

CHAPTER III

STRATIGRAPHY AND SEDIMENTOLOGY

The stratigraphical and sedimentological analyses from the sand pit had been carried by making lithostratigraphic columnar section and labeled according to major visible unconformities that separate apparently continuous episodes of accumulations. Subsequently, stratigraphy sedimentary structures and ancient elephant fossils from each layer were collected for sedimentology analyses.

3.1 Fossil localities

Location of the fossil locality of the palaeo-Mun River, sands and gravels deposits are shown in Figure 3.1. The sediments contain abundant of organic matter, large logs, fossil bones and Tektites. Fossil localities are about 3 km north of the railway station Chaleom Phrakeart. They are belong to private sand pit, its name "Siam sand pit". The fossil localities consist of three sand pits in the same area, show in Figures 3.2, 3.3 and 3.4. Each of sand pits is about 50 m wide, 100 m long and its depth is now nearly 30 m from the ground. Base of the outcrop have been diged by water jets. Almost of the fossils are washed down and concentrated to the base of cone shaped pit. Precise location of fossil locality is as follows: lat 15° 02' 06.6" N, long 102° 17' 30.7" E.

3.2 Geology, Lithology and Stratigraphy of Siam sandpit

Fossil localities are in the center of low land along Mun River. The width of lowland is about 2 Km at the fossil localities and ranges to 4 Km in the widest area.

In this study of three sandpits, lithology and sedimentary structure were observed and recorded in the point of view from the northern, southern, eastern and western sides of the pit.

The depth of the first pit is about 11 m and 100 m in width. The depth of second pit is 15.5 m and 50 m in width. The depth of third pit is 30 m and 100 m in width. Columnar sections of these pits are shown in Figure 3.5- 3.12

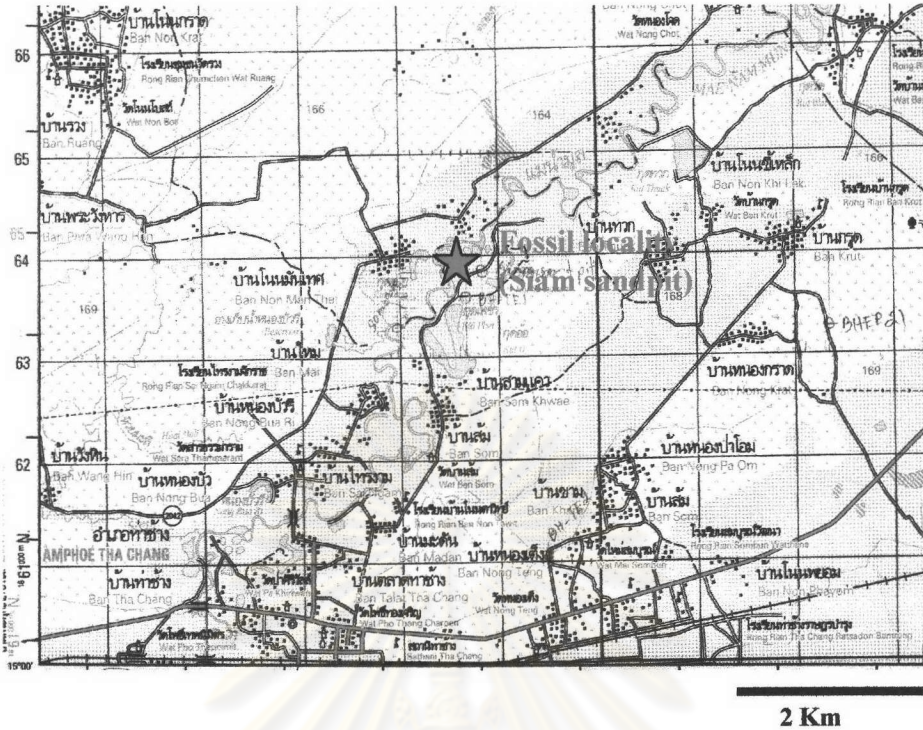


Figure 3.1 Location of fossil locality at Siam sand pit, in Nakhon Ratchasima. (Amphoe Non Sung, 5439 II) (Royal Thai Survey Department, 1996).
 ★ Fossil locality (Siam sandpit)



Figure 3.2 The location of outcrop at Siam sandpit1, Nakhon Ratchasima, lat 15° 02' 18" N long 102° 17' 28" E., looking east



Figure 3.3 The location of outcrop at Siam sand pit 2, looking east.

