grey sandy SILT	69++	69/9		
476.865			16.80	with traces of decomp. Rock	55++	55/6		
	18.00			Hard yellowish grey clayey	55++	55/6		
474.435			19.23	gravelly decomposed Rock	55++	55/6		END OF B.H.
	20.00							
	22.00							
	24.00							
	26.00							
	28.00							
	30.00							

UD	=	Undisturbed Sample
N	=	SPT N-Value
D	=	Disturbed Sample

= Sand
= Silt
= Decomposed Rock

MINISTRY OF TRANSPORT AND PUBLIC WORKS
MATERIALS LABORATORY
DRILLING HOLE LOG

PROJECT	:	The Reconstruction on M5 Bridges			
LOCATION	:	Luwadzi Bridge			
GROUND ELEVATION	:	493.522m	SURVEYED BY	S.D. Jero/Higa Y.	
GROUND WATER LEVE	:	3.15m	DATE:	23rd - 27 December, 2004	
BORE HOLE NO.	:	4			

ELEVATION (m)	DEPTH (m)	GRAPHIC	THICKNESS OF STRATUM	DESCRIPTION OF MATERIAL	NO OF BLOWS IN 30cm (N-Value)	NO OF BLOWS (SPT)/LENGTH OF PENETRATION (N/cm)	N - VALUE 0 10 20 30 40 50	REMARKS
493.522	0.00							Percussive Drilling
493.222			0.30	Dark brown sandy clayey SILT				
491.722	2.00		1.80	Brown coarse to medium SAND	4	4/30		
489.602	4.00		4.02	Light brown sandy SILT	42	42/30		
488.292			6.23	Dark brown clayey SILT				
	6.00				32	32/30		
485.522	8.00		8.00	Firm light brown clayey sandy SILT with pebbles	45	45/30		
	10.00			Yellowish grey decomposed	62	62/30		
482.272			11.25	Rock	55++	55/8		
	12.00				55++	55/8		
					55++	55/7		
	14.00			Hard reddish brown	55++	55/5		
477.772			15.75	decomposed Rock				END OF B.H.
	16.00							
	18.00							
	20.00							
	22.00							
	24.00							
	26.00							
	28.00							
	30.00							

UD	=	Undisturbed Sample
N	=	SPT N-Value
D	=	Disturbed Sample

= Sand
= Silt
= Decomposed Rock

MINISTRY OF TRANSPORT AND PUBLIC WORKS
MATERIALS LABORATORY
DRILLING HOLE LOG

PROJECT	:	The Reconstruction on M5 Bridges	
LOCATION	:	Nankholwe Bridge	
GROUND ELEVATION	:	533.041m	SURVEYED BY S.D. Jere/Higo Y.
GROUND WATER LEVE	:	4.62m	DATE: 27 - 31 December, 2004
BORE HOLE NO.	:	1	

ELEVATION (m)	DEPTH (m)	GRAPHIC	THICKNESS OF STRATUM	DESCRIPTION OF MATERIAL	NO OF BLOWS IN 30cm (N-Value)	NO OF BLOWS (SPT)/LENGTH OF PENETRATION (N/cm)	N - VALUE 0 10 20 30 40 50	REMARKS
533.041	0.00							Percussive Drilling
532.571			0.47	Loose dark brown sandy SILT				
532.001	2.00		1.04	Soft light brown sandy silty CLAY	10	10/30		
530.941			2.10	Soft light brown SILT				
	4.00				4	4/30		
	6.00				15	15/30		
526.291			6.75	Firm dark brown sandy silty CLAY				
	8.00				28	28/30		
523.421			9.62	Yellowish brown clayey silty SAND				
522.591	10.00		10.45	Dark brown silty sandy CLAY	31	31/30		
					56	56/30		
	12.00				43	43/30		
					5	5/30		
518.691	14.00		14.35	Brownish grey silty CLAY	6	6/30		
518.541			14.50	Yellowish brown coarse to fine SAND	30	30/30		
517.551	16.00		15.49	Yellowish grey SAND with pebbles	61	61/30		
					90	90/30		
	18.00				63	63/30		
514.041			19.00	Greyish brown clayey silty SAND	100	100/30		
	20.00				100	100/30		
511.541			21.50	Yellowish grey fine SAND	51	51/30		
510.611	22.00		22.43	Light grey medium SAND	95	95/30		
					77	77/30		
508.841	24.00		24.20	Dark grey coarse SAND with pebbles	80	80/30		
					77	77/30		
	26.00			Brownish grey sandy silty CLAY with	84	84/30		
506.091			26.95	pebbles	77	77/30		END OF B.H.
	28.00							
	30.00							

UD	=	Undisturbed Sample
N	=	SPT N-Value
D	=	Disturbed Sample

= Sand
= Silt
= Clay

MINISTRY OF TRANSPORT AND PUBLIC WORKS
MATERIALS LABORATORY
DRILLING HOLE LOG

PROJECT	:	The Reconstruction on M5 Bridges		
LOCATION	:	Nankholwe Bridge		
GROUND ELEVATION	:	533.046m	SURVEYED BY S.D. Jere/Higa Y.	
GROUND WATER LEVE	:	6.00m	DATE:	29/12/2004 - 3/1/2005
BORE HOLE NO.	:	2		

ELEVATION (m)	DEPTH (m)	GRAPHIC	THICKNESS OF STRATUM	DESCRIPTION OF MATERIAL	NO OF BLOWS IN 30cm (N-Value)	NO OF BLOWS (SPT)/LENGTH OF PENETRATION (N/cm)	N - VALUE 0 10 20 30 40 50	REMARKS
533.046	0.00							Percussive
				Dark brown clayey silty SAND				Drilling
	2.00				6	6/30		
531.066			2.78					
529.096	4.00		3.95	Dark brown sandy silty CLAY	21	21/30		
	6.00				24	24/30		
250.046	8.00		8.00	Dark brown silty CLAY	24	24/30		
523.776	10.00		10.07	Greyish brown sandy silty CLAY	25	25/30		
521.976			11.97	Greyish brown fine SAND	22	22/30		
	12.00				29	29/30		
520.646			13.20	Dense light brown coarse SAND	41	41/30		
	14.00				33	33/30		
517.096			15.95	Light yellowish brown medium SAND	32	32/30		
517.196	16.00		16.65	Dark brown sandy SILT	45	45/30		
241.046			17.44	Firm dark brown fine SAND	58	58/30		
515.796	18.00		18.05	Firm greyish brown fine SAND	71	71/30		
515.096			18.75	Yellowish brown decomposed ROCK	85	85/30		
	20.00				82	82/30		
					55++	55/9		
	22.00				-	55/10		
510.806			23.04	Firm dark grey sandy SILT	55++	55/9		
	24.00				55++	55/8		
508.536			25.31	Hard light grey decomposed Rock	55++	55/7		END OF B.H.
	26.00							
	28.00							
	30.00							

