



# Environmental Monitoring Report

Project Number: 43029  
October 2017

## PRC: Inner Mongolia Road Development Project

Prepared by Beijing Zhongfachengmei Consultants Ltd., for the Inner Mongolia Autonomous Region Department of Transport and the Asian Development Bank.

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**Asian Development Bank**

## Environmental Monitoring Report

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No.3 External Monitoring Report  
October 2017

ADB Loan 3042 PRC: Inner Mongolia Road Development Project

Beijing Zhongfachengmei Consultants Ltd

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## ABBREVIATIONS

ADB	Asian Development Bank
EA	Executing Agency
EIA	Environment Impact Assessment
EMP	Environment Management Plan
EPB	Environment Protection Bureau
GRM	Grievance Redress Mechanism
IA	Implementing Agency
IEVC	Independent Environmental Verification Consultant
IMDT	Inner Mongolia Autonomous Region Department of Transport
M&E	Monitoring and Evaluation
NNR	National Nature Reserve
PMO	Project Management Office
PPE	personal protective equipment
S203	Provincial Highway No. 203

# I. INTRODUCTION

## A. Project Brief and Construction Progress

1. The project will finance five main outputs intended to develop the road network in Hulunbeier and provide support for cross-border trade, sustainable tourism, environmental conservation, and institutional strengthening and capacity building. There are 5 outputs:

- (i) **Output 1: Highway upgrading and road safety improvements.** This output comprises (a) upgrading 132 km of provincial highway from Manzhouli to Alatanemole from class III to half-class-I standard; and (b) improving safety on the provincial highway by introducing measures including road markings, signage, speed controlled junction design, barriers and underpasses for animals, designated parking, viewing points, and service areas
- (ii) **Output 2: Upgrading of rural roads.** This output comprises upgrading (a) 66 km of a natural (unclassified) road from Xinboluke to Manzhouli to class III, (b) 127 km of a sand and stone unclassified road from Nuogannuoer through Wubuerbaolige to Alantanhadagacha to class IV, (c) 54 km of a sand and stone unclassified road connecting Baogedewula with Beier Sumu to class IV, and (d) 45 km of class IV road from Amugulang to Wubuerbaolige to class III.
- (iii) **Output 3: Cross-border transport improvement and trade facilitation.** This output comprises (a) rehabilitation and upgrade of 82 km of the class III road from Alatanemole to Arihasate border-crossing point to class II, (b) rehabilitation and upgrade of 22 km of the class III road from Amugulang to Ebuduge border crossing point to class II, (c) construction of bus stops and terminals in Hulunbeier, and (d) cross-border trade facilitation between the PRC and Mongolia.
- (iv) **Output 4: Support for community-based sustainable tourism and environmental conservation.** This output comprises (a) construction of rest areas and installation of signage and information boards along the S203 to reduce uncontrolled driving and parking in environmentally sensitive areas; (b) development of an eco-cultural trail to enable tourists to experience grasslands, wetlands, and traditional lifestyle; and (c) support for the Dalai Lake NNR Management Bureau, including constructing a multipurpose protection center; providing equipment for protection, research, and monitoring; and assisting with development of the 10-year master plan for habitat management, eco-tourism development, and habitat restoration.
- (v) **Output 5: Institutional strengthening and capacity building.** This output comprises (a) project management and implementation support to ensure compliance with ADB's policies and procedures; (b) capacity building of the project executing agency and implementing agency in road safety, operation, and maintenance; and (c) capacity building of Dalai Lake NNR Management Bureau staff to improve management of the nature reserve.

2. About 90% of the project investment will be for Output 1, more specifically for upgrading S203. Figure 1 illustrates the distribution of the project roads of outputs 1-3.

- ① Alatanemole Town-Arihasate Land Port
- ② Amugulang Town-Ebuduge Land Port
- ③ Manzhouli City-Xinboluke
- ④ Nuogannuoer-Wubuerbaolige-Alantanhada Gacha
- ⑤ Baogedewula Sumu-Beier Sumu
- ⑥ Amugulang-Wubuerbaolige



### Figure 1: S203 and Local Roads



Figure 2: 120km of S203 Opened for Traffic Since Nov 2016



Figure 3: Road No.1 Completed Construction



3. Project road construction started in late 2014. The construction progresses of the S203 and local roads, as of 20 Oct 2017, are summarized in Table 1. Overall, constructions were largely completed.

Table 1: Road Construction Progresses

No. <sup>1</sup>	Road	Length (km)	Standard of old road	New road	Construction progress by October 2017
S203	Manzhouli – Alatanemule (Output 1)	131.8	III	I	90% of engineering works, about 120km opened for traffic since Nov 2016 (see Figure 2), but a construction of a design change (a new start point at Manzhouli) is undergoing
1	Alatanemule – Arihasate (Output 3)	81.6	III	II	Construction completed by Oct 2017, to be opened for traffic from Nov 2017 on (see Figure 3)
2	Amugulang - Ebuduge (Output 3)	22	III	II	Construction completed, to be opened for traffic in Nov 2017
3	Manzhouli-Xinbuluke (Output 2)	60.2	No road	III	Construction completed, to be opened for traffic in Nov 2017
4	Nuogannuoer - Wubuerbaolige - Alantanhada (Output 2)	127.0	No road + dirt track	IV	70% of engineering work done
5	Baogedewula - Beier Sumu (Output 2)	54.0	unclassified	IV	Construction completed, to be opened for traffic in Nov 2017
6	Amugulang - Wubuerbaolige (Output 2)	45.3	IV	III	Only 40% of engineering work finished

Source: PMO

4. Implementation progresses of other components by October 2017 are summarized in Table 2 below. Overall, progresses are rather limited.

Table 2: Implementation Progresses of Non-road Measures

Output	Measures	Construction progress by October 2017
1	• Safety measures and rest area	• Under construction
3	• Bus stops and terminals • Cross-border trade facilitation	• Under construction • Undergoing, routine activity
4	• Construction of rest areas and installation of signage and information boards • Development of an eco-cultural trail • Support for Dalai Lake NNR Management Bureau - multipurpose protection center - providing equipment for protection, research, and monitoring - development of the 10-year master plan	• Under construction  • Facilities/equipments procured • Equipment mostly procured - Construction completed by Sept. 2017 - Mostly provided  - Developed
5	• Project management and implementation support • Capacity building • Capacity building of Dalai Lake NNR Management Bureau	• Management consultant just engaged since July 2017 • Limited • Well implemented: a) a grant based TA implemented during 2015-2016; and b) both overseas and domestic training/study tours organized before June 2016

Source: PMO

<sup>1</sup> It is the same numbering as that in Figure 1.



## **B. EIA, EMP & GRM**

### **1. S203**

5. ADB classified S203 as A Category for environment. In addition to the preparation of an Environment Impact Assessment (EIA) per domestic procedure, an Environment Management Plan (EMP) was also prepared to implement project mitigation measures and environmental quality monitoring requirements per ADB's safeguards policy requirement. The EMP was briefed in the No. 1 monitoring report.

6. Along with the implementation of EMP and other social action plans, a grievance redress mechanism (GRM), consistent with the requirements of the ADB Safeguard Policy Statement (2009), was also established to prevent and address community concerns, reduce risks, and assist the project to maximize environmental and social benefits. The GRM was notified to the general public.

7. Main civil works of S203 were basically completed by October 2016 and the limited construction activities in 2017 did not cause any environmental impact. The limited construction activities in 2017 include installation traffic safety facilities, finalization of Manxi Interchange, and construction of a rest area and a toll gate.

### **2. Design Change of S203**

8. However, a design change was made to change the start point of S203 with an associate link road (Class I road). The design Change, as illustrated in Appendix 1, is to shift S203's start point from the K5+967 of existing Manzhouli Outer Ring Road to 610m north of the K4+067 of the Ring Road. The Design Change actually includes the construction of 0.61km of Class I new road and a new interchange, together with an associated link road of 1.209km (see Appendix 1).

9. An EIA was prepared per domestic requirement by Sep 2015 and it was approved by Environment Protection Bureau (EPB) of Manzhouli City in October 2015. The EPB concluded that the implementation of proposed measures in the EIA could effectively mitigate and control environmental impacts (noise, dust, living and construction wastes). Yet, an independent agency shall be engaged to supervise the contractors on implementation of environment protection measures proposed in the EIA.

10. The design change will be implemented in 2018. Therefore, environmental supervisor shall be in place during the 2018 construction season.

### **3. Roads No. 1 and No. 2**

11. Roads No.1 and No.2 are provincial highways of Class II (see Figure 1). Per domestic policy requirement, EIAs were prepared and approved by 2012. Consequently, independent environmental supervisors or agencies shall be engaged for on-the-spot environmental supervising during construction of civil works.

12. PMO had appointed Shanxi Jiaotong Environment Supervision Center and Chifeng Lukang Environment Supervision Co. Ltd for Road No. 1 and No. 2 respectively. Both agencies had carried out on-the-spot supervision during the 2017 construction season (May-Oct).

### **4. Others**

13. Other roads (see Figure 1) and the project activities (see Table 2) basically have very limited environmental impact and environmental monitoring and reporting are not required.

### **C. This Report**

14. This is the third external Environmental Monitoring Report, covering the 2017 construction period of May-Oct. Given that S023 has basically no civil works that have environment impact in 2017, this report focuses on Roads No.1 and No.2.

15. This report is based on interview of PMO and contractors, and review of on-the-spot monitoring records of independent agencies. The IEVC (Independent Environmental Verification Consultant) visited the project area twice (July and September).

## II. IMPLEMENTATION OF MITIGATION MEASURES

### A. Implementation of Mitigation Measures

16. For Roads No.1 and No.2, the monitor learnt from PMO and contractors that the mitigation measures proposed in the EIAs were well implemented during the 2017 construction season from May to Oct:

- (i) Occupational and Community Health: all construction workers are provided with personal protective equipment (PPE) such as hard hats, safety shoes, hi-visibility vests and other equipment, as needed.
- (ii) Safety: a) contractors maintained safe and convenient access for the public with signs day and night; and b) where there were potential dangers, warning signs were installed and supervision personnel posted, as needed.
- (iii) Loss of access: safe and convenient passages were provided for vehicles, pedestrians, and livestock.
- (iv) Vegetation protection: construction vehicles were restricted to designated access roads.
- (v) Emission from construction machineries: a) efficient/low emission machineries and vehicles were selected; and b) machineries and vehicles were properly maintained.
- (vi) Dust control: access roads, asphalt and cement mixing stations, and workers camps were sprayed regularly and irregularly according to actual needs (see Figure 4).
- (vii) Noise control: a) construction was restricted to the hours between 6:00 a.m. and 10:00 p.m. which is in accordance with PRC regulation; b) low noise equipment were used; and c) movement of heavy lorries on urban and village roads were also restricted to between 6:00 a.m. and 10:00 p.m.<sup>2</sup>
- (viii) Wastewater: a) construction camps were at least 200m away from nearest rivers (see Figure 5); b) modern equipment and machinery were selected and regularly maintained to minimize risk of leaks and spills; c) horizontal-flow sedimentation tanks were provided on construction sites and at machinery repair sites to collect oily wastewater; d) collected wastewater was treated through the simple process of acid-alkali neutralization, sedimentation, oil separation and sludge removal to reduce the concentration of oils and other pollutants.
- (ix) Solid waste (Figure 5): a) domestic waste were timely collected and transferred to the places appointed by local public sanitary authority; b) all domestic waste from construction camps were collected and stored on specific areas; and c) storage areas were covered to protect from rainfall and also to avoid direct contact with surface runoff.

17. The monitor also learnt that there were awareness/education/training on occupational and community health and safety, and on cultural heritage. All workers were trained/educated once in May 2017.

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<sup>2</sup> Placement of temporary fence hoards or noise barriers to shield noise sources during construction was not necessary for Roads No.1 and No. 2.



Figure 4: Dust Control



Figure 5: Well Maintained Camp and Mixing Station

## B. IMDT and Governments' Supervision Mission

18. During 16-18 August 2017, IMDT, Hulunbeier Transport Bureau and Governments of Xinyou Qi and Xinzuo Qi jointly made supervision visits<sup>3</sup> to Roads No.1 and No.2 (as well as to S203 and other rural roads) for construction and environmental management. The mission did not find any environmental management problems but advised PMO and contractors to strictly follow relevant polices and regulation.

<sup>3</sup> The mission was led by Ms Yun Wenjing, deputy inspector of IMDT.

### III. CONSTRUCTION ENVIRONMENT MONITORING RESULTS

19. Shanxi Jiaotong Environment Supervision Center and Chifeng Lukang Environment Supervision Co. Ltd were engaged by PMO for on-the-spot supervision of construction environment; and they carried out relevant supervision and monitoring during the construction period. Monitoring/supervising items, parameters and intervals are shown in Table 3; while monitoring results are summarized in the following subsections

Table 3: Construction Environment Supervision during May-Sept 2017

	Item	Parameter	Location	Frequency
Road No.1	Air quality	TSP, PM <sub>10</sub>	Alatanemole Town (K0 + 000~ K0+500), 65m to the center line and close to the nearest housing Arihashate Town (k80+00~k81+000), 95m to the center line and next to the nearest house	May and August 7 days each time with sampling in a 12- hour interval
	Noise	Leq (dB(A))	Same as above	May and August 2 days each time
	Surface water	Not required, the road does not cross any river or lake		
	Soil and water erosion control	Topsoil stockpiles, detention ponds, interception ditches, rehabilitated construction sites	All spoil disposal sites and construction sites	Constantly
Road No.2	Air quality	Unorganized waste gas particulate matter	4 Sites next to the mixing station (see Appendix 3)	One day in September 4 times a day
	Noise	Leq (dB(A))	Same as above	Same as above
	Surface water	Not required		
	Soil and water erosion control	Topsoil stockpiles, detention ponds, interception ditches, rehabilitated construction sites	All spoil disposal sites and construction sites	Constantly

Source: Shanxi Jiaotong Environment Supervision Centre, Chifeng Lukang Environment Supervision Co. Ltd

#### A. Road No. 1

20. Road No.1 links Alatanemole Town (seat of Xinyou Qi) and Arihashate Town where there are residential houses, therefore environmental monitoring positioned at the two towns (see also Table 3). Besides the two towns, the road does not impact any other settlements, rivers, lakes and other environmental sensitive sites.

#### 1. Air Quality

21. Air quality monitoring/measuring results of Road No.1 are summarized in Table 4. As shown, results are below the limit of national standard.

Table 4: Air Quality Monitoring Results of Road No.1

Location	Parameter	Result		Standard*	Note
Alatanemole Town	PM <sub>10</sub>	May	0.111-0.141	0.150	OK
		Aug	0.063-0.140		OK
	TSP	May	0.201-0.249	0.300	OK
		Aug	0.142-0.288		OK
Arihashate Town	PM <sub>10</sub>	May	0.127-0.143	0.150	OK
		Aug	0.117-0.147		OK
	TSP	May	0.215-0.240	0.300	OK
		Aug	0.227-0.282		OK

Source: Source: Shanxi Jiaotong Environment Supervision Centre (details in Appendix 2) \*: Class II of *Ambient Air Quality Standards* GB3095-2012

#### 2. Noise

22. Noise monitoring results are summarized in Table 5, and all were in compliance with the national standard.

Table 5: Noise Monitoring Results of Road No. 1

Unit: dB(A)

Location	Results			Standard*	Note
Alatanemole Town	Daytime	May	56.5-58.0	60	OK
		Aug	55.6-56.1		OK
	Night time	May	43.0-45.4	50	OK
		Aug	43.1-43.6		OK
Arihashate Town	Daytime	May	56.0-56.4	60	OK
		Aug	56.1-56.3		OK
	Night time	May	45.0-47.9	50	OK
		Aug	45.4-45.7		OK

Source: Shanxi Jiaotong Environment Supervision Centre (details in Appendix 2); \*: Class II of Environmental Quality Standards for Noise GB3096-2008

## B. Road No. 2

23. The only sensitive location for Road No.2 is the asphalt mixing station that is about 500m from the Amugulag Town (seat of Xinzuo Qi). Therefore, environment impact monitoring targeted the mixing station at four specific points, one upwind point and three downwind points (shown in Appendix 3).

### 1. Air Quality

24. Air quality monitoring (dust) results are summarized in Table 6.

Table 6: Air Quality Monitoring Results of Road No.2

Unit: mg/m<sup>3</sup>

Location	Parameter	Result	Standard*	Note
Point 1	Unorganized waste gas particulate matter	0.158-0.177	1.000	OK
Point 2		0.382-0.435		OK
Point 3		0.392-0.442		OK
Point 4		0.405-0.452		OK

Source: Chifeng Lukang Environment Supervision Co. Ltd (details in Appendix 3); \*: Integrated Emission Standard of Air Pollutants, GB 16297-1996

### 2. Noise

25. Noise monitoring results are summarized in Table 7. Again, all results were in compliance with the national standard.

Table 7: Noise Monitoring Results of Road No. 2

Unit: dB(A)

Point	Daytime		Night	
	Result	Standard*	Result	Standard*
Point 1	55.2	60	41.0	50
Point 2	54.7	60	39.2	50
Point 3	53.3	60	40.7	50
Point 4	53.8	60	41.2	50

Source: Chifeng Lukang Environment Supervision Co. Ltd (details in Appendix 3); \*:Class II of Environmental Quality Standards for Noise GB3096-2008

## IV.PUBLIC CONSULTATION & COMPLAINTS

### A. Public consultation

26. Public consultation activities conducted during this monitoring period are summarized in Table 8.

Table 8: Public Consultation Activities

Organizer	Approach	Date	Issue	Attendees
PMO	Site visits & interviews	19-25 July	<ul style="list-style-type: none"> <li>● Implementation of EIA proposed actions</li> <li>● On-the-spot monitoring of construction impacts</li> </ul>	Contractors (Roads No.1 & 2) On-the-spot supervisors
IMDT, PMO and local governments	Site visits and interviews	16-18 Aug	<ul style="list-style-type: none"> <li>● Environmental impacts of road construction;</li> <li>● Implemented mitigation measure;</li> <li>● Comments and suggestions, if any</li> </ul>	Roads No. 1 & 2, and other roads: met herders, contractors, supervisors and others
IMDT, PMO	Meeting, site visits & interviews	18-21 Sept	<ul style="list-style-type: none"> <li>● Implementation of EIA proposed actions</li> <li>● Outstanding issues, if any</li> </ul>	ADB mission, contractors, supervisors, local transport bureaus
Traffic policy and transport bureaus (local governments)	Meeting, visit, distribution of awareness materials	May-Oct	<ul style="list-style-type: none"> <li>● Traffic safety</li> </ul>	Herder, contractors, construction workers

Source: PMO and external monitor

### B. Complaints

27. Based on interviews and meetings with PMO and various government agencies in Xinyou Qi and Xinzuo Qi, no complaint was had reported to PMO during May –Oct 2017; there is therefore no complaint record at PMO.



## **V. FINDINGS AND RECOMMENDATIONS**

### **A. Findings**

28. The proposed environmental specialist under the implementation consultancy service, for supporting the ESU and PMO to develop its capacity to implement the EMP to meet ADB's requirements and to advise PMO on all aspects of environmental management and monitoring for the project, although procured as of 30 Sept 2017, but there was still no internal progress report regarding EMP implementation (project level).

29. S203 is going to implement a design change (see Appendix 1) in the 2018 construction season. Per domestic requirement an EIA was prepared and approved, consequently, on-the-spot environment impact supervision shall be in place. The LEVC learnt that PMO will engage the Hulunbeier Environment Supervision Station as the independent environment supervisor, the same agency that was engaged for S203 during 2015-2016.

### **B. Recommendations**

30. It is recommend that PMO to:

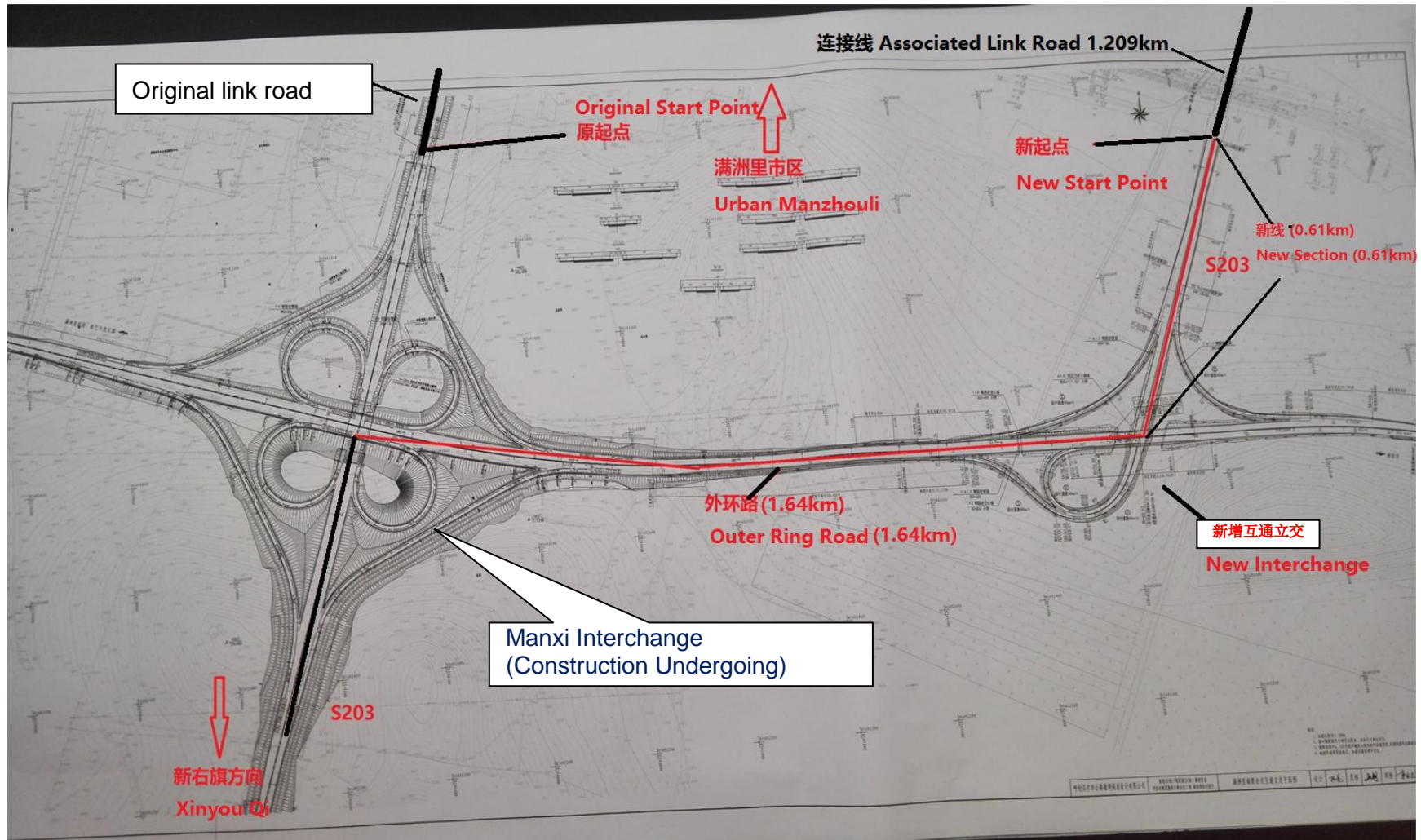
- (i) prepare progress reports in the coming years; and
- (ii) timely carry out on-the-spot environment supervision during construction of design change of S203 in the 2018 construction season

### **C. Follow-up Monitoring**

31. The IEVC will prepare and submit its fourth external monitoring report in Oct 2018. The fourth report will focus on implementation of the S203 design change.

## VI.APPENDICES

### Appendix 1: Design Change of S203







## Appendix 2: Construction Environment Monitoring Results of Road No.1

### 1. Air Quality

Month	Site	Sampling date	24-hr mean PM <sub>10</sub>	24-hr mean TSP
			mg/m <sup>3</sup>	mg/m <sup>3</sup>
May	Alatanemole Town	2017/05/11	0.134	0.201
		2017/05/12	0.111	0.249
		2017/05/13	0.120	0.234
		2017/05/14	0.141	0.226
		2017/05/15	0.137	0.219
		2017/05/16	0.133	0.216
		2017/05/17	0.131	0.223
	Arihashate Town	2017/05/11	0.140	0.235
		2017/05/12	0.127	0.221
		2017/05/13	0.132	0.217
		2017/05/14	0.141	0.224
		2017/05/15	0.140	0.215
		2017/05/16	0.143	0.240
Aug	Alatanemole Town	2017/05/17	0.136	0.225
		2017/08/15	0.063	0.142
		2017/08/16	0.111	0.288
		2017/08/17	0.145	0.229
		2017/08/18	0.131	0.230
		2017/08/19	0.140	0.224
		2017/08/20	0.140	0.231
	Arihashate Town	2017/08/21	0.113	0.179
		2017/08/15	0.146	0.265
		2017/08/16	0.137	0.264
		2017/08/17	0.142	0.282
		2017/08/18	0.122	0.269
		2017/08/19	0.147	0.227
		2017/08/20	0.126	0.265
		2017/08/21	0.117	0.264

Source: Shanxi Jiaotong Environment Supervision Centre

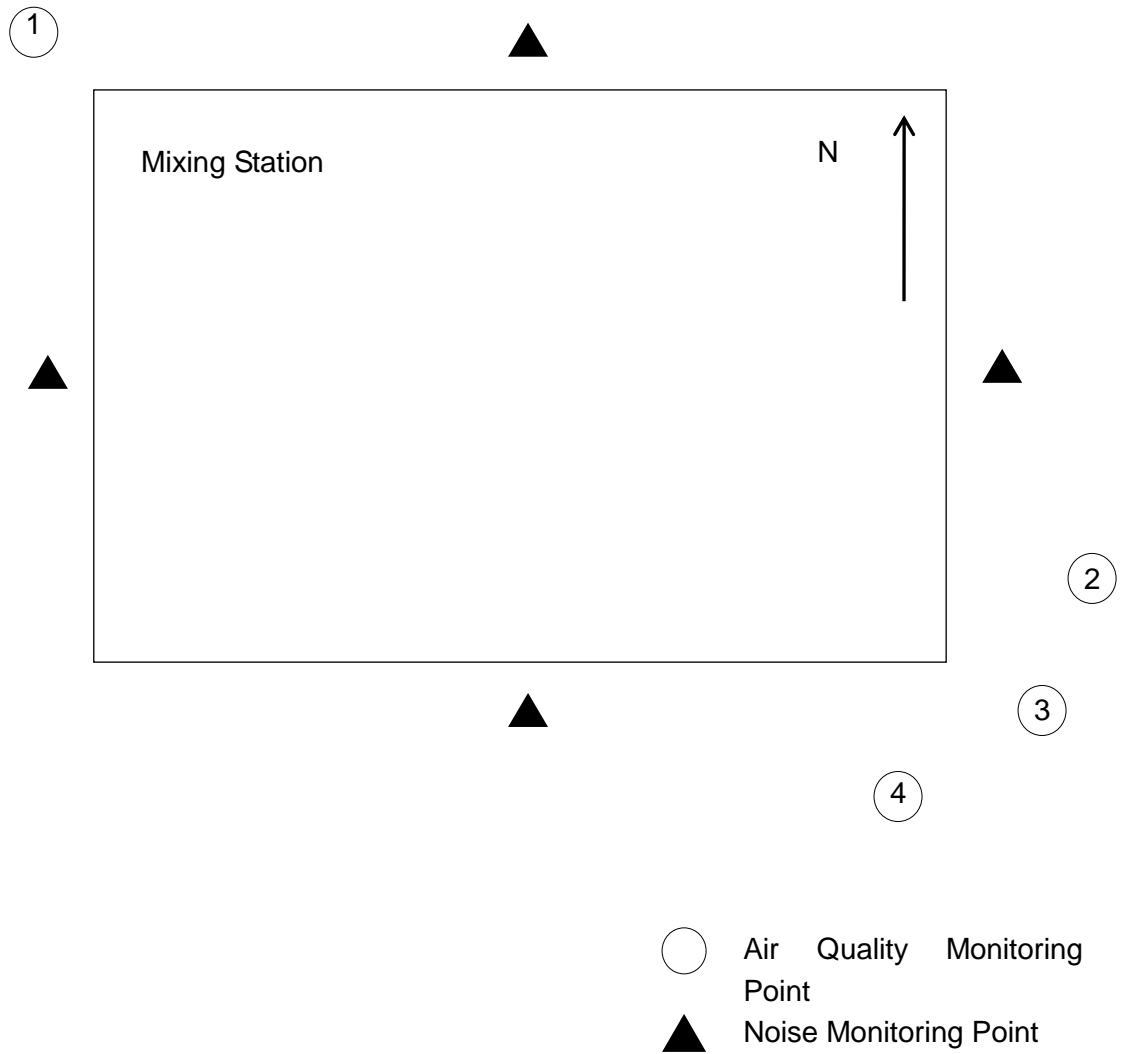
### 2. Noise

Month	Site	Day/night	Date	Results (dB(A))	
May	Alatanemole Town	Night	2017/05/11	43.0	OK
			2017/05/12	45.4	OK
		Daytime	2017/05/11	58.0	OK
			2017/05/12	56.5	OK
	Arihashate Town	Night	2017/05/11	45.0	OK
			2017/05/12	47.9	OK
		Daytime	2017/05/11	56.0	OK
			2017/05/12	56.4	OK
Aug	Alatanemole Town	Night	2017/08/15	43.6	OK
			2017/08/16	43.1	OK
		Daytime	2017/08/15	55.6	OK
			2017/08/16	56.1	OK
	Arihashate Town	Night	2017/08/15	45.4	OK
			2017/08/16	45.7	OK
		Daytime	2017/08/15	56.3	OK
			2017/08/16	56.1	OK

Source: Shanxi Jiaotong Environment Supervision Centre

## Appendix 3: Monitoring Results of Road No.2

### 1. Sampling Site and Moniting Points



## 2. Unorganized Waste Gas Particulate Matter

Point	Sequence	Results (mg/m <sup>3</sup> )
Point 1	1 <sup>st</sup>	0.169
	2 <sup>nd</sup>	0.173
	3 <sup>rd</sup>	0.158
	4 <sup>th</sup>	0.177
Point 2	1 <sup>st</sup>	0.382
	2 <sup>nd</sup>	0.435
	3 <sup>rd</sup>	0.419
	4 <sup>th</sup>	0.422
Point 3	1 <sup>st</sup>	0.416
	2 <sup>nd</sup>	0.392
	3 <sup>rd</sup>	0.442
	4 <sup>th</sup>	0.418
Point 4	1 <sup>st</sup>	0.405
	2 <sup>nd</sup>	0.446
	3 <sup>rd</sup>	0.452
	4 <sup>th</sup>	0.437

Source: Chifang Lukang Environment Supervision Co. Ltd

## 3. Noise

Point	Daytime (dB(A))		Night (dB(A))	
	Result	Standard	Result	Standard
Point 1	55.2	60	41.0	50
Point 2	54.7	60	39.2	50
Point 3	53.3	60	40.7	50
Point 4	53.8	60	41.2	50

Source: Chifang Lukang Environment Supervision Co. Ltd

亚行贷款3042 PRC：内蒙道路发展项目

环境独立监测报告  
(第三期)

北京中发成美国际咨询有限公司

2017年10月



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## 一、前言

### （一）项目概述及建设进度

1. 该项目将会为五个旨在开发呼伦贝尔地区道路交通网，为跨境贸易、可持续旅游、环境保护及机构的加强和能力建设的主要产出提供资金。项目共有五个产出：

产出1 道路升级及道路安全改善。本产出包括：1) 全长 132 公里的省道满洲里至阿拉坦额莫勒段的三级公路升级为一级标准（半幅）；2) 通过引入措施来改善省道安全、包括道路标识、指示牌、速控结点的设置、路障及动物地下通道、指定停车场、观景台和服务区。

产出2 农村道路升级。本产出包括：1) 新伯鲁克至满洲里 66 公里为自然路，将升级至三级公路；2) 由诺干诺尔经乌布尔宝力格至阿拉坦哈达嘎查 127 公里的砂石路（等外路）升级为四级路；3) 宝格德乌拉苏木与贝尔苏木的 54 公里的道路将会由等外砂石路修复升级为四级公路；4) 长约 45 公里阿木古郎-乌布尔宝力格四级路升级为三级公路。

产出3 过境交通改善及贸易促进。本产出包括：1) 全长约 82 公里由阿拉坦额莫勒至阿日哈沙特口岸的三级路修复升级为二级路；2) 全长约 22 公里由阿木古郎至额布都格口岸的三级路修复升级为二级路；3) 呼伦贝尔市内公交车站与招呼站的建设；4) 与蒙古之间跨境贸易便利化。

产出4 支持生态可持续旅游和环境保护。本产出包括：1) 将在 S203 道路沿线建设休息区，设置路标，路牌以减少失控驾驶和在环境敏感区停车的状况；2) 开展生态文化旅游实验使游客能够体验草原、湿地和原滋原味的传统生活；3) 对达莱湖自然保护区管理局的支持包括建设多功能保护中心、为保护、调查及开展监控提供设备，以及对关于栖息地管理、生态旅游发展及栖息地修复的十年总体规划发展提供协助。

产出5 加强机构和能力建设。本产出包括：1) 支持项目管理和实施以确保项目符合亚行政策和程序；2) 加强项目执行结构及实施机构在道路安全，道路使用及能力建设；3) 达赉湖国家自然保护区管理局人员的能力建设以改善自然保护区的管理。

2. 大约 90% 的项目投资用于支持产出 1，即 S203 的改造升级。图 1 给出项目产出 1-3 的道路分布。

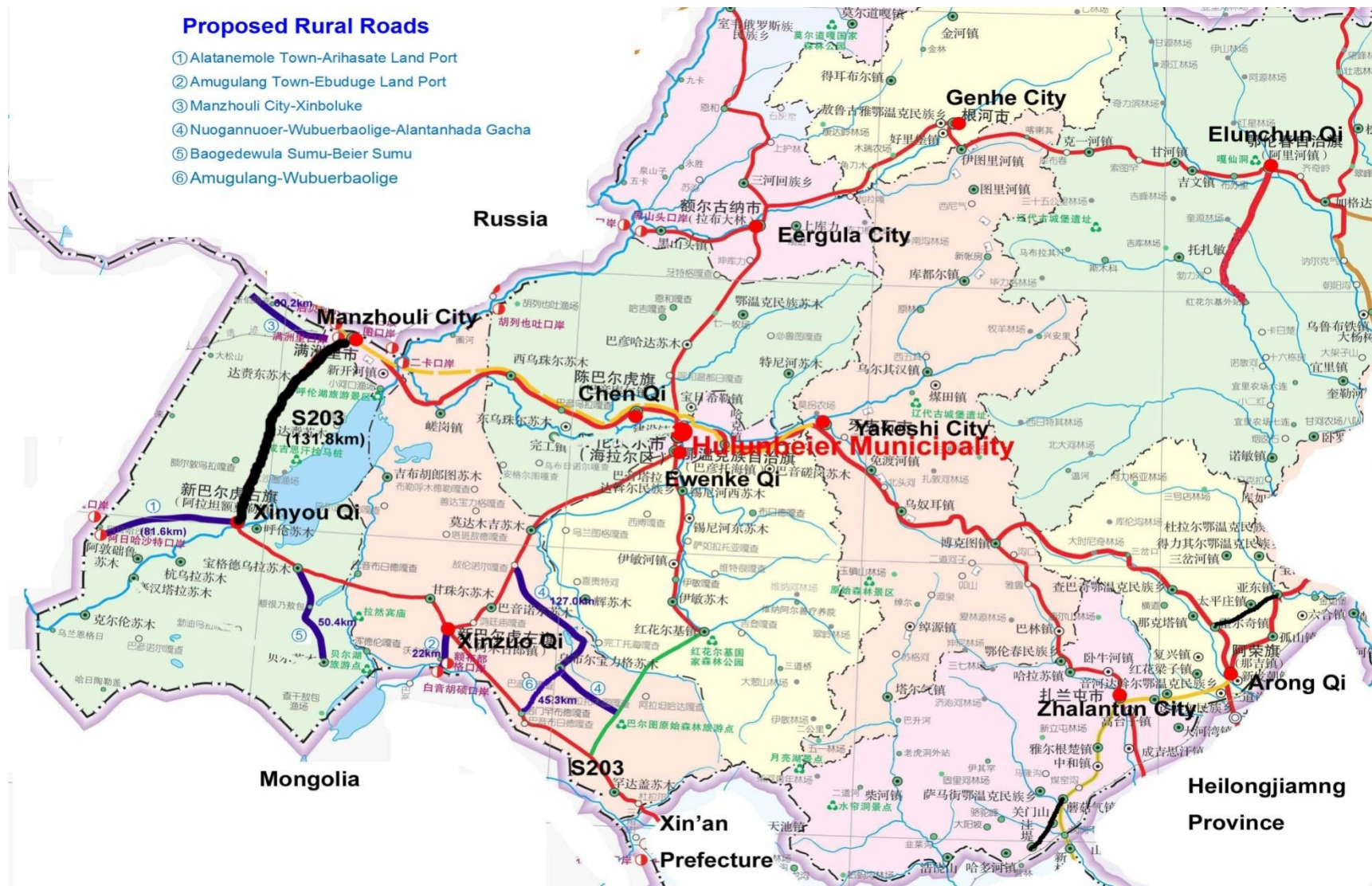


图1: S203和地方路分布



图2: S203于2016年11月开通约120公里



图3: 1号路完成施工

3. 项目道路建设始于 2014 年 8 月，截止 2017 年 10 月 20 日 S203 及各地方道路施工进度如下表。

表1：建设进度

编 号 <sup>1</sup>	道路	里程 (公 里)	原道路 等级	建设 等级	建设进度 (2017年10月)
S203	满洲里-阿拉坦额莫勒 (满阿路)	131.8	三级	一级	完成 90%工程量，大约120km自2016年11月起开通运行（见图2）。但正在起点变更之设计变更
1	阿拉坦额莫勒- 阿日哈沙特口岸路	81.6	三级	二级	基本完成，11月开通运行
2	阿木古郎-额布都格口岸 路	22	三级	二级	基本完成，11月开通运行
3	满洲里-新伯鲁克路	60.2	土路- 无路	三级	基本完成，11月开通运行
4	诺干诺尔-乌布尔宝力格 -阿兰坦哈达嘎查路	127.0	土路- 无路	四级	完成70%工程
5	宝格德乌拉-贝尔苏木路	54.0	等外	四级	基本完成，11月开通运行
6	阿木古郎-乌布尔宝力格 路	45.3	四级	三级	完成40%工程

来源：建管办

4. 截止 2017 年 10 月项目其他活动的建设进度汇总于下表。

表2：非道路活动建设进度

产出	项目活动	建设进度
1	• 安保措施及休息区	• 正在实施
3	• 汽车站与招呼站 • 过境贸易便利化	• 正在实施 • 正在进行中，政府例行活动
4	• 建设休息区，设置路标，路牌 • 开发生态文化旅游 • 支持达赉湖自然保护区管理局 - 建设多用途保护中心 - 为保护、调查及开展监控提供设备 - 编制10年总体规划	• 正在实施 • 设施采购了 • 大部分设备采购了 - 截止2017年9月基本完成 - 设备采购了 - 已编制
5	• 项目管理与实施支持 • 能力建设 • 达赉湖自然保护区管理局	• 管理咨询机构 2017 年 7 月刚刚到位 • 有限 • 完成：a) 2015-2016 年亚行提供赠款实施了一个技援；b) 开展了国内国际培训

来源：建管办

## （二）环境影响评价、环境管理计划及投诉应诉机制

### 1. S203

5. 按亚行标准本项目环境影响属于 A 类。除按国内政策要求编制了环境影响评价报告外，还按亚行保障政策要求编制了环境管理计划，环境管理相关内容与要求第一期报告中已作归纳陈述。

6. 为确保环境管理计划以及相关社会计划的顺利实施，依照亚行保障政策声明要求，项目专门建立了投诉应诉机制专门用来处置方面环境和社会方面的投诉。投诉机制在项目实施前已经向公众公布。

7. S203 主体工程在 2016 年 10 月前已经完成，2017 年度有限的建设活动基本不涉及环境影响。2017 年度的建设活动仅限于安装交通安保设施，满西立交收尾工程，休息区及收费站

<sup>1</sup> 与图1的编号一致。



建设。

## **2. S203起点设计变更**

8. S203 进行了设计变更，变更包括满洲里改变起点及配套的连接线（一级路）。S203 的设计变更系见原起点由满洲里外环路 K5+967 移至 K4+067 以北 610 米处。设计变更实际包括 0.61 公里的新路，一个新的复合型互通立交桥一级 1.209 公里的连接线（详见附录一）。

9. 按照国内政策要求针对设计变更编制了环境影响评价报告并在 2015 年 10 月得到了满洲里市环保局的批复。批复认为环境影响评价报告中所建议的措施能有效减缓与控制建设期间环境影响（噪声、尘土、生活及建筑垃圾等），批复报告要求项目聘请独立机构在施工期间进行环境监理。

10. 设计变更将在 2018 年施工季实施，届时环境监理必须到位。

## **3. 1号路和2号路**

11. 1 号路和 2 号路属于省级二级公路（见图 1）。按国内程序要求于 2012 年编制了环境影响评价报告，相应地施工期间需要独立机构进行环境监理。

12. 项目机构分别聘请了山西省交通环境监测中心及赤峰绿康环境检测有限公司作为 1 号路和 2 号路的环境监理机构。两个机构均在 2017 年施工季（5-10 月）进行了现场监测。

## **4. 其他**

13. 其他道路（见图 1）和项目活动（见表 2）环境影响很小，按规定不需要进行环境监理。

### **（三）本报告**

14. 本报告为第三期环境影响外部监测报告，覆盖 2017 年施工季节（5-10 月）。因为 S203 在 2017 年基本没有涉及环境影响的建设活动，本期报告针对 1 号和 2 号路。

15. 因此本报告是基于现场考察调研、对咨询建管办以及审查环境监理报告而完成的。本报告期监测专家分别于 7 月和 9 月赴现场进行了实施考察与调研。



## 二、 施工期环保措施

### （一） 环保措施

16. 根据现场考察以及据建管办及施工单位介绍，1号路和2号路在2017年施工期认真落实了环境影响评价报告报告所建议的措施：

- (1) 职业及社区健康：所有工人均配备个人防护设施，比如头盔，安全、反光衣等。
- (2) 安全：a) 施工方通过指示标识引导公众及车辆通行；b) 如果有潜在危险则设置警示标识且派员值守。
- (3) 通道：为车辆行人及牲畜设立了安全通道。
- (4) 植被保护：施工车辆只能在设立的施工便道运行。
- (5) 施工机械排放物管理：a) 选用低排放机械与车辆；b) 机械与车辆严格保养。
- (6) 扬尘控制：a) 施工便道、拌合站及营地根据实际需求定期或者不定期洒水（见图4）。
- (7) 噪声控制：a) 施工时间按国家相关规定限定在每日上午6点至晚上10点之间；b) 使用低噪声机械设备；c) 重型车辆通过城镇及乡村道路同样限定在上午6点至晚上10点之间。<sup>2</sup>
- (8) 废水处置：a) 施工营地距离河流至少200米（图5）；b) 选用现代设备且严格养护确保最小渗漏或者溅洒；c) 施工工地及机械设备养护场地设置平流沉淀池收集油污废水；d) 收集废水通过简单酸碱中和、沉淀、油及沉淀物分离进行处理。
- (9) 固体废物（图5）：a) 生活垃圾及时收集并转送至当地环卫部门指定地点；b) 施工营地生活垃圾指定区域堆放；c) 堆放区域进行覆盖以防雨水渗入或者防止垃圾进入地表径流。

17. 监测专家还了解到项目还2016年7月开展了职业及社区健康安全方面的意识建设/教育/培训活动。对所有工人在2017年5月进行了一次培训。

### （二） 交通厅和地方政府督查

18. 2017年8月16-18日，自治区交通厅、市交通局及新左旗和新右旗政府联合对1号路和2号路（以及其他道路）进行了包括环境保护工作在内的现场检查<sup>3</sup>。督查团现场督查期间没有发现环境管理方面的问题，但强调要求建管办及各标段在施工期间遵循国家相关环境保护政策与规定。

19. 督查团同时也在呼伦镇、达赉苏木和敖尔金牧场开展了牧民咨询。据了解，没有牧民抱怨或者投诉施工环境问题。

<sup>2</sup> 1号路和2号路建设不必设置临时声障或者挡墙。

<sup>3</sup> 交通厅云文婧副巡视员带队。



图4：洒水控尘



图 5：规范的营地及拌合站

### 三、 环境影响监测结果

20. 山西省交通环境监理中心和赤峰绿康环境检测有限公司受聘分别对 1 号路和 2 号路进行了施工期间环境监理和检测工作。相关监测指标等细节见表 3，具体检测结果则在下述章节归纳。

表3：17年5-9月环境检测指标与频度

道路	科目	指标	监测地点	频度
1 号路	空气 质量	总悬浮颗粒物、可吸入颗粒物（PM10）	阿拉坦额莫勒镇（K0+000~K0+500），距道路中线65米临房点位 阿日哈沙特镇（k80+00~k81+000），距中线95米临房点位	5月8月各一次 每次连续7天， 每天检测
	噪声	分贝	同上	5月8月各一次 每次连续2天， 每天检测
	地表 水	不需要，道路不经过河流与湖泊		
	水土 保持	表土堆放，截留沟、沟， 工地植被恢复	废弃物场及工地	随时
2 号路	空气 质量	无组织废气颗粒物	拌合站4个点位（详见附录三）	9月开展一天 4次检测
	噪声	分贝	同上	同上
	地表 水	不需要，道路不经过河流与湖泊		
	水土 保持	表土堆放，截留沟、沟， 工地植被恢复	废弃物场及工地	随时

来源：山西省交通环境监理中心和赤峰绿康环境检测有限公司

#### （一）1 号路

21. 1 号路连接阿拉坦额莫勒镇（新右旗首府）和阿日哈沙特两镇，除这两个镇区外，不再影响如何居民点、河流湖泊以及环境敏感点。

#### 1. 空气质量

22. 1 号路空气质量监测结果汇总见表 4。如表所示，检测结果均低于国家标准。

表4：1号路空气质量监测结果

单位：mg/m<sup>3</sup>

监测点	指标	结果		国家标准*	备注
阿拉坦额莫勒镇	可吸入颗粒物 日均值	5 月	0.111-0.141	0.150	合格
		8 月	0.063-0.140		合格
	总悬浮颗粒物 日均值	5 月	0.201-0.249	0.300	合格
		8 月	0.142-0.288		合格
阿日哈沙特镇	可吸入颗粒物 日均值	5 月	0.127-0.143	0.150	合格
		8 月	0.117-0.147		合格
	总悬浮颗粒物 日均值	5 月	0.215-0.240	0.300	合格
		8 月	0.227-0.282		合格

来源：山西省交通环境监理中心（详细结果见附录二）；\*：GB3095-2012

## 2. 噪声

23. 噪声监测结果汇总于表 5，结果均优于国家标准。

表5：1号路噪声监测结果

监测点	结果（分贝）			国家标准（分贝）*	备注
阿拉坦额莫勒镇	昼间	五月	56.5-58.0	60	合格
		八月	55.6-56.1		合格
	夜间	五月	43.0-45.4	50	合格
		八月	43.1-43.6		合格
阿日哈沙特镇	昼间	五月	56.0-56.4	60	合格
		八月	56.1-56.3		合格
	夜间	五月	45.0-47.9	50	合格
		八月	45.4-45.7		合格

来源：山西省交通环境监理中心（详细结果见附录二）\*：GB3096-2008

### （二）2号路

24. 2号路唯一敏感点是拌合站，据阿木古郎镇（新左旗首府）镇区约 500 米，因此环监理现场检测只在此处四个点位开展，包括一个上风点位和 3 个下风点位（点位详见附录三）。

## 1. 空气质量

25. 空气质量监测结果汇总于下表。

表6：2号路空气质量监测结果

单位：mg/m<sup>3</sup>

点位	指标	结果	国家标准*	备注
1号点位	无组织废气颗粒物 r	0.158-0.177	1.000	合格
2号点位		0.382-0.435		合格
3号点位		0.392-0.442		合格
4号点位		0.405-0.452		合格

来源：赤峰绿康环境检测有限公司（详细结果见附录三）；\*：GB 16297-1996

## 2. 噪声

26. 噪声检测结果汇总于表 7。同样，均符合国家标准。

表7：2号路噪声监测结果

单位：分贝 dB(A)

点位	昼间		夜间	
	结果	标准*	结果	标准*
1号点位	55.2	60	41.0	50
2号点位	54.7	60	39.2	50
3号点位	53.3	60	40.7	50
4号点位	53.8	60	41.2	50

来源：赤峰绿康环境检测有限公司（详细结果见附录三）；\*：GB3096-2008

## 四、 公众咨询及投诉

### （一）公众咨询

27. 本报告期开展的公众咨询活动见下表。

表8：公众咨询活动

组织者	方法	日期	事项、议题	参加者
建管办	现场考察与访谈	7月19-25日	<ul style="list-style-type: none"> <li>● 环评报告规定措施实施情况</li> <li>● 监理工作到位情况</li> </ul>	施工单位(1号路和2号路)，监理单位
交通厅、建管办地方政府	现场考察	8月16-18日	<ul style="list-style-type: none"> <li>● 施工环境影响</li> <li>● 环保措施落实情况</li> <li>● 建议</li> </ul>	1号路2号路施工单位，偶遇牧民等
交通厅、建管办	会议、现场考察、访谈	9月18-21日	<ul style="list-style-type: none"> <li>● 环保措施落实情况</li> <li>● 存在问题</li> </ul>	亚行检查团、施工单位，监测监理单位、地方交通局
交警、交通局（地方政府）	会议、走访、发放宣传教育材料	5-10月	<ul style="list-style-type: none"> <li>● 交通安全</li> </ul>	牧民、施工单位、建筑工人

来源：建管办和外部监测专家

### （二）投诉情况

28. 据建管办及新左旗、新右旗政府相关部门介绍，2017年施工期没有关于环保方面的投诉，相应地建管办也没有投诉文字材料。

## 五、 发现与建议

### （一）发现

29. 隶属于管理咨询的，旨在提高建管办环境管理能力的环境专家虽然已经聘用，但截至 2017 年 9 月 30 日并没有准备关于环境管理计划实施的进度报告。

30. S203 设计变更（见附录一）将在 2018 年施工季实施。按照国内程序要求，环评报告准备且批复了，相应地环境监理在施工时应当进场。外部监测专家了解到建管办将继续聘用呼伦贝尔市环境监测站作为现场监理。呼伦贝尔市环境监测站是 S203 主线施工期间（2015-2016）的环境监理机构。

### （二）建议

31. 建议建管办：

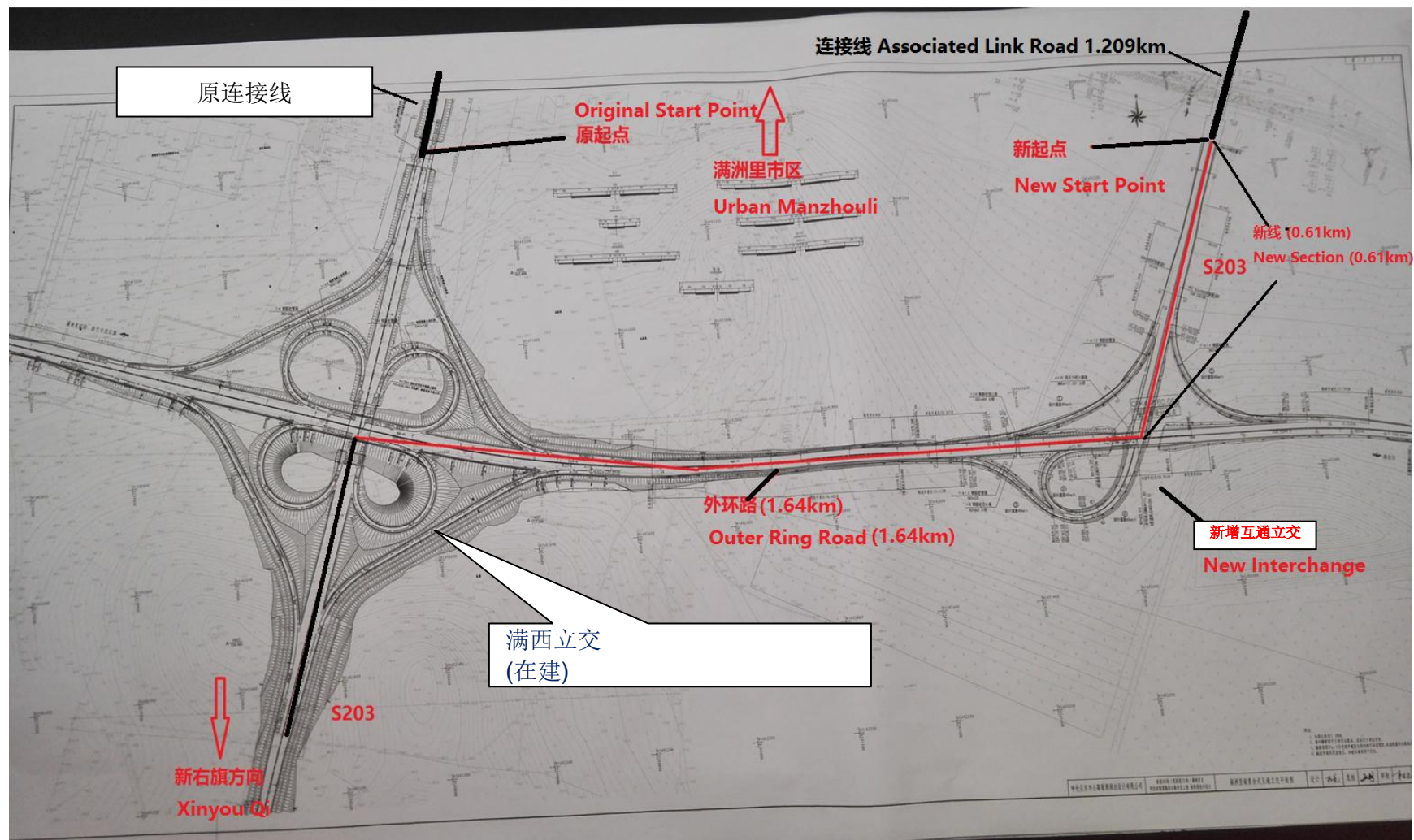
- (1) 在随后季节及时准备关于环境影响的进度报告；
- (2) S203 设计变更实施时及时开展环境监理工作。