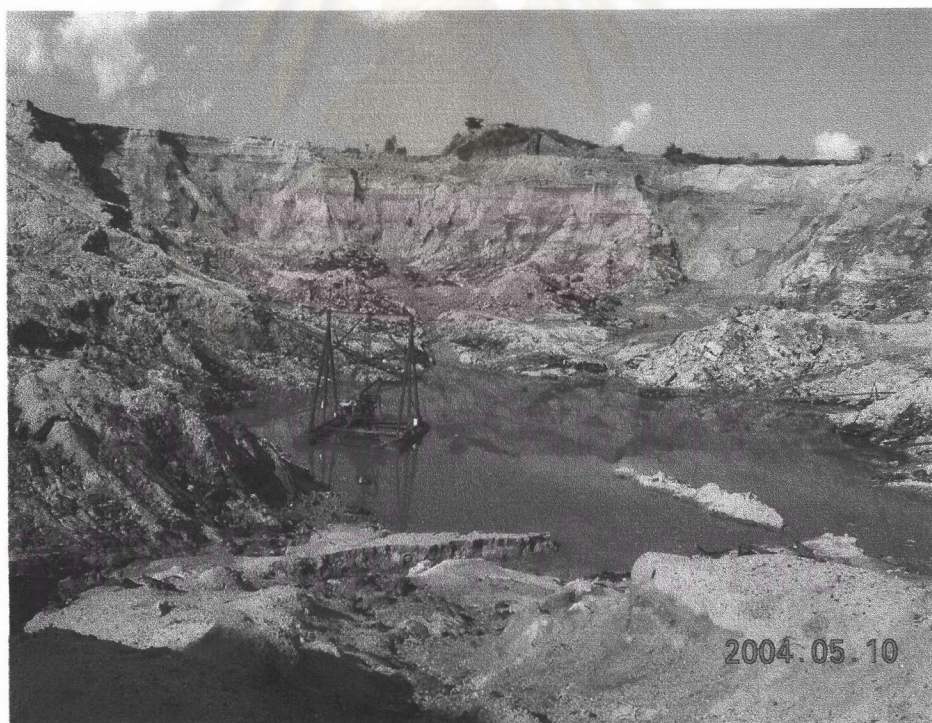


Figure 3.4 The location of outcrop at Siam sand pit 3, looking east

3.3 Sedimentary Succession in the Siam sandpit

The stratigraphy of Siam sandpit consists of 53 sedimentary layers. These layers can be combining into 4 units i.e. from older to younger as unit A, B, C (C1 and C2) and D, respectively. Sedimentary succession of the third sandpit from east profile was describe and shown in Figure 3.5 and Table 3.1. Because of this pit is clearly in sedimentary structure. Total thickness of section is about 22 meters. Description of layers is as follows:

Table 3.1 Showing lithostratigraphic section and sedimentary structure of the third sandpit from east profile

Lithology	Thickness (cm)	Sedimentary structures
Clay, light brown	205	Rootlets
Clay, bluish gray and plant, roots with wood fragment	100	Rootlets
Sandy clay, white	30	Bioturbation
Fine sand, white, loose, sub-angular, moderately sorted	70	Thickly bedded
Fine sand, reddish yellow, loose, sub-angular, moderately sorted, and fossil of bivalve	35	Thickly bedded
Unconformity3		
Sandy clay, brown to black	15	Medium bedded
Clayey sand, light brown	10	Burrow
Clayey sand, light brown	12	Bioturbation
Medium sandstone, loose, sub-angular to sub-rounded	10.	Planar cross-bedded
Fine sandstone, loose, sub-angular to sub-rounded, poorly sorted	18	Laminate
Very fine sandstone, loose, sub-angular to sub-rounded, poorly sorted	10	Convolute lamination
Black clay	2	Very thin bedded
Very fine sandstone, loose, sub-angular to sub-rounded, poorly sorted	12	Convolute
Black clay	2	Very thinly bedded
Very fine sandstone, loose, sub-angular to sub-rounded, poorly sorted	20	Planar cross-bedded
Black clay	4	Thinly bedded
Very fine sandstone, loose, sub-angular, moderately sorted	12	Planar cross-bedded
Very fine to medium sandstone, loose, sub-angular to sub-rounded, poorly sorted	60	Trough cross-bedded

Table 3.1 (continued)

Lithology	Thickness (cm)	Sedimentary structures
Conglomeratic sandstone, black and white color, grain supported, loose, sub-angular to sub-rounded, poorly sorted	80	Thickly bedded
Granully sand, loose, sub-angular, moderately sorted	15	Medium bedded
Fine sandstone, loose	15	Planar cross-bedded
Silt to clay	8	Bioturbation
Very coarse sandstone with granule to pebble (white and black), matrix supported, sub-angular to sub-rounded, poorly sorted	50	Thickly bedded
Fine sandstone, loose	20	Planar cross-bedded
Fine sandstone, loose	3	Very thinly bedded
Conglomeratic, grain supported, sub-angular to sub-rounded, poorly sorted	115	Very thickly bedded
Medium sandstone to pebble, sub-angular, poorly sorted	45	Planar cross-bedded
Coarse sandstone, loose, sub-angular, poorly sorted	85	Trough cross-bedded
Conglomerate, matrix supported, sub-angular to sub-rounded, poorly sorted	35	Thickly bedded
Very coarse sandstone with granule to pebble, loose, sub-angular to sub-rounded, poorly sorted	100	Planar cross-bedded
Conglomerate, matrix supported, sub-angular to sub-rounded, poorly sorted	35	Thickly bedded
	Unconformity 2	
Fine sandstone loose	32	Trough cross-bedded
Black clay	20	Medium bedded
Fine sandstone, loose, wood fragment	55	Lenticular of white fine sand, thin bedded, and fine sandstone with planar cross-bedded
Conglomerate with lenticular of black clay loose, sub-angular to sub-rounded, poorly sorted	12	Lenticular

Table 3.1 (continued)

Lithology	Thickness (cm)	Sedimentary structures
Coarse sandstone with granule to pebble loose, sub-angular to sub-rounded, poorly sorted	40	Planar cross-bedded
Fine to medium sandstone	30	Multi-story fill cross-stratification
Medium to coarse sandstone, loose, sub-angular, poorly sorted	105	Planar cross-bedded
Very coarse sandstone with granule, loose, sub-angular, poorly sorted	55	Trough cross-bedded
Fine sandstone, loose	10	Planar cross-bedded
Very coarse sandstone with granule to pebble, loose, sub-angular to sub-rounded, poorly sorted	30	Medium bedded
Fine sandstone, loose	60	Lenticular with planar cross-bedded
Fine sandstone loose	90	Planar cross-bedded
Black clay	5	Thinly bedded
Conglomeratic sandstone, grain supported, loose, sub-angular to sub-rounded, poorly sorted	50	Planar cross-bedded
Fine sandstone, loose, wood fragment	60	Planar cross-bedded
Medium to coarse sandstone, loose, sub-angular to sub-rounded, poorly sorted and log	13	Medium bedded
Normal grading of coarse to fine sandstone loose, sub-angular to sub-rounded, moderately sorted and log	20	Planar cross-bedded
White siltstone, loose	55	Bioturbation and rootlet
Medium to coarse sandstone with granule to pebble loose, sub-angular, poorly sorted	110	Very thickly bedded
Conglomerate, matrix supported, loose, sub-angular, poorly sorted	20	Medium bedded
	Unconformity 1	
Fine to coarse sandstone, loose, sub-angular, poorly sorted and log	60	Planar cross-bedded
Fine to medium sandstone, loose, log	20	Planar cross-bedded