UD	=	Undisturbed Sample
N	=	SPT N-Value
D	=	Disturbed Sample

= Sand
= Silt
= Clay
= Decomposed Rock

MINISTRY OF TRANSPORT AND PUBLIC WORKS
MATERIALS LABORATORY
DRILLING HOLE LOG

PROJECT	:	The Reconstruction on M5 Bridges	
LOCATION	:	Nanyangu Bridge	
GROUND ELEVATION	:	625.636m	SURVEYED BY S.D. Jora/Higa Y.
GROUND WATER LEVE	:	2.58m	DATE: 3 - 7 January, 2005
BORE HOLE NO.	:	1	

ELEVATION (m)	DEPTH (m)	GRAPHIC	THICKNESS OF STRATUM	DESCRIPTION OF MATERIAL	NO OF BLOWS IN 30cm (N-Value)	NO OF BLOWS (SPT)/LENGTH OF PENETRATION (N/cm)	N - VALUE 0 10 20 30 40 50	REMARKS
625.636	0.00							Percussive Drilling
				Dark brown clayey SILT				
623.536	2.00		2.10		6	6/30		
621.516	4.00		4.12	Dark grey silty CLAY	9	9/30		
619.316	6.00		6.32	Dark brown clayey sandy SILT	5	5/30		
	8.00			Light brown fine to coarse SAND	12	12/30		
616.146			9.49	with pebbles				
	10.00				18	18/30		
					19	19/30		
606.341	12.00		12.35	Yellowish brown sandy silty CLAY	26	26/30		
					31	31/30		
611.316	14.00		14.32	Light brown fine to coarse SAND	44	44/30		
610.336			15.30	Mottled sandy clayey SILT	52	52/30		
	16.00			Firm light brown gravelly silty sandy	56	56/30		
608.036			17.60	CLAY	37	37/30		
606.996	18.00		18.64	Reddish brown medium silty SAND	27	27/30		
606.736			18.90	Light brown coarse silty SAND	30	30/30		
499.181	20.00		18.53	Greyish brown clayey silty SAND	87	87/30		
497.221			21.47	Stiff light brown silty CLAY	47	47/30		
603.236	22.00		22.40	Firm light brown sandy silty CLAY	35	35/30		
					62	62/30		
601.106	24.00		24.53	Dense light brown medium silty SAND	32	32/30		
599.866			25.76	Firm light brown sandy SILT	46	46/30		END OF B.H.
	26.00							
	28.00							
	30.00							

UD	=	Undisturbed Sample
N	=	SPT N-Value
D	=	Disturbed Sample

= Sand
= Silt
= Clay

MINISTRY OF TRANSPORT AND PUBLIC WORKS
MATERIALS LABORATORY.
DRILLING HOLE LOG

PROJECT	:	The Reconstruction on M5 Bridges			
LOCATION	:	Nanyangu Bridge			
GROUND ELEVATION	:	624.453m	SURVEYED BY S.D. Jare/Higa Y.		
GROUND WATER LEVE	:	3.36m	DATE:	7 - 11 January, 2005	
BORE HOLE NO.	:	2			

ELEVATION (m)	DEPTH (m)	GRAPHIC	THICKNESS OF STRATUM	DESCRIPTION OF MATERIAL	NO OF BLOWS IN 30cm (N-Value)	NO OF BLOWS (SPT)/LENGTH OF PENETRATION (N/cm)	N - VALUE 0 10 20 30 40 50	REMARKS
624.453	0.00			Light brown sandy silty CLAY				Percussive Drilling
622.753			1.70					
	2.00			Greyish brown clayey SILT	18	18/30		
621.803			2.65					
	4.00				21	21/30		
				Fine to medium light brown SAND				
617.953	6.00		6.50		28	28/30		
616.953			7.5	Stiff yellowish brown sandy silty CLAY				
	8.00				35	35/30		
				Light brown coarse SAND with pebbles				
614.303	10.00		10.15		42	42/30		
				Brown medium SAND	46	46/30		
612.453	12.00		12.00		50	50/30		
				Dark brown fine to coarse SAND	52	52/30		
610.203	14.00		14.25		52	52/30		
				Brown fine SAND	51	51/30		
608.053	16.00		16.40		56	56/30		
					68	68/30		
	18.00				71	71//30		
				Very stiff light brown silty CLAY	75	75/30		
	20.00				89	89/30		
					85	85/30		
602.103	22.00		22.35		81	81/30		
					88	88/30		
	24.00				80	80/30		
				Very stiff yellowish brown silty CLAY	87	87/30		
	26.00				77	77/30		
597.223			27.23		81	81/30		END OF B.H.
	28.00							
	30.00							

UD	=	Undisturbed Sample
N	=	SPT N-Value
D	=	Disturbed Sample

= Sand
= Silt
= Clay

MINISTRY OF TRANSPORT AND PUBLIC WORKS
MATERIALS LABORATORY
DRILLING HOLE LOG

PROJECT	:	The Reconstruction on M5 Bridges
LOCATION	:	Angoni Bridge
GROUND ELEVATION	:	695.449m
GROUND WATER LEVE	:	6.46m
BORE HOLE NO.	:	1

SURVEYED BY S.D. Jere/Higa Y.
DATE: 5 - 7 January, 2005

ELEVATION (m)	DEPTH (m)	GRAPHIC	THICKNESS OF STRATUM	DESCRIPTION OF MATERIAL	NO OF BLOWS IN 30cm (N-Value)	NO OF BLOWS (SPT)/LENGTH OF PENETRATION (N/cm)	N - VALUE 0 10 20 30 40 60	REMARKS
695.449	0.00							Percussive Drilling
693.849			1.60	Soft dark grey SILT				
	2.00				14	14/30		
691.949			3.50	Brownish grey sandy SILT				
	4.00				35	35/30		
	6.00				20	20/30		
687.599			7.85	Mottled silty CLAY				
	8.00				18	18/30		
685.029	10.00		10.42	Yellowish brown sandy silty CLAY	27	27/30		
					26	26/30		
	12.00				35	35/30		
682.549			12.90	Reddish brown sandy silty CLAY	21	21/30		
	14.00				29	29/30		
					27	27/30		
678.449	16.00		16.00	Greyish brown clayey sandy SILT	26	26/30		
677.619			17.83	Light brown silty CLAY	21	21/30		
677.219	18.00		18.23	Light brown coarse SAND with pebbles	54	54/30		
					34	34/30		
675.099	20.00		20.35	Firm light brown silty CLAY	48	48/30		
673.909			21.46	Light brown medium SAND	61	61/30		
	22.00				52	52/30		
					41	41/30		
	24.00				51	51/30		
669.869			25.58	Light brown sandy silty CLAY	50	50/30		END OF B.H.
	26.00							
	28.00							
	30.00							

