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目 次

道路交通

哈尔滨市西客站地区道路网规划设计	毕东河(1)
铁路南京南站综合枢纽快速环线工程道路设计概述	王爱华(5)
以客运为主的城际铁路站前广场总体设计的探讨	曾惠芬, 高 欣, 王威力(8)
浅谈浦东新区内环内非机动车网络改善对策	方 勇(12)
城市交通工程设计中应体现的人文关怀	曹凌峰, 潘东来(15)
当今非机动车交通特点及管理措施研究	郑 杰(18)
浅谈道路条件与交通安全的关系	王玉娜, 赵 宁, 杨 婷(23)
城市交通的低碳理念	付晓敦, 狄升贯, 王新岐(26)
道路车流量管理控制系统设计	熊建平(29)
广州白云国际机场道路交通指路标识系统改善研究与设计	张晓瑾(31)
低等级沿溪线公路提级改造设计	张学军(35)
老路改造工程中关键技术指标取值的探讨	许海亮(41)
对运营中高速公路拓宽改造方案的论述	嘉 捷(43)
国产岩沥青在沥青路面中的应用与分析	吴粤军, 鹿传建, 李 翔(46)
复杂地质条件下的城市道路断面设计	毛传义(50)
关于“山区垃圾填埋场进场道路”设计中若干问题的探讨	柯 欣(54)

桥梁结构

自锚式悬索—斜拉协作体系设计与景观	任宏业, 任国红, 王青桥(56)
天津市滨海新区海河下游修建开启桥方案论证	杨 亮, 杨立坡(60)
曹妃甸跨纳潮河大桥主桥设计	马 轲(63)
基于欧式贴近度的模糊物元分析理论在桥梁健康等级评估中的应用	李雪峰(66)
改进灰色关联度定权在城市桥梁设计方案中的应用	李雷生, 陈绪明, 邓发前(70)
某双塔双索面混合式斜拉桥结构设计	郭锦良, 何永平, 陈智峰(73)
钢—混凝土组合梁结构安全分析	吴 健(77)
昆明东北二环立交系统桥梁附属工程设计	庄泳浩, 刘 芳(80)
液化土地基处理中钻孔灌注桩的设计方法	刘 双(83)
广州某立交异型梁支座脱空处理设计	胡智敏, 梁小聪(86)

防洪排水

水资源调度工程对城市内河水环境改善的作用分析	陶亚芬(88)
高原山水园林城市防洪规划的研究——以兰州市为例	柴宗刚(92)
郑州市中心城区雨水利用和控制规划研究	梁伟刚(95)
南京板桥河堤防岸坡稳定分析	徐甲存, 杨松堂, 罗海东(98)
大型沿海火电厂防洪与排洪对策研究	韩敬钦, 高德中(102)
济南市南部大型居住区的规划建设对城市防洪的影响及对策	彭 侠, 邵玉振(104)
城市老城区防洪设施的建设与维护	侯丁丁, 苗俊杰, 宋 丹(107)
浅议超标降雨的预防及应急措施	方 琦(109)
大治河西枢纽船闸输水系统设计分析	汪 瑶(112)
A ³ O工艺污水处理工程设计特点及施工改进	刘 唯, 吴黎明(115)
深圳九围河截污工程中电气设备自动化控制的特点及改进建议	王晓林(119)
城市河道硬质驳岸的常见问题与修复	孙海明(124)

管理施工

- 连续梁悬臂浇筑施工的关键技术 贺建端(127)
 斜交弯梁桥施工控制关键问题的计算分析
 彭洪,张 斌,马佳铮(132)
 浅谈岩溶地区钻孔桩施工 黄建廷(136)
 CFG 桩施工技术总结 李洁仙(138)
 管幕法简述 刘博海,杨 亮,罗昊冲(141)
 攀枝花金江村桥维修处治设计浅析 张增亚,邱承斌(144)
 RCC-PCC 复合式路面的试验和施工技术
 周国强,梁 定,刘文忠(150)
 几种桥梁加固方法的总结 彭红美(156)
 系杆拱受船舶撞击后的计算分析及加固措施
 丛欣建,盛丽娟(159)
 预应力空心板梁工艺要点浅析 顾卫华(162)
 混凝土结构加固技术在旧建筑改造中的应用探讨
 葛国华(164)
 干法生产加工机制砂关键技术 游秋波(167)
 在创建无障碍示范城市中提升市政工程无障碍的质量
 胡春清(170)
 工程建设项目管理人本关怀精神探究 李亚雯(173)

科技研究

- 城市道路沥青路面结构力学响应分析
 徐 强,任瑞波,王建光,邵玉振(175)
 结合料性质与应力吸收层沥青混合料疲劳性能相关性研究
 石昆磊,金哲虎(181)
 石灰改良膨胀土掺灰量的室内试验研究
 陈 波,李 迹(184)
 泡沫沥青冷再生混合料物理力学性能研究 张卫华(187)
 初始荷载对梁静力特性影响的非线性分析
 杨治国,张家玮(192)
 CFRP 筋加固梁抗弯刚度影响因素的试验研究
 于国语,于天来(197)
 惠深高速扩建拼接段路基变形分析研究 吕蒋聪,张 亮(201)
 某斜拉桥抗风抗震分析与研究 陈明贵,刘文江,冯克岩(204)
 兰州市停车管理机制研究 齐 博(208)
 城市道路交通控制的研究 仇晶晶(212)

成果应用

- 物探技术在填海道路养护中的应用 董晓勇(215)
 冲击压稳结合高模量沥青技术在重载混凝土道路改造中的应用
 张高才(218)

相关专业

- 大型居住社区市政设计若干问题探讨 廖彩凤,孔庆伟(221)
 基于地下管线信息系统的城市道路综合管线设计
 黎晓林(224)
 广州亚运城综合管沟地基处理简介 袁 哲(227)
 基坑开挖对紧邻建筑物沉降影响的数值分析 姜 峥(229)

广告索引

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CONTENTS

ROADS & COMMUNICATION

Planning and Design of road Network for West Railway Station Area in Harbin Bi Donghe(1)

Abstract: The article firstly points out the railway station is the important infrastructure of a city. This area becomes the location of urban traffic bottleneck sometimes, then introduces the planned construction stages of the Harbin West Railway Station, and specially studies the road network of this area. According to the analysis of the traffic demand, the article puts forward three road network planning schemes, and comprehensively evaluates and analyzes the schemes. After the special road network planning design study of the prophase, the traffic design of the railway station area is strengthened so as to efficiently avoid many following traffic jam problems.

