



Environmental Monitoring Report

Project Number: 48023-003
March 2022

Period: January 2021 to December 2021

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

Environmental Monitoring Report (No. 5)

Prepared by the Ningxia Hui Autonomous Region Project Management Office for the Asian Development Bank

This environmental monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

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ABBREVIATIONS

ADB	– Asian Development Bank
AQG	– air quality guideline
ARI	– annual recurrence interval
BOD ₅	– 5-day biochemical oxygen demand
C&D	– construction and demolition
CO	– carbon monoxide
COD	– chemical oxygen demand
CTB	– county transport bureau
DO	– dissolved oxygen
DOT	– Department of Transport
EA	– executing agency
EEM	– external environmental monitor
EHS	– environment, health and safety
EIA	– environmental impact assessment
EIR	– environmental impact report
EIRF	– environmental impact registration form
EIT	– environmental impact table
EMP	– environmental management plan
EMR	– environmental monitoring report
EMS	– Environmental Monitoring Station
EPB	– Environmental Protection Bureau
EPD	– Environmental Protection Department
EPL	– Environmental Protection Law
ESE	– environmental supervision engineer
FYP	– five year plan
GDCF	– gender and development cooperation fund
GDP	– gross domestic product
GHG	– greenhouse gas
GRM	– grievance redress mechanism
IA	– implementing agency
IEE	– initial environmental examination
I _{Mn}	– permanganate index
IPCC	– Intergovernmental Panel on Climate Change
L _{Aeq}	– equivalent continuous A-weighted sound pressure level
LAS	– linear alkylbenzene sulfonate
LDI	– local design institute
MEP	– Ministry of Environmental Protection
N	– Nitrogen
NHAR	– Ningxia Hui Autonomous Region
NHARG	– Ningxia Hui Autonomous Region government
NH ₃ -N	– ammonia nitrogen
NO ₂	– nitrogen dioxide
P	– Phosphorus
PAH	– poly-aromatic hydrocarbon
PAM	– polyacryl amide
PAM	– project administration manual
PAO	– Poverty Alleviation Office

PCR	– project completion report
pH	– a measure of acidity and alkalinity
PM _{2.5}	– particulate matter with diameter $\leq 2.5\mu\text{m}$
PM ₁₀	– particulate matter with diameter $\leq 10\mu\text{m}$
PMC	– project management consultant
PME	– powered mechanical equipment
PMO	– project management office
PO ₄ ²⁻	– Phosphate
PPE	– personal protective equipment
PPTA	– project preparation technical assistance
PRC	– People's Republic of China
RCP	– representative concentration pathway
RP	– resettlement plan
SEA	– strategic environmental assessment
SO ₂	– sulfur dioxide
SPS	– safeguard policy statement
SS	– suspended solid
TA	– technical assistance
TP	– total phosphorus
TPH	– total petroleum hydrocarbon
TSP	– total suspended particulate
VOC	– volatile organic compounds
WBG	– World Bank Group
WHO	– World Health Organization
WWTP	– wastewater treatment plant

WEIGHTS AND MEASURES

‰	– part per thousand
°C	– degree centigrade
cm	– Centimeter
dB(A)	– A-weighted sound pressure level (decibel)
g	– Gram
g/kg	– gram per kilogram
h	– Hour
ha	– Hectare
kg	– Kilogram
kg/m ³	– kilogram per cubic meter
km	– Kilometer
km/h	– kilometer per hour
L	– Liter
L/100 km	– liter per 100 kilometer
m	– Meter
m ²	– square meter
m ³	– cubic meter
m/s	– meter per second
mg	– Milligram
mg/L	– milligram per liter
mg/m ³	– milligram per cubic meter

mm	–	Millimeter
mm/y	–	millimeter per year
no./L	–	number of individuals per liter
pcu	–	passenger car unit
pcu/d	–	passenger car unit per day
t	–	metric ton
t/a	–	metric ton per annum
μ	–	micron or micrometer
μg	–	Microgram
μg/m ³	–	microgram per cubic meter

NOTE

In the report, “\$” refers to US dollars.

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BASIC PROJECT INFORMATION

ADB Loan No.	ADB Loan No.3444-PRC
Project Title	Ningxia Liupanshan Poverty Reduction Rural Road Development Project
Borrower	The People's Republic of China
Executing Agency	Ningxia Hui Autonomous Region Government
Implementing Agency	the county transport bureaus (CTB) of Yuanzhou, Xiji, Longde, Jingyuan, Pengyang, Tongxin and Haiyuan
Total Estimated Cost	265.54 million dollars
ADB Loan	100 million dollars
Counterpart Financing	165.54 million dollars
Loan Approval Date	October 21,2016
Loan Agreement Signed Date	April 10,2017
ADB Loan Effectiveness Date	July 14,2017
Project Complete Date	June 30,2022
Original Loan Closing Date	June 30,2022
Exchange Rate	6.596
Date of Latest ADB Loan Review Mission	December 2021
Type of This Report	Annual Environmental Monitoring Report
Period Covered by This Report	January 2021-December 2021

I. INTRODUCTION

A. The Report

1 This report is the Fifth Environmental Monitoring Report of Ningxia Liupanshan Poverty Reduction Rural Road Development Project, covering the period from January 2020 to December 2020. This report is prepared by Ningxia Hui Autonomous Region government with support from the external environmental monitor (EEM) based on site observation and information collected from the Executing Agency (EA), Implementation Agencies (IAs), environmental supervisors as well as local environmental monitoring stations. This report was reviewed by the EA, prior to submission to ADB.

2 This environmental monitoring report is prepared in accordance with the project environmental management plan and environmental monitoring framework.

B. Project Description

3 The Ningxia Hui Autonomous Region (NHAR) has been designated as one of 11 high-poverty areas in rural PRC. Hui minorities make up 59% of the NHAR population. The Liupanshan area is one of 14 non-administrative high-poverty areas targeted by government programs for poverty reduction and development policies. It is one of the poorest areas of the PRC with 38% of the population under the national poverty line of CNY 2,300 of per capita annual income. One of the strategies for poverty reduction is the provision of asphalt (concrete) paved rural roads to improve public transport, quality of road service, and ability for disaster prevention and poverty reduction.

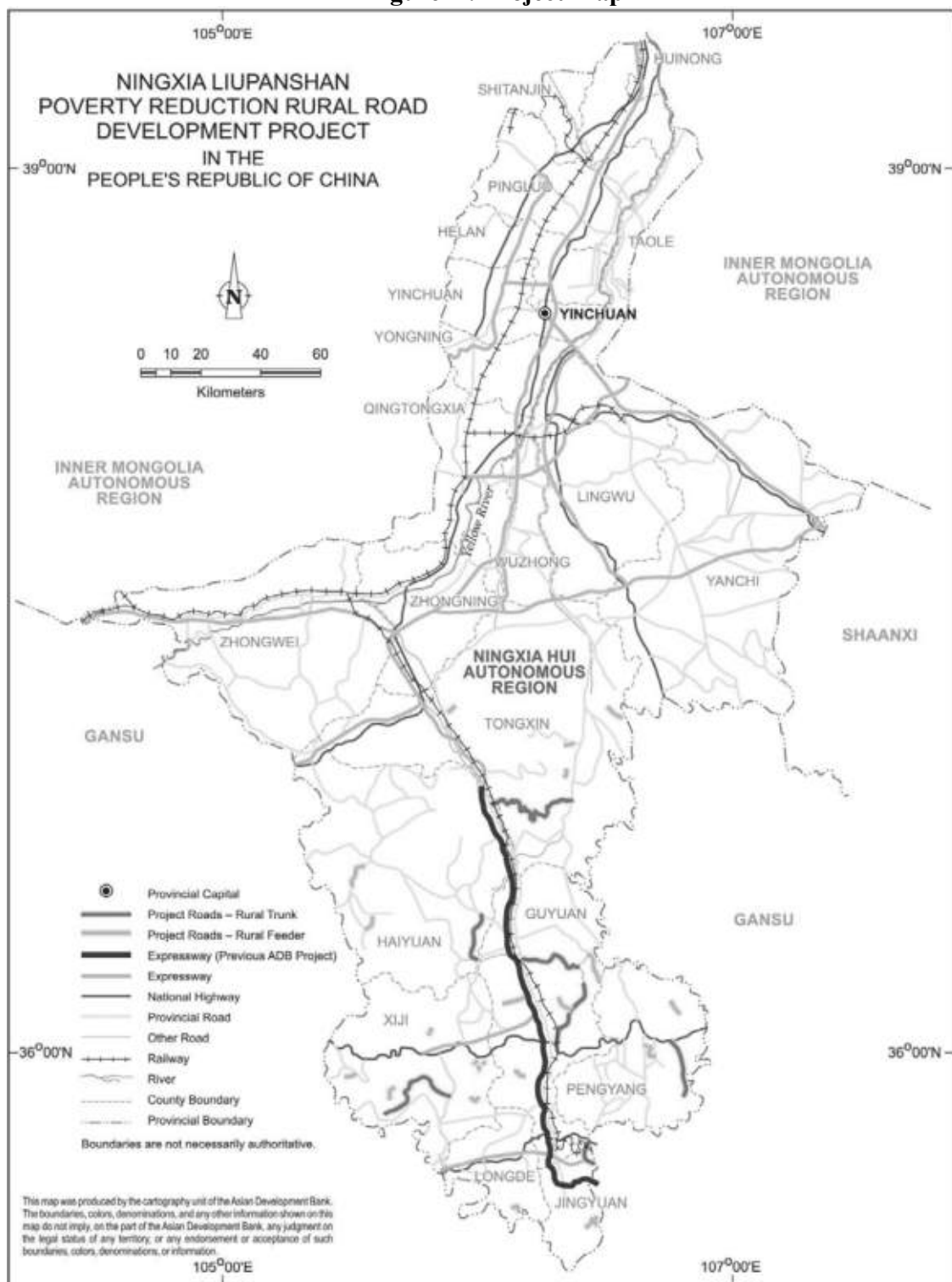
4 The project is located in the Liupanshan area in southern NHAR. Liupanshan is a mountain range with altitude up to 3,000 meters (m) in western PRC, extending over 200 kilometers (km) across Shaanxi Province, Gansu Province, and NHAR. The Liupanshan area in southern NHAR covers seven project counties (Yuanzhou, Xiji, Jingyuan, Longde, Pengyang, Tongxin, and Haiyuan)¹, with altitudes ranging from 409 m to 1,694 m. The counties have 592 poor villages and a poor population of 424,522. NHAR's Thirteenth Five-Year Plan (FYP) for poverty reduction sets the target of bringing these out of poverty by the end of 2018. The Thirteenth FYP and road network master plans for these counties all stress the importance of rural road development in poverty reduction, with concentrated efforts in the provision of transportation infrastructure in poor and rural areas. By the end of 2020, seven poor counties and 592 poor villages had been lifted out of poverty, and the construction of rural roads had played a key role.

C. Project Impact, Outcomes, and Outputs

5 The proposed intervention will be aligned with the government's stated impact of reduced poverty and increased quality of life in the Liupanshan area. The outcome will be improved rural transport network in the Liupanshan area particularly in poor areas. The outputs will be (i) priority rural roads improved including approximately 267 km of seven rural trunk roads and 168 km of 21 rural feeder roads, (ii) rural road safety and sustainability enhanced, and (iii) impact evaluation is

conducted and project implementation capacity improved. All are existing roads. Improvements will involve rehabilitation of the existing alignments without widening, rehabilitation and widening of existing alignments to accommodate traffic increase, and construction of new road sections to improve road gradients and turning radii for safety reasons.

Figure 1 : Project Map



D. Institutional Arrangements and Responsibilities for EMP Implementation

6 **Executing agency.** The **NHARG** is the executing agency (EA) responsible for overall implementation and compliance with loan assurances and the EMP.

7 **Project management office.** The EA has established the **project management office (PMO)**, who shall be responsible, on behalf of the EA, for the day-to-day management of the project. The PMO shall have the overall responsibility to supervise the implementation of environment mitigation and monitoring measures, coordinate the project GRM and report to ADB. PMO shall (i) appoint at least one environmental specialist on its staff to coordinate and manage EMP implementation, (ii) engage the project management consultant (PMC) services, and (iii) supervise the procurement process. The PMO environmental specialist shall (i) supervise contractors and their compliance with the EMP; (ii) conduct regular site inspections; (iii) act as local entry point for the project GRM; (iv) submit environmental monitoring data provided by the IAs to the PMO for verification. PMO shall prepare quarterly project progress reports and annual environment monitoring reports (EMR) and submit them to ADB.

8 **Implementing agency.** Implementing Agencies (IAs) for the project are the county transport bureaus (CTB) of Yuanzhou, Xiji, Longde, Jingyuan, Pengyang, Tongxin and Haiyuan, responsible for implementing the rural trunk roads and rural feeder roads within their respective administrative areas. They implement project components, administer and monitor contractors and suppliers, and be responsible for construction supervision and quality control. By December 2021, all projects had started construction and some sections had been completed. According to the provisions of the EMP, the implementation agency had well completed the bidding work, supervision and entrustment during the construction period. Specifically include: (i) contract the local Environmental Monitoring Station (EMS) to conduct environmental monitoring during the construction stage, and (ii) contract an external Environmental Supervision Engineer (ESE) to conduct independent compliance audit and verification of EMP implementation during the construction stage of the project. Each IA is recommended to nominate an environmental focal point on its staff to (i) supervise contractors and their compliance with the EMP, (ii) conduct regular site inspections, and (iii) submit environmental quality monitoring data provided by the EMS to the PMO and local Environmental Protection Bureau (EPB).

9 Construction contractors are responsible for implementing the mitigation measures during construction under the supervision of the IAs (through the ESE) and PMO. In their bids, each contractor has responded to the environmental management and monitoring requirements in the environmental management plan. Each contractor has appointed a staff member to be responsible for the environment, health and safety during the construction.

10 External environmental monitor (EEM). An EEM shall be recruited to support the project. Terms of reference for the EEM are provided in the PAM. The EEM will:

- (i) assess the project's environmental readiness prior to implementation based on the readiness indicators defined in Table EMP-3 in the EMP;

- (ii) support PMO in updating the EMP including environmental monitoring plan as necessary to revise or incorporate additional environmental mitigation and monitoring measures, budget, institutional arrangements, etc., that may be required based on the detailed design; submit to ADB for approval and disclosure; ensure compliance with the PRC's environmental laws and regulations, ADB's Safeguard Policy Statement (2009) and Public Communications Policy (2011);
- (iii) if required, update the IEE and EMP reports for changes in the project during detailed design or project implementation (for example if there is a minor or major scope change) that would result in adverse environmental impacts not within the scope of the approved IEE/EMP;
- (iv) assist PMO to establish a GRM;
- (v) conduct EMP compliance audit, undertake site visits as required, identify any environment-related implementation issues, and propose and oversee implementation of necessary corrective actions;
- (vi) assist PMO to prepare quarterly project progress reports and annual EMRs for submission to ADB;
- (vii) provide training to PMO, IAs and contractors on environmental laws, regulations and policies, SPS 2009, EMP implementation, and GRM in accordance with the training plan defined in the EMP (Table EMP-7); and
- (viii) assist PMO and IAs in conducting consultation meetings with relevant stakeholders as required, informing them of imminent construction works, updating them on the latest project development activities, GRM.

11 Environmental supervision engineer (ESE) . Each IA shall contract an independent ESE to verify environmental performance during construction and whether the implementation of EMP items complies with the plan. The ESE shall review EMP implementation and monitoring activities and results, assess EMP implementation performance, visit the project sites and consult potentially affected people, discuss assessment with the PMO and the respective IA; and suggest corrective actions. The ESE shall assist the external environmental supervisor to prepare the annual environmental monitoring report.

II. PROJECT PROGRESS

A. Progress on Institutional Set up and Actions taken by Agency

12 Table 1 shows the summary of institutional set up for EMP implementation and actions taken by institutions.

Table 1. Summary of Institutional Set up for EMP Implementation and Actions taken by Agency

Agency and its Roles and Responsibilities for EMP Implementation	Actions taken by Agency
EA - NHARG Responsible for overall implementation and compliance	<ul style="list-style-type: none"> • Has been responsible for overall implementation and compliance with

Agency and its Roles and Responsibilities for EMP Implementation	Actions taken by Agency
with loan assurances and the EMP.	loan assurance and the EMP.
<p>Project Management Office (PMO)</p> <p>Shall be responsible, on behalf of the EA, for the day-to-day management of the project. The PMO shall have the overall responsibility to supervise the implementation of environment mitigation and monitoring measures, coordinate the project GRM and report to ADB.</p> <ul style="list-style-type: none"> • Shall appoint at least one environmental specialist on its staff to coordinate and manage EMP implementation. The PMO environmental specialist shall (i) supervise contractors and their compliance with the EMP; (ii) conduct regular site inspections; (iii) act as local entry point for the project GRM; (iv) submit environmental monitoring data provided by the IAs to the PMO for verification. PMO shall prepare quarterly project progress reports and annual environment monitoring reports (EMR) and submit them to ADB. • Shall engage the project management consultant (PMC) services • Shall supervise the procurement process. 	<ul style="list-style-type: none"> • Environmental specialist, Wu yurong was engaged in December 2017. Environmental monitoring reports were submitted in January 2018, January 2019, January 2020 and January 2021 respectively. Affected by the epidemic in 2021, external environmental experts conducted two on-site inspections in March and July to check whether all contractors have implemented environmental protection measures, and included the implementation of environmental monitoring in the quarterly progress report of the project. This report is the environmental monitoring report of 2021. • PMC , HJI Group Corporation and Beijing Hamoni Engineering Consulting Company Ltd. was engaged in August 2018. They have submitted quarterly project progress reports on time every quarter.
<p>Implementation Agency (IA)</p> <p>The IA is the county transport bureaus (CTB) of Yuanzhou, Xiji, Longde, Jingyuan, Pengyang, Tongxin and Haiyuan, responsible for implementing the rural trunk roads and rural feeder roads within their respective administrative areas. They shall implement project components, administer and monitor contractors and suppliers, and be responsible for construction supervision and quality control. The CTBs shall also be</p>	<ul style="list-style-type: none"> • Contracted Chinese Academy of Transportation Science as the EEM. • Contracted the local Environmental Monitoring Station (EMS), which is NingXia ZhongKe JingKe Test Tech., Co., Ltd. They carried out quarterly environmental monitoring on the main line. Affected by the epidemic, they conducted two phases of

Agency and its Roles and Responsibilities for EMP Implementation	Actions taken by Agency
<p>the operation and maintenance (O&M) units for the project roads in their respective counties.</p> <ul style="list-style-type: none"> To ensure that the contractors comply with the EMP provisions, the IAs with the help and technical support of a Tendering Agent and the External Environmental Monitor (EEM) under the PMC services. Each IA shall contract the local Environmental Monitoring Station (EMS) to conduct environmental monitoring during the construction stage Each IA shall contract an external Environmental Supervision Engineer (ESE) to conduct independent compliance audit and verification of EMP implementation during the construction stage of the project. Each IA is recommended to nominate an environmental focal point on its staff. 	<p>monitoring on the main line in March and July 2021.</p> <ul style="list-style-type: none"> Contracted the Environmental supervision engineer (ESE) as a part of CSC. Yuanzhou, Xii, Longde, Jingyuan, Pengyang, Tongxin, Haiyuan IAs have designated one person in charge of environment, health and safety..

13 Table 2 shows the detailed contact information of relevant environmental health and safety staff at various agencies involved in the Project and GRM focal persons.

Table 2. Contact Information of EHS staff/focal points at Various Agencies Involved in the Project

Institution	Name of Company	Position	Name of EHS staff	Contact Information (phone number/email)
PMO			Mr. Yongming Yang	+86 13639506456 yym13777@163.com
EEM	Chinese Academy of Transportation Science	Environmental Engineer	Ms. Yurong Wu	+86 13683683432 10258572@qq.com
PMC	HJI Group Corporation and Beijing Hamoni Engineering Consulting Company Ltd.	HJI Group Corporation and Beijing Hamoni Engineering Consulting Company Ltd.	Mr. Qing Chen	18940102907 qchen@hjigroup.com
IA	CTB Yuanzhou	<i>EHS</i>	Mr. Wuming Wang	+8615809591421

					yzqjtxzjsj@163.com
	CTB Xiji		EHS	Mr. Xuxiong Wei Ms. Xiaoyan Shang	+8613995143987 +8615226242200 1287763390@qq.com
	CTB Longde		EHS	Mr.ZhangJun	+8618995446299 18995446299@163.com
	CTB Jingyuan		EHS	Mr. Xiaoping Wu	+8613995345808 290986914@qq.com
	CTB Pengyang		EHS	Mr. ZhangHua	+8613995449215 876319903@qq.com
	CTB Tongxin		EHS	Mr.YanhuaMian	+8613895284678 txjt8022391@163.com
	CTB Haiyuan		EHS	Mr.Fenglong Hei	+8618809609405 249315165@qq.com
ESE		Independent Consultant	Environmental Engineer	Ms. Yurong Wu	+86 18209775544 604102088 @qq.com
Contractors	Zhengqi–Jiuc ai–Sikouzi Road	Ningxia road and Bridge Engineering Co., Ltd	EHS	Mr. Xuezhi Yin	+86 17795458527
		Ganzhou Boda highway Co., Ltd	EHS	Mr. Ning Ma	+86 17795529949
	Wangtuan–Y uwang Road	Mengguoxin Industry Co., Ltd	EHS	Mr. Shaojia Wang	+86 18169071991
		Shaanxi Yijin Construction Co., Ltd	EHS	Mr. Shaojia Wang	+86 13995448509
		Ningxia Xuyuan Construction Engineering Co., Ltd	EHS	Ms. Xifeng Fan	+86 18309516576
		Zhongdiyingang Construction Group Co., Ltd	EHS	Mr. Xiaojiang Zhang	+86 15296975644
	Guanting–Gu yuan Road	Xinjiang Communications Construction Group Co., Ltd	EHS	Mr. Yong Hong	+86 15709633222
		Shaanxi Huaxinyuan Construction Engineering Co., Ltd	EHS	Mr. Hui Wang	+86 15191844528
	Wanzhang–S anying Road	Ningxia Dongfang Baosheng Construction Co., Ltd	EHS	Mr.Xingsheng Feng	+86 15595245888
		Panzhihua Panyu Road and Bridge Co., Ltd	EHS	Mr.Shenghu Wang	+86 13239592988
	Jiangtai–Xita	Anhui Changda	EHS	Mr.Shiwen Xia	+86 15212799259

	n–Pingfeng Road	pavement Facilities Engineering Co., Ltd			
		Ningxia Communications Construction Co., Ltd	<i>EHS</i>	Mr.Changyi Zhou	+86 13409576828
		Guyuan Kaida Highway Engineering Co., Ltd	<i>EHS</i>	Mr.Jianzhou Wang	+86 15909579800
		Dongsheng Road and Bridge Engineering Construction Group Co., Ltd	<i>EHS</i>	Mr. Xiang Liu	+86 18695187878
	Mengyuan Chunshucha–Chengyang Yangping Road	Shantou road and Bridge Engineering Corporation	<i>EHS</i>	Mr.Wenzhe Zheng	+86 15255518293
		Touluqiao Engineering Corporation of Shantou Anhui Changda road and Bridge Engineering Group Co., Ltd	<i>EHS</i>	Mr.Fangqing Dong	+86 18153633391
	Shatang (Huanghua County)–Gaodian Road	Ningxia Lujie Engineering Co., Ltd	<i>EHS</i>	Mr. Yu	+86 18195199090

B. Implementation of Loan Covenants

14 The loan covenants of the project stipulate the following agreements on environmental safeguards. Table 3 provides the compliance status of environment related project covenants during this reporting period.

Table 3. Environment Related Project Agreements and Compliance Status

Environment Related Project Agreements	Compliance Status
<u>Environment</u> GNHAR shall ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Borrower relating to environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the IEE, the EMP, and any corrective or preventative actions (i) set forth in a Safeguards Monitoring Report; or (ii) which are subsequently agreed between ADB and GNHAR.	Complied during this reporting period.
<u>Spoil and Waste Management</u> GNHAR shall, and shall cause the IAs, to ensure that (a) focal points for EMP implementation are provided within their offices; (b) Works are not commenced until the relevant authority of the Borrower has designated and	Complied during this reporting period.

approved the required sites for disposing off the spoil and waste generated by the Project; (c) all excavated spoil and construction and demolition waste generated during construction under the Project shall be temporarily stored or permanently disposed of at designated sites only; and (d) these designated sites are at least 300 meters away from any water body.	
<p><u>Environmental Consideration for Yunwushan Nature Reserve (YNR)</u></p> <p>GNHAR shall cause Yuanzhou County Transport Bureau to ensure that (a) YNR Management Bureau is consulted during detailed design and implementation phases for Guating-Guyuan Road and Wanzhang-Sanying Road under the Project; (b) no Works, having direct impact on YNR, are undertaken or financed under the Project; (c) appropriate species are used in landscaping for roads close to YNR that are consistent with grassland species found at YNR; and (d) invasive and exotic species are avoided in landscaping for roads close to YNR.</p>	The project financed by ADB does not pass through Yunwushan nature reserve, and the section near Yunwushan Nature Reserve has no adverse impact on the reserve.
<p><u>Noise Mitigation Measures</u></p> <p>GNHAR shall, and shall cause the IAs, to ensure that (a) measures described in the IEE and EMP for traffic noise mitigation are implemented; and. (b) future noise monitoring is carried out by the operations and maintenance units of the concerned counties.</p>	Complied during this reporting period.
<p><u>Human and Financial Resources to Implement Safeguards Requirements</u></p> <p>GNHAR shall, and shall cause the IAs, to make available necessary budgetary and human resources to fully implement the EMP, the RPs and the EMDP.</p>	Complied during this reporting period.
<p><u>Safeguards - Related Provisions in Bidding Documents and Works Contracts</u></p> <p>GNHAR shall ensure that all bidding documents and contracts for Works contain provisions that require contractors to:</p> <p>(a) comply with the measures relevant to the contractor set forth in the IEE, the EMP, the RPs and the EMDP (to the extent they concern impacts on the respective affected people under the Environmental Safeguards, the Involuntary Resettlement Safeguards and the Indigenous Peoples Safeguards during construction), and any corrective or preventative actions set forth in (i) a Safeguards Monitoring Report; or (ii) subsequently agreed between ADB and GNHAR;</p> <p>(b) make available a budget for all such environmental and social measures;</p> <p>(c) provide GNHAR with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the RPs and the EMDP;</p>	Complied during this reporting period.

