### H4 Sediment Analysis

### NATIONAL IRRIGATION ADMINISTRATION Systems Management Department Soils and Water Laboratory Services EDSA, Quezon City

DATE: August 2, 2001

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: AGOS RIVER

	Date of Sample	Time of Sampling	Gage Height	tion of Sar	npling	Sediment
LAB. NO.			cm	Top	Bottom	mg/l
01-82	5/20/01	12:35 p.m.	88	×		0.2
01-83	5/20/01	12:35 p.m.	88		x	1.5
01-84	5/27/01	3:30 p.m.	89	х		2.0
01-99	5/27/01	3:30 p.m.	89		×	3.2
01-100	5/28/01	3:30 p.m.	68	1	×	6.5
01-101	5/29/01	3:15 p.m.	17		×	2.0
01-102	5/29/01	3:15 p.m.	17	×		1.6
01-103	5/31/01	12:30 p.m.	70	×		1.6
01-104	5/31/01	12:30 p.m.	70	1	×	1.6
01-105	6/8/01	11:15 a.m.	62	x		0.3
10-106	6/8/01	11:15 a.m.	62		X	1.8
01-107	6/9/01	3:10 p.m.	61		X	7.2
01-108	6/9/01	3:10 p.m.	61	X	1	5.3
01-109	6/11/01	11:00 a.m.	58	×	<u> </u>	1.0
01-110	6/11/01	11:00 a.m.	58		×	2.1
01-115	6/18/01	12:00 p.m.	78	х	1	4.5
01-116	6/18/01	12:00 p.m.	78		×	3.9
01-118	6/21/01	3:40 p.m.	55	×		3.1
01-119	6/21/01	3:40 p.m.	55		Х	2.2
01-120	6/22/01	1:00 p.m.	66	x		4.7
01-121	6/22/01	1:00 p.m.	66		×	3.6
01-134	6/28/01	10:20 a.m.	100	x		5.7
01-135	6/28/01	10:20 a.m.	100	<b></b>	X	5.8
01-136	6/29/01	9:00 a.m.	220		X	93.4
01-137	6/29/01	9:00 a.m.	220	x		48.1
01-138	7/3/01	10.40 a.m	138		×	303.1
01-139	7/3/01	10:40 a.m.	138	×		268.0
01-140	7/4/01	12:25 p.m.	120	×		24.7
01-141	7/4/01	12:25 p.m.	120		×	19.4
01-142	7/5/01	3:35 p.m.	188	×		97.1
01-143	7/5/01	3:35 p.m.	188		×	1070.9
01-144	7/7/01	6:30 p.m.	140	X		9.7
01-145	7/7/01	6.30 p.m.	140		x	7.2

Noted:

DATE: August 2, 2001

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: AGOS RIVER

]		Gage Height	Location o	f Sampling	Sediment
Date of Sample	Time of Sampling	cm	Тор	Bottom	mg/l
7.0.17.1			÷		
<del></del>			X	<u> </u>	3.3
7/8/01	3:30 p.m.	124		х	4.3
7/11/01	4:40 p.m.	107	x		4.3
7/11/01	4:40 p.m.	107		x	3.7
7/13/01	2:10 p.m.	98	×		2.3
7/13/01	2:10 p.m.	98		x	1.6
7/14/01	2:55 p.m.	99	x		2.9
7/14/01	2:55 p.m.	99		x	2.7
7/16/01	4:30 p.m.	89	×		4.8
7/16/01	4:30 p.m.	89		x	3.3
7/17/01	12:55 p.m.	103		×	28.6
7/17/01		103	x		6.1
7/19/01	4:20 p.m.	100	x		22.5
7/19/01		100		x	21.5
7/21/01			x		15.2
7/21/01	11:15 a.m.			×	15.6
7/21/01		98	×		8.9
7/21/01		98		x	7.4
7/22/01			x		16.7
7/22/01				×	18.3
	7/8/01 7/8/01 7/8/01 7/11/01 7/11/01 7/13/01 7/13/01 7/14/01 7/14/01 7/16/01 7/16/01 7/17/01 7/17/01 7/19/01 7/19/01 7/21/01 7/21/01 7/21/01 7/21/01	7/8/01 3:30 p.m. 7/11/01 4:40 p.m. 7/11/01 4:40 p.m. 7/13/01 2:10 p.m. 7/13/01 2:10 p.m. 7/14/01 2:55 p.m. 7/14/01 2:55 p.m. 7/16/01 4:30 p.m. 7/16/01 4:30 p.m. 7/17/01 12:55 p.m. 7/17/01 12:55 p.m. 7/19/01 4:20 p.m. 7/19/01 4:20 p.m. 7/21/01 11:15 a.m. 7/21/01 2:20 p.m. 7/21/01 2:20 p.m. 7/21/01 2:20 p.m. 7/22/01 12:55 p.m.	Date of Sample         Time of Sampling         cm           7/8/01         3:30 p.m.         124           7/8/01         3:30 p.m.         124           7/11/01         4:40 p.m.         107           7/11/01         4:40 p.m.         107           7/13/01         2:10 p.m.         98           7/13/01         2:10 p.m.         98           7/14/01         2:55 p.m.         99           7/14/01         2:55 p.m.         99           7/16/01         4:30 p.m.         89           7/17/01         12:55 p.m.         103           7/17/01         12:55 p.m.         103           7/19/01         4:20 p.m.         100           7/21/01         11:15 a.m.         100           7/21/01         11:15 a.m.         100           7/21/01         2:20 p.m.         98           7/21/01         2:20 p.m.         98           7/22/01         12:55 p.m.         98	Date of Sample         Time of Sampling         cm         Top           7/8/01         3:30 p.m.         124         x           7/8/01         3:30 p.m.         124           7/11/01         4:40 p.m.         107         x           7/11/01         4:40 p.m.         107         x           7/13/01         2:10 p.m.         98         x           7/13/01         2:10 p.m.         98         x           7/14/01         2:55 p.m.         99         x           7/16/01         4:30 p.m.         89         x           7/17/01         12:55 p.m.         103         x           7/19/01         4:20 p.m.         100         x           7/19/01         4:20 p.m.         100         x           7/21/01         11:15 a.m.         100         x           7/21/01         11:15 a.m.         100         x           7/21/01         2:20 p.m.         98         x           7/21/01         2:20 p.m.         98         x	Date of Sample         Time of Sampling         Cm         Top         Bottom           7/8/01         3:30 p.m.         124         x           7/8/01         3:30 p.m.         124         x           7/11/01         4:40 p.m.         107         x           7/11/01         4:40 p.m.         107         x           7/13/01         2:10 p.m.         98         x           7/13/01         2:10 p.m.         98         x           7/14/01         2:55 p.m.         99         x           7/14/01         2:55 p.m.         99         x           7/16/01         4:30 p.m.         89         x           7/17/01         12:55 p.m.         103         x           7/17/01         12:55 p.m.         103         x           7/19/01         4:20 p.m.         100         x           7/19/01         1:15 a.m.         100         x           7/21/01         11:15 a.m.         100         x           7/21/01         2:20 p.m.         98         x           7/21/01         2:20 p.m.         98         x

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### NATIONAL IRRIGATION ADMINISTRATION Systems Management Department Soils and Water Laboratory Services EDSA, Quezon City

