

ELECTRICITY GENERATING AUTHORITY OF THAILAND



INVITATION FOR BIDS NO. EGAT 8/2568-LTK2-H1

LAMTAKONG HYDROPOWER PROJECT

VOLUME V

SUPPLEMENTARY DATA

ELECTRICITY GENERATING AUTHORITY OF THAILAND

LAMTAKONG HYDROPOWER PROJECT

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LAMTAKONG HYDROPOWER PROJECT

VOLUME V

SUPPLEMENTARY DATA

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GEOTECHNICAL REPORT

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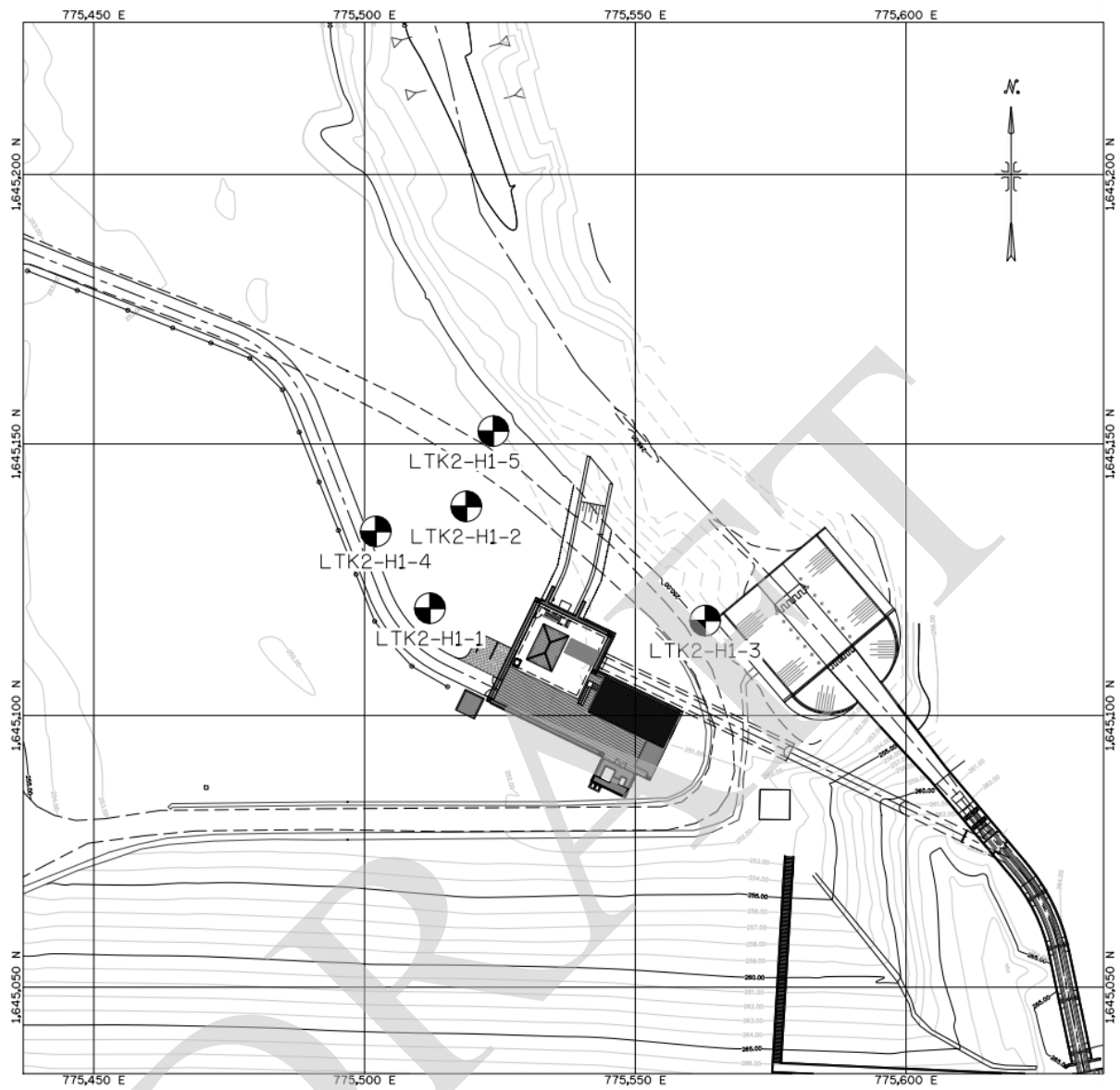


