

ภาคผนวก ก

หนังสือรับรองผลการตรวจวิเคราะห์

คุณภาพอากาศในบรรยากาศ

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : พื้นที่โครงการ

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Station	Date	Parameter	
		TSP (mg/m ³)	PM10 (mg/m ³)
พื้นที่โครงการ	April 5, 2022	0.046	0.024
	April 6, 2022	0.052	0.018
	April 7, 2022	0.057	0.023
Standard *		≤0.33	≤0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.

Source : * The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

SGS (THAILAND) LIMITED

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : พื้นที่โครงการ
LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : April 5-7, 2022
SAMPLING BY : Oran Boonphan

Time	NO ₂ Concentration (ppm)		
	April 5, 2022	April 6, 2022	April 7, 2022
00:00-01:00	0.010	0.011	0.009
01:00-02:00	0.010	0.010	0.009
02:00-03:00	0.010	0.010	0.009
03:00-04:00	0.009	0.010	0.009
04:00-05:00	0.009	0.010	0.008
05:00-06:00	0.009	0.010	0.008
06:00-07:00	0.009	0.010	0.008
07:00-08:00	0.010	0.012	0.008
08:00-09:00	0.011	0.013	0.009
09:00-10:00	0.012	0.013	0.011
10:00-11:00	0.013	0.013	0.012
11:00-12:00	0.009	0.014	0.011
12:00-13:00	0.009	0.015	0.011
13:00-14:00	0.009	0.014	0.010
14:00-15:00	0.009	0.014	0.011
15:00-16:00	0.008	0.013	0.010
16:00-17:00	0.008	0.014	0.010
17:00-18:00	0.008	0.014	0.010
18:00-19:00	0.009	0.013	0.010
19:00-20:00	0.009	0.013	0.009
20:00-21:00	0.009	0.013	0.011
21:00-22:00	0.010	0.013	0.010
22:00-23:00	0.009	0.011	0.009
23:00-00:00	0.010	0.011	0.009
1 hr-Minimum	0.008	0.010	0.008
1 hr-Maximum	0.013	0.015	0.012
Avg. 24 hr	0.009	0.012	0.010
Standard* (avg. 1 hr)	0.17		

Analytical Method : - Chemiluminescence Method.

Source : * The notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).



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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : พื้นที่โครงการ

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Time	CO Concentration (ppm)		
	April 5, 2022	April 6, 2022	April 7, 2022
00:00-01:00	0.540	0.291	0.527
01:00-02:00	0.430	0.253	0.654
02:00-03:00	0.447	0.303	0.297
03:00-04:00	0.444	0.347	0.370
04:00-05:00	0.271	0.223	0.285
05:00-06:00	0.297	0.338	0.711
06:00-07:00	0.331	0.302	0.515
07:00-08:00	0.251	0.383	0.383
08:00-09:00	0.409	0.334	0.465
09:00-10:00	0.366	0.370	0.401
10:00-11:00	0.435	0.324	0.408
11:00-12:00	0.288	0.330	0.479
12:00-13:00	0.409	0.296	0.716
13:00-14:00	0.363	0.269	0.710
14:00-15:00	0.319	0.426	0.771
15:00-16:00	0.312	0.473	0.816
16:00-17:00	0.253	0.465	0.750
17:00-18:00	0.295	0.452	0.826
18:00-19:00	0.278	0.365	0.678
19:00-20:00	0.287	0.331	0.661
20:00-21:00	0.255	0.273	0.817
21:00-22:00	0.316	0.522	0.832
22:00-23:00	0.336	0.555	0.632
23:00-00:00	0.264	0.589	0.545
1 hr-Minimum	0.251	0.223	0.285
1 hr-Maximum	0.540	0.589	0.832
Avg. 8 hrs	00:00-08:00	0.376	0.305
	08:00-16:00	0.363	0.353
	16:00-00:00	0.286	0.444
Standard* (avg. 1 hr)		30	
Standard* (avg. 8 hrs)		9	

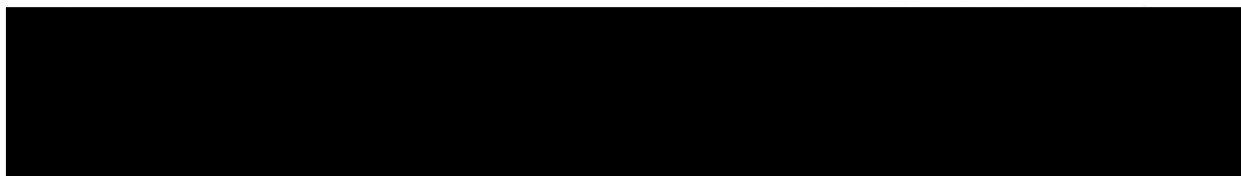
Analytical Method : - Non-dispersive Infrared (NDIR) Method.

Source : * The notification of the National Environment Board No.10, B.E. 2538 (1995), subjected "The ambient air standards", published in the Royal Government Gazette, Vol.142, Part 42D, dated May 25, 1999.

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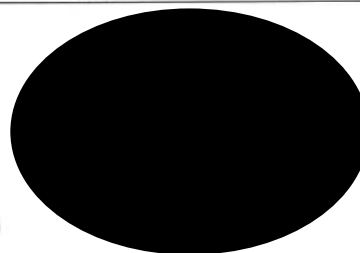


Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : พื้นที่โครงการ
LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : April 5-7, 2022
SAMPLING BY : Oran Boonphan

Station	Date	THC (ppm)
พื้นที่โครงการ	April 5, 2022	6.79
	April 6, 2022	7.68
	April 7, 2022	7.70



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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
 SAMPLING LOCATION : พื้นที่โครงการ
 LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : April 5-7, 2022
 SAMPLING BY : Oran Boonphan

Time	SO ₂ Concentration (ppm)		
	April 5, 2022	April 6, 2022	April 7, 2022
00:00-01:00	0.011	0.006	0.009
01:00-02:00	0.007	0.005	0.006
02:00-03:00	0.008	0.006	0.006
03:00-04:00	0.007	0.005	0.005
04:00-05:00	0.005	0.005	0.005
05:00-06:00	0.005	0.007	0.003
06:00-07:00	0.008	0.006	0.007
07:00-08:00	0.006	0.007	0.005
08:00-09:00	0.005	0.006	0.006
09:00-10:00	0.007	0.006	0.006
10:00-11:00	0.007	0.008	0.006
11:00-12:00	0.007	0.007	0.008
12:00-13:00	0.007	0.006	0.009
13:00-14:00	0.006	0.007	0.008
14:00-15:00	0.007	0.006	0.006
15:00-16:00	0.007	0.007	0.008
16:00-17:00	0.006	0.008	0.007
17:00-18:00	0.007	0.009	0.006
18:00-19:00	0.007	0.009	0.007
19:00-20:00	0.006	0.011	0.007
20:00-21:00	0.006	0.010	0.007
21:00-22:00	0.007	0.008	0.007
22:00-23:00	0.006	0.006	0.007
23:00-00:00	0.006	0.008	0.006
1 hr-Minimum	0.005	0.005	0.003
1 hr-Maximum	0.011	0.011	0.009
Avg. 24 hr	0.007	0.007	0.006
Standard* (avg. 1 hr)	0.30		
Standard** (avg. 24 hr)	0.12		

Analytical Method :
 Sources :

- UV Fluorescence Method.
- The notification of the National Environment Board No.21, B.E. 2544 (2001), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 118, Part 39E, dated April 30, B.E. 2544 (2001).
- ** The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 127, Part 104D, dated September 1, B.E. 2547 (2004).

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SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : พื้นที่โครงการ
LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE: April 5-7, 2022
SAMPLING BY : Oran Boonphan

TIME	April 5, 2022		April 6, 2022		April 7, 2022	
	Wind Direction	Wind Speed (m/s)	Wind Direction	Wind Speed (m/s)	Wind Direction	Wind Speed (m/s)
00:00-01:00	ENE	1.8	ENE	2.2	ENE	1.3
01:00-02:00	E	1.8	NE	2.7	ENE	0.9
02:00-03:00	ENE	1.8	NE	3.1	ENE	2.2
03:00-04:00	ENE	1.3	NE	4.0	ENE	2.7
04:00-05:00	ENE	0.9	ENE	3.6	ENE	2.7
05:00-06:00	ENE	0.9	ENE	3.6	NE	2.7
06:00-07:00	ENE	0.9	ENE	3.6	NE	1.8
07:00-08:00	ENE	1.3	NE	4.0	NE	3.1
08:00-09:00	ENE	1.8	NE	3.1	NE	3.6
09:00-10:00	ENE	2.2	NE	2.2	NE	4.0
10:00-11:00	ENE	3.1	NE	1.8	NE	2.7
11:00-12:00	ENE	2.7	NNE	1.8	NNE	2.7
12:00-13:00	ENE	2.7	NNE	2.2	NNW	3.1
13:00-14:00	E	2.7	NW	2.2	NW	3.6
14:00-15:00	SE	3.1	NW	2.7	NW	4.0
15:00-16:00	S	2.7	NNW	2.7	NW	4.0
16:00-17:00	W	2.2	SE	2.2	NW	3.6
17:00-18:00	WSW	1.8	SW	1.3	NW	2.7
18:00-19:00	WSW	1.3	-	CALM	NE	0.9
19:00-20:00	NW	1.8	ENE	1.3	NE	0.9
20:00-21:00	ENE	1.3	ENE	2.2	ESE	3.6
21:00-22:00	ENE	1.3	ENE	1.8	NNE	1.8
22:00-23:00	ENE	1.3	ENE	1.3	E	0.9
23:00-00:00	ENE	1.8	ENE	1.3	NE	1.8

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction



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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE: April 5-7, 2022

SAMPLING LOCATION : พื้นที่โครงการ

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Wind Direction \ Wind Speed	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	2.78	2.78	-	-
NE	2.78	4.17	5.56	9.72	-
ENE	5.56	19.44	11.11	5.56	-
E	1.39	1.39	1.39	-	-
ESE	-	-	-	1.39	-
SE	-	-	1.39	1.39	-
SSE	-	-	-	-	-
S	-	-	1.39	-	-
SSW	-	-	-	-	-
SW	-	1.39	-	-	-
WSW	-	2.78	-	-	-
W	-	-	1.39	-	-
WNW	-	-	-	-	-
NW	-	1.39	4.17	5.56	-
NNW	-	-	1.39	1.39	-
CALM	1.39				



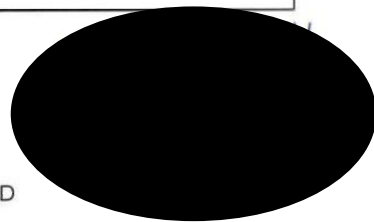
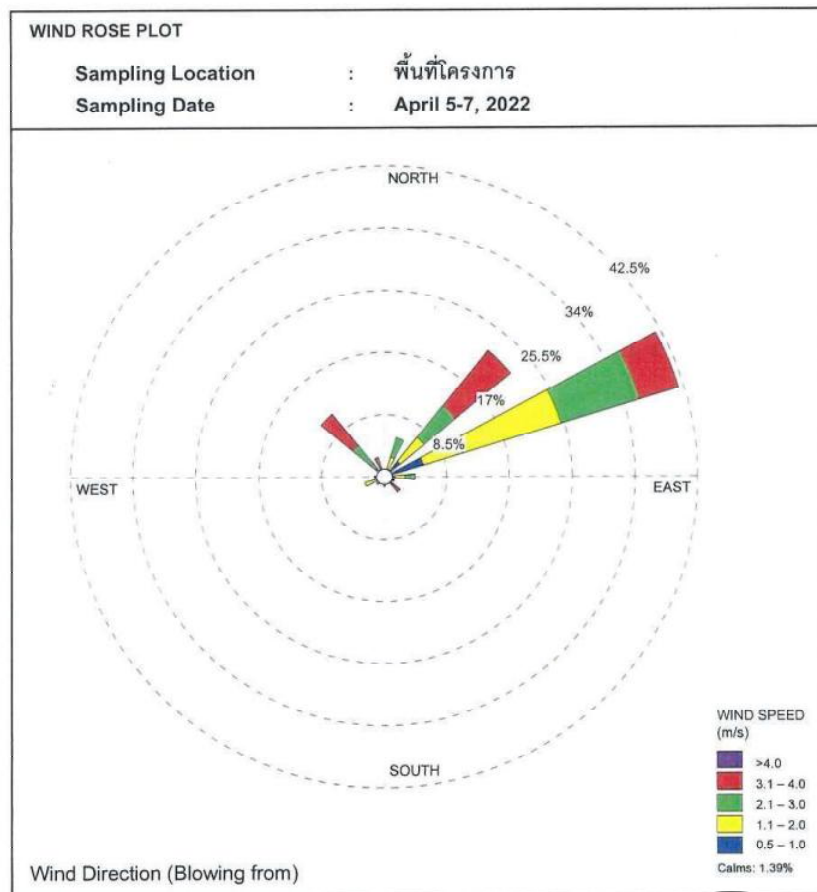
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SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านท่าโสม

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Station	Date	Parameter	
		TSP (mg/m ³)	PM10 (mg/m ³)
บ้านท่าโสม	April 5, 2022	0.046	0.015
	April 6, 2022	0.044	0.016
	April 7, 2022	0.048	0.019
Standard *		≤0.33	≤0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.

Source : * The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : บ้านท่าไสม
LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : April 5-7, 2022
SAMPLING BY : Oran Boonphan

Time	NO ₂ Concentration (ppm)		
	April 5, 2022	April 6, 2022	April 7, 2022
00:00-01:00	0.007	0.008	0.008
01:00-02:00	0.007	0.008	0.007
02:00-03:00	0.007	0.008	0.007
03:00-04:00	0.007	0.008	0.007
04:00-05:00	0.007	0.008	0.007
05:00-06:00	0.007	0.008	0.007
06:00-07:00	0.007	0.009	0.007
07:00-08:00	0.008	0.011	0.007
08:00-09:00	0.008	0.010	0.007
09:00-10:00	0.009	0.010	0.008
10:00-11:00	0.009	0.009	0.009
11:00-12:00	0.007	0.010	0.009
12:00-13:00	0.007	0.010	0.008
13:00-14:00	0.007	0.009	0.008
14:00-15:00	0.007	0.009	0.008
15:00-16:00	0.007	0.009	0.007
16:00-17:00	0.007	0.009	0.007
17:00-18:00	0.007	0.009	0.007
18:00-19:00	0.007	0.009	0.007
19:00-20:00	0.008	0.009	0.008
20:00-21:00	0.008	0.009	0.012
21:00-22:00	0.008	0.010	0.008
22:00-23:00	0.008	0.008	0.008
23:00-00:00	0.008	0.009	0.008
1 hr-Minimum	0.007	0.008	0.007
1 hr-Maximum	0.009	0.011	0.012
Avg. 24 hr	0.008	0.009	0.008
Standard* (avg. 1 hr)	0.17		

Analytical Method : - Chemiluminescence Method.