Keywords: railway station, traffic bottleneck, road network, comprehensive evaluation, traffic design, Harbin

General Description on Road Design of Integrated Transport Terminal Express Ring Line Project of Nanjing Railway Station South Wang Aihua(5)

Abstract: With the fast development of the high-speed railway in China, the high-speed railway stations are built all over the country. The station area forms the integrated transport terminal of a city, and the surrounding supported traffic also embodies the "fast" word. The express ring line becomes one of the schemes to solve the fast collection and distribution of the traffic terminal. The traffic terminal centralizes the multi-traffic modes. How to orientate the carriageway function, how to coordinate the multi-traffic modes and how to deal with the combination of the short term with the long term are required to probe in the course of road design of the express ring line. The article generally describes the road design of the integrated transport terminal express ring line project of Nanjing Railway Station South, and strives to provide the reference for the construction of the combined transportation system road surrounding the railway station.

Keywords: high-speed railway, integrated transport terminal, express ring line, combined transportation system road

Discussion on Overall Design of Station Square of Intercity Railway Mainly for Passenger Transportation Zeng Huifen, Gao Xin, Wang Weili(8)

Abstract: Taking Suzhou New Area Station of Shanghai-Nanjing Intercity Railway as an example, the article discusses the overall design of the station square in the type of "low-floor way in and low-floor way out", and focuses discussion on the overall layout and the traffic organization of the square able to be referred for the relative specialty members.

Keywords: intercity railway, station square, overall design, traffic organization

Elementary Discussion on Countermeasures to Improve Non-motored Vehicle Network within Inner Ring of Pudong New Area Fang Yong(12)

Abstract: The non-motored vehicle traffic system is the key link of Shanghai green traffic system and the important component of the integrated traffic system. According to the “12th Five-Year ” integrated traffic planning of Shanghai City and Pudong New Area, the article studies and analyzes the status and the existing problems of the non-motored vehicle network within the central area of Pudong New Area, and puts forward the improving measure on this basis.

Keywords: Pudong New Area, traffic, non-motored vehicle, countermeasure

Human Solitude Embodying in Design of Urban Traffic Engineering Cao Lingfeng, Pan Donglai(15)

Abstract: On the basis of the development status and the future trend of the urban traffic in China, the article analyzes the problems existing in the design of the urban traffic engineering in the present period, and discusses the “human solicitude” to be embodied in the design of the urban traffic engineering.

Keywords: traffic engineering, design of facilities, human solicitude, urban road

Study on Current Traffic Characteristics and Management Measure of Non-motored Vehicle

..... Zheng Jie(18)

Abstract: With the advancement of the times, there are new characteristics of non-motored vehicles running on the roads. The article analyzes the new characteristics and the development trend of non-motored vehicles, studies the collision faced by the non-motored vehicles in road sections and at intersections nowadays, and puts forward the management means to utilize the line and traffic light and the methods to improve the safety and to enhance the traffic capacity of the non-motored vehicles under the conditions of the existing road facilities. The studying result has the important value for the current traffic management of non-motored vehicles.

Keywords: non-motored vehicle, road section, intersection, collision, countermeasures

Elementary Discussion on Relation of Road Condition with Traffic Safety

..... Wang Yuna, Zhao Ning, Yang Ting(23)

Abstract: With the enhancement of the people’s living quality, the idea of “people foremost, traveling safely” has gone deep into the people’s heart. Taking the road conditions as the studying object, the article analyzes some factors to affect the traffic safety from the different viewpoints of road linearity, operation speed and sight distance, and puts forward the countermeasures to prevent or improve road conditions, which are importantly significant for decreasing the traffic accidents and traffic safety.

Keywords: traffic safety, road condition, road linearity, operation speed, operation sight distance

Low-carbon Idea of Urban Traffic Fu Xiaodun, Di Shengguan, Wang Xinqi(26)

Abstract: The way of low carbon has been the necessary trend for the future development of the whole world because of the austere situation of the climate variety, and is also the strategical choice to realize “green recovery” and the sustainable development. The article introduces the low-carbon economical course of China, sets forth the low-carbon effect brought from the “carbon” source and economy of the urban traffic, and puts forward the low-carbon measures of the urban traffic and the problems urgently to be solved.

Keywords: urban traffic, low carbon, high efficiency, environmental protection, economy, circle

Design of Road Vehicle Volume Management Control System Xiong Jianping(29)

Abstract: The article introduces a design scheme of road vehicle flow management control system. It is composed of the vehicle flow monitoring device, early-warning signal device, irregularity

candid-photograph device, computer control system, and traffic status displaying brand of surrounding roads. It is a full-automatic and integrated system collecting the monitor, early warning, control and command.

Keywords: road vehicle flow management, control system, traffic jam, bus first, road traffic

Improvement and Design of Road Traffic Guide Sign System in Guangzhou Baiyun International Airport

..... Zhang Xiaojin(31)

Abstract: The article analyzes the status and conditions of the road traffic guide sign system in the terminal building and the south - north working areas of Guangzhou Baiyun International Airport, finds out the main problems existing in the sign system, and introduces the integrated improvement design of the sign system of Baiyun Airport based on the airport characteristics and by taking Asian Games as the turning point.

Keywords: airport, road traffic, guide sign, improvement, design, Guangzhou

Design of Low-grade Yanxi Line Highway Upgrading Construction Zhang Xuejun(35)

Abstract: The upgrading construction of low-grade Yanxi Line Highway is a status often implemented in the present highway construction mainly with the characteristics of being surrounded by the hills on one side and waters on the other, the difficult extension, high demand of local traffic, more mud-rock flow and high requirement of ecological environmental protection. Taking the design of National Highway 111 Beijing Section Phase II Yanxi Line as an example, the article sums up the characteristics and difficulties of the project. According to the design idea of "To utilize the current situation, To serve the local, To be safe and prevent, To esteem the nature, To satisfy the criterion and To take people as the foremost", the article analyzes and studies some experience of the design able to be referred for the relative specialty members.