DATE: April 12, 2002

#### SEDIMENT ANALYSIS

### PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

HAME OF RIVER : AGOS RIVER

	Date of Sampling	Time	Gage Height	Loc	ation	Sediment
LAS NO.			cm	Тор	Bottom	mg/l
02:07	2/23/02	10:20 a m.	36	X	i south	2.0
103-08	2/23/02	10:20 a.m	36			2.9
กว ดล	2/24/02	9:45 a.m	24	×	· · · · · · · · · · · · · · · · · · ·	2.6
[02-10]	2/24/02	9:45 a.m	24		<u>-</u>	2.1
02-11	2/24/02	6:23 p.m.	22	X	ļ <u>-</u>	1.8
62-12	2/24/02	6:13 p.m	22		×	5.2
[62.48]	2/16/02	9 43 a m.	28	X		3.5
0.614	2/26/02	9:43 a.m.		······································	x	3.8
102.15	2/26/02	6:00 p.m.	28 29	X	<del> </del>	4.5
0.2-16	2/26/02	6 00 p.m.	29		X	3.9
02.17	2/27/02	2:10 p m	14	×	· · · · · · · · · · · · · · · · · · ·	3.2
02-18	2/27/02	2:10 p.m.	14		†	4.2
02-49	3/5/02	7:09 p.m.	108	Х	<del> </del>	0.9
02-50	3/5/02	7:09 p.m.	108	· · · · · · · · · · · · · · · · · · ·	×	1.2
02-51	3/6/02	8:26 a.m	104	X	<del> </del>	11
02.52	3/6/02	8:26 a.m.	104	^	X	1.1
07:53	3/7/02	2:57 p.m	157	X	<del> </del>	4.3
02-54	3/7/02	2:57 p.m.	157	^	/ x	4.1
(22.50)	3/10/02	12 45 ρ m	124	Y	<del> </del>	0.4
(13-23	3/10/02	12:45 p.m.	124	······································	x	2.2
(4.5)	3/15/02	10:07 a.m	1 137	Х	<u> </u>	1.6
60, 58	3/15/02	10:07 a.m.	137		×	1.0
OF BA	3/16/02	3,28 p m	122	X	<del> </del>	1.6
07-60	3/16/02	3.23 p.m.	22		<u> </u>	1.7
02-61	3/17/02	11:50 a.m	116	×	<del></del>	0.8
45 42 T	3/17/02	11:50 a.m	116			12
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### NATIONAL IRRIGATION ADMINISTRATION Systems Management Department Soils and Water Laboratory Services EDSA, Quezon City

DATE: July 22, 2002

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER - AGOS BIVES

	Date of Sampling	Time Gage Height Location		Sediment		
LAB. NO.		enterente de la composition de la comp	cm	Тор	Bottom	mg/l
02-219	3/22/02	3:03 P.M.	0.9	X		18.6
02-220	3/22/02	3:03 P.M.	0.9		X	2.9
02-221	3/23/02	3:35 P.M	0.91	Χ 1		4.7
02-222	3/23/02	3:35 P.M	0.91		×	4.4
02-223	3/24/02	9:55 A.M.	1.41	×		17.0
02-224	3/24/02	9:55 A.M.	141		Х	32.1
02-225	4/30/02	3:05 P.M.	0.97	X	<u> </u>	10.7
02-226	4/30/02	3:05 P.M.	0.97		×	1.9
02-227	5/3/02	1:40 P.M.	8.5	X		2.5
02-228	5/3/02	1:40 P.M.	8.5		x	2.0
		The second secon				
						<b>†</b>
		Andread Annia de Caraller de C				
		entendade de la Alfredia de la companya de la Anfre de Maria Antonio de Anfreda de Afreda de La Antonio de Ant		and the state of t	<del> </del>	
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		Market e annument septem a septem a septem de la principal de la principal de la companya de la companya de la	†			<del> </del>
		Property of the Community of the Communi		************		
	The state of the s	ngur ng phagasylyticula allian-a-da rahanan na earsthann trage na pagadida ea ma		res resembles des glighted points — 15 kg gar you to Dynn.	1	<del> </del>
				·····		<del> </del>
6 - 4 ha <b>ile S</b> illeann, <sub>1</sub> ynggersyn A 19 <sub>9 yy</sub> .		ke mena anaman ingga pap mel John sa mela da man oran kan anggang e Papulana. An oran		*****		
	7 f 1 ft - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			AT THE PERSON NAMED IN COLUMN		
· · · · · · · · · · · · · · · · · · ·		reille de la come en	<del> </del>	<del>dell'addrid</del> ançah ( manapaga) ay		
		The Property of the Community of the State o			<u> </u>	
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Noted:

DATE: August 2, 2001

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: KANAN RIVER

			Gage Height	Location	of Sampling	Cadi
LAB. NO.	Date of Sample	Time of Sampling	cm	Top		Sediment
01-111	6/1/01	3:40 p.m.	20	105	Bottom	mg/l 1.1
01-112	6/6/01	2:20:p.m.	13	<del> </del>	X	60.8
01-117	6/19/01	1:20 p.m.	9	<del>†                                      </del>	X	1.9
01-122	6/19/01	1:20:p.m.	9	×	<del>                                     </del>	2.3
01-123	6/20/01	3:30 p.m.	7	<u> </u>	<del> </del>	2.1
01-124	6/20/01	3:30 p.m.	7	1	x	1.9
01-158	7/3/01	3:30 p.m.	48	×	1	7.7
01-159	7/3/01	3:30 p.m.	48	<u> </u>	x	7.7
01-160	7/7/01	2:55 p.m.	64	X	1	8 ର
01-161	7/7/01	2:55 p.m.	64	<u> </u>	X	4.1
10-162	7/9/01	3:00 p.m.	48	Х		5.4
01-163	7/9/01	3:00 p.m.	48		X	6.4
01-164	7/10/01	2:05 p m.	42	x	1 - î -	2.9
01-165	7/10/01	2:05 p.m.	42		X	3.0
01-166	7/11/01	1:55 p.m.	36	х	1	3.4
01-167	7/11/01	1:55 p.m.	36		Х	3.2
01-168	7/12/01	1:30 p.m.	32	Х		3.1
01-169	7/12/01	1:30 p.m.	32		×	2.5
01-170	7/14/01	11:25 a.m.	31	x		3.7
01-171	7/14/01	11:25 a.m.	31		×	4.4
01-229	7/16/01	8:05 a.m.	25			245.5
01-230	7/17/01	7:35 a.m.	28	<del></del>		148.8
01-205	7/18/01	1:20 p.m.	22	X		4.3
01-206	7/18/01	1:20 a.m.	22		Х	3.3
01-207	7/19/01	11:20 a.m.	29	Х		4.3
01-208	7/19/01	11:20 a.m	29		x	2.9
01-209	7/19/01	12.45 p.m.	32	χ		2.8
01-210	7/19/01	12:45 p.m.	32		X	1.4
01-231	7/20/01	9:35 a.m.	26			80.3

NOTED:

DATE: August 2, 2001

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: KANAN RIVER

1.40.10	2		Gage Height	Location of	Sampling	Sediment
LAB. NO.	Date of Sample	Time of Sampling	cm	Тор	Bottom	mg/l
01-232	7/21/01	7:35 a.m.	28		X	119.6
01-233	7/22/01	8:35 a.m.	14	<del> </del>	^_	
01-234	7/25/01	12:25 p.m.	20	x	<u>*</u>	103.3
01-235	7/25/01	12:25 p.m.	20	<del> ^- </del>		3.9
01-236	7/25/01	3:05 p.m.	19		Х	4.0
01-237	7/25/01	3:05 p.m.	19	×		2.5
01-238	7/26/01	10:05 a.m.	17		X	2.8
01-239	7/26/01	10:05 a.m.		X		2.7
01-240	7/26/01	1:40 p.m.	17	ļ <u> </u>	×	2.1
01-241	7/26/01	1:40 p.m.	16	×		1.7
01-242	7/27/01		16		X	2.2
01-243	7/27/01	8:40 a.m.	35	×		452.9
01-244		8:40 a.m.	35		X	151.5
	7/27/01	12:05 p.m.	30	X		120,5
01-245 NOTED:	7/27/01	12:05 p.m.	30		x	150.8

ROSITA M. GREGORIO

Supvg. Soil Tech.