<p>(d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and</p> <p>(e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.</p>	
<p>Safeguards Monitoring and Reporting</p> <p>GNHAR shall do the following:</p> <p>(a) Submit Safeguards Monitoring Reports to ADB</p> <ul style="list-style-type: none"> • in respect of implementation of and compliance with Environmental Safeguards and the EMP, annually during construction and the implementation of the Project and the EMP, and thereafter annually during operation, until the issuance of ADB's Project completion report unless a longer period is agreed in the EMP; and • in respect of implementation of and compliance with Involuntary Resettlement Safeguards and Indigenous Peoples Safeguards and of the RPs and EMDP, semi-annually during the implementation of the Project, the RPs and the EMDP -until the issuance of ADB's Project completion report unless a longer period is agreed in the EMDP and/or RPs <p>and disclose relevant information from such reports to the respective affected people under the Environmental Safeguards, the Involuntary Resettlement Safeguards and the Indigenous Peoples Safeguards promptly upon submission;</p> <p>(b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the RPs and the EMDP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and</p> <p>(c) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP, the RPs or the EMDP promptly after becoming aware of the breach.</p>	<p>Four environmental monitoring reports have been submitted in January 2018, March 2019, January 2020 and January 2021 respectively. The internal monitoring unit conducted two phases of on-site environmental monitoring in March and July 2021.</p>
<p>Safeguards – Prohibited List of Investments</p> <p>GNHAR shall ensure that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of SPS.</p>	<p>Complied during this reporting period.</p>
<p>Applicability of SPS to the Entire Project</p> <p>GNHAR shall, and shall cause the IAs, to ensure that the part of the Project financed by the Borrower is implemented in accordance with relevant provisions of SPS.</p>	<p>Complied during this reporting period.</p>

<p>Labor Standards. Health and Safety</p> <p>GNHAR shall, and shall cause the IAs, to ensure that the core labor standards and the Borrower's applicable laws and regulations are complied with during Project implementation. GNHAR shall ensure to include specific provisions in the bidding documents and contracts financed by ADB under the Project requiring that the contractors, among other things: (a) comply with the Borrower's applicable labor law and regulations and incorporate applicable workplace occupational safety norms; (b) do not use child labor; (c) do not discriminate workers in respect of employment and occupation; (d) do not use forced' labor; (e) allow freedom of association and effectively recognize the right to collective bargaining; and (f) disseminate, or engage appropriate service providers to disseminate, information on the risks of sexually transmitted diseases, including HIV/AIDS, to the employees of contractors engaged under the Project and to members of the local communities surrounding the Project area, particularly women.</p> <p>GNHAR shall strictly monitor compliance with the requirements set forth in paragraph 15 above and provide ADB with regular reports.</p>	<p>Complied during this reporting period</p>
<p>Grievance Redress Mechanism</p> <p>GNHAR shall, and shall cause the IAs, to ensure that a joint safeguards grievance redress mechanism acceptable to ADB is established in accordance with the provisions of the IEE, the EMP, the RPs, and the EMDP at the Project management office and the Transport Bureaus of the Project Counties, within the timeframes specified in the relevant IEE, EMP, RPs, and EMDP, to consider safeguards complaints. GNHAR shall further ensure that the grievance redress processes and procedures are made available to all affected people and their grievances are resolved in a timely mariner and recorded for monitoring purposes.</p>	<p>Complied during this reporting period.</p>

C. Implementation Progress of Environmental Contract Clauses

15 As agreed in the Project EMP, the following contract clauses for safeguarding the environment and safety during construction shall be incorporated into all tender documents for civil work packages for improving the rural trunk roads and feeder roads (Output 1). Table 4 shows the agreed specific clauses to be included in the contracts and summaries the status during this reporting period.

Table 4. Implementation Status of Environmental Contract Clauses

Proposed Environmental Contract Clauses	Implementation Status
<p>1. <u>Siting of construction facilities:</u></p> <p>1.1 Locations of asphalt/concrete mixing stations shall be at least 300 m downwind of the nearest air quality and noise protection target.</p> <p>1.2 Locations of borrow areas shall be at least 300m from residential areas.</p> <p>1.3 Borrow areas and spoil disposal sites with long, steep slopes, susceptible to erosion shall be avoided and shall include small level cut-off drains to break up and redirect runoff.</p> <p>1.4 Access and haul roads shall be constructed at sufficient distances from residential areas, in particular, local schools, health clinics and hospitals.</p>	<p>The mixing stations and quarry are located 300 meters away from the residential area, and the construction access road is far enough from the residential area.</p>
<p>2. <u>Construction time:</u></p> <p>2.1 There shall be no night time (between 22:00 and 06:00 hours) construction on new road sections and new bridges.</p> <p>2.2 If night time construction on existing road sections is needed, construction activities shall stay at least 500 m from the nearest household. Night time construction within 500 m from the nearest household shall be prohibited.</p>	<p>No construction at night.</p>
<p>3. <u>Protection of air quality</u></p> <p>3.1 Watering of unpaved areas, haul roads and exposed dust-prone stockpiles shall be undertaken at least two times each day.</p> <p>3.2 Water shall be sprayed to the working face to suppress dust during the removal of existing pavement and during backfilling.</p> <p>3.3 Frequently travelled haul roads and construction sites and construction staging area exits shall be paved with gravel or asphalt.</p> <p>3.4 Vehicle speed in unpaved areas including unpaved haul roads shall be limited to ≤ 8 km/h. Speed limit signs shall be posted in these areas.</p> <p>3.5 Wheel washing equipment shall be installed or wheel washing shall be conducted manually at each exit of the works area and asphalt/concrete mixing station to prevent trucks from carrying muddy or dusty substance onto public roads.</p> <p>3.6 Dust prone materials shall be stored in areas with shelters on four sides and on top. If such materials have to be stored in open area, strong tarpaulin shall be used to cover the materials.</p>	<p>Dust suppression measures such as watering and covering have been taken during the construction, but according to the on-site investigation and monitoring, the construction dust is still the main pollution source</p>

<p>3.7 Vehicles with an open load-carrying case, which transport potentially dust-producing materials, shall have proper fitting sides and tail boards. Dust-prone materials shall not be loaded to a level higher than the side and tail boards, and shall always be covered with a strong tarpaulin.</p> <p>3.8 Unauthorized burning of construction and demolition waste material and refuse is prohibited and shall be subject to penalties and withholding of payment.</p> <p>3.9 Asphalt, hot mix and batching plants shall be equipped with fabric filters and/or wet scrubbers to reduce the level of dust emissions.</p> <p>3.10 Personal protective equipment such as goggles, gloves and respirators shall be provided to construction workers doing asphalt concrete and cement concrete road paving to minimize skin exposure to and inhalation of fumes and dust.</p>	
<p>4. <u>Protection of the acoustic environment</u></p> <p>4.1 Machinery shall be maintained and repaired regularly and properly to keep them in good working condition and to minimize noise.</p> <p>4.2 Low noise machinery or equipment with sound insulation shall be deployed when working within 100 m from villages or townships.</p> <p>4.3 Temporary hoardings or hoardings shall be erected around the equipment to shield the noise from equipment when there are residences, schools, health clinics or mosques within 80 m from the noise source.</p> <p>4.4 Suitable hearing protection (such as ear muffs) shall be provided to construction workers.</p> <p>4.5 The use of horns is forbidden unless absolutely necessary. The use of whistles shall be minimized.</p>	<p>During construction, the impact of construction noise is reduced by strengthening management and maintaining equipment. No environmental complaints caused by construction noise occurred during the construction period.</p>
<p>5. <u>Protection of water quality</u></p> <p>5.1 Portable toilets and small package wastewater treatment plants shall be provided on construction sites and construction camps for the workers. If there are nearby public sewers, interim storage tanks and pipelines shall be installed to convey wastewater to public sewers. Runoff from construction sites and construction camps shall be collected and treated with drainage provisions.</p> <p>5.2 Sedimentation tanks shall be installed and operated on construction sites, asphalt /concrete mixing stations and pre-casting yards to treat process water (e.g. concrete batching</p>	<p>The project crosses few water bodies and mainly seasonal rivers. The environmental monitoring results during the construction period show that there is no water pollution during the construction period of the project.</p>

<p>for bridge construction) and muddy runoff with high concentrations of suspended solids. If necessary, flocculants such as polyacryl amide (PAM) shall be used to facilitate sedimentation.</p> <p>5.3 Mitigation measures such as placement of sandbags or berms shall be deployed around foundation and shoreline works during construction of river crossing road bridge foundations to contain muddy water runoff. Slurry from bored piling in the river bed shall be pumped to sedimentation pond on shore for settling.</p> <p>5.4 Machinery for bridge construction shall be repaired and washed at designated locations at least 100 m from the water body. No machine repair and washing on bridge construction site shall be allowed.</p> <p>5.5 Storage and fueling facilities for fuels, oil, and other hazardous materials shall be located within secured areas on impermeable surfaces at least 300 m away from water bodies, and provided with bunds and cleanup kits. If refueling in the field is required, it shall be done from road-licensed fuel trucks away from water courses or other environmentally sensitive areas.</p> <p>5.6 Material stockpiles shall be protected against wind and runoff waters which might transport them to surface waters. There shall be no storage of materials and equipment in or close to water bodies. Temporary storage of materials and equipment on river banks, if necessary, shall be short-term and protected to prevent run-off polluting river water.</p> <p>5.7 Any chemical spills into water bodies shall be cleaned up according to PRC norms and codes within 24 hours of the occurrence, with contaminated soils and water treated according to PRC norms and codes. Records must be handed over without delay to the Project Management Office and local Environmental Protection Bureau.</p>	
<p>6. <u>Protection of biological resources and wildlife</u></p> <p>6.1 Construction workers are prohibited from capturing any wildlife during construction.</p> <p>6.2 Existing trees and grassland shall be protected during construction. Trees and shrubs shall only be removed as the last resort if they impinge directly on the permanent works or necessary temporary works.</p> <p>6.3 Where a tree has to be removed or an area of grassland disturbed,</p>	<p>There is no damage to wild animals and plants during the construction period of the project.</p>

<p>trees shall be replanted and the area revegetated after construction. Tree planting shall use local species with local provenance. Planting of exotic or invasive species shall be prohibited.</p> <p>6.4 No construction staging area, borrow area, spoil disposal site and haul road shall be established within a local, provincial and national protected area.</p>	
<p>7. <u>Solid waste management, earth works and soil erosion</u></p> <p>7.1 Reuse of earth cut materials and construction and demolition waste shall be maximized on the project, including the reuse of old asphalt or concrete road pavement for subgrade materials.</p> <p>7.2 All soil erosion prevention measures listed in the domestic Environmental Impact Reports shall be included in the design of spoil disposal sites</p> <p>7.3 Spent borrow areas and spoil disposal sites shall be rehabilitated and vegetated within one month after closure to prevent soil erosion and dust generation.</p> <p>7.4 All refuse and construction and demolition waste generated on construction sites and construction staging areas shall be stored in designated areas and regularly removed from these locations for disposal or reuse.</p>	<p>The recyclable building materials are recycled. The borrow and spoil areas and other large temporary projects are restored while being used. After use, the borrow and spoil ground is leveled.</p>
<p>8. <u>Construction site sanitation</u></p> <p>8.1 Contractor shall provide adequate and functional systems for sanitary conditions, toilet facilities, waste management, labor dormitories and cooking facilities.</p> <p>8.2 The site shall be effectively cleaned and disinfected. During site formation, the site shall be sprayed with phenolated water for disinfection. Toilets and refuse bins shall be disinfected and timely removal of solid waste shall be ensured.</p> <p>8.3 Rodents on site shall be exterminated at least once every 3 months. Mosquitoes and flies shall be exterminated at least twice each year.</p> <p>8.4 Public toilets shall be provided in accordance with the requirements of labor management and sanitation departments in the living areas on construction site, and designated staff responsible for cleaning and disinfection shall be appointed.</p> <p>8.5 Work camp wastewater shall be discharged into the municipal sewer system or treated on-site using portable systems or septic tanks.</p>	<p>The construction camp is equipped with toilets and canteens, which are disinfected and cleaned regularly. The sewage septic tank in the camp is cleaned and transported regularly after treatment.</p>
<p>9. <u>Occupational safety</u></p>	<p>An environmental officer</p>

<p>9.1 At least one environment, health and safety (EHS) officer shall be appointed to manage occupational health and safety risks on construction sites.</p> <p>9.2 Personal protective equipment (PPE) (safety hats and shoes and high visibility vests) shall be provided to all construction workers, with strict enforcement on all workers wearing PPE.</p> <p>9.3 Ear defenders for hearing protection shall be provided to workers operating and working near noisy power mechanical equipment.</p> <p>9.4 Safety goggles and respiratory masks shall be provided to workers doing asphalt road paving and tunnel blasting.</p>	<p>has been appointed for each bid section to be responsible for the environmental, health and safety issues of the bid section. Labor protection equipment is provided for construction personnel during the construction period</p>
<p>10. <u>Food safety</u></p> <p>10.1 Food hygiene in canteens on site shall be inspected and supervised regularly. Canteen workers must have valid health permits.</p> <p>10.2 If food poisoning is discovered, effective control measures shall be implemented immediately to prevent it from spreading.</p>	<p>A good sanitary environment was ensured during construction.</p>
<p>11. <u>Disease prevention and health services</u></p> <p>11.1 All construction workers shall undergo a physical examination before start working on site. If infectious disease is found, the patient must be isolated for treatment to prevent the disease from spreading. Physical examination shall be conducted on 20% of the workers every year from the second year onwards.</p> <p>11.2 Health clinic shall be established at location where workers are concentrated, which shall be equipped with common medical supplies and medication for simple treatment and emergency treatment for accidents.</p> <p>11.3 Induction and training by local health departments on prevention and management of communicable diseases shall be provided.</p>	<p>Good disease prevention conditions were ensured during construction.</p>
<p>12. <u>Prevention and control of new coronavirus pneumonia</u></p> <p>12.1 Returning personnel. The health status of the returned employees should be mastered in advance. The returned employees should apply in advance and provide their physical condition and behavior track for nearly 14 days. After being approved by the leaders, they should be isolated for 7 days. Employees with fever, sore throat, cough and other symptoms, employees from high-risk areas, or employees who may have been exposed to confirmed cases shall provide nucleic acid negative certificate.</p> <p>12.2 Daily management. The returning personnel shall provide health code and their physical condition and behavior track in recent 14 days, and the full-time personnel shall detect and register their body temperature, and immediately report and take corresponding prevention and control measures in case of abnormal conditions; detect and supervise the wearing of masks</p>	<p>No novel coronavirus pneumonia was found during the project implementation.</p>

<p>and hand washing disinfection; external personnel (drivers of raw and auxiliary materials, etc.) shall not get off the train in the whole process of wearing masks, and carry out disinfection process; personnel in contact with external personnel They all wore masks and disposable gloves.</p> <p>12.3 Strengthen publicity and education. Through wechat, e-mail notification or online training, the staff were educated on epidemic prevention and control, and publicity materials such as health and epidemic prevention posters and wall charts were posted in the office area, factory area and living area.</p> <p>12.4 Wear masks. After entering the project area or construction site, employees can wear qualified masks and replace them on time; disposable medical masks can be worn in dormitory, canteen, bathhouse, ground duty room, office, rest room and other areas.</p> <p>12.5 Implement closed management. Strictly implement the closed management for the construction projects, assign special personnel to be responsible for the registration of entering and leaving the site and temperature detection, and set up 24-hour post on duty.</p> <p>12.6 Reduce personnel aggregation. Control the flow of personnel in different operation teams on the construction site to reduce personnel aggregation.</p>	
<p>13. <u>Social conflict prevention</u></p> <p>13.1 The following shall be prioritized: (i) employ local people for works, (ii) ensure equal opportunities for women and men, (iii) pay equal wages for work of equal value, and pay women's wages directly to them; and (iv) not employ child or forced labor.</p>	<p>Except for professional workers, almost all other temporary workers are employed local people, and men and women are equal, without labor disputes.</p>
<p>14. <u>Community health and safety</u></p> <p>14.1 A traffic control and operation plan shall be prepared together with the local traffic police prior to any construction. The plan shall include provisions for diverting or scheduling construction traffic to avoid morning and afternoon peak traffic hours, regulating traffic at road crossings with an emphasis on ensuring public safety through clear signs, controls and planning in advance.</p> <p>14.2 Residents and businesses shall be informed in advance of the road improvement activities, given the dates and duration of expected disruption and made aware of the project grievance redress mechanism.</p> <p>14.3 Clear signs shall be placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations, etc. and raising</p>	<p>There are no schools along the project. A bulletin board is set up in the project department, and a special person is assigned to guide the traffic on the construction site.</p>

<p>awareness on safety issues.</p> <p>14.4 Local communities and residents shall be alerted if night time construction work shall occur nearby (no night time construction within 500 m of the nearest household).</p> <p>14.5 Local communities shall be alerted on the time and location of hazardous and noisy activities such as piling and asphalt road paving.</p> <p>14.6 The contractor shall liaise with schools on examination periods and scale down construction activities during such periods if necessary.</p> <p>14.7 All construction sites shall be made secure and access by members of the public shall be discouraged through appropriate fencing, signage and/or security personnel, as appropriate.</p>	
<p>15. <u>Utility interruption</u></p> <p>15.1 Contractors shall assess construction locations in advance and identify potential for disruption to services and risks before starting construction. Any damage or hindrance/disadvantage to local businesses caused by the premature removal or insufficient replacement of public utilities shall be subject to full compensation, at the full liability of the contractor who causes the problem.</p> <p>15.2 If temporary disruption is unavoidable the contractor shall, in collaboration with relevant local authorities such as power company, water supply company and communication company, develop a plan to minimize the disruption and communicate the dates and duration in advance to affected persons.</p>	<p>All main line and branch line projects have started construction, without causing interference to public services.</p>
<p>16. <u>Grievance redress mechanism</u></p> <p>16.1 The contractor shall establish a grievance redress mechanism (GRM) for receiving and handling complaints. In case of a complaint, the contractor shall notify the PMO within one week and advise on the agreed solution.</p> <p>16.2 The contractor shall disclose the GRM to affected people before construction begins at the main entrance to each construction site.</p> <p>16.3 The contractor shall maintain and update a Complaint Register to document all complaints.</p>	<p>There was no appeal during the implementation of the project.</p>

Source: The Project EMP (2016)

D. Overall Project Implementation Progress

16 By December 2021, all counties had completed the construction of rural branch lines with self

raised funds. Among the seven trunk highways, the construction of Wangtuan Yuwang highway in Tongxin county was started in July 2019 and completed in November 2020. At present, the acceptance work is under way. The construction of Zhengqi Sikouzi highway in Haiyuan county from Jiucui to Sikouzi was started in March 2019 and completed in November 2020. At present, the acceptance work is under way. The construction of Guanting Guyuan highway in Yuanzhou district was started in August 2020, and the main project was completed in December 2021. At present, waterproof and drainage construction is under way. The construction of Wanzhang Sanying highway in Yuanzhou district was started in October 2020 and completed in December 2021. The construction of Jiangtai Pingfeng highway in Xiji County via Xitan was started in June 2020 and is expected to be completed on June 30, 2022. The construction of Shatang Haodian highway in Huanghua Township, Jingyuan County was started in July 2020, the main project was completed in December 2021, and it is expected to be completed on June 30, 2022. The construction of Chunshucha Chengyang Yangping highway in Mengyuan, Pengyang County was officially started in March 2021 and is expected to be completed on June 30, 2022.

E. Detailed Engineering Progress

1. Output 1: Priority rural roads rehabilitated and upgraded.

17 This component includes (i) rehabilitation and upgrading of high-volume rural trunk roads connecting high-poverty areas with national or provincial highways, and (ii) rehabilitation and paving of rural feeder roads reaching further into poor villages. Specific outputs include improvement of (i) seven rural trunk roads (266.7 km) connecting 63 administrative villages and 126 natural villages; 14 and (ii) 21 rural feeder roads (162.8 km) linking 47 administrative villages and 111 natural villages (84 of which lack paved road access). 错误!未找到引用源。 summarizes the engineering progress.

Table 5: Summary of rural roads rehabilitation and upgrade progress during the Reporting Period

Road Name	Administrative Area	Road Length (km)	Proposed Scope				Engineering Progress Status
			Road Class	Design Speed (km/h)	Subgrade Width (m)	Pavement Type	
Rural Trunk Roads							
1. Guanting–Yuanzhou District Guyuan Road	Yuanzhou District	26.3	II	60 (K0+000-K5+000)	12 (K1+245-K1+670)	Asphalt concrete	Commenced in the end of August 2020, Completed in December 2021.
				40 (K5+000-K26+330)	8.5		
2. Wanzhang–Sanying Road	Yuanzhou District	31.7	III	40	8.5	Asphalt concrete	Commenced in the middle of October 2020, Completed in December 2021.
3. Jiangtai–Xitan–Pingfeng Road	Xiji County	73.0	III	40	8.5	Asphalt concrete	Commenced in June 2020, Expected to be completed on June 30, 2022
4. Wangtuan–Yuwang Road	Tongxin County	61.5	II (K0+000-K4+165)	60	10	Asphalt concrete	Commenced in July 2019, Completed in November 2020.
			III (K4+165-K67+410)	40	8.5		
5. Mengyuan Chunshucha–Chengyang Yangping	Pengyang County	30.8 (includes 0.6 km branch road)	III	30	7.5	Asphalt concrete	Commenced in March 2021,Expected to be completed on June 30,

Road							2022.
6. Zhengqi–Jiucai–Sikouzi Road	Haiyuan County	28.4	III	30	7.5	Asphalt concrete	Commenced in March 2019, Completed in November 2020.
7. Shatang (Huanghua County)– Gaodian Road	Jingyuan County	15.0	III (K0+000-K13+423)	30	7.5	Asphalt concrete	Commenced in July 2020, Expected to be completed on June 30, 2022.
			III (branch road K0+000-K1+782)	20	6.5		
Subtotal:		266.7					
Rural Feeder Roads							
1. Hongzhuang – Dadian – Shahebian Road	Yuanzhou District	13.0	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in Operation.
2. Guhu Road – Qiaowa – Miaotai Road		10.0	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in Operation.
3. Ligou – Xiaojiashengou Road		7.0	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in Operation.
4. Ke Village – Feng Village Road		5.0	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in Operation.
5. Licha – Dongjia Village Road		5.0	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in

							Operation.
6. Caichuan – Yangjiayaoxian Road		4.4	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in Operation.
7. Wangping – Lizhang Road	Xiji County	11.5	IV	20	6.5	Cement concrete	Completed in February 2017 and now it is in Operation.
8. Daying – Ya’erpo Road		8.5	IV	20	6.5	Cement concrete	Completed in February 2017 and now it is in Operation.
9. Mawan – Caonao Road		8.5	IV	20	6.5	Cement concrete	Completed in February 2017 and now it is in Operation.
10. Bataijiao – Quancha Road		7.0	IV	20	6.5	Cement concrete	Completed in February 2017 and now it is in Operation.
11. Nanchuan – Lujiagou Road		6.0	IV	20	6.5	Cement concrete	Completed in February 2017 and now it is in Operation.
12. Tongfu Village – Shanghewan Village Road	Tongxin County	8.6	IV	15	6.5	Cement concrete	Completed in November 2016 and now it is in Operation.
13. Majiajing – Suocha Road		6.7	IV	20	6.5	Cement concrete	Completed in December 2016 and now it is in Operation.
14. Tongyu Road – Lijiagangzi – Liushubaozi		6.6	IV	20	6.5	Cement concrete	Completed in November 2016 and now it is in

Road							Operation.
15. Xiachen Road – Chen'er Village		6.1	IV	20	6.5	Cement concrete	Completed in September 2016 and now it is in Operation.
16. Caomiaoxinwa – Caochuan Road	Pengyang County	7.2	IV	20	6.5	Cement concrete	Completed in July 2017 and now it is in Operation.
17. Xiaochadiaocha – Qigeshan Road		6.0	IV	20	6.5	Cement concrete	Completed in July 2017 and now it is in Operation.
18. Xi'an – Zhangwan Road	Haiyuan County	13.3	III	30	8.5-11.5	Asphalt concrete	Completed in November 2016 and now it is in Operation.
19. Xiangtong – Huitiaogou Road		7.2	IV	20	6.5	Asphalt concrete	Completed in November 2016 and now it is in Operation.
20. Dongxia – Digou Road	Jingyuan County	6.2	IV	20	6.5	Cement concrete	Commenced in May 2019 and completed by September 2019. Now it is in Operation.
21. Zhangtian – Jinglin – Yangchuan Road	Longde County	9.0	III	30	7.5	Asphalt concrete	Completed in July 2017 and now it is in Operation.
Subtotal:		168.3					

Source: FSRs for the rural trunk roads and FSRs and construction scheme reports for the rural feeder roads. Length after realignment, original distance was 67.400km.

2. Output 2: Rural road safety and sustainability enhanced

18 Road safety enhancement is designed to apply to the seven trunk roads Rural Trunk Roads, which are at the design stage. 21 rural feeder roads have been completed and safety measures have been finished.

The outcome will be improved rural transport network in the Liupanshan area.

3. Output 3: Impact evaluation is conducted and project implementation capacity improved

19 The impact of the project is to increase the income of rural population in the Liupanshan area and reduce the incidence of poverty. The construction of the rural roads has improved the efficiency of the rural road network and shortened the transit time.

III. IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT PLAN

20 This Environmental Management Plan (EMP) is developed for the Ningxia Liupanshan Poverty Reduction Rural Road Development, which identifies the potential project environmental impacts and defines mitigation measures and monitoring requirements for the design, construction, and operational stages of the project. It also defines the institutional arrangements and mechanisms, the roles and responsibilities of different institutions, procedures and budgets for implementation of the EMP. The EMP seeks to ensure environmental protection activities during preconstruction, construction, and operation continuously improve to prevent, reduce, or mitigate adverse environmental impacts and risks.

21 Potential environmental issues and impacts during pre-construction, construction and operation phases, and corresponding mitigation measures. Table 6 shows the summary of implementation status on mitigation measures during this reporting period.

22 There is no update in EMP due to detailed engineering design change.

Table 6: Summary of Potential Impacts and Mitigation Measures and their Implementation Status

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
A: Mitigation measures applicable to all rural trunk roads and rural feeder roads						
A.1: Detailed Design Stage						
Conservation of natural resources	Soil resources	Loss of land and topsoil and increased risk of erosion	<ul style="list-style-type: none"> Minimize permanent and temporary land take for development. Optimize balance between cut and fill and avoid deep cuts and high embankments to minimize earthworks. Maximize reuse of spoil and old asphalt paving material within the construction or adjacent construction works. Agree spoil disposal sites, management and rehabilitation plan with local Environment Protection Bureau Specify the storage of topsoil (10-30cm) removed prior to main earthworks for restoration works Specify vegetation that serves specific bioengineering functions. Design engineering measures for prevention of soil erosion according to recommendations in the EIRs. 	LDI	PMO	<ul style="list-style-type: none"> Design has been carefully reviewed to minimize permanent and temporary land take for development. Design has been carefully reviewed to minimize earthworks. Topsoil has been stored as needed. Vegetation has been included in details design to use as much as local species. Measures for prevention of soil erosion have been designed.
	Materials	Efficient use of resources	<ul style="list-style-type: none"> Maximize the re-use of C&D wastes on the project, including the re-use of old asphalt or concrete road pavements for subgrade materials Specify materials that are recycled, have recycled content or are from sustainable sources, particularly for road furniture, fixtures/fittings. Specify energy efficient lighting systems. Specify the use of renewable energy (such as photovoltaic panels) for signs, lighting, where appropriate. 	LDI	PMO	<ul style="list-style-type: none"> The recyclable materials are fully recycled
Design of road alignment, road surface, drainage, flood control, lighting and construction staging areas	Extreme weather event	Road surface cracking due to extreme hot or cold weather, landslide and flooding due to torrential rainfall	<ul style="list-style-type: none"> Consider potential impacts from extreme weather events in designing road subgrade, pavement, road-side slopes, drainage system, bridges and culverts including but not limited to the following: <ul style="list-style-type: none"> Bridge (river crossing) and drainage design shall adopt a 15% flood volume increase. The key solution to water damage to the roads shall start with a proper design of an integrated drainage system. (Due diligence indicated that the bridges satisfied the national standard after the 15% flood volume increase and the drainage design in the FSRs was considered to be adequate with 15% runoff or flood water volume increase.) The following methods for enhancing the physical strength of loess for road development in particular new road sections shall be considered: 	LDI	PMO	<ul style="list-style-type: none"> Measures to mitigate potential impacts from extreme weather events have been included in the details design, particularly for bridge design.