UD	=	Undisturbed Sample
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= Sand
= Silt
= Clay

MINISTRY OF TRANSPORT AND PUBLIC WORKS
MATERIALS LABORATORY
DRILLING HOLE LOG

PROJECT	:	The Reconstruction on M5 Bridges
LOCATION	:	Angoni Bridge
GROUND ELEVATION	:	693.816m
GROUND WATER LEVE	:	6.40m
BORE HOLE NO.	:	2

SURVEYED BY S.D. Jere/Higa Y.
DATE: 8 - 11 January, 2005

ELEVATION (m)	DEPTH (m)	GRAPHIC	THICKNESS OF STRATUM	DESCRIPTION OF MATERIAL	NO OF BLOWS IN 30cm (N-Value)	NO OF BLOWS (SPT)/LENGTH OF PENETRATION (N/cm)	N - VALUE 0 10 20 30 40 50	REMARKS
693.816	0.00			Firm light brown silty CLAY				Percussive Drilling
692.216			1.60					
	2.00			Brownish grey sandy SILT	13	13/30		
691.216			2.60					
	4.00			Firm greyish brown sandy CLAY	28	28/30		
689.066			4.75					
	6.00			Dense light brown silty SAND	35	35/30		
685.876			7.94					
685.776	8.00		8.04	Firm mottled silty CLAY	46	46/30		
				Dense greyish brown fine silty clayey SAND				
683.166	10.00		10.65		50	50/30		
				Yellowish brown sandy silty CLAY	50	50/30		
680.036	12.00		12.98		52	52/30		
680.680			13.13	Greyish brown sandy SILT	49	49/30		
679.166	14.00		14.65	Mottled sandy silty CLAY	55	55/30		
678.490			15.32	Firm yellowish brown sandy silty CLAY	51	51/30		
	16.00				50	50/30		
				Dense yellowish brown fine to coarse SAND	50	50/30		
675.466	18.00		18.35		54	54/30		
					84	84/30		
	20.00				107	107/30		
					-	55/8		
	22.00				-	55/8		
				Hard yellowish grey decomposed Rock	-	55/6		
	24.00				-	55/5		
					-	55/5		
	26.00				-	55/5		
666.706			27.11		-	55/5		END OF B.H.
	28.00							
	30.00							

UD = Undisturbed Sample
N = SPT N-Value
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= Sand
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= Clay
= Decomposed Rock

MINISTRY OF TRANSPORT AND PUBLIC WORKS
LABORATORY TEST RESULTS

CLIENT : NIPPON KOEI AND CHODAI COMPANY LTD.
PROJECT : Salima - Balaka Road LOCATION: Luwadzi Bridge

SOURCE	SAMPLE NO.	DEPTH (m)	PARTICLE SIZE DISTRIBUTION % PASSING SIEVE SIZE (mm)										ATTERBERG LIMITS		AASHTO CLASSIFICATION	B/Dens Kg/m3	UCS TEST M/C %	UCS KN/m2	Gs	REMARKS
			19.0	13.2	9.5	4.75	2.36	.600	.425	.300	.150	.075	L.L	P.I.						
BH 1	1	2.15-4.63	98	97	95	88	75	37	28	21	9	5	N	P	A-1-b(0)		5.3		2.63	
	2	4.63-6.39		100	99	94	87	69	64	58	43	33	37	17	A-2-6(0)		22.8		2.40	
	3	6.39-11.10	100	97	91	69	55	38	34	30	22	17	N	P	A-1-b(0)		13.1		2.56	
BH 2	1	0.70-2.40	93	91	80	89	85	54	36	21	7	3	N	P	A-1-b(0)		10.6		2.70	
	2	3.30-4.20		100	99	95	89	42	34	27	19	16	32	17	A-2-6(0)		17.1		2.56	
BH 3	1	6.48-8.20			100	97	92	76	71	63	48	42	45	21	A-7-6(5)		27.6		2.28	
	2	16.80-17.44	98	98	95	80	62	17	10	5	2	1	N	P	A-1-b(0)		21.3		2.86	
BH 4	1	0.30-1.80	100	98	96	95	82	47	37	28	13	8	N	P	A-1-b(0)		9.4		2.63	
	2	4.02-5.23	96	95	94	93	86	60	55	45	27	19	37	17	A-2-6(0)		17.2		2.70	
Riverbed	1		98	94	89	77	62	19	10	6	3	2	N	P	A-1-b(0)		5.9		2.63	Under Exist. Bridge
"	2		90	83	76	64	52	31	28	25	18	13	29	14	A-2-6(0)		5.3		2.70	Up-stream River Bed

MINISTRY OF TRANSPORT AND PUBLIC WORKS
LABORATORY TEST RESULTS

CLIENT : NIPPON KOEI AND CHODAI COMPANY LTD.
PROJECT : Salima - Balaka Road LOCATION: Nankhwokwe Bridge

SOURCE	SAMPLE NO.	DEPTH (m)	PARTICLE SIZE DISTRIBUTION % PASSING SIEVE SIZE (mm)										ATTERBERG LIMITS		AASHTO CLASSIFICATION	B/Dens Kg/m3	UCS TEST M/C %	UCS KN/m2	Gs	REMARKS
			19.0	13.2	9.5	4.75	2.36	.600	.425	.300	.150	.075	L.L	P.I.						
BH 1	1	3.70-4.15					100	98	96	95	91	86	36	20	A-6(12)	1781	34.0	71.3		
	2	5.50-5.90					100	82	77	72	61	56	43	23	A-7-6(10)	2003	21.7	90.7		
	3	9.62-10.45				100	99	85	79	73	55	45	37	17	A-6(4)				2.62	
	4	14.35-14.50				100	99	87	81	74	60	50	37	18	A-6(6)				2.56	
	5	15.49-19.00		100	99	98	95	71	63	46	14	5	N	P	A-3(0)					
	6	24.20-25.84	89	85	85	83	75	54	50	45	36	31	44	20	A-2-7(2)				2.49	
BH 2	1	3.95-4.40				100	96	78	72	68	56	51	36	20	A-6(7)	2068	18.8	209.7		
	2	3.95-8.00				100	99	89	84	79	69	63	44	22	A-7-6(11)				2.50	
	3	8.00-10.07				100	99	86	80	73	54	42	36	17	A-6(3)				2.56	
	4	9.62-9.95				100	98	91	87	83	72	66	35	18	A-6(9)	1907	25.8	64.7		
	5	13.50-15.95			100	94	71	29	23	18	10	7	N	P	A-1-b(0)				2.64	
	6	18.75-23.04				100	99	95	90	82	46	28	N	P	A-2-4(0)				2.62	