DATE: April 12, 2002

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: KANAN RIVER

	KIVER : KANAN F		The same of the sa	/M. and - more where .		***************************************
of he was the many continues		 	Cage Height	Location of	Sampling	Sediment
LAB NO	Date of Sample	Time of Sampling	CIU	Тор	Bottom	mg/l
03.19	2/15/02	4:10 p m	143	X	-	3.4
02.20	2/15/02	4:10 p m	143		Х	5.0
02-21	2/16/02	3:10 p.m	122	Х		3.4
02-22	2/16/02	3:10 p m.	122		X	3.0
02-23	2/23/02	3:35 p.m.	90	х		2.9
op. 24	<u>2/23/02</u>	3:35 p.m.	90		×	1.8
02-25	2/24/02	2:45 p.m.	81	х		2.3
02.26	2/24/02	2:45 p m	81		х	3.3
02.27	2/25/02	4.00 p.m	78	Х		2.7
00.428	2/25/02	4:00 p m.	78		Х	3.1
त्राभुव	2/26/02	2:06 p m.	86	χ		3.6
0,4-00	2/26/02	2:06 p.m.	86		X	3.1
11 7 <u>4</u>	3/2/02	3:00 p.m.	61	λ		0.9
0.073	3/2/07	2:05 p.m.	υí		X	1.7
e e Ser e util	3/5/02	2:05 р ш	68	λ		1.3
QD-76	3/5/02	1:55 p.m	68		Х	1.4
S. 277	3/7/02	1:55 p.m	115	X		4.2
117/5	3/7/02	1:30 p.m.	115		X	3.9
A - 214	3/11/02	130 pm	73	×		13
J3-64)	3/11/02	11:27 a.m.	73		X	0.3
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HOTED: HOTE A M. PREGORIO HOPPY, Soil Lech

DATE: July 22, 2002

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: KANAN RIVER

LALIANT OIL	MINELL WAINTI	171A F-17	-			
	The second secon					
1 10 110			Gage Height	Location of	f Sampling	Sediment
LAB. NO.	Date of Sample	Time of Sampling		. Top	Bottom	mg/i
02-229	3/22/02	12:18 N	0 43	X		2.9
02-230	3/22/02	12:18 N	0.43		X	14
02-231	3/24/02	12:45 N	0.86	X		20.6
02-232	3/24/02	12.45 N	0.86	* >	χ	13.4
02-233	4/30/02	11:30 AM	0.55	х		1.9
02-234	4/30/02	11:30 AM	0.55		X	1.4
02-235	5/3/02	11:08 AM	0.43	х		2.2
02-236	5/3/02	11:08 AM	0.43		X	2.5
		Perioden until et malan ere ar unterproje en efficiere men er until egan grande (unterprise Entalpri				,
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DATE: AUGUST 2, 2001

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: KALIWA RIVER

LAB. NO. [01-81   01-125   01-113   01-114	Date of Sample 5/22/01 6/13/01 6/21/01	Time of Sampling 1:55 p.m.		Тор	Bottom	mg/l
01-125 01-113	6/13/01		~~			1
01-113			26		X	100.7
	6/21/01	12:25p.m.	21		x	3.0
01 114	0/21/01	10:25 a.m.	21		X	2.2
	6/13/01	2.:25 <b>p</b> .m.	21	Near Confluer	ice	55.6
01-126	6/23/01	9:40 a.m.	34		x	2.1
01-172	6/24/01	10:00 a.m.	27			4.5
01-173	6/25/01	10:10 a.m.	30			4.2
01-174	6/26/01	9:55 a.m.	41	x		72.5
01-175	6/26/01	9:55 a.m.	41		X	72.1
01-176	6/27/01	10:30 a.m.	36.5	X		15.3
10-177	6/27/01	10:30 a.m.	36.5		×	13.2
01-178	6/28/01	2:35 p.m.	44	X		16.7
01-179	6/28/01	2:35 p.m.	44		x	23.9
01-180	6/30/01	2:20 p.m.	53	X		15.1
01-181	6/30/01	2:20 p.m.	53		х	13.7
01-182	7/3/01	11:10 a.m.	79	×		38.4
01-183	7/3/01	11:10 a.m.	79		x	74.5
01-184	7/9/01	9:45 a.m.	70	X		6.7
01-185	7/9/01	9:45 a.m.	70		x	5.7
01-186	7/10/01	10:10 a.m.	80	X		21.5
01-187	7/10/01	10:10 a.m.	80	· · · · · · · · · · · · · · · · · · ·	×	28.7
01-188	7/11/01	4:10 p.m.	69	x		3.3
01-189	7/11/01	4:10 p.m.	69		x	10.2
01-190	7/12/01	10:50 a.m.	64	Х		7.6
01-191	7/12/01	10:50 a.m.	64		×	9.0
10-192	7/13/01	4:35 p.m.	60	×		6.4
01-193	7/13/01	4:35 p.m.	60		X	17.7
01-194	7/14/01	3:55 p.m.	62	X		7.9
01-195	7/14/01	3:55 p.m.	62		Х	6.3

NOTED:

DATE: AUGUST 2, 2001

SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA

KEIYO CONSTRUCTION

NAME OF RIVER: KALIWA RIVER

			Gage Height	Location o	f Sampling	Sediment
LAB. NO.	Date of Sample	Time of Sampling	cm	Тор	Bottom	mg/l
01-196	7/15/01	3:40 p.m.	58	Х		8.9
01-197	7/15/01	3:40 p.m.	58		×	6.0
01-198	7/16/01	4:05 p.m.	54	x		2.7
01-199	7/16/01	4:05 p.m.	54		×	27.1
01-200	7/17/01	10:55 a.m.	66	X		61.5
01-201	7/17/01	10:55 a.m.	66		×	70.1
01-211	7/18/01	3:35 a.m.	58	x		6.2
01-212	7/18/01	3:35 a.m.	58		x	6.6
01-213	7/19/01	12:15 p.m.	76	Х		40.3
01-214	7/19/01	12:15 p.m.	76		×	33.8
01-215	7/20/01	11:00 a.m.	116	X		218.4
01-216	7/20/01	11:00 a.m	116		x	228 1
01-217	7/20/01	1:45 p.m.	100	X		230.9
01-218	7/20/01	1:45 p.m.	100		x	237.5
01-219	7/24/01	10:50 a.m.	72	X		55.1
01-220	7/24/01	10:50 a.m.	72		×	53,6

NOTED:

ROSITA M. CREGORIO Supvg. Soil Tech.

•

DATE: April 12, 2002

#### SEDIMENT ANALYSIS

### PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: KALIWA RIVER, DARAETAN

]		RIVER, DARAETAI	<u> </u>			
LAB. NO.	ار Date of Sample	Times of Constitution	Gage Height		f Sampling	Sediment
00-31		Time of Sampling		Тор	Bottom	mg/l
02:32	2/2/6/02	10:30 a m.	43	X		3.0
	2/26/02	10:30 a m	43		х .	3 4
03.03	2/24/02	5 15 p.m.	42	X		3.4
0,5-34	2/24/02	5:15 p m	4.2		У	3.4
37.35	2/22/02	5:05 p m	40	X		4.0
57.13	2/22/02	5:05 p.m.	10		X	4.3
Maria III	2/22/02	10.45 a.m.	40	Х	1	6.8
U) 1545	2/22/02	10 45 a.m	40		Х	8.3
50.39	2/28/02	4.10 p.m.	34	X		6.7
0.1-40	2/28/02	4:10 p.m.	34		Х	5,7
112.41	3/1/02	4:15 p.m	34	x		2.8
02-42	3/1/02	4:15 p.m.	34		х	4.7
92.63	3/12/02	4:50 p.m.	31	×		2.1
U2-64	3/12/02	4:50 p.m.	31		x	1.5
0.265	3/13/02	10:04 a.m	42	×		2.5
92-66	3/13/02	10 04 a m	40		Y.	7,9
02-67	3/13/02	2:30 p.m	61	×		6.4
03-68	3/13/02	2:36 p.m	61		×	7.3
02-69	3/14/02	9:33 a m	44	х		1.2
02.70	3/14/02	9:33 a.m.	44		X	2.4
<u> </u>	3/14/02	3:13 p.m	42	Х		4.7
00-72	3/14/02	3:13 p.m	42		Х	1.8

NOTED.

ROSTA M. GREGORIO

ுத்த Soil Tech.