Keywords: Yanxi Line, upgrading reconstruction, alignment layout, function orientation

Discussion on Value of Key Technical Index in Reconstruction of Old Road Xu Hailiang(41)

Abstract: The reconstruction engineering of the old roads is limited by the present conditions of the roads sometimes. The design indexes can not fully satisfy the relative requirements of the road design criterion, and will greatly increase the engineering reconstruction cost if forced to do that. Therefore, some values of the technical indexes in the reconstruction of old road can be properly adjusted according to the actual operation demand of the old road by adjusting measures to local conditions and on the basis of ensuring the operation safety to win the reconstruction project. Taking Renmin Road South of Chengdu City as an example and based on the actual status of the road, the article discusses the values of the key indexes of the design vehicle speed, carriageway width and traffic clearance in the reconstruction of old road.

Keywords: reconstruction of old road, technical index, design vehicle speed, carriageway width, traffic clearance, Chengdu City

Discussion of Expressway Widening Reconstruction Scheme under Operation Jia Jie(43)

Abstract: The article discusses the general design methods and construction organization schemes used in the widening construction of the existing expressways, focuses introduction and analysis on the widening reconstruction schemes of the roadbed and pavement, sets forth the implementation gist and cautions of the bridge and interchange reconstruction projects, and sums up the traffic engineering measures required to take in the course of reconstruction implementation.

Keywords: expressway, reconstruction extension, roadbed, pavement, bridge

Application and Analysis on Local Rock Asphalt in Asphalt Pavement

..... Wu Yuejun, Lu Chuanjian, Li Xiang(46)

Abstract: The article selects the different basic qualities of the asphalt and analyzes the influence of the rock asphalt on the performance of the asphalt mixture and the optimized dosage of the rock asphalt. According to the related inspecting test indexes, the article analyzes and discusses the influence and the degree of rock asphalt taken as the modifier on the basic quality asphalt from the high temperature, low temperature and durability performances. The results indicate that the high temperature performance of the asphalt is enhanced greatly, the thermal sensitivity is improved, the ageing resistance and the stability are strengthened, and the low temperature performance is slightly declined after modified by rock asphalt.

Keywords: rock asphalt, asphalt pavement, modified bitumen, group analysis of asphalt, road use performance

Sectional design of Urban Road under Complex Geological Condition Mao Chuanyi(50)

Abstract: The sections of the urban ground roads are all conventionally designed under the common condition because of the landforms and terrain. But some conventional sectional design methods are also hard to implement under the conditions of the partially complex landform and geology. This problem occurs in the sectional design of the Dagou Yutang Section of the power plant when Kunming 320 National Highway (Mianshan to Chejiabi) is under the reconstruction and extension. The article sums up the problems occurring in the construction of the projects and the used methods for reference.

Keywords: 320 National Highway, cement mixing pile, floor-slab structure, separated section, Kunming City

Discussion of Some Issues in Design of "Approach Road of Mountainous Garbage Landfill Yard"

..... Ke Xin(54)

Abstract: The article analyzes the some cases of the road design for the mountainous garbage landfill yards, discusses the keystone and difficulties in the approach road design of mountainous garbage landfill yard, especially some gist in the line selection, sums up its difference from the general road design, and finally finds the safe and economical design scheme in the design.

Keywords: garbage landfill yard, approach road, keystone and difficulty, line selection

BRIDGES & STRUCTURES

Discussion on Scheme Design of New Self-anchored Suspension Cable - Stay Cable Cooperated System

..... Ren Hongye, Ren Guohong, Wang Qingqiao(56)

Abstract: The self-anchored suspension cable - stay cable cooperated system bridge is a modified self-anchored suspension bridge system, and is a cooperated system bridge with the middle span using the suspenders and the side span using the stay cables. The article introduces the sight scheme, the overall layout and the design difficulty treatment of this bridge by an engineering project, and analyzes the bridge structure.

Keywords: self-anchored suspension bridge, cable-stayed bridge, cooperation system, design, sight

Demonstration on Opening Bridge Scheme to Build at Lower Reaches of Haihe River in Binhai New Area of Tianjin City Yang Liang, Yang Lipo(60)

Abstract: The article introduces the general situation of navigation in Haihe River and forecasts the long-term traffic flow of an expressway in Binhai New Area. The article discusses the rationality to

use the opening bridge scheme for building Haihe River Bridge after the analysis of the on-off influence of opening bridge on the paralyzing time and paralyzing length of vehicles.

Keywords: opening bridge, forecast of traffic flow, on-off period, Tianjin City

Design of Main Bridge of Caofeidian Bridge Crossing Nachao River Ma Tao(63)

Abstract: Caofeidian Bridge crossing Nachao River is a partial cable-stayed bridge of 80 m + 128 m + 80 m three-span double-pylon single-plane prestressed concrete wide-deck with the structural system of pylon-beam consolidation and support constructed on pier. The dynamic and static structural analysis proves that the mechanical performance, durability, anti-wind and anti-earthquake capabilities, and structural stability of the bridge are good and can satisfy the current design specifications.

Keywords: partial cable-stayed bridge, overall design, wide deck, bridge design

Application of Fuzzy Matter-element Analysis Theory Based on Euclid Approach Degree in Bridge Health Grade Evaluation Li Xuefeng(66)

Abstract: The evaluation of bridge health status is the important premise to guarantee the safe operation of bridge. In the light of bridge health grade evaluation method influenced by many subjective factors, the indeterminacy of the evaluation process is more highlighted. The article put forward the bridge health status evaluation method based on the fuzzy matter-element analysis theory based on the factors to influence the evaluation of bridge health status, and at same time, uses the Euclid approach degree to modify the traditional matter-element analysis method. The health grade evaluation of the engineering cases make clear that the fuzzy matter-element analysis theory based on Euclid approach degree can faithfully reflect the health grade of bridge. It has the higher application value.