Table 3.1 (continued)

Lithology	Thickness (cm)	Sedimentary structures
Conglomeratic sandstone, grain supported, gray, loose, sub-angular to sub-rounded, poorly sorted	7	Thinly bedded
Very fine sandstone, black, loose	10	Thinly bedded
Conglomeratic sandstone, grain supported, gray, loose, sub-angular to sub-rounded, poorly sorted and log fragment	5	Thinly bedded
Very fine sandstone, black, loose	20	Medium bedded
Conglomeratic sandstone, grain supported, gray, loose, sub-angular to sub-rounded, poorly sorted	20	Medium bedded
Very fine sandstone to silt, loose	20	Medium bedded



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

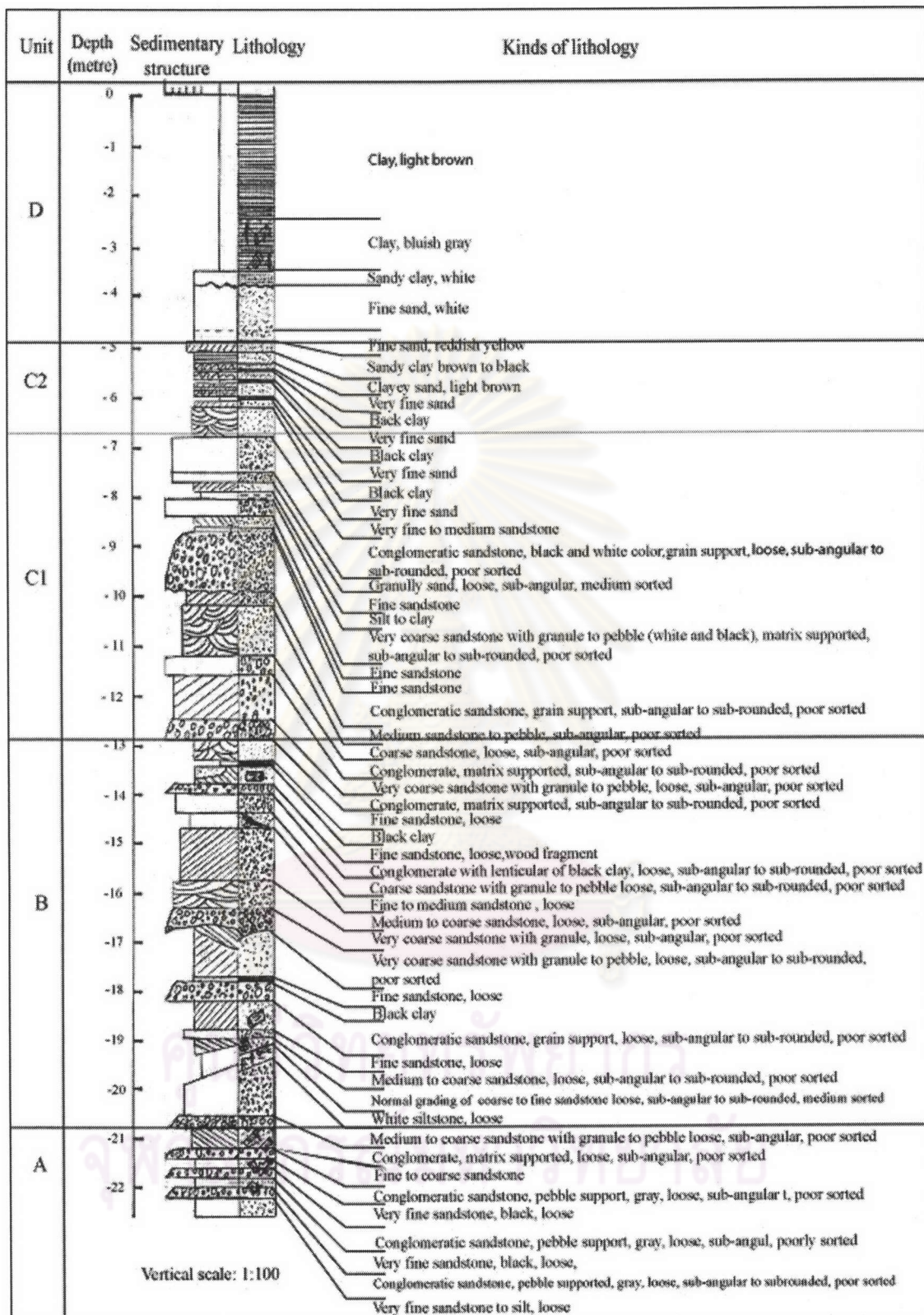
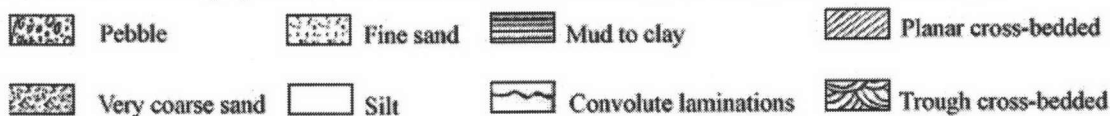


Figure 3.5 Lithostratigraphical columnar section of the Siam sandpit, eastern part of the Third sandpit