MINISTRY OF TRANSPORT AND PUBLIC WORKS
LABORATORY TEST RESULTS

CLIENT : NIPPON KOEI AND CHODAI COMPANY LTD.
PROJECT : Salima - Balaka Road LOCATION: Nanyangu Culvert

SOURCE	SAMPLE NO.	DEPTH (m)	PARTICLE SIZE DISTRIBUTION % PASSING SIEVE SIZE (mm)										ATTERBERG LIMITS		AASHTO CLASSIFICATION	B/Dens Kg/m3	UCS TEST M/C %	UCS KN/m2	Gs	REMARKS
			19.0	13.2	9.5	4.75	2.36	.600	.425	.300	.150	.075	L.L	P.I.						
BH 1	1	2.00-2.45			100	98	95	78	69	62	38	28	N	P	A-2-4(0)	1853	58.3	74.3		
	2	4.00-4.45		77	76	75	73	66	63	59	41	30	30	13	A-2-6(0)	2045	21.9	10.6		
	3	4.12-6.32	71	71	70	67	62	49	44	40	24	17	23	9	A-2-4(0)				2.68	
	4	18.64-18.90			100	97	87	40	27	18	8	5	N	P	A-1-b(0)					
	5	21.47-22.40				100	99	95	93	89	76	63	40	18	A-6(9)				2.69	
	1	1.50-1.95					100	99	98	96	91	86	63	31	A-7-5(20)	2026	23.5	16.9		
BH 2	2	1.70-2.65				100	99	95	94	92	85	81	36	20	A-6(12)				2.2	
	3	2.00-2.45					100	99	98	96	86	61	61	30	A-7-5(16)	1462	25.6	61.5		
	4	7.50-10.15	71	70	70	68	54	27	21	16	7	4	N	P	A-1-b(0)					
	5	12.00-14.25	92	92	91	82	65	25	17	11	4	2	N	P	A-6(4)					

MINISTRY OF TRANSPORT AND PUBLIC WORKS
LABORATORY TEST RESULTS

CLIENT : NIPPON KOEI AND CHODAI COMPANY LTD.
PROJECT : Salima - Balaka Road LOCATION: Angoni Culvert

SOURCE	SAMPLE NO.	DEPTH (m)	PARTICLE SIZE DISTRIBUTION % PASSING SIEVE SIZE (mm)										ATTERBERG LIMITS		AASHTO CLASSIFICATION	B/Dens Kg/m3	UCS TEST M/C %	UCS KN/m2	Gs	REMARKS
			19.0	13.2	9.5	4.75	2.36	.600	.425	.300	.150	.075	L.L	P.I.						
BH 1	1	1.60-3.50				100	99	94	92	87	63	42	N	P	A-2-4(0)				2.68	
	2	5.50-5.95			100	99	96	79	73	66	47	39	37	21	A-6(4)	2053	12.9	373.5		
	3	7.40-7.85				100	99	85	79	73	57	49	31	19	A-6(6)	2084	18.3	101.2		
	4	10.99-11.44			100	98	96	84	79	72	54	44	25	10	A-4(2)	2061	18.3	89.6		
	5	14.49-14.79			100	99	98	87	82	75	59	49	28	13	A-6(4)	2014	18.9	48.7		
	6	16.08-16.53					100	94	91	88	80	75	39	21	A-6(12)	2026	21.6	277.9		
	7	16.98-17.38				100	93	92	88	82	66	60	33	16	A-6(7)	2053	19.4	222.7		
	8	17.83-18.23	100	96	88	72	49	22	19	16	12	9	N	P	A-1-a(0)					
	9	18.23-20.35				100	99	89	84	77	55	42	31	15	A-6(2)				2.50	
	10	19.20-19.65			100	99	93	91	87	81	56	44	26	14	A-6(3)	2007	19.9	89.2		
	11	20.10-20.55			100	99	96	84	79	73	54	37	31	16	A-6(1)	2020	23.6	18.0		
BH 2	1	2.60-4.75				100	98	84	78	70	54	47	45	25	A-7-6(8)				2.47	
	2	8.04-10.65			100	98	93	64	55	47	29	20	26	18	A-2-6(0)				2.34	
	3	10.74-11.19				100	99	89	85	81	69	62	33	17	A-6(8)	2045	20.0	150.8		
	4	12.98-13.13			100	98	90	65	56	45	21	12	N	P	A-2-4(0)				2.71	
	5	13.65-14.10					100	99	74	61	37	27	N	P	A-2-4(0)	1853	26.6	23.7		