DATE: April 12, 2002

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: KALIWA RIVER, DARAETAN

						<del></del>
<del></del>			Gage Height	Location of	Sampling	Sedimen
LAB. NO.	Date of Sample	Time of Sampling	cm	Тор	Bottom	mg/i
02-237	3/18/02	3:45 P.M.	31	Χ ~		3.7
02-238	3/18/02	3:45 P.M.	31		X	6.9
02-239	3/19/02	10:55 A.M.	29	Х		1.6
02-240	3/19/02	10:55 A.M.	29		Х	2.8
02-241	3/20/02	4:45 P.M.	27	X		3.4
02-242	3/20/02	4:45 P.M.	27		×	2.9
02-243	3/21/02	3:00 P.M.	0.33	х		7.C
02-244	3/21/02	3:00 P.M.	0.33		Х	4.2
		POTENTIAL TAXABLE TRANSPORT I AND ADMINISTRATION OF THE PARTY OF THE P				
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NOTED:

DATE: April 12, 2002

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: PINAGSANGAHAN, SGS #4

			Gage Height	Loc	cation	Sediment
LAB. NO.	Date of Sampling	Time	cm	Тор	Bottom	mg/l
· · · · · · · · · · · · · · · · · · ·						
02-43	2/26/02	12:20 p.m.	25	X		3.8
02-44	2/26/02	12:20 p.m.	25		Х	5.2
02-45	2/23/02	5:30 p.m.	28	Х		6.2
02-4-5	2/23/02	5:30 p.m	28		×	3.6
00.47	2/24/02	11:45 a.m.	26	X		1.4
02.48	2/24/02	11:45 a.m	26		×	2,3
00-81	3/2/02	11:45 a.m	20	X		1.0
02-80	3/2/02	11.45 a.m	20		Х	0.8
02-03	3/5/02	3:30 p.m.	00	X		0.5
02-84	3/5/02	3:30 p.m.	68		х	3.6
02-85	3/7/02	10:00 a.m.	32	Х		1.3
02-86	3/7/02	10.00 a.m.	32	**************************************	×	1.0
02-87	3/11/02	9:44 a.m.	18	Х		2.9
02-88	3/11/02	9:44 a.m.	18	<del></del>	x	1.3
02-89	3/16/02	10:37 a.m	25	X		0.5
02-90	3/16/02	10:37 a.m.	25		X	0.2
02.91	3/16/02	1:39 p.m.	24	Х		0.6
02-92	3/16/02	1:39 p.m.	24		×	0.7
· · · · · · · · · · · · · · · · · · ·					***************************************	

MOTED:

DATE: July 22, 2002

#### SEDIMENT ANALYSIS

PROJECT: WATER RESOURCES DEVELOPMENT PROJECT FOR METRO MANILA KEIYO CONSTRUCTION

NAME OF RIVER: PINAGSANGAHAN, SGS #4

			Gage Height	Loc	ation	Sediment
LAB. NO.	Date of Sampling	Time	Citi	Тор	Bottom	mg/l
00.045				9:		
02- 245	3/22/02	10:43 A M	0.13	X		2.9
02-246	3/22/02	10:43 A.M	0.13		T ×	1.8
02-247	3/23/02	10:43 A.M.	0.13	Χ		1.2
02-248	3/23/02	10:43 A.M.	0.13		X	0.8
02-258	3/24/02	2:04 P.M	0.45	X	†·	12.5
02-259	3/24/02	2.04 P.M.	0.45		X	11.7
02-260	4/10/02	9:47 A.M	0.2	X		1.6
02-261	4/10/02	9:47 A.M.	0.2		X X	3.3
02-262	4/30/02	10:00 A.M.	0.1	Х	1	3.7
02-263	4/30/02	10:00 A.M.	0.1		×	2.5
02-264	5/3/02	9:38 A.M	0.32	X		2.4
02-265	5/3/02	0:38 A.M.	0.32		×	3.5
02-266	5/9/02	10:33 A.M.	0.52	Х	<u> </u>	2.2
02-267	5/9/02	10:33 A M.	0.52		X	3.9
	angel plategramen i se se reseas septembres se sente a se					
	<u> </u>					

NOTED:

#### SIEVE ANALYSIS

6-Aug-01

#### PROJECT: WATER RESOURCES DEV. PROJECT FOR METRO MANILA Keiyo Construction Co.

#### AGOS RIVER

Sieve No.	Sieve	Wt. Sieve	Wt. Sieve	Wt	Percent	
	Opening	+ Soil		Retained	Retained	
	mm	gm	gm	gm		Remarks
#50	0.30	88.3659	88,3659	0.0000	0.00	
#60	0.25	90.4253	90,4253	0.0000	0.00	
#140	0.106	84.1797	84.1797	0.0000	0.00	
#300	0.045	83.1106	83.0764	0.0342	8.15	
PAN		64.0269	63.6413	0,3856	91.85	
TOTAL				0.4198		

#### AGOS RIVER

7.000 7.11	<del></del>	I ,			<del></del>	
Sieve No.	Sieve	Wt. Sieve	Wt. Sieve	Wt [	Percent	
	Opening	+ Soil		Retained	Retained	
	imm	gm	gm	gm		Remarks
#50	0.30	88.3857	88.3857	0.0000	0.00	
#60	0.25	90.4728	90.4728	0,0000	0.00	
#140	0.106	84.1807	84.1807	0.0000	0.00	
#300	0.045	83.0979	83.0765	0.0214	7.87	
PAN		63.8921	63.6415	0.2506	92.13	
TOTAL.				0.272		

MOTED:

Supvg. Soil Tech.

#### SIEVE ANALYSIS

6-Aug-01

### PROJECT: WATER RESOURCES DEV. PROJECT FOR METRO MANILA Keiyo Construction Co.

#### KALIWA RIVER

1777 FINANTI	.1 4 1 7					
Sieve No.	Sieve	Wt. Sieve	Wt. Sieve	Wt	Percent	
	Opening	+ Soil		Retained	Retained	
	mm	gm	gm	gm		Remarks
#50	0.300	88.3680	88.368	0.0000	0.00	
#60	0.250	90.4411	90.4411	0.0000	0.00	
#140	0.106	84.1883	84.1811	0.0072	1.21	
#300	0.045	83.1413	83.0817	0.0596	10.04	
PAN		64.1701	63.6431	0,5270	88.75	
TOTAL				0.5938		

#### KALIWA RIVER

Sieve No.	Sieve	Wt. Sieve	Wt. Sieve	Wt	Percent	
	Opening	+ Soil	1	Retained	Retained	
	mm	gm	gm i	gm		Remarks
#50	0.30	88.3736	88.3736	0.0000	0.00	
#60	0.25	90.4457	90.4457	0.0000	0.00	
#140	0.106	84.188	84.1818	0.0062	1.18	
#300	0.045	83.1269	83.0836	0.0433	8.23	
PAN		64,1199	63.6432	0.4767	90.59	
TOTAL	İ		į	0.5262		

NOTED:

ROSITA M. OREGORIO

Supvg. Soil Tech.

#### SIEVE ANALYSIS

6-Aug-01

PROJECT: WATER RESOURCES DEV. PROJECT FOR METRO MANILA Keiyo Construction Co.