Source : * The notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านท่าไสม

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Time	CO Concentration (ppm)		
	April 5, 2022	April 6, 2022	April 7, 2022
00:00-01:00	0.375	0.279	0.361
01:00-02:00	0.336	0.296	0.395
02:00-03:00	0.346	0.305	0.263
03:00-04:00	0.344	0.310	0.306
04:00-05:00	0.264	0.282	0.232
05:00-06:00	0.273	0.307	0.433
06:00-07:00	0.286	0.310	0.327
07:00-08:00	0.263	0.320	0.318
08:00-09:00	0.368	0.345	0.383
09:00-10:00	0.308	0.307	0.326
10:00-11:00	0.309	0.255	0.303
11:00-12:00	0.268	0.281	0.353
12:00-13:00	0.325	0.239	0.444
13:00-14:00	0.306	0.255	0.416
14:00-15:00	0.320	0.315	0.448
15:00-16:00	0.301	0.334	0.463
16:00-17:00	0.293	0.321	0.427
17:00-18:00	0.292	0.315	0.491
18:00-19:00	0.288	0.263	0.408
19:00-20:00	0.300	0.284	0.431
20:00-21:00	0.262	0.288	0.570
21:00-22:00	0.285	0.397	0.508
22:00-23:00	0.327	0.365	0.418
23:00-00:00	0.281	0.378	0.397
1 hr-Minimum	0.262	0.239	0.232
1 hr-Maximum	0.375	0.397	0.570
Avg. 8 hrs	00:00-08:00	0.311	0.329
	08:00-16:00	0.313	0.392
	16:00-00:00	0.291	0.456
Standard* (avg. 1 hr)	30		
Standard* (avg. 8 hrs)	9		

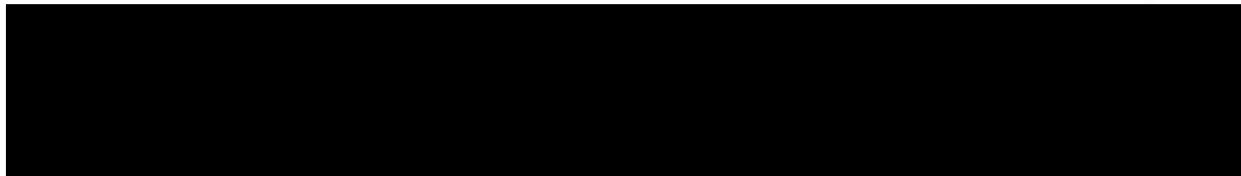
Analytical Method : - Non-dispersive Infrared (NDIR) Method.

Source : * The notification of the National Environment Board No.10, B.E. 2538 (1995), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 112, Part 42D, dated May 25, B.E. 2538.



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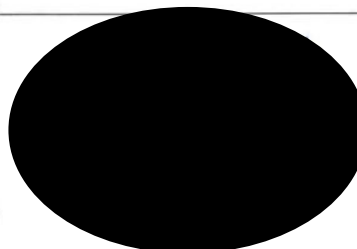


Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : บ้านท่าไสม
LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : April 5-7, 2022
SAMPLING BY : Oran Boonphan

Station	Date	THC (ppm)
บ้านท่าไสม	April 5, 2022	7.46
	April 6, 2022	7.91
	April 7, 2022	7.70



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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านท่าไสม

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Time	SO ₂ Concentration (ppm)		
	April 5, 2022	April 6, 2022	April 7, 2022
00:00-01:00	0.006	0.007	0.001
01:00-02:00	0.006	0.007	0.001
02:00-03:00	0.006	0.003	0.002
03:00-04:00	0.007	0.002	0.002
04:00-05:00	0.007	0.002	0.003
05:00-06:00	0.006	0.001	0.001
06:00-07:00	0.006	0.003	0.003
07:00-08:00	0.006	0.001	0.001
08:00-09:00	0.006	0.001	0.002
09:00-10:00	0.007	0.002	0.001
10:00-11:00	0.008	0.004	0.001
11:00-12:00	0.010	0.004	0.002
12:00-13:00	0.014	0.001	0.001
13:00-14:00	0.005	0.005	0.001
14:00-15:00	0.008	0.002	0.003
15:00-16:00	0.007	0.001	0.001
16:00-17:00	0.007	0.001	0.001
17:00-18:00	0.007	0.001	0.001
18:00-19:00	0.007	0.001	0.002
19:00-20:00	0.006	0.001	0.001
20:00-21:00	0.006	0.002	0.002
21:00-22:00	0.007	0.001	0.001
22:00-23:00	0.007	0.001	0.001
23:00-00:00	0.005	0.003	0.003
1 hr-Minimum	0.005	0.001	0.001
1 hr-Maximum	0.014	0.007	0.003
Avg. 24 hr	0.007	0.002	0.001
Standard* (avg. 1 hr)	0.30		
Standard** (avg. 24 hr)	0.12		

Analytical Method :
Sources :

- UV Fluorescence Method.
- * The notification of the National Environment Board No.21, B.E. 2544 (2001), subjected published in the Royal Government Gazette, Vol. 118, Part 39E, dated April 30, B.E. 2545 (2002).
- ** The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 1, B.E. 2547 (2004).

SGS (THAILAND) LIMITED

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E 245277

SGS (Thailand) Limited

Environment, Health and Safety 100 Nanglinchee Road Chongnonsee Yannawa Bangkok 10120
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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านท่าไสม

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

TIME	April 5, 2022		April 6, 2022		April 7, 2022	
	Wind Direction	Wind Speed (m/s)	Wind Direction	Wind Speed (m/s)	Wind Direction	Wind Speed (m/s)
00:00-01:00	-	CALM	S	1.8	-	CALM
01:00-02:00	-	CALM	S	1.3	-	CALM
02:00-03:00	-	CALM	-	CALM	-	CALM
03:00-04:00	-	CALM	-	CALM	-	CALM
04:00-05:00	-	CALM	-	CALM	NE	0.9
05:00-06:00	E	0.9	-	CALM	NNE	1.3
06:00-07:00	E	1.3	-	CALM	NE	0.9
07:00-08:00	NW	1.3	-	CALM	NNE	1.3
08:00-09:00	N	0.9	-	CALM	NNE	2.2
09:00-10:00	N	0.9	-	CALM	NE	3.6
10:00-11:00	NE	0.9	NE	3.6	NE	3.6
11:00-12:00	S	0.9	NE	3.1	NE	3.6
12:00-13:00	S	1.3	NE	3.1	NE	3.1
13:00-14:00	S	1.3	ENE	2.7	NE	3.1
14:00-15:00	W	1.3	NE	3.1	NE	3.1
15:00-16:00	WNW	2.2	NE	2.7	NE	2.7
16:00-17:00	WNW	2.7	NE	3.1	NE	2.7
17:00-18:00	WSW	1.8	NE	2.2	ENE	2.2
18:00-19:00	ESE	1.8	NE	2.2	NE	0.9
19:00-20:00	ESE	2.2	NE	2.2	-	CALM
20:00-21:00	S	2.2	NE	1.8	-	CALM
21:00-22:00	S	1.8	NE	0.9	E	0.9
22:00-23:00	SSE	2.7	-	CALM	-	CALM
23:00-00:00	SSE	1.3	-	CALM	-	CALM

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

SGS (THAILAND) LIMITED

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านท่าโสม

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Wind Direction \ Wind Speed	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	2.78	-	-	-	-
NNE	-	2.78	1.39	-	-
NE	6.94	1.39	8.33	15.28	-
ENE	-	-	2.78	-	-
E	1.39	1.39	-	-	1.39
ESE	-	1.39	1.39	-	-
SE	-	-	-	-	-
SSE	-	1.39	1.39	-	-
S	1.39	6.94	1.39	-	-
SSW	-	-	-	-	-
SW	-	-	-	-	-
WSW	-	1.39	-	-	-
W	-	1.39	-	-	-
WNW	-	-	2.78	-	-
NW	-	1.39	-	-	-
NNW	-	-	-	-	-
CALM	31.94				



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E 245279

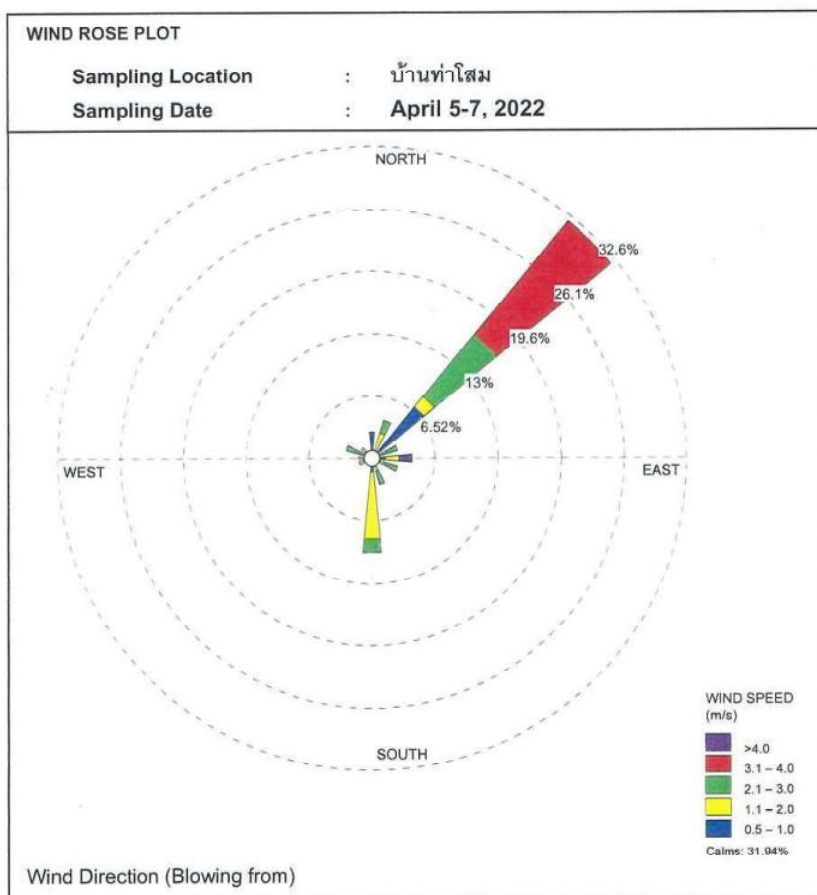
SGS (Thailand) Limited

Environment, Health and Safety 100 Nanglinchee Road Chongnonsee Yannawa Bangkok 10120
t +66 (0)2 678 18 13 f +66 (0)2 678 06 22 www.sgs.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
 SAMPLING LOCATION : บ้านท่าโสม
 LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : April 5-7, 2022
 SAMPLING BY : Oran Boonphan



SGS (THAILAND) LIMITED

The Company under its General Conditions of Service printed on the reverse side. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : บ้านบางกระดาน
LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : April 5-7, 2022
SAMPLING BY : Oran Boonphan

Station	Date	Parameter	
		TSP (mg/m ³)	PM10 (mg/m ³)
บ้านบางกระดาน	April 5, 2022	0.047	0.016
	April 6, 2022	0.046	0.013
	April 7, 2022	0.050	0.016
Standard *		≤0.33	≤0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : * The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

SGS (THAILAND) LIMITED

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านบางกระดาน

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Time	NO ₂ Concentration (ppm)		
	April 5, 2022	April 6, 2022	April 7, 2022
00:00-01:00	0.007	0.009	0.008
01:00-02:00	0.007	0.008	0.008
02:00-03:00	0.008	0.009	0.008
03:00-04:00	0.008	0.009	0.008
04:00-05:00	0.007	0.009	0.008
05:00-06:00	0.007	0.010	0.009
06:00-07:00	0.008	0.010	0.009
07:00-08:00	0.009	0.014	0.009
08:00-09:00	0.009	0.009	0.009
09:00-10:00	0.009	0.010	0.009
10:00-11:00	0.009	0.008	0.009
11:00-12:00	0.008	0.008	0.009
12:00-13:00	0.008	0.009	0.008
13:00-14:00	0.008	0.008	0.008
14:00-15:00	0.008	0.008	0.008
15:00-16:00	0.008	0.008	0.008
16:00-17:00	0.008	0.008	0.007
17:00-18:00	0.008	0.007	0.007
18:00-19:00	0.008	0.007	0.007
19:00-20:00	0.010	0.008	0.010
20:00-21:00	0.009	0.009	0.017
21:00-22:00	0.009	0.009	0.010
22:00-23:00	0.009	0.008	0.010
23:00-00:00	0.010	0.009	0.009
1 hr-Minimum	0.007	0.007	0.007
1 hr-Maximum	0.010	0.014	0.017
Avg. 24 hr	0.008	0.009	0.009
Standard* (avg. 1 hr)	0.17		

Analytical Method : - Chemiluminescence Method.

Source : * The notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านบางกระดาน

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Time	CO Concentration (ppm)		
	April 5, 2022	April 6, 2022	April 7, 2022
00:00-01:00	0.344	0.365	0.322
01:00-02:00	0.360	0.444	0.275
02:00-03:00	0.368	0.414	0.322
03:00-04:00	0.366	0.383	0.349
04:00-05:00	0.351	0.441	0.261
05:00-06:00	0.346	0.384	0.308
06:00-07:00	0.342	0.428	0.255
07:00-08:00	0.368	0.370	0.365
08:00-09:00	0.457	0.478	0.435
09:00-10:00	0.359	0.352	0.366
10:00-11:00	0.291	0.277	0.305
11:00-12:00	0.342	0.331	0.352
12:00-13:00	0.356	0.266	0.329
13:00-14:00	0.357	0.332	0.268
14:00-15:00	0.433	0.314	0.284
15:00-16:00	0.396	0.314	0.274
16:00-17:00	0.436	0.290	0.254
17:00-18:00	0.392	0.289	0.329
18:00-19:00	0.399	0.253	0.282
19:00-20:00	0.418	0.338	0.353
20:00-21:00	0.362	0.404	0.524
21:00-22:00	0.354	0.412	0.363
22:00-23:00	0.434	0.304	0.352
23:00-00:00	0.396	0.300	0.388
1 hr-Minimum	0.291	0.253	0.254
1 hr-Maximum	0.457	0.478	0.524
Avg. 8 hrs	00:00-08:00	0.356	0.307
	08:00-16:00	0.374	0.327
	16:00-00:00	0.399	0.356
Standard* (avg. 1 hr)		30	
Standard* (avg. 8 hrs)		9	

Analytical Method : - Non-dispersive Infrared (NDIR) Method.

