

TB

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

TB 10084-2007

**Code for geology investigation of natural building material of
railway engineering**

铁路天然建筑材料工程地质勘察规程

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1 General

1.0.1

This Code is prepped to implement the relevant national technical and economic policies, unify the technical requirements for engineering geology investigation of railway natural building materials, and ensure the quality of investigation.

1.0.2

This Code is applicable to engineering geology investigation of natural building materials such as new and rebuilt railway roadbed fillers, gravel ballasts, concrete aggregates, stones.

1.0.3

The engineering geology investigation of natural building materials shall, according to the needs of construction projects, focus on site selection and geological mapping, exploration, testing and evaluation of building material quality and reserves, so as to provide a basis for engineering design.

1.0.4

The engineering geology investigation of natural building materials shall conduct in-depth investigation and research, use comprehensive exploration methods according to local conditions and follow the requirements of the investigation stage. The investigation data shall be true and accurate.

1.0.5

The engineering geology investigation of natural building materials shall, according to the

requirements of laws and regulations of the state and relevant departments, formulate safety and environmental protection measures to ensure the safety of people and equipment, and protect the natural environment and farmland.

1.0.6

The engineering geology investigation of natural building materials shall, in addition to this Code, also comply with the relevant national laws, regulations and mandatory standards.

2 Terms

2.0.1

natural building material

The building material that is collected from natural soil, sand, and stone, and can meet the relevant technical requirements without treatment or with simple treatment such as sieving, washing, chiseling.

transport;

2 Hydrogeological and engineering geological conditions are simple. There are no major adverse geological phenomena. They are not subject to floods, radioactivity and harmful substances (gases);

3 Mining of building materials and abandoned ballast sites shall not have a significant impact on the production and life of nearby residents, transportation and the surrounding environment, shall not form new geological disasters or aggravate the deterioration of the surrounding geological environment.

3.0.4 The site of natural building materials shall not be selected in the following areas.

1 Scenic spots, cultural monuments, archaeological areas;

2 Various nature reserves, soil and water conservation prohibited

reclamation areas, basic farmland protection areas, water conservation areas;

3 Geological disaster-prone areas and bad geological development areas;

4 Areas with important national, civil and national defense facilities that have special requirements for flood prevention, earthquake prevention and explosion protection.

3.0.5 The exploration of natural building material site shall meet the following requirements.

1 Exploration work shall be carried out on the basis of geological survey- mapping. Geophysical exploration, drilling, excavation, in-situ testing and other comprehensive exploration methods shall be adopted. Actively adopt new technologies and methods;

2 The spacing of exploration points shall be reasonably arranged according to the type of

site and the investigation stage;

3 The exploration depth shall expose the target layer or be greater than the expected mining depth.

3.0.6 In the site investigation of natural building materials, it shall, according to the use and technical requirements of building materials, take representative samples in layers for testing. Conduct comprehensive analysis and evaluation of its quality, according to test results and technical requirements of various natural building materials.

3.0.7 The reserves of natural building materials shall, in accordance with the

4.3.2 The raw materials for making grading gravel shall be hard rock or natural pebble. The quality of raw materials for filler of grading gravel or grading sandy gravel shall be evaluated according to relevant provisions of the current "Code for design on subgrade of railway" (TB 10001) and "Sub-ballast on Railway

Gravel Ballast Bed" (TB/T 2897).

5.1 General

5.1.1

The site selection of railway gravel ballast field shall, according to design requirements, geology, mining and transportation conditions, conduct preliminary selection in multiple venues. Perform further investigation, exploration comparison on the initially determined site and finalize the site plan.

The investigation content of the temporary ballast field for construction can be implemented with reference to the provisions of this Clause.

5.1.2

The geological mapping of the railway gravel ballast field shall meet the following requirements.

1 Identify the site topography, landform conditions, stratum, lithology

characteristics and distribution, thickness of overlay, useless layer and useful layer, thickness of weathered layer;

2 Identify the site geological structure, rock mass joints, fissure development, rock mass integrity, and geological structure control of useful layer distribution;

3 Identify the development of collapses, landslides, debris flows, terrestrial

heat, radioactivity, harmful gases at the site as well as the degree of its impact on ballast mining;

4 Identify the extent of surface water and flood impacts in the site on mining;

5 Identify the groundwater development on the site, groundwater level and

annual variation, water quantity and water quality characteristics, main aquifer characteristics. Evaluate the impact of groundwater on ballast mining and the possibility of its utilization;

6 Evaluate the possible changes in geological conditions caused by mining

and waste dumping, and the possible impact and harm on the production, life and ecological environment of the surrounding residents.

5.1.3 The mining range of the railway gravel ballast field shall be determined according to the design demand and geological survey-mapping results. The exploration section or representative geological section shall be arranged

5.3.1 The material of railway gravel ballast shall be evaluated according to the current "Railway ballast" (TB 2140) and "Temporary technical conditions of 350km/h passenger special line ballast".

5.3.2 The calculation of the reserves of large-scale railway gravel ballast fields

shall comply with the relevant national regulations. The requirements for reserves evaluation shall meet the accuracy of reserves or basic reserves specified in "General requirements for solid mineral exploration" (GB/T 13908-2002).

5.3.3 The reserves and overburden ratio of the railway gravel ballast field shall meet the requirements of the current "Railway Quarry Management Rules" issued by the Ministry of Railways.