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			<ul style="list-style-type: none"> ◆.....Replace the loess with suitable foundation materials ◆.....Compact the loess foundation with rammer ◆.....Compact the loess with fly ash or lime soil poles. Use fly ash or lime as the stabilization agent to the subgrade ◆.....Use suitable compactor equipment such as vibratory compactor machine in road embankment construction ■ For road sections that are under high landslide threat, appropriate interception ditches shall be designed and applied to landslide prone sections to reduce the landslide risks. Necessary engineering slope stabilization measures shall be considered in the detailed design. Shotcrete grid together with re-grassing has been demonstrated to have the best result for the project area. ● Adopt appropriate protective measures such as vegetation cover, geotextiles, settling basins, permeable paving, infiltration ditches, stepped slopes, riprap, crib walls, retaining walls and intercepting ditches to reduce the speed of surface run-off. 			
	Ecology	Loss of vegetation	<ul style="list-style-type: none"> ● Technical design of new road sections will avoid intact woodland and mature trees ● If avoidance is not possible, design replanting schemes for compensation 	LDI	PMO	<ul style="list-style-type: none"> ● Have been considered in the design. ● No trees are under protection at any level.
	Health and safety	Protection of vulnerable road users	<ul style="list-style-type: none"> ● Design must ensure public health and safety, especially pedestrians and school zones 	LDI	PMO	<ul style="list-style-type: none"> ● Protective measures have been included in the design.
	Air emissions	Construction emissions	<ul style="list-style-type: none"> ● Specify local materials from licensed providers that minimize transport distance. ● Locations for asphalt mixing and concrete batching stations must be at least 300 m downwind of the nearest household. 	LDI	PMO	<ul style="list-style-type: none"> ● Local suppliers are used as many as possible. ● The site selection of asphalt mixing station and concrete mixing station met the requirements.
	Water quality	Polluted run-off into water bodies	<ul style="list-style-type: none"> ● Technical design of road drainage to ensure that drainage design and discharge locations minimize risk of polluting nearby water bodies. ● Locations of spoil disposal sites must be at least 300 m from the nearest water body. 	LDI	PMO	<ul style="list-style-type: none"> ● Retention tanks have been included in the detailed design for seven rural trunk roads. ● The spoil disposal sites are 300 meters away from the nearest water body
A.2: Pre-construction Stage						
Institutional strengthening	-	Lack of environmental	<ul style="list-style-type: none"> ● Appoint qualified environment specialist on staff within PMO ● Contract EEM within PMC services 	PMO	ADB	<ul style="list-style-type: none"> ● Appointed. ● EEM has been contracted.

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
		management capacities within PMO and IAs	<ul style="list-style-type: none"> Conduct environment management training. 			<ul style="list-style-type: none"> Environmental management training has been carried out
	-	Lack of environmental monitoring capability and qualification	<ul style="list-style-type: none"> Contract local EMS to conduct environmental quality monitoring during construction. Contract local EMS to conduct environmental quality monitoring during the operational stage. 	IAs	PMO	<ul style="list-style-type: none"> Two phases of environmental monitoring were carried out in 2021.
				O&M units	PMO	<ul style="list-style-type: none"> Environmental monitoring has been contracted.
EMP Update	-	-	<ul style="list-style-type: none"> Review mitigation measures defined in this EMP, update as required to reflect detailed design, disclose updated EMP on project website. 	PMO, EEM	ADB	/
Tender and contract documents	-	Environmental contract clauses-	Put into all civil works tender documents and contracts the environmental contract clauses listed in Section I of this EMP	PMO, IAs, Tendering Agent	EEM, ADB	<ul style="list-style-type: none"> EMP has been included as part of the tender documents.
A.3: Construction Stage						
Construction site good practice	Soil resources	Spoil disposal and borrow area	<ul style="list-style-type: none"> Locate borrow areas at least 300m from residential areas. Avoid borrow areas and spoil disposal sites with long, steep slopes, susceptible to erosion and include small level cut-off drains to break up and redirect runoff. Strip and store topsoil in a stockpile for reuse in restoration. Use spoil disposal sites approved by local EPB and manage in accordance with approved design. Avoid side casting of spoil on slopes. Rehabilitate and restore spoil disposal sites within one month after site closure. 	Contractors	IAs, ESE, EEM	Well implemented
		Soil erosion	<ul style="list-style-type: none"> Install and implement soil erosion prevention measures in all construction sites, construction staging areas and spoil disposal sites in accordance with approved EIR requirements. Stabilize all cut slopes, embankments and other erosion-prone working areas while works are ongoing. Implement permanent stabilization measures as soon as possible, at least within 30 days. Pay close attention to drainage provision and establishment of vegetation cover on backfilled areas to prevent soil erosion. If restoration is carried out during periods of hot or extreme weather, ensure adequate aftercare to maximize survival. Implement protection measures for river embankment works, cut slopes, material stockpiles and other areas at risk of soil erosion prior to periods of heavy rainfall. 	Contractor	IAs, ESE, EEM	Well implemented
		Soil contamination	<ul style="list-style-type: none"> Properly store petroleum products, hazardous materials and waste in clearly labeled containers on an impermeable surface in secure and covered areas, with a containment tray or provided with bunds for any 	Contractor	IAs, ESE, EEM	Well implemented

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			leaks. • Develop spill response plan. Keep a stock of absorbent materials (e.g. sand, earth or commercial products) on site to deal with spillages and train staff in their use. • If there is a spill take immediate action to prevent entering drains, watercourses, unmade ground or porous surfaces. Do not hose the spillage down or use any detergents use oil absorbents and dispose of used absorbents at a waste management facility. • Record any spill events and actions taken in environmental monitoring logs and report to EEM. • Remove all construction & demolition waste from the site to approved waste disposal sites.			
	Air quality	Dust (TSP) during construction	• Spray water at least twice each day on unpaved areas, haul roads and exposed dust-prone stockpiles. Frequency to be increased if construction activities are generating dust and/or during windy conditions. • During the removal of existing pavement and during backfilling, spray water to the working face to suppress dust. • Pave frequently travelled haul roads and construction site and construction staging area exits with gravel or asphalt. • Control vehicle speed to ≤ 8 km/h in unpaved areas including unpaved haul roads. Post the speed limit sign in these areas. • Install wheel washing equipment or conduct wheel washing manually at each exit of the works area and asphalt/concrete mixing station to prevent trucks from carrying muddy or dusty substances on public roads. • Store dust-prone materials in areas with shelters on four sides and on top. If such materials have to be stored in open area, cover with strong tarpaulin. • Vehicles with an open load-carrying case, which transport potentially dust-producing materials, shall have proper fitting sides and tail boards. Dust-prone materials shall not be loaded to a level higher than the side and tail boards, and shall always be covered with a strong tarpaulin. • Unauthorized burning of construction and demolition waste material and refuse shall be subject to penalties for the Contractor, and withholding of payment.	Contractor	IAs, ESE, EEM	Well implemented. During the construction period, the monitoring results showed that TSP did not exceed the standard.
		Fumes and particulate matter from asphalt mixing plant.	• Site asphalt/concrete mixing stations at least 300m downwind of the nearest household (plant noise is the limiting factor). • Equip asphalt, hot mix and batching plants with fabric filters and/or wet scrubbers to reduce the level of dust emissions.	Contractor	IAs, ESE, EEM	Well implemented

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
		concrete batching plant and during asphalt road paving	<ul style="list-style-type: none"> Provide personal protective equipment (PPE) such as goggles, gloves and respirators to construction workers doing asphalt concrete and cement concrete road paving to minimize skin exposure to and inhalation of fumes and dust. 			
	Noise and vibration	Noise from PME and vehicles	<ul style="list-style-type: none"> During daytime construction, the contractor will: <ul style="list-style-type: none"> properly maintain machinery to minimize noise; deploy low noise machinery or the equipment with sound insulation when working within 100 m from villages or townships; site asphalt/concrete mixing stations and pre-casting yards at least 300 m away and downwind (for air quality purpose) from the nearest sensitive receptor; and erect temporary noise barriers or hoardings around construction activities to shield the noise from equipment when there are residences, schools, health clinics or mosques within 80 m of the noise source. For all new road sections and new bridges, there will be no night time (between 22:00 and 06:00 hours) construction. For existing road sections, night time construction shall be avoided. Yet, recognizing that construction occasionally would require some works to be conducted at night to take advantage of less road traffic or to avoid worsening day time traffic conditions. If night time construction work is needed, nearby residents should be notified of such night time activities well beforehand. No night time (between 22:00 and 06:00 hours) work shall be allowed on existing road sections that are within 500m of the nearest household. Provide the construction workers with suitable hearing protection (ear muffs). Ensure regular equipment repair and maintenance to keep them in good working condition. Forbid the use of horns unless absolutely necessary, minimize the use of whistles. 	Contractor	IA, ESE, EEM	Well implemented. The monitoring results during construction show that the acoustic environment quality meets the standard.
	Water quality	Construction site runoff and wastewater discharge	<ul style="list-style-type: none"> Provide portable toilets and small package wastewater treatment plants and/or septic tanks on construction sites and construction camps for the workers. If there are nearby public sewers, install interim storage tanks and pipelines to convey wastewater to public sewers. Collect and treat site runoff from construction sites and construction camps with drainage provisions. Install and operate sedimentation tanks on construction sites, asphalt/concrete mixing stations and pre-casting yards to treat process water (e.g. concrete batching for bridge construction) and muddy runoff with high concentrations of suspended solids. If necessary, use 	Contractor	IA, ESE, EEM	Well implemented. The monitoring results during the construction period show that the water environment quality meets the standard.

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			<p>flocculants such as polyacryl amide (PAM) to facilitate sedimentation.</p> <ul style="list-style-type: none"> • Deploy mitigation measures such as placement of sandbags or berms around foundation and shoreline works during construction of river crossing road bridge foundations to contain muddy water runoff. Pump slurry from bored piling in the river bed to sedimentation pond on shore for settling. Repair and wash machinery for bridge construction at designated locations at least 100m from the water body. No onsite machine repair and washing shall be allowed. • Site storage and refueling facilities for fuels, oil, and other hazardous materials within secured areas on impermeable surfaces at least 300 m away from water bodies, and provided with bunds and cleanup kits. If refueling in the field is required, it shall be done from road-licensed fuel trucks away from watercourses or other environmentally sensitive areas. • Protect material stockpiles against wind and runoff water which might transport them to surface waters. There shall be no storage of materials and equipment in or close to water bodies. Temporary storage of materials and equipment on river banks, if necessary, shall be short-term and protected to prevent run-off polluting river water. • Clean up any chemical spills into water bodies according to PRC norms and codes within 24 hours of the occurrence, with contaminated soils and water treated according to PRC norms and codes. Records must be handed over without delay to the PMO and local EPB. • Mitigation of water quality impact during river crossing bridge construction shall be based on water quality monitoring results. At each river crossing bridge construction location, upstream and downstream monitoring stations will be set up and SS levels monitored. When the SS levels at the downstream impact station is 130% higher than the SS levels at the upstream control station, the contractor shall adopt alternative construction methods or additional mitigation measures until the downstream SS level is less than 130% above the upstream SS level. 			
	Solid waste	Construction site refuse and spoil disposal	<ul style="list-style-type: none"> • Maximize the re-use of earth cut materials and C&D wastes on the project, including the re-use of old asphalt or concrete road pavements for subgrade materials. • Site borrow pits and spoil disposal sites at least 300m from residential areas so as to reduce dust and noise from these sites. • Include all soil erosion prevention measures listed in the EIRs in the design of spoil disposal sites. • Rehabilitate and vegetate spent borrow areas and spoil disposal sites within one month after closure to prevent soil erosion and dust 	Contractor	IA, ESE, EEM	<p>Well implemented.</p> <p>So far, no solid waste pollution has occurred. Jingyuan County is set up with a waste slag yard, which is located within the permanent land occupation; Three waste disposal sites in Haiyuan county have gone through the restoration</p>

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			<ul style="list-style-type: none"> generation. Store all refuse and C&D waste generated on construction sites and construction staging areas in designated areas and remove them from these locations for disposal or reuse regularly. 			procedures; There are 5 spoil sites in Pengyang County, and temporary land agreement has been handled. See Annex 1; The agreement on temporary land use has been completed in the original state District, see Annex 2; The temporary land agreement has been completed in Xiji County. There is no waste dump in Tongxin county.
	Ecology	Destruction of vegetation and wildlife	<ul style="list-style-type: none"> Construction workers are prohibited from capturing any wildlife during construction. Protect existing trees and grassland during construction; remove trees or shrubs only as the last resort if they impinge directly on the permanent works or necessary temporary works. Where a tree has to be removed or an area of grassland disturbed, replant trees and re-vegetate the area after construction. Construction staging areas, haul roads, spoil disposal sites and borrow areas are not allowed to be established within the boundary of the Yunwushan National Nature Reserve 	Contractor	IA, ESE, EEM	Well implemented. So far, there is no damage to vegetation and wildlife
	Physical cultural resources	Destruction of buried cultural relics	<ul style="list-style-type: none"> Comply with PRC's Cultural Relics Protection Law and Cultural Relics Protection Law Implementation Ordinance if such relics are discovered, stop work immediately and notify the local cultural authority, adopt measures to protect the site. 	Contractor	IA, ESE, EEM	Well implemented. So far, no cultural relics have been found.
	Overall disturbance to communities	Excessive disturbance to communities due to prolonged construction times	<ul style="list-style-type: none"> Identify and adhere to strict schedule for completion of each road section and avoid prolonged construction and disturbance. Keep communities informed of construction activities, in particular those that may result in disruption of access, night-time working or noisy or dust-generating activities that are likely to result in significant disturbance. Ensure communities are aware of Grievance Redress Mechanism entry points. 	Contractor	IA, ESE, EEM	Well implemented. So far, there have been no complaints about interference.
Health and Safety	Occupational health and safety	Environment, health & safety officer	<ul style="list-style-type: none"> Appoint at least one environment, health and safety (EHS) officer to manage occupational health and safety risks on construction sites by applying the following measures. 	Contractor	IAs, ESE, EEM	Well implemented. Each county has appointed an environmental, health and safety officer.
		Construction site sanitation	<ul style="list-style-type: none"> Provide adequate and functional systems for sanitary conditions, toilet facilities, waste management with waste separation, labor dormitories and cooking facilities. Effectively clean and disinfect the site. During site formation, spray 	Contractor	IAs, ESE, EEM	Well implemented

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			<ul style="list-style-type: none"> with phenolated water for disinfection. Disinfect toilets and refuse bins and ensure timely removal of solid waste. Exterminate rodents on site at least once every 3 months, and exterminate mosquitoes and flies at least twice each year. Provide public toilets in accordance with the requirements of labor management and sanitation departments in the living areas on construction site, and appoint designated staff responsible for cleaning and disinfection Discharge work camp wastewater into the municipal sewer system or treated on-site using a portable system. 			
		Occupational safety	<ul style="list-style-type: none"> Provide personal protective equipment (safety hats and shoes and high visibility vests) to all construction workers and strictly enforce all workers to put on the PPE. Provide safety goggles, gloves and respiratory masks to workers doing asphalt road paving. Provide ear defenders to workers operating and working near noisy PME. Prepare and obtain approvals of method statements for hazardous activities such as working near water. 	Contractor	IAs, ESE, EEM	Well implemented
		Food safety	<ul style="list-style-type: none"> Inspect and supervise food hygiene in canteens on site regularly. Canteen workers must have valid health permits. If food poisoning is discovered, implement effective control measures immediately to prevent it from spreading. 	Contractor	IAs, ESE, EEM	Well implemented
		Disease prevention and safety awareness	<ul style="list-style-type: none"> Construction workers must have physical examination before starting work on site. If infectious disease is found, the patient must be isolated for treatment to prevent the disease from spreading. From the second year onwards, conduct physical examination on 20% of the workers every year. Establish health clinic at location where workers are concentrated, which should be equipped with common medical supplies and medication for simple treatment and emergency treatment for accidents. Provide induction and training by local health departments on prevention and management of communicable diseases. 	Contractor	IAs, ESE, EEM	Well implemented
		Prevention and control of new coronavirus pneumonia	<ul style="list-style-type: none"> Returning personnel. The health status of the returned employees should be mastered in advance. The returned employees should apply in advance and provide their physical condition and behavior track for nearly 14 days. After being approved by the leaders, they should be isolated for 7 days. Employees with fever, sore throat, cough and other symptoms, employees from high-risk areas, or employees who may have been exposed to confirmed cases shall 	Contractor	IAs, ESE, EEM	Well implemented. No novel coronavirus pneumonia was found during the project implementation.

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			<ul style="list-style-type: none"> provide nucleic acid negative certificate. Daily management. The returning personnel shall provide health code and their physical condition and behavior track in recent 14 days, and the full-time personnel shall detect and register their body temperature, and immediately report and take corresponding prevention and control measures in case of abnormal conditions; detect and supervise the wearing of masks and hand washing disinfection; external personnel (drivers of raw and auxiliary materials, etc.) shall not get off the train in the whole process of wearing masks, and carry out disinfection process; personnel in contact with external personnel They all wore masks and disposable gloves. Strengthen publicity and education. Through wechat, e-mail notification or online training, the staff were educated on epidemic prevention and control, and publicity materials such as health and epidemic prevention posters and wall charts were posted in the office area, factory area and living area. Wear masks. After entering the project area or construction site, employees can wear qualified masks and replace them on time; disposable medical masks can be worn in dormitory, canteen, bathhouse, ground duty room, office, rest room and other areas. Implement closed management. Strictly implement the closed management for the construction projects, assign special personnel to be responsible for the registration of entering and leaving the site and temperature detection, and set up 24-hour post on duty. Reduce personnel aggregation. Control the flow of personnel in different operation teams on the construction site to reduce personnel aggregation. 			
	Community health and safety	Temporary traffic management	<ul style="list-style-type: none"> Prepare a traffic control and operation plan together with the local traffic police prior to any construction. The plan shall include provisions for diverting or scheduling construction traffic to avoid morning and afternoon peak traffic hours, regulating traffic at road crossings with an emphasis on ensuring public safety through clear signs, controls and planning in advance. In case of lane closures, deploy workers to direct traffic. Erect speed limit signs of 8 km/h on all unpaved haul roads and unpaved construction site areas as a means of controlling fugitive dust emission in unpaved areas. 	Contractor, local traffic police	IAs, ESE, EEM	Well implemented

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
		Information disclosure	<ul style="list-style-type: none"> Erect construction billboards, which include construction contents, schedule, responsible person and complaint phone number, at the entry to each construction site and construction staging area. Inform residents and businesses in advance of the road improvement activities, given the dates and duration of expected disruption and make aware of the project GRM. Place clear signs at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations etc. and raising awareness on safety issues. Alert communities and residents if night time construction work shall occur nearby (no night time construction within 500 m of the nearest household). Alert local communities of the time and location of hazardous and noisy activities such as piling and asphalt road paving. Liaise with schools on examination periods and scale down construction activities during such periods if necessary. 	Contractor	IAs, ESE, EEM	Well implemented
		Access to construction sites	<ul style="list-style-type: none"> Make all sites secure, and discourage access by members of the public through appropriate fencing, signage and/or security personnel, as appropriate. 	Contractor	IAs, ESE, EEM	Well implemented. There are obvious signs around the construction site.
		Utility services interruptions	<ul style="list-style-type: none"> Assess construction locations in advance and identify potential for disruption to services and risks before starting construction. Any damage or hindrance/disadvantage to local businesses caused by the premature removal or insufficient replacement of public utilities is subject to full compensation, at the full liability of the contractor who caused the problem. If temporary disruption is unavoidable, develop a plan in collaboration with relevant local authorities such as power company, water supply company and communication company to minimize the disruption and communicate the dates and duration in advance to affected persons. 	Contractor, local utility service providers	IAs, ESE, EEM	Well implemented
Grievance redress mechanism	Social & environmental	Handling and resolving complaints on contractors	<ul style="list-style-type: none"> Establish a GRM, appoint a GRM coordinator within PMO Brief and provide training to GRM access points (PMO, IAs, contractors). Disclose GRM to affected people before construction begins at the main entrance to each construction site. Maintain and update a Complaint Register to document all complaints. 	Contractor, IAs, PMO,	Local EPBs, EEM	Well implemented. During the construction period of the project, we conducted public opinion surveys and clarified the appeal mechanism. No appeal has been received during the construction period.
A.4: Operational Stage						
Project roads	Traffic	Road and drainage	Regularly inspect and maintain the road surface and drainage system.	County	PMO	Well implemented in rural

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
		condition		Transport Bureaus		feeder roads.
		Road safety and traffic accidents	Strictly enforce traffic law to improve road safety and reduce traffic accidents.	Local traffic police	PMO	Well implemented in rural feeder roads.
B: Rural trunk road: Yuanzhou District: Guanting – Yuanzhou District Guyuan Road						
B.1: Operational Stage						
Installation of double glazed windows	Traffic noise	Traffic noise affecting existing sensitive receptors	Replace the windows having a direct line of sight to the road with double glazed windows at the following sensitive receptors 1. Guanting Town 官厅镇 (maximum 10 households) 2. Cheng'ershan Village 程儿山村 (maximum 4 households)	Yuanzhou District Transport Bureau	PMO	It is not implemented. Considering the small traffic volume, the existing building structure is not suitable for installing double-layer sound insulation windows, and the existing noise meets the standard. During the operation period, noise reduction measures will be considered according to the monitoring results.
C: Rural trunk road: Tongxin County: Wangtuan – Yuwang Road						
C.1: Operational Stage						
Installation of double glazed windows	Traffic noise	Traffic noise affecting existing sensitive receptors	Replace the windows having a direct line of sight to the road with double glazed windows at the following sensitive receptors 1. Qianhong Village 前红村 (maximum 96 households) 2. Mujiagou Mosque 穆家沟清真寺 3. Qianhong Grand Mosque 前红清真大寺	Tongxin County Transport Bureau	PMO	It is not implemented. Considering the small traffic volume, the existing building structure is not suitable for installing double-layer sound insulation windows, and the existing noise meets the standard. During the operation period, noise reduction measures will be considered according to the monitoring results.
D: Rural feeder road: Yuanzhou District: Caichuan – Yangjiayaoxian Road						
D.1: Detailed Design Stage						
Yunwushan National Nature Reserve	Ecology	Protection of habitat	1. No road widening and alignment change within the nature reserve. 2. No siting of construction camp, asphalt/concrete mixing station, pre-casting yard, spoil disposal site, borrow area and haul road within the nature reserve.	LDI	PMO	The original roads are directly used in the natural reserve.
D.2: Construction Stage						
Yunwushan	Ecology	Protection of	1. No siting of construction camp, asphalt/concrete mixing station,	Contractor	Yuanzhou	The original roads are directly

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
National Nature Reserve		habitat	pre-casting yard, spoil disposal site, borrow area and haul road within the nature reserve. 2. Confine all construction activities to within the road red line, implement sufficient training of construction workforce and controls to avoid encroachment of construction activities on adjacent grassland habitats.		District Transport Bureau, ESE, EEM	used in the natural reserve.
<p>Key: ADB = Asian Development Bank; EEM = external environmental monitor; EHS = environment, health & safety; EIR = Environmental Impact Report; EMP = environmental management plan; EMS = Environmental Monitoring Station; EPB = Environmental Protection Bureau; ESE = Environmental supervision engineer; GRM = grievance redress mechanism; IA = implementing agency; IEE = initial environmental examination; LDI = local design institute; O&M = operation & maintenance; PMO = Project Management Office; PMC = Project Management Consultant; PME = powered mechanical equipment; PPE = personal protective equipment; SS = suspended solid; TSP = total suspended particulates</p>						

Source: The Project EMP.

IV. IMPLEMENTATION OF ENVIRONMENTAL MONITORING PROGRAM

23 This section presents the progress of environmental monitoring framework in details and the summary of environmental monitoring results.

A. Implementation Status of Environmental Monitoring

24 Table 7 shows the summary of implementation status on environmental quality monitoring, which was designed for different outputs of the Project. Environmental quality monitoring included monitoring of air quality, noise and water quality. Environmental monitoring was done by EMS—the local Environmental Monitoring Station:NingXia ZhongKe JingKe Test Tech.,Co.,Ltd, who was engaged by IAS since November,2017.