Figure 1.1 Location of Boreholes

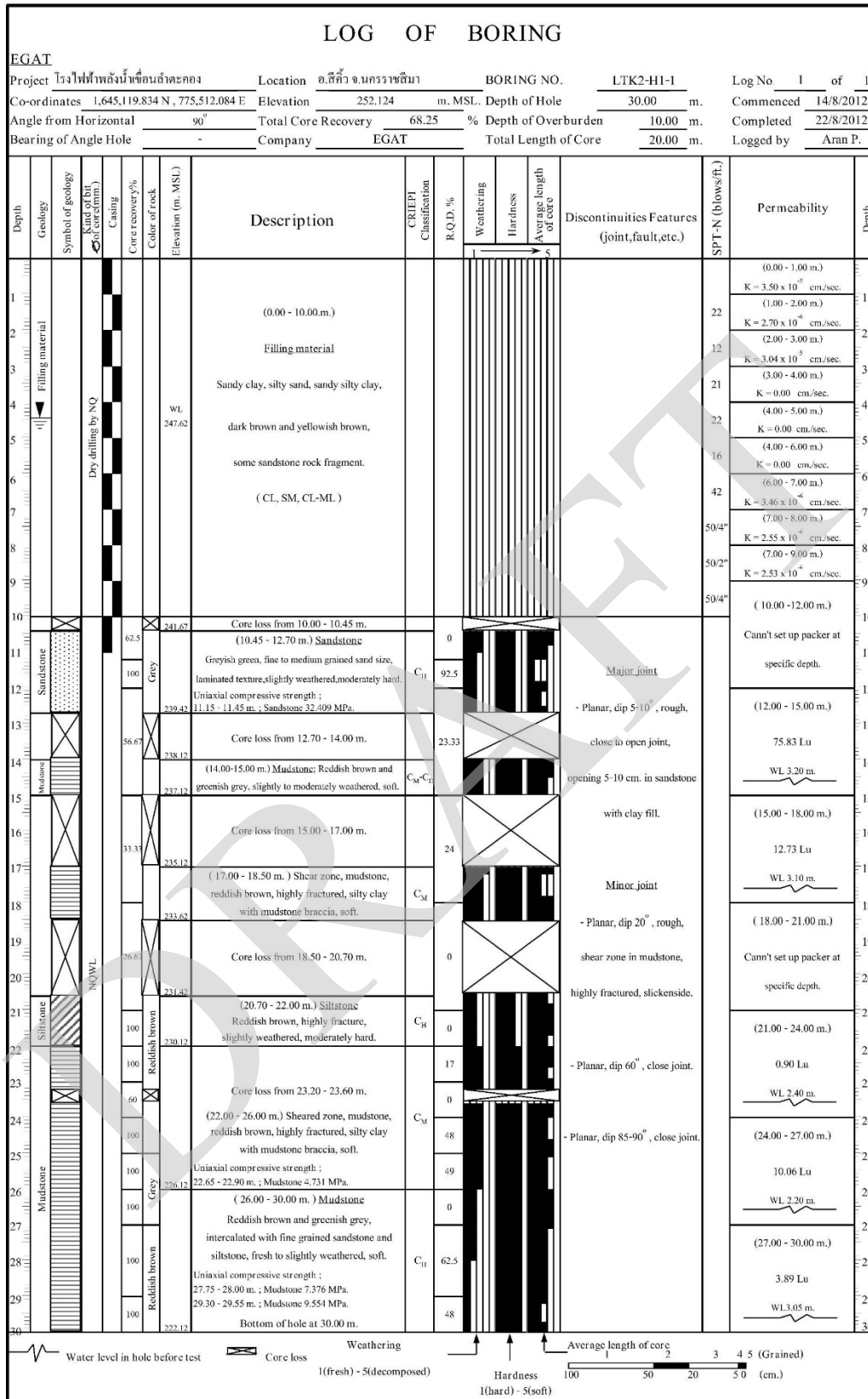


Figure 1.2 Log of Boring LTK2-H1-1

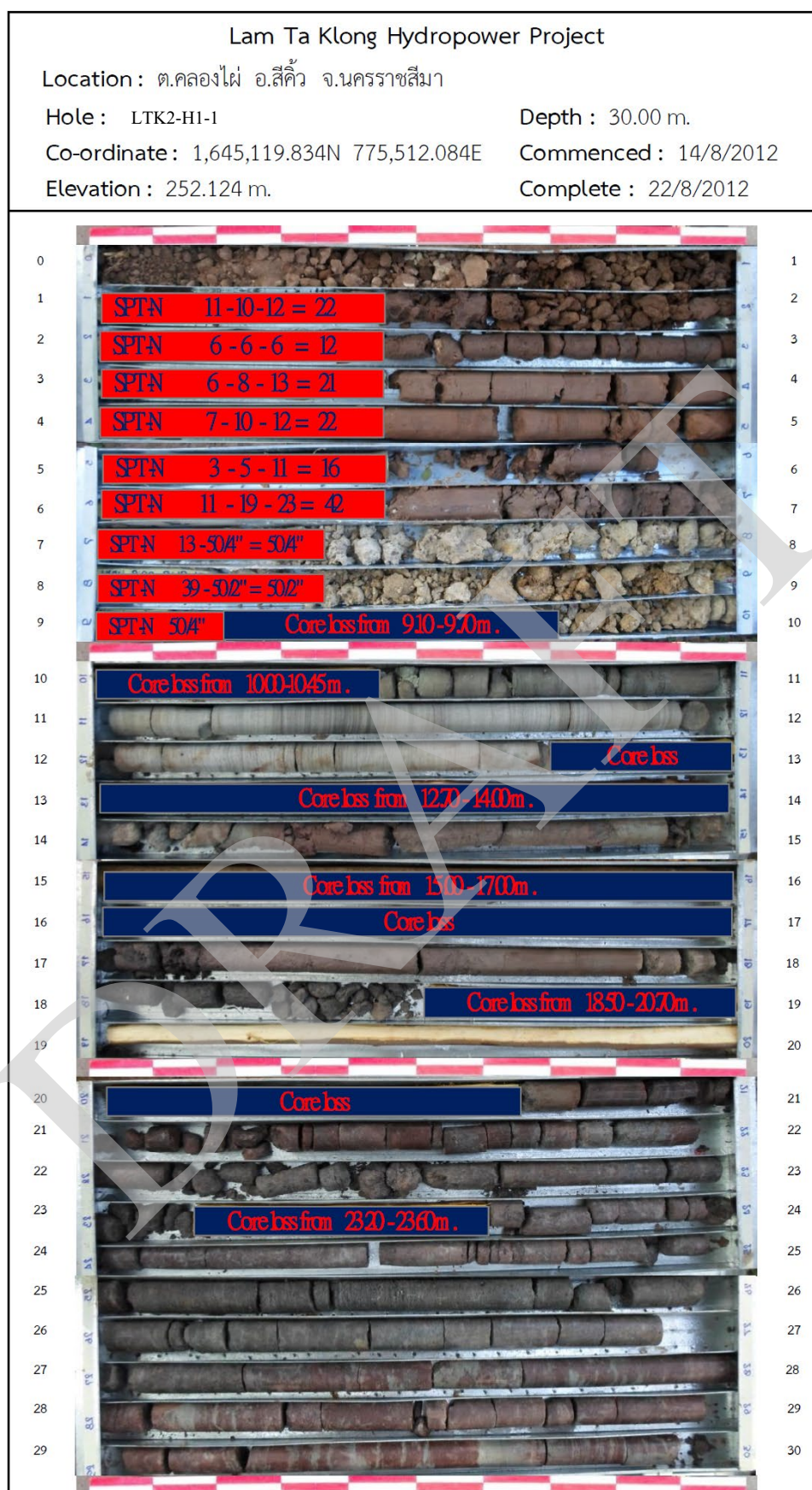


Figure 1.3 Core photo LTK2-H1-1

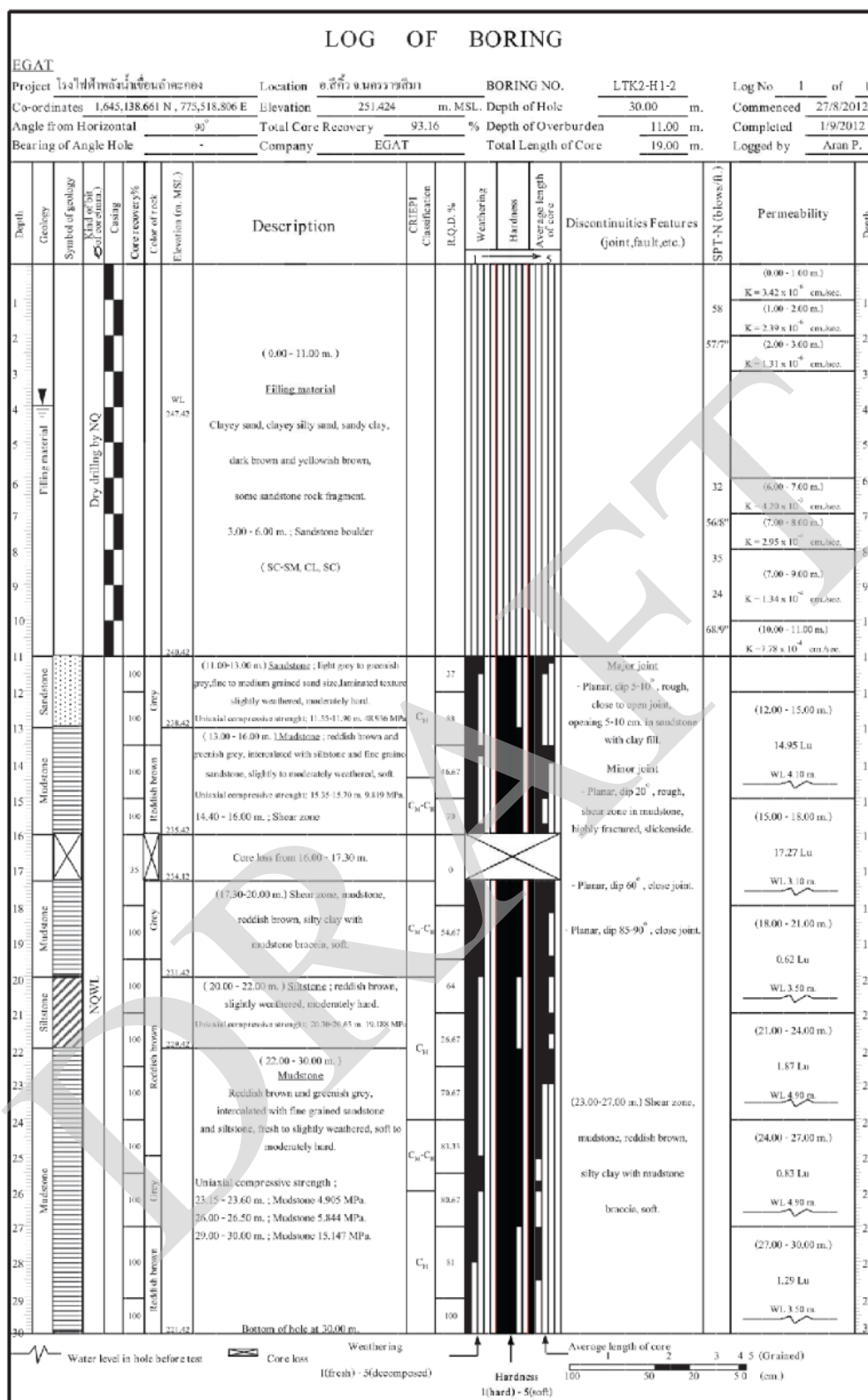


Figure 1.4 Log of Boring LTK2-H1-2

Lam Ta Klong Hydropower Project

Location : ต.คลองไผ่ อ.สีคิ้ว จ.นครราชสีมา

Hole : LTK2-H1-2

Depth : 30.00 m.

Co-ordinate : 1,645,138.661N 775,518.806E