#### KANAN RIVER

Sieve No.	Sieve	Wt. Sieve	Wt. Sieve	Wt	Percent	
•	Opening	+ Soii		Retained	Retained	
Ĺ	mm	gm	gm	gm	!	Remarks
#50	0.30	88.3674	88.3674	0.0000	0.00	
#60	0.25	90.4282	90.4282	0.0000	0.00	
#140	0.106	84.3738	84.1811	0.1927	16.64	
#300	0.045	83.9485	83.0821	0.8664	74.80	
PAN		63.7415	63.6423	0.0992	8.56	,
TOTAL			The second secon	1.1583		

#### KANAN RIVER

Sieve No.	Sieve	Wt. Sieve	Wt. Sieve	₩t	Percent	
<b>}</b>	Opening	+ Soil	-	Retained	Retained	
	mm	gm	gm	gm	i	Remarks
#50	0.30	88.3857	38,3857	0.0000	0.00	
#60	0.25	90.4728	90.4728	0.0000	0.00	
#140	0.106	84.3334	84.1807	0.1527	16.28	
#300	0.045	83.7649	83.0821	0.6828	72.80	
PAN		63.7460	63.6436	0.1024	10.92	
TOTAL				0.9379		

NOTED:

# Republic of the Philippines NATIONAL IRRIGATION ADMINISTRATION Research and Development Dvision SOILS & WATER LABORATORY SERVICES EDSA, QUEZON CITY

#### SPECIFIC GRAVITY TEST

	AGOS 1	AGOS 2	KANAN 1	KANAN 2	KALIWA 1	KALIWA 2
LAB. NO. / PYCNOMETER NO.						
1. Wt. Pycnometer empty	49.76	49.782	51.7286	51.8290	52.0753	47.784
2. Pycnometer full water + cover	152.8844	152.9044	153.4451	153.4051	159.486	151.164
3. Vol Pcynometer = (2-1/ D)	103.4342	103.3293	101.9205	101.7799	107.6262	103.5874
T = 21 <sup>∞</sup>						
D = 0.997998						
4. Wt. Pcynometer half full water	89.7359	89.7606	90.3153	90.4153	94.1172	92.3697
5. Pcynometer Half full water + soil	90.1529	90.0265	91,4433	91.2423	94.6805	92.8344
6. Wt. Of Soil Used (5-4)	0.417	0.2659	1.128	0.827	0.5633	0.4647
7. Pcynometer + Soil filled with water	153.2226	153.0455	154.119	153,893	159.8099	151.4293
8. Wt. Water in Pycnometer + Soil						
(7-1-6)	103.0456	102.9976	101.2624	101.237	107.1713	103.1806
9. Volume of water with Soil in Pycn						
(8/D_water, T= 22 °C D= 0.997766)	103.2763	103.2282	101.4891	101.4637	107.4113	103.4116
10. Volume of Water Displaced (3-9)	0.157831	0.101053	0.431418	0.316193	0.214911	0.17576
11. Specific Gravity of Soil (6/10)	2.642071	2.631283	2.614632	2.615487	2.621087	2.643941

NOTED:

ROSITA M. GREGORIO Supvg. Soil Technologist

### H5 Water Quality



2nd Floor, Alegria Bldg. 2229 Chino Roces Avenue Makati City, Philippines Tel.: (0632) 817.62.31 - 35 Fax: (0632) 750.29.46 - 47

> Manile, 09 August 2001 L-01/3004

LABORATORY TEST REPORT NO. 69221

ESULTS OF ANALYSIS

CLIENT

: KEYO CONSTRUCTION, CO.

**ADDRESS** 

1 February, Congressional Village, Quezon City

SAMPLE/S SUBMITTED AS

: River Water

DATE RECEIVED
DATE REPORTED

: 27 July 2001 : 09 August 2001

LABORATORY NO.

: 072701 - 08689 to 08691

Analysis based on sample(s) submitted by KEYO CONSTRUCTION, CO. SGS Philippines., Inc. does not guarantee that sample(s) submitted is (are) representative of the whole bulk from where it/they was (were) taken.

ANALYSIS	River Water (Kaliwa River 27/7/01 12:30°C) 072701 - 08689	River Water (Agos River – 27/7/01 10:00 28.8°C (072701 - 08690)	River Water (Kanan River – 27/7/01 9:15 28.2°C) (072701 – 08691)
Ammonia (NH <sub>3</sub> ), mg/L	0.57	0.75	<0.01
COD mg/L	5.0	<5.0	<5.0
BOD (5 Days, 20°C), mg/L	2.5	2.4	1.0
Cyanide (CN-), mg/L	0.002	0.002	0.002
Total Alkalinity as CaCO3, mg/L	110	92.5	60.9
Phosphate as P, mg/L	0.28	0.23	<0.01

Methodology: Based on Standard Methods for the Examination of Water and Wastewater.

This report cancels and supersedes Laboratory Test Report No. 69172 and will be kept on file for only six months from the date of issue.

Approved Signatory:

CHAVELT CATHERINE E. RAVELO

Section Coordinator

PRISCILA P. TONGCO
Technical Manager

(PTR NO. 7763738 MAKATI CITY 01/19/2001) SGS Philippines, Inc.

### UNIVERSITY OF THE PHILIPPINES NATURAL SCIENCES RESEARCH INSTITUTE

Research and Analytical Services Laboratory

Southeast corner Quirino and Velasquez Avenues, Diliman, Quezon City 1101 Tel. Nos.: 920 7731; 920-5301 to 99 local 6667; Fax No.: (632) 928 6868

E-Mail: rasl@nsri.upd.edu.ph

Service Report X Analyticai	Consultancy	Information		Training
Report No.: Requesting Agency: Address: Service Requested:	02-119 Keiyo Construction Congressional Village, Pro	ect 8, Quezon City c, Cadmium, and Lead in river w	Date:	15 August 2002
Date of Request:	2 August 2002	c, Cadimuni, and Lead in fiver w	ater samptes	

#### **RESULTS OF ANALYSIS:**

Parameter	Agos River 2 August 2002 9:48 a.m.	Kaliwa River 2 August 2002 2:30 p.m.	Kanan River 2 August 2002 8:35 a.m.	Method of Analysis
Chromium, mg/L	< 0.05	< 0.05	< 0.05	*AAS, Flame (Ref. 1)
Copper, mg/L	< 0.02	< 0.02	< 0.02	AAS, Flame (Ref. 1)
Arsenic, mg/L	0.0021	0.0015	0.00060	AAS, Hydride Generation (Ref. 1)
Cadmium, mg/L	< 0.002	< 0.002	< 0.002	"ASV (Ref. 2)
Lead, mg/L	< 0.005	< 0.005	< 0.005	ASV (Ref. 2)

<sup>\*</sup>AAS - Atomic Absorption Spectrophotometry
\*\*ASV - Anodic Stripping Voltammetry

References:	(1) (2)	Standard Methods for Examination of Water and Wastewater, 16th Edition, American Public Health Association. PDV 2000 Instruction Manual, Chemtronics Bentley, Western Australia, 1986.
43		_

Service done by:

Analysts

Signature

Date

Supervisors

Signature

Date

M.R. R. Agustin

F. B. B. Bello

A. E. Pascual

I. A. Umacob

Latin

Latin

Latin

Latin

Checked by:

Supervisors

Signature

Date

C. R. Africa

E. C. Santiago

Marinin

Latin

#### Certified by:

The results are certified true only for the samples as received by the laboratory.

Evangeline C. Santiago, Ph.D.



 No. 62 20th Avenue Cubao, Quezon City Tel.: (632) 913-0241 Telefea: (632) 913-848 E-mail: fast@pacific.net.p
 Malarayst Rural Bank Bid Maharika Highway
Sto. Tomas, Batangas Telefax: (043) 778-4014

Date: 03 August 2001

Laboratory Analysis Report No. CQ0701-3294

CLIENT

KEIYO CONSTRUCTION

**ADDRESS** 

CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY

SAMPLE(S) SUBMITTED AS:

KALIWA RIVER (CQ0701-3294-00)

DATE/TIME OF SAMPLING:

27 JULY 2001 / 12:30 PM

DATE RECEIVED

27 JULY 2001

DATE ANALYZED

27 JULY - 01 AUGUST 2001

DATE REPORTED

03 AUGUST 2001

#### **RESULTS OF ANALYSIS**

Physico-Chemical Analysis	Sample (as received)	Phil. National Standards for Drinking Water DOH, 1993	Test Method
Color, PCU	35	5	Visual Comparison
KmnO4 Oxidizable Matter, mg/L O2	0.7	N.S.*	Titrimetric

<sup>\*</sup> N.S. – No Standard was provided by the DOH.

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20th ed., American Public Health Assoc., Washington D.C.

Results are those obtained at time of examination and relate only to the sample/s tested.

P. B. PARALES Chem. Reg No. 08372

APPROVED SIGNATORY:

R. D. GABANG Laboratory Manager

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 Malarayat Rural Bank Bidg Maharaka Highway
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Date: 23 June 2001

Laboratory Analysis Report No. CQ0601-2546

CLIENT

: KEIYO CONSTRUCTION COMPANY

**ADDRESS** 

CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY

SAMPLE(S) SUBMITTED AS:

KALIWA RIVER (CO0601-2546-02)

DATE /TIME OF SAMPLI NG:

13 JUNE 2001/12:25 PM

DATE RECEIVED DATE ANALYZED

13 JUNE 2001 13 – 22 JUNE 2001

DATE REPORTED

23 JUNE 2001

#### **RESULTS OF ANALYSIS**

Analysis	Sample as received	Phil. National Standards for Drinking Water DOH, 1993	Test Method
Temperature, "C	32	N.S.**	Used of Mercury Filled Thermometer
Total Alkalinity as CaCO3, mg/L	91	N.S.**	Titrimetric
Conductivity, µhos/cm	221	N.S.**	Conductivity Meter
Bicarbonate as CaCO <sub>J</sub> , mg/L	111	N.S.**	Titrimetric
Phosphate, mg/L	N.D.*	N.S.**	Colorimetric
BOD <sub>5</sub> , mg/L	2.4	N.S.**	Azide Modification
COD, mg/L	40	N.S.**	Open Reflux Dichromate
KMnO <sub>4</sub> consumed, mg/L O <sub>2</sub>	0.1	N.S.**	Titrimetric
Ammonia, mg/L	N.D.*	N.S.**	Titrimetric

\* N.D. - Not Detectable

\*\* N.S. - No standard was provided by the DOH.

Detection Limit (mg/L) = Ammonia = 0.01, Phosphate = 0.01

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20th ed., American Public Health Assoc., Washington D.C.

Results are those obtained at time of examination and relate only to the sample's tested.

P.B. PARALES Chem. Reg No. 08372

APPROVED SIGNATORY:

R. D. GXLANG Laporalary Manager

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Sto. Tomas, Batangas Telefaz: (043) 778-4014

Date: 23 June 2001

Laboratory Analysis Report No. CQ0601-2546

CLIENT

KEIYO CONSTRUCTION COMPANY

**ADDRESS** 

CONGRESSIONAL AVE., PROJECT 8 OUEZON CITY

SAMPLE(S) SUBMITTED AS:

KALIWA RIVER (CQ0601-2546-02)

DATE /TIME OF SAMPLI NG:

13 JUNE 2001/12:25 PM

DATE RECEIVED DATE ANALYZED 13 JUNE 2001 13 – 22 JUNE 2001

DATE REPORTED

23 JUNE 2001

**RESULTS OF ANALYSIS** 

RESOURS OF ANALISES			
Physico-Chemical Analysis (Inorganic Constituents)	Sample (as received)	Phil. National Standards for Drinking Water DOH, 1993	Test Method
Arsenic, mg/L	N.D.*	0.01	Colorimetrie
Cadmium, mg/L	N.D.*	0.003	AAS
Chromium, mg/L	N.D.*	0.05	AAS
Cyanide, mg/L	N.D.*	0.07	Colorimetric
Fluoride, mg/L	N.D.*	1.0	Colorimetrie
Lead, mg/L	N.D.*	0.01	AAS
Mercury, mg/L	N.D.*	0.001	AAS
Nitrate, mg/L	N.D.*	50	Colorimetric

\*N.D. - Not detectable

Detection limit (mg/L), Arsenic = 0.01, Cadmium = 0.003, Chromium = 0.05, Cyanide = 0.07,

Fluoride = 0.5, Lead = 0.01, Mercury = 0.0002, Nitrate = 0.40,

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20th ed., American Public Health Assoc., Washington D.C.

Results are those obtained at time of examination and relate only to the sample/s tested.

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Malarayat Rural Bank Blo Maharlika Highway Sto. Tomas, Batangas Telefax: (043) 778-4014

Date: 23 June 2001

Laboratory Analysis Report No. CQ0601-2546

CLIENT

KEIYO CONSTRUCTION COMPANY

**ADDRESS** 

CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY

SAMPLE(S) SUBMITTED AS:

KALIWA RIVER (CQ0601-2546-02)

DATE /TIME OF SAMPLING:

13 JUNE 2001/12:25 PM

DATE RECEIVED DATE ANALYZED

13 JUNE 2001 13 – 22 JUNE 2001

DATE REPORTED

23 JUNE 2001

RESULTS OF ANALYSIS

RESULTS OF ANALISIS				
Physico-Chemical Analysis	Sample (as received)	Phil. National Standards for Drinking Water DOH, 1993	Test Method	
Н	8.06	6.5-8.5	Glass Electrode	
Color, PCU	5	5	Visual Comparison	
Turbidity, NTU	0.60	5	Nephelometric	
Chloride, mg/L	0.94	250	Titrimetric	
Copper, mg/L	N.D.*	1	AAS	
Total Hardness as CaCO <sub>3</sub> , mg/L	158	300	Titrimetric	
Iron, mg/L	N.D.*		AAS	
Manganese, mg/L	N.D.*	0.5	AAS	
Sodium, mg/L	8.6	200	AAS	
Sulfate, mg/L	10.4	250	Colorimetric	
Zinc, mg/L	N.D.*	5	AAS	

\*N.D. - Not detectable

Detection limit (mg/L): Copper = 0.04, Iron = 0.06, Manganese = 0.02, Zinc = 0.02

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20<sup>th</sup> ed., American Public Health Assoc., Washington D.C.

Results are those obtained at time of examination and relate only to the sample/s tested.

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Date: 15 August 2002

Laboratory Analysis Report No. CQ0802-3446

CLIENT : KEIYO CONSTRUCTION CO.

ADDRESS : CONGRESSIONAL VILLAGE, QUEZON CITY

SAMPLE(S) SUBMITTED AS: KALIWA RIVER (CQ0802-3446-00)

DATE/TIME OF SAMPLING: 02 AUGUST 2002/2:30 PM

DATE RECEIVED : 02 AUGUST 2002 DATE ANALYZED : 02 - 13 AUGUST 2002 DATE REPORTED : 15 AUGUST 2002

RESULTS OF ANALYSIS

Physico-Chemical Analysis	Sample (as received)	Test Method
BOD <sub>5</sub> , mg/L	4	Azide Modification
COD, mg/L	17	Open Reflux Dichromate
Color, PCU	5	Visual Comparison
Conductivity, µS/cm	215	Conductivity Meter
Nitrate, mg/L	0.49	Colorimetric
Chloride, mg/L	0.94	Titrimetric
Total Hardness as CaCO3, mg/L	150	Titrimetric
Total Alkalinity as CaCO3, mg/L	150.8	Titrimetric
Bicarbonate, mg/L	184	Titrimetric
Sulfate, mg/L	2.7	Colorimetric
Ammonia, mg./L	0.048	Titrimetric
Cyanide, mg/L	Less than 0.001	Colorimetric
Phosphate, mg/L	6.95	Colorimetric
lron, mg/L	0.58	AAS
Manganese, mg/L	0.03	AAS
Sodium, mg/L	6.47	AAS
Fluoride, mg/L	0.062	Colorimetric
Calcium, mg/L	42.2	AAS
Zinc, mg/L	Less than 0.02	AAS
KmuO <sub>4</sub> as O <sub>2</sub> , mg/L	0.9	Titrimetric
Mercury, mg/L	Less than 0.0002	.Cold Vapor - AAS

Page 1 of 6

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Date: 03 August 2001

Laboratory Analysis Report No. CQ0701-3294

CLIENT : KEIYO CONSTRUCTION

ADDRESS : CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY

SAMPLE(S) SUBMITTED AS: AGOS RIVER (CQ0701-3294-02)

DATE /TIME OF SAMPLING: 27 JULY 2001 / 10:00 AM

DATE RECEIVED : 27 JULY 2001

DATE ANALYZED : 27 JULY - 01 AUGUST 2001

DATE REPORTED : 03 AUGUST 2001

#### RESULTS OF ANALYSIS

Physico-Chemical Analysis	Sample (as received)	Phil. National Standards for Drinking Water DOH, 1993	Test Method
Color, PCU	40	5	Visual Comparison
KmnO4 Oxidizable Matter, mg/L O2	1.9	N.S.*	Titrimetric

<sup>\*</sup> N.S. - No Standard was provided by the DOH.

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20th ed., American Public Health Assoc., Washington D.C.

Results are those obtained at time of examination and relate only to the sample/s tested.

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R. D. GALANG Laboratory Manager

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 Malarayat Rural Bank Ble Maharika Highway Sto. Tomas, Batangas Telefax: (043) 775-4014

Date: 23 June 2001

Laboratory Analysis Report No. CQ0601-2546

CLIENT

**KEIYO CONSTRUCTION COMPANY** 

**ADDRESS** 

CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY

SAMPLE(S) SUBMITTED AS:

AGOS RIVER (CQ0601-2546-00)

DATE /TIME OF SAMPLI NG: DATE RECEIVED : 13 JUNE 2001/7:35 AM

DATE ANALYZED

13 JUNE 2001 13 – 22 JUNE 2001

DATE REPORTED

23 JUNE 2001

#### **RESULTS OF ANALYSIS**

Physico – Chemical Analysis	Sample as received	Phil. National Standards for Drinking Water DOH, 1993	Test Method
Temperature, °C	30.5	N.S.**	Used of Mercury filled Thermometer
Total Alkalinity as CaCO3, mg/L	76	N.S.**	Titrimetric
Conductivity, µhos/cm	149.7	N.S.**	Conductivity Meter
Bicarbonate as CaCO <sub>3</sub> , mg/L	92	N.S.**	Titrimetric
Phosphate, mg/L	N.D.*	N.S.**	Colorimetric
BOD <sub>5</sub> , mg/L	3.0	N.S.**	Azide Modification
COD, mg/L	12	N.S.**	Open Reflux Dichromate
KMnO <sub>4</sub> consumed, mg/L O <sub>2</sub>	0.1	N.S**	Titrimetric
Ammonia, mg/L	N.D.*	N.S.**	Titrimetric

\* N.D. - Not Detectable

\*\*N.S. - No Standard was provided by the DOH.

Detection Limit (mg/L): Ammonia = 0.01, Phosphate = 0.01

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20th ed., American Public Health Assoc., Washington D.C.

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Laboratory Manager

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 Sto. Tomas, Batanjas Telefax: (043) 778-4014

Date: 23 June 2001

Laboratory Analysis Report No. CQ0601-2546

CLIENT : KEIYO CONSTRUCTION COMPANY

ADDRESS : CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY

SAMPLE(S) SUBMITTED AS: AGOS RIVER (CQ0601-2546-00)

DATE /TIME OF SAMPLING: 13 JUNE 2001/7:35 AM

DATE RECEIVED : 13 JUNE 2001 DATE ANALYZED : 13 – 22 JUNE 2001 DATE REPORTED : 23 JUNE 2001

**RESULTS OF ANALYSIS** 

	RESOLIS OF TRATEGORS		
Physico-Chemical Analysis (Inorganic Constituents)	Sample (as received)	Phil. National Standards for Drinking Water DOH, 1993	Test Method
Arsenie, mg/L	N.D.*	0.01	Colorimetric
Cadmium, mg/L	N.D.*	0.003	AAS
Chromium, mg/L	N.D.*	0.05	AAS
Cyanide, mg/L	N.D.*	0.07	Colorimetric
Fluoride, mg/L	N.D.*	1.0	Colorimetric
Lead, mg/L	N.D.*	0.01	AAS
Mercury, mg/L	N.D.*	0.001	AAS
Nitrate, mg/L	N.D.*	50	Colorimetric

\*N.D. - Not detectable

Detection limit (mg/L), Arsenic = 0.01, Cadmium = 0.003, Chromium = 0.05, Cyanide = 0.07, Fluoride = 0.5, Lead = 0.01, Mercury = 0.0002, Nitrate = 0.40,

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20th ed., American Public Health Assoc., Washington D.C.

Results are those obtained at time of examination and relate only to the sample/s tested.

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Date: 23 June 2001

Laboratory Analysis Report No. CQ0601-2546

CLIENT : KEIYO CONSTRUCTION COMPANY

ADDRESS : CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY

SAMPLE(S) SUBMITTED AS: AGOS RIVER (CQ0601-2546-00)

DATE /TIME OF SAMPLING: 13 JUNE 2001/7:35 AM

DATE RECEIVED : 13 JUNE 2001 DATE ANALYZED : 13 – 22 JUNE 2001 DATE REPORTED : 23 JUNE 2001

**RESULTS OF ANALYSIS** 

RESULTS OF ARABISIS ,				
Physico-Chemical Analysis	Sample (as received)	Phil. National Standards for Drinking Water DOH, 1993	Test Method	
pH	7.60	6.5-8.5	Glass Electrode	
Color, PCU	, 5	5	Visual Comparison	
Turbidity, NTU	0.21	5	Nephelometric	
Chloride, mg/L	3.3	250	Titrimetric	
Copper, mg/L	N.D.*		AAS	
Total Hardness as CaCO3, mg/L	122	300	Titrimetric	
Iron, mg/L	0.12	Ī	AAS	
Manganese, mg/L	N.D.*	0.5	AAS	
Sodium, mg/L	6.4	200	AAS	
Sulfate, mg/L	7.6	250	Colorimetric	
Zinc, mg/L	N.D.*	5	AAS	

\*N.D. - Not detectable

Detection limit (mg/L): Copper = 0.04, Manganese = 0.02, Zinc = 0.02

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20th ed., American Public Health Assoc., Washington D.C.

Results are those obtained at time of examination and relate only to the sample/s tested.

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Date: 15 August 2002

Laboratory Analysis Report No. CQ0802-3446

CLIENT

KEIYO CONSTRUCTION CO.

**ADDRESS** 

CONGRESSIONAL VILLAGE, QUEZON CITY

SAMPLE(S) SUBMITTED AS: DATE /TIME OF SAMPLI NG:

AGOS RIVER (CQ0802-3446-01)

DATE RECEIVED

02 AUGUST 2002/9:48 AM 02 AUGUST 2002

DATE ANALYZED

02 - 13 AUGUST 2002

DATE REPORTED

15 AUGUST 2002

RESULTS OF ANALYSIS				
Physico-Chemical Analysis	Sample (as received)	Test Method		
BOD <sub>5</sub> , mg/L	3	Azide Modification		
COD, mg/L	19	Open Reflux Dichromate		
Color, PCU	10	Visual Comparison		
Conductivity, µS/cm	182.7	Conductivity Meter		
Nitrate, mg/L	0.51	Colorimetric		
Chloride, mg/L	7.5	Titrimetric		
Total Hardness as CaCO <sub>3</sub> , mg/L	88	Titrimetric		
Total Alkalinity as CaCO3, mg/L	87.2	Titrimetric		
Bicarbonate, mg/L	106	Titrimetric		
Sulfate, mg/L	13.2	Colorimetric		
Ammonia, mg./L	0.058	Titrimetric		
Cyanide, mg/L	Less than 0.001	Colorimetric		
Phosphate, mg/L	8.07	Colorimetric		
Iron, mg/L	0.78	AAS		
Manganese, mg/L	0.28	AAS		
Sodium, mg/L	6.0	AAS		
Fluoride, mg/L	0.076	Colorimetric		
Calcium, mg/L	31.2	AAS		
Zinc, mg/L	Less than 0.02	AAS		
KmnO <sub>4</sub> as O <sub>2</sub> , mg/L	0.6	Titrimetric		
Mercury, mg/L	Less than 0.0002	Cold Vapor - AAS		

Page 3 of 6

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Date: 03 August 2001

Laboratory Analysis Report No. CQ0701-3294

KEIYO CONSTRUCTION **CLIENT** 

CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY **ADDRESS** 

KANAN RIVER (CQ0701-3294-01) SAMPLE(S) SUBMITTED AS:

DATE /TIME OF SAMPLI NG: 27 JULY 2001 / 9:15 AM

27 JULY 2001 DATE RECEIVED

27 JULY - 01 AUGUST 2001 DATE ANALYZED

DATE REPORTED 03 AUGUST 2001

#### **RESULTS OF ANALYSIS**

Physico-Chemical Analysis	Sample (as received)	Phil. National Standards for Drinking Water DOH, 1993	Test Method
Color, PCU	15	5	Visual Comparison
KmnO4 Oxidizable Matter, mg/L O2	1.1	N.S.*	Titrimetric

<sup>\*</sup> N.S. - No Standard was provided by the DOH.

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation, 1998, Standard Methods for the Examination of Water and Wastewater, 20th ed., American Public Health Assoc., Washington D.C.

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 Sto. Tomas, Batangas
 Telefax: (043) 778-4014

Date: 23 June 2001

Laboratory Analysis Report No. CQ0601-2546

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CLIENT

KEIYO CONSTRUCTION COMPANY

**ADDRESS** 

CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY

SAMPLE(S) SUBMITTED AS:

KANAN RIVER (CQ0601-2546-01)

DATE /TIME OF SAMPLING:

13 JUNE 2001/6:05 AM

DATE RECEIVED

13 JUNE 2001

DATE ANALYZED

13 – 22 JUNE 2001

DATE REPORTED

23 JUNE 2001

#### RESULTS OF ANALYSIS

Physico - Chemical Analysis	Sample as received	Phil. National Standards for Drinking Water DOH, 1993	Test Method
Temperature, °C	29	N.S.**	Used of Mercury Filled Thermometer
Total Alkalinity as CaCO <sub>3</sub> , mg/L	66	N.S.**	Titrimetric
Conductivity, µhos/cm	123.8	N.S.**	Conductivity Meter
Bicarbonate as CaCO <sub>3</sub> , mg/L	80	N.S.**	Titrimetric
Phosphate, mg/L	N.D.*	N.S.**	Colorimetric
BOD <sub>5</sub> , mg/L	4	N.S.**	Azide Modification
COD, mg/L	44	N.S**	Open Reflux Dichromate
KMnO <sub>4</sub> consumed, mg/L O <sub>2</sub>	0.2	N.S.**	Titrimetric
Ammonia, mg/L	N.D.*	N.S.**	Titrimetric

<sup>\*</sup> N.D. - Not Detectable

Detection Limit (mg/L): Ammonia = 0.01, Phosphate = 0.01

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20th ed., American Public Health Assoc., Washington D.C.

Results are those obtained at time of examination and relate only to the sample/s tested.

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<sup>\*\*</sup> N.S. - No Standard was provided by the DOH



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Date: 23 June 2001

Laboratory Analysis Report No. CQ0601-2546

CLIENT : KEIYO CONSTRUCTION COMPANY

ADDRESS : CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY

SAMPLE(S) SUBMITTED AS: KANAN RIVER (CQ0601-2546-01)

DATE /TIME OF SAMPLING: 13 JUNE 2001/6:05 AM

DATE RECEIVED : 13 JUNE 2001
DATE ANALYZED : 13 – 22 JUNE 2001
DATE REPORTED : 23 JUNE 2001

**RESULTS OF ANALYSIS** 

Physico-Chemical Analysis (Inorganic Constituents)	Sample (as received)	Phil. National Standards for Drinking Water DOH, 1993	Test Method
Arsenic, mg/L	N.D.*	0.01	Colorimetric
Cadmium, mg/L	N.D.*	0.003	AAS
Chromium, mg/L	N.D.*	0.05	AAS
Cyanide, mg/L	N.D.*	0.07	Colorimetric
Fluoride, mg/L	N.D.*	1.0	Colorimetric
Lead, mg/L	N.D.*	0.01	AAS
Mercury, mg/L	N.D.*	0.001	AAS
Nitrate, mg/L	N.D.*	50	Colorimetric

\*N.D. - Not detectable

Detection limit (mg/L), Arsenic = 0.01, Cadmium = 0.003, Chromium = 0.05, Cyanide = 0.07, Fluoride = 0.5, Lead = 0.01, Mercury = 0.0002, Nitrate = 0.40,

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20th ed., American Public Health Assoc., Washington D.C.

Results are those obtained at time of examination and relate only to the sample/s tested.

P. B. PARALES Chem. Reg No. 08372

APPROVED SIGNATORY:

R. D/GALANG Laporatory Manager

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 Malarayat Rural Bank Bldg Maharika Highway
 Tomas, Batanqas Telefax: (043) 778-4014

Date: 23 June 2001

Laboratory Analysis Report No. CQ0601-2546

CLIENT : KEIYO CONSTRUCTION COMPANY

ADDRESS : CONGRESSIONAL AVE., PROJECT 8 QUEZON CITY

SAMPLE(S) SUBMITTED AS: KANAN RIVER (CQ0601-2546-01)

DATE /TIME OF SAMPLING: 13 JUNE 2001/6:05 AM

DATE RECEIVED : 13 JUNE 2001
DATE ANALYZED : 13 – 22 JUNE 2001
DATE REPORTED : 23 JUNE 2001

**RESULTS OF ANALYSIS** 

RESULTS OF ANALISIS			
Physico-Chemical Analysis	Sample (as received)	Phil. National Standards for Drinking Water DOH, 1993	Test Method
pH	7.52	6.5-8.5	Glass Electrode
Color, PCU	5	5	Visual Comparison
Turbidity, NTU	0.18	5	Nephelometric
Chloride, mg/L	2.8	250	Titrimetric
Copper, mg/L	N.D.*	1	AAS
Total Hardness as CaCO3, mg/L	Zero	300	Titrimetric
Iron, mg/L	0.14	1	AAS
Manganese, mg/L	N.D.*	0.5	AAS
Sodium, mg/L	5.7	200	AAS
Sulfate, mg/L	5.4	250	Colorimetric
Zine, mg/L	N.D.*	5	AAS

\*N.D. - Not detectable

Detection limit (mg/L): Copper = 0.04, Manganese = 0.02, Zinc= 0.02

Ref.: American Public Health Association, American Water Works Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater. 20th ed., American Public Health Assoc., Washington D.C.

Results are those obtained at time of examination and relate only to the sample/s tested.

P.B. PARALES Chem. Reg No. 08372

APPROVED SIGNATORY:

R. D. GÁLANG Laboratory Munager

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Malarayat Rural Bank Bidg. Maharika Highway Sto. Tomas, Balangas Telefax: (043) 778-4014

Date: 15 August 2002

Laboratory Analysis Report No. CQ0802-3446

CLIENT

KEIYO CONSTRUCTION CO.

**ADDRESS** 

CONGRESSIONAL VILLAGE, QUEZON CITY

SAMPLE(S) SUBMITTED AS:

KANAN RIVER (CQ0802-3446-02)

DATE /TIME OF SAMPLI NG:

02 AUGUST 2002/8:35 AM

DATE RECEIVED

02 AUGUST 2002

DATE ANALYZED

02 - 13 AUGUST 2002

DATE REPORTED

15 AUGUST 2002

RESULTS OF ANALYSIS

Physico-Chemical Analysis	Sample (as received)	d) Test Method	
BOD <sub>5</sub> , mg/L	5	Azide Modification	
COD, mg/L	30	Open Reflux Dichromate	
Color, PCU	5	Visual Comparison	
Conductivity, µS/cm	122.3	Conductivity Meter	
Nitrate , mg/L	0.45	Colorimetric	
Chloride, mg/L	3.7	Titrimetric	
Total Hardness as CaCO3, mg/L	46	Titrimetric	
Total Alkalinity as CaCO3, mg/L	55.7	Titrimetric	
Bicarbonate, mg/L	68	Titrimetric	
Sulfate, mg/L	11.6	Colorimetric	
Ammonia, mg./L	Less than 0.01	Titrimetric	
Cyanide, mg/L	Less than 0.001	Colorimetric	
Phosphate, mg/L	9.81	Colorimetric	
Iron, mg/L	Less than 0.06	AAS	
Manganese, mg/L	0.22	AAS	
Sodium, mg/L	5.66	AAS	
Fluoride, mg/L	0.28	Colorimetric	
Calcium, mg/L	17.3	AAS	
Zinc, mg/L	0.02	AAS	
KmnO₄as O₂, mg/L	0.6	Titrimetric	
Mercury, mg/L	Less than 0.0002	· Cold Vapor - AAS	

Page 5 of 6

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