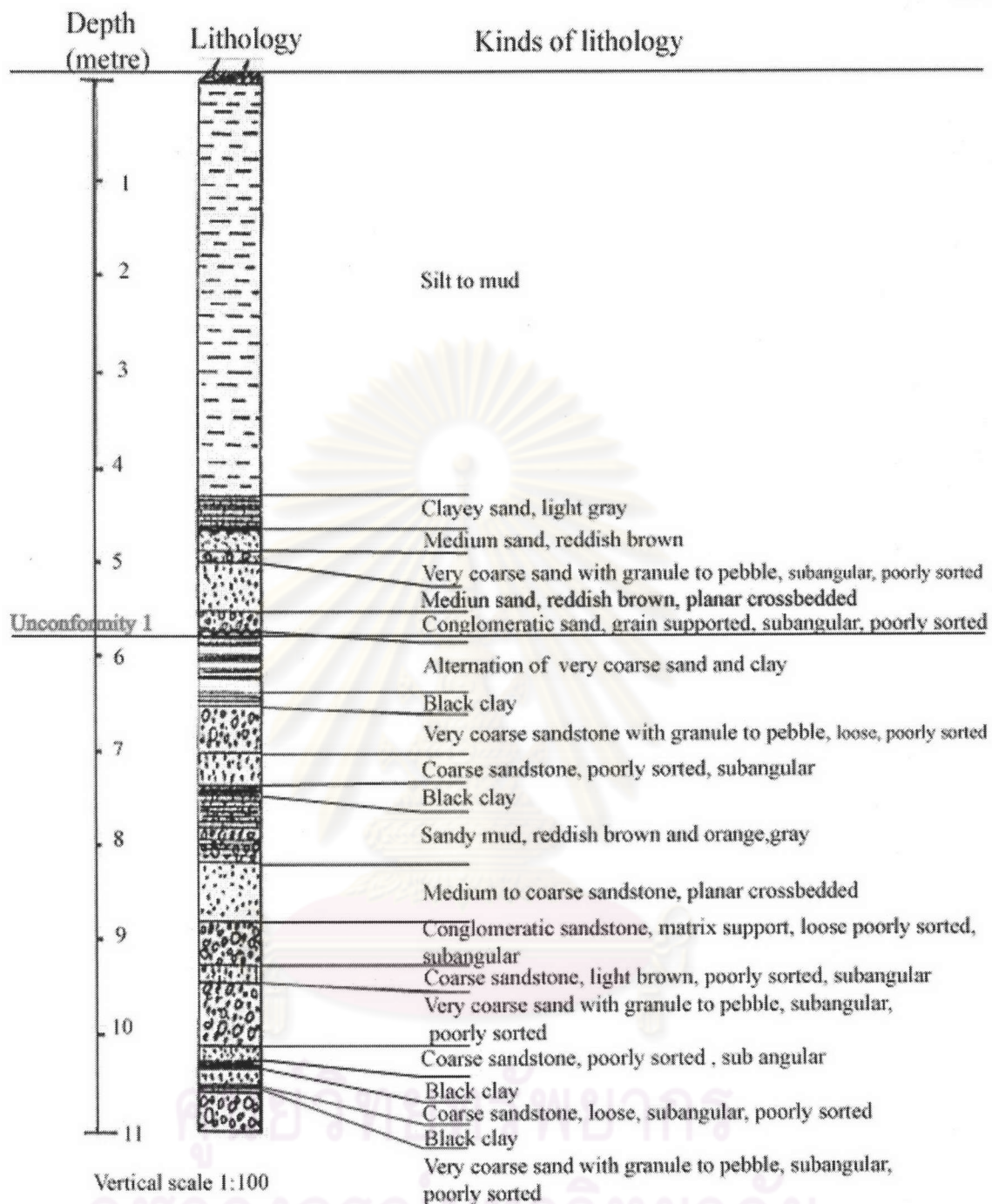
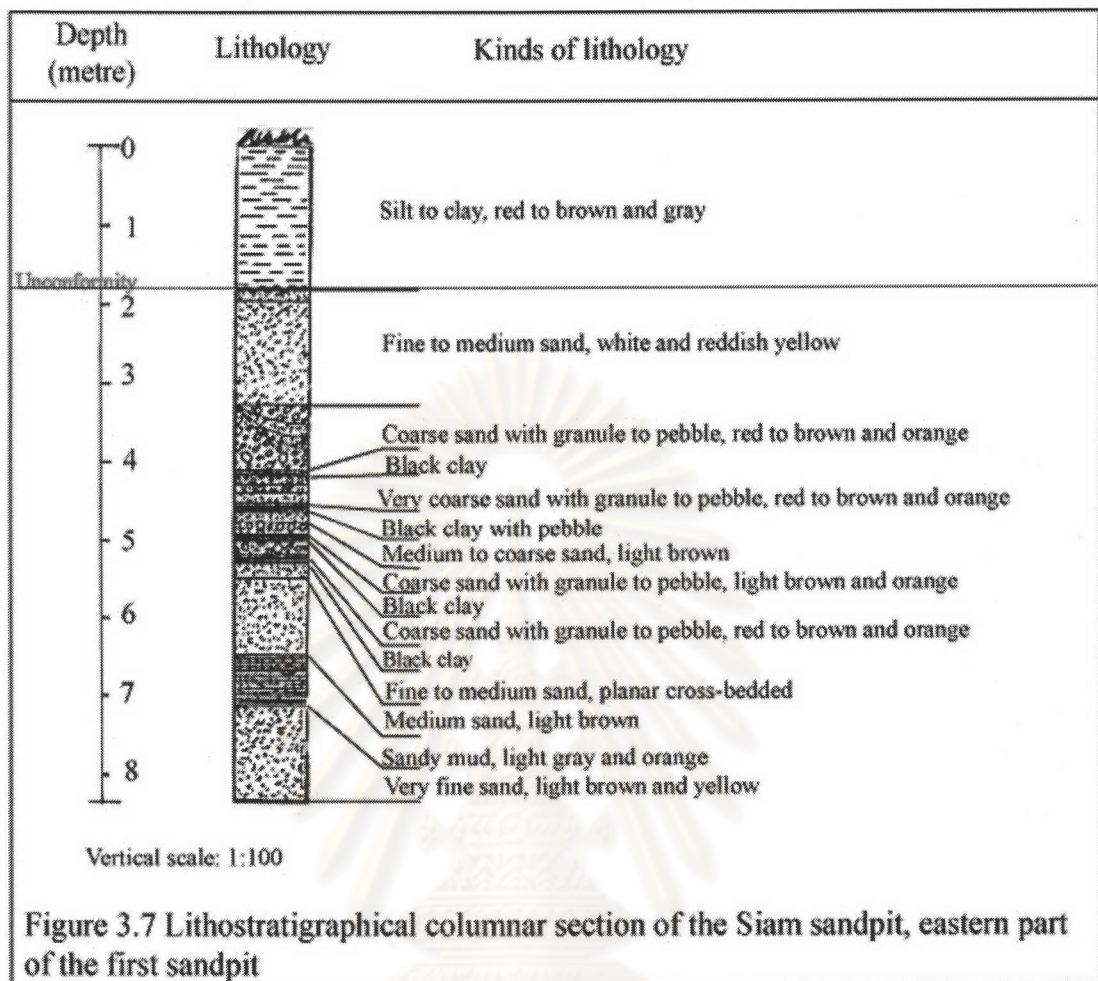