Commenced : 27/8/2012

Elevation : 251.424 m.

Complete : 1/9/2012



Figure 1.5 Core photo LTK2-H1-2

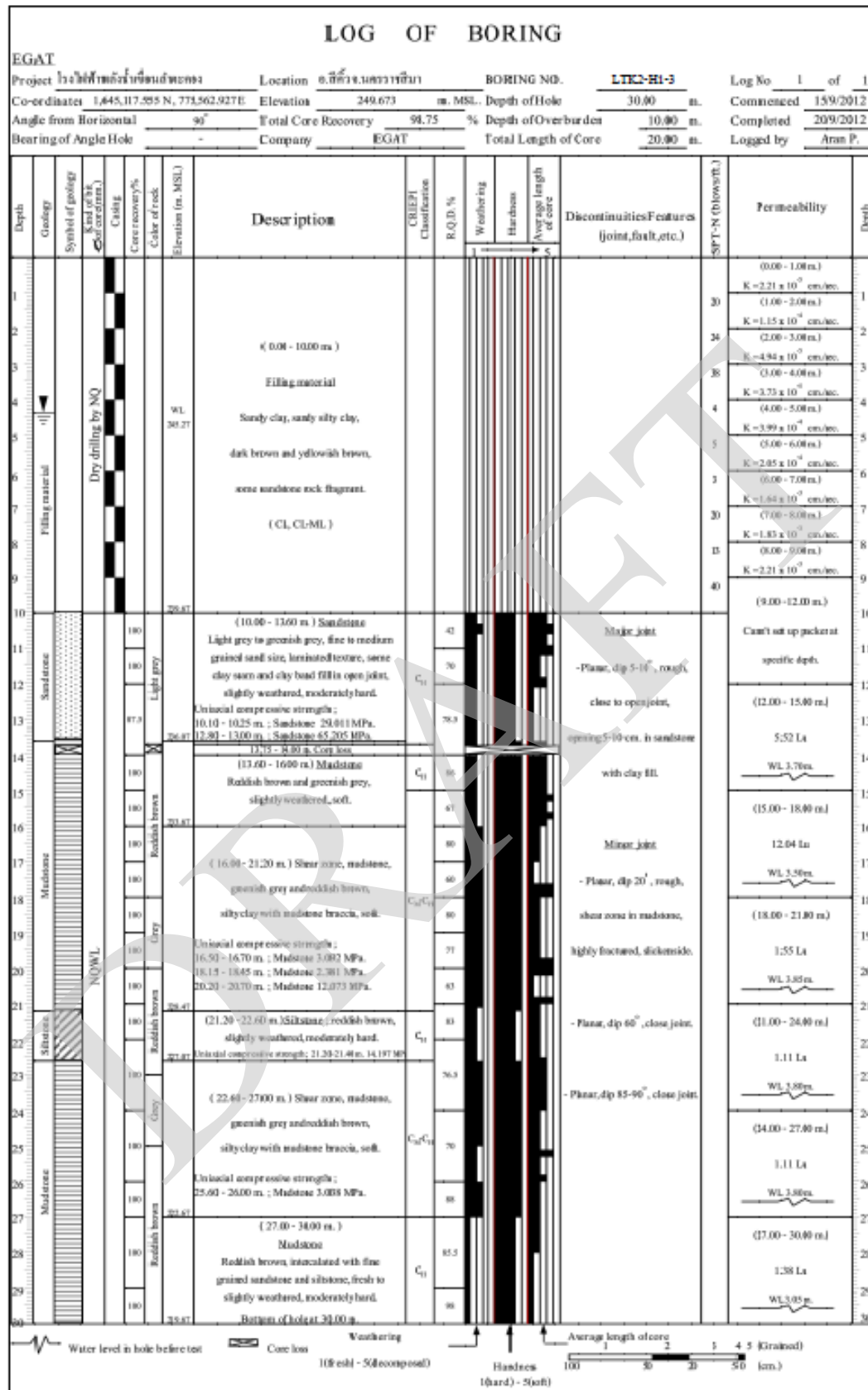


Figure 1.6 Log of Boring LTK2-H1-3

Lam Ta Klong Hydropower Project

Location : ต.คลองไผ่ อ.สีคิ้ว จ.นครราชสีมา

Hole : LTK2-H1-3

Depth : 30.00 m.

Co-ordinate : 1,645,117.555N 775,562.927E

Commenced : 15/9/2012

Elevation : 249.673 m.