Table 7. Summary of Implementation Status of Environmental Quality Monitoring

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
Yuanzhou District						
Construction stage						
<u>Rural trunk road Guanting – Yuanzhou District Guyuan Road:</u> 1. Qianwa Village前洼村(K0+020 – K0+250) 2. Guanting Primary School官厅小学(K1+300 – K1+600) 3. Guanting Town官厅镇 (K1+425 – K1+670) 4. Guanting Village #2 Group官厅村2组(K3+750 – K4+375) 5. Guanting Village #4 Group官厅村4组(K6+000 – K8+100) 6. Liudian Village刘店村 (K7+000 – K8+100) 7. Liuzhendian刘镇店 (K9+500 – K10+350) 8. Shizhuang Village石庄村 (K14+200 – K14+800) 9. Erdaocha Village二道岔村 (K17+800 – K18+300) 10. Cheng'ershan Village程儿山村 (K18+900 – K19+800)	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Yuanzhou District Transport Bureau, ESE	Two phases of monitoring were carried out on rural trunk roads in March and July 2021.
	Noise	L _{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			Two phases of monitoring were carried out on rural trunk roads in March and July 2021.
<u>Rural trunk road Wanzhang – Sanying Road:</u> 1. Lijiacha Village李家岔村(K4+100 – k4+780) 2. Dongyuan Village #2 Team东源村二队 (K24+100 – K24+600) 3. Dongyuan Primary School 东源小学 (K24+710) 4. Dongyuan Village #4 Team东源村四队 (K26+200 – K26+760) 5. Malu Mosque马路清真寺 (K31+250) 6. Malu Village马路村 (K30+420 – K31+500)						
<u>Rural feeder road Hongzhuang – Daidian – Shahexian Road:</u> 1. Hongzhuang 红庄 2. Chengou 陈沟 3. Dadian 大店 4. Shahexian 沙河峒						
<u>Rural feeder road Guhu Road – Qiaowa – Miaotai Road:</u> 1. Qiaowa 乔洼 2. Miaotai 庙台						
<u>Rural feeder road Ligou – Xiaojiashengou Road:</u> 1. Ligou Village 里沟 2. Yaomo 姚磨						

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
3.Xiaogou 肖沟 <u>Rural feeder road Ke Village – Feng Village Road:</u> 1.Kezhuang 柯庄 2.Fengzhuang 冯庄 <u>Rural feeder road Licha – Dongjia Village Road:</u> 1. Licha 李岔 2. Caijiachuan #9 Group蔡家川九组 <u>Rural feeder road Caichuan – Yangjiayaoxian Road:</u> 1. Licha 李岔 2. Caichuan Village Wa Group蔡川村庄洼组						
<u>Rural trunk road Wanzhang – Sanying Road:</u> Set up 2 stations for water quality monitoring at the Qingshui River 清水河 bridge crossing (K31+550) as follows: 1. Control station: 50 m upstream of the bridge alignment 2. Impact station 100 m downstream of the bridge alignment (Note: if downstream impact station SS data > 130% of upstream control station data , mitigation measures are needed)	Water quality	DO, SS, TPH	1 time per day; 1 day per month during bridge construction			Two phases of monitoring were carried out on rural trunk roads in March and July 2021.
Xiji County						
Construction stage						
<u>Rural trunk road Jiangtai – Xitan – Pingfeng Road:</u> 1. Xiji County Jiangtai Secondary School 西吉县将台中学 (K0+000 – K0+100) 2. Jiangtai Village Central Health Clinic 将台乡中心卫生院 (K0+600) 3. Mingtai Village 明台村 (K+250- K1+500) 4. Maogou Village 毛沟村 (K2+250 – K2+500) 5. Maojiagou Village 毛家沟村 (K2+800 – K3+200) 6. Shenchu Village 深岔村 (K5+800 – K6+000) 7. Heihugou Village 黑虎沟村 (K9+440 – K10+000) 8. Xitan Village Central Primary School 西滩乡中心小学 (K17+400) 9. Xitan Village 西滩村 (K17+500 – K18+600) 10. Hejiawan 何家湾 (K22+400 – K23+500) 11. Gancha Primary School 甘岔小学 (K24+500) 12. Gancha Village 甘岔村 (K24+500 – K25+400)	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Xiji County Transport Bureau, ESE	Two phases of monitoring were carried out on rural trunk roads in March and July 2021.
	Noise	L _{Aeq}	1 day (day time only) per month (Monitor only when road section has construction			Two phases of monitoring were carried out on rural trunk roads in March

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
13. Xinzhuangzi 新庄子 (K29+500 – K29+750) 14. Xingping Village 兴坪村 (K30+450 – K30+600) 15. Youai Village 友爱村 (K32+000 – K33+100) 16. Yuwan Village 玉湾村 (K33+900 – K34+400) 17. Minhe Village 民和村 (K41+650 – K41+800) 18. Hewa Village 河洼村 (K49+650 – K49+950) 19. Pingfeng Village 平峰村 (K51+000 – K51+300) 20. Xiji Pingfeng Secondary School 西吉平峰中学 (K51+450) 21. Fujiawan 伏家湾 (K65+500 – K65+800) 22. Wangnao Village 王埡村 (K67+100 – K68+010) 23. Lijiazhuang 李家庄 (K69+100 – K69+180) 24. Luotuocho 骆驼岔 (K70+000 – K70+400) 25. Libao Primary School 李堡小学 (K72+000)			activities within 300 m)			and July 2021.
<u>Rural feeder road Wangping – Lizhang Road:</u>						
1. Wangjiawan 王家湾 2. Guanjia Village 官家村 3. Wangping 王坪 4. Lizhang Village 李章村 5. Qianchuan 前川 6. Houwan 后湾 7. Gaowan 高湾 8. Wangwan 王湾 9. Tuwan 兔湾 10. Liangnao 梁埡 11. Xiazhuang 下庄 12. Muwa 慕洼 13. Guanwan 官湾						
<u>Rural feeder road Daying – Ya’erpo Road:</u>						
1. Dawanzu 大湾组 2. Gaojiagou 高家沟 3. Laohugou 老虎沟 4. Daying Village 大营村 5. Xiejiawan 谢家湾 6. Ya’ertai 雅儿台 7. Liuzu 六组						

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
<u>Rural feeder road Mawan – Caonao Road:</u> 1. Caonao Village 曹埡村 2. Mawan Village 马湾村 3. Halagou Village 哈拉沟村 4. Gaoxi Village 高西村 5. Xianwan 碱湾 6. Huitao 会套 7. Shangzhuang 上庄 8. Bainao 白埡 9. Gaodong 高东 10. Tianhuagou 田花沟 <u>Rural feeder road Bataijiao – Quancha Road:</u> 1. Baoziwan 堡子湾 2. Yapo 崖坡 3. Yangping 杨坪 4. Bataijiao 八台轿 5. Quancha Village 杈岔村 6. Nantai 南台 7. Sigoucha 四沟岔 8. Xiawa 下岫 9. Chamagou 岔马沟 10. Baowan 堡湾 <u>Rural feeder road Nanchuan – Lujiagou Road:</u> 1. Nanchuan 南川 2. Lujiagou 陆家沟 3. Xi'nanmen 西南门 4. Luzigou 芦子沟						
<u>Rural trunk road Jiangtai – Xitan – Pingfeng Road:</u> <u>4 locations for bridges & road crossing the following rivers/reservoir :</u> 1. Hulu River 葫芦河 (K1+760 – K1+800) 2. Lanni River 滥泥河 (K31+033.5) 3. Lanni River 滥泥河 (K31+409) 4. Libaoba Reservoir 李堡坝水库 (K72+788) <u>Set up 2 stations for water quality monitoring at each river/stream crossing bridge location as follows:</u>	Water quality	DO, SS, TPH	1 time per day; 1 day per month during bridge construction			Two phases of monitoring were carried out on rural trunk roads in March and July 2021.

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
1. Control station: 50 m upstream of the bridge/road alignment 2. Impact station 100m downstream of the bridge/road alignment (Note: if downstream impact station SS data > 130% of upstream control station data, mitigation measures are needed)						
Operational stage						
<u>Rural trunk road Jiangtai – Xitan – Pingfeng Road:</u> Follow up monitoring at 7 locations in year 2030 to determine the need for noise mitigation 1. Mingtai Village (left of K1+250- K1+500) 2. Maogou Village 毛沟村 (K2+250 – K2+500) 3. Xitan Village 西滩村 (K17+500 – K18+600) 4. Youai Village 友爱村 (K32+000 – K33+100) 5. Minhe Village 民和村 (K41+650 – K41+800) 6. Hewa Village 河洼村 (left of K49+650 – K49+950) 7. Wangnao Village 王埝村 (left of K67+100 – K68+010)	Noise	L _{Aeq}	Night time monitoring on 2 consecutive nights	Local EMS	Xiji County Transport Bureau	N/A during this period.
Tongxin County						
Construction stage						
<u>Rural trunk road Wangtuan – Yuwang Road:</u> 1. Qianhong Village 前红村 (K0+800 – K2+200 and K3+400 – K4+200) 2. Mujiagou Mosque 穆家沟清真寺 (K2+270) 3. Qianhong Grand Mosque 前红清真大寺 (K3+820) 4. Humaqi Village 胡麻旗村 (K6+000 – K6+500) 5. Yangjiawan Village 杨家湾村 (K15+400 – K15+900) 6. Hujiawan Village 虎家湾村 (K21+150 – K21+300) 7. Zhangjiawan Village 张家湾村 (K29+150 – K29+850) 8. Zhang'ershui Village 张尔水村 (K30+300 – K30+600) 9. Luzhouchuan Village 驴轴川村 (K41+000 – K42+150) 10. Gongjiawan 龚家湾 (K49+750 – K49+850) 11. Qingyangquan Village 青羊泉村 (K58+800 – K60+150) 12. Shanghujiayuan 上胡家塬 (K61+150 – K61+500) 13. Shangyuan Primary School 上塬小学 (K61+375) 14. Hujiayuan 扈家塬 (K65+900 – K66+450)	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Tongxin County Transport Bureau, ESE	The construction has been completed and environmental monitoring was carried out once in March 2021.
	Noise	L _{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			The construction has been completed and environmental monitoring was carried out once in March 2021.

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
15. Nanguan Village 南关村 (K67+410) <u>Rural feeder road Tongfu Village – Shanghewan Village Road:</u> 1. Tongfu Village 同富村 2. Shanghewan 上河湾 <u>Rural feeder road Majiajing – Suocha Road:</u> 1. Majiajing Village 马家井村 2. Suojiacha Village 锁家岔村 3. Qianjing 千井 <u>Rural feeder road Tongyu Road – Lijiagangzi - Liushubaozi Road:</u> 1. Nanguan Village 南关村 2. Beiguan Village 北关村 3. Liushubaozi Village 柳树堡子村 4. Shatupo Village 沙土坡村 5. Tufeng Village 土峰村 6. Ligangzi Primary School 李岗子小学 7. Lijiagangzi 李家岗子 8. Wanglaoba 王涝坝 9. Lulubaozi 辘辘堡子 10. Tiangangzi 田岗子 <u>Rural feeder road Xiachen Road – Chen'er Village Road:</u> 1. Chen'er Village 陈儿庄 2. Ni'er Village 倪儿庄 3. Mingchangcheng 明长城 4. Erbudun 二步墩 5. Sanbudun 三步墩						
Pengyang County						
Construction stage						

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
<u>Rural trunk road Mengyuan Chunshucha – Chengyang Yangping Road:</u> 1. Baiyangzhuang 白杨庄 (K4+100 – K4+300) 2. Mengyuan Village Central School 孟塬乡中心学校 (K4+520) 3. Mengyuan Village Central Kindergarten 孟塬乡中心幼儿园 (K4+530) 4. Mengyuan Village Health Clinic 孟塬乡卫生院 (K4+700) 5. Shuangshu Village 双树村 (K8+480 – K8+780) 6. Huaishuzhuang 槐树庄 (K9+510 – K9+850) 7. Zhaoshanzhuang 赵山桩 (K12+100 – K12+350) 8. Caotan Village 草滩村 (K12+500 – K13+900) 9. Ligouwan 李沟湾 (K21+100 – K21+300) 10. Chenwan Beiyuan Village 陈湾北源村 (K24+600 – K24+800) 11. Yangping Village 杨坪村 (K30+400)	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Pengyang Transport Bureau, ESE	Two phases of monitoring were carried out on rural trunk roads in March and July 2021.
	Noise	L _{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			Two phases of monitoring were carried out on rural trunk roads in March and July 2021.
<u>Rural feeder road Caomiao Xinwa – Caochuan Road:</u> 1. Caochuan Village 曹川村 2. Xinwa Village 新洼村 3. Daxizhang 大西掌 4. Dagouwa 大沟洼 5. Shewa 余洼 6. Caichuan 蔡川 7. Xinwa 新洼						
<u>Rural feeder road Xiachadiaochoa – Qigeshan Road:</u> 1. Diaocha 吊岔 2. Lizhang 李掌 3. Lianggeshan 两个山 4. Qigeshan 七个山						
Operational stage						
<u>Rural trunk road Mengyuan Chunshucha – Chengyang Yangping Road:</u> Follow up monitoring at 4 locations in year 2030 to determine the need for noise mitigation 1. 白杨庄 (K4+100 – K4+300) 2. 孟塬乡中心学校 (K4+520) 3. 孟塬乡中心幼儿园 (K4+530) 4. 双树村 (K8+480 – K8+780)	Noise	L _{Aeq}	Night time monitoring on 2 consecutive nights	Local EMS	Pengyang Transport Bureau	N/A during this period.

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
Haiyuan County						
Construction stage						
<u>Rural trunk road Zhengqi – Jiucai – Sikouzi Road:</u> 1. Tangbao Village 唐堡村 (K0+180 – K0+340 and K3+050 – K3+600) 2. Guluwan Village 古路湾村 (K7+100 – K8+400) 3. Lubiliang Village 路壁梁村 (K12+800 – K14+000) 4. Matao Village 马套村 (K18+000 – K19+000) 5. Matao Primary School 马套小学 6. Yuantao Village 元套村 (K20+400 – K22+000) 7. Houshang Village 后墙村 (K23+750 – K24+500)	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Haiyuan County Transport Bureau, ESE	Construction has been completed.
<u>Rural feeder road Xi'an – Zhangwan Road:</u> 1. Xianhe 小河 2. Xi'an Town 西安镇 3. Beiba 北坝 4. Yuanhe 园河 5. Liuwan 刘湾 6. Zhangwan 张湾	Noise	L _{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			Construction has been completed.
<u>Rural feeder road Xiangtong – Huitiaogou Road:</u> 1. Xiangtong Village 相桐村 2. Huitialgou 灰条沟 3. Liuhe 刘河 4. Hongjing 红井						
<u>Rural trunk road Zhengqi – Jiucai – Sikouzi Road:</u> A water quality monitoring point is set up in gaipai reservoir.	Water quality	DO, SS, TPH	1 time per day; 1 day per month during bridge construction			Construction has been completed.
Operational stage						
<u>Rural trunk road Zhengqi – Jiucai – Sikouzi Road:</u> Follow up monitoring at 1 locations in year 2035 to determine the need for noise mitigation 1. Tangbao Village 唐堡村 (right of K3+050 – K3+600)	Noise	L _{Aeq}	Night time monitoring on 2 consecutive nights	Local EMS	Haiyuan County Transport Bureau	Environmental monitoring was carried out once in March 2021.
Jingyuan County						
Construction stage						

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
<u>Rural trunk road Shatang (Huanghua County) – Gaodian Road:</u> 1. Shatang Village 沙塘村 (K0+000 – K0+500) 2. Nonglin Village 农林村 (K12+800 – K12+900) 3. Nonglin Primary School 农林小学 (K12+850) 4. Tuyao Village 土窑村 (Branch K0+800 – K1+781) <u>Rural feeder road Dongxia - Digou Road:</u> 1. Pangdong 庞东 2. Dongxia 东峡 3. Digou 底沟 4. Shidi 石底	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Jingyuan County Transport Bureau, ESE	Two phases of monitoring were carried out on rural trunk roads in March and July 2021.
	Noise	L _{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			Two phases of monitoring were carried out on rural trunk roads in March and July 2021.
<u>Rural trunk road Shatang (Huanghua County) – Gaodian Road:</u> Set up 2 stations for water quality monitoring at the Tuyakou 土窑沟 bridge crossing (K2+698) as follows: • Control station: 50 m upstream of the bridge alignment • Impact station 100 m downstream of the bridge alignment (Note: if downstream impact station SS data > 130% of upstream control station data, mitigation measures are needed)	Water quality	DO, SS, TPH	1 time per day; 1 day per month during bridge construction			Two phases of monitoring were carried out on rural trunk roads in March and July 2021.
Longde County						
Construction stage						
<u>Rural feeder road Zhangtian – Jinglin – Yangchuan Road:</u> 1. Liangbao 梁堡 2. Jinglin 景林 3. Yanmiao 闫庙 4. Zhangtian 张田 5. Xueyang 薛阳 6. Dingjia 丁家 7. Shangqu 上渠 8. Yanggou 杨沟	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Longde County Transport Bureau, ESE	N/A during this period.
	Noise	L _{Aeq}	1 day (day time only) per month			N/A during this

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
9. Songyuan 宋源 10. Diwan 地湾			(Monitor only when road section has construction activities within 300 m)			period.
Note: EMS = Environmental Monitoring Station; ESE = environmental supervision engineer; PMO = project management office; TSP = total suspended particulates; L_{Aeq} = A-weight equivalent sound pressure level; DO = dissolved oxygen; SS = suspended solids; TPH = total petroleum hydrocarbon						

Source: The Project EMP.

B. Monitoring Results

25 Reflecting the monitoring program under the Project EMP, tables below show the summary of environmental monitoring results in air quality, noise and wastewater quality during this reporting period by output. The monitoring reports are attached.

1. Air Quality

Table 8. Summary of Air Quality Monitoring Results During this Reporting Period

Monitoring Date	Monitoring Site	TSP Daily mean value($\mu\text{g}/\text{m}^3$)
	Yuanzhou District	
	<i>Construction stage</i>	
	<u>Rural trunk road Guanting – Yuanzhou District Guyuan Road:</u>	N/A during this reporting period
March 9th & July 14th	1. Qianwa Village 前洼村(K0+020 – K0+250)	120-125
March 8th & July 14th	2. Guanting Primary School 官厅小学(K1+300 – K1+600)	127-128
March 8th & July 14th	3. Guanting Town 官厅镇 (K1+425 – K1+670)	154-173
March 8th & July 14th	4. Guanting Village #2 Group 官厅村 2 组(K3+750 – K4+375)	188-196
March 8th & July 14th	5. Guanting Village #4 Group 官厅村 4 组(K6+000 – K8+100)	155-169
March 8th & July 14th	6. Liudian Village 刘店村 (K7+000 – K8+100)	129-152
March 8th & July 14th	7. Liuzhendian 刘镇店 (K9+500 – K10+350)	159-182
March 8th & July 15th	8. Shizhuang Village 石庄村 (K14+200 – K14+800)	189-223
March 8th & July 15th	9. Erdaocha Village 二道岔村 (K17+800 – K18+300)	136-146
March 8th & July 15th	10. Cheng'ershan Village 程儿山村 (K18+900 – K19+800)	152-170
	<u>Rural trunk road Wanzhang – Sanying Road:</u>	
March 9th & July 15th	1. Lijiacha Village 李家岔村(K4+100 – k4+780)	151-153
March 9th & July 15th	2. Dongyuan Village #2 Team 东源村二队 (K24+100 – K24+600)	168-177
March 9th & July 15th	3. Dongyuan Primary School 东源小学 (K24+710)	118-123
March 9th & July 15th	4. Dongyuan Village #4 Team 东源村四队 (K26+200 – K26+760)	146-153
March 9th & July 15th	5. Malu Mosque 马路清真寺 (K31+250)	177-181
March 9th & July 15th	6. Malu Village 马路村 (K30+420 – K31+500)	186-204
	<u>Rural feeder road Hongzhuang – Daidian – Shahexian Road:</u>	
/	1. Hongzhuang 红庄	N/A
/	2. Chengou 陈沟	N/A
/	3. Dadian 大店	N/A
/	4. Shahexian 沙河峴	N/A

	<u>Rural feeder road Guhu Road – Qiaowa – Miaotai Road:</u>	
/	1. Qiaowa 乔洼	N/A
/	2. Miaotai 庙台	N/A
	<u>Rural feeder road Ligou – Xiaojiashengou Road:</u>	
/	1. Ligou Village 里沟	N/A
/	2. Yaomo 姚磨	N/A
/	3. Xiaogou 肖沟	N/A
	<u>Rural feeder road Ke Village – Feng Village Road:</u>	
/	1. Kezhuang 柯庄	N/A
/	2. Fengzhuang 冯庄	N/A
	<u>Rural feeder road Licha – Dongjia Village Road:</u>	
/	1. Licha 李岔	N/A
/	2. Caijiachuan #9 Group 蔡家川九组	N/A
	<u>Rural feeder road Caichuan – Yangjiayaoxian Road:</u>	
/	1. Licha 李岔	N/A
/	2. Caichuan Village Wa Group 蔡川村庄洼组	N/A
	Xiji County	
	<i>Construction stage</i>	
	<u>Rural trunk road Jiangtai – Xitan – Pingfeng Road:</u>	N/A during this reporting period
March 11th & July 11th	1. Jiangtai Village Central Health Clinic 将台乡中心卫生院 (K0+600)	103-128
March 11th & July 11th	2. Mingtai Village 明台村 (K+250- K1+500)	131-156
March 11th & July 11th	3. Maojiagou Village 毛家沟村 (K2+800 – K3+200)	114-125
March 11th & July 11th	4. Shenchu Village 深岔村 (K5+800 – K6+000)	144-150
March 11th & July 11th	5. Heihugou Village 黑虎沟村 (K9+440 – K10+000)	126-145
March 11th & July 11th	6. Xitan Village Central Primary School 西滩乡中心小学 (K17+400)	95-107
March 11th & July 11th	7. Xitan Township Health Center (K17+500 – K18+600)	101-124
March 11th & July 11th	8. Hejiawan 何家湾 (K22+400 – K23+500)	127-145
March 11th & July 11th	9. Gancha Primary School 甘岔小学 (K24+500)	115-135
March 11th & July 13th	10. Gancha Village 甘岔村 (K24+500 – K25+400)	138-139
March 12th & July	11. Xinzhuangzi 新庄子 (K29+500 – K29+750)	142-144

13th		
March 12th & July 13th	12. Xingping Village 兴坪村 (K30+450 – K30+600)	152-164
March 12th & July 13th	13. Youai Village 友爱村 (K32+000 – K33+100)	124-138
March 12th & July 13th	14. Yapowan Village	117-140
March 12th & July 13th	15. Pingfeng Village 平峰村 (K51+000 – K51+300)	132-173
March 12th & July 13th	16. Xiji Pingfeng Secondary School 西吉平峰中学 (K51+450)	129-167
March 12th & July 13th	17. Fujiawan 伏家湾 (K65+500 – K65+800)	145
March 12th & July 13th	18. Wangnao Village 王埡村 (K67+100 – K68+010)	122-144
March 12th & July 14th	19. Luotuocho 骆驼岔 (K70+000 – K70+400)	118-119
March 12th & July 14th	20. Libao Primary School 李堡小学 (K72+000)	126-140
	<u>Rural feeder road Wangping – Lizhang Road:</u>	
/	1. Wangjiawan 王家湾	N/A
/	2. Guanjia Village 官家村	N/A
/	3. Wangping 王坪	N/A
/	4. Lizhang Village 李章村	N/A
/	5. Qianchuan 前川	N/A
/	6. Houwan 后湾	N/A
/	7. Gaowan 高湾	N/A
/	8. Wangwan 王湾	N/A
/	9. Tuwan 兔湾	N/A
/	10. Liangnao 梁埡	N/A
/	11. Xiazhuang 下庄	N/A
/	12. Muwa 慕洼	N/A
/	13. Guanwan 官湾	N/A
	<u>Rural feeder road Daying – Ya’erpo Road:</u>	
/	1. Dawanzu 大湾组	N/A
/	2. Gaojiagou 高家沟	N/A
/	3. Laohugou 老虎沟	N/A
/	4. Daying Village 大营村	N/A
/	5. Xiejiawan 谢家湾	N/A
/	6. Ya’ertai 雅儿台	N/A
/	7. Liuzu 六组	N/A

	<u>Rural feeder road Mawan – Caonao Road:</u>	
/	1. Caonao Village 曹埝村	N/A
/	2. Mawan Village 马湾村	N/A
/	3. Halagou Village 哈拉沟村	N/A
/	4. Gaoxi Village 高西村	N/A
/	5. Xianwan 碱湾	N/A
/	6. Huitao 会套	N/A
/	7. Shangzhuang 上庄	N/A
/	8. Bainao 白埝	N/A
/	9. Gaodong 高东	N/A
/	10. Tianhuagou 田花沟	N/A
	<u>Rural feeder road Bataijiao – Quancha Road:</u>	
/	1. Baoziwan 堡子湾	N/A
/	2. Yapo 崖坡	N/A
/	3. Yangping 杨坪	N/A
/	4. Bataijiao 八台轿	N/A
/	5. Quancha Village 杈岔村	N/A
/	6. Nantai 南台	N/A
/	7. Sigoucha 四沟岔	N/A
/	8. Xiawa 下山	N/A
/	9. Chamagou 岔马沟	N/A
/	10. Baowan 堡湾	N/A
	<u>Rural feeder road Nanchuan – Lujiagou Road:</u>	
/	1. Nanchuan 南川	N/A
/	2. Lujiagou 陆家沟	N/A
/	3. Xi'nanmen 西南门	N/A
/	4. Luzigou 芦子沟	N/A
	Tongxin County	
	<i>Construction stage</i>	
	<u>Rural trunk road Wangtuan – Yuwang Road:</u>	N/A during this reporting period
March 2nd	1. Mujiagou Mosque 穆家沟清真寺 (K2+270)	124
March 2nd	2. Qianhong Grand Mosque 前红清真大寺 (K3+820)	145
March 2nd	3. Humaqi Village 胡麻旗村 (K6+000 – K6+500)	168
March 2nd	4. Shanghujiayuan 上胡家塬 (K61+150 – K61+500)	142
March 2nd	5. Shangyuan Primary School 上塬小学 (K61+375)	121
March 2nd	6. Hujiayuan 扈家塬 (K65+900 – K66+450)	139
March 2nd	7. Nanguan Village 南关村 (K67+410)	152
	<u>Rural feeder road Tongfu Village – Shanghewan Village Road:</u>	
/	1. Tongfu Village 同富村	N/A

/	2. Shanghewan 上河湾	N/A
	<u>Rural feeder road Majiajing – Suocha Road:</u>	
/	1. Majiajing Village 马家井村	N/A
/	2. Suojiacha Village 锁家岔村	N/A
/	3. Qianjing 千井	N/A
	<u>Rural feeder road Tongyu Road – Lijiagangzi - Liushubaozi Road:</u>	
/	1. Nanguan Village 南关村	N/A
/	2. Beiguan Village 北关村	N/A
/	3. Liushubaozi Village 柳树堡子村	N/A
/	4. Shatupo Village 沙土坡村	N/A
/	5. Tufeng Village 土峰村	N/A
/	6. Ligangzi Primary School 李岗子小学	N/A
/	7. Lijiagangzi 李家岗子	N/A
/	8. Wanglaoba 王涝坝	N/A
/	9. Lulubaozi 辘轳堡子	N/A
/	10. Tiangangzi 田岗子	N/A
	<u>Rural feeder road Xiachen Road – Chen’er Village Road:</u>	
/	1. Chen’er Village 陈儿庄	N/A
/	2. Ni’er Village 倪儿庄	N/A
/	3. Mingchangcheng 明长城	N/A
/	4. Erbudun 二步墩	N/A
/	5. Sanbudun 三步墩	N/A
	Pengyang County	
	<i>Construction stage</i>	
	<u>Rural trunk road Mengyuan Chunshucha – Chengyang Yangping Road:</u>	
March 6th & July 8th	1. Baiyangzhuang 白杨庄 (K4+100 – K4+300)	124-133
March 6th & July 8th	2. Mengyuan Village Central School 孟塬乡中心学校 (K4+520)	117-126
March 6th & July 8th	3. Mengyuan Village Central Kindergarten 孟塬乡中心幼儿园 (K4+530)	100-108
March 6th & July 8th	4. Mengyuan Village Health Clinic 孟塬乡卫生院 (K4+700)	125-140
March 6th & July 8th	5. Shuangshu Village 双树村 (K8+480 – K8+780)	151-162
March 6th & July 8th	6. Huaishuzhuang 槐树庄 (K9+510 – K9+850)	142-172
March 6th & July 9th	7. Zhaoshanzhuang 赵山桩 (K12+100 – K12+350)	124-149
March 6th & July 9th	8. Caotan Village 草滩村 (K12+500 – K13+900)	150-162
March 6th & July 9th	9. Ligouwan 李沟湾 (K21+100 – K21+300)	153-178
March 6th & July 9th	10. Chenwan Beiyuan Village 陈湾北源村 (K24+600 – K24+800)	125-141
March 6th & July 9th	11. Yangping Village 杨坪村 (K30+400)	136-138