Keywords: health status, grade evaluation, Euclid approach degree, fuzzy matter-element analysis

Application of Improving Gray Correlation for Deciding Weight in Design of Urban Bridge Li Leisheng, Chen Xuming, Deng Faqian(70)

Abstract: The selection of the optimized scheme is certainly difficult in the course of the urban bridge scheme design because of many factors required to consider. Therefore, many scholars put forward the comprehensive evaluation, i.e. fuzzy evaluation, neural network and catastrophe theory to evaluate and select the optimized scheme so as to reduce the difficulty of selection. In the comprehensive evaluation, the calculation of the weight is key factor to affect the evaluation result. The article uses the improved gray correlation to decide the weight, and compares with the other deciding weight methods by the cases. The results make clear that the improved gray correlation is a simple and practical method of deciding the weight.

Keywords: bridge design, scheme selection, gray correlation, weight

Structural Design of Double-pylon Double-plane Composite Cable-stayed Bridge Guo Jingliang,, He Yongping, Chen Zhifeng(73)

Abstract: The cable-stayed bridge is one of the bridge types with the most competition and the most rapidly developed in the modern bridge engineering because of large spanning capacity, new structure and high efficiency. The main span of the composite cable-stayed bridge uses the steel beam to lighten the deadweight and increase the spanning capacity, and the side span uses the concrete beam to balance the weight and to enhance the rigidity of side span, which fully play the superiority of two materials of steel and concrete. Based on an engineering case, the article introduces in detail the stress characteristics of the double-pylon double-plane composite

cable-stayed bridge and analyzes its design gist.

Keywords: composite cable-stayed bridge, design analysis, cable force of the finished bridge, Midas civil

Safety Analysis of Steel - Concrete Combined Beam Structure Wu Jian(77)

Abstract: Taking a steel - concrete combined continuous box beam overpassing a busy traffic intersection as an example, the article introduces in detail the structural design and construction procedure of the steel - concrete combined continuous beam, uses the reasonable calculation theory and model to analyze the structural safety, and sums up the advantages of the steel - concrete combined continuous beam able to be referred for the design of the same bridges in the future.

Keywords: steel - concrete combined beam, safety analysis, design

Design of Auxiliary Engineering for Bridge in Kunming Northeast No.2 Ring Interchange

..... Zhuang Yonghao, Liu Fang(80)

Abstract: The article introduces the design of crashworthy wall, deck water prevention, deck pavement, drainage of deck and approach road, and expansion seam, and finally sums up its design idea and design gist.

Keywords: bridge, auxiliary engineering, crashworthy wall, deck water prevention, deck pavement, drainage expansion seam

Design Method of Drilled Cast-in-situ Pile in Treating Liquefied Soil Foundation Liu Shuang(83)

Abstract: The article introduces the design method of the drilled cast-in-situ pile in the treatment of the liquefied soil foundation according to the engineering cases. In the course of geotechnical engineering reconnaissance and design, the problems about earthquake liquefaction of saturated silt or saturated sand are often encountered. This problem has great influence on the engineering safety and construction investment, and it has caused the universal attention in engineering sector. In many measures against liquefied foundation, the pile foundation is a commonly used method.

Keywords: earthquake, liquefied soil, drilled cast-in-situ pile, design method

Treatment Design on Support Separation of Special Form Beam for an Interchange in Guangzhou

..... Hu Zhimin, Liang Xiaocong(86)

Abstract: In the light of the detail condition of the support emptying of an interchange special form beam, the article puts forward a new and skilful treatment mode under the condition of being unable to set up the tension support. It is to weld the steel bracket at the outside of steel box beam and transfer the negative reaction of the joint to the neighboring concrete beams for preventing the support from the separation. This is a new idea to treat the support problems occurred in more and more urban bridges.

Keywords: support separation, special form beam, steel bracket, Guangzhou City

FLOOD CONTROL & DRAINAGE

Analysis on Water Resource Scheduling Project to Improve Water Environment of Urban Inland River

..... Tao Yafen(88)

Abstract: One-dimensional water quality model is required to set up for scientifically and objectively reflecting the role of the water scheduling diversion project to solve the water environmental problems of the city area. Taking Nanning City Huanxiangsi Lake Water System Scheduling Project as an example, the article carries out the analysis and calculation. The result makes clear that the

continuously scheduling water will greatly improve the water environment of Huanxiangsi Lake.

Keywords: water resource scheduling Huanxiangsi Lake, water environment model, MIKE11, Nanning City

Study of Urban Floor Control Planning for Landscape Garden in Plateau Chai Zonggang(92)

Abstract: The floor control planning for the plateau landscape garden city is extremely important because of its particular terrain features. The particularity of Lanzhou City with a river between two mountains tells its own story. Its floor control planning not only embodies the floor control harnessing measures of Yellow River, but also prevents the city from the potential threatening of mountain torrents. The article mainly analyzes the above two aspects, points out the main problems existing in the floor control, and puts forward the detail measures of floor control planning.

Keywords: plateau, landscape garden, floor control planning, floor discharge channel, Lanzhou

Study of Rainwater Utilization and Control Planning for Central Area of Zhengzhou City

..... Liang Weigang(95)

Abstract: It is required to study the planning for fully utilizing the rainwater resource, relaxing the pressure of the short water resource in Zhengzhou City, postponing the downtrend of the urban underground water level, controlling the non-point source pollution of rainwater runoff, and lightening the flood control and drainage pressure of the central area. The article studies the objective, range and mode of the rainwater utilization and control in the new round of drainage planning for the central area. Its result creates the conditions for improving the urban ecological environment, and ensuring the sustainable development of the economy and society of Zhengzhou City.

Keywords: rainwater utilization, drainage planning, Zhengzhou

Stability Analysis on Embankment Slope of Nanjing Banqiao River

..... Xu Jiacun, Yang Songtang, Luo Haidong(98)

Abstract: According to the typical section of Banqiao Bridge, the engineering geological conditions of river, the reasonably selected parameters and using method, the article analyzes and calculates the stability and the status of the embankment engineering slope of Banqiao River.