Complete : 20/9/2012

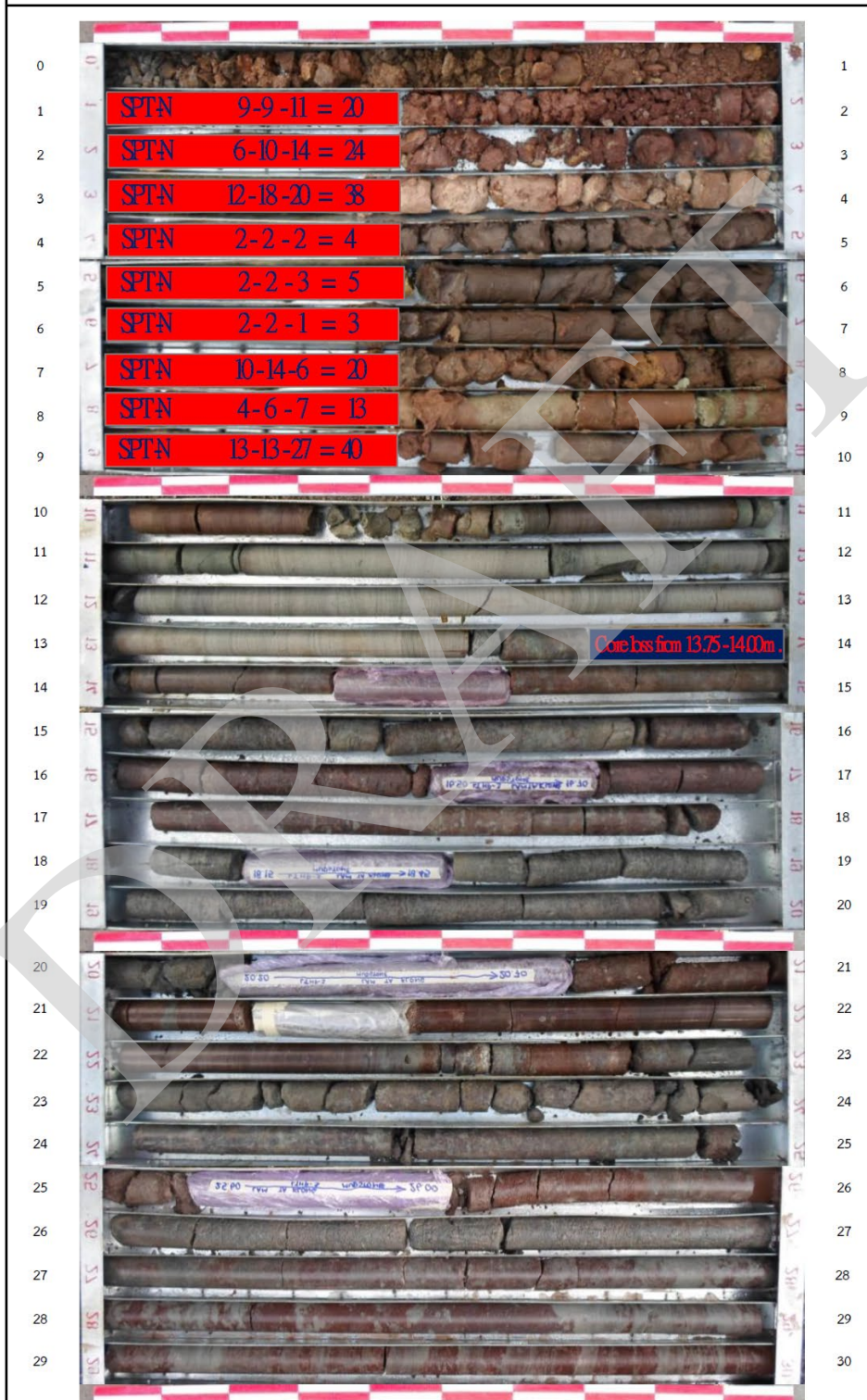
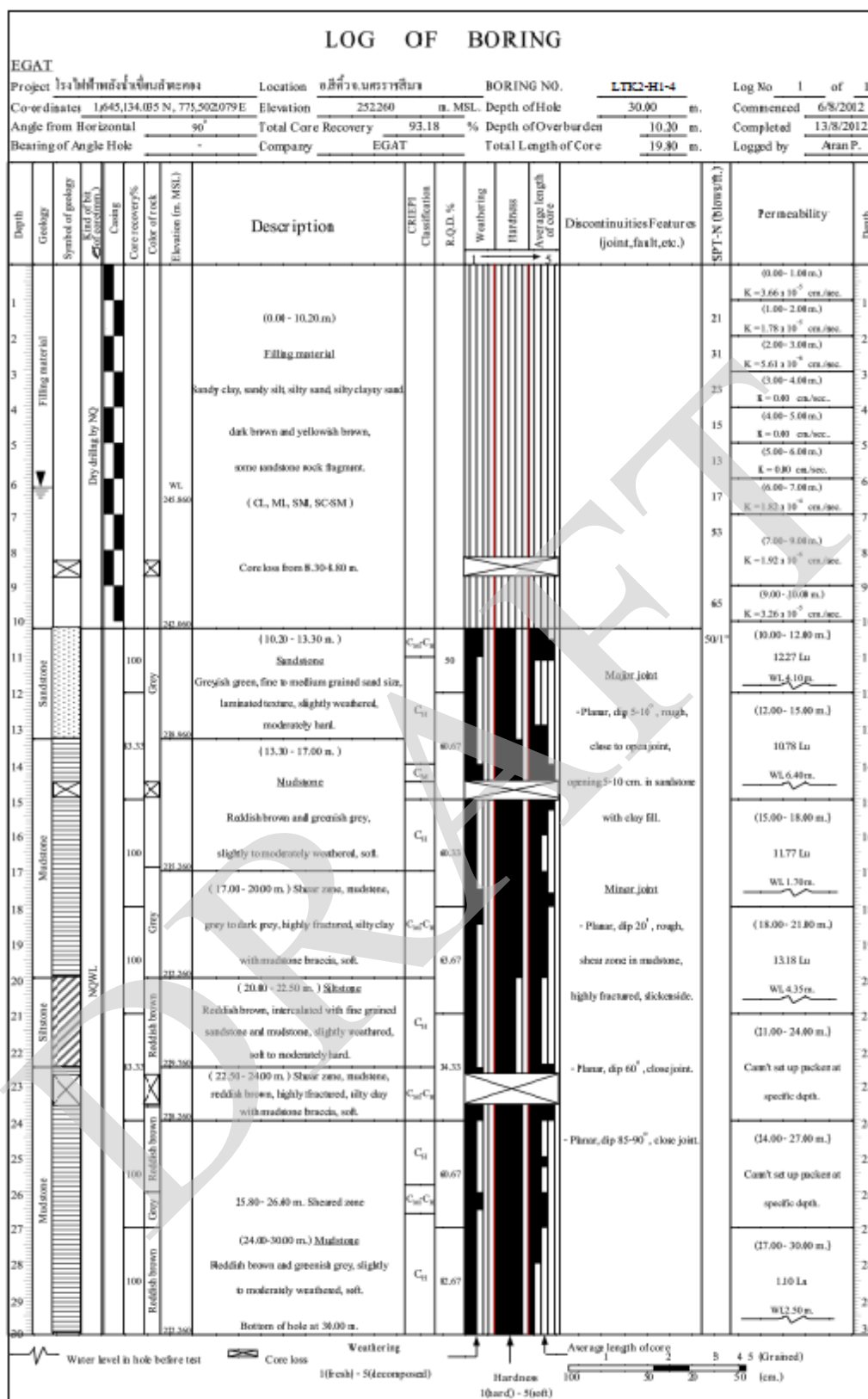