	<u>Rural feeder road Caomiaoxinwa – Caochuan Road:</u>	
/	1. Caochuan Village 曹川村	N/A
/	2. Xinwa Village 新洼村	N/A
/	3. Daxizhang 大西掌	N/A
/	4. Dagouwa 大沟洼	N/A
/	5. Shewa 余洼	N/A
/	6. Caichuan 蔡川	N/A
/	7. Xinwa 新洼	N/A
	<u>Rural feeder road Xiachadiaocha – Qigeshan Road:</u>	
/	1. Diaocha 吊岔	N/A
/	2. Lizhang 李掌	N/A
/	3. Lianggeshan 两个山	N/A
/	4. Qigeshan 七个山	N/A
	Haiyuan County	
	<i>Construction stage</i>	
	<u>Rural trunk road Zhengqi – Jiucui – Sikouzi Road:</u>	N/A during this reporting period
March 4th	1. Tangbao Village 唐堡村 (K0+180 – K0+340 and K3+050 – K3+600)	126
March 4th	2. Guluwan Village 古路湾村 (K7+100 – K8+400)	110
March 4th	3. Lubiliang Village 路壁梁村 (K12+800 – K14+000)	165
March 4th	4. Matao Village 马套村 (K18+000 – K19+000)	106
March 4th	5. Matao Primary School 马套小学	122
March 4th	6. Yuantao Village 元套村 (K20+400 – K22+000)	137
March 4th	7. Houshang Village 后墙村 (K23+750 – K24+500)	151
	<u>Rural feeder road Xi'an – Zhangwan Road:</u>	
/	1. Xianhe 小河	N/A
/	2. Xi'an Town 西安镇	N/A
/	3. Beiba 北坝	N/A
/	4. Yuanhe 园河	N/A
/	5. Liuwan 刘湾	N/A
/	6. Zhangwan 张湾	N/A
	<u>Rural feeder road Xiangtong – Huitiaogou Road:</u>	
/	1. Xiangtong Village 相桐村	N/A
/	2. Huitiaogou 灰条沟	N/A
/	3. Liuhe 刘河	N/A
/	4. Hongjing 红井	N/A
	Jingyuan County	
	<i>Construction stage</i>	
	<u>Rural trunk road Shatang (Huanghua County) – Gaodian Road:</u>	

March 14th & July 8th	1. Shatang Village 沙塘村 (K0+000 – K0+500)	122-135
March 14th & July 8th	2. Nonglin Village 农林村 (K12+800 – K12+900)	117-119
March 14th & July 8th	3. Tuyao Village 土窑村 (Branch K0+800 – K1+781)	112-128
	<u>Rural feeder road Dongxia - Digou Road:</u>	
/	1. Pangdong 庞东	N/A
/	2. Dongxia 东峡	N/A
/	3. Digou 底沟	N/A
/	4. Shidi 石底	N/A
Longde County		
	<i>Construction stage</i>	
	<u>Rural feeder road Zhangtian – Jinglin – Yangchuan Road:</u>	
/	1. Liangbao 梁堡	N/A
/	2. Jinglin 景林	N/A
/	3. Yanmiao 闫庙	N/A
/	4. Zhangtian 张田	N/A
/	5. Xueyang 薛阳	N/A
/	6. Dingjia 丁家	N/A
/	7. Shangqu 上渠	N/A
/	8. Yanggou 杨沟	N/A
/	9. Songyuan 宋源	N/A
/	10. Diwan 地湾	N/A
Class II Ambient air Quality Standards(GB3095-2012)		300

26 During this period, there is no issue of exceedance or non-compliance.

2. Noise

Table 9:.Summary of Noise Monitoring Results

Monitoring Date	Monitoring Site	Day (L _{Aeq})	Night (L _{Aeq})
	Yuanzhou District		
	<i>Construction stage</i>		
	<u>Rural trunk road Guanting – Yuanzhou District Guyuan Road:</u>		
March 9th & July 14th	1. Qianwa Village 前洼村(K0+020 – K0+250)	50-51	
March 8th & July 14th	2. Guanting Primary School 官厅小学(K1+300 – K1+600)	48-50	
March 8th & July 14th	3. Guanting Town 官厅镇 (K1+425 – K1+670)	51-54	
March 8th & July 14th	4. Guanting Village #2 Group 官厅村 2 组(K3+750 – K4+375)	50-51	
March 8th & July 14th	5. Guanting Village #4 Group 官厅村 4 组(K6+000 – K8+100)	50-52	

March 8th & July 14th	6. Liudian Village 刘店村 (K7+000 – K8+100)	48-49	
March 8th & July 14th	7. Liuzhending 刘镇店 (K9+500 – K10+350)	51-55	
March 8th & July 14th	8. Shizhuang Village 石庄村 (K14+200 – K14+800)	50	
March 8th & July 14th	9. Erdaocha Village 二道岔村 (K17+800 – K18+300)	48-52	
March 8th & July 14th	10. Cheng'ershan Village 程儿山村 (K18+900 – K19+800)	47-51	
	<u>Rural trunk road Wanzhang – Sanying Road:</u>		
March 9th & July 14th	1. Lijiacha Village 李家岔村 (K4+100 – k4+780)	49-50	
March 9th & July 14th	2. Dongyuan Village #2 Team 东源村二队 (K24+100-K24+600)	49-51	
March 9th & July 14th	3. Dongyuan Primary School 东源小学 (K24+710)	48-49	
March 9th & July 14th	4. Dongyuan Village #4 Team 东源村四队 (K26+200-K26+760)	48	
March 9th & July 14th	5. Malu Mosque 马路清真寺 (K31+250)	50-54	
March 9th & July 14th	6. Malu Village 马路村 (K30+420 – K31+500)	52-54	
	<u>Rural feeder road Hongzhuang – Daidian – Shahexian Road:</u>		
/	1. Hongzhuang 红庄	N/A	
/	2. Chengou 陈沟	N/A	
/	3. Dadian 大店	N/A	
/	4. Shahexian 沙河峴	N/A	
	<u>Rural feeder road Guhu Road – Qiaowa – Miaotai Road:</u>		
/	1. Qiaowa 乔洼	N/A	
/	2. Miaotai 庙台	N/A	
	<u>Rural feeder road Ligou – Xiaojiashengou Road:</u>		
/	1. Ligou Village 里沟	N/A	
/	2. Yaomo 姚磨	N/A	
/	3. Xiaogou 肖沟	N/A	
	<u>Rural feeder road Ke Village – Feng Village Road:</u>		
/	1. Kezhuang 柯庄	N/A	
/	2. Fengzhuang 冯庄	N/A	
	<u>Rural feeder road Licha – Dongjia Village Road:</u>		
/	1. Licha 李岔	N/A	
/	2. Caijiachuan #9 Group 蔡家川九组	N/A	

	<u>Rural feeder road Caichuan – Yangjiayaoxian Road:</u>		
/	1. Licha 李岔	N/A	
/	2. Caichuan Village Wa Group 蔡川村庄洼组	N/A	
	Xiji County		
	<i>Construction stage</i>		
	<u>Rural trunk road Jiangtai – Xitan – Pingfeng Road:</u>		
March 11th & July 11th	1. Jiangtai Village Central Health Clinic 将台乡中心卫生院 (K0+600)	47-51	
March 11th & July 11th	2. Mingtai Village 明台村 (K+250- K1+500)	49-51	
March 11th & July 11th	3. Maojiagou Village 毛家沟村 (K2+800 – K3+200)	50-52	
March 11th & July 11th	4. Shenchu Village 深岔村 (K5+800 – K6+000)	50-51	
March 11th & July 11th	5. Heihugou Village 黑虎沟村 (K9+440 – K10+000)	51	
March 11th & July 11th	6. Xitan Village Central Primary School 西滩乡中心小学 (K17+400)	48-49	
March 11th & July 11th	7. Xitan Township Health Center (K17+500 – K18+600)	50-52	
March 11th & July 11th	8. Hejiawan 何家湾 (K22+400 – K23+500)	51-52	
March 11th & July 11th	9. Gancha Primary School 甘岔小学 (K24+500)	48-49	
March 11th & July 11th	10. Gancha Village 甘岔村 (K24+500 – K25+400)	47-49	
March 12th & July 13th	11. Xin Zhuangzi 新庄子 (K29+500 – K29+750)	49-50	
March 12th & July 13th	12. Xingping Village 兴坪村 (K30+450 – K30+600)	48-49	
March 12th & July 13th	13. Youai Village 友爱村 (K32+000 – K33+100)	51-52	
March 12th & July 13th	14. Yapowan Village	51-52	
March 12th & July 13th	15. Pingfeng Village 平峰村 (K51+000 – K51+300)	49-50	
March 12th & July 13th	16. Xiji Pingfeng Secondary School 西吉平峰中学 (K51+450)	46-48	
March 12th & July 13th	17. Fujiawan 伏家湾 (K65+500 – K65+800)	50-51	
March 12th & July 13th	18. Wangnao Village 王埡村 (K67+100 – K68+010)	49-51	

March 12th & July 13th	19. Luotuocha 骆驼岔 (K70+000 – K70+400)	49-50	
March 12th & July 13th	20. Libao Primary School 李堡小学 (K72+000)	48-50	
	<u>Rural feeder road Wangping – Lizhang Road:</u>		
/	1. Wangjiawan 王家湾	N/A	
/	2. Guanjia Village 官家村	N/A	
/	3. Wangping 王坪	N/A	
/	4. Lizhang Village 李章村	N/A	
/	5. Qianchuan 前川	N/A	
/	6. Houwan 后湾	N/A	
/	7. Gaowan 高湾	N/A	
/	8. Wangwan 王湾	N/A	
/	9. Tuwan 兔湾	N/A	
/	10. Liangnao 梁埡	N/A	
/	11. Xiazhuang 下庄	N/A	
/	12. Muwa 慕洼	N/A	
/	13. Guanwan 官湾	N/A	
	<u>Rural feeder road Daying – Ya’erpo Road:</u>		
/	1. Dawanzu 大湾组	N/A	
/	2. Gaojiagou 高家沟	N/A	
/	3. Laohugou 老虎沟	N/A	
/	4. Daying Village 大营村	N/A	
/	5. Xiejiawan 谢家湾	N/A	
/	6. Ya’ertai 雅儿台	N/A	
/	7. Liuzu 六组	N/A	
	<u>Rural feeder road Mawan – Caonao Road:</u>		
/	1. Caonao Village 曹埡村	N/A	
/	2. Mawan Village 马湾村	N/A	
/	3. Halagou Village 哈拉沟村	N/A	
/	4. Gaoxi Village 高西村	N/A	
/	5. Xianwan 碱湾	N/A	
/	6. Huitao 会套	N/A	
/	7. Shangzhuang 上庄	N/A	
/	8. Binao 白埡	N/A	
/	9. Gaodong 高东	N/A	
/	10. Tianhuagou 田花沟	N/A	
	<u>Rural feeder road Bataijiao – Quancha Road:</u>		
/	1. Baoziwan 堡子湾	N/A	
/	2. Yapo 崖坡	N/A	

/	3. Yangping 杨坪	N/A	
/	4. Bataijiao 八台轿	N/A	
/	5. Quancha Village 杈岔村	N/A	
/	6. Nantai 南台	N/A	
/	7. Sigoucha 四沟岔	N/A	
/	8. Xiawa 下山	N/A	
/	9. Chamagou 岔马沟	N/A	
/	10. Baowan 堡湾	N/A	
	<u>Rural feeder road Nanchuan – Lujiagou Road:</u>		
/	1. Nanchuan 南川	N/A	
/	2. Lujiagou 陆家沟	N/A	
/	3. Xi'nanmen 西南门	N/A	
/	4. Luzigou 芦子沟	N/A	
	Tongxin County		
	<i>Construction stage</i>		
	<u>Rural trunk road Wangtuan – Yuwang Road:</u>		
March 2nd	1. Mujiagou Mosque 穆家沟清真寺 (K2+270)	52	
March 2nd	2. Qianhong Grand Mosque 前红清真大寺 (K3+820)	50	
March 2nd	3. Humaqi Village 胡麻旗村 (K6+000 – K6+500)	51	
March 2nd	4. Shanghujiayuan 上胡家塬 (K61+150 – K61+500)	53	
March 2nd	5. Shangyuan Primary School 上塬小学 (K61+375)	48	
March 2nd	6. Hujiayuan 扈家塬 (K65+900 – K66+450)	52	
March 2nd	7. Nanguan Village 南关村 (K67+410)	50	
	<u>Rural feeder road Tongfu Village – Shanghewan Village Road:</u>		
/	1. Tongfu Village 同富村	N/A	
/	2. Shanghewan 上河湾	N/A	
	<u>Rural feeder road Majiajing – Suocha Road:</u>		
/	1. Majiajing Village 马家井村	N/A	
/	2. Suojiacha Village 锁家岔村	N/A	
/	3. Qianjing 千井	N/A	
	<u>Rural feeder road Tongyu Road – Lijiagangzi - Liushubaozi Road:</u>		
/	1. Nanguan Village 南关村	N/A	
/	2. Beiguan Village 北关村	N/A	
/	3. Liushubaozi Village 柳树堡子村	N/A	
/	4. Shatupo Village 沙土坡村	N/A	
/	5. Tufeng Village 土峰村	N/A	
/	6. Ligangzi Primary School 李岗子小学	N/A	
/	7. Lijiagangzi 李家岗子	N/A	
/	8. Wanglaoba 王涝坝	N/A	
/	9. Lulubaozi 辘轳堡子	N/A	

/	10. Tiangangzi 田岗子	N/A	
	<u>Rural feeder road Xiachen Road – Chen'er Village Road:</u>		
/	1. Chen'er Village 陈儿庄	N/A	
/	2. Ni'er Village 倪儿庄	N/A	
/	3. Mingchangcheng 明长城	N/A	
/	4. Erbudun 二步墩	N/A	
/	5. Sanbudun 三步墩	N/A	
	Pengyang County		
	Construction stage		
	<u>Rural trunk road Mengyuan Chunshucha – Chengyang Yangping Road:</u>		
March 6th & July 8th	1. Baiyangzhuang 白杨庄 (K4+100 – K4+300)	49-51	
March 6th & July 8th	2. Mengyuan Village Central School 孟塬乡中心学校 (K4+520)	50-52	
March 6th & July 8th	3. Mengyuan Village Central Kindergarten 孟塬乡中心幼儿园 (K4+530)	50-53	
March 6th & July 8th	4. Mengyuan Village Health Clinic 孟塬乡卫生院 (K4+700)	50	
March 6th & July 8th	5. Shuangshu Village 双树村 (K8+480 – K8+780)	49-52	
March 6th & July 8th	6. Huaishuzhuang 槐树庄 (K9+510 – K9+850)	52	
March 6th & July 8th	7. Zhaoshanzhuang 赵山桩 (K12+100 – K12+350)	51-54	
March 6th & July 8th	8. Caotan Village 草滩村 (K12+500 – K13+900)	51	
March 6th & July 8th	9. Ligouwan 李沟湾 (K21+100 – K21+300)	52-53	
March 6th & July 8th	10. Chenwan Beiyuan Village 陈湾北源村 (K24+600 – K24+800)	50-52	
March 6th & July 8th	11. Yangping Village 杨坪村 (K30+400)	52-54	
	<u>Rural feeder road Caomiaoxinwa – Caochuan Road:</u>		
/	1. Caochuan Village 曹川村	N/A	
/	2. Xinwa Village 新洼村	N/A	
/	3. Daxizhang 大西掌	N/A	
/	4. Dagouwa 大沟洼	N/A	
/	5. Shewa 余洼	N/A	
/	6. Caichuan 蔡川	N/A	
/	7. Xinwa 新洼	N/A	
	<u>Rural feeder road Xiachadiaocha – Qigeshan Road:</u>		
/	1. Diaocha 吊岔	N/A	
/	2. Lizhang 李掌	N/A	
/	3. Lianggeshan 两个山	N/A	
/	4. Qigeshan 七个山	N/A	
	Haiyuan County		
	Construction stage		

	<u>Rural trunk road Zhengqi – Jiucui – Sikouzi Road:</u>	N/A during this reporting period	
March 4th	1. Tangbao Village 唐堡村 (K0+180–K0+340 and K3+050–K3+600)	53	
March 4th	2. Guluwan Village 古路湾村 (K7+100 – K8+400)	51	
March 4th	3. Lubiliang Village 路壁梁村 (K12+800 – K14+000)	51	
March 4th	4. Matao Village 马套村 (K18+000 – K19+000)	52	
March 4th	5. Matao Primary School 马套小学	50	
March 4th	6. Yuantao Village 元套村 (K20+400 – K22+000)	53	
March 4th	7. Houshang Village 后塄村 (K23+750 – K24+500)	51	
	<u>Rural feeder road Xi'an – Zhangwan Road:</u>		
/	1. Xianhe 小河	N/A	
/	2. Xi'an Town 西安镇	N/A	
/	3. Beiba 北坝	N/A	
/	4. Yuanhe 园河	N/A	
/	5. Liuwan 刘湾	N/A	
/	6. Zhangwan 张湾	N/A	
	<u>Rural feeder road Xiangtong – Huitiaogou Road:</u>		
/	1. Xiangtong Village 相桐村	N/A	
/	2. Huitiaogou 灰条沟	N/A	
/	3. Liuhe 刘河	N/A	
/	4. Hongjing 红井	N/A	
Jingyuan County			
	<i>Construction stage</i>		
	<u>Rural trunk road Shatang (Huanghua County) – Gaodian Road:</u>	N/A during this reporting period	
March 14th & July 8th	1. Shatang Village 沙塘村 (K0+000- K0+500)	53-56	
March 14th & July 8th	2. Nonglin Village 农林村 (K12+800- K12+900)	52-55	
March 14th & July 8th	3. Tuyao Village 土窑村 (Branch K0+800- K1+781)	50	
	<u>Rural feeder road Dongxia - Digou Road:</u>		
/	1. Pangdong 庞东	N/A	
/	2. Dongxia 东峡	N/A	
/	3. Digou 底沟	N/A	
/	4. Shidi 石底	N/A	

	Longde County		
	Construction stage		
	Rural feeder road Zhangtian – Jinglin – Yangchuan Road:		
/	1. Liangbao 梁堡	N/A	
/	2. Jinglin 景林	N/A	
/	3. Yanmiao 闫庙	N/A	
/	4. Zhangtian 张田	N/A	
/	5. Xueyang 薛阳	N/A	
/	6. Dingjia 丁家	N/A	
/	7. Shangqu 上渠	N/A	
/	8. Yanggou 杨沟	N/A	
/	9. Songyuan 宋源	N/A	
/	10. Diwan 地湾	N/A	
Class II Ambient air Quality Standards(GB3095-2012)		60	50

27 During this period, there is no issue of exceedance or non-compliance.

3. Water quality

Table 10: Summary of Water Quality Monitoring Results During Construction

Monitoring Date	Monitoring Site	DO	SS	TPH
Yuanzhou District				
March 8th & July 12th	Rural trunk road Wanzhang – Sanying Road:			
	50m upstream of Qingshui River Bridge	7.26-7.48	25-26	0.01L
	100m downstream of Qingshui River Bridge	7.21-7.39	27-28	0.01L
Xiji County				
March 13th & July 13th	Rural trunk road Jiangtai – Xitan – Pingfeng Road:			
	50m upstream of Hulu Bridge	7.03-7.58	9-22	0.01L
	100m downstream of Hulu Bridge	7.17-7.57	10-27	0.01L
	Libao Reservoir	7.53	9-19	0.01L
Haiyuan County				
March 4th	Rural trunk road Zhengqi – Jiucui – Sikouzi Road:	N/A	N/A	N/A
	GaiPai Reservoir	7.97	12	0.01L
Jingyuan County				
March 14th & July 12th	Rural trunk road Shatang (Huanghua County) – Gaodian Road:	N/A	N/A	N/A
	50m upstream of Yanzhi Bridge	7.72-7.94	17-21	0.01L
	100m downstream of yanzhi Bridge	7.71-7.87	19-20	0.01L

28 During this period, there is no issue of exceedance or non-compliance.

V. INSTITUTIONAL CAPACITY BUILDING AND TRAINING

29 Training program has been designed to improve the capacity of CPMO, IA, OPFs, CSCs and contractors' staff in EMP implementation and supervision. Table 11 shows the training program designed for the project. During this reporting period, no training has been carried out. As of December 2018, Rural Trunk Roads are still at the design stage, the contractors are undetermined, so the training time is postponed and the training will be carried out according to the project plan immediately.

Table 11: Training Program and its Implementation Summary

Training	Attendees	Contents	Times	Period (days)	No. of persons	Training Implemented
EMP adjustment and implementation	PMO, IAs, contractors	Development and adjustment of the EMP, roles and responsibilities, monitoring, supervision and reporting procedures, review of experience (after 12 months)	Twice-Once prior to, and once after the first year of project implementation	/	/	No adjustment
Grievance Redress Mechanism	PMO, IAs, contractors, local EPBs	Roles and responsibilities, Procedures, review of experience (after 12 months)	Twice-Once prior to, and once after the first year of project implementation	/	/	Unenforced
Environmental protection	PMO, IAs, contractors	Pollution control on construction sites (air, noise, wastewater, solid waste)	Once (during project implementation)	/	/	No training
Environmental monitoring	PMO, IAs, contractors	Monitoring methods, data collection and processing, reporting systems	Once (at beginning of project construction)	6	15	Centralized training was not carried out, and on-site guidance was given to the construction personnel during on-site monitoring.

Notes: See the attachment for training content and attendance sheet.

VI. CONSULTATION, PARTICIPATION AND INFORMATION DISCLOSURE

30 Plans for public involvement during construction and operation stages were developed during project preparation. Table 12 shows the public consultation plan and summary of its implementation status during this reporting period.

Table12: Public Consultation Plan and Implementation Summary

Organizer	Format	No. of Times	Subject	Attendees	Implementation Status
Construction Stage					
PMO	Public consultation &	4 times: 1 time before construction	Adjusting of mitigation measures, if necessary;	Residents adjacent to components,	Once

Organizer	Format	No. of Times	Subject	Attendees	Implementation Status
	site visit	commences and 1 time each year during construction	construction impact; feedback and suggestions	village / group representatives	
PMO	Expert workshop / press conference	As needed based on public consultation	Feedback / suggestions on mitigation measures, public opinions	Experts of various sectors, media	/
PMO	Resettlement survey	As required by relevant resettlement plan	Comments on resettlement, improvement of living conditions, livelihood, and poverty reduction; comments and suggestions	Persons affected by resettlement and relocation	Survey was carried out according to the scheduling. Twice a year.
Operational Stage					
PMO, O&M Units	Public consultation and site visits	Once in the first year	Effectiveness of mitigation measures, impacts of operation, feedback and suggestions	Residents adjacent to component sites, social sectors	/
PMO, O&M Units	Expert workshop or press conference	As needed based on public consultation	Feedback and suggestions on operational impacts, public opinions	Experts of various sectors, media	/
Note: Affected by the epidemic, a public consultation was conducted during environmental monitoring in March 2021, mainly in oral form to consult the residents along the line to understand whether the highway construction has had adverse environmental impact. The investigation results showed that the most common reaction of the residents along the line was the construction dust. Therefore, the construction unit increased the intensity of watering.					

VII. GRIEVANCE REDRESS MECHANISM

31 A project-level grievance redress mechanism (GRM) was developed in accordance with the ADB's SPS requirement so to receive and facilitate resolution of affected person's concerns and complaints about the project's environmental performance during construction as well as operation phase of the project. The project GRM includes a procedure for receiving grievances, recording/ documenting key information, and evaluating and responding to the complainants in a reasonable period of time. Any concerns raised through the GRM will need to be addressed promptly and transparently.

32 Please provide contact information details of all the GRM focal persons at all levels.

Table 6. Contact Information of GRM focal points at Various Institutions

Institution	Name of Company	Name of GRM staff	Contact Information (phone number/email)
PMO		Mr. Yongming Yang	+86 13639506456

			yym13777@163.com
EEM		Ms. Yurong Wu	+86 13683683432 10258572@qq.com
IA	CTB Yuanzhou	Mr. Wuming Wang	+8615809591421 yzqjtxzjsj@163.com
	CTB Xiji	Mr. Xuxiong Wei Ms. Xiaoyan Shang	+8613995143987 +8615226242200 1287763390@qq.com
	CTB Longde	Mr.ZhangJun	+8618995446299 18995446299@163.com
	CTB Jingyuan	Mr. Xiaoping Wu	+8613995345808 290986914@qq.com
	CTB Pengyang	Mr. ZhangHua	+8613995449215 876319903@qq.com
	CTB Tongxin	Mr.YanhuaMian	+8613895284678 txjt8022391@163.com
	CTB Haiyuan	Mr.Fenglong Hei	+8618809609405 249315165@qq.com

33 No environmental complaints were received during the reporting period.

VIII. KEY ENVIRONMENTAL ISSUES

A. Key Issues Identified

34 As of December 2020, 21 rural branch roads have been completed and put into good operation. Except for Mengyuan chunshucha Chengyang Yangping road in Pengyang County will start in March next year, the other six trunk lines have been started. The section K0 + 300~K3 + 100 of Shatang Haodian Road in Huanghua township is located in Liupanshan nature reserve, and the original road is directly used. Therefore, during the reporting period, the key environmental problem is that the construction dust of the started projects has a great impact on the ambient air. In addition, before the completion of the project in Haiyuan County and Tongxin County, the reconstruction of the original section should be strengthened.

35 Almost all waste disposal areas of the project have been used, but some waste disposal areas have not been leveled and restored in time, and relevant restoration procedures have not been handled.

36 The construction of Zhengqi highway from Haiyuan county to Sikouzi via Jiucui and Wangtuan to Yuwang highway in Tongxin county has been completed, but the environmental protection acceptance has not been carried out in time. The other five trunk lines will be completed before June 30, 2022. It is recommended to carry out environmental protection acceptance according to domestic requirements before August.

B. Action Taken to mitigate key environmental issues

37 All contractors should increase the frequency of watering during construction, especially in windy weather.

38 The construction unit shall take corresponding protective measures for each temporary land occupation, level the waste dump in time, sow grass seeds for vegetation restoration, and handle the acceptance and handover procedures in the local land and other relevant departments.