Keywords: embankment slope, stability analysis, Morgenstern-Price method

Study on Countermeasures for Flood Control and Drainage of Large Riverside Heat-engine Plant

..... Han Jingqin, Gao Dshen(102)

Abstract: The land resource of large heat-engine plant along sea is very invaluable. It is required to comprehensively consider the land area and sea area, and to have the characteristics in the design of flood control and drainage. In order to realize the optimized objective of the engineering investment benefit, the new seawall of drainage channel is used in the flood control and drainage design of Guangxi Fangchenggang Heat-engine Plant, which can greatly reduce the elevation of seawall. The maximum diameter of the rainwater pipe will be reduced from DN2100 to DN1500, and the embedding depth of the rainwater trunk pipe decreases to 2 m by reasonably setting up the rainwater conflux area of the whole plant and the unmanned on-duty outdoor pumping station. The whole design scheme not only satisfies the criterion, but also efficiently reduces the investment and operation cost. The Phase I Project of the plant, after put into operation, ran into the great tide flood and great rainstorm once in a century, but its operation is under the good condition and ensures the safety of the plant.

Keywords: seawall, drainage by areas, reasonable drainage, Fangchenggang Heat-engine Plant

Influence of Planning Construction of Large Residential Area in South of Jinan City on Urban Flood

Control and Countermeasures Peng Xia, Shao Yuzhen(104)

Abstract: In the light of rainstorm characteristics peculiarly in Jinan City and based on the cases, the article analyzes the influence of the planning construction of the south area located at the upper reaches of the urban flood control river in Jinan City on the flood control. Through the support of the rainwater storing infiltration technology and the countermeasures of local laws, the article instructs the implementation of rainwater comprehensive utilization in the development and construction of the large residential area in the south of Jinan City to make the runoff level of rainwater before and after the construction of this area not be changed and satisfy the requirements of storing infiltration at the upper reaches.

Keywords: large residential area, urban flood control, rainwater utilization, storing infiltration at the upper reaches

Construction and Maintenance of Flood Control Facilities in Old City Areas

..... Hou Dingding, Miao Junjie, SongDan(107)

Abstract: The flood control facilities of a city are mainly the riverbank, flood discharge gate, flood control channel, rainwater pumping station, rainwater pipeline and rainwater manhole, which main tasks are that the river water flow is prevented from influence of the water at the upper reaches during flood season when the water is discharged too slowly to overflow or break the riverbank into the city area, and the urban rainstorm is prevented to cause the waterlogging phenomena within the city area because of severe rainfall or continuous rainfall exceeding the urban drainage capacity, which will cause the loss of the people's life and property of the city. The article analyzes the problems existing on the construction and maintenance of the flood control facilities, and puts forward some methods to solve the problems.

Keywords: old city area, urban flood control, flood control facilities, construction and maintenance

Elementary Discussion on Prevention and Emergency Measures of Over-standard Rainfall

..... Fang Qi(109)

Abstract: In recent years, the urban flooding and waterlogging phenomena occur sometimes in China, which bring the inestimable loss to the life and property safety of the people. The main reasons causing the urban flooding and waterlogging are the worsening of the earth environment, and result in the extremely adverse weather. The high-strength and continuous rainfalls frequently trouble our life. These high-strength and continuous rainfalls mostly exceed the design standard of the current urban drainage system in China. Therefore, it is very important to analyze the urban flooding risk under the over-standard rainfall and to set down the relative prevention and emergency measures for ensuring the city safety and safeguarding the benefits of the people. The article analyzes the status of the urban rainwater drainage facilities, the urban flooding and waterlogging risks and standards, discusses the prevention of over-standard rainfall and the setting down of emergency measures, and provides some references for how to deal with the over-standard rainfall and how to safeguard the life and property safety of the people.

Keywords: over-standard rainfall, urban flooding risk, prevention, emergency

Design Analysis of Dazhi River West Hub Navigation Lock Water Conveying System Wang Yao(112)

Abstract: The article analyzes the selection of water conveying mode, watering and draining, shipping anchor condition, lock passing capacity and so on by Dazhi River West Hub Newly Built No.2 Line Navigation Lock Project.

Keywords: navigation lock, water conveying system, design analysis, Dazhi River West Hub

Design Characteristics and Construction Improvement of A²/O Technological Sewage Treatment Engineering Liu Wei, Wu Liming(115)

Abstract: A 30000-t/d sewage treatment project is designed to adopt A²/O Technology. Its effluent is discharged on Class I Bid A of *Pollutant Discharging Standard of Town Wastewater Treatment Plant* (GB18918-2002). The article describes the design parameters of the main treatment structures, introduces the design characteristics of this wastewater treatment project, and puts forward some cautions and the relative improving measures in the design and construction of the wastewater treatment plant by A²/O Technology.

Keywords: wastewater treatment plant, A²/O, design characteristic, cautions

Characteristics and Improving Suggestions of Electrical Equipment Automation Control in Shenzhen Jiuwei River Sewage Interception Project Wang Xiaolin(119)

Abstract: Based on the operation characteristics and the interlock protective requirements of the electrical equipments, i.e. sewage pump, headstock gear and so on of the project, the article introduces the characteristics, the existing problems and the improving suggestions of the electrical equipment automation control in this project. The article demonstrates that the successful application of the automation control system project of the pumping station can be not only convenient for operation and decreasing the labor intensity of operators, but also play the very important role for the safe, stable and high efficient operation, decreasing the equipment faults and reducing the operation and maintenance costs of the pumping station, and at the same time, can advance the level of operation management of the pumping station.

Keywords: sewage interception engineering, automation control of electrical equipment, characteristic, improvement, Shenzhen

Common Problems and Recovery of Hard Waterfront in Urban Riverway Sun Haiming(124)

Abstract: The article introduces four destroying conditions often occurring in use of the hard waterfront in the urban riverway. Based on the actual problems, the article analyzes the forming causes and puts forward the recovery scheme of hard waterfront.

Keywords: urban riverway, ecological waterfront, hard waterfront, recovery

MANAGEMENT & CONSTRUCTION

Key Technology in Cantilever Pouring Construction of Continuous Beam He Jianduan(127)

Abstract: The cantilever pouring construction method is one of the main construction methods for the long-span continuous beam bridge. The article introduces the more key technologies of the form traveler, pier - beam concreting, closure technique and construction monitor in the cantilever pouring construction of the continuous beam able to be referred for the relative specialty members.