Figure 1.7 Core photo LTK2-H1-3



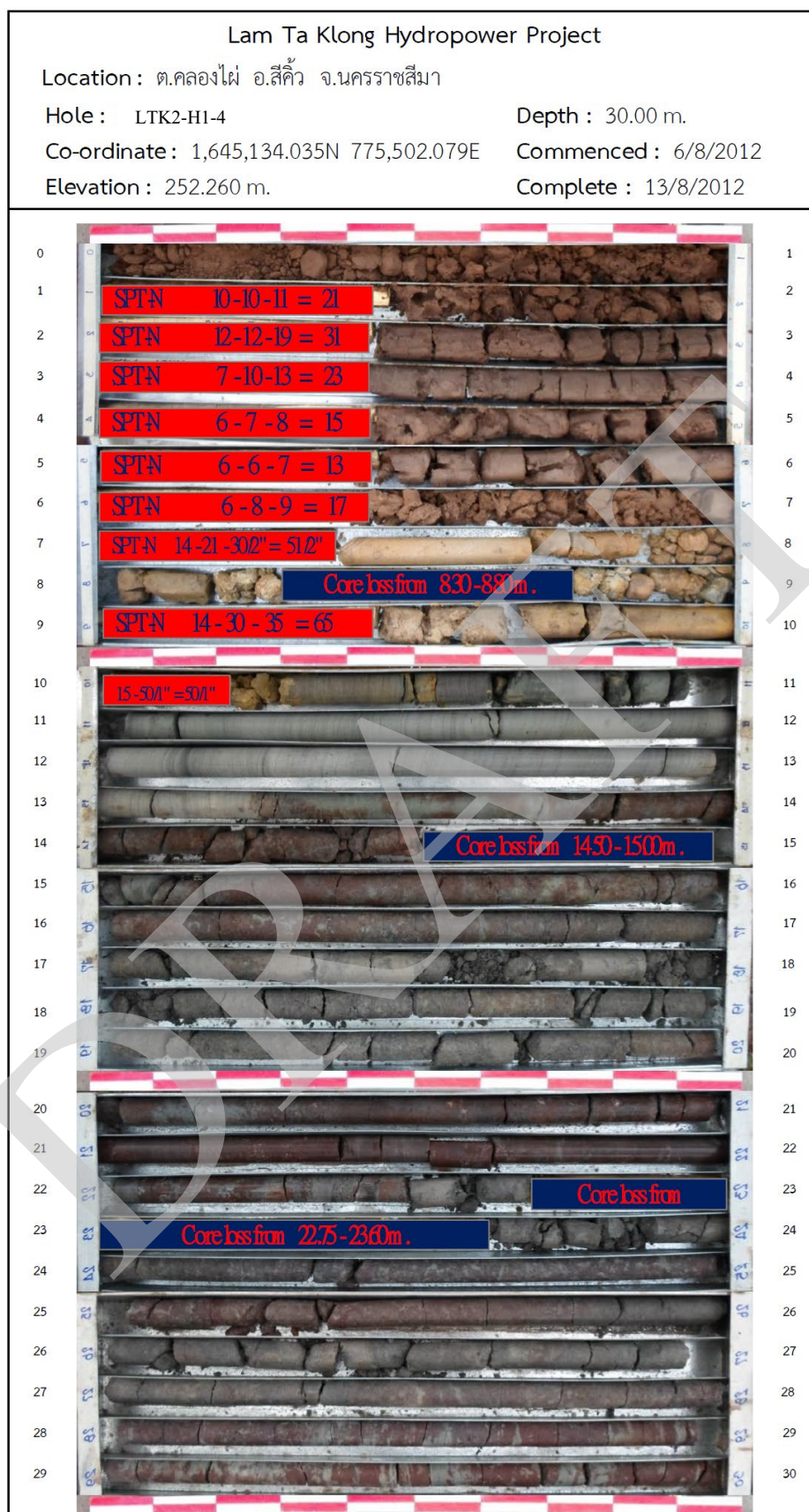


Figure 1.9 Core photo LTK2-H1-4

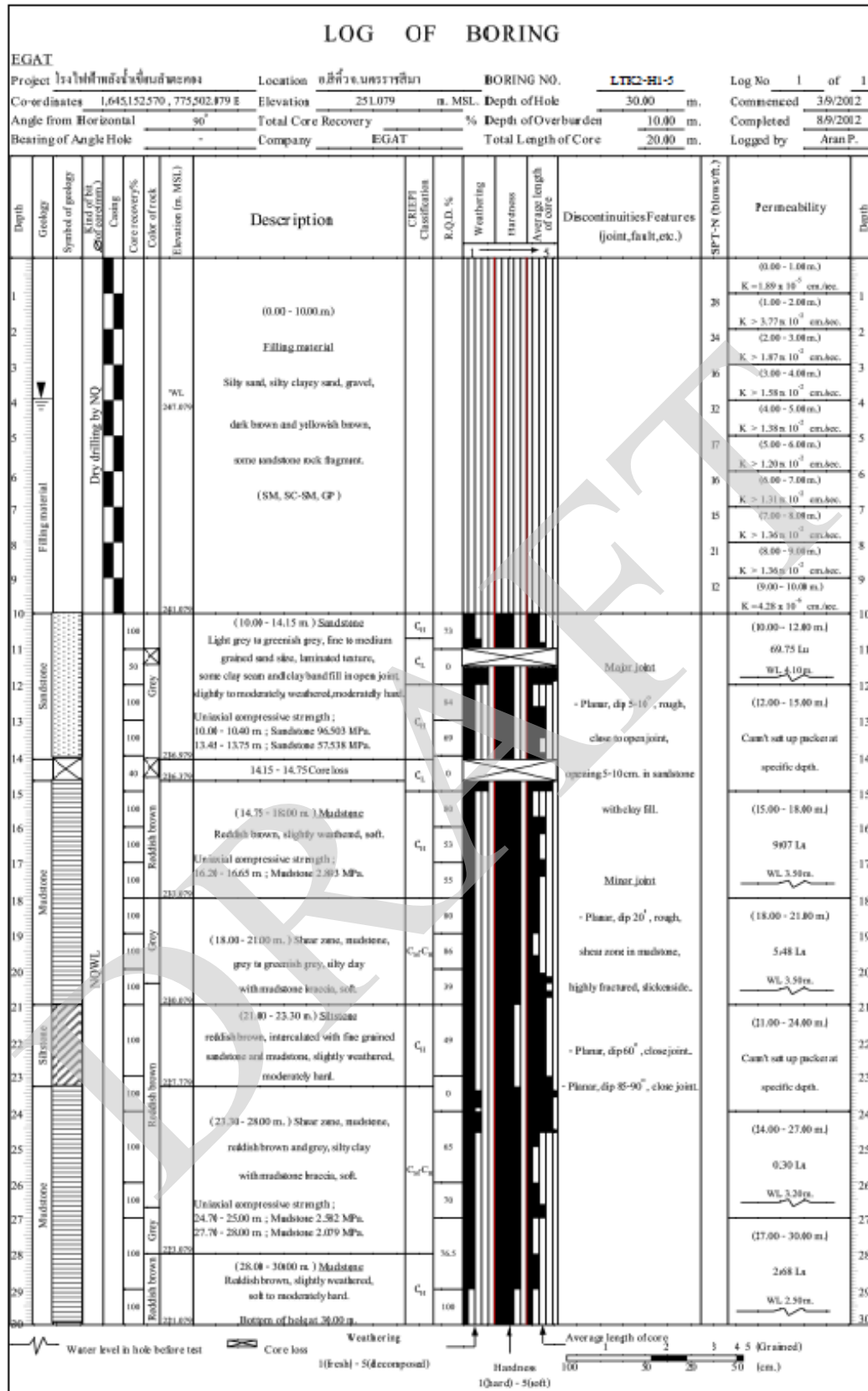


Figure 1.10 Log of Boring LTK2-H1-5

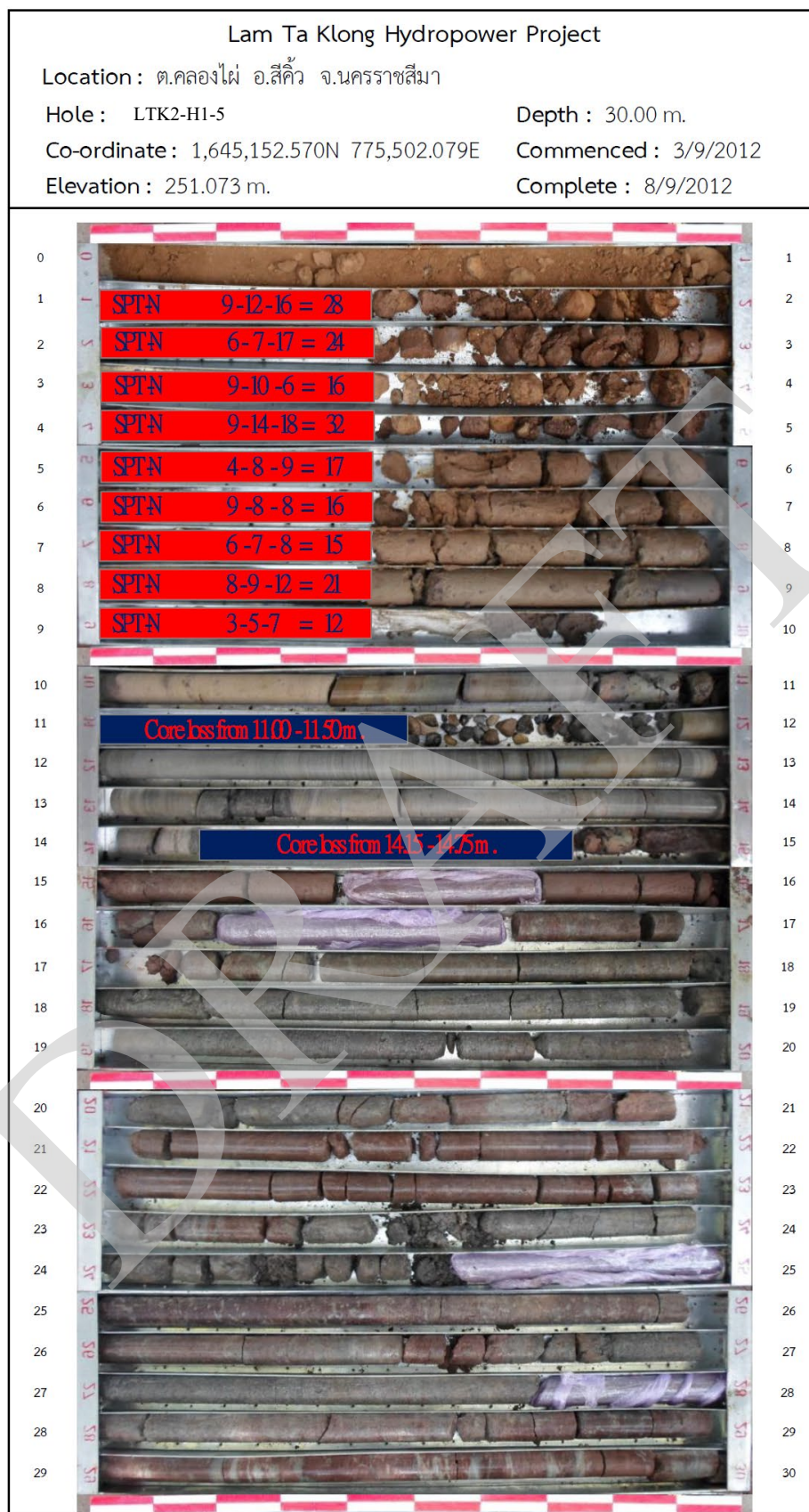


Figure 1.11 Core photo LTK2-H1-5

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Monthly Discharge**Unit : cms**

Year		January	February	March	April	May	June	July	August	September	October	November	December	Annual
2009	2552	0.47	0.63	0.61	0.81	0.56	0.57	0.66	0.60	1.26	2.05	0.54	0.16	8.91
2010	2553	0.24	0.20	0.43	0.38	0.21	0.20	0.65	1.09	1.88	29.14	16.01	6.52	56.94
2011	2554	12.91	12.49	1.51	10.28	9.39	13.38	20.39	24.71	20.08	17.62	15.19	9.03	166.96
2012	2555	14.74	22.43	19.96	10.63	6.50	5.34	14.92	11.72	4.37	5.31	6.06	4.31	126.28
2013	2556	4.53	6.10	6.21	6.61	5.07	3.21	3.60	3.89	5.55	0.32	5.03	6.02	56.13
2014	2557	14.46	12.91	15.95	8.68	4.45	5.48	14.71	8.98	4.68	7.74	5.17	4.07	107.29
2015	2558	5.08	6.98	7.64	7.46	7.77	6.06	4.09	2.98	2.48	1.70	5.54	3.07	60.83