Source : * The notification of the National Environment Board No.10, B.E. 2538 (1995), subject to "Ambient air standards", published in the Royal Government Gazette, Vol. 112, Part 42D, dated May 25, 1969.

SGS (THAILAND) LIMITED

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E 245283

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านบางกระดาน

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Station	Date	THC (ppm)
บ้านบางกระดาน	April 5, 2022	7.27
	April 6, 2022	7.73
	April 7, 2022	7.51

SGS (THAILAND) LIMITED

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านบางกระดาน

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Time	SO ₂ Concentration (ppm)		
	April 5, 2022	April 6, 2022	April 7, 2022
00:00-01:00	0.002	0.003	0.004
01:00-02:00	0.004	0.005	0.001
02:00-03:00	0.003	0.004	0.001
03:00-04:00	0.001	0.005	0.001
04:00-05:00	0.004	0.004	0.003
05:00-06:00	0.004	0.003	0.003
06:00-07:00	0.001	0.004	0.002
07:00-08:00	0.004	0.005	0.001
08:00-09:00	0.004	0.003	0.001
09:00-10:00	0.002	0.002	0.003
10:00-11:00	0.002	0.004	0.001
11:00-12:00	0.004	0.003	0.003
12:00-13:00	0.004	0.003	0.003
13:00-14:00	0.002	0.005	0.001
14:00-15:00	0.003	0.005	0.003
15:00-16:00	0.002	0.002	0.001
16:00-17:00	0.004	0.004	0.002
17:00-18:00	0.004	0.004	0.003
18:00-19:00	0.002	0.005	0.001
19:00-20:00	0.004	0.005	0.002
20:00-21:00	0.001	0.004	0.001
21:00-22:00	0.004	0.005	0.001
22:00-23:00	0.003	0.005	0.001
23:00-00:00	0.004	0.004	0.003
1 hr-Minimum	0.001	0.002	0.001
1 hr-Maximum	0.004	0.005	0.004
Avg. 24 hr	0.003	0.004	0.002
Standard* (avg. 1 hr)	0.30		
Standard** (avg. 24 hr)	0.12		

Analytical Method :
Sources :

- UV Fluorescence Method.
- * The notification of the National Environment Board No.21, B.E. 2544 (2001), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 118, Part 39E, dated April 30, B.E. 2544 (2001).
- ** The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 1, B.E. 2547 (2004).

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E 245285

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านบางกระดาน

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

TIME	April 5, 2022		April 6, 2022		April 7, 2022	
	Wind Direction	Wind Speed (m/s)	Wind Direction	Wind Speed (m/s)	Wind Direction	Wind Speed (m/s)
00:00-01:00	E	1.8	-	CALM	-	CALM
01:00-02:00	E	1.3	-	CALM	-	CALM
02:00-03:00	ENE	0.9	-	CALM	-	CALM
03:00-04:00	E	1.3	-	CALM	-	CALM
04:00-05:00	E	1.3	-	CALM	-	CALM
05:00-06:00	ENE	0.9	-	CALM	-	CALM
06:00-07:00	E	1.3	-	CALM	-	CALM
07:00-08:00	E	1.8	-	CALM	-	CALM
08:00-09:00	E	1.8	-	CALM	E	0.9
09:00-10:00	ENE	1.3	E	1.8	ENE	0.9
10:00-11:00	E	1.3	E	2.2	E	0.9
11:00-12:00	ENE	0.9	E	1.3	NE	1.3
12:00-13:00	-	CALM	E	1.3	E	1.8
13:00-14:00	ENE	0.9	E	1.3	ENE	1.3
14:00-15:00	-	CALM	E	1.8	E	1.3
15:00-16:00	SE	1.3	ENE	1.3	NNE	0.9
16:00-17:00	E	2.2	SE	0.9	-	CALM
17:00-18:00	E	1.8	SE	0.9	-	CALM
18:00-19:00	ENE	1.8	-	CALM	-	CALM
19:00-20:00	E	0.9	-	CALM	-	CALM
20:00-21:00	E	1.3	-	CALM	-	CALM
21:00-22:00	E	0.9	-	CALM	-	CALM
22:00-23:00	-	CALM	-	CALM	-	CALM
23:00-00:00	-	CALM	-	CALM	-	CALM

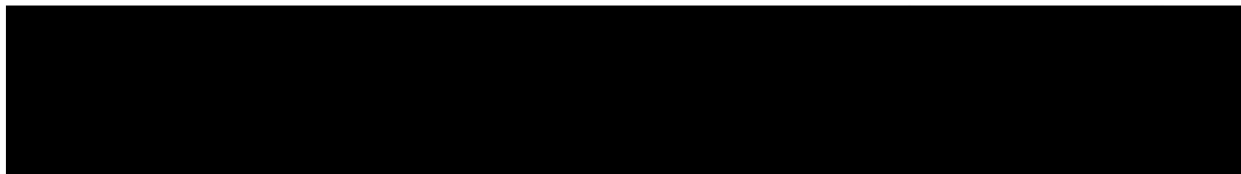
Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks : - WS = Wind Speed
- WD = Wind Direction

SGS (THAILAND) LIMITED

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

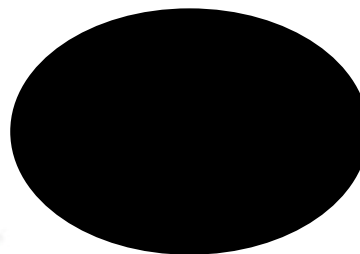
SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : บ้านบางกระดาน

SAMPLING BY : Oran Boonphan

LABORATORY NAME : SGS (Thailand) Limited

Wind Direction \ Wind Speed	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	1.39	-	-	-	-
NE	-	1.39	-	-	-
ENE	6.94	5.56	-	-	-
E	5.56	23.61	2.78	-	-
ESE	-	-	-	-	-
SE	2.78	1.39	-	-	-
SSE	-	-	-	-	-
S	-	-	-	-	-
SSW	-	-	-	-	-
SW	-	-	-	-	-
WSW	-	-	-	-	-
W	-	-	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	48.61				



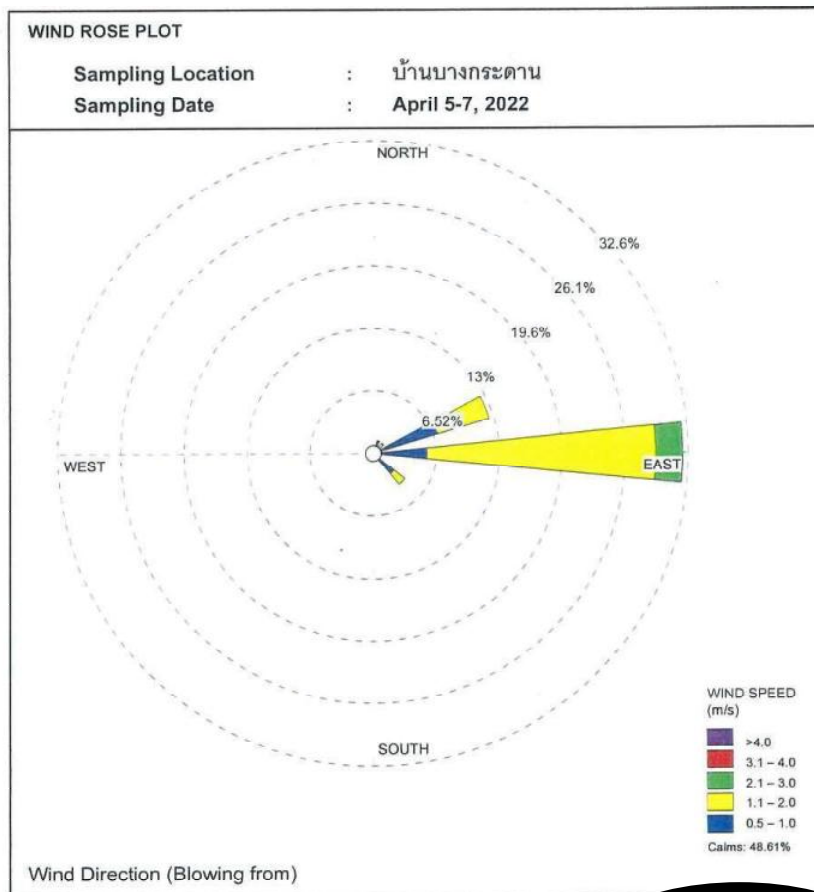
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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
 SAMPLING LOCATION : บ้านบางกระดาน
 LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : April 5-7, 2022
 SAMPLING BY : Oran Boonphan



SGS (THAILAND) LIMITED

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ระดับเสียงทั่วไป (Leq-24 hr)

Analysis Report

SAMPLE DESIGNATED AS : Noise Level

MEASUREMENT DATE : April 5-7, 2022

MEASUREMENT LOCATION : พื้นที่โครงการ

MEASUREMENT BY : Oran Boonphan

CALIBRATION DATA : Model CR:515, Cirrus Research plc, Serial No. 88373,
Calibration Value Reference: 94.0 dB(A), Pre Cal. : 93.7 dB(A), Post Cal. : 93.7 dB(A)

SOUND LEVEL METER NO. : Model CR:171B, Cirrus Research plc, Serial No. G078141

Time	Noise Level [dB(A)]									Standard ^{1/}
	April 5, 2022			April 6, 2022			April 7, 2022			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
00:00-01:00	45.8	60.4	43.8	46.7	55.6	44.3	44.3	54.0	42.8	
01:00-02:00	44.5	58.9	42.3	43.8	56.9	41.8	45.4	62.5	41.7	
02:00-03:00	43.7	58.3	41.5	43.7	60.1	41.4	44.3	65.0	41.4	
03:00-04:00	47.2	62.7	41.2	52.0	68.2	40.8	45.9	63.3	40.6	
04:00-05:00	51.2	64.5	42.1	52.9	67.4	41.9	48.3	63.6	42.4	
05:00-06:00	52.6	66.2	44.6	54.5	75.8	44.8	52.1	71.5	44.4	
06:00-07:00	49.6	69.3	42.7	50.6	68.1	42.4	47.9	67.2	42.3	
07:00-08:00	52.5	75.5	42.7	52.4	70.3	42.4	52.5	65.5	42.5	
08:00-09:00	54.1	68.6	40.8	51.6	66.0	42.2	50.6	67.4	40.2	
09:00-10:00	58.8	71.1	43.9	47.8	62.2	40.2	51.1	69.7	39.0	
10:00-11:00	60.0	70.3	45.7	48.0	60.9	39.9	48.8	70.2	40.1	
11:00-12:00	57.1	67.5	44.0	48.3	63.2	39.5	47.6	64.9	38.5	
12:00-13:00	52.9	71.6	43.6	54.4	76.4	42.3	58.7	79.8	39.5	
13:00-14:00	64.5	87.8	43.6	62.3	79.9	42.5	63.3	90.5	39.2	
14:00-15:00	54.5	66.7	42.5	46.4	61.0	40.7	45.2	68.5	39.3	
15:00-16:00	47.3	62.1	40.5	46.7	61.3	39.2	55.5	84.4	38.5	
16:00-17:00	52.3	65.7	40.5	44.9	57.0	40.0	47.9	62.6	38.3	
17:00-18:00	50.0	62.2	40.2	47.9	63.7	39.6	48.9	65.3	37.6	
18:00-19:00	52.8	74.5	40.1	50.8	70.9	38.8	49.1	72.5	37.3	
19:00-20:00	49.7	64.5	47.5	48.3	66.2	45.0	49.0	67.5	46.2	
20:00-21:00	49.4	65.3	47.2	48.6	60.2	46.4	48.3	67.2	46.2	
21:00-22:00	49.4	61.1	47.4	48.9	62.9	47.2	47.2	58.9	45.6	
22:00-23:00	48.4	59.1	45.8	49.2	63.3	47.2	46.1	57.9	44.8	
23:00-00:00	48.1	64.3	44.9	46.2	57.9	44.4	44.3	57.4	42.2	
Leq 24 hrs	54.9	-	-	52.2	-	-	52.9	-	-	70
Ldn	57.5	-	-	57.2	-	-	55.8	-	-	-
Lmax	-	87.8	-	-	79.9	-	-	90.5	-	115

Source : ^{1/} Notification of the National Environment Board No.15, B.E. 2540 (1997).