Keywords: continuous beam, cantilever pouring, key technology

Calculation and Analysis of Key Issue in Construction Control of Skew Curved Beam Bridges Peng Hong, Zhang Yu, Ma Jiazheng(132)

Abstract: The article uses the structural finite element calculation method and utilizes ANSYS software to set up the calculation model of a skew curved beam bridge. The article uses the parameter variation method to calculate and analyze the internal force and linear control technology

in the main construction stage of the skew curved beam bridge under the action of constant load and prestressing, introduces the construction method of the skew curved beam bridge, and compares and analyzes the rule and cause of its variation. The result can be referred for the engineering design and construction.

Keywords: construction control, skew curved beam bridge, space analysis

Elementary Discussion on Construction of Drilled Cast-in-situ Pile in Karst Region
..... Huang Jianting(136)

Abstract: The article illustrates the quality control and the cautions in the construction process of the drilled cast-in-situ pile in the karst regions according to the construction condition (mainly by Huiyang River Bridge) of the drilled cast-in-situ pile for the bridge foundation in the karst region of Bidding Section II DK1341+587 ~ DK1354+126 in Raochengbei ~ Huangshan section of Hangzhou in Shanghai - Hangzhou - Anhui Expressway.

Keywords: karst region, drilled cast-in-situ pile, construction, Huiyang River Bridge

Summarization of CFG Pile Construction Technology Li Jiexian(138)

Abstract: The article introduces the reinforcing principle of CFG pile and its application status in the roadbed foundation reinforcing construction of Bidding Section MA10 in Sanming Section of Shaosan Expressway, illustrates the construction technology and the construction quality inspecting test method of CFG pile by the engineering cases, and puts forward the cautions in the construction, which aims to popularize the application of CFG pile method in the subgrade engineering.

Keywords: CFG pile, reinforcing, subgrade, construction technology

Brief Description of Pipe-roofing Method Liu Bohai, Yang Liang, Luo Haocong(141)

Abstract: The article briefly describes the development history, application status, advantages and disadvantages of the pipe-roofing method, and introduces the design content, construction method and innovation improvement of pipe-roofing method.

Keywords: pipe-roofing method, underground engineering, jacking pipe, box jacking

Elementary Analysis on Maintenance and Treatment of Jinjiangcun Bridge in Panzhuhua
..... Zhang Zengya, Qiu Chengbin(144)

Abstract: The article introduces the engineering status of Jinjiangcun Bridge in Panzhuhua, describes and analyzes the result of the loading experiments of this bridge. In the light of the serious cracking problem existing in the partial hollow plates, the reinforcing design is implemented, and the loading experiment is again carried out after the reinforcing. The experiment makes clear that the reinforced plates can satisfy the design requirements.

Keywords: structural strength, inspecting test analysis, maintenance and reinforcement

Experiment and Construction Technology of RCC-PCC Composite Pavement
..... Zhou Guoqiang, Liang Ding, Liu Wenzhong(150)

Abstract: The article systematically introduces the technical requirement, mixture ratio design, construction technology and quality inspection test of the new composite pavement material (RCC-PCC composite pavement) of rolled cement concrete (RCC) as the structural layer and the polymer cement concrete (PCC) as the surface functional layer joined and developed by Guangdong Province Changda Highway Engineering Co., Ltd. and Wuhan Polytechnic University, which provides the theoretical basis and construction experience for the spread and application of RCC-PCC

composite pavement.

Keywords: composite pavement, mixture ratio, construction technology, quality inspection test

Summarization of Several Bridge Reinforcing Methods Peng Hongmei(156)

Abstract: The article introduces several bridge reinforcing methods commonly used at home and abroad, and summarizes the applicable conditions, stress characteristics, advantages and disadvantages of each method.

Keywords: bridge, reinforcing, method, summarization

Calculation Analysis and Reinforcing Measures of Bowstring Arch after Ship Stroke

..... Cong Xinjian, Sheng Lijuan(159)

Abstract: The article analyzes the stress performance of bowstring arch after ship stroke by ANSYS, and discusses how to select the element type and to set up the constitutive relation model of the material. The article more completely considers the pile-soil interaction and puts forward the cautions for the simulating analysis according to the experience. Finally, the comparison with the measured data validates the truth and reliability of the simulating result, and the relative reinforcing measures are put forward for the substructure of the bridge according to the analysis result.

Keywords: bowstring arch, stroke, computer simulating analysis, reinforcement, calculation analysis

Elementary Analysis on Technological Gist of Pre-stressed Hollow Plate Beam Gu Weihua(162)

Abstract: According to the status of Nongqiao Project and based on the characteristics of pre-stressed hollow plate beam by pre-tensioning technique, the article introduces the construction technological gist of the material, concrete pouring, curing, form removal and stranded wire tensioning.

Keywords: pre-tensioning, plate beam, supervision

Discussion on Application of Concrete structural Reinforcing Technology in Reconstruction of Old buildings

..... Ge Guohua(164)

Abstract: The article discusses the issues and the relative handling measures of the new building structural reinforcing technology from the aspects of characteristics, application, design constitution and construction process so as to ensure the reinforcing engineering quality and the safe using of the structure.

Keywords: sticking steel, carbon fiber, profiled bar, glue-injection, base treatment

Key Technology to Produce and Process Machine-made Sand by Dry Method You Qiubo(167)

Abstract: The machine-made sand is the rock with the granule below 4.75 mm of rock made up by soil-removed exploitation, mechanical crushing and screening. The sandstone and limestone are more ideal mine material to produce and process the machine-made sand. The different production methods are selected on the different geographical positions and conditions. The different methods of dry process, wet process and screening process can all produce the qualified machine-made sand. But the control of the stone-powder content in sand is the key gist to produce and process the machine-made sand by dry process. The machine-made sand is produced with the production of crushed stone, which reduces the production cost, fully utilizes the waste matters and saves the production and processing field. The article introduces the technical gist of production and processing of the machine-made sand.

