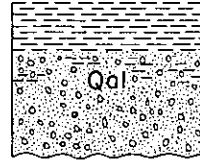
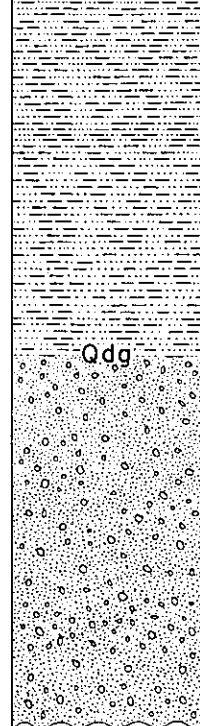
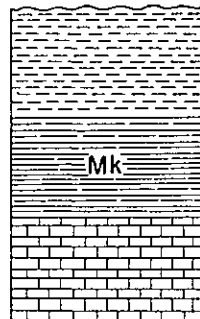
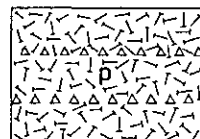
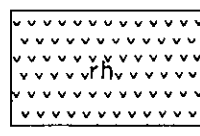

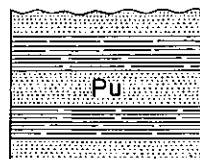


GEOLOGIC COLUMN AND UNIT DESCRIPTION

Sui-hua (NL 52-4)