Figure 3.6 Lithostratigraphical columnar section of the Siam sandpit, western part of the first sandpit



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

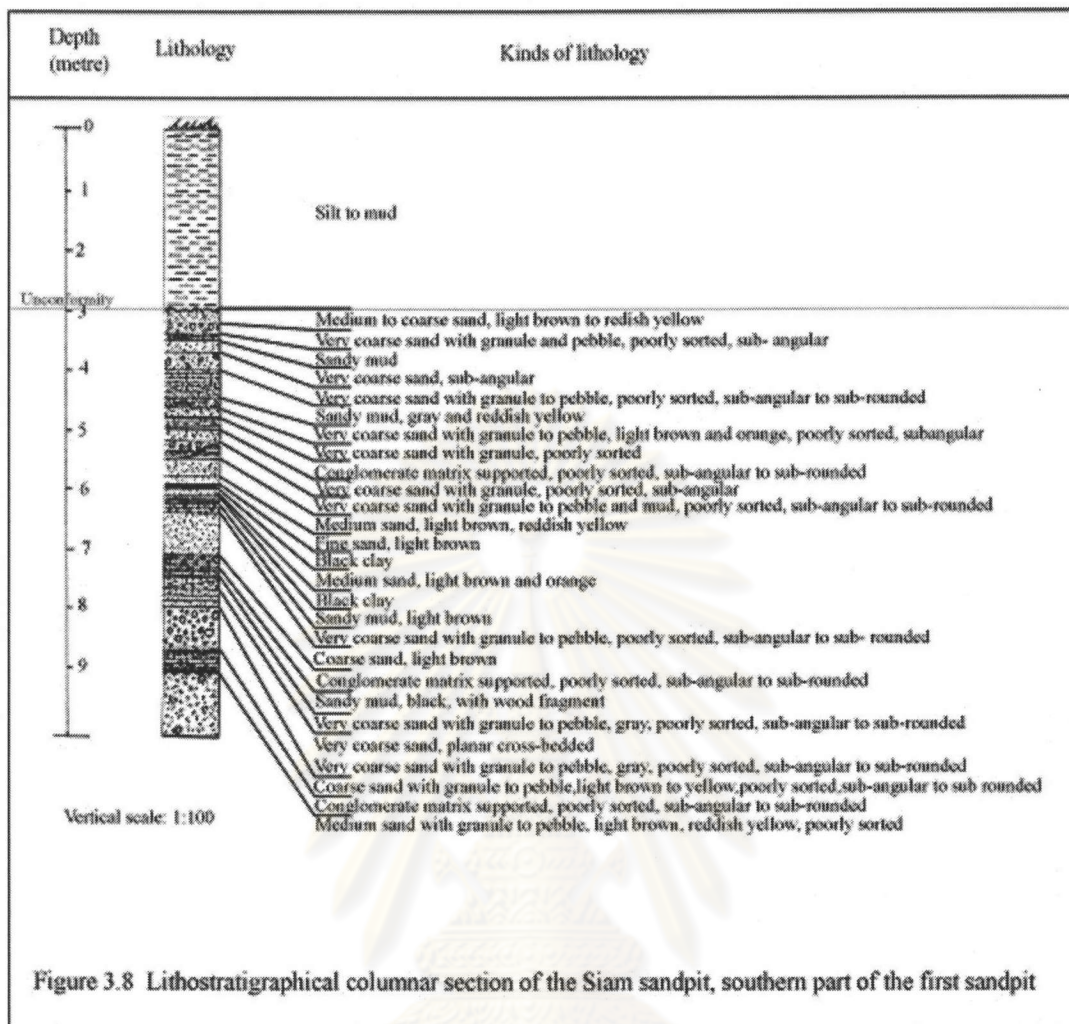


Figure 3.8 Lithostratigraphical columnar section of the Siam sandpit, southern part of the first sandpit