8-3　交通調査

交通量調査 （ルワジ橋）

Time Period From	to	Pedestrian	Bicycle and Motor Cycle	Passenger Car	Bus and Microbus	Light Truck (2 axies)	Heavy Truck (3 axies more)	Other
6:00	6:15	4	2	3	4	2	2	
6:15	6:30	3	2	2	2	0	0	
6:30	6:45	3	3	2	2	4	1	
6:45	7:00	3	2	3	3	0	1	
7:00	7:15	3	3	4	5	2	1	
7:15	7:30	3	4	3	2	2	0	
4:30	7:45	2	3	3	2	2	3	
7:45	8:00	2	3	5	5	2	0	
8:00	8:15	2	4	4	1	2	0	1
8:15	8:30	4	5	2	2	2	0	
8:30	8:45	4	4	5	2	3	2	
8:45	9:00	2	4	3	2	0	0	
9:00	9:15	2	2	5	2	1	0	
9:15	9:30	4	4	2	3	2	0	
9:30	9:45	2	3	2	2	2	0	
9:45	10:00	2	3	5	2	0	0	
10:00	10:15	2	3	3	0	0	0	
10:15	10:30	2	3	4	3	2	0	
10:30	10:45	2	4	4	2	0	0	
10:45	11:00	2	3	2	1	1	1	
11:00	11:15	4	3	4	4	1	0	
11:15	11:30	2	4	4	3	1	0	
11:30	11:45	3	8	4	4	2	1	
11:45	12:00	1	6	4	4	0	1	
12:00	12:15	5	7	3	3	3	3	
12:15	12:30	3	4	4	2	1	0	
12:30	12:45	3	1	3	2	2	0	
12:45	13:00	4	3	2	2	1	0	
13:00	13:15	6	4	3	3	3	3	
13:15	13:30	3	2	3	5	2	2	
13:30	13:45	4	4	4	2	2	2	
13:45	14:00	3	4	3	3	3	1	
14:00	14:15	3	5	5	3	2	3	1
14:15	14:30	3	4	5	3	4	3	
14:30	14:45	4	4	5	3	3	3	
14:45	15:00	3	4	5	3	2	3	
15:00	15:15	4	4	5	3	2	3	
15:15	15:30	2	5	5	2	3	3	
15:30	15:45	4	4	7	3	3	3	
15:45	16:00	3	3	5	3	2	2	
16:00	16:15	3	9	6	3	2	2	
16:15	17:30	5	5	5	4	2	2	
16:30	16:45	3	5	7	2	2	2	
16:45	17:00	3	5	6	3	2	0	
17:00	17:15	3	4	5	4	2	0	
17:15	17:30	3	3	4	1	3	0	
17:30	17:45	2	5	4	3	1	0	
17:45	18:00	3	4	4	2	2	0	
18:00	18:15							
18:15	18:30							
13:30	18:45							
18:45	19:00							
Average		145	187	190	129	87	53	2

交通量調査（ナンコクエ橋）

Time Period From	to	Pedestrian	Bicycle and Motor Cycle	Passenger Car	Bus and Microbus	Light Truck (2 axies)	Heavy Truck (More 3 axies)
6:00	6:15	11	13	0	3	2	1
6:15	6:30	15	10	1	2	0	0
6:30	6:45	32	11	2	2	0	0
6:45	7:00	15	6	2	0	1	1
7:00	7:15	22	11	0	2	1	0
7:15	7:30	7	10	3	4	0	0
4:30	7:45	11	15	3	0	1	0
7:45	8:00	12	3	5	1	2	0
8:00	8:15	51	11	0	5	1	0
8:15	8:30	8	5	3	2	1	1
8:30	8:45	23	0	5	0	0	0
8:45	9:00	17	16	5	0	1	0
9:00	9:15	8	6	2	3	0	0
9:15	9:30	27	11	2	1	1	0
9:30	9:45	38	10	2	2	1	0
9:45	10:00	22	2	4	2	0	0
10:00	10:15	20	8	3	0	0	0
10:15	10:30	20	5	3	3	2	0
10:30	10:45	19	18	1	1	2	0
10:45	11:00	18	8	0	2	1	0
11:00	11:15	16	5	6	0	0	0
11:15	11:30	16	1	1	3	0	2
11:30	11:45	26	15	1	5	0	0
11:45	12:00	17	0	2	3	0	0
12:00	12:15	10	13	4	2	0	1
12:15	12:30	15	13	2	2	0	2
12:30	12:45	4	3	2	1	0	0
12:45	13:00	6	12	3	2	1	0
13:00	13:15	5	12	4	2	0	1
13:15	13:30	6	12	6	2	1	2
13:30	13:45	3	5	6	0	0	1
13:45	14:00	17	11	3	0	0	0
14:00	14:15	3	8	3	2	1	0
14:15	14:30	9	3	3	1	1	0
14:30	14:45	3	3	5	0	1	0
14:45	15:00	3	5	5	2	2	0
15:00	15:15	12	11	4	1	0	1
15:15	15:30	9	4	3	3	0	1
15:30	15:45	7	11	0	1	0	0
15:45	16:00	20	9	8	1	1	0
16:00	16:15	12	4	2	1	1	0
16:15	17:30	7	5	5	0	4	0
16:30	16:45	6	8	4	2	0	0
16:45	17:00	5	6	5	1	1	1
17:00	17:15	11	16	2	1	1	1
17:15	17:30	18	3	2	4	0	2
17:30	17:45	24	3	5	0	2	0
17:45	18:00	22	12	3	2	2	0
18:00	18:15						
18:15	18:30						
18:30	18:45						
18:45	19:00						
Total		708	392	145	79	36	18

交通量調査（アンゴニカルバート）

Time Period From	to	Pedestrian	Bicycle and Motor Cycle	Passenger Car	Bus and Microbus	Light Truck (2 axies)	Heavy Truck (More 3 axies)
6:00	6:15	13	4	0	0	1	0
6:15	6:30	8	1	3	7	0	1
6:30	6:45	9	7	0	2	3	0
6:45	7:00	7	3	7	4	0	0
7:00	7:15	6	2	0	2	0	0
7:15	7:30	12	7	6	6	0	1
7:30	7:45	7	7	2	0	0	0
7:45	8:00	3	3	0	0	0	0
8:00	8:15	6	2	1	4	0	0
8:15	8:30	6	1	5	2	0	0
8:30	8:45	11	8	0	0	0	0
8:45	9:00	11	4	3	7	1	1
9:00	9:15	6	8	1	2	0	0
9:15	9:30	17	2	1	1	3	0
9:30	9:45	18	2	1	1	1	1
9:45	10:00	15	4	2	0	1	0
10:00	10:15	15	3	2	2	8	0
10:15	10:30	16	4	1	2	5	0
10:30	10:45	18	5	4	1	2	0
10:45	11:00	11	8	3	2	1	0
11:00	11:15	12	9	2	0	3	0
11:15	11:30	16	10	6	1	0	2
11:30	11:45	6	7	3	1	4	0
11:45	12:00	10	6	8	0	1	0
12:00	12:15	7	5	1	1	0	1
12:15	12:30	10	8	4	2	1	0
12:30	12:45	17	7	2	3	1	0
12:45	13:00	6	6	2	3	3	0
13:00	13:15	15	11	7	2	1	0
13:15	13:30	11	7	3	1	0	0
13:30	13:45	15	10	2	1	1	0
13:45	14:00	17	11	3	0	0	0
14:00	14:15	8	3	0	1	0	0
14:15	14:30	17	3	2	1	2	0
14:30	14:45	13	4	7	3	1	1
14:45	15:00	3	12	2	0	2	1
15:00	15:15	3	12	2	0	2	2
15:15	15:30	16	8	1	3	1	1
15:30	15:45	18	4	0	3	1	0
15:45	16:00	18	7	1	0	2	0
16:00	16:15	14	7	3	3	1	0
16:15	17:30	18	9	1	0	2	0
16:30	16:45	16	14	8	1	1	1
16:45	17:00	15	11	12	4	1	1
17:00	17:15	17	2	2	0	2	0
17:15	17:30	17	9	4	2	1	0
17:30	17:45	12	7	2	0	2	2
17:45	18:00	14	6	3	4	1	0
18:00	18:15						
18:15	18:30						
18:30	18:45						
18:45	19:00						
Average		576	300	135	85	63	16