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Analysis Report

SAMPLE DESIGNATED AS : Noise Level

MEASUREMENT DATE: April 5-7, 2022

MEASUREMENT LOCATION : บ้านท่าโสม

MEASUREMENT BY : Oran Boonphan

CALIBRATION DATA : Model CR:515, Cirrus Research plc, Serial No. 88373,
Calibration Value Reference: 94.0 dB(A), Pre Cal. : 93.7 dB(A), Post Cal. : 93.7 dB(A)

SOUND LEVEL METER NO. : Model CR:171B, Cirrus Research plc, Serial No. G078054

Time	Noise Level [dB(A)]									Standard ^{1/}
	April 5, 2022			April 6, 2022			April 7, 2022			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
00:00-01:00	49.9	65.5	46.8	49.5	72.2	44.5	49.4	72.6	43.2	
01:00-02:00	54.7	80.4	43.9	47.0	62.1	44.1	46.7	64.9	42.2	
02:00-03:00	45.5	62.7	42.6	46.8	73.5	43.9	45.6	66.1	42.1	
03:00-04:00	46.6	68.0	42.5	46.6	64.2	44.0	52.0	81.2	41.7	
04:00-05:00	45.7	62.1	42.4	48.8	65.2	44.1	48.8	67.0	41.6	
05:00-06:00	52.6	73.3	43.1	51.9	70.9	44.5	52.2	71.8	42.1	
06:00-07:00	58.3	86.0	46.6	55.1	72.3	47.8	55.1	70.4	46.6	
07:00-08:00	55.5	69.2	47.3	54.9	72.3	48.2	56.0	72.4	47.0	
08:00-09:00	57.6	74.3	49.0	58.3	82.0	48.1	57.1	79.6	46.3	
09:00-10:00	57.7	74.4	49.3	56.5	67.9	48.3	55.7	72.2	45.7	
10:00-11:00	56.7	75.8	48.7	56.8	73.9	47.4	55.4	67.6	44.3	
11:00-12:00	57.1	71.5	47.5	56.7	72.7	46.4	56.1	72.5	45.6	
12:00-13:00	59.9	73.4	50.5	57.8	81.6	46.5	56.0	72.2	43.7	
13:00-14:00	57.1	78.2	47.3	58.5	82.0	46.5	56.4	73.2	44.9	
14:00-15:00	55.8	69.3	48.1	55.6	74.4	45.0	55.5	70.6	41.7	
15:00-16:00	54.4	68.8	46.8	55.5	72.0	44.0	54.7	69.9	43.3	
16:00-17:00	56.3	73.8	47.6	53.6	68.7	44.4	54.6	69.0	44.1	
17:00-18:00	56.3	71.0	48.0	54.9	70.3	45.7	55.3	73.0	44.3	
18:00-19:00	56.9	78.2	47.0	58.4	77.4	44.2	54.5	69.9	43.5	
19:00-20:00	52.1	70.4	44.9	54.7	80.4	44.0	52.3	74.8	41.9	
20:00-21:00	51.6	74.4	44.8	51.3	68.9	43.3	49.6	70.4	39.0	
21:00-22:00	50.8	75.1	44.2	49.9	71.7	43.1	49.8	77.2	36.4	
22:00-23:00	51.4	75.7	44.0	47.5	65.0	43.0	49.8	76.3	36.5	
23:00-00:00	48.7	73.9	44.2	46.8	68.0	42.8	45.7	64.8	37.2	
Leq 24 hrs	55.2	-	-	54.7	-	-	53.8	-	-	70
Ldn	59.7	-	-	58.0	-	-	58.0	-	-	-
Lmax	-	86.0	-	-	82.0	-	-	81.2	-	115

Source : ^{1/} Notification of the National Environment Board No.15, B.E. 2540 (1997).



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Analysis Report

SAMPLE DESIGNATED AS : Noise Level

MEASUREMENT DATE: April 5-7, 2022

SAMPLING LOCATION : บ้านบางกระดาน

MEASUREMENT BY : Oran Boonphan

CALIBRATION DATA : Model CR:515, Cirrus Research plc, Serial No. 88373,

Calibration Value Reference: 94.0 dB(A), Pre Cal. : 93.7 dB(A), Post Cal. : 93.7 dB(A)

SOUND LEVEL METER NO. : Model CR:171B, Cirrus Research plc, Serial No. G078137

Time	Noise Level [dB(A)]									Standard ^{1/}
	April 5, 2022			April 6, 2022			April 7, 2022			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
00:00-01:00	56.7	74.6	56.0	56.6	63.7	56.3	52.8	58.9	52.2	
01:00-02:00	56.2	59.2	56.0	56.4	58.7	56.0	52.6	62.8	51.9	
02:00-03:00	56.3	59.3	56.0	56.2	60.5	56.0	52.1	66.3	51.4	
03:00-04:00	57.3	81.6	55.5	56.4	64.3	56.0	51.2	55.7	50.3	
04:00-05:00	55.9	67.3	55.5	56.4	62.0	56.0	49.5	56.9	48.0	
05:00-06:00	56.5	60.9	55.7	57.5	66.1	56.1	53.7	62.1	48.7	
06:00-07:00	56.7	72.2	55.8	57.0	68.5	56.2	52.1	75.3	49.4	
07:00-08:00	56.6	72.0	55.4	57.2	68.6	56.1	52.8	71.4	49.4	
08:00-09:00	56.5	68.4	55.2	56.7	62.8	56.0	52.6	67.9	49.2	
09:00-10:00	57.3	69.8	54.7	56.6	71.5	55.4	53.4	68.5	49.2	
10:00-11:00	55.7	70.2	53.9	56.2	64.3	55.4	52.4	66.3	48.7	
11:00-12:00	55.1	71.0	46.7	56.5	68.7	54.9	56.1	72.2	48.6	
12:00-13:00	56.8	69.2	55.5	56.1	65.0	55.1	52.5	66.9	48.5	
13:00-14:00	56.8	66.8	55.7	56.8	74.3	55.3	54.7	67.4	50.5	
14:00-15:00	56.6	70.1	55.7	56.0	65.8	55.1	54.5	65.9	50.7	
15:00-16:00	57.2	72.1	55.6	55.9	64.3	54.9	52.6	70.2	48.5	
16:00-17:00	57.1	72.9	55.8	55.7	63.9	54.8	52.7	68.7	48.5	
17:00-18:00	57.4	74.3	55.8	56.5	66.2	55.2	52.6	66.2	49.3	
18:00-19:00	57.6	67.2	56.0	57.4	67.5	53.9	56.0	66.9	49.0	
19:00-20:00	57.4	70.3	56.4	54.3	69.1	53.0	52.4	75.5	50.1	
20:00-21:00	57.2	75.9	56.5	53.5	66.9	52.4	51.9	64.8	50.2	
21:00-22:00	57.0	67.4	56.3	53.7	70.0	52.3	51.7	67.4	50.0	
22:00-23:00	57.1	71.6	56.3	53.8	78.2	52.6	50.9	59.5	49.8	
23:00-00:00	56.7	65.9	56.2	52.9	56.7	52.5	50.6	62.7	49.3	
Leq 24 hrs	56.8	-	-	56.1	-	-	52.9	-	-	70
Ldn	63.1	-	-	62.5	-	-	58.6	-	-	-
Lmax	-	81.6	-	-	78.2	-	-	75.5	-	115

Source : ^{1/} Notification of the National Environment Board No.15, B.E. 2540 (1997)



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E 245291

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t +66 (0)2 678 18 13 f +66 (0)2 678 06 22 www.sgs.com

ความสั่นสะเทือน

Analysis Report

SAMPLE DESIGNATED AS : Vibration

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : ขอบสนามบิณฑำแหน่งที่เครื่องบิณฑำ

SAMPLING BY : Oran Boonphan

แต่ะพื้นที่ทางวิ้งขณะบิณฑำลง (UTM 48 P 208033 E, 1358171 N)

Date	Time	Transverse			Vertical			Longitudinal		
		PPV (mm/s)	Frequency (Hz)	PD (mm)	PPV (mm/s)	Frequency (Hz)	PD (mm)	PPV (mm/s)	Frequency (Hz)	PD (mm)
April 5, 2022	-	<0.254	N/A	N/A	<0.254	N/A	N/A	<0.254	N/A	N/A
April 6, 2022	-	<0.254	N/A	N/A	<0.254	N/A	N/A	<0.254	N/A	N/A
April 7, 2022	-	<0.254	N/A	N/A	<0.254	N/A	N/A	<0.254	N/A	N/A
Standard ^{1/, 2/}	-	-	-	-	-	-	-	-	-	-

Remarks : - N/A = Not Applicable
- PPV = Peak Particle Velocity
- PD = Peak Displacement

Sources : ^{1/} Notification of the National Environmental Board. No. 37, 2553 (B.E. 2010).
^{2/} Peak Component Velocity (mm/s) at Foundation for Short-Term Vibration (DIN 4150)

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Analysis Report

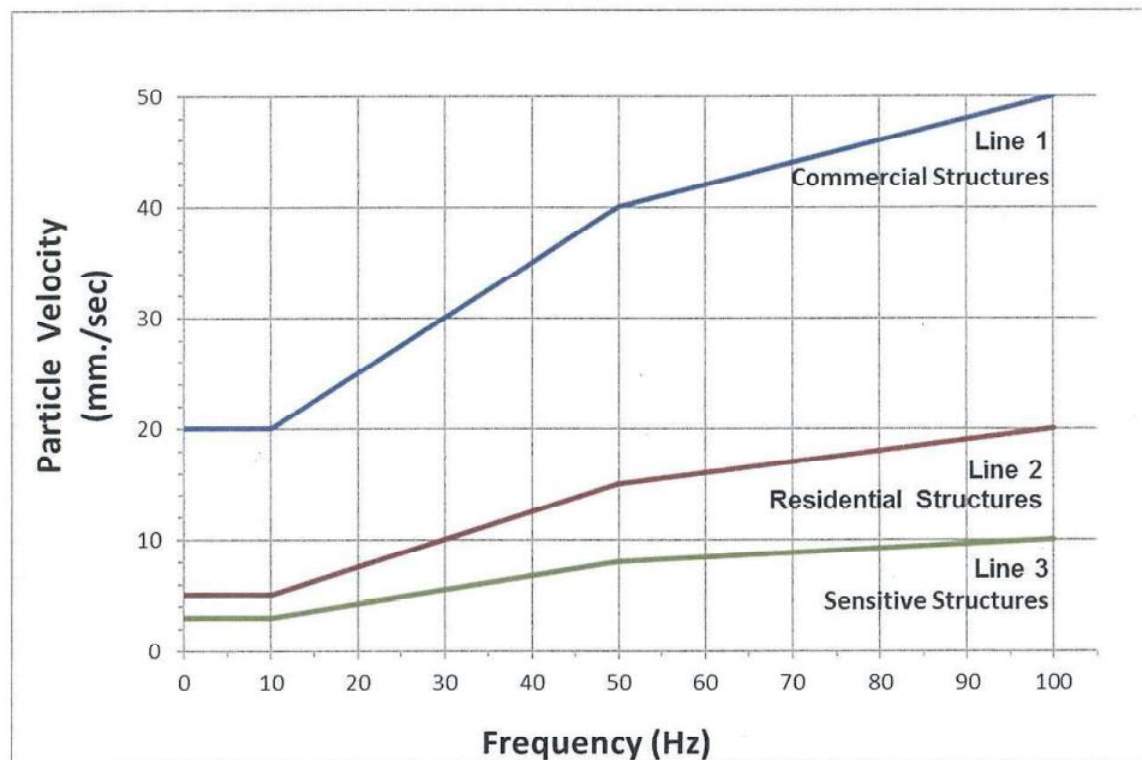
SAMPLE DESIGNATED AS : Vibration

SAMPLING DATE : April 5-7, 2022

SAMPLING LOCATION : ขอบสนามบิณฑาแหน่งที่เครื่องบิน

SAMPLING BY : Oran Boonphan

แต่ะพื้นทางวิ่งขณะบินลง (UTM 48 P 208033 E, 1358171 N)



หมายเหตุ : - เส้นที่ 1 = อาคารที่ใช้หรือออกแบบเพื่อใช้ในทางอุตสาหกรรมและพาณิชยกรรม

- เส้นที่ 2 = อาคารที่พักอาศัยหรือออกแบบเพื่อใช้ในการอยู่อาศัย

- เส้นที่ 3 = โครงสร้างอาคารที่สามารถรับแรงสั่นสะเทือนได้น้อย

- สำหรับผลการตรวจวัดแรงสั่นสะเทือนระหว่างวันที่ 5-7 เมษายน 2565 ไม่พบเหตุการณ์ (PPV < 0.254 mm/s)

ที่มา : - ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ เรื่อง กำหนดมาตรฐานความสั่นสะเทือนเพื่อป้องกันผลกระทบต่ออาคาร พ.ศ. 2553 ประกาศ ณ วันที่ 26 เมษายน 2553
ตีพิมพ์ในราชกิจจานุเบกษา ฉบับที่ 37 เล่มที่ 127 ตอนพิเศษ 69 ง วันที่ 2 มิถุนายน พ.ศ. 2553

- มาตรฐานระดับแรงสั่นสะเทือนสำหรับอาคารที่ไวต่อผลกระทบตามมาตรฐานประเทศเยอรมนี DIN 4150

SGS (THAILAND) LIMITED

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คุณภาพน้ำผิวดิน

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality Analysis
SAMPLING LOCATION : ห้วยวังปลาต้นน้ำก่อนผ่านพื้นที่โครงการ
 (UTM 48P 0208445E, 1358318N)
 Trat Airport, Trat Province
LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : May 31, 2022
SAMPLING TIME : 11:50
SAMPLING BY : Nopparut Jampakrum

Parameter	Unit	Method	Analytical Value	Standard ^{1/}
Temperature	°C	APHA, 2550 B	32.1	-
pH	-	APHA, 4500-H ⁺ B	6.2	5.0-9.0
Turbidity	NTU	APHA, 2130 B	5.8	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	8.4	Not less than 4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	1.6	Not more than 2.0
Suspended Solids (SS)	mg/l	APHA, 2540 D	14	-
Total Hardness (as CaCO ₃)	mg/l	APHA, 2340 C	10	-
Chloride (Cl)	mg/l	APHA, 4500-Cl D	2	-
Nitrate (as N)	mg/l	APHA, 4500-NO ₃ E	0.065	Not more than 5.0
Total Coliform Bacteria	MPN/100ml	APHA, 9221 B	1,700	Not more than 20,000
Fecal Coliform Bacteria	MPN/100ml	APHA, 9221 E	110	Not more than 4,000

Remark : - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

Standard : ^{1/} Notification of the National Environment Board No. 8, B.E. 2537 (1994), which was issued under the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) dated January 20, B.E. 2537 (1994) Class 3 Moderately clean fresh surface water resources use for:
 (1) Consumption, but the water should be treated before use.
 (2) Agriculture.



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Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality Analysis
SAMPLING LOCATION : ห้วยสลักหมู (ในจุดก่อนผ่านพื้นที่โครงการ)
 (UTM 48P 02090322E, 1358710N)
 Trat Airport, Trat Province
LABORATORY NAME : SGS (Thailand) Limited
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 12:17
SAMPLING BY : Nopparut Jampakrum

Parameter	Unit	Method	Analytical Value	Standard ^{1/}
Temperature	°C	APHA, 2550 B	31.1	-
pH	-	APHA, 4500-H ⁺ B	6.1	5.0-9.0
Turbidity	NTU	APHA, 2130 B	7.8	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	7.0	Not less than 4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	1.8	Not more than 2.0
Suspended Solids (SS)	mg/l	APHA, 2540 D	2.0	-
Total Hardness (as CaCO ₃)	mg/l	APHA, 2340 C	11	-
Chloride (Cl)	mg/l	APHA, 4500-Cl D	2	-
Nitrate (as N)	mg/l	APHA, 4500-NO ₃ E	0.077	Not more than 5.0
Total Coliform Bacteria	MPN/100ml	APHA, 9221 B	1,100	Not more than 20,000
Fecal Coliform Bacteria	MPN/100ml	APHA, 9221 E	79	Not more than 4,000

Remark : - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

Standard : ^{1/} Notification of the National Environment Board No. 8, B.E. 2537 (1994), which was issued under the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) dated January 20, B.E. 2537 (1994) Class 3 Moderately clean fresh surface water resources use for:
 (1) Consumption, but the water should be treated before use.
 (2) Agriculture.