### （三）后续外部监测

32. 外部监测机构将在 2018 年 10 月提交第四期外部监测报告，重点是 S203 设计变更实施时环保措施落实情况及成效。

## 六、 附录

附录一、S203 设计变更







## 附录二、1 号路环境监测结果

### 1. 空气质量监测结果

月份	地点	检测日期	可吸入颗粒物 日均值	总悬浮颗粒物 日均值
			mg/m <sup>3</sup>	mg/m <sup>3</sup>
五月	阿拉坦额莫勒镇	2017/05/11	0.134	0.201
		2017/05/12	0.111	0.249
		2017/05/13	0.120	0.234
		2017/05/14	0.141	0.226
		2017/05/15	0.137	0.219
		2017/05/16	0.133	0.216
		2017/05/17	0.131	0.223
	阿日哈沙特镇	2017/05/11	0.140	0.235
		2017/05/12	0.127	0.221
		2017/05/13	0.132	0.217
		2017/05/14	0.141	0.224
		2017/05/15	0.140	0.215
		2017/05/16	0.143	0.240
		2017/05/17	0.136	0.225
八月	阿拉坦额莫勒镇	2017/08/15	0.063	0.142
		2017/08/16	0.111	0.288
		2017/08/17	0.145	0.229
		2017/08/18	0.131	0.230
		2017/08/19	0.140	0.224
		2017/08/20	0.140	0.231
		2017/08/21	0.113	0.179
	阿日哈沙特镇	2017/08/15	0.146	0.265
		2017/08/16	0.137	0.264
		2017/08/17	0.142	0.282
		2017/08/18	0.122	0.269
		2017/08/19	0.147	0.227
		2017/08/20	0.126	0.265
		2017/08/21	0.117	0.264

来源：山西省交通环境监测中心

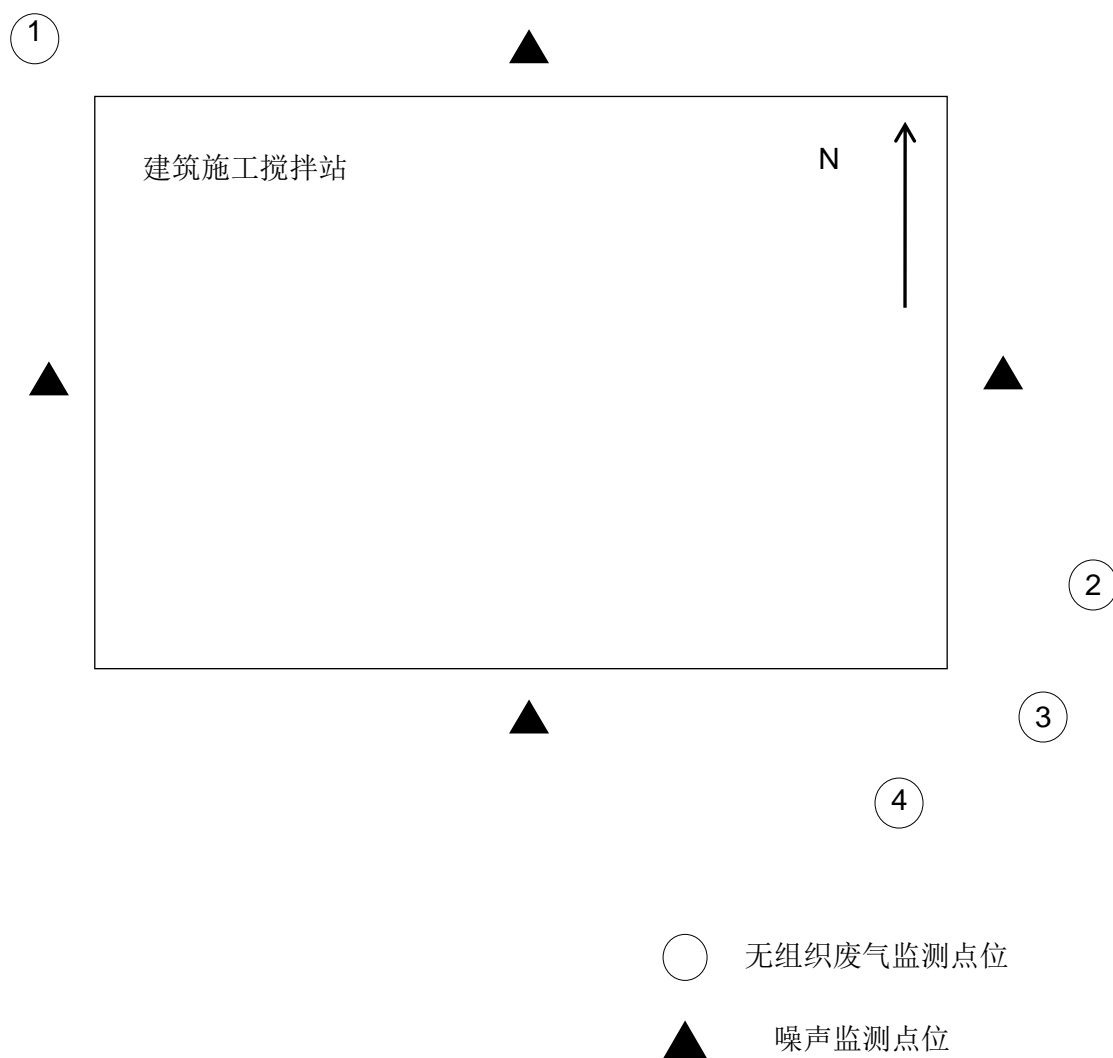
### 2. 噪声监测结果

月份	采样点位	夜/昼	监测日期	结果 dB(A)	
五月	阿拉坦额莫勒镇	夜间	2017/05/11	43.0	达标
			2017/05/12	45.4	达标
		昼间	2017/05/11	58.0	达标
			2017/05/12	56.5	达标
	阿日哈沙特镇	夜间	2017/05/11	45.0	达标
			2017/05/12	47.9	达标
		昼间	2017/05/11	56.0	达标
			2017/05/12	56.4	达标
八月	阿拉坦额莫勒镇	夜间	2017/08/15	43.6	达标
			2017/08/16	43.1	达标
		昼间	2017/08/15	55.6	达标
			2017/08/16	56.1	达标
	阿日哈沙特镇	夜间	2017/08/15	45.4	达标
			2017/08/16	45.7	达标
		昼间	2017/08/15	56.3	达标
			2017/08/16	56.1	达标

来源：山西省交通环境监测中心

### 附录三、2 号路环境监测结果

#### 1. 监测点位



## 2. 无组织废弃颗粒物监测结果

监测点位	监测顺序	监测结果 (mg/m <sup>3</sup> )
点位 1	1次	0.169
	2次	0.173
	3次	0.158
	4次	0.177
点位 2	1次	0.382
	2次	0.435
	3次	0.419
	4次	0.422
点位 3	1次	0.416
	2次	0.392
	3次	0.442
	4次	0.418
点位 4	1次	0.405
	2次	0.446
	3次	0.452
	4次	0.437

来源：赤峰绿康环境检测有限公司

## 3. 噪声监测结果

监测点位	昼间 (dB(A))		夜间 (dB(A))	
	监测值	标准限值	监测值	标准限值
点位 1	55.2	60	41.0	50
点位 2	54.7	60	39.2	50
点位 3	53.3	60	40.7	50
点位 4	53.8	60	41.2	50