39 All implementing agencies shall timely organize environmental protection self inspection for completed projects.

IX. CONCLUSIONS

40 By December 2021, all counties have completed the construction of rural branch lines with self raised funds. Among the seven trunk highways, the construction of Wangtuan Yuwang highway in Tongxin county was started in July 2019 and completed in November 2020; The construction of Zhengqi Sikouzi highway in Haiyuan County via Jiucui was started in March 2019 and completed in November 2020; The construction of Guanting Guyuan highway in Yuanzhou district was started in August 2020, and the main part was completed in December 2021. At present, waterproof and drainage work is being done; The construction of wanzhang Sanying highway in Yuanzhou district was started in October 2020 and completed in December 2021; The construction of Jiangtai Pingfeng highway in Xiji County via Xitan was started in June 2020 and is expected to be completed on June 30, 2022; The construction of Shatang Haodian highway in Huanghua Township, Jingyuan County was started in July 2020 and is expected to be completed on June 30, 2022; The construction of chunshucha Chengyang Yangping highway in Mengyuan, Pengyang County was officially started in March 2021 and is expected to be completed on June 30, 2022.

41 The PMO appointed a dedicated environmental staff member to oversee the EMP coordination, implementation, and site inspections, and hired an environmental expert to coordinate and manage. In September 2020, the external environmental monitoring experts conducted an online training for the project management office, implementation agencies and contractors for the newly started projects. The IAs have appointed full-time environmental personnel, and contacted Ningxia Zhongke Jingke Testing Technology Co. Ltd., a licensed environmental monitoring company to conduct monitoring on air, water and noise. In March and July in 2021, the EMS has carried out the current quality monitoring on the ambient air, water environment and acoustic environment during the construction period of the started project. The monitoring results indicate that the project constructions have not produced unacceptable environmental impact on the surrounding environment quality Ring.

42 There are three key environmental problems during the reporting period: ① the dust on the construction site has a great impact on the ambient air, and it is recommended that all contractors increase the frequency of watering during construction; ② Some waste disposal areas have not been leveled and restored in time, and relevant restoration procedures have not been handled. It is recommended that the construction unit take corresponding protective measures for each temporary land occupation, level the waste disposal area in time, sow grass seeds for vegetation restoration, and handle acceptance and handover procedures in local land and other

relevant departments; ③ The construction of Zhengqi highway from Haiyuan county to Sikouzi via Jiucui and Wangtuan to Yuwang highway in Tongxin county has been completed, but the environmental protection acceptance has not been carried out in time. The other five trunk lines will be completed before June 30, 2022. It is recommended that all implementing agencies timely organize environmental protection self inspection for the completed projects.

43 The public consultation showed that the public along the line expressed strong support for the construction of rural roads. The existing regional traffic level is relatively backward. Through the reconstruction and expansion of rural roads, the local traffic level has been improved, and the time of people along the line has been greatly improved.

Annex 1: Temporary Land Use agreement of Pengyang County

宁夏回族自治区林业和草原局

准予行政许可决定书

宁林资许准临[2019]110号

临时占用林地行政许可决定书

彭阳县交通运输局:

根据《森林法》及其实施条例和《建设项目使用林地审核审批管理办法》的规定,同意彭阳县孟塬椿树岔至城阳杨坪公路项目(2019-640425-54-01-007236)临时使用固原市彭阳县林地7.1701公顷。其中,孟塬乡白杨庄村集体林地1.1831公顷,双树村集体林地0.6955公顷,虎山庄村集体林地5.2915公顷。临时占用期限为1年。

你单位要加强对施工的监督和管理,严禁超审批范围使用林地,并采取有力措施,防止施工对生态环境造成不良影响。临时占用林地期满后,你单位应采取有效措施恢复被使用林地的林业生产条件。

宁夏回族自治区林业和草原局

2019年9月11日



固 原 市

原州区自然资源局文件

原自然资函（2021）61 号

关于固原市原州区官厅至固原公路 项目临时用地的批复

新疆交通建设集团股份有限公司、陕西华鑫源建筑工程有限公司：

你单位报来《关于官厅-固原公路工程项目临时用地的请示》（官固路项字（2021）001 号）及相关资料收悉。根据《土地管理法》等法律法规规定，经我局审查，现批复如下：

一、同意你单位使用固原市原州区官厅镇土地 5.7943 公顷（其中：耕地 1.6729 公顷，草地 4.0581 公顷，城镇及工矿用地 0.0633 公顷）作为该项目生产加工区、生活区及弃土场等临时用地。

临时用地期限 23 个月，自 2021 年 5 月 1 日起至 2023

年 4 月 1 日。

二、你单位必须按照批准的临时用地用途使用土地。不得在临时用地上建设永久性建筑物、构筑物，不得改变批准的用途或用于商业经营，不得改变批准的位置或扩大用地范围，不得转交给其他单位或个人使用。如有违反，经执法单位查实举证，我局将撤销临时用地批复，该临时用地按违法用地查处。

三、在临时用地批准的期限内，如遇国家、自治区、市、区重大项目建设需要占用，或者列入环保、自然资源整治范围等政策规定必须整改或拆除的，你单位必须按期无偿整改或拆除到位。

四、因工程建设原因，确需延期使用临时用地的，你单位必须在期满前 3 个月，持工程项目行政主管单位出具的证明文件，提出延期使用申请书，经我局审查批准延期后方可延期使用。未经批准延期的，必须限期拆除并恢复原地貌，否则按违法用地查处。

五、临时用地期满，你单位必须在可施工期 30 天内，按照《土地复垦方案》的要求恢复土地原貌，并在 1 年内完成耕地培肥或草地种草保植后，移交原用地单位或个人，并申请验收。验收通过后退还复垦保证金。逾期不恢复或培肥种草不达标、验收不通过的，我局将安排专人恢复治理，费用从你单位交纳的复垦保证金中支付。

此复

（联系人：张伟 联系电话：0954-3955660）



固原市原州区自然资源局办公室 2021年4月26日印

Environmental Status Monitoring Report

**People's Republic of China: Ningxia Liupanshan Poverty
Reduction Rural Road Development Project**

**(The 1st Quarter Report in March 2021 for Mengyuan Chunshucha
Chengyangyangping Road in Pengyang County)**

Ningxia Zhongke Jingke Testing Technology Co., Ltd

March 25th, 2021

1 TASK SOURCE

Entrusted by the Transportation Bureau of Pengyang County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians on March 16, 2021 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Mengyuan Chunshucha Chengyangyangping Road, the main rural road of Pengyang county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Baiyang Village(○1[#]), Central School of Mengyuan Township(○2[#]), Central kindergarten of Mengyuan Township(○3[#]), Health Center of Mengyuan Township (○4[#]), Shuangshu Village (○5[#]), Huaishu Village(○6[#]), Zhaoshan Village(○7[#]), Caotan Village (○8[#]), Ligou Wan(○9[#]), Beiyun Village in Chenwan(○10[#]), Yangping Village (○11[#]).Table 2-1 shows the specific points.

Table 2-1 List of Ambient Air Detection Points

Number	Name	Latitude and longitude coordinates	Testing items
○1 [#]	Baiyang Village	N35° 58' 53", E106° 48' 46"	TSP
○2 [#]	Central School of Mengyuan Township	N35° 58' 45", E106° 48' 52"	
○3 [#]	Central kindergarten of Mengyuan Township	N35° 58' 45", E106° 48' 54"	
○4 [#]	Health Center of Mengyuan Township	N35° 58' 49", E106° 49' 02"	
○5 [#]	Shuangshu Village	N35° 57' 05", E106° 49' 30"	
○6 [#]	Huaishu Village	N35° 56' 27", E106° 50' 06"	
○7 [#]	Zhaoshan Village	N35° 54' 52", E106° 51' 08"	

○8 [#]	Caotan Village	N35° 54' 31", E106° 51' 34"	
○9 [#]	Ligou Wan	N35° 52' 01", E106° 52' 13"	
○10 [#]	Beiyun Village in Chenwan	N35° 49' 40", E106° 52' 49"	
○11 [#]	Yangping Village	N35° 48' 09", E106° 52' 19"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》 (GB3095-2012) 、《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Ambient air -- Determination of total suspended particles -- Gravimetric method》 (GB/T15432-1995). Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	Sampling flow rate (L/min)	Detection frequency	Detection time
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	Sampling method	Analysis methods and sources	Method detection limit (mg/m ³)
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point,

sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》 (Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable.

Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate (%)	Test value (mg/L)	Standard value (mg/L)
1	TSP	11	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Date	Items	Average Temperature (°C)	Mean Pressure(kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
March 6th		6.4	86.5	44	E	2.1

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results.

Table 2-6 Statistical table of ambient air test results ($\mu\text{g}/\text{m}^3$)

Date	Point	○1# Baiyang Village	○2# Central School of Mengyuan Township	○3# Central kindergarten of Mengyuan Township	○4# Health Center of Mengyuan Township	○5# Shuangshu Village	○6# Huaishu Village
March 11th	TSP	133	117	108	125	151	174
Date	Point	○7# Zhaoshan Village	○8# Caotan Village	○9# Ligou Wan	○10# Beiyeun Village in Chenwan	○11# Yangping Village	
March 11th	TSP	149	162	153	125	138	

Analysis of test results:

On March 6th,2020,○1#~○11# total suspended particles at each test point (TSP) are 108~174 $\mu\text{g}/\text{m}^3$, All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 11 noise detection points are arranged in this time, Table 2-7 shows the List of monitoring points of acoustic environment quality status.

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲ 1 [#]	Baiyang Village	N35° 58' 53", E106° 48' 46"
▲ 2 [#]	Central School of Mengyuan Township	N35° 58' 45", E106° 48' 52"
▲ 3 [#]	Central kindergarten of Mengyuan Township	N35° 58' 45", E106° 48' 54"
▲ 4 [#]	Health Center of Mengyuan Township	N35° 58' 49", E106° 49' 02"
▲ 5 [#]	Shuangshu Village	N35° 57' 05", E106° 49' 30"
▲ 6 [#]	Huaishu Village	N35° 56' 27", E106° 50' 06"
▲ 7 [#]	Zhaoshan Village	N35° 54' 52", E106° 51' 08"
▲ 8 [#]	Caotan Village	N35° 54' 31", E106° 51' 34"
▲ 9 [#]	Ligou Wan	N35° 52' 01", E106° 52' 13"
▲ 10 [#]	Beiyun Village in Chenwan	N35° 49' 40", E106° 52' 49"
▲ 11 [#]	Yangping Village	N35° 48' 09", E106° 52' 19"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》(GB3096-2008): the measurement is carried out in the daytime. The testing instrument is AWA6228 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-028-1; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than $\pm 0.5\text{dB (A)}$, the calibration

is qualified, The microphone is equipped with a windscreen during monitoring.

Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-028-1		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		March 6th	
	Daytime	Before Calibration	93.8dB （A）	
		After Calibration	93.8dB （A）	
Basis	《Acoustic environment quality standard》 （GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time: March 6th, 2021.

Weather Conditions: There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	March 6th	
		Daytime	Nighttime
▲ 1 [#]	Baiyang Village	51	No production at night, so no noise monitoring at nigh.
▲ 5 [#]	Shuangshu Village	52	
▲ 6 [#]	Huaishu Village	52	

▲7 [#]	Zhaoshan Village	54	
▲8 [#]	Caotan Village	51	
▲9 [#]	Ligou Wan	53	
▲10 [#]	Beiyun Village in Chenwan	52	
▲11 [#]	Yangping Village	54	
《Acoustic environment quality standard》 (GB3096-2008) Class II		60	
▲2 [#]	Central School of Mengyuan Township	52	
▲3 [#]	Central kindergarten of Mengyuan Township	53	
▲4 [#]	Health Center of Mengyuan Township	50	
《Acoustic environment quality standard》 (GB3096-2008) Class I		55	

Analysis of test results: On March 6th, 2021, the noise detection value of the school and the Health Center are between 50db (A) and 53db (A) in the daytime, meeting the class I standard of 《Acoustic environment quality standard》 (GB3096-2008). The Monitoring results of other points are between 50db (A)~54db(A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》 (GB3096-2008).

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

(Special seal for inspection and detection)

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 1st Quarter Report in March 2021 for Guanting Town Yuanzhou District and
Wanzhang Sanying road in Yuanzhou District)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

March 25, 2021

1 TASK SOURCE

Entrusted by the Construction and Environmental Protection Bureau of Communication Township in Yuanzhou District of Guyuan City, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians on March 8, 2021 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Guanting Town Yuanzhou District and Wanzhang Sanying Road, the main rural road of Haiyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Qianwa Village(○1[#]),Guanting Primary School(○2[#]),Guanting Town(○3[#]), Group 2,Guanting Village(○4[#]),Group 4, Guanting Village(○5[#]),Liudian Village(○6[#]) 、 Liuzhengdian(○7[#]) 、 Shizhuang Village(○8[#])、 Erdaocha Village(○9[#]) 、 Chengershan Village(○10[#]) ,distributed in Guanting town-Yuanzhou District of Guyuan Citye. The other six points are Lijiacha Village(○11[#]),Group 2,Dongyuan Village(○12[#]),Dongyuan Primary School(○13[#]), Group 4,Dongyuan Village(○14[#]),Malu Mosques(○15[#]) and Malu Village(○16[#]), distributed in Wanzhang Sanying Road. Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Road section	Latitude and longitude coordinates	Testing items
○1 [#]	Qianwa Village	Guanting town-Yuanzhou District of Guyuan City Road	N: 36° 10' 19" E: 106° 24' 34"	TSP
○2 [#]	Guanting Primary School		N: 36° 9' 42" E: 106° 24' 56"	
○3 [#]	Guanting Town		N: 36° 9' 43" E: 106° 24' 56"	
○4 [#]	Group 2, Guanting Village		N: 36° 9' 35" E: 106° 24' 53"	
○5 [#]	Group 4, Guanting Village		N: 36° 9' 14" E: 106° 24' 23"	
○6 [#]	Liudian Village		N: 36° 7' 0" E: 106° 22' 2"	
○7 [#]	Liuzhengdian		N: 36° 6' 55" E: 106° 22' 18"	
○8 [#]	Shizhuang Village		N: 36° 5' 46" E: 106° 21' 1"	
○9 [#]	Erdaocha Village		N: 36° 4' 37" E: 106° 20' 16"	
○10 [#]	Chengershan Village		N: 36° 3' 31" E: 106° 20' 10"	
○11 [#]	Lijiacha Village	Wanzhang Sanying Road	N: 36° 7' 19" E: 106° 19' 25"	TSP
○12 [#]	Group 2, Dongyuan Village		N: 36° 16' 17" E: 106° 14' 13"	
○13 [#]	Dongyuan Primary School		N: 36° 16' 24" E: 106° 13' 31"	
○14 [#]	Group 4, Dongyuan Village		N: 36° 16' 25" E: 106° 12' 21"	
○15 [#]	Malu Mosques		N: 36° 16' 26" E: 106° 10' 26"	
○16 [#]	Malu Village		N: 36° 16' 26" E: 106° 10' 12"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the

relevant technical requirements of 《Ambient Air Quality Standard》 (GB3095-2012) 、《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Ambient air -- Determination of total suspended particles -- Gravimetric method》 (GB/T15432-1995). Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	Sampling flow rate (L/min)	Detection frequency	Detection time
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	Sampling method	Analysis methods and sources	Method detection limit (mg/m ³)
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》 (Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for

manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable.

Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate (%)	Test value (mg/L)	Standard value (mg/L)
1	TSP	16	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Date	Items	Average Temperature (°C)	Mean Pressure (kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
March 8th		6.9	81.7	33	N	2.9
March 9th		7.3	81.6	31	E	2.7

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results ($\mu\text{g}/\text{m}^3$)

Date	Point	/	○2# Guanting Primary School	○3# Guanting Town	○4# Group 2, Guanting Village	○5# Group 4, Guanting Village	○6# Liudian Village	○7# Liuzhengdi an
March 8th	TSP	/	127	173	188	169	152	195
Date	Point	○8# Shizhuang Village	○9# Erdaocha Village	○10# Chengersha n Village				
March 8th	TSP	223	146	170				
Date	Point	○1# Qianwa Village	○11# Lijiacha Village	○12# Group 2,Dongyua n Village	○13# Dongyuan Primary School	○14# Group 4, Dongyuan Village	○15# Malu Mosques	○16# Malu Village
March 9th	TSP	125	153	177	118	153	181	204
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results:

○1#~○16# total suspended particles at each test point (TSP) are 118~223 $\mu\text{g}/\text{m}^3$ from March 8th to 9th, 2021. All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 16 noise detection points are arranged in this time, Table 2-7 shows the List of monitoring points of acoustic environment quality status.

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Road section	Latitude and longitude coordinates
△1#	Qianwa Village	Guanting town-Yuanzhou District of Guyuan Citye Road	N: 36° 10' 19" E: 106° 24' 34"
△2#	Guanting Primary School		N: 36° 9' 42" E: 106° 24' 56"
△3#	Guanting Town		N: 36° 9' 43" E: 106° 24' 56"

△4 [#]	Group 2, Guanting Village		N: 36° 9' 35" E: 106° 24' 53"
△5 [#]	Group 4, Guanting Village		N: 36° 9' 14" E: 106° 24' 23"
△6 [#]	Liudian Village		N: 36° 7' 0" E: 106° 22' 2"
△7 [#]	Liuzhengdian		N: 36° 6' 55" E: 106° 22' 18"
△8 [#]	Shizhuang Village		N: 36° 5' 46" E: 106° 21' 1"
△9 [#]	Erdaocha Village		N: 36° 4' 37" E: 106° 20' 16"
△10 [#]	Chengershan Village		N: 36° 3' 31" E: 106° 20' 10"
△11 [#]	Lijiacha Village	Wanzhang Sanying Road	N: 36° 7' 19" E: 106° 19' 25"
△12 [#]	Group 2,Dongyuan Village		N: 36° 16' 17" E: 106° 14' 13"
△13 [#]	Dongyuan Primary School		N: 36° 16' 24" E: 106° 13' 31"
△14 [#]	Group 4, Dongyuan Village		N: 36° 16' 25" E: 106° 12' 21"
△15 [#]	Malu Mosques		N: 36° 16' 26" E: 106° 10' 26"
△16 [#]	Malu Village		N: 36° 16' 26" E: 106° 10' 12"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》(GB3096-2008): the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-030-2; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than $\pm 0.5\text{dB (A)}$, the calibration is qualified, The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA5680 multi function sound level meter No.: JK-2-023-1		Calibration Instrument Model	AWA6221B Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		March 8th	March 9th
	Daytime	Before Calibration	93.8dB (A)	93.7dB (A)
		After Calibration	93.6dB (A)	93.8dB (A)
Basis	《Acoustic environment quality standard》 (GB3096-2008)			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time: From March 8 to March 9, 2021.

Weather Conditions: There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	March 8th	
		Daytime	Nighttime
△1 [#]	Qianwa Village	52	No production at night, so no noise monitoring at nigh.
△3 [#]	Guanting Town	54	
△4 [#]	Group 2, Guanting Village	51	
△5 [#]	Group 4, Guanting Village	52	
△6 [#]	Liudian Village	48	
△7 [#]	Liuzhengdian	55	
△8 [#]	Shizhuang Village	50	
△9 [#]	Erdaochoa Village	52	
△10 [#]	Chengershan Village	47	
《Acoustic environment quality standard》 （GB3096-2008）Class II		60	
△2 [#]	Guanting Primary School	50	
《Acoustic environment quality standard》 （GB3096-2008）Class I		55	
Number	Location	March 9th	
		Daytime	Nighttime
△11 [#]	Lijiacha Village	50	No production at night, so no noise monitoring at nigh.
△12 [#]	Group 2,Dongyuan Village	49	
△14 [#]	Group 4, Dongyuan Village	48	
△15 [#]	Malu Mosques	54	
△16 [#]	Malu Village	54	
《Acoustic environment quality standard》 （GB3096-2008）Class II		60	
△13 [#]	Dongyuan Primary School	49	
《Acoustic environment quality standard》 （GB3096-2008）Class I		55	

Analysis of test results: From March 8 to March 9, 2021, the noise detection values of the second and fifth testing point are between 48db (A) and 50db (A) in

the daytime, meeting the class I standard of 《Acoustic environment quality standard》（GB3096-2008）.The Monitoring results of other points are between 47db(A) and 55db(A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）.

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, one sampling point is set in GaiPai Reservoir, Table 2-10 shows the Specific location.

Table 2-10 List of surface water detection points

Number	Name	Latitude and longitude coordinates
☆1 [#]	50m upstream of Qingshui River Bridge	N36°16'23", E106° 9'53"
☆2 [#]	100m downstream of Qingshui River Bridge	N36°16'25", E106°9'59"

2.3.2 Testing items, Testing time and Frequency

Test Items: DO, Petroleum, SS

Detection Time: March 8th,2021

Frequency: One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》 and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-11 shows the detailed monitoring and analysis method。

Table 2-11 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in 《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002) 、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples 》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》 (the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-12 shows the result.

Table 2-12 Monitoring Results

Number	Test Items	Results	
		☆1 [#]	☆2 [#]
1	DO(mg/L)	7.26	7.21
2	Petroleum(mg/L)	0.01L	0.01L
3	SS(mg/L)	25	27

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

(Special seal for inspection and detection)

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 1st Quarter Report in March 2021 for Jiangtai Xitan Pingfeng Road in Xiji
County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

March 25th, 2021

1 TASK SOURCE

Entrusted by the Transportation Bureau of Xiji County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from March 11 to March 13, 2021 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Jiangtai Xitan Pingfeng Road, the main rural road of Xiji county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Central Health Center of Jiangtai Township (○1[#]), Mingtai Village (○2[#]), Maojiagou Village (○3[#]), Shenchu Village (○4[#]), Heihugou Village (○5[#]), Central Primary School of Xitan Township (○6[#]), Health Center of Xitan Township (○7[#]), Hejiawan Village (○8[#]), Gancha Primary School (○9[#]), Gancha Village (○10[#]), Xinzhuangzi Village (○11[#]), Xingping Village (○12[#]), Youai Village (○13[#]), Yapowan Village (○14[#]), Pingfeng Village (○15[#]), Pingfeng Middle School in Xiji (○16[#]), Fujiawan Village (○17[#]), Wangnao Village (○18[#]), Luotuoche Village (○19[#]) and Libao Primary School (○20[#]). Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1 [#]	Central Health Center of Jiangtai Township	N35°48' 40", E105° 50' 08"	TSP
○2 [#]	Mingtai Village	N35° 48' 44", E105° 49' 50"	
○3 [#]	Maojiagou Village	N35° 48' 47", E105° 49' 01"	
○4 [#]	Shencha Village	N35° 49' 25", E105° 48' 05"	
○5 [#]	Heihugou Village	N35° 49' 54", E105° 46' 40"	
○6 [#]	Central Primary School of Xitan Township	N35° 52' 56", E105° 44' 38"	
○7 [#]	Health Center of Xitan Township	N35° 52' 53", E105° 44' 33"	
○8 [#]	Hejiawan Village	N35° 52' 46", E105° 42' 34"	
○9 [#]	Gancha Primary School	N35° 52' 16", E105° 42' 02"	
○10 [#]	Gancha Village	N35° 52' 14", E105° 42' 03"	
○11 [#]	Xinzhuangzi Village	N35° 50' 41", E105° 40' 31"	
○12 [#]	Xingping Village	N35° 50' 32", E105° 39' 57"	
○13 [#]	Youai Village	N35°49' 35", E105° 39' 03"	
○14 [#]	Yapowan Village	N35°46' 29", E105° 35' 32"	
○15 [#]	Pingfeng Village	N35° 44' 43", E105° 34' 02"	
○16 [#]	Pingfeng Middle School in Xiji	N35° 44' 33", E105° 33' 50"	
○17 [#]	Fujiawan Village	N35° 44' 23", E105° 28' 59"	
○18 [#]	Wangnao Village	N35° 45' 29", E105° 29' 01"	
○19 [#]	Luotuochoa Village	N35° 46' 11", E105° 28' 46"	
○20 [#]	Libao Primary School	N35° 46' 39", E105° 27' 52"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the

ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》 (GB3095-2012) 、《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Ambient air -- Determination of total suspended particles -- Gravimetric method》 (GB/T15432-1995). Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	Sampling flow rate (L/min)	Detection frequency	Detection time
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	Sampling method	Analysis methods and sources	Method detection limit (mg/m ³)
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》 (Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance

with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable.

Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate (%)	Test value (mg/L)	Standard value (mg/L)
1	TSP	20	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Date \ Items	Average Temperature (°C)	Mean Pressure(kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
March 11th	3.8	81.2	32	S	2.6
March 12th	4.9	81.3	35	SE	2.1

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results ($\mu\text{g}/\text{m}^3$)

Date	Point	○1# Central Health Center of Jiangtai Township	○2# Mingtai Village	○3# Maojiagou Village	○4# Shencha Village	○5# Heihugou Village	○6# Central Primary School of Xitan Township	○7# Health Center of Xitan Township
March 11th	TSP	103	131	114	150	126	95	101
Date	Point	○8# Hejiawan Village	○9# Gancha Primary School	○10# Gancha Village				
March 11th	TSP	127	115	138				
Date	Point	○11# Xinzhuangz i Village	○12# Xingping Village	○13# Youai Village	○14# Yapowan Village	○15# Pingfeng Village	○16# Pingfeng Middle School in Xiji	○17# Fujiawan Village
March 12th	TSP	144	152	124	117	173	129	145
Date	Point	○18# Wangna o Village	○19# Luotuocho Village	○20# Libao Primary School				
March 12th	122	118	126					
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results:

From March 11th to 12th,2020,○1[#]~○20[#] total suspended particles at each test point (TSP) are 95~173 $\mu\text{g}/\text{m}^3$, All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 20 noise detection points are arranged in this

time, Table 2-7 shows the List of monitoring points of acoustic environment quality status。

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲ 1 [#]	Central Health Center of Jiangtai Township	N35°48' 40", E105° 50' 08"
▲ 2 [#]	Mingtai Village	N35° 48' 44", E105° 49' 50"
▲ 3 [#]	Maojiagou Village	N35° 48' 47", E105° 49' 01"
▲ 4 [#]	Shencha Village	N35° 49' 25", E105° 48' 05"
▲ 5 [#]	Heihugou Village	N35° 49' 54", E105° 46' 40"
▲ 6 [#]	Central Primary School of Xitan Township	N35° 52' 56", E105° 44' 38"
▲ 7 [#]	Health Center of Xitan Township	N35° 52' 53", E105° 44' 33"
▲ 8 [#]	Hejiawan Village	N35° 52' 46", E105° 42' 34"
▲ 9 [#]	Gancha Primary School	N35° 52' 16", E105° 42' 02"
▲ 10 [#]	Gancha Village	N35° 52' 14", E105° 42' 03"
▲ 11 [#]	Xinzhuangzi Village	N35° 50' 41", E105° 40' 31"
▲ 12 [#]	Xingping Village	N35° 50' 32", E105° 39' 57"
▲ 13 [#]	Youai Village	N35°49' 35", E105° 39' 03"
▲ 14 [#]	Yapowan Village	N35°46' 29", E105° 35' 32"
▲ 15 [#]	Pingfeng Village	N35° 44' 43", E105° 34' 02"
▲ 16 [#]	Pingfeng Middle School in Xiji	N35° 44' 33", E105° 33' 50"
▲ 17 [#]	Fujiawan Village	N35° 44' 23", E105° 28' 59"
▲ 18 [#]	Wangnao Village	N35° 45' 29", E105° 29' 01"
▲ 19 [#]	Luotuocha Village	N35° 46' 11", E105° 28' 46"
▲ 20 [#]	Libao Primary School	N35° 46' 39", E105° 27' 52"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》(GB3096-2008): the measurement is carried out in the daytime.