Keywords: dry process, machine-made sand, production and processing, key technology

To Upgrade Municipal Engineering Accessibility Quality in Building Accessibility Demonstrating City Hu Chunqing(170)

Abstract: According to the work of building the accessibility demonstrating city of the whole country in Suzhou in 2008 and 2009, the article sums up the common problems in the accessibility construction of the municipal road engineering and the solving methods, and focuses setting forth on the design of the accessibility ramp in the municipal roads.

Keywords: municipal engineering, accessibility, blind way, ramp

Study into Spirit of Humanity Solicitud in Project Management of Engineering Construction Li Yawen(173)

Abstract: The article introduces the basic thought of the humanism management, and the idea basis of people foremost management, and illustrates that the project management of engineering construction embodies the humanism spirit from the laborer himself to emphasize his subjective initiative mobilization on the one hand, to focus on the setting up of the group spirit on the other hand. The humanism project management mode is favorable for enhancing the participation and the master spirit of the laborers so as to promote the good health progress of construction project.

Keywords: engineering construction, project management, humanity solicitude, people foremost

STUDY ON SCIENCE & TECHNOLOGY

Analysis of Mechanical Response to Asphalt Pavement Structure of Urban Road Xu Qiang, Ren Ruibo, Wang Jianguang, Shao Yuzhen(175)

Abstract: In the light of three main asphalt pavement structure types, i.e. semi-rigid base, composite base and flexible base commonly used in the urban roads of Jinan City, the article adopts the Shell design software BISAR3.0 to calculate the stress and strain response of three structural asphalt pavements, compares and analyzes the stressed disadvantage types and the space positions of three types. The comparison proves that the asphalt pavement of the composite base is more excellent than the semi-rigid base and the flexible base in various mechanical performances from the mechanics angle. The composite base is recommended as the main structural type of urban roads in the future.

Keywords: urban road, asphalt pavement, semi-rigid base, composite base, flexible base, mechanical response

Study on Relativity of Binder Property with Fatigue Performance of Stress Absorbing Layer Asphalt Mixture Shi Kunlei, Jin Zhehu(181)

Abstract: In order to discuss the correlativity of the binder property with the asphalt mixture performance of stress absorbing layer, the article separately analyzes the experiments of six different asphalts and the relative mixtures. The result makes clear that the property of binder obviously affects the fatigue performance of stress absorbing layer asphalt mixture, in which the better relativity is between three indexes, i.e. 600C viscosity, intenerating point and penetration and the fatigue performance of stress absorbing layer asphalt mixture. Three indexes can be taken as the key indexes for selecting the asphalt binder used in the stress absorbing layer.

Keywords: asphalt property, mixture performance of stress absorbing layer, relativity

Indoor Experimental Study on Admixture of Lime Modified Expanding Soil Chen Bo, Li Jin(184)

Abstract: In order to solve the expansion deformation problem of the expanding soil in the roadbed stuffing of highway, the article uses the quicklime to modify the stuffing. Through the experiments of

compaction, mass expansion rate and unconfined compressive strength, and according to the requirements of *Highway Roadbed Construction Technical Criterion*, the reasonable admixture of the lime modified expanding soil is determined, which can provide the powerful evidence for the lime admixture in the engineering construction.

Keywords: lime modifying, expanding soil, mass expansion rate, unconfined compressive strength

Study on Physical Mechanics Performance of Bubble Asphalt Cold Recycling Mixture
..... Zhang Weihua(187)

Abstract: The bubble asphalt cold recycling mixture becomes the focus of more and more attention, but the study of its relative performances is not perfect. According to the engineering practices and mass indoor experiments, the article analyzes the influence of the aggregate gradation and asphalt dosage on the density, voidage, tensile property, water stability, high-temperature stability and shearing strength of the bubble asphalt cold recycling mixture. The study makes clear that the density, stability and shearing strength present the downtrend, the water stability presents the rise tendency, and the voidage is not greatly changed with the increment of the asphalt dosage. The dry and wet cleavage strengths of mixture first increase, and then decrease with the variation of asphalt dosage. The density, high-temperature stability, shearing strength, dry and wet cleavage strengths of the gradation B mixture are all higher than the gradation A mixture. The study makes clear that the gradation is the most key factor to determine various performances of cold recycling mixture.

Keywords: bubble asphalt, gradation, water stability, high-temperature stability, shearing performance

Nonlinear Analysis on Influence of Initial Load on Static Characteristics of Beams
..... Yang Zhiguo, Zhang Jiawei(192)

Abstract: Based on the principle of resident potential energy, a nonlinear control differential equation of the initial load to influence the static characteristics of beam is educed and the closed solutions of static calculation for both cantilever beams and beams fixed at one end and simply supported at the other end are given. The initial load influence factor is introduced to reflect the nonlinear effect of initial load, the influences of the magnitude of initial load, inhibiting conditions, inertia moment and span of beam on the influence coefficients of initial load are discussed. The results make clear that the existence of the initial load will make the static reaction of beam reduce under the later-applied loads. Its reduction extent relates to the magnitude of initial load, the stiffness and inhibiting conditions of the beam. This nonlinear influence of initial load should be properly considered under the design of lightweight and flexible structures.

Keywords: engineering structure, static characteristic, principle of stationary potential energy, closed solution of differential equation, initial load, nonlinear analysis, initial load influence coefficient

Experimental Study on Bending Rigidity Influence Factor of CFRP Tendon Reinforced Beam
..... Yu Guoyu, Yu Tianlai(197)

Abstract: The article studies the influence of concrete grade, original beam reinforcement rate, external pre-stressing bind bending angle, injury degree and loading level on the rigidity of the reinforced beam by the experiment of CFRP tendon external prestressed reinforced steel concrete beam. The article gives the relative conclusion of the study. Its study result has some references for CFRP pre-stressing reinforcing technology.

Keywords: CFRP tendon, external prestressing, reinforcing, rigidity

Analysis and Study on Roadbed Deformation of Expansion Split-joint Section in Huizhou - Shenzhen Ex-

pressway Lv Jiangcong, Zhang Liang(201)

Abstract: The faults of vertical and transverse cracks often occur on the pavement after the widening reconstruction of the roads. The crack widths are different with the variation of embankment height, subgrade stability and characters. In the light of the faults of the old roads after widened and reconstructed, the article analyzes some special faults led by the difference of the new and old roadbeds in the settlement, deformation and rigidity. The relative experience can be referred for the specialty members.