2016	2559	4.00	4.01	5.00	4.71	3.52	4.84	4.48	4.11	1.79	0.00	0.89	1.46	38.81
2017	2560	1.99	3.84	3.03	3.13	3.35	1.34	1.09	2.76	1.37	0.00	0.52	1.63	24.04
2018	2561	2.67	3.67	4.22	4.18	0.18	0.96	3.38	7.58	4.90	11.93	2.27	3.09	49.03
2019	2562	4.51	4.90	5.25	3.17	1.65	1.32	6.99	8.40	1.39	4.72	5.02	2.86	50.18
2020	2563	4.12	4.00	2.49	3.06	2.00	1.07	3.50	2.06	0.26	3.08	14.14	5.38	45.15
2021	2564	8.93	8.56	10.78	11.18	8.72	8.84	5.58	5.93	9.84	7.88	7.14	5.33	98.70
2022	2565	8.18	10.53	15.73	18.36	9.82	7.76	12.90	15.05	12.83	11.78	8.21	5.29	136.42
2023	2566	9.35	10.35	13.00	12.55	5.71	2.71	6.88	7.38	2.76	1.74	1.30	1.80	75.53
2024	2567	3.01	3.12	4.83	3.73	2.51	2.68	1.90	6.85	3.91	2.25	1.57	1.76	38.12
Max		14.74	22.43	19.96	18.36	9.82	13.38	20.39	24.71	20.08	29.14	16.01	9.03	166.96
Average		6.20	7.17	7.29	6.81	4.46	4.11	6.61	7.13	4.96	6.70	5.91	3.86	71.21
Min		0.24	0.20	0.43	0.38	0.18	0.20	0.65	0.60	0.26	0.00	0.52	0.16	8.91

Ref. : <http://hydro-4.rid.go.th/>**Table 2.1 Monthly Discharge of Lamtakong Dam in cms**