The testing instrument is AWA6228 multi-functional sound level meter produced

by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-028-1; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than $\pm 0.5\text{dB (A)}$, the calibration is qualified, The microphone is equipped with a windscreen during monitoring.

Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-028-1		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		March 11	March 12
	Daytime	Before Calibration	93.7dB (A)	93.8dB (A)
		After Calibration	93.8dB (A)	93.8dB (A)
Basis	《Acoustic environment quality standard》 (GB3096-2008)			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time: March 11 to March 12, 2021.

Weather Conditions: There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	August 8th	
		Daytime	Nighttime
▲2 [#]	Mingtai Village	49	No production at night, so no noise monitoring at night.
▲3 [#]	Maojiagou Village	52	
▲4 [#]	Shencha Village	50	
▲5 [#]	Heihugou Village	51	
▲8 [#]	Hejiawan Village	52	
▲10 [#]	Gancha Village	47	
▲11 [#]	Xinzhuangzi Village	49	
▲12 [#]	Xingping Village	48	
▲13 [#]	Youai Village	51	
▲14 [#]	Yapowan Village	52	
▲15 [#]	Pingfeng Village	49	
▲17 [#]	Fujiawan Village	51	
▲18 [#]	Wangnao Village	51	
▲19 [#]	Luotuochoa Village	50	
《Acoustic environment quality standard》 (GB3096-2008) Class II		60	
▲1 [#]	Central Health Center of Jiangtai Township	47	
▲6 [#]	Central Primary School of Xitan Township	49	
▲7 [#]	Health Center of Xitan Township	52	
▲9 [#]	Gancha Primary School	48	
▲16 [#]	Pingfeng Middle School in Xiji	48	

▲20 [#]	Libao Primary School	50	
《Acoustic environment quality standard》 (GB3096-2008) Class I		55	

Analysis of test results: From March 11 to March 13, 2021, the noise detection value of the school and the Health Center are between 48db (A) and 50db (A) in the daytime, meeting the class I standard of 《Acoustic environment quality standard》 (GB3096-2008). The Monitoring results of other points are between 47db (A)~52db(A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》 (GB3096-2008).

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, two sampling points are set in Hulu River and one sampling point is set in Libao Reservoir, Table 2-10 shows the Specific location.

Table 2-10 List of surface water detection points

Number	Name	Latitude and longitude coordinates
☆1 [#]	50m upstream of Hulu Bridge	N35° 48' 45", E105° 49' 20"
☆2 [#]	100m downstream of Hulu Bridge	N35° 48' 44", E105° 49' 09"
☆3 [#]	Libao Reservoir	N35° 46' 22", E105° 27' 35"

2.3.2 Testing items, Testing time and Frequency

Test Items: DO, Petroleum, SS

Detection Time: March 13, 2021

Frequency: One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according

to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》 and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-11 shows the detailed monitoring and analysis method.

Table 2-11 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in 《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002)、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as

laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-12 shows the result.

Table 2-12 Monitoring Results

Number	Test Items	Results		
		☆1 [#]	☆2 [#]	☆3 [#]
1	DO(mg/L)	7.03	7.17	7.53
2	Petroleum(mg/L)	0.01L	0.01L	0.01L
3	SS(mg/L)	9	10	9

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

(Special seal for inspection and detection)

Environmental Status Monitoring Report

**People's Republic of China: Ningxia Liupanshan Poverty
Reduction Rural Road Development Project**

**(The 1st Quarter Report in March 2021 for Mengyuan Chunshucha
Chengyangyangping Road in Pengyang County)**

Ningxia Zhongke Jingke Testing Technology Co., Ltd

March 25th, 2021

1 TASK SOURCE

Entrusted by the Transportation Bureau of Pengyang County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians on March 16, 2021 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Mengyuan Chunshucha Chengyangyangping Road, the main rural road of Pengyang county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Baiyang Village(○1[#]), Central School of Mengyuan Township(○2[#]), Central kindergarten of Mengyuan Township(○3[#]), Health Center of Mengyuan Township (○4[#]), Shuangshu Village (○5[#]), Huaishu Village(○6[#]), Zhaoshan Village(○7[#]), Caotan Village (○8[#]), Ligou Wan(○9[#]), Beiyun Village in Chenwan(○10[#]), Yangping Village (○11[#]).Table 2-1 shows the specific points.

Table 2-1 List of Ambient Air Detection Points

Number	Name	Latitude and longitude coordinates	Testing items
○1 [#]	Baiyang Village	N35° 58' 53", E106° 48' 46"	TSP
○2 [#]	Central School of Mengyuan Township	N35° 58' 45", E106° 48' 52"	
○3 [#]	Central kindergarten of Mengyuan Township	N35° 58' 45", E106° 48' 54"	
○4 [#]	Health Center of Mengyuan Township	N35° 58' 49", E106° 49' 02"	
○5 [#]	Shuangshu Village	N35° 57' 05", E106° 49' 30"	
○6 [#]	Huaishu Village	N35° 56' 27", E106° 50' 06"	
○7 [#]	Zhaoshan Village	N35° 54' 52", E106° 51' 08"	

○8 [#]	Caotan Village	N35° 54' 31", E106° 51' 34"	
○9 [#]	Ligou Wan	N35° 52' 01", E106° 52' 13"	
○10 [#]	Beiyun Village in Chenwan	N35° 49' 40", E106° 52' 49"	
○11 [#]	Yangping Village	N35° 48' 09", E106° 52' 19"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》 (GB3095-2012) 、《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Ambient air -- Determination of total suspended particles -- Gravimetric method》 (GB/T15432-1995). Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	Sampling flow rate (L/min)	Detection frequency	Detection time
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	Sampling method	Analysis methods and sources	Method detection limit (mg/m ³)
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point,

sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》 (Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable.

Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate (%)	Test value (mg/L)	Standard value (mg/L)
1	TSP	11	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Date	Items	Average Temperature (°C)	Mean Pressure(kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
March 6th		6.4	86.5	44	E	2.1

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results.

Table 2-6 Statistical table of ambient air test results ($\mu\text{g}/\text{m}^3$)

Date	Point	○1# Baiyang Village	○2# Central School of Mengyuan Township	○3# Central kindergarten of Mengyuan Township	○4# Health Center of Mengyuan Township	○5# Shuangshu Village	○6# Huaishu Village
March 11th	TSP	133	117	108	125	151	174
Date	Point	○7# Zhaoshan Village	○8# Caotan Village	○9# Ligou Wan	○10# Beiye Village in Chenwan	○11# Yangping Village	
March 11th	TSP	149	162	153	125	138	

Analysis of test results:

On March 6th,2020,○1#~○11# total suspended particles at each test point (TSP) are $108\sim174\mu\text{g}/\text{m}^3$, All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 11 noise detection points are arranged in this time, Table 2-7 shows the List of monitoring points of acoustic environment quality status.

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲ 1 [#]	Baiyang Village	N35° 58' 53", E106° 48' 46"
▲ 2 [#]	Central School of Mengyuan Township	N35° 58' 45", E106° 48' 52"
▲ 3 [#]	Central kindergarten of Mengyuan Township	N35° 58' 45", E106° 48' 54"
▲ 4 [#]	Health Center of Mengyuan Township	N35° 58' 49", E106° 49' 02"
▲ 5 [#]	Shuangshu Village	N35° 57' 05", E106° 49' 30"
▲ 6 [#]	Huaishu Village	N35° 56' 27", E106° 50' 06"
▲ 7 [#]	Zhaoshan Village	N35° 54' 52", E106° 51' 08"
▲ 8 [#]	Caotan Village	N35° 54' 31", E106° 51' 34"
▲ 9 [#]	Ligou Wan	N35° 52' 01", E106° 52' 13"
▲ 10 [#]	Beiyun Village in Chenwan	N35° 49' 40", E106° 52' 49"
▲ 11 [#]	Yangping Village	N35° 48' 09", E106° 52' 19"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》(GB3096-2008): the measurement is carried out in the daytime. The testing instrument is AWA6228 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-028-1; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than $\pm 0.5\text{dB (A)}$, the calibration

is qualified, The microphone is equipped with a windscreen during monitoring.

Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-028-1		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		March 6th	
	Daytime	Before Calibration	93.8dB （A）	
		After Calibration	93.8dB （A）	
Basis	《Acoustic environment quality standard》 （GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time: March 6th, 2021.

Weather Conditions: There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	March 6th	
		Daytime	Nighttime
▲ 1 [#]	Baiyang Village	51	No production at night, so no noise monitoring at nigh.
▲ 5 [#]	Shuangshu Village	52	
▲ 6 [#]	Huaishu Village	52	

▲7 [#]	Zhaoshan Village	54	
▲8 [#]	Caotan Village	51	
▲9 [#]	Ligou Wan	53	
▲10 [#]	Beiyun Village in Chenwan	52	
▲11 [#]	Yangping Village	54	
《Acoustic environment quality standard》 (GB3096-2008) Class II		60	
▲2 [#]	Central School of Mengyuan Township	52	
▲3 [#]	Central kindergarten of Mengyuan Township	53	
▲4 [#]	Health Center of Mengyuan Township	50	
《Acoustic environment quality standard》 (GB3096-2008) Class I		55	

Analysis of test results: On March 6th, 2021, the noise detection value of the school and the Health Center are between 50db (A) and 53db (A) in the daytime, meeting the class I standard of 《Acoustic environment quality standard》 (GB3096-2008). The Monitoring results of other points are between 50db (A)~54db(A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》 (GB3096-2008).

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

(Special seal for inspection and detection)

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 1st Quarter Report in March 2021 for Shatang haodian road in Jingyuan
County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

March 25th, 2021

1 TASK SOURCE

Entrusted by the Transportation Bureau of Jingyuan County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians on March 14th, 2021 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Shatang Haodian Road, the main rural road of Jingyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Shatang Village (○1[#]), Nonglin Village (○2[#]) and Tuyao Village (○3[#]). Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1 [#]	Shatang Village	N35°34' 49", E106° 26' 39"	TSP
○2 [#]	Nonglin Village	N35° 39' 01", E106° 25' 33"	
○3 [#]	Tuyao Village	N35° 39' 24", E106° 24' 44"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》 (GB3095-2012) 、《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Ambient air -- Determination of total suspended particles -- Gravimetric method》 (GB/T15432-1995). Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	Sampling flow rate (L/min)	Detection frequency	Detection time
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	Sampling method	Analysis methods and sources	Method detection limit (mg/m ³)
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》 (Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued

by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable.

Table 2-4 shows the Quality control data.

Table 2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate (%)	Test value (mg/L)	Standard value (mg/L)
1	TSP	3	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Date	Items	Average Temperature (°C)	Mean Pressure(kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
March 14th		4.9	82.6	38	SE	2.7

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results ($\mu\text{g}/\text{m}^3$)

Date	Point	O1#Shatang Village	O2# Nonglin Village	O3# Tuyao Village
March 14th	TSP	135	117	112
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300		

Analysis of test results:

On March 14th, 2021, O1[#]~O3[#] total suspended particles at each test point (TSP) are 112~135 $\mu\text{g}/\text{m}^3$, All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 3 noise detection points are arranged in this time, Table 2-7 shows the List of monitoring points of acoustic environment quality status.

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲ 1 [#]	Shatang Village	N35°34' 49", E106° 26' 39"
▲ 2 [#]	Nonglin Village	N35° 39' 01", E106° 25' 33"
▲ 3 [#]	Tuyao Village	N35° 39' 24", E106° 24' 44"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》(GB3096-2008): the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023-1; the instrument is calibrated with AWA6021A class I noise calibrator

produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than $\pm 0.5\text{dB (A)}$, the calibration is qualified, The microphone is equipped with a windscreen during monitoring.

Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA5680 + multi function sound level meter No.: JK-2-023-1		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		March 14th	
	Daytime	Before Calibration	93.6dB （A）	
		After Calibration	93.7dB （A）	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time: March 14th, 2021.

Weather Conditions: There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	March 14th	
		Daytime	Nighttime
▲1 [#]	Shatang Village	56	No production at night, so no noise monitoring at night.
▲2 [#]	Nonglin Village	55	
▲3 [#]	Tuyao Village	53	
《Acoustic environment quality standard》 (GB3096-2008) Class II		60	

Analysis of test results: On March 14th, 2021, the Monitoring results of the villages are between 53db (A)~56db (A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》 (GB3096-2008) .

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, two sampling points are set in YanZhi River, Table 2-10 shows the Specific location.

Table 2-10 List of surface water detection points

Number	Name	Latitude and longitude coordinates
☆1 [#]	50m upstream of Yanzhi Bridge	N35° 35' 36", E106° 25' 09"
☆2 [#]	100m downstream of yanzhi Bridge	N35° 35' 32", E106° 25' 15"

2.3.2 Testing items, Testing time and Frequency

Test Items: DO, Petroleum, SS

Detection Time: March 14th,2021

Frequency: One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》 and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-11 shows the detailed monitoring and analysis method.

Table 2-11 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in 《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002)、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The

detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-12 shows the result.

Table 2-12 Monitoring Results

Number	Test Items	Results	
		☆1 [#]	☆2 [#]
1	DO(mg/L)	7.94	7.87
2	Petroleum(mg/L)	0.01L	0.01L
3	SS(mg/L)	17	20

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

(Special seal for inspection and detection)

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 1st Quarter Report in Mar. 2021 for Zhengqi Jiucai Sikouzi road in Haiyuan County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

March 20, 2021

1 TASK SOURCE

Entrusted by the Transportation Bureau of Haiyuan County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians on March 4,2021 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Zhengqi Jiucui Sikouzi Road, the main rural road of Haiyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Tangbao Village (○1[#]), Guluwan Village (○2[#]), Lubiliang Village (○3[#]), Matao Village (○4[#]), Matao primary school (○5[#]), Yuantao Village (○6[#]) and Houtang Village (○7[#]).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1 [#]	Tangbao Village	N36° 24' 38.78", E106° 58' 28.84"	TSP
○2 [#]	Guluwan Village	N36° 23' 03.43", E106° 56' 31.20"	
○3 [#]	Lubiliang Village	N36° 20' 45.27", E105° 56' 1.25"	
○4 [#]	Matao Village	N36° 18' 45.96", E105°55' 26.14"	
○5 [#]	Matao primary school	N36° 18' 43.17", E105°55'27.30"	
○6 [#]	Yuantao Village	N36° 17' 41.80", E105°55' 31.04"	
○7 [#]	Houtang Village	N36° 16' 51.62", E105°55' 45.02"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》 (GB3095-2012) 、《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Ambient air -- Determination of total suspended particles -- Gravimetric method》 (GB/T15432-1995). Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	Sampling flow rate (L/min)	Detection frequency	Detection time
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	Sampling method	Analysis methods and sources	Method detection limit (mg/m ³)
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual

monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》 (Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable. Table 2-4 shows the Air sampling instrument flow calibration, Table 2-5 shows the Quality control data.

Table 2-4 Air Sampling Instrument Flow Calibration

Number	Calibration Flow Rate (ml/min)		Before sampling		After sampling		Y/N
			Measured flow (ml/min)	relative error (%)	Measured flow (ml/min)	relative error (%)	
Tsp integrated sampler JK-2-002-7	Dust Road	100	100.5	0.5	100.6	0.6	Y
Tsp integrated sampler JK-2-002-12	Dust Road	100	99.6	-0.4	99.9	-0.1	Y
Tsp integrated sampler JK-2-002-19	Dust Road	100	99.2	-0.8	99.2	-0.8	Y
Tsp integrated sampler JK-2-002-2	Dust Road	100	100.1	0.1	99.9	-0.1	Y

Tsp integrated sampler JK-2-034-1	Dust Road	100	99.8	-0.2	100	0.0	Y
Tsp integrated sampler JK-2-034-3	Dust Road	100	100.4	0.4	100.5	0.5	Y
Tsp integrated sampler JK-2-034-4	Dust Road	100	100.1	0.1	100.5	0.3	Y

Table2-5 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate (%)	Test value (mg/L)	Standard value (mg/L)
1	TSP	7	/	2	/	100	/	/

2.1.5 Test Results

Table 2-6 shows the weather conditions。

Table 2-6 Statistical Table of Meteorological Conditions

Items Date	Average Temperature (°C)	Mean Pressure (kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
March 4th	5.8	81.5	28	S	2.6

2.1.6 Ambient Air Test Results

Table 2-7 shows the Ambient air test results。

Table 2-7 Statistical table of ambient air test results (μg/m³)

Date	Point Items	○1# Tangbao Village	○2# Guluwan Village	○3# Lubilian g Village	○4# Matao Village	○5# Matao primary school	○6# Yuantao Village	○7# Houtang Village
March 4th	TSP	126	110	165	106	122	137	151
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results:

On March 4th,2021,○1[#]~○7[#] total suspended particles at each test point

(TSP)are 106~165 $\mu\text{g}/\text{m}^3$, All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 7 noise detection points are arranged in this time, Table 2-8 shows the List of monitoring points of acoustic environment quality status。

Table 2-8 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1 [#]	Tangbao Village	N36° 24' 38.78", E106° 58' 28.84"
▲2 [#]	Guluwan Village	N36° 23' 03.43", E106° 56' 31.20"
▲3 [#]	Lubiliang Village	N36° 20' 45.27", E105° 56' 1.25"
▲4 [#]	Matao Village	N36° 18' 45.96", E105°55' 26.14"
▲5 [#]	Matao primary school	N36° 18' 43.17", E105°55'27.30"
▲6 [#]	Yuantao Village	N36° 17' 41.80", E105°55' 31.04"
▲7 [#]	Houtang Village	N36° 16' 51.62", E105°55' 45.02"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》(GB3096-2008): the measurement is carried out in the daytime.

The testing instrument is AWA6218B multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-045-3; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of

JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than $\pm 0.5\text{dB (A)}$, the calibration is qualified, The microphone is equipped with a windscreen during monitoring.

Table 2-9 shows the Specific Calibration Value。

Table 2-9 List of Sound Level Calibration Results

Model of Testing Instrument	AWA5680 + multi function sound level meter No.: JK-2-045-3		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		March 4th	
	Daytime	Before Calibration	93.8dB （A）	
		After Calibration	93.9dB （A）	
Basis	《Acoustic environment quality standard》 （GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time: March 4th, 2021.

Weather Conditions: There is no rain or snow, no lightning and the wind

speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-10 shows the result.

Table 2-10 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	November 25th	
		Daytime	Nighttime
▲ 1 [#]	Tangbao Village	53	No production at night, so no noise monitoring at night.
▲ 2 [#]	Guluwan Village	51	
▲ 3 [#]	Lubiliang Village	51	
▲ 4 [#]	Matao Village	52	
▲ 6 [#]	Yuantao Village	53	
▲ 7 [#]	Houtang Village	51	
《Acoustic environment quality standard》 (GB3096-2008) Class II		60	
▲ 5 [#]	Matao primary school	50	
《Acoustic environment quality standard》 (GB3096-2008) Class I		55	

Analysis of test results: On March 4th, 2021, the noise detection value of the fifth testing point is 50db (A) in the daytime, meeting the class I standard of 《Acoustic environment quality standard》 (GB3096-2008). The Monitoring results of other points are between 51db (A)~53db (A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》 (GB3096-2008).

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, one sampling point is set in GaiPai Reservoir, Table 2-11 shows the Specific location.

Table 2-11 List of surface water detection points

Number	Name	Latitude and longitude coordinates
☆1 [#]	GaiPai Reservoir	N36° 25' 33", E105° 58' 44"

2.3.2 Testing items, Testing time and Frequency

Test Items: DO, Petroleum, SS

Detection Time: March 4th,2021

Frequency: One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》 and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-12 shows the detailed monitoring and analysis method.

Table 2-12 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in 《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002) 、《Technical Regulations

on Preservation and Management of Water Quality Sampling Samples 》 (HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》 (the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-13 shows the result.

Table 2-13 Monitoring Results

Number	Location	Results
▲ 1 [#]	DO(mg/L)	7.97
▲ 2 [#]	Petroleum(mg/L)	0.01L
▲ 3 [#]	SS(mg/L)	12

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

(Special seal for inspection and detection)

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 3st Quarter Report in July 2021 for Guanting Town Yuanzhou District and Wanzhang Sanying road in Yuanzhou District)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

July 26, 2021

1 TASK SOURCE

Entrusted by the Construction and Environmental Protection Bureau of Communication Township in Yuanzhou District of Guyuan City, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians on March 8, 2021 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Guanting Town Yuanzhou District and Wanzhang Sanying Road, the main rural road of Haiyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Qianwa Village(○1[#]),Guanting Primary School(○2[#]),Guanting Town(○3[#]), Group 2,Guanting Village(○4[#]),Group 4, Guanting Village(○5[#]),Liudian Village(○6[#]) 、 Liuzhengdian(○7[#]) 、 Shizhuang Village(○8[#])、 Erdaocha Village(○9[#]) 、 Chengershan Village(○10[#]) ,distributed in Guanting town-Yuanzhou District of Guyuan Citye. The other six points are Lijiacha Village(○11[#]),Group 2,Dongyuan Village(○12[#]),Dongyuan Primary School(○13[#]), Group 4,Dongyuan Village(○14[#]),Malu Mosques(○15[#]) and Malu Village(○16[#]), distributed in Wanzhang Sanying Road. Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Road section	Latitude and longitude coordinates	Testing items
○1 [#]	Qianwa Village	Guanting town-Yuanzhou District of Guyuan City Road	N: 36° 10' 19" E: 106° 24' 34"	TSP
○2 [#]	Guanting Primary School		N: 36° 9' 42" E: 106° 24' 56"	
○3 [#]	Guanting Town		N: 36° 9' 43" E: 106° 24' 56"	
○4 [#]	Group 2, Guanting Village		N: 36° 9' 35" E: 106° 24' 53"	
○5 [#]	Group 4, Guanting Village		N: 36° 9' 14" E: 106° 24' 23"	
○6 [#]	Liudian Village		N: 36° 7' 0" E: 106° 22' 2"	
○7 [#]	Liuzhengdian		N: 36° 6' 55" E: 106° 22' 18"	
○8 [#]	Shizhuang Village		N: 36° 5' 46" E: 106° 21' 1"	
○9 [#]	Erdaocha Village		N: 36° 4' 37" E: 106° 20' 16"	
○10 [#]	Chengershan Village		N: 36° 3' 31" E: 106° 20' 10"	
○11 [#]	Lijiacha Village	Wanzhang Sanying Road	N: 36° 7' 19" E: 106° 19' 25"	TSP
○12 [#]	Group 2, Dongyuan Village		N: 36° 16' 17" E: 106° 14' 13"	
○13 [#]	Dongyuan Primary School		N: 36° 16' 24" E: 106° 13' 31"	
○14 [#]	Group 4, Dongyuan Village		N: 36° 16' 25" E: 106° 12' 21"	
○15 [#]	Malu Mosques		N: 36° 16' 26" E: 106° 10' 26"	
○16 [#]	Malu Village		N: 36° 16' 26" E: 106° 10' 12"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the

relevant technical requirements of 《Ambient Air Quality Standard》 (GB3095-2012) 、《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Ambient air -- Determination of total suspended particles -- Gravimetric method》 (GB/T15432-1995). Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	Sampling flow rate (L/min)	Detection frequency	Detection time
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	Sampling method	Analysis methods and sources	Method detection limit (mg/m ³)
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》 (Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for

manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable.

Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate (%)	Test value (mg/L)	Standard value (mg/L)
1	TSP	16	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Date	Items	Average Temperature (°C)	Mean Pressure (kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
July 14th		29.3	81.3	34	SE	1.4
July 15th		26.0	81.4	36	SE	1.5

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results ($\mu\text{g}/\text{m}^3$)

Date	Point	/	○2# Guanting Primary School	○3# Guanting Town	○4# Group 2, Guanting Village	○5# Group 4, Guanting Village	○6# Liudian Village	○7# Liuzhengdi an
July 14th	TSP	/	128	154	196	155	129	182
Date	Point	○8# Shizhuang Village	○9# Erdaocha Village	○10# Chengersha n Village				
July 15th	TSP	189	136	152				
Date	Point	○1# Qianwa Village	○11# Lijiacha Village	○12# Group 2,Dongyua n Village	○13# Dongyuan Primary School	○14# Group 4, Dongyuan Village	○15# Malu Mosques	○16# Malu Village
July 14th	TSP	120	151	168	123	146	177	186
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results:

○1#~○16# total suspended particles at each test point (TSP) are 120~196 $\mu\text{g}/\text{m}^3$ from March 14th to 15th, 2021. All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 16 noise detection points are arranged in this time, Table 2-7 shows the List of monitoring points of acoustic environment quality status.

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Road section	Latitude and longitude coordinates
△1#	Qianwa Village	Guanting town-Yuanzhou District of Guyuan Citye Road	N: 36° 10' 19" E: 106° 24' 34"
△2#	Guanting Primary School		N: 36° 9' 42" E: 106° 24' 56"
△3#	Guanting Town		N: 36° 9' 43" E: 106° 24' 56"

△4 [#]	Group 2, Guanting Village		N: 36° 9' 35" E: 106° 24' 53"
△5 [#]	Group 4, Guanting Village		N: 36° 9' 14" E: 106° 24' 23"
△6 [#]	Liudian Village		N: 36° 7' 0" E: 106° 22' 2"
△7 [#]	Liuzhengdian		N: 36° 6' 55" E: 106° 22' 18"
△8 [#]	Shizhuang Village		N: 36° 5' 46" E: 106° 21' 1"
△9 [#]	Erdaocha Village		N: 36° 4' 37" E: 106° 20' 16"
△10 [#]	Chengershan Village		N: 36° 3' 31" E: 106° 20' 10"
△11 [#]	Lijiacha Village	Wanzhang Sanying Road	N: 36° 7' 19" E: 106° 19' 25"
△12 [#]	Group 2,Dongyuan Village		N: 36° 16' 17" E: 106° 14' 13"
△13 [#]	Dongyuan Primary School		N: 36° 16' 24" E: 106° 13' 31"
△14 [#]	Group 4, Dongyuan Village		N: 36° 16' 25" E: 106° 12' 21"
△15 [#]	Malu Mosques		N: 36° 16' 26" E: 106° 10' 26"
△16 [#]	Malu Village		N: 36° 16' 26" E: 106° 10' 12"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》(GB3096-2008): the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-030-2; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than $\pm 0.5\text{dB (A)}$, the calibration is qualified, The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA5680 multi function sound level meter No.: JK-2-023-1		Calibration Instrument Model	AWA6221B Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		March 8th	March 9th
	Daytime	Before Calibration	93.8dB (A)	93.9dB (A)
		After Calibration	93.9dB (A)	93.9dB (A)
Basis	《Acoustic environment quality standard》 (GB3096-2008)			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time: On July 14, 2021.

