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**Technical specifications for general surveying of urban
underground municipal infrastructure**

城市地下市政基础设施普查技术规范

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Urban Public Facilities Services (SAC/TC537). This document was drafted by: China Association for Standardization, Guangzhou Urban Planning and Design Institute Co., Ltd., and China Coal (Xi'an) Underground Space Management Center. Jian Technology Development Co., Ltd., Beijing Institute of Standardization, China Society for Surveying and Mapping, Fuzhou Surveying and Mapping Institute Co., Ltd., Shanghai Surveying and Design Research Institute Institute (Group) Co., Ltd., Beijing Municipal Engineering Design & Research Institute Co., Ltd., Jiangsu Shenwu Advanced Technology Research Institute Co., Ltd. Zhejiang Hengyi Pipeline Surveying and Mapping Engineering Co., Ltd., Henan Eco-city Construction Design Institute Co., Ltd., Qingdao Surveying and Mapping Institute, Xi'an Surveying and Mapping Institute Surveying and Mapping Institute (Xi'an Geographic Information Center, Xi'an Natural Resources Satellite Application Technology Center), Chongqing Surveying and Mapping Science and Technology Research Institute, Shanghai Municipal Surveying and Mapping Institute, Xuzhou Surveying and Mapping Research Institute Co., Ltd., Shenyang Geophysical Survey Institute Co., Ltd., Guoye Geophysical Co., Ltd. Ren Company, Chengdu Surveying and Mapping Institute, Baoding Jindi Underground Pipeline Detection Engineering Co., Ltd., Northwest Survey and Design Institute of China Power Construction Group Research Institute Co., Ltd., Jiuha Geospatial Space (Tianjin) Technology Co., Ltd., Shenyang Surveying and Mapping Research Institute

Co., Ltd., Beijing Urban Construction Surveying and Mapping Institute Co., Ltd. Surveying and Design Institute Co., Ltd., Shanghai Surveying and Design Institute Co., Ltd., Guangdong Provincial Water Resources and Hydropower Surveying and Design Institute Co., Ltd. Company, Beijing Municipal Engineering Research Institute, Beijing Beipai Construction Co., Ltd., Beijing Hemu Ecological Technology Co., Ltd., Beijing Huanfa Pipeline Repair Co., Ltd. Limited Liability Company, Shenzhen Weite Environmental Technology Co., Ltd., Beijing Public Utilities Science Research Institute Co., Ltd., Baogang Surveying and Mapping Research Institute Institute, Shenzhen Geotechnical Comprehensive Investigation and Design Co., Ltd., Changda Municipal Engineering (Guangdong) Co., Ltd., Nanjing Surveying and Mapping Institute Co., Ltd. Limited Company, Jiangsu Nanjing Geological Engineering Survey Institute, Shenzhen Engineering Survey and Geotechnical Group Co., Ltd., Fujian Provincial Architectural Design and Research Institute Co., Ltd. China Geo-Engineering North China (Beijing) Research Institute Co., Ltd., China Construction Transportation Construction Group Co., Ltd., and China Water Resources Pearl River Planning Survey and Design Co., Ltd. Company, China Railway Sixth Survey and Design Institute Group Co., Ltd., China Communications Second Highway Engineering Bureau Co., Ltd., Zhejiang Zhongzheng Geotechnical Technology Co., Ltd. Jiangsu Provincial Engineering Survey and Design Institute Co., Ltd., Tianjin Surveying and Mapping Institute Co., Ltd., and Three Gorges Smart Water Technology Co., Ltd. The main drafters of this document are. Deng Xingdong, Liu Yang, Wang Xiaodong, Tian Chuan, Liu Baosheng, Wang Fan, Wang Taihao, Zhang Zhihua, Gao Shouyou, and Lü Yongpeng. Hu Rao, Zhong Hongde, Zeng Bo, Zhu Xutao, Hu Bo, Ge Rubing, Shu Qi, Ren Ke, Ma Ming, Sun Jinglai, Yin Zhimin, Tian Xuejun, Yang Shengbing, Wang Ye Li Minghai, Cui Yingliang, Liang Guo, Li Jie, Gao Tao, Chen Yan, Zhang Zhibin, Yang Peng, Wang Hongpeng, Lan Yujing, Xue Kuizhe, Li Bing, Lu Lixun, Du Mengfei Liang Jinfeng, Liu Jinlong, Xiong Boquan, Jia Baoshan, Zhang Yajie, Peng Jincheng, Du Chuanjin, Zhu Lin, Chen Zonggang, Zhang Dongliang, Yu Ze, Zhang Ming, Liu Jiaguo Dai Zusheng, Zhan Wenbing, Ju Jianrong, Yan Gang, Sun Yinjuan, Li Hongbo, Ma Junwei, Zheng Jinhua, Shen Minglong, Wu Xin, Tian Ming, Ren Hongtao, Yin Qingfeng, Cheng Yuesheng, Bao Xun, Zhang Xiaoping, Wang Lei, Zhang Wei, Zhou Xudong, Sun Haichun, Li Muhang, and Lu Songliu.