Water Level**Unit : m. MSL**

Year		January	February	March	April	May	June	July	August	September	October	November	December	Average
2009	2552	275.67	274.76	273.71	273.21	272.89	272.55	271.60	273.56	270.67	272.66	273.01	272.54	273.07
2010	2553	271.68	270.88	269.87	267.84	268.25	267.71	267.43	268.04	270.53	275.84	277.64	277.45	271.10
2011	2554	276.90	276.01	274.27	274.31	274.10	274.32	273.84	273.44	274.49	277.32	277.50	276.99	275.29
2012	2555	282.34	274.77	273.28	271.95	271.11	270.69	269.72	268.38	268.36	271.45	271.25	270.89	272.01
2013	2556	270.35	269.64	268.86	267.82	266.97	257.75	266.80	267.54	268.58	274.76	276.66	276.48	269.35
2014	2557	275.88	274.93	273.92	273.00	272.85	272.00	271.29	270.79	261.66	269.93	272.00	272.00	271.69
2015	2558	271.19	270.93	260.69	269.07	259.30	267.40	262.77	266.24	266.93	269.80	270.03	270.00	267.03
2016	2559	269.74	269.00	268.03	267.46	266.62	266.00	246.19	263.97	265.75	267.88	269.41	269.81	265.82
2017	2560	269.15	272.44	267.61	267.00	266.28	267.00	267.13	268.15	269.35	272.10	273.20	273.09	269.37
2018	2561	272.91	272.76	272.33	271.75	272.10	273.18	273.35	273.70	274.92	275.55	275.32	275.05	273.58
2019	2562	274.55	273.95	273.27	272.60	272.17	271.86	271.44	270.48	271.55	272.24	272.02	271.51	272.30
2020	2563	270.89	270.12	269.29	268.66	267.88	267.61	267.67	267.94	269.27	275.54	277.95	277.83	270.89
2021	2564	277.30	276.59	275.82	275.00	274.97	260.67	273.00	270.50	274.12	278.19	277.88	277.60	274.30
2022	2565	276.96	276.00	275.21	274.13	273.00	273.00	272.29	273.00	274.60	277.77	278.00	278.00	275.16
2023	2566	277.13	276.43	275.41	277.57	273.10	272.77	271.90	270.81	270.40	270.90	271.80	273.00	273.43
2024	2567	272.23	271.64	270.65	260.79	268.89	268.39	259.25	268.07	259.22	269.13	269.07	268.65	267.16
Max		282.34	276.59	275.82	277.57	274.97	274.32	273.84	273.70	274.92	278.19	278.00	278.00	275.29
Average		274.05	273.18	271.39	270.76	270.03	268.93	267.85	269.66	269.40	273.19	273.92	273.81	271.35
Min		269.15	269.00	260.69	260.79	259.30	257.75	246.19	263.97	259.22	267.88	269.07	268.65	265.82

Ref. : <http://hydro-4.rid.go.th/>**Table 2.2 Water Level of Lamtakong Dam in m. MSL.**

Discharge (cms.)	TWL. (m.MSL)
0.00	245.00
3.10	245.50
7.50	246.00
16.00	246.50
28.00	247.00
45.20	247.50
65.60	248.00
90.70	248.50
119.00	249.00
155.20	249.50
191.30	250.00
234.80	250.50
278.30	251.00
321.80	251.50
365.30	252.00
408.70	252.50
452.30	253.00
1,000.00	257.00

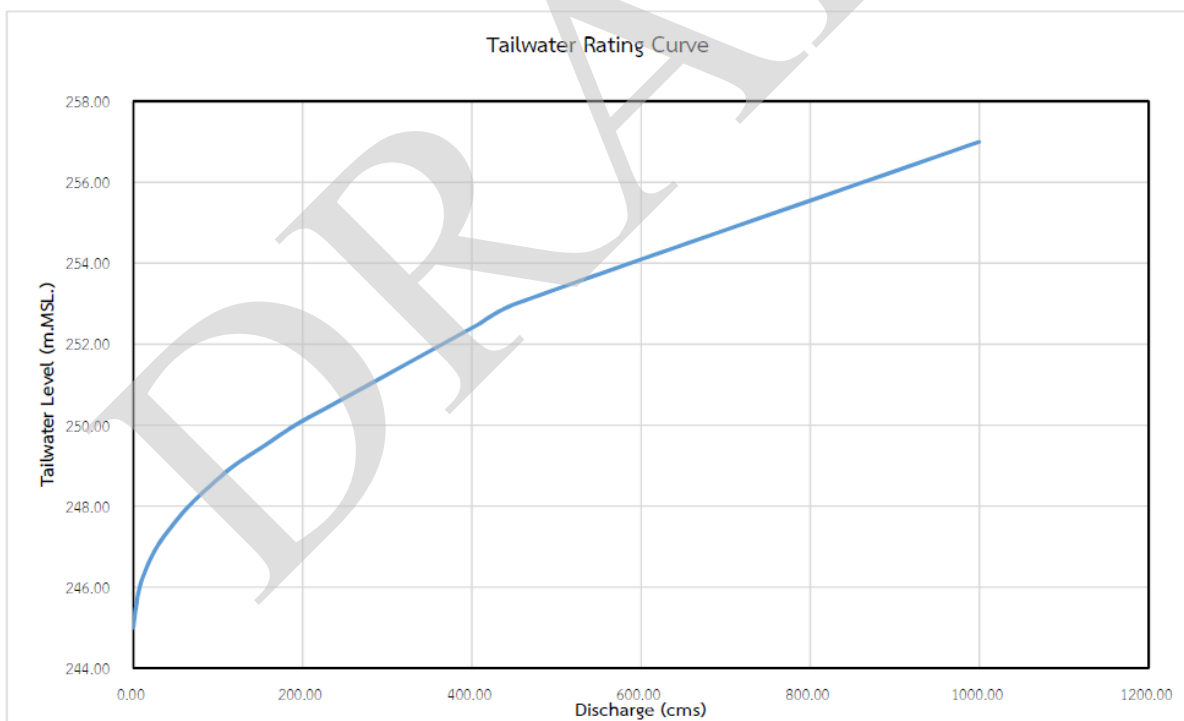


Figure 2.1 Tailwater Rating curve of Lamtakong Dam

PART 3
DRAWING OF EXISTING LAMTAKONG DAM

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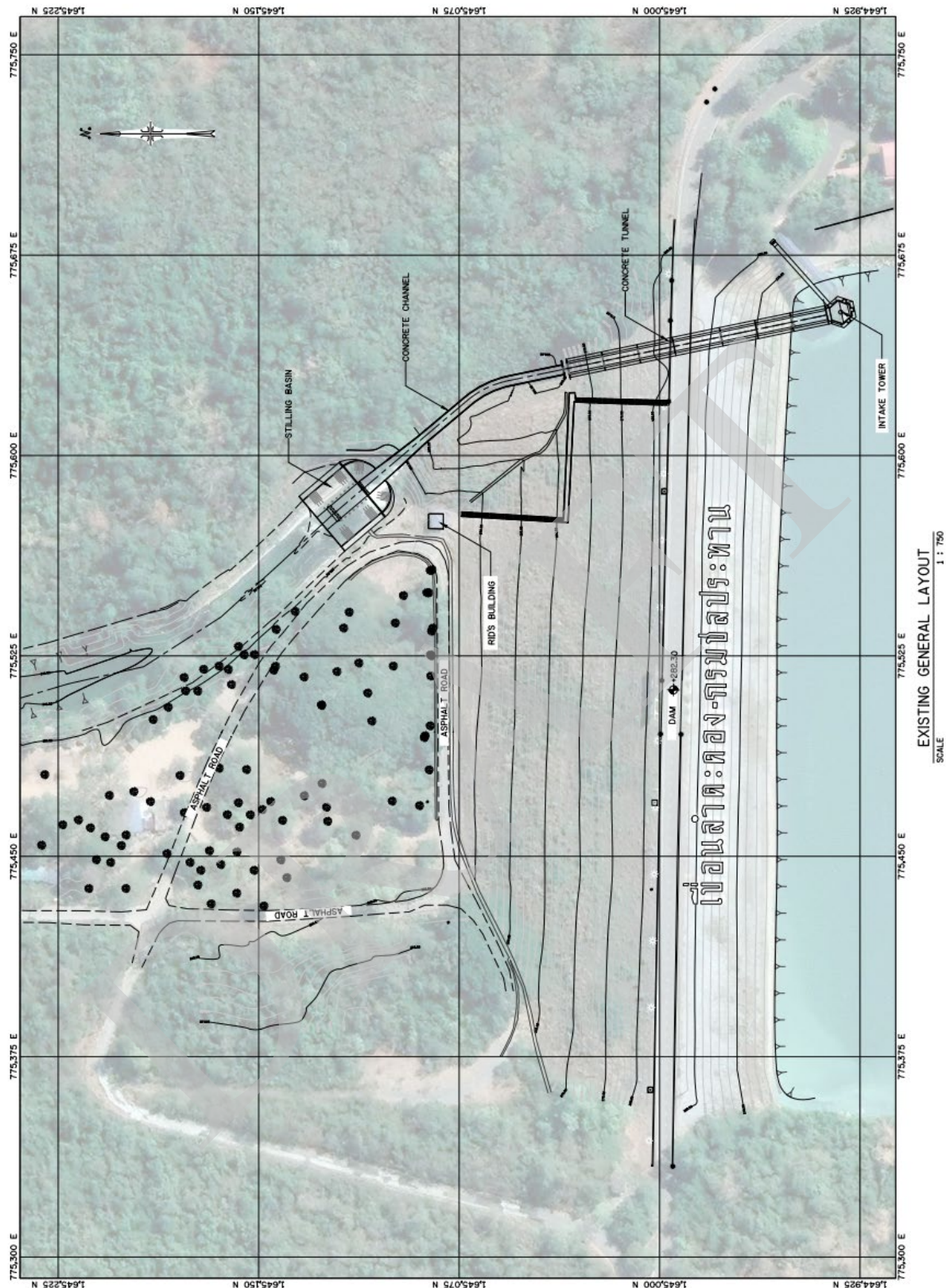