Keywords: roadbed deformation, model, finite element method

Analysis and Study of Wind Resistance and Earthquake Resistance for a Cable-stayed Bridge
..... Chen Minggu, Liu Wenjiang, Feng Keyan(204)

Abstract: The article analyzes the wind resistance and earthquake resistance of a cable-stayed bridge, sets forth the formula of dynamical characteristic value, of cable-stayed bridge and analysis method, and studies its results. The article discusses and compares the wind resistance and earthquake resistance of cable-stayed bridge according to the characteristic value.

Keywords: characteristics value, analysis of wind resistance and earthquake resistance, critical wind speed, response spectrum method, time-history method

Study of Parking Management System in Lanzhou City Qi Bo(208)

Abstract: The article analyzes the present situation and the existing problems of the parking management system in Lanzhou City, gives the schemes of setting up the parking management organ, the parking fee system and the roadside parking management system in Lanzhou City by the experience of the urban parking management organs at home and abroad, focuses discussion on the roadside parking management mode of Lanzhou City, puts forward a feasible operation mode of using the enterprise management mode for the roadside parking management, and gives the relative inhibiting system.

Keywords: parking, management mode, inhibiting system

Study on Traffic Control of Urban Road Qiu Jingjing(212)

Abstract: The traffic control is depended on the traffic police or the traffic signal control facilities. The traffic of vehicle and pedestrian is commanded with the variation characteristic of the traffic flow. The traffic problem is always one of chief problems in a large city. The rapid advancing of urbanization and the sharp expanding of urban population, the construction lag of urban infrastructure and many problems existing in the city management further sharpen the existing urban traffic problems. The study of traffic control, the efficiently leading of the urban vehicles, and the decrement of traffic jam are the great real significance of the work.

Keywords: traffic control, to fix period, sensitive control, study

APPLICATION OF ACHIEVEMENTS

Application of Geophysical Prospecting Technology in Maintenance of Filling-sea Road
..... Dong Xiaoyong(215)

Abstract: The pavement fault will gradually increase in the high-class highway with the increment of road operation time. The maintenance units often adopt the maintaining treatment methods of recovering and filling crack for the surface of fault pavement. The direct casue of fault is lack of necessary inspection test means. Therefore, it is hard to judge and treat the fault further. The deep

exploration and study of pavement fault are the important links to treat the asphalt pavement of high-class highway currently. Through the further exploration, the article analyzes and sums up the data to find the fault cause and level of destroying the pavement so as to take the countermeasures for the future and provide the basis to treat the fault pavement.

Keywords: seawall section, fault, deflection value, geophysical prospecting

Application of Impact Pressure Stability with High Modulus Asphalt Technology in Reconstruction of Heavy-load Concrete Road Zhang Gaocai(218)

Abstract: The article introduces the application of a new technology of the fast reconstruction upgrading of the damaged cement concrete pavement under the heavy-load traffic in the Guangzhou North Ring Expressway Pavement Reconstruction Project, discusses and summarizes the impact pressure stability of old pavement with high modulus asphalt concrete covering overlaying technology to improve and enhance the fast fault treatment and the pavement structural grade in the road reconstruction.

Keywords: concrete pavement, impact pressure stability, high modulus asphalt, reflecting crack. Track, construction, Guangzhou

THE RELATIVE SPECIALITIES

Discussion on Municipal Design of Large Residential Community Liao Caifeng, Kong Qingwei(221)

Abstract: This paper mainly discusses several issues about the municipal design of the large residential community, i.e. the planning of the road network and the study of the surrounding roads, the transect of reasonable layout and the type of bus station, the design of multicolor pavement, the design of the environmental protection and energy saving auxiliary facilities, and the utilization of the building waste residue. The dynamic collection system of traffic information is recommended in Shanghai Sanlin Residential Community.

Keywords: municipal design, multicolor pavement, environmental protection and energy saving, utilization of building waste residue, large residential community

Design of Engineering Tunnel for Urban Roads Based on Underground Pipeline Information System

..... Li Xiaolin(224)

Abstract: The urban underground pipelines are intricate. It is fully to consider the crosswise interference of the underground pipelines possibly in the design of engineering tunnel for the urban roads. The relative technical treatment measures are taken to ensure the smooth implementation of pipeline projects and decrease the design modification of construction stage. Therefore, it is especially important to collect the data in the design of underground engineering tunnel in the design stage. The article briefly introduces the application of underground pipeline information management system in the design of engineering tunnel for the urban roads.

Keywords: urban road, underground pipeline, GIS, pipeline design

Brief Introduction on Subgrade Treatment of Engineering Tunnel for Guangzhou Asian Games

..... Yuan Zhe(227)

Abstract: The engineering tunnel is used to centralize various municipal pipelines into the integration in the municipal pipeline project of Guangzhou Asian Games City. The article introduces that the treatment of the partial subgrade in the engineering tunnel is selected by many methods of the exchange fill cushion process, cement-soil mixed pile process and high pressure rotational jetting

pile process.

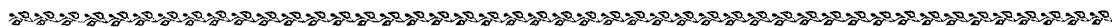
Keywords: Asian Games City, engineering tunnel, subgrade treatment, exchange fill cushion, cement-soil mixed pile

Numerical Analysis on Influence of Pit Excavation on Settlement of Closely Neighboring Buildings

..... Jiang Zheng(229)

Abstract: The article introduces and analyzes the influence of a subway engineering pit on the closely neighboring buildings by the numerical simulating method. The article uses the finite element model to analyze the influence of the excavation process of the south subway on the settlement of the closely neighboring buildings, and compares the monitoring and testing date. The result makes clear that the calculation value of this method basically match with the monitoring test value, which can better simulate the settlement rule of the buildings closely with the pit. Finally, this method it used to forecast the influence of the north subway excavation on the settlement of the buildings at the north side of pit, which has a certain instructing meanings for the construction of the north subway engineering.

Keywords: pit excavation, finite element method, neighboring buildings, numerical simulation



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