The construction of urban underground municipal infrastructure is an important foundation for the safe and orderly operation of cities and an important component of high-quality urban development. The "Opinions of the General Office of the CPC Central Committee and the General Office of the State Council on Promoting the Construction of New Urban Infrastructure and Building Resilient Cities" (2024) mentions... It is necessary to "conduct an in-depth survey of municipal infrastructure, establish a dynamic information update mechanism for facilities, and comprehensively understand the current status and maintenance conditions." Conduct a comprehensive survey of urban underground municipal infrastructure, establish and improve a comprehensive management information

platform, and develop plans for the planning and construction of urban underground municipal infrastructure. Coordination mechanisms, improving the construction level of urban underground municipal infrastructure, and enhancing the safety and resilience of urban underground municipal infrastructure are of great significance. The urban underground municipal infrastructure, including underground pipelines, underground transportation, and civil defense projects, still suffers from problems such as unclear inventory, insufficient overall coordination, and inadequate operation. Problems such as inadequate management and frequent road collapses necessitate that provinces and cities urgently need to address these issues by adhering to relevant standards and regulations, and by implementing measures based on planning, construction, and management principles. In accordance with the needs, an economically reasonable method should be adopted to conduct a general survey of urban underground municipal infrastructure. The purpose of this document is to obtain facility information through a census, ascertain the current status of facilities, and provide basic data for the construction of a comprehensive management information platform. By updating information and ensuring its timeliness, we can promote the digital transformation and upgrading of urban underground infrastructure and build a smart and efficient system. A new urban infrastructure system will be established to continuously enhance the resilience of urban facilities, management, and space, and promote safe urban development. Technical Specifications for Urban Underground Municipal Infrastructure Survey

1 Scope

GB/T 46577-2025 is the Chinese national standard covering finding out what is actually buried under a city - the archive research and the field detection of pipes and cables, the positional accuracy required, the attributes recorded for each utility, the data model, and the quality checks on the result. At 27,500 words. Most Chinese cities do not have a reliable record of their own underground. First edition, in force from 1 February 2026. Issued on 31 October 2025, it has been in force since 1 February 2026.

This document specifies the general requirements, technical preparations, and survey unit division for the general survey of urban underground municipal infrastructure (hereinafter referred to as the "survey"). The process includes. division, control survey, underground pipeline survey, underground building (structure) survey, comprehensive results production, quality inspection, and results submission. This document applies to the general survey and information updates of urban underground municipal infrastructure.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this

document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 24356 Quality Inspection and Acceptance of Surveying and Mapping Results

GB/T 35636 Standard for Surveying and Mapping Urban Underground Space

GB/T 35644 Code for Obtaining Data for Underground Pipelines

GB/T 41447 Technical Specification for 3D Modeling of Urban Underground Space

GB 50026 Engineering Surveying Standard CH/T 1033 Technical Specification for Quality Inspection of Pipeline Measurement Results

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Underground pipelines (3.2), underground transportation facilities (3.3), civil defense works (3.4), and other underground facilities (3.5) constructed or developed below the surface.

3.2 underground pipeline Pipelines and utility tunnels, as well as their ancillary facilities, that are laid underground in cities for water supply, drainage, gas, electricity, communications, heating, and industrial purposes. [Source: GB/T 35636-2017, 3.5, with modifications]

3.3 Underground buildings, structures and their ancillary facilities built below the urban surface for pedestrian passage, vehicle passage or parking.

Note. Underground transportation facilities typically include underground pedestrian tunnels, underground vehicular tunnels, underground rail transit, underground public parking lots, and underground transportation hubs.

3.4 Civil air defense works Underground protective structures built separately to ensure civil air defense during wartime, as well as underground structures built in conjunction with above-ground buildings that can be used for air defense during wartime. The lower room.

Note. Civil defense projects usually include stand-alone civil defense projects and integrated civil defense projects. [Source: RFJ01-2015, 2.0.1, modified]