Figure 3.1 Irrigation outlet of Lamtakong Dam (Existing)



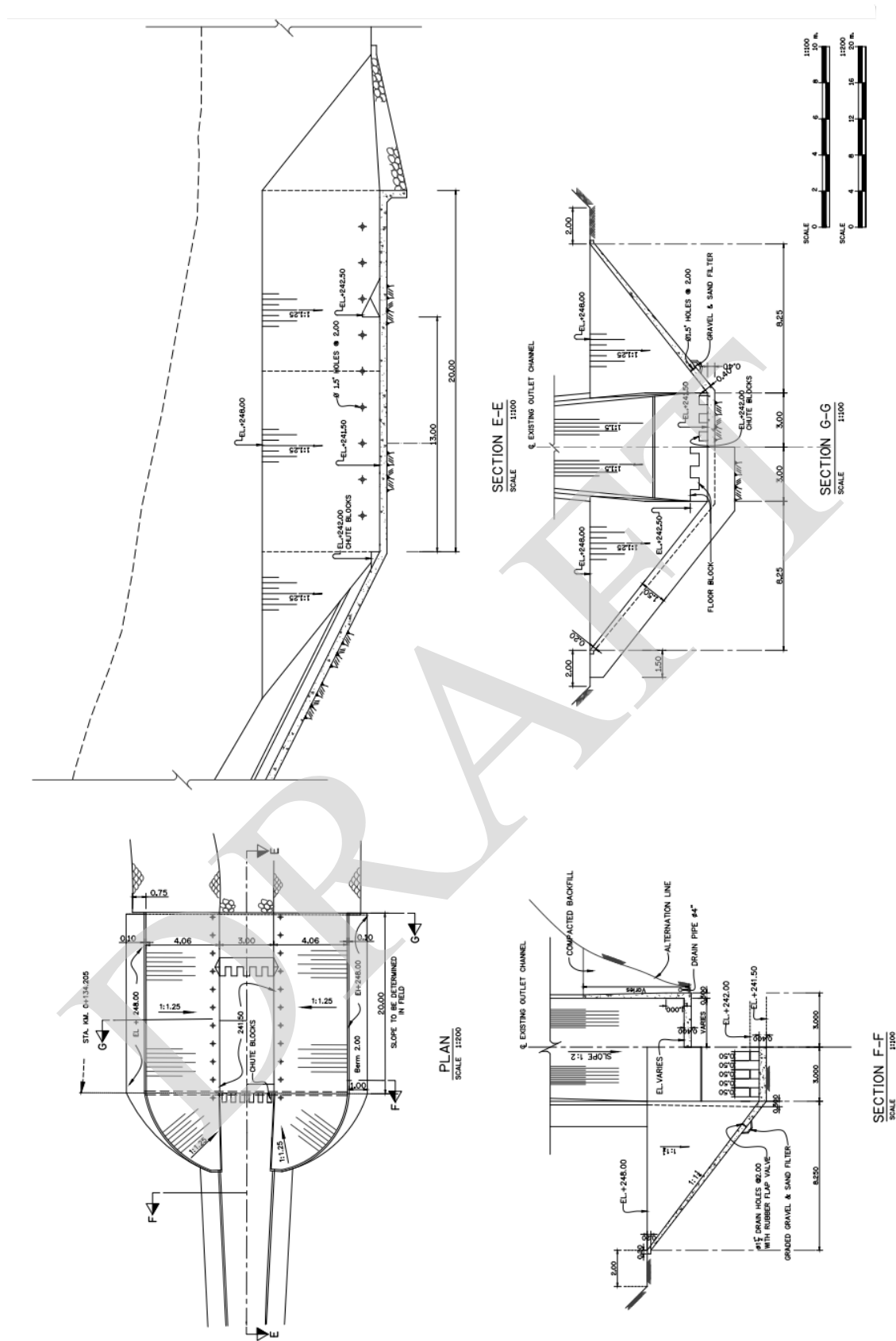


Figure 3.3 Detailed drawing of Lamtakong plunge pool (Existing)

PART 4
WATER QUALITY REPORT

PART 4 WATER QUALITY REPORT

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Table 4.1 The Result of Water Chemical Analysis at Lamtakong Dam
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DRAFT

Description	Unit	Reservoir		Method
		May 2012		
Depth	m	-1	-5	
Temperature	°C	31.6	30.4	Thermometer
pH at 25 °C	-	8.1	7.9	Electrometric
Conductivity	µs/cm	360	346	Conductivity Meter
Turbidity	NTU	3	3	Nephelometric
Total Solids	ppm	216	210	Dried at 103-105°C
Total Suspend Solids	ppm	<5	<5	Glass Fiber Filter Disc
Total Alkalinity (as CaCO ₃)	ppm	144	146	Titrimetic
Total Hardness (as CaCO ₃)	ppm	134	132	EDTA Titrimetic
Calcium (as CaCO ₃)	ppm	104	104	EDTA Titrimetic
Magnesium (as CaCO ₃)	ppm	30	28	Calculation
Iron (as Fe)	ppm	0.18	0.17	Phenanthroline
Chloride (as Cl)	ppm	19	19	Argentometric
Sulfate (as SO ₄)	ppm	9	9	Turbidimetric
Total Phosphate (as PO ₄)	ppm	0.57	0.35	Amino Method
Nitrate (as NO ₃)	ppm	4.65	1.28	Cadmium Reduction
Dissolved Oxygen (DO)	ppm	7.2	4.6	Azide Modification
Hydrogen Sulfide (as H ₂ S)	ppm	<0.1	<0.1	Titrimetic
Carbon Dioxide (as CO ₂)	ppm	3	7	

Table 4.1 The Result of Water Chemical Analysis at Lamtakong Dam