AGE	ROCK UNIT	LITHOLOGY; THICKNESS WHERE KNOWN	UNIT DESCRIPTION			
QUATERNARY	Alluvium	 Sand, clay, gravel and peaty mud; thickness unknown	<p>Alluvium, consisting chiefly of sand, clay and gravel, is widely distributed in the drainage basins of the Hu-lan Ho [呼蘭河], the T'ung-k'ien Ho [通青河], the Ni-ni Ho [泥泥河], the Hei-ni Ho [黑泥河], the Ni Ho [泥河], and the Sung-hua Chiang [松花江], and its tributaries. The vast alluvial plains have a gentle gradient and drain poorly, resulting in marshes covered by black peaty mud.</p> <p>Diluvium, consisting chiefly of loessic sandy clay, sand and gravel, occupies the greater portion of the map area. The logs of water wells disclosed the following succession in descending order:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"> <p>Ssu-fang-t'ai [四方台] station yard</p> <p>Black soil 1.0 m</p> <p>Light brown clay with fine sand 2.5</p> <p>Grayish-black clay with sand 10.1</p> <p>Fine sand 11.4</p> <p>Light gray clay with fine sand 7.7</p> <p>Light brown clay with fine sand 28.7</p> <p>Bluish-gray clay 4.5</p> <p>Blue clay 8.2</p> <p>Medium sand 0.6</p> <p>Fine sand 2.9</p> <p>Light green clay with sand 3.3</p> <p>Total thickness 81.0</p> </td> <td style="width: 33%;"> <p>Sui-hua [绥化] station yard</p> <p>Soil 0.8 m</p> <p>Brown clay 19.6</p> <p>Gray clay 2.3</p> <p>Yellow clay 4.8</p> <p>Gray clay 10.3</p> <p>Black clay 3.4</p> <p>Blue clay 3.6</p> <p>Brown coarse sand 10.4</p> <p>Gray clay with sand 5.3</p> <p>White coarse sand 9.5</p> <p>Coarse sand with pebbles 8.2</p> <p>Shale (Cretaceous?) 1.8</p> <p>Total thickness 80.0</p> </td> <td style="width: 33%;"> <p>Kang-chin-ching [康金井] station yard</p> <p>Yellowish brown clay 9.5 m</p> <p>Black clay 7.5</p> <p>Blue clay 19.5</p> <p>White coarse sand 9.5</p> <p>Gray clay with sand 4.5</p> <p>White coarse sand 27.0</p> <p>Blue clay with sand 12.8</p> <p>Hard blue clay (Cretaceous?) 9.7</p> <p>Total thickness 100.0</p> </td> </tr> </table>	<p>Ssu-fang-t'ai [四方台] station yard</p> <p>Black soil 1.0 m</p> <p>Light brown clay with fine sand 2.5</p> <p>Grayish-black clay with sand 10.1</p> <p>Fine sand 11.4</p> <p>Light gray clay with fine sand 7.7</p> <p>Light brown clay with fine sand 28.7</p> <p>Bluish-gray clay 4.5</p> <p>Blue clay 8.2</p> <p>Medium sand 0.6</p> <p>Fine sand 2.9</p> <p>Light green clay with sand 3.3</p> <p>Total thickness 81.0</p>	<p>Sui-hua [绥化] station yard</p> <p>Soil 0.8 m</p> <p>Brown clay 19.6</p> <p>Gray clay 2.3</p> <p>Yellow clay 4.8</p> <p>Gray clay 10.3</p> <p>Black clay 3.4</p> <p>Blue clay 3.6</p> <p>Brown coarse sand 10.4</p> <p>Gray clay with sand 5.3</p> <p>White coarse sand 9.5</p> <p>Coarse sand with pebbles 8.2</p> <p>Shale (Cretaceous?) 1.8</p> <p>Total thickness 80.0</p>	<p>Kang-chin-ching [康金井] station yard</p> <p>Yellowish brown clay 9.5 m</p> <p>Black clay 7.5</p> <p>Blue clay 19.5</p> <p>White coarse sand 9.5</p> <p>Gray clay with sand 4.5</p> <p>White coarse sand 27.0</p> <p>Blue clay with sand 12.8</p> <p>Hard blue clay (Cretaceous?) 9.7</p> <p>Total thickness 100.0</p>
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Diluvium	 Loessic sandy clay, sand and gravel; thickness 80 to 90 meters					
MESOZOIC	Cretaceous formation (Sunghuachiang series)	 Shale, limestone, clay and marl; thickness unknown	<p>The Cretaceous formation is exposed along the Hei-ni Ho, the Hu-lan Ho and the Ni Ho. The formation along the Hei-ni Ho consists of an alternation of red ochre shale and light blue shale, the former being intercalated occasionally with grayish-white earthy, nodular limestone or thin lenticular limestone. The formation shows a horizontal stratification. In T'uan Shan [团山] on the east bank of the Hu-lan Ho in the southwestern part of the map area, the formation is composed of an assemblage of red ochre tuffaceous clay (about 7 m thick) and green tuffaceous clay (about 5 m thick), intercalated with marl 10 cm thick, and strikes N 30° - 40° W and dips 10° SW. The marl contains some unidentified crustacean fossils, and some of the shale and clay is bentonitic. The Cretaceous formation corresponds to the Sunghuachiang series named by Toshio UCHINO (1937) in the Harbin district.</p>			
	Porphyrite		<p>Porphyrite is exposed in the river cliff of the Sung-hua Chiang in the southern margin of the map area, and is quarried for use in civil engineering works.</p>			
	Rhyolite		Information not available.			
	Pre-Jurassic granite	 Biotite granite	<p>Pre-Jurassic granite is a biotite granite and constitutes such mountains as Yang-shu Shan (480 m), Chien Shan, Lo-t'o-la-tzu Shan (585 m), and Meng-nu Shan (664 m). The granite of Yang-shu Shan is fine-grained, grayish-black or light pinkish gray, and consists of quartz, orthoclase, biotite, and, rarely, hornblende.</p>			
	Permo-Carboniferous formation	 Sandstone, shale and metamorphic rocks	<p>The Permo-Carboniferous formation consists of tuffaceous sandstone, tuffaceous shale and green rocks that were metamorphosed by the intrusion of the porphyrite (p) or the granite (g₂).</p>			
PALEOZOIC	(Column not drawn to scale)					

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