交通量調査（ナンヤングカルバート）

Time Period From	to	Pedestrian	Bicycle and Motor Cycle	Passenger Car	Bus and Microbus	Light Truck (2 axies)	Heavy Truck (More 3 axies)
6:00	6:15	16	18	0	0	1	1
6:15	6:30	12	13	3	6	3	1
6:30	6:45	13	7	0	0	0	0
6:45	7:00	14	13	6	0	0	1
7:00	7:15	16	12	0	0	0	0
7:15	7:30	13	12	0	4	0	0
7:30	7:45	13	12	0	0	0	0
7:45	8:00	13	6	0	4	0	0
8:00	8:15	17	9	0	0	0	0
8:15	8:30	11	7	0	0	0	0
8:30	8:45	8	3	5	5	0	0
8:45	9:00	19	11	0	0	0	0
9:00	9:15	8	10	3	6	0	0
9:15	9:30	16	14	5	3	6	0
9:30	9:45	13	14	3	3	0	0
9:45	10:00	13	18	3	3	0	0
10:00	10:15	16	20	5	2	2	0
10:15	10:30	18	12	3	2	0	0
10:30	10:45	12	13	2	5	1	0
10:45	11:00	17	17	5	2	4	0
11:00	11:15	42	13	0	2	0	0
11:15	11:30	28	16	2	3	1	0
11:30	11:45	11	16	2	1	0	0
11:45	12:00	16	11	7	3	0	0
12:00	12:15	14	15	5	1	0	0
12:15	12:30	36	13	6	4	0	0
12:30	12:45	20	18	4	3	0	1
12:45	13:00	23	11	3	2	3	0
13:00	13:15	17	13	6	1	1	0
13:15	13:30	18	16	3	1	1	0
13:30	13:45	13	10	2	2	1	2
13:45	14:00	11	11	1	2	2	0
14:00	14:15	19	15	2	2	0	0
14:15	14:30	11	8	2	1	2	0
14:30	14:45	14	12	2	0	2	1
14:45	15:00	12	17	2	3	2	1
15:00	15:15	14	9	1	2	1	2
15:15	15:30	17	11	3	0	1	1
15:30	15:45	6	4	0	0	0	0
15:45	16:00	11	13	2	2	2	0
16:00	16:15	14	11	2	3	1	0
16:15	17:30	7	8	4	2	1	1
16:30	16:45	12	10	2	5	0	0
16:45	17:00	8	11	9	0	0	0
17:00	17:15	17	12	2	3	0	0
17:15	17:30	10	6	5	2	2	1
17:30	17:45	18	33	3	0	3	2
17:45	18:00	37	20	4	4	3	0
18:00	18:15						
18:15	18:30						
18:30	18:45						
18:45	19:00						
Total		754	604	129	99	46	15

8-4　環境社会調査

環境社会影響項目と軽減策

環境社会影響項目	軽減策・ミティゲーション
施工前（基本・詳細設計時）	
交通事故防止	車輌、歩行者、自転車の交通の円滑性、安全性及び事故発生防止対策を考慮した、計画・設計とする。 ・ 安全な道路線形及び視距の確保（平面・縦断線形、曲線半径等） ・ 交通安全施設の設置（道路標識・表示、路面マーキング、高欄・ガードレール等） ・ 適正な路面の排水計画（横断・縦断勾配、排水溝、側溝） ・ 安全は歩道の確保（必要な幅員、マウントアップ）
水質・水利用	水利用の保全、水質汚染防止対策を講じた、計画・設計及び施工法とする。 ・ 洗濯場等の水利用地点へのアクセス確保（盛土又は護岸工を階段・テラス状にして利用改善を図る） ・ 汚泥・汚水の発生が少ない基礎工の施工法を採用 ・ 乾期及び河川水位が低い時期の施工日程計画 ・ 必要に応じて現河川を迂回させる
生態系及び生物相	貴重な植物種の生育地の保全を考慮した、計画・設計とする。 ・ 現地測量結果から貴重植物の生育地を把握・確認 ・ 生息地を回避する道路線形、橋梁位置を選定 ・ 生息地を回避する迂回路、工事用道路の計画 ・ 影響がないキャンプヤード、資材置き場等の仮施設計画
住民移転	既存の住居や家屋の移転が発生しない、計画・設計とする。 ・ 現地測量結果から住居の位置、規模を把握・確認 ・ 住民移転を回避する道路線形、橋梁位置を選定 ・ 住居移転が発生しない迂回路、工事用道路の計画 ・ 住民移転が発生しないキャンプヤード、資材置き場等の仮施設計画
既存の社会インフラ及びサービスへの影響	既存の宗教施設、樹影集会場、電線・電話線の移設・移動等の影響を考慮した、計画・設計とする。 ・ 現地測量結果から施設の位置、規模を把握・確認 ・ 移設・移動が発生しない道路線形、橋梁位置を選定 ・ 可能なかぎり移設・移動を回避する迂回路、工事用道路の計画 ・ 最小な影響になるキャンプヤード、資材置き場等の仮施設計画
産業廃棄物	既設構造物の撤去及び橋梁の新設により発生する産業廃棄物（残土、コンクリート・アスファルト塊等）の適正な処分・処理となる、計画・設計とする。 ・ 廃棄物発生の抑制 ・ 廃棄物の再利用の促進（新設の取付道路や護岸工等の一部材料としてのリサイクル） ・ 適正な処分地計画（既存土取場、土捨場、採石場の活用）