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Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality Analysis
SAMPLING LOCATION : ห้วยสลักหมู (ในจุดหลังผ่านพื้นที่โครงการ)
 (UTM 48P 0208718E, 1359065N)
 Trat Airport, Trat Province
LABORATORY NAME : SGS (Thailand) Limited
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 10:30
SAMPLING BY : Nopparut Jampakrum

Parameter	Unit	Method	Analytical Value	Standard ^{1/}
Temperature	°C	APHA, 2550 B	30.2	-
pH	-	APHA, 4500-H ⁺ B	7.2	5.0-9.0
Turbidity	NTU	APHA, 2130 B	3.7	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	6.1	Not less than 4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	1.0	Not more than 2.0
Suspended Solids (SS)	mg/l	APHA, 2540 D	0.4	-
Total Hardness (as CaCO ₃)	mg/l	APHA, 2340 C	10	-
Chloride (Cl)	mg/l	APHA, 4500-Cl D	3	-
Nitrate (as N)	mg/l	APHA, 4500-NO ₃ E	0.033	Not more than 5.0
Total Coliform Bacteria	MPN/100ml	APHA, 9221 B	1,300	Not more than 20,000
Fecal Coliform Bacteria	MPN/100ml	APHA, 9221 E	110	Not more than 4,000

Remark : - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

Standard : ^{1/} Notification of the National Environment Board No. 8, B.E. 2537 (1994), which was issued under the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) dated January 20, B.E. 2537 (1994) Class 3 Moderately clean fresh surface water resources use for:
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Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality Analysis
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดก่อนผ่านพื้นที่โครงการ)
 (UTM 48P 0207854E, 1357801N)
 Trat Airport, Trat Province
LABORATORY NAME : SGS (Thailand) Limited
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 11:16
SAMPLING BY : Nopparut Jampakrum

Parameter	Unit	Method	Analytical Value	Standard ^{1/}
Temperature	°C	APHA, 2550 B	30.5	-
pH	-	APHA, 4500-H ⁺ B	6.2	5.0-9.0
Turbidity	NTU	APHA, 2130 B	38	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	4.1	Not less than 4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	2.0	Not more than 2.0
Suspended Solids (SS)	mg/l	APHA, 2540 D	32	-
Total Hardness (as CaCO ₃)	mg/l	APHA, 2340 C	16	-
Chloride (Cl)	mg/l	APHA, 4500-Cl D	2	-
Nitrate (as N)	mg/l	APHA, 4500-NO ₃ E	0.118	Not more than 5.0
Total Coliform Bacteria	MPN/100ml	APHA, 9221 B	2,400	Not more than 20,000
Fecal Coliform Bacteria	MPN/100ml	APHA, 9221 E	130	Not more than 4,000

Remark : - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

Standard : ^{1/} Notification of the National Environment Board No. 8, B.E. 2537 (1994), which was issued under the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) dated January 20, B.E. 2537 (1994) Class 3 Moderately clean fresh surface water resources use for:
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Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality Analysis
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังผ่านพื้นที่โครงการ)
 (UTM 48P 0207659E, 1357930N)
 Trat Airport, Trat Province
LABORATORY NAME : SGS (Thailand) Limited
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 09:35
SAMPLING BY : Nopparut Jampakrum

Parameter	Unit	Method	Analytical Value	Standard ^{1/}
Temperature	°C	APHA, 2550 B	28.9	-
pH	-	APHA, 4500-H* B	7.4	5.0-9.0
Turbidity	NTU	APHA, 2130 B	11	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	5.6	Not less than 4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	1.0	Not more than 2.0
Suspended Solids (SS)	mg/l	APHA, 2540 D	5.2	-
Total Hardness (as CaCO ₃)	mg/l	APHA, 2340 C	8	-
Chloride (Cl)	mg/l	APHA, 4500-Cl D	2	-
Nitrate (as N)	mg/l	APHA, 4500-NO ₃ E	0.033	Not more than 5.0
Total Coliform Bacteria	MPN/100ml	APHA, 9221 B	2,700	Not more than 20,000
Fecal Coliform Bacteria	MPN/100ml	APHA, 9221 E	170	Not more than 4,000

Remark : - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

Standard : ^{1/} Notification of the National Environment Board No. 8, B.E. 2537 (1994), which was issued under the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) dated January 20, B.E. 2537 (1994) Class 3 Moderately clean fresh surface water resources use for:
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คุณภาพน้ำใต้ดิน

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality Analysis
SAMPLING LOCATION : บ่อบาดาลโรงกรองน้ำดิบ
 (UTM 48P 208528E, 1358811N)
 Trat Airport, Trat Province
LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : April 6, 2022
SAMPLING TIME : 10:10
SAMPLING BY : Preeda Ketpratum

Parameter	Unit	Method	Analytical Value	Standard ^{1/}	
				Suitable Value	Maximum Allowable
pH	-	APHA, 4500-H ⁺ B	6.9	7.0-8.5	6.5-9.2
Color	Pt.Co	APHA, 2120 C	Less than 1	5	15
Turbidity	NTU	APHA, 2130 B	2.1	5	20
Suspended Solids (SS)	mg/l	APHA, 2540 D	Less than 2.5	-	-
Conductivity	µs/cm	APHA, 2510 B	272	-	-
Total Hardness (as CaCO ₃)	mg/l	APHA, 2340 C	128	Not more than 300	500
Chloride (Cl)	mg/l	APHA, 4500-Cl D	5	Not more than 250	600
Total Kjeldahl Nitrogen (TKN)	mg/l	APHA, 4500 N _{org} B	Less than 1	-	-
Sulfate (SO ₄)	mg/l	APHA, 4500-SO ₄ E	6	Not more than 200	250
Nitrate (NO ₃)	mg/l	APHA, 4110 B	0.016	Not more than 45	45
Iron (Fe)	mg/l	APHA, 3125 B	0.290	Not more than 0.5	1.0
Total Coliform Bacteria	MPN/100 ml	APHA, 9221 B	Less than 1.1	Less than 2.2	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 E	Less than 1.1	-	-

Remarks : - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

- The groundwater from this source will be improved the quality before using in the airport.
Source : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).



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E 245294

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality Analysis
SAMPLING LOCATION : บ้านชุมแสง
 (UTM 48P 207420E, 1359494N)
 Trat Airport, Trat Province
LABORATORY NAME : SGS (Thailand) Limited

SAMPLING DATE : April 6, 2022
SAMPLING TIME : 10:50
SAMPLING BY : Preeda Ketpratum

Parameter	Unit	Method	Analytical Value	Standard ^{1/}	
				Suitable Value	Maximum Allowable
pH	-	APHA, 4500-H ⁺ B	6.5	7.0-8.5	6.5-9.2
Color	Pt.Co	APHA, 2120 C	Less than 1	5	15
Turbidity	NTU	APHA, 2130 B	8.9	5	20
Suspended Solids (SS)	mg/l	APHA, 2540 D	Less than 2.5	-	-
Conductivity	µs/cm	APHA, 2510 B	150	-	-
Total Hardness (as CaCO ₃)	mg/l	APHA, 2340 C	60	Not more than 300	500
Chloride (Cl)	mg/l	APHA, 4500-Cl D	4	Not more than 250	600
Total Kjeldahl Nitrogen (TKN)	mg/l	APHA, 4500 N _{org} B	Less than 1	-	-
Sulfate (SO ₄)	mg/l	APHA, 4500-SO ₄ E	1	Not more than 200	250
Nitrate (NO ₃)	mg/l	APHA, 4110 B	0.020	Not more than 45	45
Iron (Fe)	mg/l	APHA, 3125 B	1.539	Not more than 0.5	1.0
Total Coliform Bacteria	MPN/100 ml	APHA, 9221 B	More than 23	Less than 2.2	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 E	2.2	-	-

Remark : - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

Source : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 24, B.E. 2551 (2008).



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เพลงก็ตอนพีช

Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification
SAMPLING LOCATION : ห้วยวังปลาต้นน้ำก่อนผ่านพื้นที่โครงการ
COORDINATE : UTM 48P 0208445E, 1358318N
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 11:50 hr.
SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Cyanophyta	
Class Cyanophyceae (Blue - Green Algae)	
Order Chroococcales	
Family Chroococcaceae	
<i>Chroococcus minutus</i>	36,744
<i>Merismopedia convolute</i>	45,201
<i>Microcystis aeruginosa</i>	17,227
Order Nostocales	
Family Oscillatoriaceae	
<i>Oscillatoria princeps</i>	37,291
<i>Oscillatoria limnetica</i>	33,006
Family Nostocaceae	
<i>Anabaena affinis</i>	60,913
<i>C.phillipinensis</i>	11,888
Division Chlorophyta	
Class Chlorophyceae (Green algae)	
Order Volvocales	
Family Volvocaceae	
<i>Volvox tertius</i>	31,548
Order Chlorococcales	
Family Botryococcaceae	
<i>Botryococcus braunii Kützing</i>	43,463
Family Oocystaceae	
<i>Dictyosphaerium ehrenbergianum Naegeli</i>	69,841
<i>Oocystis elliptica W.West</i>	58,345
<i>Tetraedron caudatum (Corda) Hansging</i>	69,649

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification
SAMPLING LOCATION : ห้วยวังปลาต้นน้ำก่อนผ่านพื้นที่โครงการ
COORDINATE : UTM 48P 0208445E, 1358318N
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 11:50 hr.
SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Chlorophyceae (Green algae)	
Order Chlorococcales	
Family Scenedesmaceae	
<i>Scenedesmus obliquus</i> (Turpin)	28,056
<i>Actinastrum gracillimum</i>	15,051
<i>Kirchneriella contorta</i>	26,517
Order Chlorococcales	
Family Hydrodictyaceae	
<i>Pediastrum duplex</i>	74,675
<i>P. simplex</i>	49,917
Family Coelastraceae	
<i>Coelastrum astroideum</i>	61,761
<i>C. microporum</i>	32,844
Order Oedogoniales	
Family Oedogoniaceae	
<i>Oedogonium</i> sp.	44,580
Order Zygnematales	
Family Zygnemataceae	
<i>Mougeotia scalaris</i>	15,280
Family Desmidiaceae	
<i>Closterium acerosum</i>	50,660
<i>Staurastrum tetracerum</i>	35,651

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification
SAMPLING LOCATION : ห้วยวังปลาต้นน้ำก่อนผ่านพื้นที่โครงการ
COORDINATE : UTM 48P 0208445E, 1358318N
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 11:50 hr.
SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Euglenophyceae (Euglenoids)	
Order Euglenales	
Family Euglenaceae	
<i>Euglena acus</i>	39,074
<i>Phacus angulatus</i>	24,528
<i>Trachelomonas amata</i>	10,739
<i>T.ovalis</i>	46,823
Class Bacillariophyceae (Diatoms)	
Order Biddulphiales	
Family Thalassiosiraceae	
<i>Cyclotella meneghiniana</i>	28,696
Family Aulacoseiraceae	
<i>Aulacoseira granulate</i>	66,745
Order Bacillariales (Pennate diatoms)	
Suborder Fragiariineae	
Family Fragilariaceae	
<i>Fragilaria sp.</i>	66,236
Suborder Bacillaiinaeae	
Family Achnantheaceae	
<i>Achnanthes sp.</i>	19,219

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification
SAMPLING LOCATION : ห้วยวังปลาต้นน้ำก่อนผ่านพื้นที่โครงการ
COORDINATE : UTM 48P 0208445E, 1358318N

SAMPLING DATE : May 31, 2022
SAMPLING TIME : 11:50 hr.
SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Bacillariophyceae (Diatoms)	
Order Bacillariales (Pennate diatoms)	
Suborder Bacillariinae	
Family Cymbellaceae	
<i>Cymbella tumida</i>	31,388
Family Naviculaceae	
<i>Gyrosigma spencerii</i>	32,429
<i>Navicula sculpta</i>	26,108
Family Bacillariaceae	
<i>Nitzschia sp.</i>	27,398
Family Surirellaceae	
<i>Surirella angusta</i>	39,414
<i>Stenopterobia elegans</i>	20,708
Division Chromophyta	
Class Chrysophyceae	
Order Ochromonadales	
Family Dinobryaceae	
<i>Dinobryon sertularia</i>	40,351
Class Xanthophyceae (Yellow - green algae)	
Order Mischococcales	
Family Scidiaceae	
<i>Centrtractus belanophorus</i>	63,210

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยวังปลาตันน้ำก่อนผ่านพื้นที่โครงการ **SAMPLING TIME** : 11:50 hr.
COORDINATE : UTM 48P 0208445E, 1358318N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chromophyta (cont'd)	
Class Dinophyceae (Dinoflagellates)	
Order Peridiniales	
Family Peridiniaceae	
<i>Peridinium cunningonii</i>	16,618
Total Species of Phytoplankton (Species)	40
Total Density of Phytoplankton (Cell/m³)	1,549,792
Species Richness Index^{1/}	2.80
Biodiversity Index^{2/}	3.61
Evenness Index^{3/}	0.97

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200F)

- ^{1/} The species richness was calculated by using the Margalef's Index.
^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.
^{3/} The evenness index was calculated by using the Pielou's Index.