Weather Conditions: There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	July 14th	
		Daytime	Nighttime
△1 [#]	Qianwa Village	50	No production at night, so no noise monitoring at nigh.
△3 [#]	Guanting Town	51	
△4 [#]	Group 2, Guanting Village	50	
△5 [#]	Group 4, Guanting Village	50	
△6 [#]	Liudian Village	49	
△7 [#]	Liuzhengdian	51	
△8 [#]	Shizhuang Village	50	
△9 [#]	Erdaocha Village	48	
△10 [#]	Chengershan Village	51	
《Acoustic environment quality standard》 （GB3096-2008）Class II		60	
△2 [#]	Guanting Primary School	48	
《Acoustic environment quality standard》 （GB3096-2008）Class I		55	
Number	Location	July 14th	
		Daytime	Nighttime
△11 [#]	Lijiacha Village	49	No production at night, so no noise monitoring at nigh.
△12 [#]	Group 2,Dongyuan Village	51	
△14 [#]	Group 4, Dongyuan Village	48	
△15 [#]	Malu Mosques	50	
△16 [#]	Malu Village	52	
《Acoustic environment quality standard》 （GB3096-2008）Class II		60	
△13 [#]	Dongyuan Primary School	49	
《Acoustic environment quality standard》 （GB3096-2008）Class I		55	

Analysis of test results: On July 14, 2021, the noise detection values of the second

and fifth testing point are between 48db (A) and 52db (A) in the daytime, meeting the class I standard of 《Acoustic environment quality standard》 (GB3096-2008) .The Monitoring results of other points are between 48db(A) and 49db(A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》 (GB3096-2008) .

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, one sampling point is set in GaiPai Reservoir, Table 2-10 shows the Specific location.

Table 2-10 List of surface water detection points

Number	Name	Latitude and longitude coordinates
☆1 [#]	50m upstream of Qingshui River Bridge	N36°16'23", E106° 9'53"
☆2 [#]	100m downstream of Qingshui River Bridge	N36°16'25", E106°9'59"

2.3.2 Testing items, Testing time and Frequency

Test Items: DO, Petroleum, SS

Detection Time: July 9th,2021

Frequency: One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》 and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》 . Table 2-11 shows the detailed monitoring

and analysis method。

Table 2-11 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in 《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002) 、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples 》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-12 shows the result.

Table 2-12 Monitoring Results

Number	Test Items	Results	
		☆1 [#]	☆2 [#]
1	DO(mg/L)	7.48	7.39
2	Petroleum(mg/L)	0.01L	0.01L
3	SS(mg/L)	26	28

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

(Special seal for inspection and detection)

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty
Reduction Rural Road Development Project

(The 3st Quarter Report in July 2021 for Jiangtai Xitan Pingfeng Road in Xiji
County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

July 26th, 2021

1 TASK SOURCE

Entrusted by the Transportation Bureau of Xiji County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from July 11 to July 14, 2021 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Jiangtai Xitan Pingfeng Road, the main rural road of Xiji county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Central Health Center of Jiangtai Township (○1[#]), Mingtai Village (○2[#]), Maojiagou Village (○3[#]), Shenchu Village (○4[#]), Heihugou Village (○5[#]), Central Primary School of Xitan Township (○6[#]), Health Center of Xitan Township (○7[#]), Hejiawan Village (○8[#]), Gancha Primary School (○9[#]), Gancha Village (○10[#]), Xinzhuangzi Village (○11[#]), Xingping Village (○12[#]), Youai Village (○13[#]), Yapowan Village (○14[#]), Pingfeng Village (○15[#]), Pingfeng Middle School in Xiji (○16[#]), Fujiawan Village (○17[#]), Wangnao Village (○18[#]), Luotuocha Village (○19[#]) and Libao Primary School (○20[#]). Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1 [#]	Central Health Center of Jiangtai Township	N35°48' 40", E105° 50' 08"	TSP
○2 [#]	Mingtai Village	N35° 48' 44", E105° 49' 50"	
○3 [#]	Maojiagou Village	N35° 48' 47", E105° 49' 01"	
○4 [#]	Shencha Village	N35° 49' 25", E105° 48' 05"	
○5 [#]	Heihugou Village	N35° 49' 54", E105° 46' 40"	
○6 [#]	Central Primary School of Xitan Township	N35° 52' 56", E105° 44' 38"	
○7 [#]	Health Center of Xitan Township	N35° 52' 53", E105° 44' 33"	
○8 [#]	Hejiawan Village	N35° 52' 46", E105° 42' 34"	
○9 [#]	Gancha Primary School	N35° 52' 16", E105° 42' 02"	
○10 [#]	Gancha Village	N35° 52' 14", E105° 42' 03"	
○11 [#]	Xinzhuangzi Village	N35° 50' 41", E105° 40' 31"	
○12 [#]	Xingping Village	N35° 50' 32", E105° 39' 57"	
○13 [#]	Youai Village	N35°49' 35", E105° 39' 03"	
○14 [#]	Yapowan Village	N35°46' 29", E105° 35' 32"	
○15 [#]	Pingfeng Village	N35° 44' 43", E105° 34' 02"	
○16 [#]	Pingfeng Middle School in Xiji	N35° 44' 33", E105° 33' 50"	
○17 [#]	Fujiawan Village	N35° 44' 23", E105° 28' 59"	
○18 [#]	Wangnao Village	N35° 45' 29", E105° 29' 01"	
○19 [#]	Luotuocha Village	N35° 46' 11", E105° 28' 46"	
○20 [#]	Libao Primary School	N35° 46' 39", E105° 27' 52"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the

ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》 (GB3095-2012) 、《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Ambient air -- Determination of total suspended particles -- Gravimetric method》 (GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	Sampling flow rate (L/min)	Detection frequency	Detection time
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	Sampling method	Analysis methods and sources	Method detection limit (mg/m ³)
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》 (Fourth Edition supplement). The quality

assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable. Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate (%)	Test value (mg/L)	Standard value (mg/L)
1	TSP	20	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Date \ Items	Average Temperature (°C)	Mean Pressure(kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
July 11th	26.3	80.2	34	SE	1.6
July 13th	22.3	80.5	43	NE	1.8

July 14th	25.2	80.3	43	S	2.1
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2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results ($\mu\text{g}/\text{m}^3$)

Date	Point	○1# Central Health Center of Jiangtai Township	○2# Mingtai Village	○3# Maojiagou Village	○4# Shencha Village	○5# Heihugou Village	○6# Central Primary School of Xitan Township	○7# Health Center of Xitan Township
July 11th	TSP	128	156	125	144	145	107	124
Date	Point	○8# Hejiawan Village	○9# Gancha Primary School					
July 11th	TSP	145	135	138				
Date	Point	○11# Xinzhuangz i Village	○12# Xingping Village	○13# Youai Village	○14# Yapowan Village	○15# Pingfeng Village	○16# Pingfeng Middle School in Xiji	○17# Fujiawan Village
July 13th	TSP	142	164	138	140	132	167	145
Date	Point	○18# Wangnao Village	○10# Gancha Village					
July 13th	TSP	144	139					
Date		○19# Luotuochoa Village	○20# Libao Primary School					
July 14th		119	140					
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results:

From July 11th to 14th,2021,○1[#]~○20[#] total suspended particles at each test point (TSP) are 107~167 $\mu\text{g}/\text{m}^3$, All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 20 noise detection points are arranged in this time, Table 2-7 shows the List of monitoring points of acoustic environment quality status。

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1 [#]	Central Health Center of Jiangtai Township	N35°48' 40", E105° 50' 08"
▲2 [#]	Mingtai Village	N35° 48' 44", E105° 49' 50"
▲3 [#]	Maojiagou Village	N35° 48' 47", E105° 49' 01"
▲4 [#]	Shencha Village	N35° 49' 25", E105° 48' 05"
▲5 [#]	Heihugou Village	N35° 49' 54", E105° 46' 40"
▲6 [#]	Central Primary School of Xitan Township	N35° 52' 56", E105° 44' 38"
▲7 [#]	Health Center of Xitan Township	N35° 52' 53", E105° 44' 33"
▲8 [#]	Hejiawan Village	N35° 52' 46", E105° 42' 34"
▲9 [#]	Gancha Primary School	N35° 52' 16", E105° 42' 02"
▲10 [#]	Gancha Village	N35° 52' 14", E105° 42' 03"
▲11 [#]	Xinzhuangzi Village	N35° 50' 41", E105° 40' 31"
▲12 [#]	Xingping Village	N35° 50' 32", E105° 39' 57"
▲13 [#]	Youai Village	N35°49' 35", E105° 39' 03"
▲14 [#]	Yapowan Village	N35°46' 29", E105° 35' 32"
▲15 [#]	Pingfeng Village	N35° 44' 43", E105° 34' 02"
▲16 [#]	Pingfeng Middle School in Xiji	N35° 44' 33", E105° 33' 50"
▲17 [#]	Fujiawan Village	N35° 44' 23", E105° 28' 59"
▲18 [#]	Wangnao Village	N35° 45' 29", E105° 29' 01"
▲19 [#]	Luotuochoa Village	N35° 46' 11", E105° 28' 46"
▲20 [#]	Libao Primary School	N35° 46' 39", E105° 27' 52"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）：the measurement is carried out in the daytime. The testing instrument is AWA6228 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-028-1; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than $\pm 0.5\text{dB}$ (A), the calibration is qualified, The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-028-1		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		July 11	July 12
	Daytime	Before Calibration	93.8dB (A)	93.8dB (A)
		After Calibration	94.8dB (A)	93.9dB (A)
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of

verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time: July 11 to July 13, 2021.

Weather Conditions: There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	July 11th	
		Daytime	Nighttime
▲2 [#]	Mingtai Village	51	No production at night, so no noise monitoring at nigh.
▲3 [#]	Maojiagou Village	50	
▲4 [#]	Shencha Village	51	
▲5 [#]	Heihugou Village	51	
▲8 [#]	Hejiawan Village	51	
▲10 [#]	Gancha Village	49	
▲11 [#]	Xinzhuangzi Village	50	
▲12 [#]	Xingping Village	49	
▲13 [#]	Youai Village	52	
▲14 [#]	Yapowan Village	51	
▲15 [#]	Pingfeng Village	50	
▲17 [#]	Fujiawan Village	50	
▲18 [#]	Wangnao Village	49	
▲19 [#]	Luotuocha Village	49	
《Acoustic environment quality standard》 (GB3096-2008) Class II		60	

▲1 [#]	Central Health Center of Jiangtai Township	51	
▲6 [#]	Central Primary School of Xitan Township	48	
▲7 [#]	Health Center of Xitan Township	49	
▲9 [#]	Gancha Primary School	49	
▲16 [#]	Pingfeng Middle School in Xiji	46	
▲20 [#]	Libao Primary School	48	
《Acoustic environment quality standard》 (GB3096-2008) Class I		55	

Analysis of test results: From July 11 to July 13, 2021, the noise detection value of the school and the Health Center are between 49db (A) and 52db (A) in the daytime, meeting the class I standard of 《Acoustic environment quality standard》 (GB3096-2008). The Monitoring results of other points are between 46db (A)~49db(A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》 (GB3096-2008).

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, two sampling points are set in Hulu River and one sampling point is set in Libao Reservoir, Table 2-10 shows the Specific location.

Table 2-10 List of surface water detection points

Number	Name	Latitude and longitude coordinates
☆1 [#]	50m upstream of Hulu Bridge	N35° 48' 45", E105° 49' 20"
☆2 [#]	100m downstream of Hulu Bridge	N35° 48' 44", E105° 49' 09"
☆3 [#]	Libao Reservoir	N35° 46' 22", E105° 27' 35"

2.3.2 Testing items, Testing time and Frequency

Test Items: DO, Petroleum, SS

Detection Time: July 13, 2021

Frequency: One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》 and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-11 shows the detailed monitoring and analysis method.

Table 2-11 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in 《Technical Specifications for Surface Water and Sewage Monitoring》 (HJ/T91-2002)、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》 (HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》 (the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with

certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-12 shows the result.

Table 2-12 Monitoring Results

Number	Test Items	Results		
		☆1 [#]	☆2 [#]	☆3 [#]
1	DO(mg/L)	7.58	7.57	7.53
2	Petroleum(mg/L)	0.01L	0.01L	0.01L
3	SS(mg/L)	22	27	19

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

itor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

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现场检测照片



毛家沟村环境空气采样



王塬村噪声检测



崖坡湾村环境空气采样



崖坡湾村噪声检测

现场检测照片



深岔村环境空气采样



深岔村噪声检测



新庄子环境空气采样



友爱村噪声检测

现场检测照片



骆驼岔环境空气采样

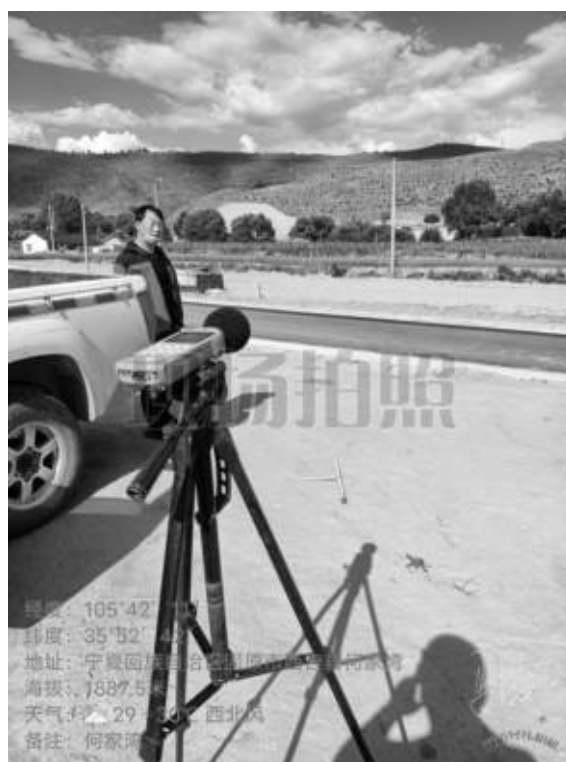


骆驼岔噪声检测



经度: 105°42' 11"
 纬度: 35°52' 42"
 地址: 宁夏回族自治区固原市西吉县何家湾
 海拔: 1887.4米
 天气: 12~29~30℃ 西北风
 备注: 何家湾

何家湾环境空气采样



经度: 105°42' 11"
 纬度: 35°52' 42"
 地址: 宁夏回族自治区固原市西吉县何家湾
 海拔: 1887.5米
 天气: 12~29~30℃ 西北风
 备注: 何家湾

何家湾噪声检测

现场检测照片



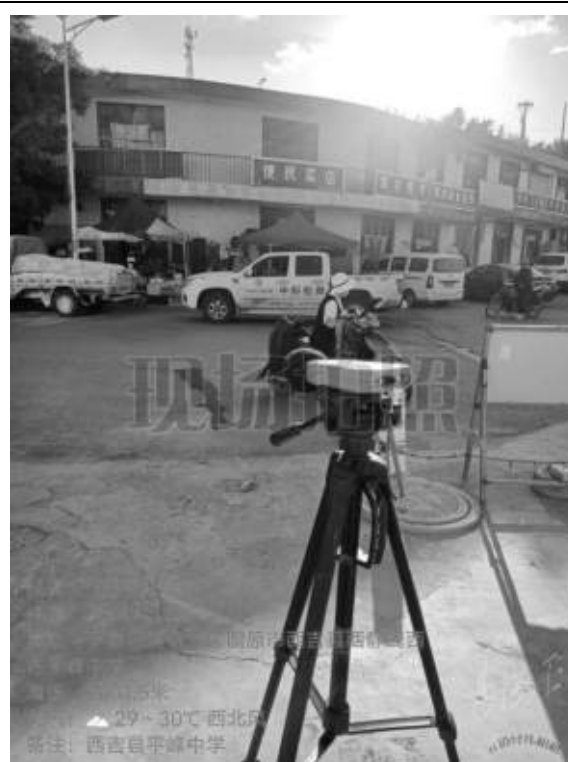
黑虎沟村环境空气采样



黑虎沟村噪声检测



平峰中学环境空气采样



平峰中学噪声检测

现场检测照片



伏家湾环境空气采样



伏家湾噪声检测



西滩乡卫生院环境空气采样



西滩乡卫生院噪声检测

现场检测照片



兴坪村环境空气采样



兴坪村噪声检测



甘岔小学环境空气采样



甘岔小学噪声检测

现场检测照片



将台乡中心卫生院环境空气采样



将台乡中心卫生院噪声检测



平峰村环境空气采样



平峰村噪声检测

现场检测照片



明台村环境空气采样



明台村噪声检测



李堡小学环境空气采样



李堡小学噪声检测

现场检测照片



葫芦河跨河桥梁上游 50m 处地表水采样



李堡坝水库地表水采样

Environmental Status Monitoring Report

**People's Republic of China: Ningxia Liupanshan Poverty
Reduction Rural Road Development Project**

**(The 3st Quarter Report in July 2021 for Mengyuan Chunshucha
Chengyangyangping Road in Pengyang County)**

Ningxia Zhongke Jingke Testing Technology Co., Ltd

July 26th, 2021

1 TASK SOURCE

Entrusted by the Transportation Bureau of Pengyang County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians on July 8, 2021 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Mengyuan Chunshucha Chengyangyangping Road, the main rural road of Pengyang county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Baiyang Village(○1[#]), Central School of Mengyuan Township(○2[#]), Central kindergarten of Mengyuan Township(○3[#]), Health Center of Mengyuan Township (○4[#]), Shuangshu Village (○5[#]), Huaishu Village(○6[#]), Zhaoshan Village(○7[#]), Caotan Village (○8[#]), Ligou Wan(○9[#]), Beiyun Village in Chenwan(○10[#]), Yangping Village (○11[#]).Table 2-1 shows the specific points.

Table 2-1 List of Ambient Air Detection Points

Number	Name	Latitude and longitude coordinates	Testing items
○1 [#]	Baiyang Village	N35° 58' 53", E106° 48' 46"	TSP
○2 [#]	Central School of Mengyuan Township	N35° 58' 45", E106° 48' 52"	
○3 [#]	Central kindergarten of Mengyuan Township	N35° 58' 45", E106° 48' 54"	
○4 [#]	Health Center of Mengyuan Township	N35° 58' 49", E106° 49' 02"	
○5 [#]	Shuangshu Village	N35° 57' 05", E106° 49' 30"	
○6 [#]	Huaishu Village	N35° 56' 27", E106° 50' 06"	
○7 [#]	Zhaoshan Village	N35° 54' 52", E106° 51' 08"	

○8 [#]	Caotan Village	N35° 54' 31", E106° 51' 34"	
○9 [#]	Ligou Wan	N35° 52' 01", E106° 52' 13"	
○10 [#]	Beiyun Village in Chenwan	N35° 49' 40", E106° 52' 49"	
○11 [#]	Yangping Village	N35° 48' 09", E106° 52' 19"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》 (GB3095-2012) 、《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Ambient air -- Determination of total suspended particles -- Gravimetric method》 (GB/T15432-1995). Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	Sampling flow rate (L/min)	Detection frequency	Detection time
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	Sampling method	Analysis methods and sources	Method detection limit (mg/m ³)
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point,

sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》 (Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable.

Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate (%)	Test value (mg/L)	Standard value (mg/L)
1	TSP	11	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Date	Items	Average Temperature (°C)	Mean Pressure(kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
July 8th		28.3	84.4	50	SW	1.4
July 9th		31.7	84.2	33	SE	1.9

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results.

Table 2-6 Statistical table of ambient air test results ($\mu\text{g}/\text{m}^3$)

Date	Point	○1# Baiyang Village	○2# Central School of Mengyuan Township	○3# Central kindergarten of Mengyuan Township	○4# Health Center of Mengyuan Township	○5# Shuangshu Village	○6# Huaishu Village
July 8th	TSP	124	126	100	140	162	142
Date	Point	○7# Zhaoshan Village	○8# Caotan Village	○9# Ligou Wan	○10# Beiye Village in Chenwan	○11# Yangping Village	
July 9th	TSP	124	150	178	141	136	

Analysis of test results:

On July 8th, 2020, ○1#~○11# total suspended particles at each test point (TSP) are 100~178 $\mu\text{g}/\text{m}^3$, All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 11 noise detection points are arranged in this time, Table 2-7 shows the List of monitoring points of acoustic environment

quality status。

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲ 1 [#]	Baiyang Village	N35° 58' 53", E106° 48' 46"
▲ 2 [#]	Central School of Mengyuan Township	N35° 58' 45", E106° 48' 52"
▲ 3 [#]	Central kindergarten of Mengyuan Township	N35° 58' 45", E106° 48' 54"
▲ 4 [#]	Health Center of Mengyuan Township	N35° 58' 49", E106° 49' 02"
▲ 5 [#]	Shuangshu Village	N35° 57' 05", E106° 49' 30"
▲ 6 [#]	Huaishu Village	N35° 56' 27", E106° 50' 06"
▲ 7 [#]	Zhaoshan Village	N35° 54' 52", E106° 51' 08"
▲ 8 [#]	Caotan Village	N35° 54' 31", E106° 51' 34"
▲ 9 [#]	Ligou Wan	N35° 52' 01", E106° 52' 13"
▲ 10 [#]	Beiyun Village in Chenwan	N35° 49' 40", E106° 52' 49"
▲ 11 [#]	Yangping Village	N35° 48' 09", E106° 52' 19"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》(GB3096-2008): the measurement is carried out in the daytime. The testing instrument is AWA6228 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-028-1; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and

after the test. If the deviation of indication is less than $\pm 0.5\text{dB}$ (A), the calibration is qualified, The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-028-1		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		July 6th	
	Daytime	Before Calibration	93.8dB （A）	
		After Calibration	93.9dB （A）	
Basis	《Acoustic environment quality standard》 （GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time: July 8th, 2021.

Weather Conditions: There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	July 6th	
		Daytime	Nighttime
▲ 1 [#]	Baiyang Village	49	No production at night, so no noise
▲ 5 [#]	Shuangshu Village	49	

▲6 [#]	Huaishu Village	52	monitoring at nigh.
▲7 [#]	Zhaoshan Village	51	
▲8 [#]	Caotan Village	51	
▲9 [#]	Ligou Wan	52	
▲10 [#]	Beiyun Village in Chenwan	50	
▲11 [#]	Yangping Village	52	
《Acoustic environment quality standard》 (GB3096-2008) Class II		60	
▲2 [#]	Central School of Mengyuan Township	50	
▲3 [#]	Central kindergarten of Mengyuan Township	50	
▲4 [#]	Health Center of Mengyuan Township	50	
《Acoustic environment quality standard》 (GB3096-2008) Class I		55	

Analysis of test results: On July 8th, 2021, the noise detection value of the school and the Health Center are between 49db (A) and 52db (A) in the daytime, meeting the class I standard of 《Acoustic environment quality standard》 (GB3096-2008). The Monitoring results of other points are 50db in the daytime, meeting the class II standard of 《Acoustic environment quality standard》 (GB3096-2008).

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

(Special seal for inspection and detection)

现场检测照片



白杨庄环境空气采样



陈湾北源村噪声检测



孟塬乡中心学校环境空气采样



孟塬乡中心学校噪声检测

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty
Reduction Rural Road Development Project

(The 3st Quarter Report in July 2021 for Shatang haodian road in Jingyuan County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

July 21th, 2021

1 TASK SOURCE

Entrusted by the Transportation Bureau of Jingyuan County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians on July 18th, 2021 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Shatang Haodian Road, the main rural road of Jingyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Shatang Village (○1[#]), Nonglin Village (○2[#]) and Tuyao Village (○3[#]). Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1 [#]	Shatang Village	N35°34' 49", E106° 26' 39"	TSP
○2 [#]	Nonglin Village	N35° 39' 01", E106° 25' 33"	
○3 [#]	Tuyao Village	N35° 39' 24", E106° 24' 44"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》 (GB3095-2012) 、 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Ambient air -- Determination of total suspended particles -- Gravimetric method》 (GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	Sampling flow rate (L/min)	Detection frequency	Detection time
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	Sampling method	Analysis methods and sources	Method detection limit (mg/m ³)
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》 (Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on

Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable. Table 2-4 shows the Quality control data.

Table 2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate (%)	Test value (mg/L)	Standard value (mg/L)
1	TSP	3	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Date	Items	Average Temperature (°C)	Mean Pressure(kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
July 8th		21.2	80.6	47	NE	1.7

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results ($\mu\text{g}/\text{m}^3$)

Date	Point	○1#Shatang Village	○2# Nonglin Village	○3# Tuyao Village
July 14th	TSP	122	119	128
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300		

Analysis of test results:

On July 18th, 2021, ○1[#]~○3[#] total suspended particles at each test point (TSP) are 119~128 $\mu\text{g}/\text{m}^3$, All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 3 noise detection points are arranged in this time, Table 2-7 shows the List of monitoring points of acoustic environment quality status.

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1 [#]	Shatang Village	N35°34' 49", E106° 26' 39"
▲2 [#]	Nonglin Village	N35° 39' 01", E106° 25' 33"
▲3 [#]	Tuyao Village	N35° 39' 24", E106° 24' 44"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》 (GB3096-2008) : the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument

number of JK-2-023-1; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than $\pm 0.5\text{dB}$ (A), the calibration is qualified, The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA5680 + multi function sound level meter No.: JK-2-023-1		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		July 8th	
	Daytime	Before Calibration	93.9dB （A）	
		After Calibration	93.8dB （A）	
Basis	《Acoustic environment quality standard》 （GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time: July 8th, 2021.

Weather Conditions: There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	July 8th	
		Daytime	Nighttime
▲ 1 [#]	Shatang Village	53	No production at night, so no noise monitoring at night.
▲ 2 [#]	Nonglin Village	52	
▲ 3 [#]	Tuyao Village	50	
《Acoustic environment quality standard》 (GB3096-2008) Class II		60	

Analysis of test results: On July 8th, 2021, the Monitoring results of the villages are between 50db (A)~53db (A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》 (GB3096-2008) .

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, two sampling points are set in YanZhi River, Table 2-10 shows the Specific location.

Table 2-10 List of surface water detection points

Number	Name	Latitude and longitude coordinates
☆1 [#]	50m upstream of Yanzhi Bridge	N35° 35' 36", E106° 25' 09"
☆2 [#]	100m downstream of yanzhi Bridge	N35° 35' 32", E106° 25' 15"

2.3.2 Testing items, Testing time and Frequency

Test Items: DO, Petroleum, SS

Detection Time: July 12th, 2021

Frequency: One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》 and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-11 shows the detailed monitoring and analysis method.

Table 2-11 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in 《Technical Specifications for Surface Water and Sewage Monitoring》 (HJ/T91-2002) 、 《 Technical Regulations on Preservation and Management of Water Quality Sampling Samples》 (HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》 (the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for

the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-12 shows the result.

Table 2-12 Monitoring Results

Number	Test Items	Results	
		☆1 [#]	☆2 [#]
1	DO(mg/L)	7.72	7.71
2	Petroleum(mg/L)	0.01L	0.01L
3	SS(mg/L)	21	19

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

(Special seal for inspection and detection)

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