環境社会影響項目	軽減策・ミティゲーション
自然・洪水災害	既往の洪水資料をもとに、想定される河床変動、橋脚局部洗掘、河岸及び道路のり面の浸食等の災害・被災を低減・防止する、計画・設計とする。 ・ 流下能力の確保（橋梁位置、橋梁長、径間長等） ・ 河動・河床の安定性（落差工、水制工、護岸・護床工） ・ 道路のり面の浸食防止（植生、石張り工）
施　工　中	
騒音・振動	工事に伴って発生する騒音・振動による、周辺地域住民の生活環境へ影響が少ない、施工を実施する。 ・ 現場周辺状況の再確認（住居の密集度、公共施設有無） ・ 地域住民への十分な説明・広報（工事目的、期間、内容等） ・ 低騒音、低振動型重機の選定 ・ 使用重機の適正な管理・メインテナンス ・ 重機の夜間使用抑制 ・ 工事用重機・車輌の運転手への教育・指導（不必要な高速運転、無駄な空ぶかしを避ける） ・ 過剰な騒音・振動が発生する場合の防音壁等の対策
大気汚染	工事による大気汚染に対する防止策を講じる。 ・ 定期的な散水及び工事用車輌の洗車による粉塵対策 ・ トラック運搬による土砂、採石の転落・飛散防止用シートによる被覆 ・ 工事用重機・車輌の運転手への教育・指導（不必要な高速運転、無駄な空ぶかしを避ける）
水利用・水質	工事に伴って発生する汚泥・汚水による、周辺地域住民の生活環境へ影響が少ない、施工を実施する。 ・ 水利用状況の再確認 ・ できるだけ汚泥・汚水の発生が少ない、施工法とする。必要な場合は適切な対策工を講じる（沈泥池、遮水壁、河川迂回路の設置等） ・ 重機運転者の訓練、重機の整備等を含む適正な管理によってオイル漏れ事故を未然に防ぐ
工事用車輌増加による交通渋滞及び交通安全対策	工事中の既存道路、迂回路、工事用道路における交通の円滑性及び安全性を確保する。 ・ 地域住民への十分な広報（工事目的、期間、内容等） ・ バリケード、交通規制標識の設置 ・ 整理員の適正配置 ・ 工事用重機・車輌の運転手への安全教育

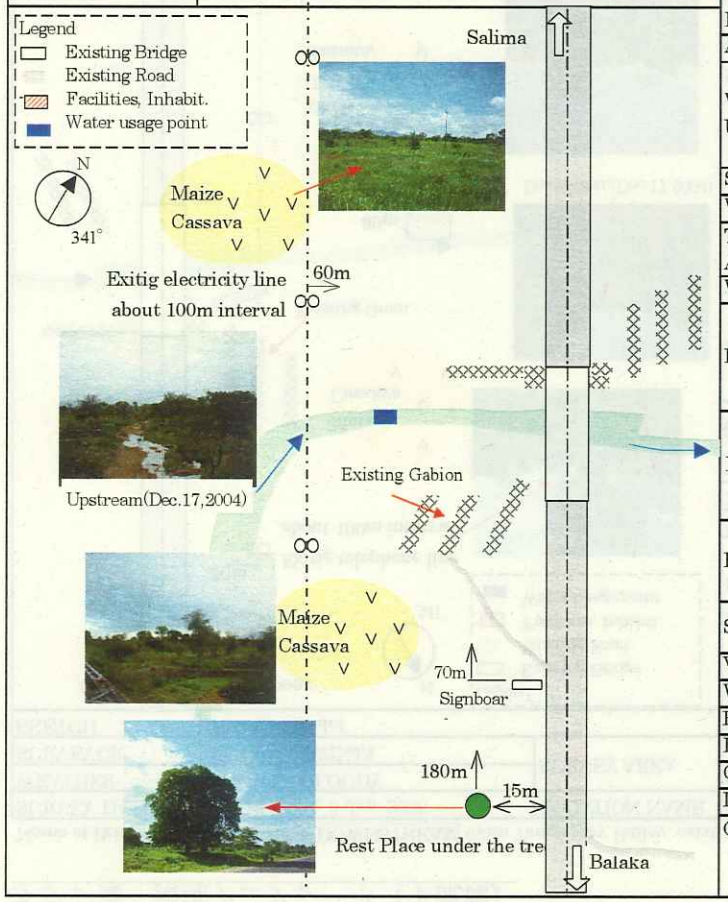
環境社会影響項目	軽減策・ミティゲーション
産業廃棄物の処理・処分	工事中の発生する廃棄物（残土、コンクリート塊等）の適切な処理・処分を実施する。 ・ 廃棄物の質および廃棄量の把握 ・ 廃棄物の発生の抑制 ・ 発生廃棄物の再利用（新設の護岸工、水制工、または取付道路の一部材料としてリサイクル） ・ 適正な処理・処分計画
仮施設計画	現場周辺への環境影響をできるだけ防ぐ、キャンプヤード・資材置き場等の仮設施設とする。 ・ 地域住民への十分な説明・広報（工事目的、期間、内容等） ・ 盗難防止柵の設置 ・ 過剰な騒音・振動が発生する場合の防音壁等の対策
環境社会の教育・指導	全工事関係者への環境社会影響についての教育・指導を実施する。 ・ 施工現場、宿舎、キャンプヤードから発生する一般ゴミ、産業廃棄物の分別・処理についての教育・指導 ・ 風土・感染病（マラリア、HIV/AIDS）対する衛生管理、予防配置、啓蒙活動による教育・指導
施　工　後	
仮施設の撤去・撤収	工事終了後の仮施設の撤去・撤収における、現場周辺への環境に影響がないようにする。 ・ キャンプヤードや資材置き場の撤去後は、整地を行いできるだけもとの状態に戻す。 ・ 仮施設撤去から発生する廃棄物（木材、コンクリート塊、鋼材等）は適切に処分・処理し、できるだけ再利用する。
迂回路・工事用道路の撤去	工事終了後の迂回路・工事用道路の撤去における、現場周辺への環境に影響がないようにする。 ・ 整地を行いできるだけもとの状態に戻す。必要な箇所には植生工を行う。 ・ 撤去から発生する、残土、玉石等は適切に処分・処理し、できるだけ再利用する。

ルワジ橋　環境チェクシート（上流側）

Environmental and social check worksheet on each bridge

Name of Bridge 4:**Luwadzi Bridge** UPSTREAM (55m Temporary Bailey ,existing bridge was washed away by flood)

SURVEY DATE	:29 Dec. 2004, 6 Jan. 2005	LOCATION NAME	:LUWADZI BRIDGE	LAT:S12°57'27.6"	LNG:E34°29'25.8"	ALT.:500m
WEATHER	:SHOWER/CLOUDY	SURVEY AREA	600*200m=12ha (included river area, 300m each side from center of bailey bridge, 100m each side from center of existing road)			
SURVEYOR	:HIGA/MAKWINJA					
SKETCH	:HIGA(No scale)					