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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยสลักหมู (ในจุดก่อนผ่านพื้นที่โครงการ) **SAMPLING TIME** : 12:17 hr.
COORDINATE : UTM 48P 02090322E, 1358710N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Cyanophyta	
Class Cyanophyceae (Blue - Green Algae)	
Order Chroococcales	
Family Chroococcaceae	
<i>Chroococcus minutus</i>	64,117
<i>Merismopedia convolute</i>	30,807
<i>Microcystis aeruginosa</i>	35,475
Order Nostocales	
Family Oscillatoriaceae	
<i>Oscillatoria princeps</i>	34,298
<i>Oscillatoria limnetica</i>	71,051
Family Nostocaceae	
<i>Anabaena affinis</i>	67,650
<i>C.phillipinensis</i>	12,258
Division Chlorophyta	
Class Chlorophyceae (Green algae)	
Order Volvocales	
Family Volvocaceae	
<i>Volvox tertius</i>	65,140
Order Chlorococcales	
Family Botryococcaceae	
<i>Botryococcus braunii Kützing</i>	60,286
Family Oocystaceae	
<i>Dictyosphaerium ehrenbergianum Naegeli</i>	40,851
<i>Oocystis elliptica W.West</i>	57,954
<i>Tetraedron caudatum (Corda) Hansging</i>	63,863

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยสลักหมู (ในจุดก่อนผ่านพื้นที่โครงการ) **SAMPLING TIME** : 12:17 hr.
COORDINATE : UTM 48P 02090322E, 1358710N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Chlorophyceae (Green algae)	
Order Chlorococcales	
Family Scenedesmaceae	
<i>Scenedesmus obliquus</i> (Turpin)	18,953
<i>Actinastrum gracillimum</i>	56,588
<i>Kirchneriella contorta</i>	36,745
Order Chlorococcales	
Family Hydrodictyaceae	
<i>Pediastrum duplex</i>	47,288
<i>P. simplex</i>	114,446
Family Coelastraceae	
<i>Coelastrum astroideum</i>	62,354
<i>C. microporum</i>	83,239
Order Oedogoniales	
Family Oedogoniaceae	
<i>Oedogonium</i> sp.	47,205
Order Zygnematales	
Family Zygnemataceae	
<i>Mougeotia scalaris</i>	24,930
Family Desmidiaceae	
<i>Closterium acerosum</i>	65,561
<i>Staurostrum tetracerum</i>	53,078

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Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Euglenophyceae (Euglenoids)	
Order Euglenales	
Family Euglenaceae	
<i>Euglena acus</i>	35,866
<i>Phacus angulatus</i>	24,177
<i>Trachelomonas amata</i>	41,049
<i>T.ovalis</i>	35,243
Class Bacillariophyceae (Diatoms)	
Order Biddulphiales	
Family Thalassiosiraceae	
<i>Cyclotella meneghiniana</i>	98,036
Family Aulacoseiraceae	
<i>Aulacoseira granulata</i>	30,461
Order Bacillariales (Pennate diatoms)	
Suborder Fragiariineae	
Family Fragilariaceae	
<i>Fragilaria sp.</i>	64,066
Suborder Bacillaiinaeae	
Family Achnantheaceae	
<i>Achnanthes sp.</i>	87,877

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Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Bacillariophyceae (Diatoms)	
Order Bacillariales (Pennate diatoms)	
Suborder Bacillalinaeae	
Family Cymbellaceae	
<i>Cymbella tumida</i>	80,675
Family Naviculaceae	
<i>Gyrosigma spencerii</i>	52,264
<i>Navicula sculpta</i>	9,159
Family Bacillariaceae	
<i>Nitzschia sp.</i>	40,115
Family Surirellaceae	
<i>Surirella angusta</i>	10,490
<i>Stenopterobia elegans</i>	76,303
Division Chromophyta	
Class Chrysophyceae	
Order Ochromonadales	
Family Dinobryaceae	
<i>Dinobryon sertularia</i>	73,950
Class Xanthophyceae (Yellow - green algae)	
Order Mischococcales	
Family Scidiaceae	
<i>Centritractus belanophorus</i>	41,157

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Scientific Classification	Phytoplankton (Cell/m ³)
Division Chromophyta (cont'd)	
Class Dinophyceae (Dinoflagellates)	
Order Peridiniales	
Family Peridiniaceae	
<i>Peridinium cunningonii</i>	51,597
Total Species of Phytoplankton (Species)	40
Total Density of Phytoplankton (Cell/m³)	2,066,622
Species Richness Index^{1/}	2.68
Biodiversity Index^{2/}	3.58
Evenness Index^{3/}	0.97

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200F)

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.

^{3/} The evenness index was calculated by using the Pielou's Index.



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Analysis Report

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COORDINATE : UTM 48P 0208718E, 1359065N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Cyanophyta	
Class Cyanophyceae (Blue - Green Algae)	
Order Chroococcales	
Family Chroococcaceae	
<i>Chroococcus minutus</i>	19,327
<i>Merismopedia convolute</i>	41,940
<i>Microcystis aeruginosa</i>	52,769
Order Nostocales	
Family Oscillatoriaceae	
<i>Oscillatoria princeps</i>	55,274
<i>Oscillatoria limnetica</i>	49,432
Family Nostocaceae	
<i>Anabaena affinis</i>	33,510
<i>C.phillipinensis</i>	10,611
Division Chlorophyta	
Class Chlorophyceae (Green algae)	
Order Volvocales	
Family Volvocaceae	
<i>Volvox tertius</i>	23,727
Order Chlorococcales	
Family Botryococcaceae	
<i>Botryococcus braunii Kützing</i>	18,615
Family Oocystaceae	
<i>Dictyosphaerium ehrenbergianum Naegeli</i>	74,331
<i>Oocystis elliptica W.West</i>	57,830
<i>Tetraedron caudatum (Corda) Hansging</i>	78,560

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COORDINATE : UTM 48P 0208718E, 1359065N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Chlorophyceae (Green algae)	
Order Chlorococcales	
Family Scenedesmaceae	
<i>Scenedesmus obliquus</i> (Turpin)	-
<i>Actinastrum gracillimum</i>	30,665
<i>Kirchneriella contorta</i>	10,983
Order Chlorococcales	
Family Hydrodictyceae	
<i>Pediastrum duplex</i>	20,638
<i>P. simplex</i>	57,195
Family Coelastraceae	
<i>Coelastrum astroideum</i>	82,833
<i>C. microporum</i>	28,865
Order Oedogoniales	
Family Oedogoniaceae	
<i>Oedogonium</i> sp.	42,800
Order Zygnematales	
Family Zygnemataceae	
<i>Mougeotia scalaris</i>	12,811
Family Desmidiaceae	
<i>Closterium acerosum</i>	69,827
<i>Staurostrum tetracerum</i>	51,670

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Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Euglenophyceae (Euglenoids)	
Order Euglenales	
Family Eugrenaceae	
<i>Eugrena acus</i>	50,938
<i>Phacus angulatus</i>	32,975
<i>Trachelomonas amata</i>	46,952
<i>T.ovalis</i>	24,712
Class Bacillariophyceae (Diatoms)	
Order Biddulphiales	
Family Thalassiosiraceae	
<i>Cyclotella meneghiniana</i>	20,210
Family Aulacoseiraceae	
<i>Aulacoseira granulate</i>	19,527
Order Bacillariales (Pennate diatoms)	
Suborder Fragiariineae	
Family Fragilariaceae	
<i>Fragilaria sp.</i>	72,795
Suborder Bacillaiinaeae	
Family Achnanthaceae	
<i>Achnanthes sp.</i>	17,589

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Analysis Report

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COORDINATE : UTM 48P 0208718E, 1359065N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Bacillariophyceae (Diatoms)	
Order Bacillariales (Pennate diatoms)	
Suborder Bacillariinae	
Family Cymbellaceae	
<i>Cymbella tumida</i>	31,797
Family Naviculaceae	
<i>Gyrosigma spencerii</i>	48,793
<i>Navicula sculpta</i>	20,947
Family Bacillariaceae	
<i>Nitzschia sp.</i>	30,394
Family Surirellaceae	
<i>Surirella angusta</i>	34,146
<i>Stenopterobia elegans</i>	62,229
Division Chromophyta	
Class Chrysophyceae	
Order Ochromonadales	
Family Dinobryaceae	
<i>Dinobryon sertularia</i>	70,018
Class Xanthophyceae (Yellow - green algae)	
Order Mischococcales	
Family Scidiaceae	
<i>Centritractus belanophorus</i>	25,599

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COORDINATE : UTM 48P 0208718E, 1359065N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chromophyta (cont'd)	
Class Dinophyceae (Dinoflagellates)	
Order Peridinales	
Family Peridiniaceae	
<i>Peridinium cunningonii</i>	28,367
Total Species of Phytoplankton (Species)	39
Total Density of Phytoplankton (Cell/m³)	1,562,201
Species Richness Index^{1/}	2.66
Biodiversity Index^{2/}	3.53
Evenness Index^{3/}	0.96

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200F)

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.

^{3/} The evenness index was calculated by using the Pielou's Index.



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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดก่อนผ่านพื้นที่โครงการ) **SAMPLING TIME** : 11:16 hr.
COORDINATE : UTM 48P 0207854E, 1357801N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Cyanophyta	
Class Cyanophyceae (Blue - Green Algae)	
Order Chroococcales	
Family Chroococcaceae	
<i>Chroococcus minutus</i>	44,160
<i>Merismopedia convolute</i>	38,635
<i>Microcystis aeruginosa</i>	22,940
Order Nostocales	
Family Oscillatoriaceae	
<i>Oscillatoria princeps</i>	51,911
<i>Oscillatoria limnetica</i>	76,923
Family Nostocaceae	
<i>Anabaena affinis</i>	31,439
<i>C.phillipinensis</i>	7,990
Division Chlorophyta	
Class Chlorophyceae (Green algae)	
Order Volvocales	
Family Volvocaceae	
<i>Volvox tertius</i>	24,589
Order Chlorococcales	
Family Botryococcaceae	
<i>Botryococcus braunii Kützing</i>	14,062
Family Oocystaceae	
<i>Dictyosphaerium ehrenbergianum Naegeli</i>	90,498
<i>Oocystis elliptica W.West</i>	15,014
<i>Tetraedron caudatum (Corda) Hansging</i>	35,765

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Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Chlorophyceae (Green algae)	
Order Chlorococcales	
Family Scenedesmaceae	
<i>Scenedesmus obliquus</i> (Turpin)	17,497
<i>Actinastrum gracillimum</i>	32,707
<i>Kirchneriella contorta</i>	38,499
Order Chlorococcales	
Family Hydrodictyaceae	
<i>Pediastrum duplex</i>	55,863
<i>P. simplex</i>	45,544
Family Coelastraceae	
<i>Coelastrum astroideum</i>	117,599
<i>C. microporum</i>	36,617
Order Oedogoniales	
Family Oedogoniaceae	
<i>Oedogonium</i> sp.	43,099
Order Zygnematales	
Family Zygnemataceae	
<i>Mougeotia scalaris</i>	61,023
Family Desmidiaceae	
<i>Closterium acerosum</i>	55,515
<i>Staurostrum tetracerum</i>	29,037

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Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Euglenophyceae (Euglenoids)	
Order Euglenales	
Family Eugrenaceae	
<i>Eugrena acus</i>	37,665
<i>Phacus angulatus</i>	25,540
<i>Trachelomonas amata</i>	18,489
<i>T.ovalis</i>	10,952
Class Bacillariophyceae (Diatoms)	
Order Biddulphiales	
Family Thalassiosiraceae	
<i>Cyclotella meneghiniana</i>	35,240
Family Aulacoseiraceae	
<i>Aulacoseira granulata</i>	32,118
Order Bacillariales (Pennate diatoms)	
Suborder Fragiariilneae	
Family Fragilariaceae	
<i>Fragilaria sp.</i>	100,637
Suborder Bacillaiinaeae	
Family Achnanthaceae	
<i>Achnanthes sp.</i>	37,675

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Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Bacillariophyceae (Diatoms)	
Order Bacillariales (Pennate diatoms)	
Suborder Bacillariinae	
Family Cymbellaceae	
<i>Cymbella tumida</i>	20,352
Family Naviculaceae	
<i>Gyrosigma spencerii</i>	46,623
<i>Navicula sculpta</i>	13,054
Family Bacillariaceae	
<i>Nitzschia sp.</i>	45,797
Family Surirellaceae	
<i>Surirella angusta</i>	28,797
<i>Stenopterobia elegans</i>	51,922
Division Chromophyta	
Class Chrysophyceae	
Order Ochromonadales	
Family Dinobryaceae	
<i>Dinobryon sertularia</i>	37,643
Class Xanthophyceae (Yellow - green algae)	
Order Mischococcales	
Family Scidiaceae	
<i>Centrtractus belanophorus</i>	22,422

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Scientific Classification	Phytoplankton (Cell/m ³)
Division Chromophyta (cont'd)	
Class Dinophyceae (Dinoflagellates)	
Order Peridiniales	
Family Peridiniaceae	
<i>Peridinium cunningonii</i>	19,325
Total Species of Phytoplankton (Species)	40
Total Density of Phytoplankton (Cell/m³)	1,571,177
Species Richness Index^{1/}	2.73
Biodiversity Index^{2/}	3.53
Evenness Index^{3/}	0.96

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200F)

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.

^{3/} The evenness index was calculated by using the Pielou's Index.



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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE** : April 6, 2022
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังผ่านพื้นที่โครงการ) **SAMPLING TIME** : 09:35 hr.
COORDINATE : UTM 48P 0207659E, 1357930N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Cyanophyta	
Class Cyanophyceae (Blue - Green Algae)	
Order Chroococcales	
Family Chroococcaceae	
<i>Chroococcus minutus</i>	40,934
<i>Merismopedia convolute</i>	41,797
<i>Microcystis aeruginosa</i>	23,953
Order Nostocales	
Family Oscillatoriaceae	
<i>Oscillatoria princeps</i>	47,443
<i>Oscillatoria limnetica</i>	86,477
Family Nostocaceae	
<i>Anabaena affinis</i>	34,291
<i>C.phillipinensis</i>	10,064
Division Chlorophyta	
Class Chlorophyceae (Green algae)	
Order Volvocales	
Family Volvocaceae	
<i>Volvox tertius</i>	15,921
Order Chlorococcales	
Family Botryococcaceae	
<i>Botryococcus braunii Kützing</i>	15,475
Family Oocystaceae	
<i>Dictyosphaerium ehrenbergianum Naegeli</i>	90,035
<i>Oocystis elliptica W.West</i>	19,249
<i>Tetradron caudatum (Corda) Hansging</i>	35,629

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification

SAMPLING DATE : April 6, 2022

SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังผ่านพื้นที่โครงการ)

SAMPLING TIME : 09:35 hr.