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

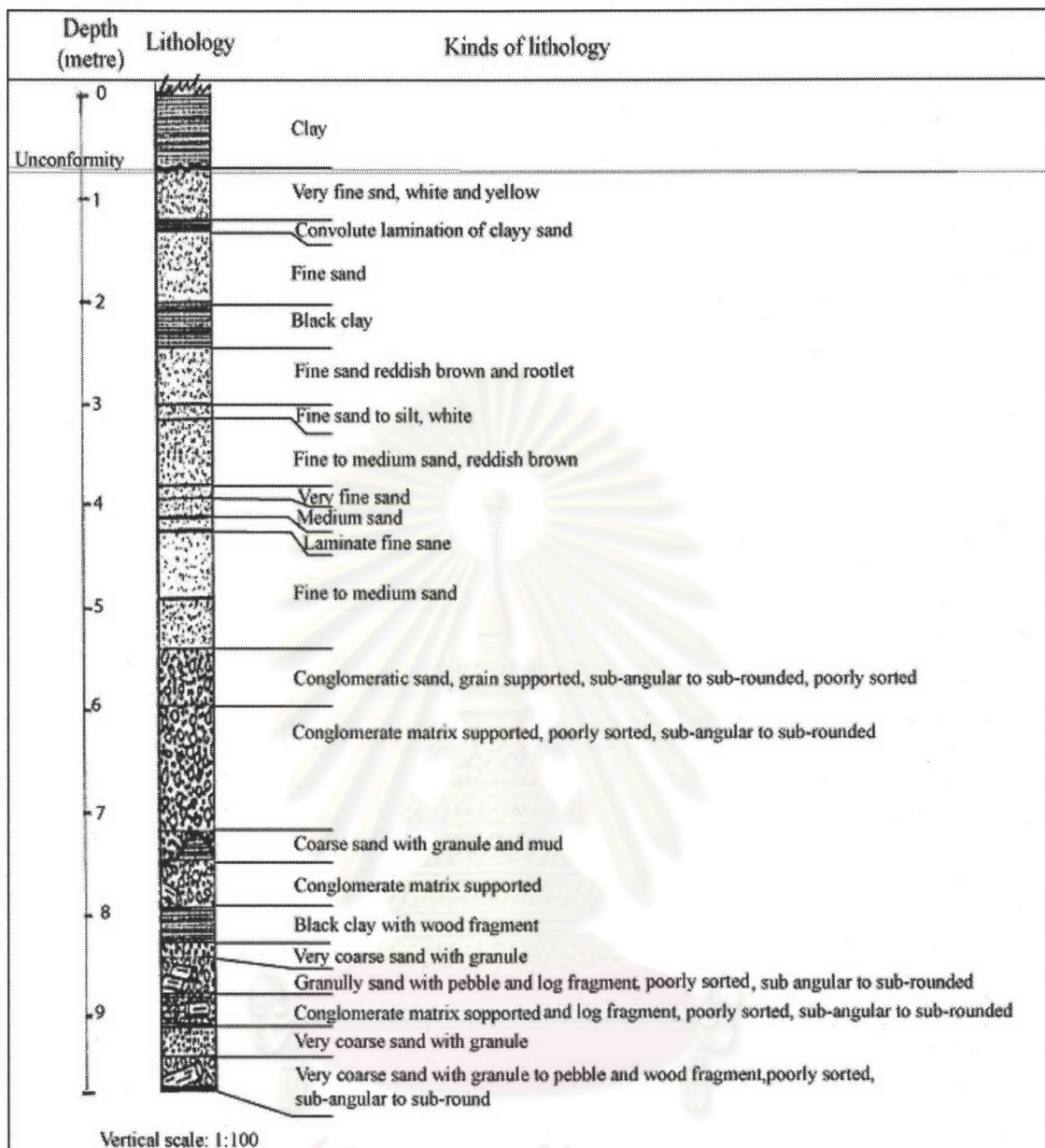


Figure 3.9 Lithostratigraphical columnar section of the Siam sandpit, western part of the second sandpit

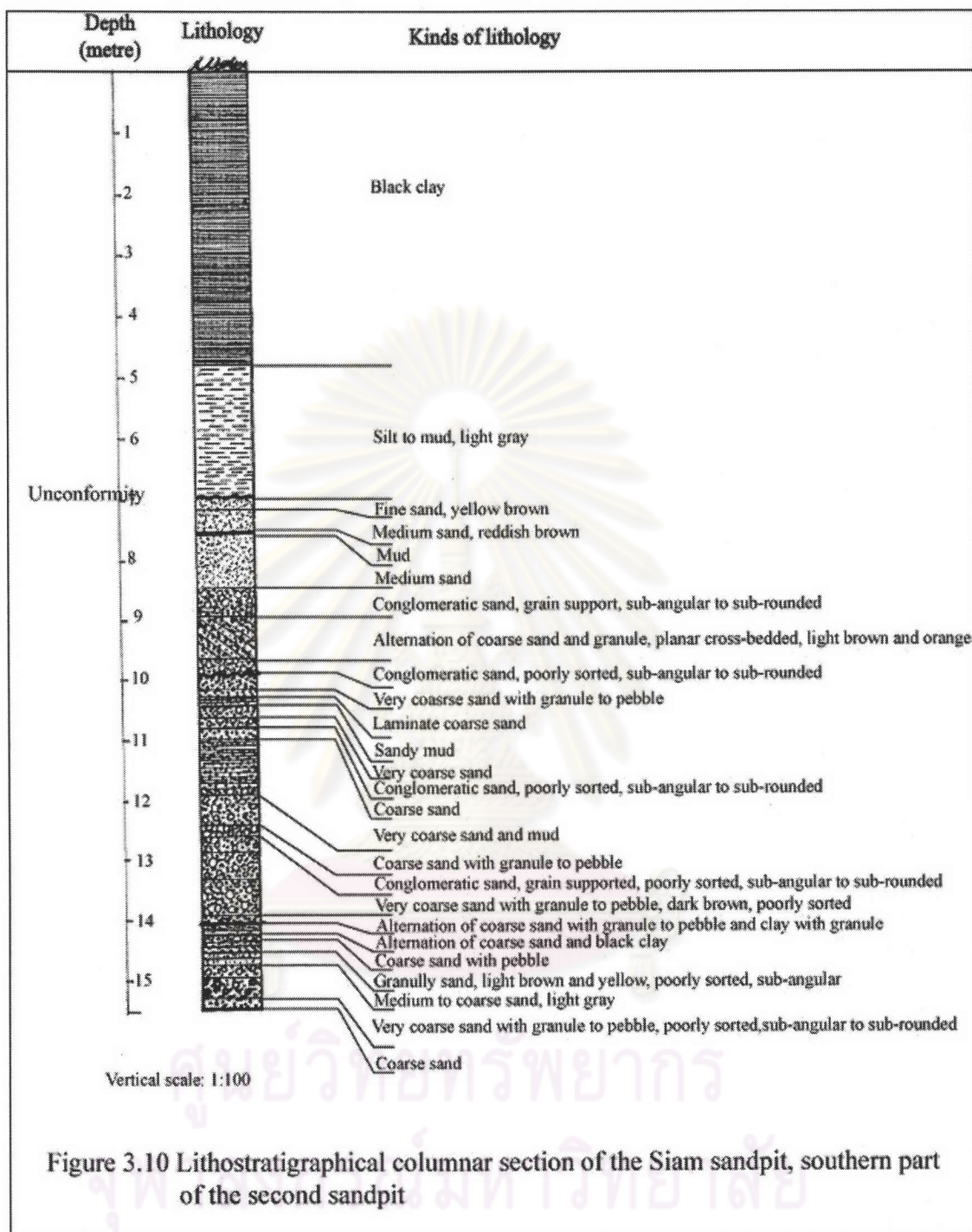


Figure 3.10 Lithostratigraphical columnar section of the Siam sandpit, southern part of the second sandpit

