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——《城市道桥与防洪》

● 本期看点

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CONTENTS

ROADS & COMMUNICATION

Abstract: The motored vehicle OD investigation is an important basic study content in the highway network planning study work, and is a work required to invest more manpower, time and fund into the planning investigation. Owing to the different project with the different characteristics, the policy decision of investigation work, the study and determination of work scheme, and the organization and implementation of investigation for the different projects have the important influence on the science, accuracy, work schedule and cost of the planning study work. The article focuses introduction on the policy decision, study and plan of motored vehicle OD investigation scheme of a country in Southeast Asia in the national highway planning work process.

Keywords: highway planning, OD investigation, scheme study

Abstract: Through understanding of *Urban Road Intersection Design Specification*, the article analyzes the urban road traffic channelization design process (mainly for widening mode, stop line, crosswalk line and intersection greening belt) and the existing problem in Urumqi City, and puts forward the countermeasures and proposal.

Keywords: urban road, traffic channelization design, widening section, crosswalk line, stop line, greening belt

Abstract: This paper focuses on facility layout scheme optimization of the northern integrated traffic hub in Wenzhou. With the Huangtian integrated traffic hub promoted as comprehensive passenger transport center of Northern Wenzhou in the 12th Five-Year Comprehensive Transport Development Planning of Wenzhou, as well as the addition of Hangzhou-Wenzhou passenger dedicated line and Yongjia Bus Terminal, it was urgently to optimize the original land-use planning and the station facilities layout. On the basis of respect for the status quo and the idea of "Zero Transfer" and "Seamless Connection", facility layout of the station was optimized, as well as of traffic organization principles and methods were proposed.

Keywords: the northern integrated traffic hub of Wenzhou;station layout;planning optimization;traffic organization

Abstract: Taking Airport Road (S) Interchange in Ring Road II of urban expressway in Luzhou City as an analysis object, the article firstly forecasts and analyzes its traffic volume, then introduces the interchange scheme and compares the schemes, and finally introduces the interchange design, and analyzes and sets forth the design of its ramp, the connection mode of ramp and main line, and the design of ramp alignment.

Keywords: expressway, interchange, ramp, auxiliary road, forecast of traffic volume

Abstract: With the continuous development of urbanization, the functions of urban road become more abundant. Taking Baopu Avenue (Juyang Avenue ~ Shiyitang Dyke) and Jianan Avenue (Juyang Avenue ~ Shiyitang Dyke) in the eastern new area of the gathering are in Taizhou Gulf as the project background, the designs of road, island, bridge and landscape reflect the subject of "Taizhou Dream". The design integrates the all-river-run-into-sea culture personality of Taizhou, and is also compatible of aesthetic characteristics of Yue Lake to build the ecological landscape avenue to the coast of East China Sea.

Keywords: road, ecological landscape, design, gathering area of Taizhou

Abstract: The expressway reconstruction can improve the traffic efficiency, and is one of schemes to improve the urban traffic congestion. This paper introduces the design of Caiyun Road Expressway Reconstruction Scheme, discusses the concrete scheme from three aspects of road, node and supporting facilities, and introduces the technical standards and master scheme in the design of this project, which can be referred for the expressway reconstruction design of urban roads.

Keywords: expressway reconstruction, entrance, node reconstruction, supporting facilities

Abstract: The article sets forth and analyzes the design of green road from six aspects of land saving, material source saving, energy conservation and energy utilization, water resource utilization, environment protection, greening and landscape.

Keywords: design of green road, resource saving, environment protection

Abstract: The distribution traffic volume of urban large CBD often produces the great traffic pressure to the surrounding roads, and seriously affects the operation efficiency of road in the front of CBD entrance. The entrance area of CBD likes as the straight angle intersection of road, and is also the traffic bottleneck, but has the functions of temporary parking and etc. more than the intersections. Therefore, the entrance area becomes the heart of CBD traffic. The beautiful and reasonable form and the efficient traffic organization design of entrance area can make the traffic smooth. According to the setup experience of CBD entrance area of Tianjin City and taking the CBD in the comprehensive supporting area of the software and service outsourcing base in Tianjin High-tech New Zone as an example, the article proposes the idea of traffic organization design of large CBD and introduces the analysis result of entrance area setup form.

Keywords: traffic organization, CBD entrance area, three into one

Abstract: Combining with a slope geological hazard treatment project of Lanzhou city, the finite element inverse analysis calculation is carried out for two typical sections to achieve the shear strength indexes of this slope soil. The FEM model is established to analyze the stabilities of three conditions after the slope surface is treated. Based on the size of strain in the unreinforced slope plastic zone and the area through the deformation zone, the length passing through the plastic zone is determined. The calculation, analysis and validation of numerical numbers after reinforcement can judge its stability and reinforcing effect to satisfy the engineering requirements. The calculation and analysis results show that this method is easy to use and its result is reliable so as to provide the basis for the slope treatment.

Keywords: slope treatment, inverse analysis method, finite element, plastic zone, anchor arm reinforcement

Abstract: Weathered granite rocks and granite residual soil are common particularity rocks in engineering geologic survey. According to the formation case disclosed in the engineering geological survey of Wenqiong Expressway, it is reasonable for the stratigraphic subdivision by the combined method of field core drilling identification and situ test. The paper discusses the significant change of granite residual soil in the presence of water and the unevenness of weathered granite rocks, and analyzes the causes of the formation. The paper also makes recommendations and treatment programs for the engineering geological problems in the design and construction of highway roadbed, slope, pile foundation and etc.

Keywords: granite residual soil, weathered granite rock, spheroidal weathering (boulders), unevenness, pile foundation

BRIDGES & STRUCTURES

Abstract: The rapid development of city overpass makes the form of single column curved girder bridges have been widely applied. Owing to the problems of deficient design and vehicle overload, the bridge overturning events occur frequently in recent years. From the accident causes, and aiming at the bridge overturning accidents and failings caused in recent years in China, the article summarizes the regularity and characteristics, gives two kinds of the failure form and the key factors of causing the overturning failure, and points out two steps of overturning design ideas. The definition of overturning safety coefficient is proposed for the overturning design under the influence of live load. According to the statistical parameters of the impact on the existing single column supported girder bridges in Beijing City, a typical model is established for calculation and analysis to educe the safety coefficients under the different critical conditions. The article sets forth the overturning design under the influence of internal and external forces by the analysis method of engineering cases. A series of the spatial finite element calculation analysis, experiment, verification and calculation provides an important reference for the design of single column curved girder bridge.

Keywords: single column curved girder, overturning design, safety coefficient, spatial finite element

Abstract: The old bridge utilization is the difficulty of urban road construction. Combined with the practical project of old bridge utilization of Xianzhuang Interchange, the article analyzes and studies the selection of old bridge utilization mode. The inspection and check understand the status of the existing old bridge of Xianzhuang Interchange. Based on the function demand and construction condition of Guangming Expressway and Xianzhuang Interchange, the old bridge utilization schemes are compared and selected. The spatial finite element model is established to simulate the mechanics action connecting the new bridge with the old bridge, and it is taken as the basis for the widening and reinforcing work of old bridges. The analysis on the old bridge utilization scheme of Xianzhuang Interchange will be referred for the utilization of the old bridges in the other projects.

Keywords: old bridge, bridge widening, numerical simulation, comparison and selection

Abstract: The article introduces the design of the newly built engineering standard continuous beam of the north passageway of Pudong International Airport. The "butterfly"–shaped section of beam is selected to use as the bridge structure with the beautiful modeling. Its comprehensive index of pre–stressing is lower, the construction cost is lower, and the structure is feasible, economic, safe and reliable. The relative experience can be referred for the similar projects.

Keywords: butterfly–shaped beam, large cantilever pre–stressed continuous beam, selection of structure

Abstract: The simply–supported continuous beam bridge has the characteristics the simple–supported beam bridge and the continuous beam bridge, and has been widely used in the highway and municipal bridge construction because of its convenient construction and good using performance. The article introduces the general construction technology of simple–supported changed continuous beam bridge, and derives the computation formula of temperature effect of simple–supported changed continuous beam bridge. The study contents can be referred for the design and construction of simple–supported changed continuous beam bridges.

Keywords: simple–supported changed continuous beam bridge, construction technology, temperature effect, application

Abstract: The main bridge of Huhai Gandeer Yellow River Bridge is a single–plane pre–stressed concrete partial stable–stayed bridge with the span layout of (80+5 × 120+80)m. The long cantilever single–box double–chamber section is used for the main girder. The bridge is 37 m wide. The cantilever plate of the main girder is constructed with a stiffened slab every 3.5 m. A diaphragm is constructed corresponding to the inner of box and chamber. The stayed cable is the epoxy steel strand cable system. The wire tube type cable saddle is used in the cable pylon anchorage zone. The main pylon is the diamond section. The pylon body is the longitudinal shape A. Combined with the plane and spatial static analysis, the bending resistance, shear resistance, anti–split performance and stress are checked up. The results satisfy the norm requirements. The project is located in the high intensity seismic belt. The longitudinal velocity lock + transverse energy dissipation shock absorbers are taken as the combined isolation scheme for the structure. The dynamic

FLOOD CONTROL & DRAINAGE

MANAGEMENT & CONSTRUCITON

Abstract: Introduced by the daily maintenance and management of highway bridge repair and preventive maintenance, methods, measures and problems, combined with maintenance and preventive maintenance project examples 20 highway bridges of Jiayuguan section from Lianhuo G30 line,Through the paper provide highway bridges maintenance and preventive conservation reference in the future .

Keywords: highway bridge; maintenance; preventive maintenance

Abstract: With the wide application of asphalt pavement, the significance of asphalt test is increasingly obvious. The article sums up the influence factors and control measures of asphalt test quality, and the asphalt quality control gist of routine tests according to the experience of test work.

Keywords: asphalt test, influence factor, routine tests, quality control

Abstract: The rainstorm caused by "Feite" Typhoon on September 13 and October 7~8, 2013 has brought the severe test to the safe operation of Shanghai, and also tests the rapid response and handling abilities in time of every party organized by the flood control department. Aiming at the problems existing in the response process, the article objectively analyzes the causes and puts forward the countermeasures proposals.

Keywords: "9.13" rainstorm, "Feite" Typhoon, response to flood control, Shanghai

STUDY ON SCIENCE & TECHNOLOGY

Abstract: In order to standardize the urban underground road engineering design and unify the design standards of China, and according to the summarization of the relative underground road norms, study results and the well-known design experience at home and abroad, the *Urban Underground Road Engineering Design Norm* is studied and compiled to stipulate the differences in the design principle, geometrical linearity, passageway, traffic facilities, auxiliary facilities and disaster prevention between underground road and ground road. The article sets forth the study frame of this norm from three aspects of the master technical line, norm frame system, norm characteristic and originality. The compilation of this norm will fill the gaps in the present urban underground road engineering field of China, and has the important significance to improve the engineering design quality and to ensure the operation safety of urban underground road in the future.

Keywords: urban underground road, design norm, norm compilation

Abstract: It is the current trend and direction of the expressway network planning to integrate the expressway resources to the tourism transportation network. From the perspective to integrate the tourism resources, the paper establishes an expressway network bi-level planning model based on tourism resources.

THE RELATIVE SPECIALITIES

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