COORDINATE : UTM 48P 0207659E, 1357930N

SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Chlorophyceae (Green algae)	
Order Chlorococcales	
Family Scenedesmaceae	
<i>Scenedesmus obliquus</i> (Turpin)	10,620
<i>Actinastrum gracillimum</i>	30,119
<i>Kirchneriella contorta</i>	38,407
Order Chlorococcales	
Family Hydrodictyaceae	
<i>Pediastrum duplex</i>	57,221
<i>P. simplex</i>	44,923
Family Coelastraceae	
<i>Coelastrum astroideum</i>	120,203
<i>C. microporum</i>	36,133
Order Oedogoniales	
Family Oedogoniaceae	
<i>Oedogonium</i> sp.	44,034
Order Zygnematales	
Family Zygnemataceae	
<i>Mougeotia scalaris</i>	59,124
Family Desmidiaceae	
<i>Closterium acerosum</i>	54,738
<i>Staurastrum tetracerum</i>	27,209

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE** : April 6, 2022
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังผ่านพื้นที่โครงการ) **SAMPLING TIME** : 09:35 hr.
COORDINATE : UTM 48P 0207659E, 1357930N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Euglenophyceae (Euglenoids)	
Order Euglenales	
Family Euglenaceae	
<i>Euglena acus</i>	39,939
<i>Phacus angulatus</i>	26,027
<i>Trachelomonas amata</i>	23,704
<i>T. ovalis</i>	3,963
Class Bacillariophyceae (Diatoms)	
Order Biddulphiales	
Family Thalassiosiraceae	
<i>Cyclotella meneghiniana</i>	38,405
Family Aulacoseiraceae	
<i>Aulacoseira granulate</i>	30,038
Order Bacillariales (Pennate diatoms)	
Suborder Fragiariineae	
Family Fragilariaceae	
<i>Fragilaria sp.</i>	97,693
Suborder Bacillariinaeae	
Family Achnantheaceae	
<i>Achnanthes sp.</i>	37,748

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE** : April 6, 2022
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังผ่านพื้นที่โครงการ) **SAMPLING TIME** : 09:35 hr.
COORDINATE : UTM 48P 0207659E, 1357930N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Bacillariophyceae (Diatoms)	
Order Bacillariales (Pennate diatoms)	
Suborder Bacillariinae	
Family Cymbellaceae	
<i>Cymbella tumida</i>	18,428
Family Naviculaceae	
<i>Gyrosigma spencerii</i>	44,434
<i>Navicula sculpta</i>	11,677
Family Bacillariaceae	
<i>Nitzschia sp.</i>	45,054
Family Surirellaceae	
<i>Surirella angusta</i>	27,024
<i>Stenopterobia elegans</i>	52,010
Division Chromophyta	
Class Chrysophyceae	
Order Ochromonadales	
Family Dinobryaceae	
<i>Dinobryon sertularia</i>	34,193
Class Xanthophyceae (Yellow - green algae)	
Order Mischococcales	
Family Scidiaceae	
<i>Centritractus belanophorus</i>	28,189

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE** : April 6, 2022
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังผ่านพื้นที่โครงการ) **SAMPLING TIME** : 09:35 hr.
COORDINATE : UTM 48P 0207659E, 1357930N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chromophyta (cont'd)	
Class Dinophyceae (Dinoflagellates)	
Order Peridinales	
Family Peridiniaceae	
<i>Peridinium cunningonii</i>	13,834
Total Species of Phytoplankton (Species)	40
Total Density of Phytoplankton (Cell/m³)	1,556,359
Species Richness Index^{1/}	2.74
Biodiversity Index^{2/}	3.51
Evenness Index^{3/}	0.95

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200F)

- ^{1/} The species richness was calculated by using the Margalef's Index.
^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.
^{3/} The evenness index was calculated by using the Pielou's Index.



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เพลงก็ตอณัศว

Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยวังปลาต้นน้ำก่อนผ่านพื้นที่โครงการ **SAMPLING TIME** : 11:50 hr.
COORDINATE : UTM 48P 0208445E, 1358318N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (Individuals/m ³)
Phylum Protozoa (Protozoans)	
Subphylum Plasmodroma	
Class Sarcodina	
Subclass Rhizopoda	
Order Testacida	
Family Diffugiidae	
<i>Diffugia lobostoma</i>	10,909
<i>Diffugia lebes Penard</i>	7,364
Family Euglyphidae	
<i>Euglypha tuberculata</i>	14,292
Subclass Actinopoda	
Order Heliozoida	
Family Actinophryidae	
<i>Actinophrys sol</i>	12,462
Subphylum Ciliophora	
Class Ciliata	
Subclass Holotricha	
Order Gymnostomatida	
Family Colepidae	
<i>Didinium nasutum</i>	17,754

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยวังปลาต้นน้ำก่อนผ่านพื้นที่โครงการ **SAMPLING TIME** : 11:50 hr.
COORDINATE : UTM 48P 0208445E, 1358318N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (Individuals/m ³)
Phylum Protozoa (Protozoans) (cont'd)	
Subphylum Ciliophora	
Class Ciliata	
Subclass Spirotricha	
Order Tintinnida	
Family Codonellidae	
<i>Tintinnopsis lohmanni</i>	15,670
Subclass Peritrichia	
Order Peritrichida	
Family Vorticellidae	
<i>Vorticella campanula</i>	16,780
Phylum Rotifera (Rotifers)	
Class Monogononta	
Order Ploima	
Family Brachionidae	
<i>Brachionus angularis</i>	18,410
<i>Keratella cochlearis</i>	11,190
<i>Trichotria tetractis</i>	12,917
Family Lecanidae	
<i>Lecane aculeata</i>	18,052
Family Trichocercidae	
<i>Trichocerca capucina</i>	16,796
<i>T.elongata</i>	12,397

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SAMPLING LOCATION : ห้วยวังปลาต้นน้ำก่อนผ่านพื้นที่โครงการ **SAMPLING TIME** : 11:50 hr.
COORDINATE : UTM 48P 0208445E, 1358318N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Rotifera (Rotifers) (cont'd)	
Class Monogononta	
Order Ploima	
Family Asplanchnidae	
<i>Asplanchna brightwelli</i>	28,873
Family Gastropodidae	
<i>Ascomorpha agilis</i>	6,965
Family Synchaetidae	
<i>Polyarthra vulgaris</i>	15,909
Order: Flosculariacea	
Family Testudinellidae	
<i>Fillinia brachita</i>	15,922
Phylum Arthropoda (Arthropods)	
Class Crustacea (Crustaceans)	
Subclass Branchiopoda	
Order Diplostraca	
Suborder Cladocera (Cladocerans)	
Family Sididae	
<i>Diaphanosoma excisum</i>	30,427
Family Daphnidae	
<i>Ceriodaphnia cornuta</i>	21,475
Family Moinidae	
<i>Moina macrocopa</i>	17,965

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SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยวังปลาต้นน้ำก่อนผ่านพื้นที่โครงการ **SAMPLING TIME** : 11:50 hr.
COORDINATE : UTM 48P 0208445E, 1358318N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Arthropoda (Arthropods) (cont'd)	
Class Crustacea (Crustaceans)	
Subclass Branchiopoda	
Order Diplostraca	
Suborder Cladocera (Cladocerans)	
Family Bosminidae	
<i>Bosmina longirostris</i>	22,595
Subclass Copepoda	
Order Calanoida	
Family Diaptomidae	
<i>Heliodiaptomus viduus</i>	7,611
Total Species of Zooplankton (Species)	22
Total Density of Zooplankton (individuals/m³)	352,735
Species Richness Index^{1/}	1.64
Biodiversity Index^{2/}	3.02
Evenness Index^{3/}	0.98

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200G)

- ^{1/} The species richness was calculated by using the Margalef's Index.
^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.
^{3/} The evenness index was calculated by using the Pielou's Index.



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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยสลักหมู (ในจุดก่อนผ่านพื้นที่โครงการ) **SAMPLING TIME** : 12:17 hr.
COORDINATE : UTM 48P 02090322E, 1358710N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Protozoa (Protozoans)	
Subphylum Plasmodroma	
Class Sarcodina	
Subclass Rhizopoda	
Order Testacida	
Family Diffugiidae	
<i>Diffugia lobostoma</i>	12,111
<i>Diffugia lebes Penard</i>	3,820
Family Euglyphidae	
<i>Euglypha tuberculata</i>	7,181
Subclass Actinopoda	
Order Heliozoida	
Family Actinophryidae	
<i>Actinophrys sol</i>	-
Subphylum Ciliophora	
Class Ciliata	
Subclass Holotricha	
Order Gymnostomatida	
Family Colepidae	
<i>Didinium nasutum</i>	32,460

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยสลักหมู (ในจุดก่อนผ่านพื้นที่โครงการ) **SAMPLING TIME** : 12:17 hr.
COORDINATE : UTM 48P 02090322E, 1358710N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Protozoa (Protozoans) (cont'd)	
Subphylum Ciliophora	
Class Ciliata	
Subclass Spirotricha	
Order Tintinnida	
Family Codonellidae	
<i>Tintinnopsis lohmanni</i>	22,085
Subclass Peritrichia	
Order Peritrichida	
Family Vorticellidae	
<i>Vorticella campanula</i>	30,647
Phylum Rotifera (Rotifers)	
Class Monogononta	
Order Ploima	
Family Brachionidae	
<i>Brachionus angularis</i>	12,432
<i>Keratella cochlearis</i>	9,182
<i>Trichotria tetractis</i>	15,804
Family Lecanidae	
<i>Lecane aculeata</i>	-
Family Trichocercidae	
<i>Trichocerca capucina</i>	8,165
<i>T.elongata</i>	-

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SAMPLING LOCATION : ห้วยสลักหมู (ในจุดก่อนผ่านพื้นที่โครงการ) **SAMPLING TIME** : 12:17 hr.
COORDINATE : UTM 48P 02090322E, 1358710N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Rotifera (Rotifers) (cont'd)	
Class Monogononta	
Order Plolma	
Family Asplanchnidae	
<i>Asplanchna brightwelli</i>	13,986
Family Gastropodidae	
<i>Ascomorpha agilis</i>	20,399
Family Synchaetidae	
<i>Polyarthra vulgaris</i>	8,378
Order Flosculariacea	
Family Testudinellidae	
<i>Filinia brachita</i>	13,450
Phylum Arthropoda (Arthropods)	
Class Crustacea (Crustaceans)	
Subclass Branchiopoda	
Order Diplostraca	
Suborder Cladocera (Cladocerans)	
Family Sididae	
<i>Diaphanosoma excisum</i>	71,588
Family Daphnidae	
<i>Ceriodaphnia cornuta</i>	26,707
Family Moinidae	
<i>Moina macrocopa</i>	5,032

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยสลักหมุ (ในจุดก่อนผ่านพื้นที่โครงการ) **SAMPLING TIME** : 12:17 hr.
COORDINATE : UTM 48P 02090322E, 1358710N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Arthropoda (Arthropods) (cont'd)	
Class Crustacea (Crustaceans)	
Subclass Branchiopoda	
Order Diplostraca	
Suborder Cladocera (Cladocerans)	
Family Bosminidae	
<i>Bosmina longirostris</i>	18,683
Subclass Copepoda	
Order Calanoida	
Family Diaptomidae	
<i>Heliodiaptomus viduus</i>	23,245
Total Species of Zooplankton (Species)	19
Total Density of Zooplankton (individuals/m³)	355,355
Species Richness Index^{1/}	1.41
Biodiversity Index^{2/}	2.70
Evenness Index^{3/}	0.92

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200G)

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.

^{3/} The evenness index was calculated by using the Pielou's Index.



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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification
SAMPLING LOCATION : ห้วยสลักหมู (ในจุดหลังผ่านพื้นที่โครงการ)
COORDINATE : UTM 48P 0208718E, 1359065N
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 10:30 hr.
SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Zooplankton (Individuals/m ³)
Phylum Protozoa (Protozoans)	
Subphylum Plasmodroma	
Class Sarcodina	
Subclass Rhizopoda	
Order Testacida	
Family Diffugiidae	
<i>Diffugia lobostoma</i>	10,790
<i>Diffugia lebes Penard</i>	4,325
Family Euglyphidae	
<i>Euglypha tuberculata</i>	16,991
Subclass Actinopoda	
Order Heliozoidea	
Family Actinophryidae	
<i>Actinophrys sol</i>	-
Subphylum Ciliophora	
Class Ciliata	
Subclass Holotricha	
Order Gymnostomatida	
Family Colepidae	
<i>Didinium nasutum</i>	18,860

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยสลักหนู (ในจุดหลังผ่านพื้นที่โครงการ) **SAMPLING TIME** : 10:30 hr.
COORDINATE : UTM 48P 0208718E, 1359065N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Protozoa (Protozoans) (cont'd)	
Subphylum Ciliophora	
Class Ciliata	
Subclass Spirotricha	
Order Tintinnida	
Family Codonellidae	
<i>Tintinnopsis lohmanni</i>	5,513
Subclass Peritrichia	
Order Peritrichida	
Family Vorticellidae	
<i>Vorticella campanula</i>	5,268
Phylum Rotifera (Rotifers)	
Class Monogononta	
Order Ploima	
Family Brachionidae	
<i>Brachionus angularis</i>	9,311
<i>Keratella cochlearis</i>	18,600
<i>Trichotria tetractis</i>	5,193
Family Lecanidae	
<i>Lecane aculeata</i>	7,192
Family Trichocercidae	
<i>Trichocerca capucina</i>	21,506
<i>T.elongata</i>	6,861

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยสลักหมู (ในจุดหลังผ่านพื้นที่โครงการ) **SAMPLING TIME** : 10:30 hr.
COORDINATE : UTM 48P 0208718E, 1359065N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Rotifera (Rotifers) (cont'd)	
Class Monogononta	
Order Ploima	
Family Asplanchnidae	
<i>Asplanchna brightwelli</i>	9,894
Family Gastropodidae	
<i>Ascomorpha agilis</i>	9,556
Family Synchaetidae	
<i>Polyarthra vulgaris</i>	18,346
Order Flosculariacea	
Family Testudinellidae	
<i>Fillinia brachita</i>	7,808
Phylum Arthropoda (Arthropods)	
Class Crustacea (Crustaceans)	
Subclass Branchiopoda	
Order Diplostraca	
Suborder Cladocera (Cladocerans)	
Family Sididae	
<i>Diaphanosoma excisum</i>	9,134
Family Daphnidae	
<i>Ceriodaphnia cornuta</i>	23,250
Family Moinidae	
<i>Moina macrocopa</i>	16,250

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยสลักหมู (ในจุดหลังผ่านพื้นที่โครงการ) **SAMPLING TIME** : 10:30 hr.
COORDINATE : UTM 48P 0208718E, 1359065N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Arthropoda (Arthropods) (cont'd)	
Class Crustacea (Crustaceans)	
Subclass Branchiopoda	
Order Diplostraca	
Suborder Cladocera (Cladocerans)	
Family Bosminidae	
<i>Bosmina longirostris</i>	23,765
Subclass Copepoda	
Order Calanoida	
Family Diaptomidae	
<i>Heliodiaptomus viduus</i>	9,177
Total Species of Zooplankton (Species)	21
Total Density of Zooplankton (individuals/m³)	257,590
Species Richness Index^{1/}	1.61
Biodiversity Index^{2/}	2.92
Evenness Index^{3/}	0.96

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200G)

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.