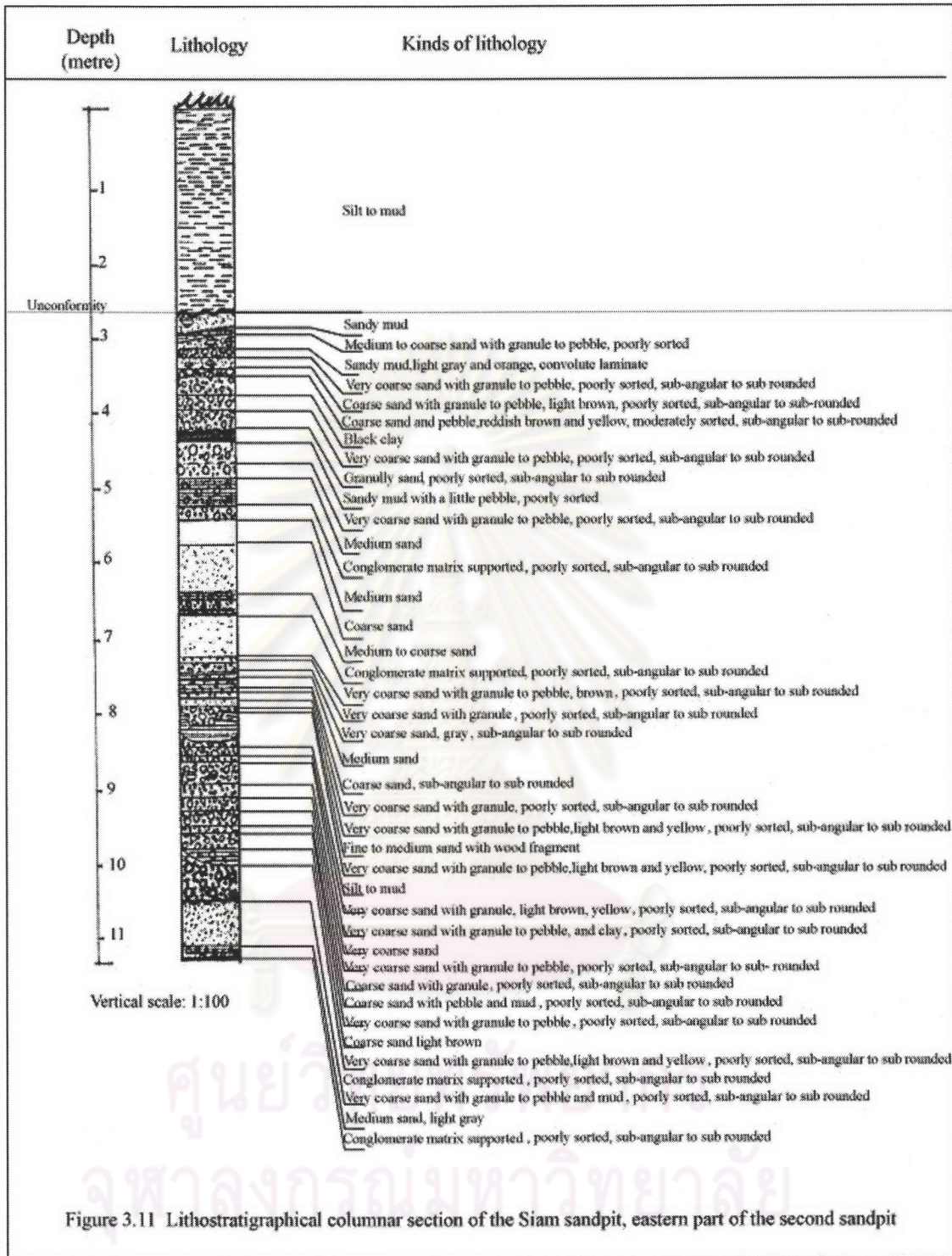


Figure 3.11 Lithostratigraphical columnar section of the Siam sandpit, eastern part of the second sandpit