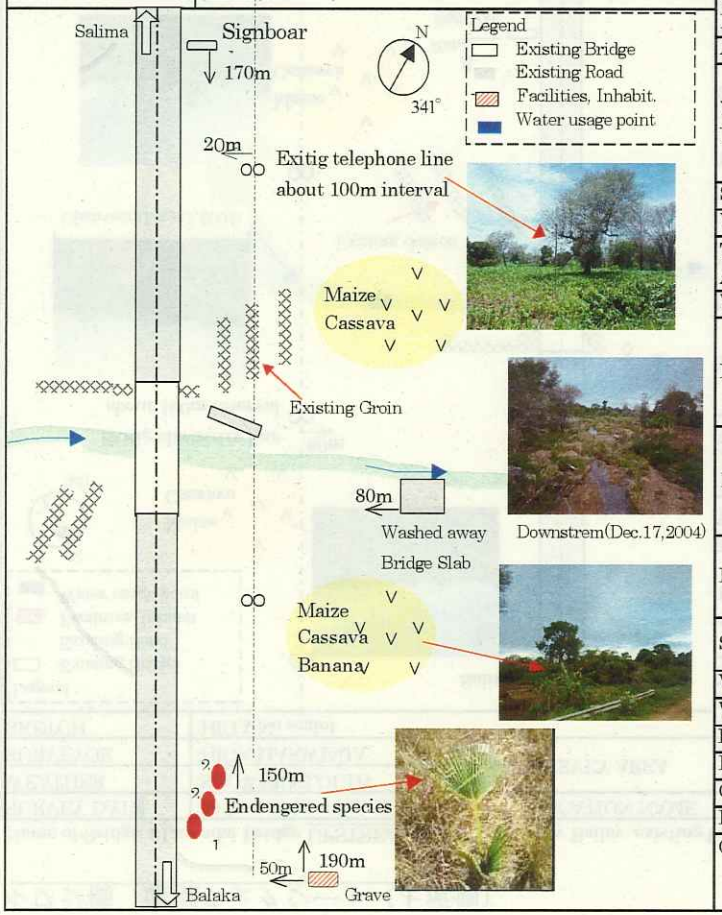
CONDITION OF EACH ENVIRONMENTAL ITEM		UPSTREAM AREA
AIR POLLUTION		No relation
WATER POLLUTION	River Dimension	See Topographic map
	Flow	Q= width 5m*depth 0.3m*0.5m/s=0.75m³/s (23rd Dec. 2004, visual survey)
		Q= width 15m*depth 1.3m*2.0m/s=39m³/s (30th Dec. visual survey)
	Turbidty,PH, COD	———
SOIL POLLUTION		No relation
WASTE		Quarry (Kapiri, +30km distance), Borrow and Gravel Pit (Ngwena, +5km distance)
TRAFFIC ACCIDENT AND SECURITY SITUATION		Pick up car hit bailey bride at night Dec.16,2004 (Deceased 1, Victim 1) Interview with Salaam traffic police station (see interview result)
WATER USAGE		Irrigation, Washing, Water place for livestock
BIODIVERSITY	Animal Diversity	No relation
	Vegetation	Maize, Cassava, Banana
	Endangered Species	No relation
INHABITATION	In the right of the way	0
	Out of ROW	10 (300 m Balaka side)
	Main industry of inhabitant	Small-scale farming (maize, cassava, banana, ground nut)
LAND USE		Farm land, inhabitation, Livestock's grazing area
	NP/Wildlife Reserve & Forest	Nonexistent
SOCIAL INFRASTRUCTURE		Rest place under tree, Electricity line, School (550m Balaka side), Waterwell & Mosque(350m Salima side)
VULNERABLE SOCIAL GROUPS		Nonexistent
WATER RIGHTS		Nonexistent
FISHERIES RIGHTS		Nonexistent
LOCAL CONFLICT		Nonexistent
CULTURAL HERITAGE		Nonexistent
INFECTIOUS DISEASES HIV/AIDS		Interview with administration in Salima District Hospital (see interview result)
OTHERS (Disaster)		Due to Flood 2000, existing bridge slab was washed way and its pier was settled. River edge has been eroded and scored

ルワジ橋　環境チェクシート（下流側）

Environmental and social check worksheet on each bridge

Name of Bridge 4:**Luwadzi Bridge DOWNSTREAM** (55m Temporary Bailey, existing bridge was washed away by flood)

SURVEY DATE	:29 Dec. 2004, 6 Jan. 2005	LOCATION NAME	:LUWADZI BRIDGE	LAT:S12°57'27.6"	LNG:E34°29'25.8"	ALT.:500m
WEATHER	:SHOWER/CLOUDY	SURVEY AREA	600*200m=12ha (included river area, 300m each side from center of bailey bridge, 100m each side from center of existing road)			
SURVEYOR	:HIGA/MAKWINJA					
SKETCH	:HIGA(No scale)					



CONDITION OF EACH ENVIRONMENTAL ITEM		DOWNSTREAM AREA
AIR POLLUTION		No relation
WATER POLLUTION	River Dimension	See Topographic map
	Flow	Q= width 5m*depth 0.3m*0.5m/s=0.75m^3/s (23rd Dec. 2004, visual survey)
		Q= width 15m*depth 1.3m*2.0m/s=39m^3/s (30th Dec. 2004, visual survey)
	Turbidty,PH, COD	———
SOIL POLLUTION		No relation
WASTE		Quarry (Kapiri, +30km distance), Borrow and Gravel Pit (Ngwena, +5km distance)
TRAFFIC ACCIDENT AND SECURITY SITUATION		Pick up car hit bailey bride at night Dec.16,2004 (Deceased 1, Victim 1) Interview with Salima traffic police station (see interview result)
WATER USAGE		Irrigation, Washing, Water place for livestock
BIODIVERSITY	Animal Diversity	No relation
	Vegetation	Maize, Cassava, Banana
	Endangered Species	①HYPHAENE CRINITA and ②ALBIZA ANTHELEMINTICA under the Malawi list (150m Balaka side)
INHABITATION	In the right of the way	0
	Out of the right of the w	0
	Main industry of inhabitant	Small-scale farming (maize, cassava, banana)
LAND USE		Farm land, inhabitation, Livestock's grazing area
	NP/Wildlife Reserve & Forest	Nonexistent
SOCIAL INFRASTRUCTURE		Grave(190m Balaka side), Telephone line
VULNERABLE SOCIAL GROUPS		Nonexistent
WATER RIGHTS		Nonexistent
FISHERIES RIGHTS		Nonexistent
LOCAL CONFLICT		Nonexistent
CULTURAL HERITAGE		Nonexistent
INFECTIOUS DISEASES HIV/AIDS		Interview with administration in Salima District Hospital (see interview result)
OTHERS (Disaster)		Due to Flood 2000, existing bridge slab was washed way and its pier was settled. River edge has been eroded and scored