^{3/} The evenness index was calculated by using the Pielou's Index.



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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดก่อนผ่านพื้นที่โครงการ) **SAMPLING TIME** : 11:16 hr.
COORDINATE : UTM 48P 0207854E, 1357801N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Protozoa (Protozoans)	
Subphylum Plasmodroma	
Class Sarcodina	
Subclass Rhizopoda	
Order Testacida	
Family Diffugiidae	
<i>Diffugia lobostoma</i>	35,250
<i>Diffugia lebes Penard</i>	33,299
Family Euglyphidae	
<i>Euglypha tuberculata</i>	14,274
Subclass Actinopoda	
Order Heliozoidea	
Family Actinophryidae	
<i>Actinophrys sol</i>	26,170
Subphylum Ciliophora	
Class Ciliata	
Subclass Holotricha	
Order Gymnostomatida	
Family Colepidae	
<i>Didinium nasutum</i>	18,441

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดก่อนผ่านพื้นที่โครงการ) **SAMPLING TIME** : 11:16 hr.
COORDINATE : UTM 48P 0207854E, 1357801N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Protozoa (Protozoans) (cont'd)	
Subphylum Ciliophora	
Class Ciliata	
Subclass Spirotricha	
Order Tintinnida	
Family Codonellidae	
<i>Tintinnopsis lohmanni</i>	-
Subclass Peritrichia	
Order Peritrichida	
Family Vorticellidae	
<i>Vorticella campanula</i>	7,290
Phylum Rotifera (Rotifers)	
Class Monogononta	
Order Ploima	
Family Brachionidae	
<i>Brachionus angularis</i>	27,299
<i>Keratella cochlearis</i>	20,899
<i>Trichotria tetractis</i>	26,261
Family Lecanidae	
<i>Lecane aculeata</i>	14,763
Family Trichocercidae	
<i>Trichocerca capucina</i>	36,758
<i>T.elongata</i>	43,597

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดก่อนผ่านพื้นที่โครงการ)
COORDINATE : UTM 48P 0207854E, 1357801N
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 11:16 hr.
SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Rotifera (Rotifers) (cont'd)	
Class Monogononta	
Order Ploima	
Family Asplanchnidae	
<i>Asplanchna brightwelli</i>	12,617
Family Gastropodidae	
<i>Ascomorpha agilis</i>	15,501
Family Synchaetidae	
<i>Polyarthra vulgaris</i>	27,834
Order Flosculariacea	
Family Testudinellidae	
<i>Fillinia brachita</i>	25,587
Phylum Arthropoda (Arthropods)	
Class Crustacea (Crustaceans)	
Subclass Branchiopoda	
Order Diplostraca	
Suborder Cladocera (Cladocerans)	
Family Sididae	
<i>Diaphanosoma excisum</i>	56,006
Family Daphnidae	
<i>Ceriodaphnia cornuta</i>	18,616
Family Moinidae	
<i>Moina macrocopa</i>	34,260

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดก่อนผ่านพื้นที่โครงการ)
COORDINATE : UTM 48P 0207854E, 1357801N
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 11:16 hr.
SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Arthropoda (Arthropods) (cont'd)	
Class Crustacea (Crustaceans)	
Subclass Branchiopoda	
Order Diplostraca	
Suborder Cladocera (Cladocerans)	
Family Bosminidae	
<i>Bosmina longirostris</i>	35,987
Subclass Copepoda	
Order Calanoida	
Family Diaptomidae	
<i>Heliodiaptomus viduus</i>	10,663
Total Species of Zooplankton (Species)	21
Total Density of Zooplankton (individuals/m³)	541,372
Species Richness Index^{1/}	1.51
Biodiversity Index^{2/}	2.94
Evenness Index^{3/}	0.97

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200G)

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.

^{3/} The evenness index was calculated by using the Pielou's Index.



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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification **SAMPLING DATE** : May 31, 2022
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังผ่านพื้นที่โครงการ) **SAMPLING TIME** : 09:35 hr.
COORDINATE : UTM 48P 0207659E, 1357930N **SAMPLING BY** : Nopparut Jampakrum

Scientific Classification	Zooplankton (Individuals/m ³)
Phylum Protozoa (Protozoans)	
Subphylum Plasmodroma	
Class Sarcodina	
Subclass Rhizopoda	
Order Testacida	
Family Diffugiidae	
<i>Diffugia lobostoma</i>	27,954
<i>Diffugia lebes Penard</i>	28,240
Family Euglyphidae	
<i>Euglypha tuberculata</i>	19,044
Subclass Actinopoda	
Order Heliozoidea	
Family Actinophryidae	
<i>Actinophrys sol</i>	22,139
Subphylum Ciliophora	
Class Ciliata	
Subclass Holotricha	
Order Gymnostomatida	
Family Colepidae	
<i>Didinium nasutum</i>	15,709

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังผ่านพื้นที่โครงการ)
COORDINATE : UTM 48P 0207659E, 1357930N
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 09:35 hr.
SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Protozoa (Protozoans) (cont'd)	
Subphylum Ciliophora	
Class Ciliata	
Subclass Spirotricha	
Order Tintinnida	
Family Codonellidae	
<i>Tintinnopsis lohmanni</i>	-
Subclass Peritrichia	
Order Peritrichida	
Family Vorticellidae	
<i>Vorticella campanula</i>	13,795
Phylum Rotifera (Rotifers)	
Class Monogononta	
Order Ploima	
Family Brachionidae	
<i>Brachionus angularis</i>	22,869
<i>Keratella cochlearis</i>	29,056
<i>Trichotria tetractis</i>	22,645
Family Lecanidae	
<i>Lecane aculeata</i>	20,227
Family Trichocercidae	
<i>Trichocerca capucina</i>	30,562
<i>T.elongata</i>	36,244

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification SAMPLING DATE : May 31, 2022
 SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังฝายพื้นที่โครงการ) SAMPLING TIME : 09:35 hr.
 COORDINATE : UTM 48P 0207659E, 1357930N SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Rotifera (Rotifers) (cont'd)	
Class Monogononta	
Order Ploima	
Family Asplanchnidae	
<i>Asplanchna brightwelli</i>	22,446
Family Gastropodidae	
<i>Ascomorpha agilis</i>	-
Family Synchaetidae	
<i>Polyarthra vulgaris</i>	12,441
Order Flosculariacea	
Family Testudinellidae	
<i>Fillinia brachita</i>	21,627
Phylum Arthropoda (Arthropods)	
Class Crustacea (Crustaceans)	
Subclass Branchiopoda	
Order Diplostraca	
Suborder Cladocera (Cladocerans)	
Family Sididae	
<i>Diaphanosoma excisum</i>	26,604
Family Daphnidae	
<i>Ceriodaphnia cornuta</i>	34,991
Family Moinidae	
<i>Moina macrocopa</i>	28,084

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Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification
SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังผ่านพื้นที่โครงการ)
COORDINATE : UTM 48P 0207659E, 1357930N
SAMPLING DATE : May 31, 2022
SAMPLING TIME : 09:35 hr.
SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Arthropoda (Arthropods) (cont'd)	
Class Crustacea (Crustaceans)	
Subclass Branchiopoda	
Order Diplostraca	
Suborder Cladocera (Cladocerans)	
Family Bosminidae	
<i>Bosmina longirostris</i>	21,332
Subclass Copepoda	
Order Calanoida	
Family Diaptomidae	
<i>Heliodiaptomus viduus</i>	19,257
Total Species of Zooplankton (Species)	20
Total Density of Zooplankton (individuals/m³)	475,266
Species Richness Index^{1/}	1.45
Biodiversity Index^{2/}	2.96
Evenness Index^{3/}	0.99

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200G)

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener

^{3/} The evenness index was calculated by using the Pielou's Index.



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สัตว์หน้าดิน

Analysis Report

SAMPLE DESIGNATED AS : Benthos Identification

SAMPLING DATE : April 6, 2022

SAMPLING LOCATION : ห้วยวังปลาต้นน้ำก่อนผ่านพื้นที่โครงการ

SAMPLING TIME : 11:50 hr.

COORDINATE : UTM 48P 0208445E, 1358318N

SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Benthos (Individuals/m ²)
Phylum Annelida	
Class Clitellata	
Order Oligochaeta	
Family Naididae	
<i>Tubifex</i> sp.	33
Phylum Arthropoda	
Class Insecta	
Order Diptera	
Family Chironomidae	
<i>Chironomus</i> sp.	47
Order Ephemeroptera	
Family Baetidae	
<i>Baetis pygmaeus</i>	13
Phylum Mollusca	
Class Gastropoda	
Order Architaenioglossa	
Family Ampullariidae	
<i>Pomacea canaliculata</i>	27
Order Caenogastropoda	
Family Thiaridae	
<i>Melanoides Tuberculata</i>	27
Total Family of Benthos (Species)	5
Total Density of Benthos (individuals/m²)	147
Richness Index^{1/}	0.80
Biodiversity Index^{2/}	1.54
Evenness Index^{3/}	0.95

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.

^{3/} The evenness index was calculated by using the Pielou's Index.

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Analysis Report

SAMPLE DESIGNATED AS : Benthos Identification

SAMPLING DATE : April 6, 2022

SAMPLING LOCATION : ห้วยสลักหมู (ในจุดก่อนผ่านพื้นที่โครงการ)

SAMPLING TIME : 12:17 hr.

COORDINATE : UTM 48P 02090322E, 1358710N

SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Benthos (Individuals/m ²)
Phylum Annelida	
Class Clitellata	
Order Oligochaeta	
Family Naididae	
<i>Tubifex</i> sp.	27
Phylum Arthropoda	
Class Insecta	
Order Diptera	
Family Chironomidae	
<i>Chironomus</i> sp.	33
Order Ephemeroptera	
Family Baetidae	
<i>Baetis pygmaeus</i>	-
Phylum Mollusca	
Class Gastropoda	
Order Architaenioglossa	
Family Ampullariidae	
<i>Pomacea canaliculata</i>	27
Order Caenogastropoda	
Family Thiariidae	
<i>Melanoides Tuberculata</i>	27
Total Family of Benthos (Species)	4
Total Density of Benthos (individuals/m ²)	114
Richness Index ^{1/}	0.63
Biodiversity Index ^{2/}	1.38
Evenness Index ^{3/}	1.00

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener Index.

^{3/} The evenness index was calculated by using the Pielou's Index.

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Analysis Report

SAMPLE DESIGNATED AS : Benthos Identification

SAMPLING DATE : May 31, 2022

SAMPLING LOCATION : ห้วยสลักหมู (ในจุดหลังผ่านพื้นที่โครงการ)

SAMPLING TIME : 10:30 hr.

COORDINATE : UTM 48P 0208718E, 1359065N

SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Benthos (Individuals/m ²)
Phylum Annelida	
Class Clitellata	
Order Oligochaeta	
Family Naididae	
<i>Tubifex</i> sp.	33
Phylum Arthropoda	
Class Insecta	
Order Diptera	
Family Chironomidae	
<i>Chironomus</i> sp.	33
Order Ephemeroptera	
Family Baetidae	
<i>Baetis pygmaeus</i>	20
Phylum Mollusca	
Class Gastropoda	
Order Architaenioglossa	
Family Ampullariidae	
<i>Pomacea canaliculata</i>	33
Order Caenogastropoda	
Family Thiaridae	
<i>Melanoides Tuberculata</i>	33
Total Family of Benthos (Species)	5
Total Density of Benthos (individuals/m²)	152
Richness Index^{1/}	0.80
Biodiversity Index^{2/}	1.59
Evenness Index^{3/}	0.99

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.

^{3/} The evenness index was calculated by using the Pielou's Index.

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Analysis Report

SAMPLE DESIGNATED AS : Benthos Identification

SAMPLING DATE : May 31, 2022

SAMPLING LOCATION : ห้วยชุมแสง (ในจุดก่อนผ่านพื้นที่โครงการ)

SAMPLING TIME : 11:16 hr.

COORDINATE : UTM 48P 0207854E, 1357801N

SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Benthos (Individuals/m ²)
Phylum Annelida	
Class Clitellata	
Order Oligochaeta	
Family Naididae	
<i>Tubifex</i> sp.	33
Phylum Arthropoda	
Class Insecta	
Order Diptera	
Family Chironomidae	
<i>Chironomus</i> sp.	33
Order Ephemeroptera	
Family Baetidae	
<i>Baetis pygmaeus</i>	20
Phylum Mollusca	
Class Gastropoda	
Order Architaenioglossa	
Family Ampullariidae	
<i>Pomacea canaliculata</i>	27
Order Caenogastropoda	
Family Thiariidae	
<i>Melanoides Tuberculata</i>	27
Total Family of Benthos (Species)	5
Total Density of Benthos (individuals/m²)	140
Richness Index^{1/}	0.81
Biodiversity Index^{2/}	1.59
Evenness Index^{3/}	0.99

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener Index.

^{3/} The evenness index was calculated by using the Pielou's Index.

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Analysis Report

SAMPLE DESIGNATED AS : Benthos Identification

SAMPLING DATE : May 31, 2022

SAMPLING LOCATION : ห้วยชุมแสง (ในจุดหลังผ่านพื้นที่โครงการ)

SAMPLING TIME : 09:35 hr.

COORDINATE : UTM 48P 0207659E, 1357930N

SAMPLING BY : Nopparut Jampakrum

Scientific Classification	Benthos (Individuals/m ²)
Phylum Annelida	
Class Clitellata	
Order Oligochaeta	
Family Naididae	
<i>Tubifex</i> sp.	47
Phylum Arthropoda	
Class Insecta	
Order Diptera	
Family Chironomidae	
<i>Chironomus</i> sp.	40
Order Ephemeroptera	
Family Baetidae	
<i>Baetis pygmaeus</i>	40
Phylum Mollusca	
Class Gastropoda	
Order Architaenioglossa	
Family Ampullariidae	
<i>Pomacea canaliculata</i>	47
Order Caenogastropoda	
Family Thiariidae	
<i>Melanoides Tuberculata</i>	20
Total Family of Benthos (Species)	5
Total Density of Benthos (individuals/m²)	194
Richness Index^{1/}	0.76
Biodiversity Index^{2/}	1.57
Evenness Index^{3/}	0.98

Remarks : Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

^{1/} The species richness was calculated by using the Margalef's Index.

^{2/} The biodiversity index was calculated by using the Shannon-Wiener's Index.

^{3/} The evenness index was calculated by using the Pielou's Index.

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