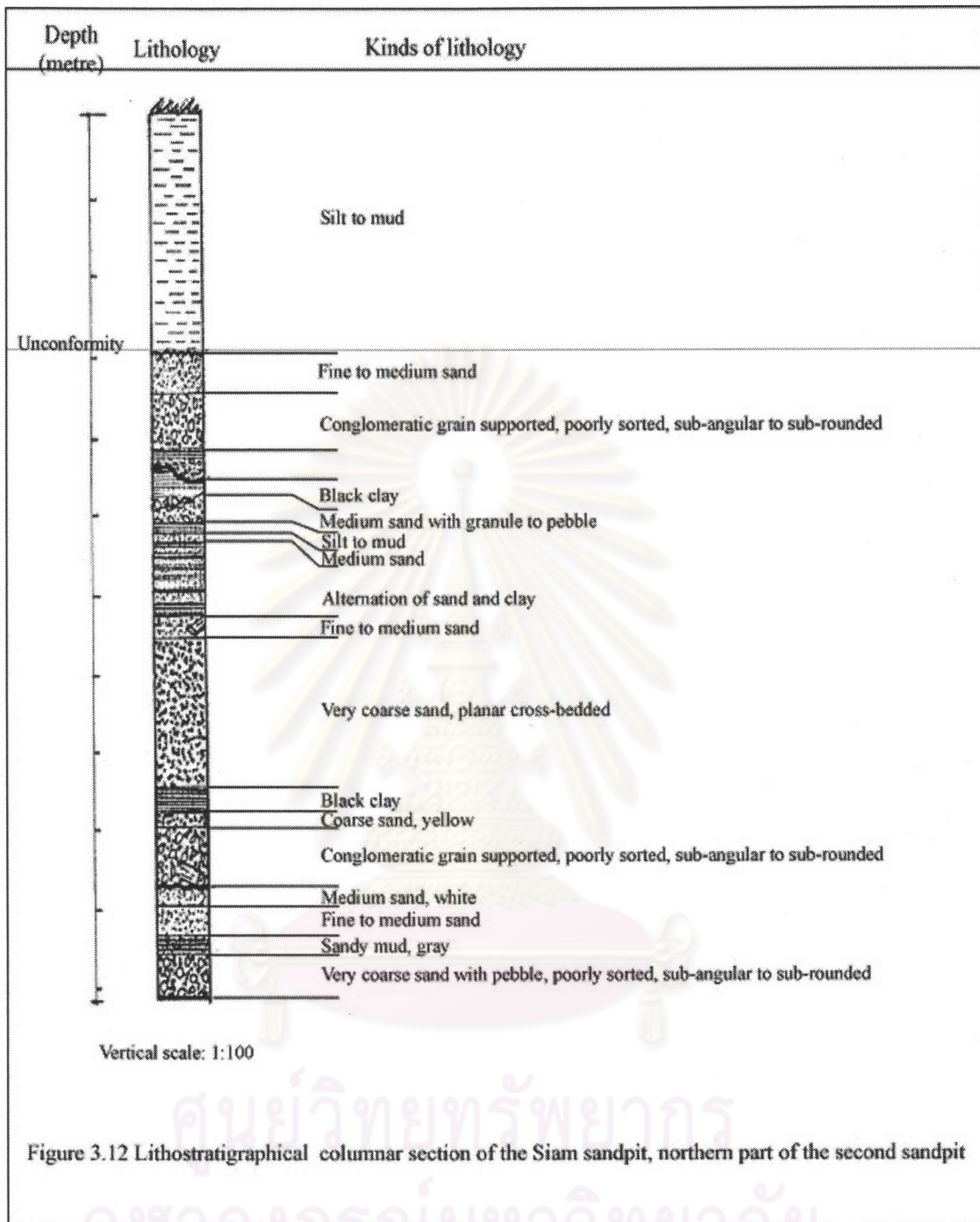


Figure 3.12 Lithostratigraphical columnar section of the Siam sandpit, northern part of the second sandpit

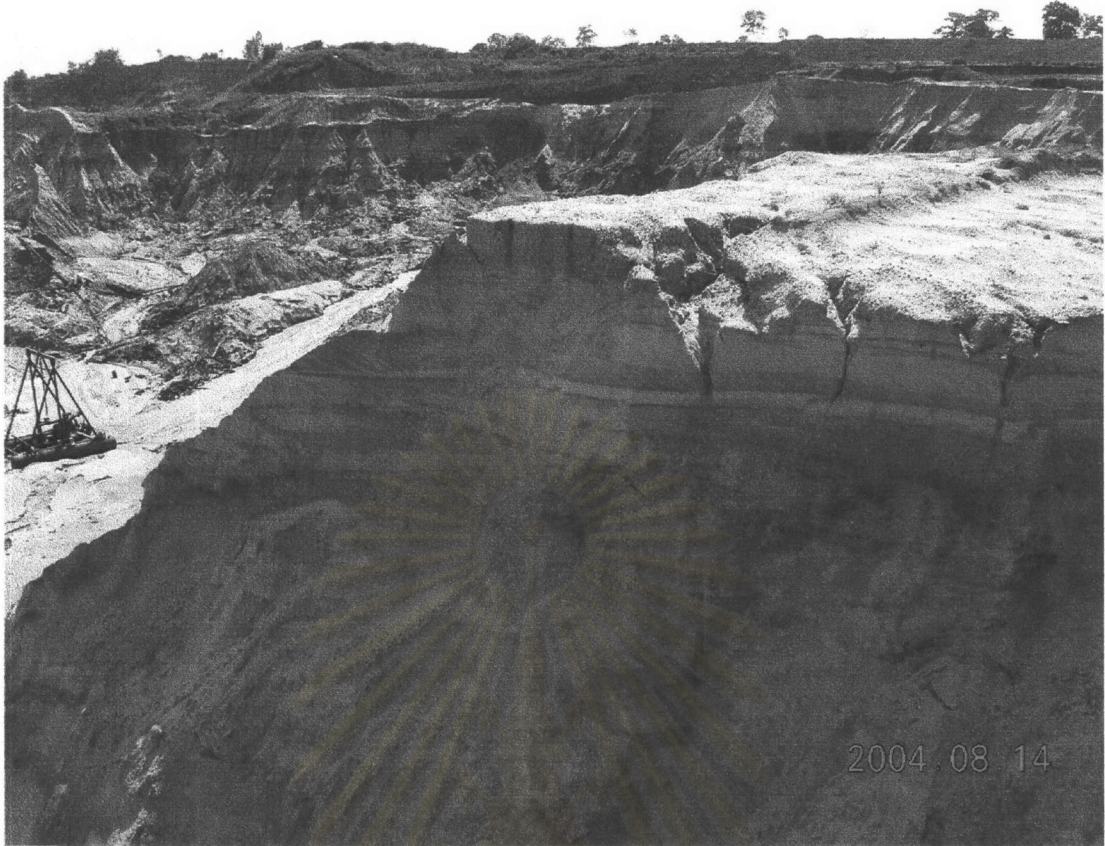


Figure 3.13 General views of sedimentary succession of the third sandpit



Figure 3.14 Showing the cross bedding structure.



Figure 3.15 Sedimentary structure of convolute lamination in very fine sandstone

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย