Construction Project EIA Report Forms

(Final Submission Draft)

Project Name: PT Component – the Wangjiazhai Interchange
(Xining Chengxi Bus Terminal)
under the Qinghai Xining Urban Transport Project

Construction Entity: Xining Chengtong
Transport Construction Investment Company, Ltd

Date: July, 2018

Template designed by: Ministry of Environment Protection
Directions for Completing Construction Project EIA Report Forms

Construction Project EIA Report Forms shall be completed by an agency with the qualification of undertaking Environment Impact Assessment (EIA).

1. “Project Name” refers to the name used when the project was identified and approved. It should be no more than 30 Chinese characters (1 Chinese character is the equivalent of two English numeric fields);
2. “Construction Site” refers to the detailed address at which the construction project is located. When it involves highway or railway, beginning and ending locations shall be indicated clearly;
3. “Sector Category” shall be entered as required by national Criteria;
4. “Total Investment” refers to the total amount of project investment;
5. “Key EP Targets” refer to residential compounds, schools, hospitals, EP cultural relics, places of interest, scenic spots, water sources and ecological sensitive points. When completing forms, protection targets, their nature, scale and distance from site boundary and others shall be indicated as far as possible;
6. “Conclusions and Recommendations” involve developing conclusions drawn from the analysis of clean production, compliant emission and total volume control in respect of the project; establishing the effectiveness of pollution control measures; describing impacts of the project on the environment; and offering well-established conclusions regarding the environmental feasibility of the construction project; additionally, developing other recommendations of mitigating the environment impacts;
7. “Prior Review Opinion” refers to a reply opinion entered by the responsible authorities of the sector. It is not applicable, if there are no responsible authorities;
8. “Approval Opinion” refers to an opinion expressing approval to be entered by the EP administration authorities responsible for approving the construction project.
Basic Information of Construction Projects (Form 1)

<table>
<thead>
<tr>
<th>Project Name</th>
<th>PT Component – the Wangjiazhai Interchange (Xining Chengxi Bus Terminal) under the Qinghai Xining Urban Transport Project (Hereinafter referred to as “the Subproject”)</th>
</tr>
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<tbody>
<tr>
<td>Construction Entity</td>
<td>Xining Chengtong Construction Investment Company, Ltd</td>
</tr>
<tr>
<td>Legal Person</td>
<td>Song Qiang, Contact: Li Zhili</td>
</tr>
<tr>
<td>Address</td>
<td>Xichengtian Street, No.53, Wusixi Road, Haihuxin District, Xining, Qinghai</td>
</tr>
<tr>
<td>Telephone</td>
<td>13997250810, Fax: 0971-6153319, Postcode: 810001</td>
</tr>
<tr>
<td>Construction Site</td>
<td>Wangjiazhai Village, Dapuzi Town, Chengxi District, Xining, Qinghai</td>
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<tr>
<td>Approved by</td>
<td>Xining Municipal Development &amp; Reform Commission, Approval Reference No.</td>
</tr>
<tr>
<td>Construction Nature</td>
<td>■ New Construction □ Renovated &amp; Expanded □ Technically Reformed</td>
</tr>
<tr>
<td>Land Area (m²)</td>
<td>61189</td>
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<tr>
<td>Greening Area (m²)</td>
<td></td>
</tr>
<tr>
<td>Total Investment (0,000 Yuan)</td>
<td>45246 Of which: EP Investment (0,000 Yuan) 122 Percentage of EP Investment in the Total Investment (%) 0.27</td>
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<tr>
<td>EIA Cost (0,000 Yuan)</td>
<td></td>
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<tr>
<td>Expected Operation Date</td>
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</table>

Project Activities and Scales

1.1 Project Background

(1) Project Introduction

For the purpose of mitigating such negative effects as traffic congestion, traffic accidents and environment pollutions caused by the rapid growth of vehicles in Xining Municipality, enhancing the levels of its public transport (PT) service and traffic management and drawing on the advanced practices of urban PT construction of national and international cities, the Xining Municipal Development and Reform Commission (DRC), in collaboration with relevant bureaus or commissions of finance, construction and transport, has proposed the “Qinghai Xining Urban Transport Project via WB Loan”. In October, 2011, the project was approved by the National DRC and the Ministry of Finance (MOF) and enlisted in the program of project options of WB's lending pipeline for the fiscal period from 2012 to 2014. The project will have a WB loan of USD 120 million used for the improvement of urban roads, PT management, intelligent transport system (ITS) and institutional capacity building.
(ICB) in Xining Municipality.

The Project Management/Construction Office (PMO) of the Qinghai Xining Urban Transport Project (Hereafter referred to as “the project”) entrusted the Shanghai Kejing Consultancy Company, Ltd to have completed the feasibility study (FS) report of the project in January, 2013. The project falls into the category of transport improvement, having four important components such as urban roads, PT, ITS and ICB. Of which, the PT component includes integrated PT corridor of Wusi Road (15.6 km long), Yanxiaocun Bus Interchange Hub (located in the Yanxiaocun Village of Xichuan, with acquired land of 14.19 hm²) and counterpart Planned Roads I and II to be constructed for collection and distribution.

According to the requirements of relevant documents such as "Law on Environmental Impact Assessment of the People's Republic of China” and "Regulations of Environmental Protection Management for Constructional Projects"(State Council Decree No. 253), the PMO commissioned the Hubei Province Institute of Environmental Sciences to carry out the EIA work of the project. The Qinghai Provincial Environmental Protection Bureau approved the EIA of the project on 11 September 2013 based on the document entitled “Approval of the EIA Report of Qinghai Xining Urban Transport Project via WB Loan” (Reference No.: Qinghuanfa [2013] 418).

(2) Project Background and Rationale:

The Qinghai Xining Urban Transport Project was studied for project mid-term restructuring in 2017. Among the project PT component, the Yanzhong Village Public Interchange, which was originally located in Yanxiao Village, Xichuan, was adjusted to build Wangjiazhai Interchange Hub at Wangjiazhai Village (Xining Chengxi Bus Terminal). Due to changes in geographical location, construction contents and scale of the project, the construction entity commissioned the Shanghai Tongji Engineering Consulting Co., Ltd. to re-compile the Feasibility Study Report for the PT Component – the Wangjiazhai Interchange (Xining Chengxi Bus Terminal) of the Qinghai Xining Urban Transport Project, and entrusted our company to carry out the EIA work for the Wangjiazhai Interchange (Xining Chengxi Bus Terminal) of the Qinghai Xining Urban Transport Project (hereinafter referred to as “the Subproject” as it is a large PT component of the project).

Presently, the Xining Municipality has seen rapid social and economic development, constant urban expansion, and profoundly changing spatial layout. What is inconsistent with this is that Xining Highway Bus Terminals have been stagnant for a long time in terms of planning and construction, with issues such as a limited number of stations, too small scale, poor service facilities and singular function, thus failing to adapt to the current economic development and urban constructive development in Xining. In order to facilitate the travel of its citizens and better accommodate and promote its economic and urban development, the Xining Municipality has planned to construct the Xining Chengxi Bus Terminal. Actually, its construction necessities are mainly reflected in the following aspects: (1) integration into the “Belt and Road” economic belt construction, thus empowering regional economy; (2) improvement and optimization of highway bus terminals outlay, thus facilitating the people's convenient travel; (3) establishment of an orderly passenger transit market, thus ensuring the safe and fast travel of local communities; (4) better adaptation to the development trends of transport & transporation, thus refining the integrated passenger transit system; (5) accommodation of the urban development in Xining, thus building an ecologically livable city; (6) full play given to the role of “Great Beauty of Qinghai”, thus promoting the
development of tourism of Xining; (7) realization of the rapid economic development of Xining, thus promoting the harmonious development of highway traffic and economic society.

As required by the relevant stipulations of Environmental Impact Assessment Law of the People's Republic of China, the Regulations on Environmental Protection Management of Construction Projects (State Council Order No. 682) and the Catalogue for the Classification Management of Environmental Impact Assessment of Construction Projects (the Ministry of Environmental Protection Order No. 44), it is essential to carry out the EIA work of the Xining Chengxi Bus Terminal Subproject (Also hereinafter referred to as “the Subproject”). Since this Subproject falls into the category of “newly constructed” among “Forty-nine Transport & Transportation, Pipeline Transportation and Storage Industry 174, Long-distance Bus Terminals (Long-transit Bus Terminals)” in the Catalogue of the Classification Management of Environmental Impact Assessment of Construction Projects, an EIA report forms need to be prepared.

After entrusted by the Xining Chengtong Traffic Construction Investment Co., Ltd., our company organized relevant technical personnel to conduct on-spot investigations and conducted investigations on the natural and social environments and project contents regarding the subproject site. They carefully examined relevant materials and existing environmental conditions and carried out engineering analysis in respect of the Subproject. On such basis, they also conduct an analysis of the potential environmental problems that may arise from the Subproject. According to the requirements of the Technical Guidelines for Environmental Impact Assessment, we have completed the Subproject EIA Report Forms (Final Submission Draft).

On May 20, 2018, the Expert Panel Technical Evaluation Meeting was held to have conducted a technical evaluation of the Subproject EIA Report Forms in Xining, and a review opinion from the Expert Panel was formed. After the meeting, our technical staff carefully revised, supplemented and imfined the Subproject EIA Report Forms based on the comments made by the Expert Panel. On this basis, the Subproject EIA Report Forms (Final Submission Draft) was completed and delived to the construction agency. Eventually, it will be submitted to the authorities of EP Administration for approval.

1.2 Compiling Basis

1.2.1 Laws and Regulations, Ordinances/Regulations

1) Law on Environmental Protection of the People's Republic of China (No.9 President Order [2014]);
2) Law on Environmental Impact Assessment of the People's Republic of China (No. 48 President Order [2016]);
3) Law on Prevention & Control of Water Pollution of the People's Republic of China (Revised) (No. 70 President Order [2017]);
4) Law on Prevention & Control of Ambient Noise Pollution of the People's Republic of China (No. 77 President Order [1996]);
5) Law on Prevention & Control of Environmental Pollution of Solid Wastes of the People's Republic of China (Revised) (No. 57 President Order [2016]);
6) Law on Prevention & Control of Atmospheric Pollution of the People's Republic of China
7) Regulations on Environmental Protection Management of Construction Projects (No. 682 State Council Order [2017]);
8) Catalogue of Classification Management of Environmental Impact Assessment of Construction Projects (No. 44 Order of the Ministry of Environmental Protection [2017]);
9) Opinions on Priorities of Strengthening Environmental Protection Work of the State Council (No. 35 State Council Order [2011]);
10) Notification on Issuing the Action Plan for Prevention & Control of Atmospheric Pollution of the State Council (Reference No.: Guo Fa [2013] 37);
11) Notification on Issuing the Action Plan for Prevention & Control of Water Pollution of the State Council (Reference No. Guo Fa [2015] 17);
12) Methods for Environmental Protection Management of Transport Construction Projects (No.5 Order of the Ministry of Transport & Transportation [2003]);
13) Notification on Carrying out Environmental Supervision Work for Transport Engineering Projects (Reference No. Jiaohuan Fa [2004] 314);
14) Technical Policy for Prevention & Control of Ground Traffic Noise Pollution (Reference No. Huan Fa [2010] 7);
15) Qinghai Local Criteria for Water Use Ration in Qinghai Province (DB63/T1429-2015);
16) Notification on Issuing the Implementation Plan for Prevention & Control of Atmospheric Pollution in Qinghai Province in 2016 by the General Office of the Qinghai Provincial Government (Reference No. Qingzhengban [2016] 88);
17) Notification on Issuing the Work Plan for Prevention & Control of Water Pollution in Qinghai Province by the Qinghai Provincial Government (Reference No. Qingzheng Fa [2015] 100);
18) Water Environment Functional Zoning in Qinghai Province (Reference No. Qingzheng Fa [2004] 64, June 3, 2004);
19) Opinions on Strengthening Environmental Protection Work by the Qinghai Provincial Government (Referene No. Qingzheng [2012] 21);
20) Regulations on Prevention & Control of Water Pollution in the Huangshui River Catchment of Qinghai Province (revised on September 27, 2013 and implemented on January 1, 2014);
21) Implementation Opinions on Further Deepening the Integrated Management of Water Pollution in the Huangshui River Catchment by the Qinghai Provincial People's Government (No. Qingzheng [2013] 79);
22) Environmental Protection Regulations of Xining Municipality approved at the 26th Meeting of the Standing Committee of the 11th People's Congress of Qinghai Province (implemented on January 1, 2012);
23) Methods for Prevention & Control of Ambient Noise Pollution in Xining City by the Xining Municipal Government (Revised in 2011 and implemented on February 22, 2011);
24) Environmental Management Regulations of Xining Municipality (approved by the Qinghai Provincial People's Congress on November 24, 2011);
26) Notification on Issuing the Work Plan for Prevention & Control of Water Pollution in Xining City by the Xining Municipal Government (Reference No. Ningzhengban [2016] 161);
27) Methods for Urban Construction Garbage Management in Xining City (October 1, 2012);
Regulations on Prevention and Control of Air Pollution in Xining (Reference No. Ningzhengban (2016) 41 and implemented on March 1, 2016);

Environmental Protection Regulations of Xining Municipality (At the 26th meeting of the Standing Committee of the 11th People's Congress of Qinghai Province, January 1, 2012);


1.2.2 Technical Specifications

(1) General Outline of EIA Technical Guidelines (HJ2.1-2016);
(2) Atmospheric Environment of EIA Technical Guidelines (HJ2.2-2008);
(3) Surface Water Environment of EIA Technical Guidelines (HJ/T2.3-93);
(4) Noise Environment of EIA Technical Guidelines (HJ2.4-2009);
(5) Ecological Impacts of EIA Technical Guidelines (HJ19-2011);
(6) EIA Norms for Highway Construction Projects (JTG B03-2006);
(7) Design Norms for Noise Insulation of Civil Buildings (GB5011-2010);
(8) Design Norms for Functional Zoning of Accoustic Environment (GB/T 15190-2014);

1.2.3 Subproject Rationale-related and Technical Documents

1) Letter of Project Commission;
2) Feasibility Study Report of the Xining Chengxi Bus Terminal Subproject (Shanghai Tongji Engineering Consulting Co., Ltd. and China Building Technology Group Co., Ltd., 2018.4);
3) Xining Municipality General Plan of Land Use (2016-2020);
4) Xining Municipality General Urban Plan (2001-2020) (revised in 2015);
5) Year 2030 Xining Municipality Overall Spatial Development Plan (Xining Municipal Government, August 2011);

1.3 Subproject Contents and Construction Scale

1.3.1 Geographical Location & Surrounding Environment

The Subproject is located on the northeastern side of the intersection of Wusixi Road and Xicheng Avenue in the Xining City. The north side of the Subproject is high-rise residential areas, while the remaining adjacent plots have not yet been developed. The Subproject site is adjacent to urban trunk roads and next to the outer expressway, thus having its superior geographical location.
1.3.2 Subproject Name, Construction Site, Construction Entity and Construction Nature

Subproject Name: PT Component – the Wangjiazhai Interchange (Xining Chengxi Bus Terminal) under the Qinghai Xining Urban Transport Project;
Construction Site: At the intersection of the Wusixi Road Western Extension and proposed Xicheng Avenue, Xining, Qinghai;
Construction Entity: Xining Chengtong Transport Construction Investment Company;
Construction Nature: New Construction;

1.3.3 Subproject Overview

1.3.3.1 Construction Contents and Scale

According to the Detailed Constructive Planning of the Subproject, the Subproject has a total construction land area of 98,550 square meters. For its north side land plot, Phase I Initial Construction will mainly involve bus station housing, Drivers & Conductors Apartment (No.1 Building), Management Building (No. 2 Building) and Podiums; while Phase I Reserved Post-Expansion will largely concern Drivers & Conductors Apartment (No.3 Building), Management Building (No. 4 Building), Training Centre (No. 5 Building); and commercial developments such as Gas & Oil Stations. For its south side land plot, Phase II Proposed Construction will mainly involve Management Building (No. 6 Building) and commercial developments such as Car Parking building (No. 7 Building).

The Feasibility Study Report for the Subproject only includes the contents of Phase I Initial Construction, without study and design aspects for Phase I Reserved Post-Expansion and Phase II Proposed Construction. Therefore, this Report only covers the EIA work for Phase I Initial Construction; whereas EIA work will be carried out separately prior to the construction commencement of Phase I Reserved Post-Expansion and Phase II Construction.

The Subproject has a total construction land area of 98,550 square meters. The works is
divided into two phases, with its first phase (North Side Land plot) having a land area of 61,189 m².

The Subproject has a total construction area of 82,689 square meters, including 21,500 m² of underground construction area and 61,189 m² of above-ground construction area. It is noted that the ground construction area for initial construction is 33,923 m², and the ground floor area reserved for later expansion is 27,266 m². The construction area of Phase I Initial Construction is 33,923 square meters, including: 13,284 m² for (No. 1 Building) Drivers & Conductors Apartment, 12,084 m² for (No. 2 Building) Management Building, 6,910 m² for Station Housing and 1,645 m² for Podium. Its plot ratio is 1.00, with a floor area of 8737 m²; a land occupation rate of 25.00%, and a greening rate of 25.00%. The number of parking spaces for motor vehicles is 413 (including 20 on-ground parking spaces for long distance transit buses, 160 long-transit bus parking spaces, 110 city bus parking spaces, and 123 on private car parking spaces).

The main construction contents of Phase I Initial Construction are: Drivers & Conductors Apartment (No. 1 Building), Management Building (No. 2 Building), bus station housing and podiums.

### Table 1-1  Subproject Components

<table>
<thead>
<tr>
<th>Engineering Category</th>
<th>Construction Components</th>
<th>Engineering Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principal Engineering</strong></td>
<td>Drivers &amp; Conductors Apartment (No.1 Building)</td>
<td>It has a building area of 13,284 square meters, with a 9-storey high-rise building of frame structure, providing accommodation space for staff members working in the Bus Terminal and bus stops;</td>
</tr>
<tr>
<td></td>
<td>Management Building (No. 2 Building)</td>
<td>It has a building area of 12,084 square meters, with a 8-storey high-rise building of frame structure of 36 meters at height;</td>
</tr>
<tr>
<td></td>
<td>Bus Station Housing</td>
<td>It has a building area of 6910 meters. Its principal structure adopts a frame structure system, with two floors above ground. It includes functional zones such as security check-in, booking hall, quarantine dispatch, baggage check and posting, and catering as well;</td>
</tr>
<tr>
<td></td>
<td>Podiums</td>
<td>No.3 skirt corner;</td>
</tr>
<tr>
<td><strong>Counterpart Engineering</strong></td>
<td>Underground Parking Lot</td>
<td>The bus parking lot is set on the east side of the land plot, with a total of 110 vehicles. The parking lot for private vehicles and taxis is located on the west side of the land plot, with 123 parking spaces; There are 20 on-ground long-distance departure parking spaces;</td>
</tr>
<tr>
<td></td>
<td>Basement</td>
<td>It has a total area of 21500 square meters, with 160 long-distance parking spaces and a gas boiler chamber;</td>
</tr>
<tr>
<td></td>
<td>Canteen</td>
<td>It is located on the east side of the first floor of the bus station housing, with an area of about 493 square meters;</td>
</tr>
<tr>
<td></td>
<td>Car Wash &amp; Check-in</td>
<td>Places of car wash and security check-in are arranged on the west side of the station, covering an area of about 612 square meters. The vehicle safety testing platform carries out vehicle fault inspection, without providing vehicle maintenance, with vehicular problems, they have to go out for vehicular repair;</td>
</tr>
<tr>
<td><strong>Common Utilities Engineering</strong></td>
<td>Water Supply</td>
<td>It is delivered by the municipal water supply pipeline system;</td>
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<tr>
<td></td>
<td>Power Supply</td>
<td>A 10/0.4kV power supply substation with dual 10KV high voltage power supply;</td>
</tr>
<tr>
<td></td>
<td>Heating System</td>
<td>The Drivers &amp; Conductors Apartment shall set up a centralized hot water system, largely driven by solar heating, supplemented by hot water boiler heating; heat is supplied by hot water boiler, with its boiler</td>
</tr>
</tbody>
</table>
fuel of municipal natural gas, which is set in the basement.

There are two 16-cubic-meter septic tanks at the south entrance and exit. The car wash wastewater is provided with a grease separation sedimentation tank and the catering wastewater provided with a grease trap. The waste water is discharged into the municipal sewage pipeline system after being treated by the septic tank;

Ventilation equipment will be set up in the basement;

They are sound insulation, sound silencer, vibration reduction;

Garbage collection bins shall be set up for centralized collection and disposal by the sanitation department.

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<tr>
<th>No.</th>
<th>Items</th>
<th>Values</th>
<th>Units</th>
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<td>1</td>
<td>Total Construction Land Area</td>
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<td>m²</td>
</tr>
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<td>1.1</td>
<td>Phase I Land Area</td>
<td>61189</td>
<td>m²</td>
</tr>
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<td>2</td>
<td>Total Area for Phase I Construction</td>
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<td>m²</td>
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<td>2.1</td>
<td>Total Ground Construction Area</td>
<td>61189</td>
<td>m²</td>
</tr>
<tr>
<td>2.1.1</td>
<td>Phase I Construction</td>
<td>33923</td>
<td>m²</td>
</tr>
<tr>
<td></td>
<td>(1) Drivers &amp; Conductors Apartment (No. 1 Building)</td>
<td>13284</td>
<td>m²</td>
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<td></td>
<td>(2) Management Housing (No. 2 Building)</td>
<td>12084</td>
<td>m²</td>
</tr>
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<td></td>
<td>(3) Station Housing</td>
<td>6910</td>
<td>m²</td>
</tr>
<tr>
<td></td>
<td>(4) Podium</td>
<td>1645</td>
<td>m²</td>
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<td>2.1.2</td>
<td>Reserved Expansion Area</td>
<td>27266</td>
<td>m²</td>
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<td>2.2</td>
<td>Total Underground Construction Area</td>
<td>21500</td>
<td>m²</td>
</tr>
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<td>3</td>
<td>Plot Ratio</td>
<td>1.00</td>
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<tr>
<td>4</td>
<td>Land Occupation Rate</td>
<td>25.00%</td>
<td>%</td>
</tr>
<tr>
<td>5</td>
<td>Greening Rate</td>
<td>25.00%</td>
<td>%</td>
</tr>
<tr>
<td>6</td>
<td>Indicators of Parking Spaces</td>
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<td>6.1</td>
<td>Long-transit Departure Spaces</td>
<td>20</td>
<td>Vehicles</td>
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<td>6.2</td>
<td>Long-transit Parking Spaces</td>
<td>160</td>
<td>Vehicles</td>
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<td>6.3</td>
<td>Bus Parking Spaces</td>
<td>110</td>
<td>Vehicles</td>
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<td>6.4</td>
<td>Private Car Parking Spaces</td>
<td>123</td>
<td>Vehicles</td>
</tr>
<tr>
<td>7</td>
<td>Construction Period</td>
<td>14</td>
<td>Months</td>
</tr>
<tr>
<td>8</td>
<td>Total Investment</td>
<td>45246</td>
<td>0,000 Yuan</td>
</tr>
</tbody>
</table>
1.3.3.2 Proposed Project Construction

(1) Project Layout

The proposed project construction (Phases I and II) has a total land area of 98,550 square meters, which is about 148 Mu. The south side plot (Phase II) has a land area of 37,361 square meters, which is about 56 Mu; the north side plot (Phase I) has a land area of 61189 square meters, about 92 Mu.

Building withdrawal: the Wusixi Road has a building withdrawal of 60 meters, with a red line of 30 meters; the Xicheng street with a building withdrawal of 50 meters, with a red line of 50 meters; the north side (planned) has a building withdrawal of 36 meters, with a red line of 50 meters; the south side road (planned) – No. 18 Road has a building withdrawal of 15 meters.

The north side plot under the proposed project construction (Phases I and II) will be built into an integrated interchange hub that combines multiple functions like long-distance transit, public transport, taxis and social vehicle parking, apartment for drivers & conductors, and internal management housing. It will facilitate passenger interchange and hub management. At the same time, since there is no gas/oil station around the plot. In order to meet the energy supply need of vehicles, it is planned to build a gas/oil station. The bus terminal management housing and bus parking building will be planned to be established on the south side of the plot.

As this project is the initial construction of Phase I project, with a land area of 33,923 square meters. The main construction contents are: Drivers & Conductors Apartment (No.1 Building), Management Housing (No.2 Building), Station Housing and Podium.

1) Bus Terminal

The Station Housing is built on the north side of the plot, which is an integrated bus terminal facility. The principal structure adopts a frame structure system, with two on-ground floors. The waiting hall is set on the ground floor. The station housing includes functional areas such as security check, ticketing hall, quarantine dispatch, and baggage check. There are 10 booking windows and ticket vending machines in the ticketing hall. The hall is equipped with an electronic bus display and a telephone service.

From the station housing to security check points, there are counterpart functional rooms and service facilities like information desk, small storage room, luggage room, supermarket, restaurant, drivers & conductors’ lounge, broadcasting room, toilets, catering. According to needs, there is also a maternity and infant room and VIP waiting room in the waiting hall to provide services for passengers with special needs. The waiting hall is connected to the departure parking spaces, passengers can go to the 3-meter wide platform through ticket gates.

2) Drivers & Conductor Apartment (No.1 Building)

On the north side of the Station Housing will be an apartment for drivers and conductors with a construction area of 13,284 square meters, providing accommodation space for staff of highways and the bus terminal.
3）Management Housing (No.2 Building)

The Management Housing (No.2 Building) will be located on the east side of the Station Housing, with a construction area of 12084 square meters.

4）Car Wash and Safety Inspection

Car wash and safety inspection will be arranged on the west side of the station, covering a floor area of about 612 m². The vehicular safety test bench only performs vehicle fault inspection rather than vehicle maintenance. With vehicular problems, it will go for maintenance outside. During the operation of the project, no waste engine oil is produced.

The Project Layout Sketch Map is shown in Figure 3.

（2）Vertical Design

1) The north side plot of the proposed project is high in the west and low in the east, with a current elevation of 2324.89m~2321.91m and a height difference of about 3m. It north side plot is is relatively flat from south to north, with an absolute elevation of 2323.5m;

2) On-ground and Underground Garages: 6 meters (large vehicles), 4.5 meters (private vehicles);

3) Waiting Hall: 9 meters;

4) Drivers & Conductors Apartment, 9-storey high-rise building of frame structure, with a construction height of 39.90 meters;

5) Management Housing: 8 storey high-rise building of frame structure, with a construction area of 36 meters.

1.3.3.3 Prediction of Passenger Distribution

（1）Passenger Distribution Flow for Different Transport Means

According to the existing station passengers, the interchange distribution percentages for various transport means are: 36% (city bus), 28% (taxis), 22% (social vehicles), 8% (highway buses) and 6% (other means). Combined with service scope and functional positioning of the bus terminal, the distribution percentages for various transport means for each project characteristic year shall be taken as follows: 32% (city buses), 15% (taxis), 15% (social vehicles), 8% (highway buses) and 30% (urban light rail and others). The distribution for various means in each characteristic year of the Xining Chengxi Bus Terminal is shown in the following table.

| Table 1-3 Prediction of Passenger Distribution Flow of the Xining Chengxi Bus Terminal |
（2）Project Interchange Flow Prediction

The annual interchange matrix of passenger flow for each characteristic year are seen in Table 1-4~6

<table>
<thead>
<tr>
<th>Transport Means</th>
<th>City Buses</th>
<th>Taxis</th>
<th>Social Vehicles</th>
<th>Highway Buses</th>
<th>Light Rail / Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Buses</td>
<td>685</td>
<td>0</td>
<td>0</td>
<td>1598</td>
<td>580</td>
<td>2863</td>
</tr>
<tr>
<td>Taxis</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>749</td>
<td>145</td>
<td>894</td>
</tr>
<tr>
<td>Social Vehicles</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>749</td>
<td>89</td>
<td>838</td>
</tr>
<tr>
<td>Highway Buses</td>
<td>1598</td>
<td>749</td>
<td>749</td>
<td>400</td>
<td>1498</td>
<td>4994</td>
</tr>
<tr>
<td>Others</td>
<td>580</td>
<td>145</td>
<td>89</td>
<td>1498</td>
<td>40</td>
<td>2352</td>
</tr>
<tr>
<td>Total</td>
<td>2863</td>
<td>894</td>
<td>838</td>
<td>4994</td>
<td></td>
<td>2352</td>
</tr>
</tbody>
</table>

Table 1-5 Year 2020 Interchange Matrix of Passenger Flow: person/day

<table>
<thead>
<tr>
<th>Transport Means</th>
<th>City Buses</th>
<th>Taxis</th>
<th>Social Vehicles</th>
<th>Highway Buses</th>
<th>Light Rail / Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Buses</td>
<td>796</td>
<td>0</td>
<td>0</td>
<td>2055</td>
<td>645</td>
<td>3496</td>
</tr>
<tr>
<td>Taxis</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>963</td>
<td>220</td>
<td>1183</td>
</tr>
<tr>
<td>Social Vehicles</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>963</td>
<td>174</td>
<td>1137</td>
</tr>
<tr>
<td>Highway Buses</td>
<td>2055</td>
<td>963</td>
<td>963</td>
<td>514</td>
<td>1926</td>
<td>6421</td>
</tr>
<tr>
<td>Others</td>
<td>645</td>
<td>220</td>
<td>174</td>
<td>1926</td>
<td>95</td>
<td>3060</td>
</tr>
<tr>
<td>Total</td>
<td>3496</td>
<td>1183</td>
<td>1137</td>
<td>6421</td>
<td></td>
<td>3060</td>
</tr>
</tbody>
</table>

Table 1-6 Year 2020 Interchange Matrix of Passenger Flow: person/day

<table>
<thead>
<tr>
<th>Transport Means</th>
<th>City Buses</th>
<th>Taxis</th>
<th>Social Vehicles</th>
<th>Highway Buses</th>
<th>Light Rail / Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Buses</td>
<td>887</td>
<td>0</td>
<td>0</td>
<td>3320</td>
<td>736</td>
<td>4943</td>
</tr>
<tr>
<td>Taxis</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1569</td>
<td>325</td>
<td>1894</td>
</tr>
<tr>
<td>Social Vehicles</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1569</td>
<td>266</td>
<td>1835</td>
</tr>
<tr>
<td>Highway Buses</td>
<td>3320</td>
<td>1569</td>
<td>1569</td>
<td>832</td>
<td>3120</td>
<td>10410</td>
</tr>
<tr>
<td>Others</td>
<td>736</td>
<td>325</td>
<td>266</td>
<td>3120</td>
<td>156</td>
<td>4603</td>
</tr>
<tr>
<td>Total</td>
<td>4863</td>
<td>1844</td>
<td>1785</td>
<td>10410</td>
<td></td>
<td>4603</td>
</tr>
</tbody>
</table>

（3）Project Design Production Capacity

The proposed subproject has a design production capacity of 10,000/d (about 3.8 million/a). It will be constructed in accordance with the requirements Grade I bus terminal Criteria promulgated by the Ministry of Transport & Transportation. The largest number of passengers gathered is 1000 persons/day, and then the number of grids (bus departure parking spaces) is
It is noted that, in terms of average passenger capacity, long-distance and short-distance buses in the Xining Municipality are rationed 45 passengers and 30 passengers respectively. The reasonable boarding rates for long and short-distance starting vehicles are 75% and 60%. The daily average departures for long-distance and short-distance buses are:

N long distance departure vehicles = \(1.15 \times 10000 \times 65\% / (45 \times 75\%) = 221\) (trips)
N short-distance departure vehicles = \(1.15 \times 10000 \times 35\% / (30 \times 60\%) = 224\) (trips)

The daily average number of departures is 445 trips.

The prediction of bus terminal departures is shown in Table 1-7.

<table>
<thead>
<tr>
<th>Years</th>
<th>Passenger Distribution</th>
<th>Of which</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0,000 person-time)</td>
<td>Long-distance (0,000 person-time)</td>
</tr>
<tr>
<td>2020</td>
<td>182</td>
<td>118</td>
</tr>
<tr>
<td>2022</td>
<td>234</td>
<td>152</td>
</tr>
<tr>
<td>2029</td>
<td>380</td>
<td>245</td>
</tr>
</tbody>
</table>

1.3.3.4 Traffic Design

(1) Passenger Flow Traffic Organization

1) Traffic Organization of Passenger Entrances

Passengers enter the Bus Terminal mainly in the following two ways: 1) walking; 2) riding buses, taxis and social vehicles like private cars. Passengers closer to the Bus Terminal can walk into it; passengers taking the bus can enter the operation hall for direct interchange after getting off the bus; passengers taking taxis, private cars and subways enter the interchange hall through the square in front of the station.

2) Traffic Organization of Long-Distance Passenger Exit

Long-distance passengers get off the drop-off point and enter the bus waiting area via the interchange hall. Alternatively, they can go through the operation hall to the station square and choose to take a taxi, private car or rail transit.

3) Traffic Organization of Bus Terminal Staff

Other than those for passengers, the entrance and exit of the staff is accessed through an independent entrance hall located on the side of the Bus Terminal.

(2) Traffic Organization of Vehicles

1) Traffic Organization of Long-distance Buses

Long-distance vehicles should be able to enter or leave the station through the city's main external access. The adjacent Xicheng Avenue on the west side of the project has a red line of 50 meters wide, which serves as a main external passage of Xining. However, as the land plot is long from east to west and short from north to south, the short side close to the Xicheng
Avenue is difficult to meet the requirement of 70 meters from the gate of motor vehicles to the intersection of urban roads. Therefore, the long-distance vehicle entrance is set at the proposed road on the north side of the site.

Long-distance buses can enter the station to reach the bus drop-off area, and then enter the underground parking garage through its garage ramp; departure parking points for long-distance bus are set on the first floor of the Bus Terminal, with the departure exit located on the north side of the proposed road. After the vehicle enters the station, the streamlined organization goes as follows: long-distance bus entering the station - arriving at the parking space unloading - entering the underground parking area waiting for departure order - (if necessary) entering the car wash/security room for vehicle cleaning and testing - after the departure order being issued, the bus leaving the underground parking area and entering the on-ground departure parking space – with passengers on the bus, it leaving the platform and exiting from the planned road on the north side.

2）Traffic Organization of City Buses

The first and last stops of the bus terminal has the entrance located at Wusixi Road and the exit located at the the planned road on the north side. On the east side, it is proposed to locate the first and last stops; on the north side, it is limited to temporary parking of buses; on the south side, and overnight buses can be parked in the parking gargage building. The streamlined organization for specific vehicles goes as follows: After the vehicle enters the station, the passengers are unloaded in the bus drop-off area on its east side; At the same time, the passengers in the parking area are on aboard; with the passengers on the bus, the bus will exit from the planned road on its north side.

3) Traffic Organization of Taxis and Social Vehicles

The taxi drop-off and get-on points can be accessed from the Wusixi Road and located on the west side of the Bus Terminal square, which is convenient for passengers to transfer or connecting buses. The social vehicles are divided into two groups, like employee vehicles and passenger vehicles. The employee vehicles are mainly parked in the basement of the south land plot while the passenger vehicles are parked in the basement on the east side of the Bus Terminal (north land plot).

（3）Design of Parking Spaces

1）Parking Plot for Long-distance Buses

The parking lot for long-distance buses is provided in the underground gargage, with 160 parking spaces.

2）Parking Plot for City Buses

The parking lot for city buses is located on the east side of land plot, with 110 parking spaces, of which parking spaces at charging piles are set at the rate of 30% (for 33 vehicles).

3）Parking Plot for Social Vehicles and Taxis
123 parking spaces are provided on the north land plot (Phase I). No-barrier parking spaces is set at the rate of 2% (for 3 vehicles); parking spaces at charging piles set at the rate of 30% (37 vehicles); Meanwhile, the taxi waiting zone will be provided on the west side of the Bus Terminal Square, thus satisfying the drop-off and get-on needs of taxis.

4) Parking Plot for Non-motor Vehicles

Parking spaces of non-motor vehicles are calculated at 0.5 parking space / 100 passengers on average annual day, that is, 0.5 x100=50 (vehicles). In the meanwhile, 50 non-motor vehicles for employees are also considered. It will be located on the east side of the bus terminal.

5) Statistics on Parking Spaces

a) Long-distance car parking lot: The long-distance car park is set in an underground garage with a total of 160 parking spaces;
b) Bus parking lot: The bus parking lot is set on the east side of the plot, totaling 110 vehicles, of which the charging pile parking space is set at 30% (33 vehicles);
c) Social vehicles and taxi parking lots: In the first phase of the north side plot, 123 parking spaces will be set up, 2% of the parking spaces will be set up (3 vehicles), 30% of the charging pile parking spaces will be set up (37 vehicles), and a taxi waiting area will be set up on the west side of the station square to meet the rental. The car needs to get on and off;
d) Non-motor vehicle parking lot: Non-motorized parking spaces are calculated based on 0.5 parking spaces per year per 100 passengers = 0.5x100 = 50 vehicles. Also consider 50 non-motorized seats for internal employees. Located on the east side of the station;
e) Parking space statistics.

<table>
<thead>
<tr>
<th></th>
<th>On-ground</th>
<th>Underground</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Charging Piles</td>
<td>Normal</td>
</tr>
<tr>
<td>Long-distance Buses</td>
<td>48</td>
<td>112</td>
</tr>
<tr>
<td>City Buses</td>
<td>33</td>
<td>77</td>
</tr>
<tr>
<td>Private Cars</td>
<td>37</td>
<td>86</td>
</tr>
</tbody>
</table>

Parking spaces at charging piles are considered at the rate of 30%.

1.3.3.5 Utilities Engineering

(1) Water Supply & Discharge Engineering

1) Water Supply

a) Water source: The water source can be accessed by connecting the municipal water pipeline system of the Wusixi Road.

b) Water consumption: The water consumption under this project is shown in Table 1-9. The project has the maximum daily water consumption of 159.1 m³/d and the maximum daily discharge of 106.9m³/d.
Table 1-9 Water Supply and Discharge under the Proposed Subproject

<table>
<thead>
<tr>
<th>Water Users</th>
<th>Unit water demand (L/person.d)</th>
<th>Quantity</th>
<th>Maximum Daily Water Demand (m³/d)</th>
<th>Discharge Volume (m³/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passengers</td>
<td>6</td>
<td>1000</td>
<td>60.0</td>
<td>48.0</td>
</tr>
<tr>
<td>Offices</td>
<td>50</td>
<td>85</td>
<td>4.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Accomodation</td>
<td>200</td>
<td>192</td>
<td>38.4</td>
<td>30.7</td>
</tr>
<tr>
<td>Canteens</td>
<td>20</td>
<td>200</td>
<td>4.0</td>
<td>3.2</td>
</tr>
<tr>
<td>Car Wash</td>
<td>100 L/car-time, once a day</td>
<td>270</td>
<td>27.0</td>
<td>21.6</td>
</tr>
<tr>
<td>Watering of Road and Greening</td>
<td>1.5L/m².time, twice a day</td>
<td>8480 m²</td>
<td>25.4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>159.1</td>
<td>106.9</td>
</tr>
</tbody>
</table>

c) Water Supply System:

The buildings are supplied with water by connecting a DN100 water supply pipe from the municipal water pipeline system of the Wusixi Road, thus providing domestic living water for the Bus Terminal.

From the basement to the first floor of the buildings, their living water is directly supplied under the hydraulic pressure of the municipal water supply system; from the second to the ninth floor, their living water is provided by a living reservoir and a living frequency conversion pump for centralized water supply.

d) Water Heating and Drink Water System:

The buildings are equipped with a water heating system. Among them, the Drivers & Conductors Apartment will be equipped with a centralized water heating system, mainly driven by solar heating and supplemented by hot water boiler heating. Electric water heaters are separately provided at the Bus Terminal and office public toilets to supply hot water.

e) Fire Protection System

The buildings are equipped with indoor and outdoor fire hydrant system and automatic sprinkler system. The water consumption for fire service is: 40L/s for outdoor fire hydrant; 20L/s for indoor fire hydrant and 47L/s for automatic sprinkler system. The outdoor fire hydrant water supply system is directly supplied by the municipal water supply systems of the Wusixi Road and the Xicheng Avenue; the water for the base is supplied by connecting to two DN200 water supply pipes to form an annular outdoor fire water supply network. Basement-shaped outdoor fire hydrants are installed on the ground, with an interval distance of no more than 120m and a protection radius of 150m.

For water supply system for indoor fire service, a fire protection cistern is provided, with a capacity of 350 m³. The indoor fire hydrant system and the automatic sprinkler system are respectively provided with a pressure pump, thus being pressurized. The systems shall adopt a temporary high pressure system. The indoor fire hydrant water supply system uses a dry system in the garage and a wet system in the indoor building. The sprinkler system uses a
pre-action system in the garage and a wet system in the interior. The sprinkler system is designed according to (intermedium) Risk Grade II. According to the water spray intensity, the maximum set-up atrium is 6L/min. m², and the designed water volume about 47L/S.

2) Water Supply Engineering

The overall drainage adopts a diversion system, and sewage, wastewater and rainwater are discharged into the municipal sewage pipeline system and the rainwater pipeline system respectively.

Sewage and wastewater treatment facilities: There are 2 reinforced concrete septic tanks for domestic sewage, with each with Vf=16m³ (5800×2400). The oil-containing wastewater in the canteen is set up with a reinforced concrete grease trap (Vf=6m³, 4000×1400). The car wash sewage is set up in the car sewage separation tank 2 (Vf = 9.60m³, 4400 × 1600).

The above sewage and wastewater are discharged into the regional sewage drainage pipeline system through respective grease trap and oil-retaining grit chamber, and discharged to the No.4 Sewage Treatment Plant of Xining Municipality for treatment.

Rainwater drainage system: The outdoor site rainwater drainage has a design recurrence period of 5 years, and the underground garage ramp and the sunken plaza have 50 years; the building roof rainwater drainage and overflow facilities have 50 years.

Rainwater Reuse System: Rainwater reuse system is provided for rainwater on the building roof of the Bus Terminal. The rainwater on the roof of the Bus Terminal is collected by the rainwater riser (vertical pipe) and discharged into the rainwater collection tank through the abandonment device, with an abandoned flow of about 2~3 mm thick. The system is equipped with devices of sedimentation, filtration, and disinfection treatment. After being treatment, rainwater will be used for greening.

(2) Heating and Ventilation Systems

Under the project, air conditioning, heating, ventilation, energy saving, environmental protection, and smoke exhaust for fire prevention are designed.

1) Under the project, the Drivers & Conductors Apartment as well as the Managemnet Building will be provided with a centralized heating system. Among them, the Drivers & Conductors Apartment, the Managemnet Building and Podiums shall be in the form of floor heating system. The heating system dry pipe adopts the horizontal double pipe and equal program, and it is laid on the bottom of each layer of the beam. The riser adopts the form of double pipes and equal program, and each set of radiator and heating sub-catch has a temperature control valve. A heat meter is installed in the main entrance of the heating room in the boiler room and the entrance of each building to measure the total heat consumption of the heating system in the building.

2) Ventilation Design: The public toilet is equipped with air exhaust, with an air volume of 10 times/h; the ticket hall and the waiting room area are equipped with a centralized fresh air system and an air exhaust system; for other areas, there will be necessary fresh air total heat exchangers; The garage is equipped with a mechanical exhaust system (and a smoke exhaust system). The amount of exhaust air (smoke) is set according to the criteria. The wind
is naturally supplemented by the driveway or the wind is added to the wind shaft, and the garage exhausts the air at high altitude.

3) The fire stairwell and its front room and the combined front room are set to open the outer window according to the specification requirements; without the outer window, the mechanical pressurized air supply system is set according to the specification. The room, corridor, and atrium can be opened according to the standard to open the natural smoke exhaust of the outer window, and there is no mechanical system for the outer window. The garage is equipped with a mechanical exhaust system (and an exhaust system).

4) Boiler Chamber

The heating source of the project is a hot water boiler, with its boiler fuel obeing municipal natural gas.

The boiler chamber is located in the underground garage. For boiler size, it is designed at one time according to the total heating amount of the project (Phases I and II). The hot water boiler system adopts two 5.6W vacuum hot water boilers with the maximum thermal efficiency $\geq 92\%$. The hot water produced by the boiler is supplied in two ways, that is, one for the radiator heating pipe and the other for the water-water heat exchanger to be sent to the floor heating pipeline system. After the municipal water supply is treated by the water softening device, it enters the soft water tank and then the heating and hot water circulation system through the constant pressure water supply device.

The boiler chamber uses two 5.6W vacuum hot water boilers. The maximum natural gas consumption per unit is about 480N m³/h, and the maximum natural gas consumption in the boiler room about 960m³/h.

An independent mechanical ventilation system and a gas leakage alarm device are installed in the boiler chamber. It is equipped with a special flue to the top of the Drivers & Conductors Apartment (No.1 Building), which is fixed 1.5m above the roof for smoke exhaust.

(3) Fire Protection Engineering

Under the project, the first underground floor of the basement is designed according to Refractory Grade I. The above-ground building (below 40 meters) is designed according to Refractory Class I.

Fire separation: The building meets the requirements for demarcation planning. The building spacing is bigger than 6 meters among multi-layer building and bigger than 13 meters among high-riser buildings.

Fire lane: The Bus Terminal is surrounded by a circular fire lane, with the minimum width of fire lane of 4m, a vehicle turning radius of 12 meters, a site design slope gradation of less than 3%, thus meeting the requirements of relevant regulations.

(4) Power Supply Engineering

This project is planned to set up a 10/0.4kV substation powered by a dual 10KV high-voltage
When one power supply fails, the other power supply should not be damaged at the same time. It has a transformer capacity of 3 sets of 1250KVA. The project is also equipped with a 10KV substation located on the first floor of the basement.

(5) Low-Compact Development Design (Sponge City Design)

Building: Due to large volume and large roof area of the main building of the Bus Terminal, it is planned to set up raised garden containers next to the building, through which the building rain pipe section can be connected with the raised garden containers, and after seepage, rainwater can be collected to regulation water pond through the underground rainwater pipeline system.

Square Ground Hardening: Under the proposed project, the Bus Terminal Square has a large ground hardening area and a large flow of population, so it is planned to different permeable materials to construct the square itself, social vehicles parking lot and bus departure parking lot. The Bus Terminal Square and pedestrian walkways are paved with permeable bricks, so rainwater can be infiltrated into the underground layer by permeable paving bricks and collected uniformly into the regulation water pond through the underground concealed pipeline system; for social vehicles parking lot and the bus departure parking lot, permeable asphalt material will be adopted. Similarly, The rainwater is collected by the permeable material into the lower layer of rainwater collection and collected into the storage tank.

Greening: it is planned in combination with terrain design, with rational layout of biological detention facilities. The ecological tree pool is set in the green space of the square and the parking lot, and the parking lot ecological tree pool is set in combination with the brick paving of the ecological parking lot. A bioretention zone is set up in the lower ground of the street green space.

1.3.4 Project Earthwork

The project site is relatively leveled. The project earthwork is mainly for excavation and backfilling of the basement. The project will have an excavation amount of 148,400 m³, including 19,400 m³ for filling and 12,900 m³ for abandonment. The waste slag under this project shall be disposed of at the commercial waste slag site. After consultation with the Chengbei District Urban Administration Bureau of Xining Municipality, the waste slag of this project can be uniformly transported to the Xixingyuan Construction Waste Disposal Site in the Chengbei District.

<table>
<thead>
<tr>
<th>Excavation (0,000 m³)</th>
<th>Filling (0,000 m³)</th>
<th>Abandonment (0,000 m³)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.84</td>
<td>1.94</td>
<td>12.90</td>
<td>Xixingyuan Construction Waste Disposal Site</td>
</tr>
</tbody>
</table>

1.3.5 Labors and Working Circle of the Construction Project

The construction project has 85 full-time staff members, 365 annual workdays and two shifts. Bus operation time: 6:00 am - 22:00 pm; Long-distance bus operation time: 7:00 am - 19:00 pm.

1.3.6 Project Operation Plan
The project is scheduled to commence in August, 2018, to complete in October, 2019, with an entire implementation period of 14 months.

1.3.7 Project Investment and Financing Sources

The construction project has a total investment amount of RMB 452.46 million Yuan.

**Project-related Original Pollution Status and Major Environmental Issues**

The land occupied by the project site falls into the category of planned land of transport facilities. The land use status is of wild grassland and dry land. There is no building on the surface, with no demolition required.

This project belongs to the new construction project, without original pollution issues.
# Natural and Social Environments at the Project Site (Form 2)

## 2.1 Natural Environment (Landform, Topography, Geology, Climate, Meterology, Hydrology, Vegetation, Biology Diversity)

### 2.1.1 Geographical Location

The project site is located in Xining of Qinghai Province, an important central city in the northwestern part of China. Situated in the northeastern part of Qinghai-Tibet Plateau, right at the convergence of the Huangshui River and its three tributaries. It has the shape of strip from east to west, and its terrain is high in the southwest and low in the northeast. Surrounded by mountains, the Xining Municipality has the South Mountain in the south and the North Mountain in the north. It has a total area of 7,660 square kilometers, an urban area of 476.5 square kilometers, and a planned built-up area of 118 square kilometers. The geographical coordinates are 101° 77’ of east longitude and 36° 62’ of north latitude.

The proposed project is located in the Wangjiazhai Village, Dabaozi Town, Chengbei District, Xining City. It is next to the Xicheng Avenue under construction in the west, to the Qingtang Town Residential Compound in the north, and the western extension of Wusixi Road passes through the middle of the site and is connected to the No.1 light rail line 1.

### 2.1.2 Landform and Topography

Located in the Huangshui River Valley in the eastern part of Qinghai Province, the Xining Municipality has the terrain sloping from north to south, characterized by being high in the northwest, low in the southeast, narrow and long in the east and west, and in the shape of a boat within the whole territory. The municipality is surrounded by the Laji Mountain, the Riyue Mountain and the Daban Mountain, forming a river basin at the middle and lower reaches of the Huangshui River extending from northwest to southeast and taking the Xining Basin as a representative section. From the basin fringe to both sides of the Huangshui River mainstream, it is divided into three geomorphic belts, that is,

On the fringe belt of on the north and south sides of the basin are wide-valley, shallow-ditch, ridge-shape hill; on the river mainstream belt near the middle of the basin is deep-valley beam-like low hills; between the two belts are middle deep-valleys low hills. The basin has the maximum elevation of 4620 m and the minimum elevation of 2173m. It is characterized by its complex terrain, intertangling gullies, undulating ridges and densely distributed beams.

The land plot under the proposed project is about 420m long from east to west, high in the west and low in the east. It has the current elevation ranging from 2324.89m to 2321.91m with a height difference of about 3 meters. The north land plot on the north side is about 125m to 165m long from south to north, with relatively flat land.

### 2.1.3 Climatic Characteristics

Xining is a continental plateau with semi-arid climate. It has a mean annual average
sunshine of 1939.7 hours, a mean annual temperature of 7.6 °C, the maximum temperature of 34.6 °C, and the lowest temperature of minus 18.9 °C. It is a plateau alpine cold and mild climate. Its characteristics are: low air pressure, long sunshine, less precipitation, large evaporation, strong solar radiation, large temperature difference between day and night, short frost-free period, long freezing period, no extreme cold in winter, no extreme heat in summer, average temperature in summer of 17-19 °C having pleasant climate. Therefore, it is a natural summer resort, being reputed as the “China Summer City”. The annual precipitation is around 370 mm, mostly concentrated in summer, accounting for 70% of the annual total. From the perspective of wind direction frequency for many years, the southeast wind has the highest frequency of 23%, and the wind direction frequency adjacent to the southeast wind is 41%. The southeast wind is the dominant wind direction of Xining City.

### 2.1.4 Geology

The Xining Basin is located in the composite part of the two-winged arcuate fold belt of "山"-shaped tectonic systems of the Qilian Mountain, the Luuliang Mountain and the Huolan Mountain. It is a Mesozoic-Cenozoic continental fault basin developed by the pre-Proterozoic crystalline basement, and the Mesozoic-Cenozoic basin within the basin. The basin has very thick, gentle occurrence, common folds, and few signs of fracture on the surface, but only small-scale caprock fractures developed on the basis of the basement fault. According to the analysis of the 1:200,000 Qinghai Xining Regional Geological Survey Report, there is no regional fault structure in the site, thus the site is relatively stable.

### 2.1.5 Water Systems and Hydrology

#### (1) Surface Water

The main rivers in the urban area of Xining include the Huangshui River, the Beichuan River, the Xichuan River and the Nanchuan River, all of which belong to the Huangshui River water system of the Yellow River Basin. The surrounding water body under the project is the Huangshui River.

The Huangshui River is a major tributary at the upper reaches of the Yellow River. It originates from the southern foot of the Datong Mountain in the Qilian Mountains. It flows through 8 counties and 1 city, merging with the Datong River at Xiangtang Town, Huzhu County in Qinghai Province and flows into the Yellow River in the river mouth of Gansu Province. It has a total length of 373.9 km and a drainage area of 16120 k m². Within the Xining Municipality, it has a flow length of 35km, a drainage area of 260.6 km², a flow ratio of 3.2‰~4.0‰, a natural riverbed width of 50~140m. The Xichuan River, the Beichuan River and the Nanchuan River are the three major tributaries in Qinghai. The Huangshui River Basin, where the Xining City is located, is one of the largest primary tributaries in the upper reaches of the Yellow River. Due to the type and condition of the Loes Plateau, the valleys are densely and unevenly located, with very developed river systems. Most of the rivers are mainly rain-fed, and river catchments are largely rain-fed, with a mean many-year total of 1.66 billion m³, and a runoff depth of about 230 mm, which is the province's high runoff area. The runoff is unevenly distributed during the year, with obvious seasonal changes. Generally, the runoff from June to September accounts for 55-85% of the total annual runoff.
The sewage from the project will be discharged into the urban sewage pipeline after being pretreated through the Bus Terminal facilities and enter the Xining City No. 4 Sewage Treatment Plant for treatment.

2.1.6 Soils

There are various soil types in Xining City, mainly chestnut soil and gray calcium soil. The soil types from high altitude to low altitude are distributed in turn, from alpine cold desert soil, alpine meadow soil, mountain meadow soil, gray brown soil, chernozem, chestnut soil, gray calcium soil to marsh soil. There are also various non-zonal soil types distributed, such as northern red soil, silt soil and fluvo-aquic soil.

Chestnut soil is a grassland soil with a wide distribution in northern China. This kind of soil has obvious humus accumulation and lime leaching-deposition process, and there are many weak gypsum and salinization processes. The surface layer is humus or maroon color, with the thickness of 25-45 cm and the organic matter content of 1.5-4.0%. The humus layer is a calcium layer containing a large amount of gray-white plaque or powdered lime, and the lime content is 10-30%.

Gray calcium soil is a weak leaching arid soil in the warm temperate desert steppe area. The surface layer is weakly humusified, the soil organic matter content is 1-2.5%, and 15~30cm is pseudohyphal or spotted calcium accumulation layer. A gypsum deposit layer and a soluble salt deposit layer may also be present. The profile configuration is similar to that of brown earth, but the degree of drought is slightly lower, the leaching is slightly stronger, and the soil layer is usually deeper due to the multi-developmental loess parent material.

2.1.7 Ecological Environment

The project site is located in the Wangjiazhai Village, Dabaozi Town, Chengbei District, Xining. Mainly situated in the suburbs, it is centered on human activities and is an agro-ecosystem based on cultivated land. There is no native vegetation and large wild animals in the EIA scope of the project.
Present Status of Environmental Quality (Form 3)

3.1 Present Status of Environmental Quality and Major Environmental Issues at the Project Site (Ambient Air, Surface Water, Underground Water, Accoustic Environment and Ecological Environment):

3.1.1 Present Status of Ambient Air Quality

According to the Xining Municipality Environmental Quality Status Bulletin in 2017, currently, the Xining Municipality has four state-controlled automatic monitoring points of ambient air, namely, the Municipal Monitoring Station, the Chengbei District Government, the Silu Hospital, and the No.5 Water Supply Plant (cleanliness control point). According to the ambient air quality Criteria (GB3095-2012), the city's ambient air quality is continuously monitored for 24 hours.

In 2017, the total effective monitoring days of urban air quality in Xining was 365 days. The total number of days of excellent ambient air quality was 296 days, and the excellent air quality rate was 81.1%, an increase of 0.7% over the previous year. Within the urban area of the Xining Municipality, the annual average concentration of sulfur dioxide is 24 μg/m³, the annual average concentration of nitrogen dioxide is 40 μg/m³, and the average 95th percentile of carbon monoxide in 24-hour is 2.9 mg/m³. All of the four indicators concerning air pollutants met the criteria of the Grade II of Ambient Air Quality Criteria (GB3095-2012). The annual average concentration of inhalable particulate matter (PM10) and fine particulate matter (PM₂.₅) are 100 μg/m³ and 39 mg/m³, respectively, a decrease of 3% and 17% compared with the previous year.

3.1.2 Present Status of Surface Water Environment Quality

The project is located about 1.2km north of the Huangshui River section (Zhamalong-Xigang Bridge). The Huangshui River section (Zamalong-Xigang Bridge) has a provincial assessment monitoring section at the Hizui Bridge. In order to understand the current status of the water environment quality of the Huangshui River (Zamalong-Xigang Bridge) around the project, this EIA report adopts the sectional water quality results of the Hizui Bridge of the Huangshui River mainstream issued by the Office of the Leading Group for Integrated Water Pollution Improvement of the Huangshui River Basin (Xining Section). The results come from the Report Regarding Present Status of Surface Water Environment Quality of the Huangshui River Basin (Xining Section) from May 2017 to April 2018. For detailed information, please see Table 3-1.

<table>
<thead>
<tr>
<th>Name</th>
<th>Monitoring Section</th>
<th>Monitoring Dates</th>
<th>Functional Category</th>
<th>Water Quality Types</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Huangshui River (Zhamalong-Xigang Bridge)</td>
<td>Hizui Bridge</td>
<td>April 2018</td>
<td>Category III</td>
<td>Category III</td>
<td>Qualified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>March 2018</td>
<td>Category III</td>
<td>Category III</td>
<td>Qualified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>February 2018</td>
<td>Category III</td>
<td>Category III</td>
<td>Qualified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>January 2018</td>
<td>Category III</td>
<td>Category III</td>
<td>Qualified</td>
</tr>
</tbody>
</table>
According to the above table, for the Hizui Bridge over the Huangshui River, during the period from May 2017 to April 2018, its sectional water environment quality can meet the Category III standard of Surface Water Environmental Quality Criteria (GB3838-2002).

After being treated, the sewage from the project goes through the municipal sewage pipeline system through water outlet in the Xining No. 4 Sewage Treatment Plant for treatment. It is not directly discharged into the surrounding Huangshui Rive, thus having no adverse impact over its water quality.

3.1.3 Present Status of Accoustic Environment Quality

(1) Monitoring Points

According to the distribution of environmental targets and the status quo of the regional environment, the evaluation agency entrusted the Qinghai Huading Environmental Testing Co., Ltd. to carry out a monitoring of acoustic environment quality status of ambient noise sensitive targets of the four project boundary sites, surrounding Wangjiazhai Village and Qingtang Town. Different monitoring points are shown in Table 3-2.

<table>
<thead>
<tr>
<th>No.</th>
<th>Monitoring Points</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>South side of Wangjiazai Interchange Site</td>
<td></td>
</tr>
<tr>
<td>2*</td>
<td>East side of Wangjiazai Interchange Site</td>
<td></td>
</tr>
<tr>
<td>3*</td>
<td>North side of Wangjiazai Interchange Site</td>
<td></td>
</tr>
<tr>
<td>4*</td>
<td>West side of Wangjiazai Interchange Site</td>
<td></td>
</tr>
<tr>
<td>5*</td>
<td>Wangjiazai Village</td>
<td>1m at window of floor I of Row-1 Buildings</td>
</tr>
<tr>
<td>6*</td>
<td>Qingtang Town</td>
<td>1m at window of floors 1,510,20,30 close to the interchange</td>
</tr>
</tbody>
</table>
(2) Monitoring Items
Continuously equal sound level A (LAEq)

(3) Monitoring Frequency
The monitoring was carried out on September 20-21, 2017. For each monitoring point, monitoring was done for 2 consecutive days, monitoring done once every day and night (between 6:00~22:00 in the daytime, 22:00~6:00 at night), monitoring done for 20min each time.

(4) Evaluation Criteria
The Category II Criteria of the Acoustic Environment Quality Criteria (GB3096-2008).

(5) Monitoring Results
The acoustic environment quality monitoring results for each project boundary sites and surrounding residential compounds are as follows:

<table>
<thead>
<tr>
<th>Monitoring Points</th>
<th>Monitoring Dates</th>
<th>Standard Limit</th>
<th>Daytime</th>
<th>Night</th>
<th>Daytime Values</th>
<th>Compliance</th>
<th>Night Values</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1# South side of project site</td>
<td>2017.9.20</td>
<td>60 50</td>
<td>55.6</td>
<td>Qualified</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2# East side of project site</td>
<td>2017.9.20</td>
<td>60 50</td>
<td>56.7</td>
<td>Qualified</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3# North side of</td>
<td>2017.9.20</td>
<td>60 50</td>
<td>56.0</td>
<td>Qualified</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>Project Site</td>
<td>Date</td>
<td>Time</td>
<td>Noise Level</td>
<td>Noise Level</td>
<td>Category</td>
<td>Noise Level</td>
<td>Noise Level</td>
</tr>
<tr>
<td>----</td>
<td>------------------------------------------------------------------------------</td>
<td>------------</td>
<td>------</td>
<td>-------------</td>
<td>-------------</td>
<td>----------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>4#</td>
<td>West Side of the project site</td>
<td>2017.9.20</td>
<td>60</td>
<td>56.5</td>
<td>Qualified</td>
<td>46.6</td>
<td>Qualified</td>
<td>46.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2017.9.21</td>
<td>60</td>
<td>56.5</td>
<td>Qualified</td>
<td>46.6</td>
<td>Qualified</td>
<td>46.6</td>
</tr>
<tr>
<td>5#</td>
<td>Floor 1 of Wangjiazai Village Buildings</td>
<td>2017.9.20</td>
<td>60</td>
<td>52.6</td>
<td>Qualified</td>
<td>45.8</td>
<td>Qualified</td>
<td>45.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2017.9.21</td>
<td>60</td>
<td>52.6</td>
<td>Qualified</td>
<td>45.8</td>
<td>Qualified</td>
<td>45.8</td>
</tr>
<tr>
<td>6#</td>
<td>1m at window of floor 1 close to interchange, Qingtang Town</td>
<td>2017.9.20</td>
<td>60</td>
<td>49.8</td>
<td>Qualified</td>
<td>43.2</td>
<td>Qualified</td>
<td>43.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2017.9.21</td>
<td>60</td>
<td>50.3</td>
<td>Qualified</td>
<td>43.7</td>
<td>Qualified</td>
<td>43.7</td>
</tr>
<tr>
<td>7#</td>
<td>1m at window of floor 5 close to interchange, Qingtang Town</td>
<td>2017.9.20</td>
<td>60</td>
<td>50.1</td>
<td>Qualified</td>
<td>42.6</td>
<td>Qualified</td>
<td>42.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2017.9.21</td>
<td>60</td>
<td>49.5</td>
<td>Qualified</td>
<td>43.2</td>
<td>Qualified</td>
<td>43.2</td>
</tr>
<tr>
<td>8#</td>
<td>1m at window of floor 10 close to interchange, Qingtang Town</td>
<td>2017.9.20</td>
<td>60</td>
<td>49.3</td>
<td>Qualified</td>
<td>42.1</td>
<td>Qualified</td>
<td>42.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2017.9.21</td>
<td>60</td>
<td>48.6</td>
<td>Qualified</td>
<td>42.6</td>
<td>Qualified</td>
<td>42.6</td>
</tr>
<tr>
<td>9#</td>
<td>1m at window of floor 20 close to interchange, Qingtang Town</td>
<td>2017.9.20</td>
<td>60</td>
<td>46.8</td>
<td>Qualified</td>
<td>41.8</td>
<td>Qualified</td>
<td>41.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2017.9.21</td>
<td>60</td>
<td>45.9</td>
<td>Qualified</td>
<td>41.1</td>
<td>Qualified</td>
<td>41.1</td>
</tr>
<tr>
<td>10#</td>
<td>1m at window of floor 30 close to interchange, Qingtang Town</td>
<td>2017.9.20</td>
<td>60</td>
<td>47.3</td>
<td>Qualified</td>
<td>42.3</td>
<td>Qualified</td>
<td>42.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2017.9.21</td>
<td>60</td>
<td>46.7</td>
<td>Qualified</td>
<td>42.5</td>
<td>Qualified</td>
<td>42.5</td>
</tr>
</tbody>
</table>

Remarks: During the monitoring period of acoustic environment quality at the project site and the Qingtang Town, the drainage pipeline on the Wusixi Road was under construction, with no construction activity at night.

It can be seen from the above table that the noise at night around the project boundary and within the evaluation area of Wangjiazai Village and Qingtang Town are in compliance with the Category II standard limit requirements of the Environmental Acoustic Quality Criteria (GB3096-2008).

3.1.4 Present Status of Ecological Environment Quality

Situated in the suburbs, the project site is affected by human activities. It has an agro-based ecosystem based on cultivated land. Its main crops are wheat, rapeseed, potato, soybean and greenhouse vegetables. There is no native vegetation within the EIA scope. The existing vegetation is dominated by cultivated plants such as street trees and farmland shelter forests on both sides of the road, with singular specieies. It has staple arbors like poplar, eucalyptus as well as staple shrubs like Changmang grass, Batian sorrel, plantain, wormwood. Through on-spot investigation and inquiry of relevant materials, no distribution of wild rare and endangered plant resources and ancient and famous trees were found in the project area, thus there were no ecological environment sensitive points.

3.2 Major EP Targets (Listing Names and Protection Categories)

(1) Ambient Air

The ambient air function zone of the project area is classified as the Category II zone. Its environmental protection target is the ambient air around the project site, and the ambient air quality should meet the requirements of the Category II standard of the Ambient Air
Quality Criteria (GB3095-2012).

(2) Accoustic Environment

The area where the project is located is the Category II zone of acoustic environment quality, and the requirements of the Category II standard of the Acoustic Environmental Quality Criteria (GB3096-2008) are implemented.

(3) Surface Water

The water system in the project area is the Huangshui River. The project is located about 1.2km north of the Huangshui River Section (Zamalong-Xigang Bridge). For the surface water quality of the Huangshui River Section (Zamalong-Xigang Bridge), the Category III standard of the Surface Water Environment Quality Criteria is implemented.

(4) Environment Sensitive Points

According to the field survey, there are no national and provincial key protection objects of cultural relics in the evaluation scope. At present, there are sensitive sites such as Wangjiazhai Village on the south side and Qingtang Town on the north side under the project. According to the Xining Municipality General Urban Plan (2001-2020) (revised in 2015), the south side of the project is the Xicheng Avenue (under construction), on the north side of the project is the residential land (the Qingtang town is now built up), and the east side and the south side of the project are the land for commercial service facilities.

According to the site survey as well as in combination with the General Urban Plan of the project site, the major EP targets within the project evaluation area are shown in Table 3-4.

<table>
<thead>
<tr>
<th>Environment Elements</th>
<th>Names</th>
<th>Scale and Nature</th>
<th>Relative Direction and Distance of Project Site</th>
<th>Protection Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wangjiazhai Village</td>
<td>About 135 households, 340 persons</td>
<td>Site south 280m</td>
<td>Category II standard of Ambient Air Quality Criteria (GB3095-2012)</td>
</tr>
<tr>
<td></td>
<td>Qingtang Town</td>
<td>About 1800 households, 4500 persons</td>
<td>Site north 50m</td>
<td>Category II standard of Acoustic Environmental Quality Criteria (GB3096-2008)</td>
</tr>
<tr>
<td>Surface Water</td>
<td>Huangshui River</td>
<td>Mean Many-year run-off total of 1.66 billion m³</td>
<td>Site north side 1200m</td>
<td>Category II standard of Surface Water Environment Quality Criteria (GB3838-2002)</td>
</tr>
</tbody>
</table>
Applicable Evaluation Criteria (Form 4)

(1) Ambient air: the Grade II standard in the Ambient Air Quality Criteria (GB3095-2012) is implemented;
(2) Water environment: The project is located about 1.2km north of the section of the Huangshui River Section (Zamalong-Xigang Bridge), and the Category III standard of the Surface Water Quality Criteria (GB3838-2002) is implemented in the Huangshui River section (Zamalong-Xigang Bridge);
(3) Acoustic environment: the Category II standard of Acoustic Environmental Quality Criteria (GB3096-2008) is implemented.

The environmental quality Criteria implemented in the project site are shown in Table 4-1.

Table 4-1 Environment Quality Criteria Implemented in the Project Site

<table>
<thead>
<tr>
<th>Elements</th>
<th>Criteria Names</th>
<th>Categories</th>
<th>Parameters</th>
<th>Concentration Limit</th>
<th>Evalu. Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient Air</td>
<td>GB3095-2012 Ambient Air Quality Criteria</td>
<td>Grade II</td>
<td>SO₂</td>
<td>Mean annual: 60 μg/m³ 24h/mean: 150 μg/m³ 1h/mean: 500µg /m³</td>
<td>Ambient air of Project Site</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NO₂</td>
<td>Mean annual: 40μg/m³ 24h/mean: 80 μg/m³ 1h/mean: 200µg /m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PMP₂.₅</td>
<td>Mean annual: 35 μg/m³ 24h/mean: 75 μg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PM₁₀</td>
<td>Mean/annual: 70 μg/m³ 24h/mean: 150 μg/m³</td>
<td></td>
</tr>
<tr>
<td>Surface Water</td>
<td>GB3838-2002 Surface Water Environment Quality Criteria</td>
<td>Category III</td>
<td>pH</td>
<td>6~9</td>
<td>Huangshui River (Zhamalong–Xigang Bridge)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>COD</td>
<td>20mg/L</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BOD₅</td>
<td>4mg/L</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NH₃-N</td>
<td>1.0mg/L</td>
<td></td>
</tr>
<tr>
<td>Accoustic Environment</td>
<td>GB3096-2008 Acoustic Environment Quality Criteria</td>
<td>Category II</td>
<td>Equal continuous sound Level A</td>
<td>Daytime 60dB(A) Night 50dB(A)</td>
<td>Project sites and surrounding residential points</td>
</tr>
</tbody>
</table>
(1) Wastewater

During the construction period of the project, environment-friendly public toilets shall be set up in the construction camp. The domestic sewage is discharged into the municipal municipal sewage pipeline system after being collected and treated by the public toilets. The catering wastewater produced by the construction personnel is discharged into the municipal sewage pipeline system after being treated by the grease trap provided by the construction camp, and the construction wastewater shall be discharged. The wastewater shall be reused after oil separation and sedimentation treatment, thus there will be no efflux. During the operation period, the wastewater is discharged into the urban sewage pipeline system after being pretreated, and finally enters the Xining No. 4 Sewage Treatment Plant. For the wastewater emission Criteria, the Grade III standard of the Integrated Wastewater Emission Criteria (GB8978-1996) shall be implemented.

<table>
<thead>
<tr>
<th>Pollutants</th>
<th>Integrated Sewage Emission Criteria (GB8978-1996)</th>
<th>Standard Value (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td></td>
<td>6~9</td>
</tr>
<tr>
<td>SS</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>BOD₅</td>
<td></td>
<td>300</td>
</tr>
<tr>
<td>COD</td>
<td></td>
<td>500</td>
</tr>
<tr>
<td>Petroleum</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Animal/ Plant Oils</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Amonia Nitrogen</td>
<td></td>
<td>/</td>
</tr>
<tr>
<td>LAS</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

(2) Exhaust Gases

During the construction period, the dust emission of the TSP in the Integrated Emission Standard for Air Pollutants (GB16297-1996) shall be 1.0mg/m³ of standard limit of unorganized emission monitoring concentration. For the limits of NOx, CO and HC in the exhaust gas of parking lots, respectively refer to the limits of the unorganized emission monitoring concentration in the Integrated Emission Criteria for Air Pollutants (GB16297-1996). For the relevant standard limits for air pollutants emitted by the boiler house, refer to the Boiler Air Pollutants Emission Criteria (GB13271-2014). For the catering soot emission, implement the maximum allowable soot emission concentration in the Catering Industry Emission Criteria (GB18483-2001).

<table>
<thead>
<tr>
<th>Source</th>
<th>Pollutants</th>
<th>Concent. Limit (mg/m³)</th>
<th>Criteria Types</th>
<th>Criteria Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flying Dust</td>
<td>TSP</td>
<td>1.0</td>
<td>unorganized emission monitoring concentration Limit</td>
<td>Integrated Air Pollutants Emission Criteria (GB16297-1996)</td>
</tr>
<tr>
<td>Exhaust Gas at Parking Lot</td>
<td>NOx</td>
<td>0.12</td>
<td>unorganized emission monitoring concentration Limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HC</td>
<td>4.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

29
<table>
<thead>
<tr>
<th>Methodological Criteria</th>
<th>EIA Technical Guidelines of Construction Projects - General Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>HJ2.2-2008</td>
<td>EIA Technical Guidelines - Atmospheric Environment</td>
</tr>
<tr>
<td>HJ/T2.3-93</td>
<td>EIA Technical Guidelines - Surface Water Environment</td>
</tr>
<tr>
<td>HJ2.4-2009</td>
<td>EIA Technical Guidelines - Acoustic Environment</td>
</tr>
<tr>
<td>HJ19-2011</td>
<td>EIA Technical Guidelines - Ecological Impact</td>
</tr>
</tbody>
</table>

The project shall set up two sets of two 5.6W vacuum hot water boilers, and their fuel is natural gas. Therefore, this project only verifies the amount of nitrogen oxides of atmospheric pollutants. After calculation, the total air pollution control index under this project is NOx: 3.87t/a.

Based on the calculation, the total water pollutant control index of this project is COD: 8.72t/a, NH3-N: 0.83t/a. After the sewage from the project is treated, it enters the urban sewage pipeline system through water outlet and finally gets into the Xining No.4 Sewage Treatment Plant. The total discharge of water pollutants is included in the sewage treatment plant for centralized treatment.
Engineering Analysis of Construction Project (Form 5)

5.1 Technological Process Overview (Shown in Figures)

The environmental impact period of the project includes construction period and operation period. During the construction period, the construction procedures such as earthwork, foundation engineering, structural engineering and decoration engineering will produce pollutants such as noise, dust, solid waste, small amount of sewage and waste gases; pollutants generated during operation include noise, domestic sewage, domestic garbage and motor vehicle exhaust gas.

The technological process and pollutions are shown in the figure below.

5.2 Major Pollution Process
Pollution Generation Process under the project includes two phases, that is, pollutions generated during the construction period as well as pollutions generated during the operation period.

1. Construction Period

(1) Source of Ambient Air Pollution

During the construction period, ambient air pollutants are flying dust generated from site leveling and vehicles that transport assembling materials, tail gas pollution generated by construction vehicles and machinery, which consists of the main pollutants of CO, HC, NOX, and indoor decoration exhaust gas pollution, whose main pollutants are formaldehyde, total volatile organic compounds (VOC), free formaldehyde and benzene.

(2) Source of Water Environment Pollution

The wastewater during the construction period is mainly the domestic sewage discharged by the construction unit and the washing wastewater of construction camp machinery. The main pollutants are suspended solids (SS), biochemical oxygen demand (BOD₃) and chemical oxygen demand (COD).

(3) Acoustic Environmental Pollution Source

The construction machinery that has a great influence on the acoustic environment includes mainly excavators, bulldozers, road rollers, loaders and pile drivers, and their source strength is in the range of 65 and 90 dB (A). Impact mode is intermittent point source impact.

(4) Solid Wastes

Solid Wastes are mainly construction wastes and domestic garbage of construction workers.

2. Operation Period

(1) Ambient Air

During the operation period, the emission of vehicle exhaust gas at parking lots and gas-fueled exhaust gas will affect the surrounding environment, and its main pollutants are CO, NO₂NO₂, HC and SO₂.

(2) Water Environment

The wastewater during the operation period mainly comes from domestic sewage generated by passengers and staff members, and canteen dining wastewater and car wash wastewater as well.

(3) Acoustic Environment

The impact on the acoustic environment during the operation period mainly comes from
the noise generated by supporting equipment and the noise generated by vehicles entering and leaving and crowd activities. The noise source is between 65 and 86 dB(A).

(4) Solid Wastes

Solid wastes are mainly the domestic garbage generated by passengers and staff members during the operation period; the impact of the sludge as well as animal and plant oils produced by catering, the sludge from wastewater and the washing wastewater. Vehicle maintenance will not be carried out during the operation of the project. If the vehicle has problems, it will be repaired outside of the project site, with no waste engine oil to be generated.

5.3 Analysis of Pollution Sources and Pollutants Emission

According to pollution process, pollutants such as wastewater, waste gases and solid wastes during the construction and operation periods are taken into account.

5.3.1 Analysis of Pollution Sources during the Operation

The project is expected to have a construction period from August 2018 to October 2019, totalling 14 months. During the construction period, operation of construction machinery and transportation vehicles and demolition of buildings will generate dust, exhaust gas, noise, wastewater, solid wastes, etc; Construction workers will produce domestic sewage and garbage, etc.; Foundation excavation will have an impact over the surrounding landscape; Surface disturbance during construction will cause soil erosion, and these pollutants will have different degrees of pollution impact on the surrounding environment.

1. Air Pollution Sources

The air pollution sources generated during the construction period mainly include flying dust, construction vehicles and mechanical exhaust gas and decoration exhaust gas.

(1) Flying Dust: Flying dust is generated by wind at the construction site and at the entrance and exit of construction site, by the handling and stacking of building materials, the stacking and cleaning of construction waste, and by travelling road vehicles. According to relevant analogy monitoring data, the TSP concentration of the construction transportation road is 11.652 mg/m³, 9.694 mg/m³ and 5.093 mg/m³ respectively at the downwind direction of 50m, 100m and 150m.

(2) Construction Vehicles and Machinery Waste Gas: construction machinery (such as heavy trucks, forklifts and bulldozers) mainly use diesel as fuel, and heavy machinery has large volume of exhaust emissions, thus the exhaust gas emissions also render the atmosphere of the project area to be contaminated. The harmful substances contained in the exhaust gas mainly include CO, HC, NOX, and the like.

(3) Decoration Exhaust Gas: The decoration exhaust gas during the construction period is mainly wall-painted dust and interior decoration exhaust gas. The indoor air quality pollution mainly comes from inorganic non-metal building materials and decoration materials. The main pollutants are formaldehyde, volatile organic compounds (TVOC), free formaldehyde and benzene. Contaminants in inorganic non-metallic building
materials and decoration materials will gradually release to the surrounding environment after construction, renovation process and project operation, thus causing pollution to indoor and outdoor ambient air.

2. Wastewater Pollution Sources

The wastewater during the construction period is mainly the domestic sewage and construction wastewater generated by the construction workers at the construction site.

(1) Construction Wastewater: The maintenance point will not be set up at the construction site, so all of mechanical maintenance shall be unified to a professional maintenance point identified. Therefore, construction wastewater is mainly mechanical and vehicle cleaning wastewater. According to the analogy investigation, the production wastewater volume (flushing wastewater) is less than 8m³/d. This type of wastewater contains a large amount of muddy sand, with a high concentration of suspended solids, a pH value of weakly alkaline, and a small amount of oil. According to the analogy investigation, the suspended solid concentration is generally in the range of 400-2000mg/l, and <10 mg/L for the petroleum type. After the oil is separated and precipitated, it can be used for sprinkling water at the construction site for dust reduction instead of drainage.

(2) Domestic Sewage of construction workers: 1 construction camp is set up under the project. About 50 people will be on site during the peak construction period. The domestic water consumption will be 100L/(person•d); The pollution-producing coefficient will be 90%; The domestic sewage volume is 4.5 m³/d. The main pollutants in the domestic sewage of construction workers are COD, animal and vegetable oils, SS, etc. The sewage water quality is COD300mg/L, ammonia nitrogen 30mg/L, and animal and vegetable oil 50mg/L.

3. Noise Pollution Sources

The noise generated during the project construction is mainly caused by construction machinery and transportation vehicles. The noise source strength is generally 85 to 105 dB (A).

(1) Noise Pollution Sources of Construction Machinery

The main construction machinery used in the project construction: bulldozer, air compressor, excavator, vibrating rod, electric drill, electric hammer, electric saw, electric welder, etc. Construction machinery generates higher noise during operation. The main noise sources and noise variation range of the project at each construction stage are shown in 5-1.

<table>
<thead>
<tr>
<th>Table 5-1</th>
<th>Major Noise Sources and Noise Variation Range at Construction Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Stages</strong></td>
<td><strong>Noise Sources</strong></td>
</tr>
<tr>
<td>Earthwork Stage</td>
<td>Loader</td>
</tr>
<tr>
<td></td>
<td>Excavator</td>
</tr>
<tr>
<td></td>
<td>Bulldozer</td>
</tr>
</tbody>
</table>
### Traffic Noise Pollution Sources during the Construction Period

The vehicles entering and leaving the construction site during the construction period are mainly trucks. The noise values generated by the transportation vehicles during the construction phase are shown in Table 5-2.

#### Table 5-2  Sound Level Values of Traffic Noise During Construction

<table>
<thead>
<tr>
<th>Construction Stages</th>
<th>Vehicle Types</th>
<th>Transportation Materials</th>
<th>Equal Sound Level A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthwork Stage</td>
<td>Large heavy truck, loading car</td>
<td>Transportation vehicles</td>
<td>95</td>
</tr>
<tr>
<td>Structuring Stage</td>
<td>Concrete tank, loading truck</td>
<td>Steel rods, commercial concrete</td>
<td>105</td>
</tr>
<tr>
<td>Decoration Stage</td>
<td>Light loading truck</td>
<td>Decoration materials and necessary equipment</td>
<td>105</td>
</tr>
</tbody>
</table>

### 4. Solid Wastes

The solid wastes during the construction period are mainly engineering earthwork excavated, construction waste, and domestic garbage generated by construction workers.

1. Excavation of Earthwork: The proposed project site is now open and relatively flat. Therefore, there will be no abandonment in the leveling site. Project abandonment is mainly caused by excavation of various buildings and underground parking lots. According to feasibility study, the project is planned to build a basement with a depth of about 6m. The excavation of the foundation and the basement will be about 12900m³. After consultation with the Chengbei District Urban Administration, the project slag shall be unified to the Xixingyuan Construction Wastes Disposal Site in the Chengbei District.

2. Construction Waste: The project has a total construction area of 55,423 m² (excluding the reserved building area for post expansion). Construction waste is of the reinforced concrete structure. According to the engineering design, the project construction waste includes: waste concrete blocks, mortar, brick slag, metal, timber produced by the main body of building as well as waste building materials, various packaging materials, and other wastes generated by decoration, with an amount of production of 50 kg/m².
Therefore, the total amount of construction waste generated by the project will be 2771.15t. It is planned to be transported to the Xixingyuan Construction Wastes Disposal Site in Xining City.

(3) Domestic Garbage: There are about 50 construction workers on site during the peak construction period. According to the calculation of 1.0kg/person•d of domestic garbage, the daily domestic garbage is about 0.05t, and the domestic garbage production during construction about 21.0t.

5.3.2 Analysis of Pollution Sources During the Operation Period

1. Pollution Sources of Waste Gases

The atmospheric pollutants during the operation period are mainly automobile exhaust gas generated by motor vehicles at parking lots and underground garages, and soot emissions from kitchens, and exhaust gases from gas boilers.

(1) Vehicle Exhaust Gas Emissions at Parking Lots

A total of 413 parking spaces for motor vehicles are set up under this project (including 20 on-ground long-distance bus stops, 160 long-distance car parking spaces, 110 bus parking spaces, and 123 social vehicle parking spaces). The parking spaces are shown in Table 5-3.

<table>
<thead>
<tr>
<th>On-ground</th>
<th>Underground</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charging Piles</td>
<td>Normal</td>
</tr>
<tr>
<td>Long-distance Buses</td>
<td>48</td>
</tr>
<tr>
<td>Buses</td>
<td>33</td>
</tr>
<tr>
<td>Cars</td>
<td>37</td>
</tr>
</tbody>
</table>

The on-ground parking spaces are scattered and the starting time is short. Therefore, the amount of exhaust gas is small, and it is easy to spread under the open-air condition. The effects of automobile exhaust can be reduced by adopting such measures as speed limit, site greening and reasonable layout. The exhaust gas generated by underground parking spaces can be ventilated through ventilation system.

Automobile exhaust gas mainly refers to the exhaust emissions of vehicles entering and leaving the parking lot/garage and while driving at start-up or at low speed in the garage, including tail pipe exhaust, crankcase leakage, fuel tank and chemical fuel tank. The main pollution factors in automobile exhaust gas are CO, hydrocarbons, NOx, and the like. Refer to the Environmental Protection Practical Data Handbook. The emission factors of atmospheric pollutants are shown in the table below.

<table>
<thead>
<tr>
<th>Car Types</th>
<th>CO</th>
<th>HC</th>
<th>NOx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Vehicles</td>
<td>27</td>
<td>24.1</td>
<td>44.4</td>
</tr>
</tbody>
</table>
The amount of vehicle exhaust emissions in the parking lot is related to the running time and traffic volume of the car in the parking lot. The amount of exhaust pollutants entering and leaving the parking lot of each car can be calculated as follows:  
\[ g = f \times (m \times t) \]

Where:  
- \( f \) — emission coefficient of atmospheric pollutants (g/L);  
- \( M \) — the average fuel consumption rate of the vehicle entering and leaving the parking lot is about 0.20L/km, which is \( 2.78 \times 10^{-4} \)L/s according to the speed of 5km/h.  
- \( t \) — The total running time of the car in and out of the parking lot and in the parking lot is about 100s.

According to the calculation of the above formula, the amount of CO, HC and NOx emitted by each large vehicle entering and leaving the parking lot is 0.751g, 0.670g and 1.234g respectively; the pollutants CO generated by each small car entering and leaving the parking lot, the amounts of HC and NOx were 5.310 g, 0.670 g, and 0.620 g, respectively.

According to the project Feasibility Study design, the daily average long-distance and short-distance departures are 221 and 224 respectively, and the daily Bus Terminal departures are about 445 times. According to the analogy survey data of similar Bus Terminals, about 1,220 buses under the project are expected to enter and leave the bus parking lots every day; the number of small vehicles such as private cars entering and leaving the underground parking lot is about 2,750 vehicles; the number of long-distance buses entering and leaving the underground parking lot is about 445 vehicles per day. The situation of air pollutants in the parking lot is shown in the table below.

**Table 5-5 Production of Vehicular Exhaust Gas Pollutants at Parking Lots**

<table>
<thead>
<tr>
<th>Types</th>
<th>Parking Spaces</th>
<th>Daily Vehicle Flow (vehicles/d)</th>
<th>CO</th>
<th>HC</th>
<th>NOx</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-ground</td>
<td>20 (Departure Parking Spaces)</td>
<td>445</td>
<td>0.12</td>
<td>0.11</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>77 (Normal Parking Spaces)</td>
<td>1200</td>
<td>0.33</td>
<td>0.29</td>
<td>0.54</td>
</tr>
<tr>
<td></td>
<td>86 (Normal Parking Spaces for Cars)</td>
<td>2750</td>
<td>5.33</td>
<td>0.67</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>4395</td>
<td>5.78</td>
<td>1.07</td>
<td>1.36</td>
</tr>
<tr>
<td>Underground</td>
<td>112 (Normal Parking Spaces for Long-distance Buses)</td>
<td>445</td>
<td>0.12</td>
<td>0.11</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4840</td>
<td>5.90</td>
<td>1.18</td>
<td>1.56</td>
</tr>
</tbody>
</table>

According to the calculation results in the above table, the project parking lots will have a total CO of 5.90t/a, HC of 1.18t/a, and NOx of 1.56t/a. The above-ground parking lot produces CO of 5.78t/a and HC of 1.07t/a, NOX of 1.36t/a, while the underground parking lot produces the CO of 0.12 t/a, the HC is 0.11t/a, and the NOX is 0.20t/a.

At present, the project is in the feasibility study stage, with no detailed design information. Therefore, for garage ventilation outlets, this EIA report recommends as follows: reasonably setting smoke prevention area and fire prevention area, equipping all
smoke prevention areas and fire prevention areas with exhaust outlets; avoiding people activity place while setting smoke exhaust outlets and placing them on the ceiling or the wall near the ceiling. The height of exhaust gas outlet can be 2.5-3.0m. The exhaust outlet shall be far away from the air inlets, set in the downwind direction of the dominant wind direction, as far scattered as possible, and green belts can be planted around it.

(2) Emission of Kitchen Sooty Gases

After the completion of the project, there will be 4 base cookers in the restaurant, a medium-sized restaurant. The restaurant uses liquefied petroleum gas. At full load, it has a capacity of 200 persons per day. It has an average consumption of edible oil of 20g/per person, a total annual consumption of edible oil (330 days) of 1056kg. According to the edible oil volatilization rate of 1%, the kitchen fume emissions will be a total of 105.6kg / a, with an emission of 9.6 × 106m³ / a (4 running hours a day, the amount of air intake of 3000m³/h). The restaurant adopts a fume purification facility that has been tested by the state-approved agency. The fumes are purified and treated by a built-in special flue (1.5m above the roof). The fume purification efficiency is >85%; the soot emission concentration about 1.65mg/m³; the emission of soot 15.84kg/a. therefore, it has small emission and short duration, which can meet the medium-sized requirements of the “Fume Emission Criteria of Catering Industry” (GB18483-2001). Therefore, the exhaust emission of soot will not affect the surrounding air.

(3) Emission of Gas Boiler Soot

Boiler fuel is mainly urban natural gas. Natural gas is a clean energy source, and the main components of natural gas are shown in Table 5-6.

Table 5-6 Composition of Natural Gas

<table>
<thead>
<tr>
<th>Items</th>
<th>CH₄</th>
<th>C₂H₆</th>
<th>C₃H₈</th>
<th>CO₂</th>
<th>H₂</th>
<th>N₂</th>
<th>Sulfur concentration</th>
<th>Low Heat Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>composition</td>
<td>96.1%</td>
<td>0.45%</td>
<td>0.075%</td>
<td>3.2%</td>
<td>Tiny</td>
<td>Tiny</td>
<td>&lt;20mg/m³</td>
<td>34.82MJ/Nm³ (8330kcal/Nm³)</td>
</tr>
</tbody>
</table>

According to the project feasibility study, the boiler chamber uses two 5.6W vacuum hot water boilers. The maximum natural gas consumption per unit is about 480Nm³/h, and the maximum natural gas consumption in the boiler room about 960m³/h. The heating period of the project is 180d per year, running 12h every day, and the annual consumption of natural gas is about 2.07 million m³.

According to the “Handbook on First National Pollution Sources Survey - Industrial Pollution Sources and Production and Emission Coefficients” (2010 revised edition), the book “Industrial Boiler (Thermal Production and Supply Industry) Production and Emission Coefficients Table - Gas Industrial Boilers”, the pipeline natural gas emission coefficient is shown in the table below.

Table 5-7 Production and Emission Coefficients of Pipeline Natural Gas

<table>
<thead>
<tr>
<th>Energy Types</th>
<th>Indexes of Pollutants</th>
<th>Units</th>
<th>Production and Emission Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipeline Natural Gas</td>
<td>Soot amount</td>
<td>Nm³/10⁴m³—to Gas</td>
<td>136259</td>
</tr>
<tr>
<td></td>
<td>Granulates</td>
<td>Kg/10⁸m³—to Gas</td>
<td>1.86</td>
</tr>
<tr>
<td></td>
<td>SO₂</td>
<td>Kg/10⁸m³—to Gas</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 5-8  Boiler Natural Gas Consumption & Pollutants Emission for Winter Heating System

<table>
<thead>
<tr>
<th>Gas Consumption (Nm³/a)</th>
<th>Smoke Emission (Nm³/a)</th>
<th>Pollutants Emission Concentration (mg/m³)</th>
<th>Pollutants Emission (t/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Granulates  SO₂  NOₓ</td>
<td>Granulates  SO₂  NOₓ</td>
</tr>
<tr>
<td>2.07 million</td>
<td>28.2 million</td>
<td>13.7         29.4  137.3</td>
<td>0.39         0.83  3.87</td>
</tr>
</tbody>
</table>

2. Wastewater Pollution Sources

The discharge of wastewater during the operation period of the project is 106.9t/d, and the discharge of different pollutants is shown in Table 1-9. The domestic sewage of the project is treated by septic tanks, and the oily wastewater of the canteen is discharged into the regional sewage drainage pipeline system through the grease trap and the car wash wastewater through the oil separation sedimentation tank, and discharged to the Xining No.4 Sewage Treatment Plant for treatment.

The main pollutants of wastewater during the operation period of the project are COD, BODs, SS, ammonia nitrogen, animal and vegetable oils and petroleum, etc. The discharge of different pollutants is shown in Table 5-9.

Table 5-9 Emission of Wastewater Pollutants

<table>
<thead>
<tr>
<th>Wastewater Sources</th>
<th>Emission (m³/a)</th>
<th>Pollutants</th>
<th>Pre-treatment</th>
<th>Treat. Means</th>
<th>After Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Concent. (mg/L)</td>
<td>Produ. (t/a)</td>
<td>Concent. (mg/L)</td>
</tr>
<tr>
<td>Living Wastewater</td>
<td>29973.8 0</td>
<td>COD</td>
<td>350</td>
<td>10.49</td>
<td>245</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BOD₅</td>
<td>200</td>
<td>5.99</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SS</td>
<td>250</td>
<td>7.49</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ammonia Nitrogen</td>
<td>30</td>
<td>0.90</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Animal &amp; Vegetable Oils</td>
<td>10</td>
<td>0.30</td>
<td>8</td>
</tr>
<tr>
<td>Catering Wastewater</td>
<td>1168.0</td>
<td>COD</td>
<td>800</td>
<td>0.93</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BOD₅</td>
<td>500</td>
<td>0.58</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SS</td>
<td>400</td>
<td>0.47</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ammonia Nitrogen</td>
<td>15</td>
<td>0.02</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Animal &amp; Vegetable Oils</td>
<td>100</td>
<td>0.12</td>
<td>40</td>
</tr>
<tr>
<td>Car Wash Wastewater</td>
<td>7884.0</td>
<td>COD</td>
<td>150</td>
<td>1.18</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SS</td>
<td>450</td>
<td>3.55</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Petroleum</td>
<td>20</td>
<td>0.16</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>39025.8</td>
<td>COD</td>
<td>323</td>
<td>12.61</td>
<td>223</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BOD₅</td>
<td>169</td>
<td>6.58</td>
<td>127</td>
</tr>
</tbody>
</table>
### Table 5-10 Noise Source Strength and Characteristics

<table>
<thead>
<tr>
<th>Noise Sources</th>
<th>Sound Pressure Level [dB(A)]</th>
<th>Source Strength Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment Noise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumps</td>
<td>70~85</td>
<td>Indoor, intermittent</td>
</tr>
<tr>
<td>Fans</td>
<td>70~85</td>
<td>Indoor, continuous</td>
</tr>
<tr>
<td>Cooling Tower of Central Air Conditioning</td>
<td>70~75</td>
<td>Indoor, continuous</td>
</tr>
<tr>
<td>Host of Central Air Conditioning</td>
<td>80~85</td>
<td>Indoor, continuous</td>
</tr>
<tr>
<td>Exhaust Shaft</td>
<td>60~65</td>
<td>Indoor, intermittent</td>
</tr>
<tr>
<td>Boiler Chamber</td>
<td>75~85</td>
<td>(Located in the underground garage)</td>
</tr>
<tr>
<td>Garage</td>
<td>60~70</td>
<td></td>
</tr>
</tbody>
</table>

### 3. Noise Pollution

The noise during the operation period of the project is mainly the noise from the supporting equipment as well as from vehicles entering and leaving the project site. During the operation period, the equipment noise mainly comes from the noise generated by pumps, fans, etc. The noise source strength generated by equipment and characteristics are shown in Table 5-10.

### 4. Emission of Solid Wastes

#### (1) Domestic Garbage

During the operation period, the solid wastes mainly come from domestic garbage generated by passengers and staff members. The total amount of domestic garbage generated is 198.01 t/a. It is unified to the collection points in the station and then transported to the Xining Municipal Domestic Waste Landfill for landfill disposal. See Table 5-11 for details.

#### Table 5-11 Production of Domestic Garbage unit: t/a

<table>
<thead>
<tr>
<th>Names</th>
<th>Persons</th>
<th>Per capital Production (kg/d)</th>
<th>Production (t/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Members</td>
<td>85 人</td>
<td>0.5</td>
<td>15.51</td>
</tr>
<tr>
<td>Passengers</td>
<td>10000 人</td>
<td>0.05</td>
<td>182.50</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>198.01</td>
</tr>
</tbody>
</table>

#### (2) Dining Downing
The catering units will have a production of dining downing of 20kg/d and thus an annual production of 4t/a. It will be collected unifiedly and carried away timely.

(3) Car Wash Sludge and Catering Animal and Vegetable Oils

The catering oily wastewater and the car wash oily wastewater are pretreated by respective grease traps and then discharged into the municipal pipeline system. For waste catering oil amount, it will be calculated according to the difference between the amount of SS and the amount of animal and vegetable oils produced in the catering oily wastewater, and the amount of waste oils produced is 0.30t/a; For oily sludge amount in the car wash, it is calculated on the basis of the amount difference between SS and animal/vegetable oil produced, and the amount of sludge produced was 1.30 t/a.
### Production & Projected Emission of Key Pollutants (Form 6)

<table>
<thead>
<tr>
<th>Items</th>
<th>Emission Sources</th>
<th>Pollutants</th>
<th>Concentration &amp; Production before Treatment</th>
<th>Concentration &amp; Emission</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Pollutants</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Period</td>
<td>Construction Site</td>
<td>Flying Dust, Car Exhaust</td>
<td>unorganized emission small amount</td>
<td>unorganized emission small amount</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decoration Exhaust Gas</td>
<td>unorganized emission small amount</td>
<td>unorganized emission small amount</td>
</tr>
<tr>
<td>Operation Period</td>
<td>Exhaust Gas at Parking Lots</td>
<td>CO</td>
<td>5.90 t/a</td>
<td>5.90 t/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CH</td>
<td>1.18 t/a</td>
<td>1.18 t/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOx</td>
<td>1.56 t/a</td>
<td>1.56 t/a</td>
</tr>
<tr>
<td></td>
<td>Exhaust Gas in Kitchen</td>
<td>Soot</td>
<td>11.0mg/Nm³, 105.6kg/a</td>
<td>1.65mg/Nm³, 15.84kg/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S0₂</td>
<td>29.4mg/Nm³, 0.39t/a</td>
<td>29.4mg/Nm³, 0.39t/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smoke Dust</td>
<td>13.7mg/Nm³, 0.83t/a</td>
<td>13.7mg/Nm³, 0.83t/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOx</td>
<td>137.3mg/Nm³, 3.87t/a</td>
<td>137.3mg/Nm³, 3.87t/a</td>
</tr>
<tr>
<td><strong>Operation Period</strong></td>
<td>Mechanical &amp; Vehicular Water</td>
<td>SS, Petroleum</td>
<td>8m³/d, SS1000mg/L, petrolium, 50mg/L</td>
<td>Reuse after deposition in the grease trap and be used for sprinkling and dust reduction at the site</td>
</tr>
<tr>
<td></td>
<td>Water Water</td>
<td>Domestic Garbage</td>
<td>4.5 m³/d</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Domestic Wastewater of Staff</td>
<td>COD</td>
<td>300mg/L, 0.47t/a</td>
<td>200mg/L, 0.31t/a</td>
</tr>
<tr>
<td></td>
<td>Members</td>
<td>BOD₅</td>
<td>250mg/L, 11.61t/a</td>
<td>200mg/L, 9.29t/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NH₃-N</td>
<td>30mg/L, 1.16t/a</td>
<td>27mg/L, 1.04t/a</td>
</tr>
<tr>
<td><strong>Water Pollutants</strong></td>
<td>Passenger, Officers, Car Wash</td>
<td>Wastewater</td>
<td>39025.8m³/a (discharge into the Xining No. 4 Sewage Treatment Plant after pretreatment in the septic tank and grease trap)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Mixed Wastewater)</td>
<td>COD</td>
<td>323mg/L, 12.61t/a</td>
<td>223mg/L, 8.72t/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BOD₅</td>
<td>169mg/L, 6.58t/a</td>
<td>129mg/L, 5.03t/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SS</td>
<td>295mg/L, 11.51t/a</td>
<td>127mg/L, 4.97t/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NH₃-N</td>
<td>23mg/L, 0.92t/a</td>
<td>21mg/L, 0.82t/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Edible Oil</td>
<td>11mg/L, 0.42t/a</td>
<td>7mg/L, 0.29t/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Petroleum</td>
<td>4mg/L, 0.16t/a</td>
<td>1mg/L, 0.04t/a</td>
</tr>
<tr>
<td><strong>Solid Wastes</strong></td>
<td>Construction Site</td>
<td>Earthwork</td>
<td>12.90 m³</td>
<td>be carried to the Xining Xixingyuan Construction Wastes Disposal Site for treatment</td>
</tr>
<tr>
<td></td>
<td>Construction Garbage</td>
<td></td>
<td>2771.15t</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction Workers</td>
<td>Domestic Garbage</td>
<td>21.0t</td>
<td>be assorted and collected, and delivered to the Environment Sanitary Agency regularly for disposal at the disposal site</td>
</tr>
<tr>
<td></td>
<td>Passengers and Staff</td>
<td>Domestic Garbage</td>
<td>198.01t/a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dining</td>
<td>Domestic Garbage</td>
<td>4t/a</td>
<td>collected and disposed of regularly</td>
</tr>
<tr>
<td></td>
<td>Waste</td>
<td>0.30t/a</td>
<td>collected uniformly after treatment in the grease trap and carried to the unit with qualifications for treatment</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Edible Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Car Wash</td>
<td>Oil Sludge</td>
<td>Be uniformly collected and stored after the grease and deposition trap and delivered to the unit with qualification for treatment.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.30t/a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Noise

Noise during the construction mainly comes from construction machinery, with a source strength of 85～105 decibels.

During the operation, noise is mainly from equipment and vehicles, with a noise impact value of 60～85 decibels.

### Others

Nil

**Significant Ecological Impacts (With no enough space, additional pages can be attached)**

The project site is located in the Wangjiazhai Village, Dabaozi Town, Chengbei District, Xining. Since it is mainly situated in the suburbs of Xining, the area is centered on human activities and it is an agro-ecosystem based on cultivated land. There are no native vegetation and large wild animals within the project EIA scope.
Environment Impact Analysis (Form 7)

7.1 Environment Impact Analysis during the Construction Period
During the construction period, there are such activities as ground excavation, site leveling, road construction, civil construction, equipment installation, construction material transportation within the scope of the project land. The main factors affecting the environment are: construction noise, dust, construction waste, and sewage and domestic garbage of construction workers as well. The following sections will focus on analyzing these kinds of pollution and their environmental impacts, and propose corresponding mitigation measures.

7.1.1 Atmospheric Environment Impact Analysis

(1) Flying Dust during the Construction
During the construction period, the earthwork excavation produces loose particles, temporary piles and sand and gravel yards to form a dust pollution source. During the loading/unloading and transportation of materials, secondary dust is generated, which affects the ambient air quality of the road and their sides. The production of flying dust is positively correlated with the area of the construction site and the frequency of construction activities. It is also related to local meteorological conditions such as wind speed, humidity, sunshine, etc. The main influence range is within the close range of the wind direction under the dust point. According to the analogy survey, in normal weather conditions, the impact of dust over the environment on the construction site is shown in Table 7-1.

<table>
<thead>
<tr>
<th>Mitigation Measures</th>
<th>Distance (m)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>100</th>
<th>Standard Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Concentration (ug/m³)</td>
<td>1700</td>
<td>1300</td>
<td>780</td>
<td>365</td>
<td>345</td>
<td>330</td>
<td>300</td>
</tr>
<tr>
<td>Sprinkling for Dust Reduction</td>
<td>Concentration (ug/m³)</td>
<td>437</td>
<td>350</td>
<td>310</td>
<td>265</td>
<td>250</td>
<td>238</td>
<td></td>
</tr>
</tbody>
</table>

*The Criteria listed in the table are the average secondary standard of TSP in GB3095-2012 Ambient Air Quality Standard.

According to the table, in the absence of any dust-proof measures, the impact of the construction site on the surrounding environment is serious. The TSP concentration in the range of 110m exceeds the Grade II standard limit of the Ambient Air Quality Criteria (GB3095-2012). After the measures are taken, the TSP concentration value at about 35m from the construction site can reach the TSP daily average Grade II standard in Table 2 of Ambient Air Quality Standard (GB3095).

Based on the site survey, there are residential areas such as Wangjiazhai Village and Qingtang Town in the vicinity of the project area. The nearest distance is about 50m. Therefore, in the case of dust-proof measures, the construction dust has little impact on it.

(2) Environment Impact Analysis of Flying Dust from Transportation Vehicles
The vehicles that transport materials can generate flying significant amount of dust when rolling on the wheels, especially in heavy vehicles. The faster the vehicle travels, the more dust is generated. At the same time, the amount of dust generated is related to the road surface condition and cleanliness. In the case of completely dry road surface, it can be calculated according to the following empirical formula:

$$Q=0.123 \times \left(\frac{V}{5}\right) \times \left(\frac{W}{6.8}\right) \times 0.85 \times \left(\frac{P}{0.5}\right) \times 0.75$$

Where: 
- $Q$ —— the dust of the car, kg/km;
- $V$ - car speed, km / h;
- $W$ - car load, tons;
- $P$ —— The amount of dust on the road surface, kg/m².

<table>
<thead>
<tr>
<th>Road Surface Dust Production (kg/m²)</th>
<th>Vehicle Travelling Speed (km/h)</th>
<th>Unit kg/km</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>0.02</td>
<td>0.01</td>
<td>0.02</td>
</tr>
<tr>
<td>0.05</td>
<td>0.03</td>
<td>0.05</td>
</tr>
<tr>
<td>0.10</td>
<td>0.07</td>
<td>0.09</td>
</tr>
<tr>
<td>0.15</td>
<td>0.10</td>
<td>0.14</td>
</tr>
<tr>
<td>0.25</td>
<td>0.17</td>
<td>0.23</td>
</tr>
</tbody>
</table>

The above table lists the amount of dust generated by a 10t ordinary truck passing through a length of road surface with different road surface cleanliness and different driving speeds. It can be seen that under the same road surface cleaning condition, the faster the vehicle speed, the larger the dust amount; in the case of the same vehicle speed, the more the road area dust, the larger the dust amount.

The project is located in the suburbs, and the transportation process will have certain impact on sensitive points around the route. Speed limit driving and keeping the road surface clean are effective means to reduce vehicle dust. At the same time, transportation vehicles should not be overfilled, and closed vehicles should be used, covered with canvas. Do not sprinkle dust during transportation to reduce the impact of dust on the surrounding environment; the road surface of the construction site should be hardened and Facilities for vehicle washing, drainage, mud sedimentation set accordingly; transportation vehicles should be washed out before they can leave the site, and the entrance and exit of the construction site kept clean; transportation vehicles should be speed-limited, so that the impact of transport dust on the surrounding environment is minimized.

(3) Environmental Impact Analysis of Construction Machinery Exhaust Gas

Since diesel is the main fuel of heavy machinery, its exhaust emissions will affect the atmospheric environment in the project area.

All kinds of construction machinery used (such as heavy trucks, forklifts and bulldozers) generally use diesel as fuel. The fuel flue gas is directly discharged at the construction site. The main pollutants include HC, SO₂, NO₂ and soot. The emission concentration of the exhaust vent of power devices or power generator is about HC<1800mg/m³, SO₂<270mg/m³, NO₂<2500mg/m³, and soot <250mg/m³. The main pollutants emitted by
the vehicles at the site include HC, SO₂ and NO₂. The tail exhaust gas emission concentration is about HC: 4.4g/L, SO₂: 3.24g/L, and NO₂: 44.4g/L.

The construction unit must use transportation vehicles and construction machinery that emit pollutants in compliance with national Criteria, strengthen the maintenance of equipment and vehicles, and keep machinery and vehicles in good working condition. It is strictly forbidden to use scrapped vehicles and eliminated equipment to reduce the impact of construction machinery exhaust gas over the surrounding environment.

(4) Environment Impact Analysis of Decoration Waste Gases

The decoration waste gases generated during the construction period are mainly the dust generated by the exterior wall decoration and the interior decoration exhaust gas. The amount of dust generated by the decoration is very small, and the dust will completely disappear with the end of the construction period. Plywood, brush paint, oil paint and other decorative materials that may be used in the interior decoration process contain a certain amount of volatile toxic gases such as formaldehyde, benzene, toluene, etc. If the content exceeds the standard, it will bring about the local impact over indoor air quality.

7.1.2 Environment Impact Analysis of Surface Water

(1) Construction Wastewater

The maintenance site shall not be provided, so mechanical maintenance is unified to a professional maintenance point, and the construction wastewater is mainly mechanical and vehicle cleaning wastewater. According to the analogy investigation, the production wastewater volume (flushing wastewater) is less than 8m³/d. This type of wastewater contains a large amount of muddy sand, with a high suspended solid concentration, the pH value of weakly alkaline and a small amount of oil. According to the analogy survey, the suspended solid concentration is generally 400-2000 mg/l, and the petroleum type is <10 mg/L.

In order to control the pollution of construction wastewater, the project should build a grease separation sedimentation tank in the construction site. The construction production wastewater will be reused for the construction site after the oil separation and sedimentation treatment. The water is sprayed to reduce the dust, and it is forbidden to discharge into the surrounding Huangshui River.

(2) Domestic Wastewater of Construction Workers

The construction workers have simple housing and living conditions, with a small amount of domestic sewage. Domestic sewage mainly comes from sewage generated by the daily life of construction workers and fecal water. The sewage mainly contains various organic substances such as animal and vegetable oils, food residues and detergents. If discharged directly without treatment, it will adversely affect the water quality of the surrounding surface water.

According to the construction scale of the project, one construction camp will be set up for the construction of the project. There will be about 50 construction workers at the peak construction period, and the domestic water consumption will be calculated according to
100L/(person•d), and the pollution yield coefficient will be 90%. The amount of sewage is 4.5m³/d. The main pollutants in the domestic sewage of construction workers are COD, ammonia nitrogen, animal and vegetable oil, etc. The sewage water quality is COD 300mg/L, ammonia nitrogen 30 mg/L, and animal and vegetable oil 50mg/L.

The domestic sewage at the construction site is limited to the construction period. The time is relatively short, and the water volume is not large. The construction camp is equipped with environmental protection public toilets and grease traps. The construction personnel's manure water is collected and treated by the environmental public toilets and discharged into the municipal sewage pipeline system. The catering wastewater of the construction personnel will be discharged into the municipal sewage pipeline system after being treated by the grease trap, and discharged to the Xining No.4 Sewage Treatment Plant. The sewage will not be discharged, causing small impact on the river water body. After the construction is completed, the impact of construction workers' domestic sewage will disappear.

### 7.1.3 Acoustic Environment Impact Analysis

#### (1) Compliance Analysis of Construction Site

The noise sources during the construction period are mainly operation of excavators, bulldozers, scrapers, oscillators, pile drivers, diesel generators, chainsaws, grinding machines, welding machines as well as equipment transportation. The construction machinery and equipment on site is very noisy, and in the actual construction process, a variety of machines are often working at the same time. The radiation of various noise sources is superimposed, the noise level will be higher, and the radiation range will be larger.

Construction machinery noise shall be given predictive calculations by using the following formula:

$$\text{Li} = \text{L}0 - 20\log(\text{r}i/\text{r}0) - \Delta \text{L}$$

Where: Li - the sound level dB (A) from the sound source ri; 
L0 - the sound level dB (A) from the sound source r0; 
ΔL——The amount of noise attenuation dB(A) caused by other factors.

The synthesized sound level generated by each sound source at the predicted point uses the following calculation formula:

$$L = 10\log \left[ \sum_{i=1}^{n} 10^{0.1\text{Li}} \right]$$

Using the above formula, the prediction results of noise impact at different distances during the full load operation of the main construction machinery during construction period are shown in Tables 7.3 and 7.4.

<table>
<thead>
<tr>
<th>No.</th>
<th>Distance (m)</th>
<th>Machinery Types</th>
<th>5</th>
<th>10</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Wheel-Loader</td>
<td>90</td>
<td>84</td>
<td>78</td>
<td>72</td>
<td>69</td>
<td>66</td>
<td>65</td>
<td>61</td>
<td>58</td>
<td>55</td>
</tr>
</tbody>
</table>
According to the “Environmental Noise Emission Criteria for Construction Site Boundary” (GB12523-2011), the operational noise limit during the construction phase is: 70dB(A) in the daytime and 55dB(A) at night. As can be seen from Tables 7-3 and 7-4, when a single machine is used, all single mechanical noises of machinery such as bulldozers, excavators, loaders from the sound source 40m away can meet the 70dB(A) standard of the construction site boundary; the noise of the grader 60m away from the sound source can meet the 70dB (A) standard of the construction site boundary. In order to achieve the standard of 55dB (A) at night at the construction site, the construction equipment needs to be 400m away from the sound source.

When multiple machines are being constructed at the same time, in the earthwork stage, at 80m in the daytime and 300m at night, the noise standard of the construction site boundary can be met; in the stage of decoration and structure, at 100m in the daytime and 400m at night, the noise standard of the construction site boundary can be satisfied.

According to the layout of the project, the distances between the eastern, western, southern and northern sides of the project site boundaries and the key operation area of construction machery are 160m, 125m, 42m and 25m respectively. According to the analysis, in the absence of measures, the distances for the eastern, western, southern and northern fields cannot meet the standard values of the Environmental Noise Emission Criteria for Construction Sites (GB12523-2011) at night; the distances for the eastern and western field boundaries can be up to standard; while the distances for southern and northern site boundaries exceed the standard values. Therefore, measures must be taken, such as strict prohibition of night construction, reasonable construction arrangement, placing strong noise machinery on the eastern and western sides of the site, and installing soundproof fences of 2.5 m or more around the site, to make the noises during the construction comply with the standards required of the Environmental Noise Emission Criteria of the Construction Site Boundary (GB12523-2011).

(2) Impact of Construction Noise over Sensitive Points
According to the forecast, the impact of noise during the construction period of the project on the surrounding Qingtang Township and Wangjiazhai Village is shown in Table 7-5.

### Table 7-5 Prediction Values of Environment Noise of Sensitive Points During the Construction Period

<table>
<thead>
<tr>
<th>Sensitive Points</th>
<th>Time</th>
<th>Background Value LeqdB(A)</th>
<th>Contribution Value dB(A)</th>
<th>Overlapping Value dB(A)</th>
<th>Standard Value dB(A)</th>
<th>Over Standard Value dB(A)</th>
<th>Over Standard Volume dB(A)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qingtang Town (Site South Side 50m)</td>
<td>Daytime</td>
<td>50.1</td>
<td>77</td>
<td>77.1</td>
<td>60</td>
<td>Yes</td>
<td>17.1</td>
<td>No night construction</td>
</tr>
<tr>
<td></td>
<td>Night</td>
<td>43.5</td>
<td></td>
<td>77.0</td>
<td>50</td>
<td>Yes</td>
<td>27.0</td>
<td></td>
</tr>
<tr>
<td>Wangjiazhai Village (Site North Side 280m)</td>
<td>Daytime</td>
<td>52.9</td>
<td>58</td>
<td>59.2</td>
<td>60</td>
<td>No</td>
<td>–</td>
<td>No night construction</td>
</tr>
<tr>
<td></td>
<td>Night</td>
<td>45.1</td>
<td></td>
<td>58.2</td>
<td>50</td>
<td>Yes</td>
<td>8.2</td>
<td></td>
</tr>
</tbody>
</table>

Around the project, the Qingtang Town is about 50m away from the project site boundary, and the Wangjiazhai Village about 280m away from the project site boundary. The noise sensitive points are all within 300m. During the day, the construction will have different degrees of impact on the residential buildings, especially the first row of residential buildings. At night, the impact on residents' rest is particularly obvious. Therefore, measures must be taken to strictly prohibit night construction and minimize the impact of construction noise on environmental protection targets.

In summary, the noise generated by the construction machinery during construction will have certain adverse effects on the surrounding acoustic environment. The noise generated by the construction machinery is characterized by randomness, intermittent point source impact, strong noise generation, but this impact is temporary and generally gone with the end of the construction period, not cumulative. After the construction is over, the impact will disappear.

### 7.1.4 Environment Impact Analysis of Solid Wastes

**（1）Earthwork Abandonment and Construction Wastes**

According to the engineering analysis, the abandoned earthwork generated by the project is mainly spoil generated by excavation of construction foundation and the basement. Construction wastes mainly include engineering waste and decoration garbage. If the spoil and construction wastes generated by the project construction are not properly disposed of and piled up at will, it will not only occupy land resources, but also cause flying dust on windy days, causing environmental air pollution. When it rains, it will easily cause soil erosion and affect urban landscape.

For abandoned earthwork and construction wastes generated by this project shall be collected uniformly and transported timely to the construction wastes disposal site of Xixingyuan in Chengbei District, Xining.

**（2）Domestic Garbage**

At the peak of construction camp construction, there will be about 50 construction workers on site, and the daily construction of domestic garbage generated by the project will be about 0.05t. The domestic garbage of construction workers will be collected and
transported to the sanitation unity for disposal. The above wastes will not have a significant impact on the surrounding environment and sensitive points after taking corresponding measures. During the construction of the project, it is strictly forbidden to dump domestic garbage and construction waste soil into the drainage open channel in the project block to prevent blockage of channels.

### 7.2 Environment Impact Analysis during the Operation Period

#### 7.2.1 Atmospheric Environment Impact Analysis

(1) Automobile Exhaust Gas at Parking Lots

Automobile exhaust mainly refers to the exhaust emission of vehicles in the parking lot/garage and when starting and driving at low speed in the garage, including leakage of fuel systems such as tail pipe exhaust, crankcase leakage, fuel tank and fuel tank. The main pollution factors in automobile exhaust gas are CO, HC, NOx and the like. According to the previous engineering analysis and calculation, the CO, HC and NOx emissions at project parking lots are 5.90t/a, 1.18t/a and 1.56t/a respectively.

According to the approval of the feasibility study report, the number of motor vehicles in the operation period is small, and the exhaust gas emitted by motor vehicles is less and dispersed and of intermittent emission; the vehicle exhaust at the parking lots is emitted at low area source, and the surrounding terrain is relatively wide, thus the exhaust gas is easily spread. After the construction unit adopts measures such as increasing greening area and delineating parking areas, the unorganized emission concentration of the vehicle exhaust gas under the project can satisfy the monitoring limits required of Table 2 of *Integrated Emission Criteria for Air Pollutants* (GB l6297-1996), thus having less impact on the surrounding air environment.

For underground garages air, the current common domestic mechanical fan exhausting mode shall be adopted to perform mandatory mechanical ventilation, with an air exchange of 6 times/h; it is achieved through special exhaust vents, exhaust pipes and entrance and exit for vehicles. After dilution by air diffusion, the CO concentration can meet the requirements of the Grade II standard of GB3095-1996.

(2) Sooty Gas of Kitchens

The restaurant adopts a soot purification facility that has been tested by the state-approved unit. The soots are purified and treated by a built-in special flue (1.5m above the roof). It has a soot purification efficiency of >85%, a soot emission concentration of about 1.65mg/m³ and a soot emission of 15.84kg/a, thus it is characterized by small emission and short duration. It can meet the medium-sized requirements of the “Soot Emission Criteria of Catering Industry” (GB18483-2001). Therefore, the exhaust emission of soot will basically not affect the surrounding air.

(3) Boiler Exhaust Gas

The project boiler chamber uses two sets of 5.6W vacuum hot water boilers. The boiler uses natural gas as fuel. According to the feasibility study, the boiler chamber has a
natural gas consumption of 2.07 million m³/a. Because natural gas is a kind of clean energy, the project boilers produce fewer pollutants. Based on the calculation, the boiler exhaust gas will have different emission concentrations, that is, soot, SO2 and NOx in natural gas boiler flue gas are 13.7mg/m³, 29.4mg/m³ and 137.3mg/m³ respectively; and it will have different emission volumes, that is, they are 0.39 t/a, 0.83 t/a, and 3.87 t/a, respectively. The boiler exhaust gas passes through the special flue to the top of the Drivers & Conductors Apartment (No. 1 building), and is discharged 1.5m above the roof (the smoke outlet is 40m above the ground), which meets the emission limits as required in the Table 2 of the “Boiler Air Pollutants Emission Criteria” (GB13271-2014), that is, 20mg/m³ of soot, 250mg/m³ of SO2, and 200mg/m³ of NOx.

The EIA uses the estimation model of SCREEN3 as recommended in the EIA Technical Guidelines - Atmospheric Environment (HJ2.2-2008) for predictive calculation. Embed in this estimation mode are a variety of preset meteorological combinations, including some of the most unfavorable weather conditions. The maximum ground concentration calculated by the estimation mode is greater than the calculation result of the further prediction mode. Based on the investigation, the terrain near the project is relatively open and wide, and the forecast does not consider the impact of the downwash of buildings.

It is calculated that SO2 and NOx in boiler exhaust gas have the maximum emission concentrations of 0.67% and 7.88% respectively, and all exhaust gas pollutants have a relatively low maximum floor concentration, with an occupancy rate of less than 10%, which will not have a significant adverse effect over regional air quality.

<table>
<thead>
<tr>
<th>Pollution source</th>
<th>Pollutants</th>
<th>Maximum Floor Concentrations (mg/m³)</th>
<th>Distance from the Source Center D (m)</th>
<th>Maximum Floor Concentration Occupancy Rates Pmax (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiler</td>
<td>SO2</td>
<td>0.003368</td>
<td>150</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td>NOx</td>
<td>0.015770</td>
<td>150</td>
<td>7.88</td>
</tr>
</tbody>
</table>

7.2.2 Water Environment Impact Analysis

The wastewater during the operation period mainly comes from domestic sewage generated by passengers and workers, canteen dining wastewater and car wash wastewater, and the amount of wastewater generated is 106.9t/d. The domestic sewage of the project is treated by septic tanks, and the oily wastewater of the canteen is discharged into the regional sewage drainage pipeline system through the grease trap and the car wash wastewater through the oil separation sedimentation tank, and discharged to the Xining No.4 Sewage Treatment Plant for treatment.

After the wastewater of this project is pretreated by grease trap and septic tank, the COD, BOD5, ammonia nitrogen and SS in it will have the emission concentrations of 223mg/L, 237mg/L, 21mg/L, 124mg/L respectively, and the emission volumes of 8.72t/a, 4.97 t/a, 0.83t/a, 4.85t/a, which meets the Grade III standard in the Integrated Wastewater Discharge Criteria (GB8978-1996). It can be discharged into the urban sewage pipeline system, and finally enters the Xining No. 4 Sewage Treatment Plant. The wastewater of this project is simple in water quality and biodegradable. The water quality and water...
volume are all within the acceptable scope of the sewage treatment plant, thus posing no load thrust.

### 7.2.3 Acoustic Environment Impact Analysis

(1) Noise Impact Analysis of Site Boundary

According to the survey, during the operation period, the western site boundary of the Bus Terminal is about 10m away from the boundary line of Xicheng Avenue, the main road of the city; the southern site boundary about 15m away from the boundary line of the Wusixi Road, the main road of the city. The eastern and northern site boundaries are adjacent to the planned municipal roads. For the western and southern site boundaries, implement the Category IV standard of the *Industrial Enterprise Boundary Environment Noise Emission Criteria* (GB12348-2008); for the eastern and northern site boundaries, implement its Category II standard.

The main noise sources during the operation period are operation of equipment and traffic of transportation vehicles for the project.

1) Prediction Mode

a) Equipment noise is predicted according to the point source prediction mode, and the calculation mode is as follows:

\[
L_p(r) = L_p(r_0) - 20 \log \left( \frac{r}{r_0} \right) - \Delta L_{att}
\]

Where:  
- \( L_p(r) \) — the octave band sound pressure produced by the point source at the predicted point;  
- \( L_p(r_0) \) — the octave band sound pressure level at reference position 0;  
- \( r \) — the distance of the predicted point from the source, m;  
- \( r_0 \) — the distance of the reference position from the sound source, m;  
- \( \Delta L_{att} \) — The amount of attenuation caused by various factors. The attenuation of the equipment noise wall of this project is 20dB (A) after damping.

b) This evaluation predicts the impact of vehicle noise on the site boundary at the Bus Terminal, and uses the highway (road) traffic noise prediction model in Appendix A of the Environmental Impact Assessment Technical Guidelines – Acoustic Environment (HJ 2.4-2009).

Highway (road) traffic noise level calculation mode:

\[
L_{A_{eq,i}} = L_{sei} + 10 \log \left( \frac{N_i}{TV_i} \right) + 10 \log \left( \frac{7.5}{r} \right) + 10 \log \left( \frac{\Psi_i}{\Psi_j} \right) - 16
\]

Where:
- \( L_{A_{eq,i}} \) — i vehicle types, usually divided into three types, that is, large, medium and small types, the hourly equivalent sound level of the vehicle, dB;  
- \( L_{sei} \) — hourly equivalent sound level of road traffic noise, dB;  
- \( L_{v} \) — the average radiated noise level of the vehicle at the reference point (7.5m), dB;  
- \( N_i \) — the hourly traffic volume of the vehicle of the vehicle type, vehicle / h;  
- \( T \) — the time for calculating the equivalent sound level, taking \( T = 1h \);  
- \( V_i \) — the average speed of the vehicle of the vehicle type, km/h;
R—the distance from the lane centerline to the predicted point, m;
\( \varphi \)—the angle of the predicted point to the ends of the long section of the cable, the arc;
—Correction caused by other factors, dB(A)

c) Prediction Mode of Sound Level Superposition

\[ L = 10 \log \left( \sum 10^{0.1L_i} \right) \]

2) Prediction Parameters

The central air-conditioning host, water pump and equipment chamber air inlets and boiler under the project are all set in a special machine room/boiler chamber, with a shock-absorbing base provided. The machine room is fully enclosed; the interior wall, ceiling and doors/windows are covered with sound-proof building materials; for the noise from the central air-conditioning cooling tower, it is proposed to take measures such as sound insulation, vibration reduction and noise reduction; for equipment noise and boiler, the prediction takes into account measures like wall barrier and equipment vibration and noise reduction, and the attenuation value of 20dB (A) is considered. Vehicles entering and leaving the Bus Terminal running at an idle speed have an average noise intensity of approximately 70 dB (A).

3) Prediction Results

Combined with the plane layout of the Bus Terminal site, after the distance geometric attenuation, the noise contribution value of each site boundary of the Bus Terminal is calculated, as shown in Table 7-7.

<table>
<thead>
<tr>
<th>Noise Sources</th>
<th>Source Strength dB (A)</th>
<th>East Site Boundary</th>
<th>West Site Boundary</th>
<th>South Site Boundary</th>
<th>North Site Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Pumping</td>
<td>65</td>
<td>23</td>
<td>20</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>Fan Machine</td>
<td>65</td>
<td>23</td>
<td>20</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>CAC Cooling Tower</td>
<td>55</td>
<td>13</td>
<td>11</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>CAC Host</td>
<td>65</td>
<td>23</td>
<td>20</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>Exhaust Shaft</td>
<td>65</td>
<td>23</td>
<td>20</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>Boiler Chamber</td>
<td>65</td>
<td>23</td>
<td>20</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>Vehicle Traffic Noise</td>
<td>70</td>
<td>56</td>
<td>47</td>
<td>50</td>
<td>54</td>
</tr>
<tr>
<td>Superposition Contribution Values</td>
<td></td>
<td>56</td>
<td>47</td>
<td>50</td>
<td>54</td>
</tr>
<tr>
<td>Standard Values</td>
<td>60</td>
<td>70</td>
<td>70</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Compliance</td>
<td>Qualified</td>
<td>Qualified</td>
<td>Qualified</td>
<td>Qualified</td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1. For equipment noise and boiler, the prediction takes into account measures like wall barrier and equipment vibration and noise reduction, and the attenuation value of 20dB (A) is considered.
2. With no night operation and fewer vehicles entering and leaving the project site, there is no prediction for night noise.

According to the prediction results, the contribution values of equipment noise and vehicle traffic noise to each plant boundary can meet the corresponding standards at night as required in the "Environmental Noise Emission Criteria for Industrial Enterprises Site Boundaries" (GBGB12348-2008). Under the project, owing to vehicles stopping running at night and the disappearance of noise, the impact on the surrounding environment is small.

(2) Impact Analysis of Acoustic EP Targets

The project's recent sensitive protection target is the Qingtang Town, located about 50m north of the project site boundary. After calculation, during the operation period of the project, the recent sensitive protection target – the Qingtang Town can reach the Category II standard (daytime 60 (dB) standard limit) of the Acoustic Environmental Quality Criteria (GB3096-2008), thus the project operation noise has less impact on surrounding residents.

<table>
<thead>
<tr>
<th>Protection Targets</th>
<th>Daytime Background Value</th>
<th>Daytime Contribution Value</th>
<th>Daytime Prediction Value</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qingtang Town</td>
<td>50</td>
<td>47</td>
<td>51.8</td>
<td>Qualified</td>
</tr>
</tbody>
</table>

Note: With no night operation and fewer vehicles entering and leaving the project site, there is no prediction for night noise.

7.2.4 Environment Impact Analysis of Solid Wastes

During the operation period, the solid wastes mainly come from living garbage and catering downing generated by passengers and staff, catering waste animal/vegetable oils, the sludge separated from car wash wastewater, which are classified and disposed of separately.

Vehicle maintenance is not carried out during the operation of this Bus Terminal. If the vehicle has problems, it will be repaired outside, without production of waste mechanical oil resulting from repair and maintenance.

Domestic garbage is collected and transported to the municipal solid waste landfill for disposal.

The catering kitchen rubbish and the animal/vegetable oils in the canteen after grease trap separation shall be disposed of by the catering wastes treatment plant for harmless treatment. It is strictly forbidden to mix domestic garbage and canteen kitchen waste.

In the wash wastewater, the sludge separated from the grease trap is hazardous waste (No. HW08). The construction unit shall set up a special temporary storage room for hazardous waste (10m²). The sludge will be temporarily stored in the temporary storage area and then delivered regularly to the corresponding qualified hazard waste disposal units for disposal.

All solid wastes during the operation period of the project shall be properly disposed of,
with no discharge. Therefore, they will not have a significant impact on the surrounding environment.

7.2.6 Analysis of Compliance of Project Industrial Policies with Plans

(1) Analysis of Industrial Policies

The construction content of the project is mainly for the construction of the integrated interchange hub. It is classified into the first item in the 27th category of “Integrated Transport & Transportation” under the encouragement category of “Industrial Structure Adjustment Guidance Catalogue (2011 version)” (Amended in 2013), namely, "Integrated Construction and Improvement of Transport Hubs". Thus the project construction content is in line with national and local industrial policies.

(2) Analysis of Compliance with the Xining Municipality General Urban Plan

According to Article 4.7.8 of the “Xining Municipality General Urban Plan (2001-2020)” (Revised in 2015), concerning urban transport hub station, the urban transport hubs planned within the central urban area include 5 long-distance bus stations, 5 goods circulation centers and 5 public interchange hubs. Of which, there are 5 long-distance bus stations, namely, the Chengxi Bus Terminal, the Chengbei Bus Terminal, the Chengnan Bus Terminal, the Xining Bus Terminal Central Station and the Bayi Road Bus Terminal, with a total land area of 20.4 hectares. The 5 planned public interchange hubs are located at Xining Station, Chengxi, Chengbei, Chengnan and Chengdong. This project consists of the two parts of the Chengxi Bus Terminal Station and the Chengxi Public Transport Interchange Hub, which is in line with the Xining Municipality General Urban Plan (2001-2020) (revised in 2015).

7.2.7 Feasibility Analysis of Site Selection

The environment functional zoning at the proposed project site is seen in Table 3-1.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Functional Zoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water</td>
<td>The project is located at about 1.2km north of the Yellow River (Zamalong-Xigang Bridge) and the river section serves as a drinking water source protection area. Therefore, the Category III standard of the Environment Quality Criteria of Surface Water (GB3838-2002) shall be implemented.</td>
</tr>
<tr>
<td>Ambient Air</td>
<td>The project site falls into the Category II of ambient air functional zoning, so the ambient air shall satisfy the Grade II standard as required in the Ambient Air Quality Criteria (GB3095-2012).</td>
</tr>
<tr>
<td>Acoustic Environment</td>
<td>Under the project, the acoustic environment falls into categories 2 and 4a. The Category II standard and the Category 4a in the Acoustic Environmental Quality Criteria (GB 3096-2008) shall be implemented, specifically, (60 dB(A) in daytime, 50 dB(A) at night) and (70 dB(A) in daytime and 55 dB at night) respectively.</td>
</tr>
</tbody>
</table>

According to the evaluation results, during the operation period of the proposed project, there is less impact on the surrounding environment. Under the premise of ensuring the implementation and sound operation of the project “Three Simultaneous Steps”, the site selection of the proposed project is in accordance with the regional environmental function requirements. There are no environmentally sensitive areas such as nature reserves, scenic spots, cultural relics and historical sites near the project site. In addition,
the project area has well-established infrastructure conditions for water, electricity, gas, communication and other infrastructure required for the project construction as well as convenient external transport & transportation conditions. There is no pollution source that has a significant adverse impact on the project. Therefore, the site selection of the project is reasonable and feasible from the perspective of environmental protection.

7.2.8 Rationality Analysis of the Bus Terminal Layout

The general layout principles are smooth logistics, reasonable functional division, and no mutual interference. In the layout of the project site, such factors as transport & transportation and environmental protection have been taken into full consideration, thus the layout is reasonable. It is noted that the boiler chamber of the project is installed in the basement, which is well-enclosed, thus greatly reducing the impact of noise, thus the layout is reasonable.
Proposed Control Measures & Expected Management Results
(Form 8)

8.1 Proposed Measures of Pollution Prevention & Control during the Operation Period

8.1.1 Prevention & Control Measures of Air Pollution

(1) Prevention & Control Measures for Flying Dust Pollution

According to the Regulations on the Prevention and Control of Air Pollution of Xining Municipality and the Action Plan for the Integrated Management of Air Pollution in 2018 of the Xining Municipality and the Administrative Measures on the Management of Urban Construction Dregs in Qinghai Province and the Notification on Issuing the Implementation Plan on the Dust Pollution Control in Demolition Sites in Xining, and the Management Measures for the Civilized Construction of Construction Projects of Xining Municipality, the five 100% construction requirements shall be satisfied, that is, 100% enclosure of the construction site, 100% road pavement of the construction site, 100% water sprinkling at the construction site of building demolition, 100% all-over washing and sealed transport of dregs transportation vehicles leaving construction site, and 100% greening or covering for temporarily undeveloped sites. As required by the five 100% requirement, the prevention and control of flying dust of the construction site and from road transportation. The following measures are proposed so as to reduce the environmental impact of the project construction, specifically,

1) Flying Dust of the Construction Site

a) All the enclosures shall be carried out at the construction site. The enclosures shall be made of hard materials such as color steel plates, with reinforcement with brick foundation. It is encouraging that the new environmentally friendly materials shall be used to make the enclosure, with an enclosure height of not less than 2.5m. The enclosure shall be beautified and regularly checked, cleaned in order to make it firm, tidy, good-looking; It should be labeled with warning signs;

b) Relevant information related to the construction site, including person in charge, environmental supervisor, dust pollution control measures, complaint telephone shall be disclosed at the entrance and exit of the construction site;

c) Measures shall be taken to cover centralized earthwork pileup points;

d) The earthwork shall be stopped on windy days when the strong wind of Level IV or over occurs, and the working area is covered with the dustproof net;

e) At the construction site, water shall be sprinkled 4-5 times a day;

f) For the bare areas at the construction site and those land surface areas that are temporarily not developed, they shall be dust-proofed by ground compaction, covering or temporary greening. Construction wastes and dregs must be cleared and transported in time. Coverage measures must be taken for those that are yet to be transported.

2) Flying Dust from Transportation Vehicles

a) Set up a car wash platform at the entrance and exit of the construction site;
b) Completely harden the entrance and exit roads at the construction site;
c) Flush 100% of the wheel and body for vehicles leaving the construction site;
d) For vehicles transporting construction dregs, adopt special-purpose vehicles or have the conditions of airtight, anti-leakage and anti-flying, and comply with the control standards of vehicle noise and exhaust pollution;
e) Clean the construction site from time to time so that no dirt or construction wastes shall be left on the roads within 100 meters of the construction road and the entrance and exit.

3) Temporary Construction Sites

a) Fully harden the temporary construction site and the temporary dumping ground;
b) Carry out all enclosures for temporary earthwork;
c) Make 100% coverage for temporarily unused building materials (such as cement, sand, etc.);
d) Clean the construction site from time to time, and sprinkle water to reduce construction dust.

(2) Prevention & Control Measures of Construction Machinery and Vehicles

Qualified machinery and vehicles in terms of inspection/review and emission criteria of pollutants shall be used; exhaust gas purifiers installed on large transportation vehicles and bulldozers fueled by diesel oil; repair and maintenance of construction machinery and transportation vehicles strengthened; overload working of construction machinery and overloading of transportation vehicles prohibited; and inferior fuel disallowed.

(3) Decoration Waste Gas

Environmentally friendly materials shall be used; "green decoration" implemented; indoor environmental quality monitoring carried out; such measures can lead to the reduction of the impact of decoration exhaust gas on indoor air quality.

8.1.2 Prevention & Control Measures for Water Pollution

During the construction period of the project, the construction unit shall organize the design of the discharge of construction wastewater, and it is strictly forbidden to pollute the environment as a result of disorderly discharge and turbulent flow. The specific measures are as follows:

(1) The construction camp shall be equipped with environmental protection public toilets and grease traps. The construction personnel's manure water shall be discharged into the municipal sewage pipeline system after being collected and disposed of by the environmental protection public toilets. The catering wastewater of the construction personnel shall be discharged into the municipal sewage pipeline system after being treated by the grease trap and enter the Xining No. 4 Sewage Treatment Plant Treatment. It is strictly prohibited to discharge it into the Huangshui River;

(2) Solid waste during the construction shall not be dumped or discharged into water bodies at will;
(3) Treatment of construction motor wastewater: The construction site shall be provided with anti-seepage sedimentation tank and anti-seepage evaporation tank. After sedimentation treatment, it shall be stored, recycled or evaporated in the evaporation pond. After the completion of the construction, the sedimentation tank and the evaporation pond shall be cleaned and buried;

(4) Civilized and safe construction shall be carried out and environmental management strengthened in order to prevent damage to protective facilities;

(5) Sewage Treatment concerning residual oil, waste oil and washing oil: The oil storage tank shall be installed at the construction site, and the oily sewage generated shall be collected in time. After oil separation treatment, it will enter the evaporation pool, and the collected waste oil should be recycled;

(6) Materials containing toxic substances such as asphalt, oil, chemicals shall not be piled up in the construction area.

8.1.3 Prevention & Controll Measures for Noise Pollution

In order to prevent and reduce the impact of the construction of the project on the surrounding environment, the construction unit shall require the construction unit to strictly implement the Measures for the Management of Construction Noise during the construction period. It is required that the project implementation unit should strengthen the environmental awareness of front-line operators and to carry out some sporadic manual operations with great care, such as disassembly and assembly of templates, loading and unloading of building materials, and with certain mitigation measures, such as laying straw bags. The commercial concrete is used for large-area road construction, and the on-site mixing operation is not carried out to avoid the noise disturbance caused by concrete mixing. An operator's shed or temporary sound barrier is required for placement on fixed equipment. Construction at night is prohibited. If it is necessary for nighttime construction due to technological process factors or other special reasons, the night construction permit should be applied to the Xining Municipal Environmental Protection Bureau in advance, and it should be supervised according to law.

(1) Construction Noise

According to the Law on the Prevention & Control of Environmental Noise Pollution of China, “In urban construction urban areas, when construction noise is emitted to the surrounding living environment, it shall comply with the national environmental noise emission criteria for construction site boundaries.” Therefore, during the construction period, the criteria and regulations of the national criteria (GB12523-2011) must be strictly implemented. Except for emergency repairs, emergency operations, and continuous operation due to production process requirements or special requirements, it is forbidden to carry out construction work that causes environmental noise pollution at night. "For continuous operation due to special requirements, the construction unit shall have the permit certificate from the county government or above or the related authorities" (Article 30 of the Law on the Prevention and Control of Environmental Noise Pollution of the People's Republic of China), and the construction unit shall disclose the information to the nearby residents. The noise prevention & control measures for each stage of the project construction are as follows:
1) Earthwork Stage

At the earthwork stage, more equipment tends to be used, and its noise pollution also accounts for a large proportion in the whole construction stage. The main noise sources in the earthwork stage include: excavators, transportation vehicles and shovels. The construction units of the above noise pollution sources shall carry out noise rectification in the following ways:

a) Carry out civilized construction by strictly complying with the requirements of relevant laws and regulations;
b) Require the construction unit to arrange construction periods reasonably, and try to avoid entering night construction. In case it is necessary to do the night construction, strictly follow the relevant regulations to do the night construction after approval by the environmental protection department;
c) Strengthen on-site management at the construction site to minimize noise pollution caused by human factors;

2) Land Surface Construction Stage

a) Strictly comply with the requirements of relevant laws and regulations for civilized construction, and cooperate with relevant departments to carry out relevant coordination and explanations for the surrounding residents;
b) Require the construction unit to arrange the construction periods reasonably, and strictly prohibit construction at night at structuring stage;
c) Strengthen on-site management at the construction site. It is strictly forbidden to knock on steel pipes during the construction process, causing noise to pollute the surrounding environment and minimize noise pollution caused by human factors;
d) Use commercial concrete in strict accordance with the relevant laws and regulations, without the use of self-mixed concrete;
e) Reasonably arrange construction locations. High-noise equipment such as pump trucks, rafters and vibrators are arranged on the side away from residential areas such as the Qingtang Town and the Wangjiazhai Village, and sound insulation barriers are provided to reduce noise pollution to the surrounding environment;
f) Handle materials with great care in the process of material loading and unloading, and strictly prohibit wild construction.

(2) Traffic Noise

In this project, it is forbidden to use construction vehicles at night, and the transportation vehicles are prohibited from whistling in the vicinity of residential areas.

(3) Noise of Construction Workers

During the construction process, a certain number of construction workers will stay on the construction site. The collective life of construction workers will have a certain impact on the surrounding environment at night. It is necessary to strengthen the management of migrant workers to avoid nighttime high noise activities interfering with the surrounding environment.
8.1.4 Prevention & Control Measures for Solid Wastes Pollution

(1) The dregs such as spoils excavated in the project area shall be sent uniformly to the Xixingyuan Construction Waste Disposal Site. The construction dregs should be piled up and used in time. On rainy days, the surface of the materials storage area and the wastes storage area should be covered. The waste materials generated during the construction process must be recycled and timely cleared, so that the work is cleared and randomly pileup and improper disposal shall be banned.

(2) Education and management shall be strengthened to keep the construction site clean. The construction unit shall strengthen the management of domestic garbage in the construction area and entrust the sanitation department to clear and transport it regularly.

8.2 Proposed Prevention & Control Measures during the Operation Period

8.2.1 Prevention & Control Measures for Atmospheric Pollution

(1) A certain number of sprinkling trucks shall be provided to regularly sprinkle water to reduce the dust on the road surface of the Bus Terminal;

(2) Smoke-proof and fire-proof areas shall be reasonably set up. All smoke-proof areas and fire-proof areas shall be provided with smoke exhaust outlets, which are arranged away from places where human activities are involved, but placed on the ceiling or near the ceiling at a height of 2.5-3.0m. The exhaust outlets should stay far away from air inlets, which shall be set in the downwind direction of the dominant wind direction and scattered as far as possible, without greening belts planted around them.

(3) Kitchen Soot Exhaust Gas: The restaurant adopts a set of qualified soot purification facility tested by the state-approved unit. After the soot is purified, it is emitted through a built-in special flue (1.5m above the roof). The special has a soot purification efficiency >85% and a soot emission concentration of about 1.65mg/m³, which meets the emission concentration and purification efficiency requirements of the “Soot Emission Criteria for Catering Industry” (GB18483-2001).

(4) The boiler chamber of the project uses natural gas as fuel. The concentration of soot, SO2 and NOx in the flue gas of natural gas boiler are 13.7mg/m³, 29.4mg/m³ and 137.3mg/m³ respectively, and the boiler exhaust gas passes through the special flue to the top of the Drivers & Conductors Apartment (No. 1 Building), and it is emitted from its exhaust outlet (at a height of 40m above the ground), which meets the standard limits for the emission of gas boilers as required in Table 2 of the Boiler Air Pollutant Emission Criteria (GB13271-2014).

8.2.2 Prevention & Control Measures for Water Environment Pollution

(1) The domestic sewage generated during the operation period is collected in a centralized fashion, and discharged into the sewage pipeline system after being treated in the septic tank.

(2) Catering wastewater and car wash wastewater: they will be collected separately and
discharged into their respective grease traps. After oil separation treatment, they are discharged into the regional sewage pipeline system. The collected sludge should be disposed of by qualified units.

8.2.3 Prevention & Control Measures for Noise Pollution

(1) The equipment such as boilers and air conditioners shall be set up in the special machine room, and priority should be given to choosing the equipment with lower noise in the selection and procurement; and effective measures such as vibration reduction and noise reduction shall be adopted;

(2) During the operation period, the whistle and speed limit signs shall be set at both ends of the road section of the Qingtang Town.

8.2.4 Prevention & Control Measures for Solid Wastes

Municipal public facilities such as cleaning cylinders and garbage trucks in the Bus Terminal shall be set up to collect domestic garbage produced by passengers and staff timely, and transport them to the domestic waste landfill field.

The canteen kitchen rubbish and the waste animal/vegetable oils separated in the dining sewage separation tank shall be disposed of by the kitchen wastes treatment plant for harmless treatment. It is strictly forbidden to mix domestic garbage and canteen kitchen waste.

Vehicle maintenance will not be carried out during the operation of the project. If the vehicle has problems, it will be repaired outside, without mechanical oil generated from repair and maintenance. The sludge separated by the car wash wastewater by the grease trap is hazardous waste (No. HW08), with small production of 1.30t/a. The construction unit should set up a special temporary storage room for hazardous waste (10m²), and the sludge should be temporarily stored. After the hazardous waste is temporarily storages the room, it shall be transferred on a regular basis to a qualified hazardous wastes disposal unit for disposal.

Before the operation of the project, the construction unit shall sign an agreement with the qualified disposal unit, and confirm its qualifications, special industry permit, business license and other documents, and the collected sludge shall be regularly disposed of by the qualified hazardous waste disposal unit. The hazardous waste transfer process shall be carried out in accordance with the “Administrative Measures on the Transfer of Hazardous Wastes”.

The temporary storage room for hazardous wastes shall be constructed in accordance with the requirements of the “Hazardous Wastes Storage Pollution Control Criteria”. The storage of hazardous wastes shall be carried out in accordance with the requirements of “Hazardous Waste Storage Pollution Control Criteria” (GB18579-2001). The specific requirements are as follows:

(1) There shall be sufficient space in the container for loading liquid and semi-solid hazardous waste, and the distance between the top of the container and the liquid surface shall not be less than 100 mm;
(2) Containers that meet the criteria should be used to contain hazardous wastes. Their material strength should meet storage requirements. Meanwhile, the materials selected must not react chemically with hazardous wastes;

(3) The ground and corner of hazardous wastes storage sites should be constructed by using strong and impervious materials, and the materials shall not react chemically with the waste. A waste collection tank shall be arranged around the storage site to collect the liquid leaked during storage to prevent it from contaminating the surrounding environment and groundwater source. The leaked liquid shall be treated as hazardous wastes; an exhaust outlet system shall be provided at the upper place of the storage workshop (warehouse) to ensure the quality of the air in the storage room;

(4) The operational management of hazardous wastes storage facilities should be strengthened; the management records and signs of hazardous wastes should be well-kept; the integrity of hazardous waste packaging containers should be checked regularly. If damage is found, remedial measures should be taken in a timely manner.

The construction unit shall adequately implement the requirements of the *Law on Prevention & Control of Environmental Pollution by Solid Wastes of the People's Republic of China*, the *Control Criteria for the Storage of Hazardous Wastes* (GB18579-2001) and the *Technical Specifications for the Collection, Storage and Transportation of Hazardous Wastes* (HJ2025-2012). The construction and operational management of waste storage places and storage facilities shall be carried out, thus the environmental impact of hazardous wastes generated by this project can be effectively controlled.
# 8.3 Proposed Control Measures and Expected Management Results

<table>
<thead>
<tr>
<th>Types</th>
<th>Emission Sources</th>
<th>Pollutants</th>
<th>Control Measures</th>
<th>Expected Management Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust Gas</td>
<td>Construction Period</td>
<td>Flying Dust (Random Emission)</td>
<td>1) Construction shall be carried out in accordance with the relevant construction specifications of the Ministry of Construction of the PRC; 2) All of Construction site shall be well fenced; 3) For vehicles on the construction site, 100% of the vehicle body should be cleaned; the transportation vehicle must be tightly covered when it is on the scene to avoid the phenomenon of overspiltng and throwing during transportation; 4) 100% cover is done for temporary pileup earthwork and temporarily unused building materials (such as cement, sand and gravel); 5) Entrance and exit roads at the construction site are fully hardened; 6) During the construction phase, water is sprayed on the construction site and the transportation roads (4 to 5 times a day);</td>
<td>The Comprehensive Emission Criteria for Air Pollutants (GB16297-1996) can be met, with a TSP Unorganized Emission Monitoring Concentration Limit of 1.0mg/m³;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhaust Gas</td>
<td>Construction Period</td>
<td>Constru. Machinery &amp; Vehicle Exhaust Gas</td>
<td>1) Machinery and vehicles that have passed inspection and passed pollutant emission standard shall be used; 2) Construction machinery and vehicles shall be given good maintenance so as to keep them in good working condition;</td>
<td>The Comprehensive Emission Criteria for Air Pollutants (GB16297-1996) can be met, with a TSP Unorganized Emission Monitoring Concentration Limit of 1.0mg/m³;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhaust Gas</td>
<td>Operation Period</td>
<td>Decoration Exhaust Gas</td>
<td>Use environmentally friendly materials shall be used to implement “green decoration” and indoor environmental quality monitoring be carried out;</td>
<td>The impact of exhaus gas on indoor air quality can be reduced;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cooking Soot Exhaust Gas</td>
<td>Cooking Soot Purification Facility;</td>
<td>Soot Emission Criteria in Catering Industry (GB18483-2001) can be met;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhaust Gas</td>
<td>Operation Period</td>
<td>Boiler House</td>
<td>Boiler Exhaust Gas</td>
<td>The boiler shall adopt natural gas as a kind of clean energy, and the boiler exhaust gas passes through the special flue into the air over roof of Drivers and Conductors Apartment (No.1 Building);</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wastewater</td>
<td>Construction Period</td>
<td>Constru. Site</td>
<td>Constru. Wastewater</td>
<td>Temporary sedimentation grease traps are set up; After treatment, the wastewater is sprinkled with water to reduce flying dust;</td>
</tr>
<tr>
<td>Wastewater</td>
<td>Construction Period</td>
<td>Constru. Workers</td>
<td>Domestic Wastewater</td>
<td>Environmental protection public toilets, cooking waste water separation tanks shall be set up; After treatment, the wastewater shall be discharged into the municipal sewage pipeline system;</td>
</tr>
<tr>
<td>Wastewater</td>
<td>Operation Period</td>
<td>Passengers Staff</td>
<td>Domestic Wastewater</td>
<td>Cooking wastewater and car washing waste sludge shall be treated with oil separation,</td>
</tr>
</tbody>
</table>

64
Cooking Wastewater Car Washing Water mixed with domestic sewage through the septic tank and discharged into the municipal sewage pipeline system and carried over to the Xining Municipal No. 4 Sewage Treatment Plant for treatment;

Abandoned Earthwork, Constr. Garbage Disposal of abandoned soil and waste slags shall be handed over to the construction and waste disposal site of Xixingyuan in Chengbei District;

Domestic Garbage Garbage collection points shall be set up and cleared by the sanitation department to a nearby landfill for centralized treatment;

Domestic Garbage Basically having little impact on the surrounding environment;

Kitchen Garbage and cooking oils from grease separation trap shall be disposed of by the kitchen waste treatment plant for harmless treatment;

Car Washing Sludge The sludge separated by the car wash wastewater through the grease trap is disposed of by a qualified unit;

1) Construction timing shall be reasonably arranged, with no night construction;
2) High efficient and low noise equipment shall be selected;
3) Transport vehicles shall slow down travelling speed;

Emission Standard Limits for Ambient Noise at Construction Site Boundary (GB12523-2011)

Class IV Standard of the Criteria of Ambient Noise Emission at Industrial Enterprise Boundary (GB12348-2008) can be met.

Boards for no whistling signs and Slow-down signs shall be set up and vehicle management strengthen.

Ecological Protection Measures & Expected Results

During the development and construction of the project, the land will be disturbed, causing certain damage to the surface vegetation, which will have certain impact on the ecological environment. With the completion of the construction and the hardening and greening of the ground, the impact of the project on the ecological environment will be restored and the soil erosion will be greatly reduced.

8.4 EP Investment and 3 kinds of Acceptance

The project has a total investment of 452.46 million yuan, of which RMB 1.22 million Yuan is proposed to serve as an incremental environmental protection investment under this EIA report. This part of environmental protection investment should be included in the project investment plan, accounting for 0.27% of the total project investment. The environmental protection investment and completion are shown in Table 8-1.
<table>
<thead>
<tr>
<th>Control Activities</th>
<th>Environment Protect Measures</th>
<th>Costs (RMB 0,000 Yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Period</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flying Dust</td>
<td>EP measures are construction of fences, hardening of construction areas, wheel scouring equipment, regular site watering, covering of cement, limestone powder and sand, etc.</td>
<td>10.0</td>
</tr>
<tr>
<td>Wastewater, Soil Erosion</td>
<td>Setting up environmental protection public toilets, cooking waste water separation tank, construction waste water separation sedimentation tank sedimentation tank and temporary discharge trenches;</td>
<td>6.0</td>
</tr>
<tr>
<td>Solid Wastes</td>
<td>As required by the government authorities, spoil and construction wastes shall be stored and transported to the Xixingyuan Construction Waste Disposal Site; The domestic garbage is sorted and collected by the sanitation department to the domestic waste landfill site;</td>
<td>10.0</td>
</tr>
<tr>
<td>Noise</td>
<td>The maintenance of construction machinery and equipment are strengthened so as to keep them at a low noise level;</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Operation Period</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhaust Gas</td>
<td>Strengthening basement ventilation; Planting trees and grass and strengthening greening; Having kitchen fume purification facility; The boiler adopting clean energy - natural gas, and the boiler exhaust gas passing through the special flue into the air above the roof of Drivers and Conductors Apartment (No.1 Building);</td>
<td>35.0</td>
</tr>
<tr>
<td>Wastewater</td>
<td>Cooking wastewater and car washing waste sludge shall be treated with oil separation, mixed with domestic sewage through the septic tank and discharged into the municipal sewage pipeline system and carried over to the Xining Municipal No. 4 Sewage Treatment Plant for treatment;</td>
<td>40.0</td>
</tr>
<tr>
<td>Noise Control</td>
<td>Measures shall be adopted, such as vibration reduction, noise reduction, sound insulation, and selection of low-noise equipment for boilers and central air conditioners; Boards for no whistling signs and slow-down signs shall be set up;</td>
<td>10.0</td>
</tr>
<tr>
<td>Solid Wastes</td>
<td>Measures shall be adopted, such as setting up garbage boxes, assortment collection, regular disposal and handling;</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>10m²of HW Temporary Storage Room shall be set up.</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>122.0</strong></td>
</tr>
</tbody>
</table>

After adopting various environmental protection measures proposed by the EIA, the environmental impact of the project can be effectively controlled to achieve coordinated development of economic construction and environmental protection.
Environment Management & Monitoring Plan (Form 9)

9.1 Environment Management

9.1.1 Environment Management Agency

Under the Xining Municipal Construction Commission, the Project Management Office (PMO) is responsible for the project environmental management, specifically, for formulating the project environmental protection work plan, coordinating the environmental management work between the competent authorities and the construction units, and guiding the construction unit to implement various management measures; for implementation and management of environmental actions during the construction period; for organizing feasibility studies for project construction, and developing environmental protection plans and environmental management during the design phase;

The project management office (PMO)s under the Xining Chengtong Traffic Construction Investment Company and the Xining Municipal Construction Commission is responsible for the implementation and management of environmental protection measures during the operation period.

9.1.2 Environment Supervision Agency

The environmental supervision agency of this project is the Xining Municipal Environmental Protection Bureau and the Chengbei District Environmental Protection Bureau. The supervision work is implemented in phases:

(1) Feasibility Study Phase: The World Bank, the Xining Environmental Protection Bureau, and the Chengbei District Environmental Protection Bureau are responsible for the Environment Supervision. The Xining Municipal Environmental Protection Bureau is fully responsible for the project environmental management and for reviewing and approving the EIA Report Forms.

(2) Design Phase: The environmental protection department of the Project Management Office (PMO) under the Xining Construction Commission is responsible for coordinating with the design unit to incorporate various environmental protection measures and their cost budgets in the design documents, and the Xining Municipal Construction Commission will carry out technical checks at the preliminary design review meeting of the project.

(3) Construction Phase: The environment supervision work shall be in the charge of the environmental protection department of the Project Management Office (PMO)s under the Xining Chengtong Traffic Construction Investment Company and the Xining Municipal Construction Commission. The Chengbei District Environmental Protection Bureau is responsible for supervising and executing the project environmental protection work, organizing and coordinating with relevant agencies to serve the project environmental protection work, and supervising the implementation of the project Environmental Action Plan. The project owner should hire an environmental supervision agency.

9.1.3 Environment Protection Management Procedures
The project environment protection management procedures are shown in Figure 9-1.

9.1.4 Environment Protection Management Priorities

The negative environmental impacts of physical construction projects are mainly reflected during the construction period. Therefore, the environmental management of this project focuses on the implementation of environmental protection measures during the construction period.

1) Noise pollution during the construction period: Focus on the prevention and control of noise pollution of construction machinery and vehicle transportation, for instance, use low-noise machinery and commercial concrete; prohibit construction at night (22:00 ~ 6:00); implement the slow-down of transportation vehicles, and ban whistling of vehicles.

2) Construction Flying Dust Pollution: Focus on the prevention and control measures for flying dust at the construction site and on transportation roads, such as water sprinkling for dust reduction at the construction site and on transportation roads; construction of temporary enclosure at the construction site, dust-proof covering of bulk materials and earthwork, hardening of construction site, and airtight loading and water cleaning of transportation vehicles.
### Table 9-1 Environment Management Procedures

#### 9.1.5 Environment Protection Management Plan

The Environment Management Plan (EMP) during the project implementation is detailed in Table 9-1.

**Table 9-1 Project Environment Management Plan**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Implementation Measures</th>
<th>Impl. Agency</th>
<th>PMO</th>
<th>Supv. Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Activites**: Project activities related to environment management.
- **Implementation Measures**: Specific actions and documents required for each activity.
- **Impl. Agency**: Agency responsible for implementation.
- **PMO**: Project Management Office.
- **Supv. Agency**: Agency responsible for supervision.

The table outlines activities such as project initiation, project preparation, project implementation, project evaluation, project acceptance, and project closure, each accompanied by specific measures and responsible agencies.
### Prevention & Control of Noise Pollution

1. It is important to strengthen operational noise control by reasonably arranging construction timing. The project construction shall be arranged in the daytime period (8:00 am - 22:00 pm) instead of night period (22:00 pm - 6:00 am);
2. Low-noise equipment shall be selected; that not in line with national criteria not allowed to enter construction sites;
3. High-noise construction machinery shall stay as far as possible away from sensitive points, with regular maintenance and strict operation procedure;
4. Commercial concrete shall be used; Construction site shall be provided with concrete mixer;
5. Care should be taken to arrange the transportation timing of construction materials reasonably. In the vicinity of the road sections with sensitive points, it is required that vehicle travel be slowed down, with no whistling or hornning.

### Prevention & Control of Air Pollution

1. Set up full-time personnel to sprinkle water on the construction site and the main construction roads;
2. Set up bulk material transportation and temporary storage in the downwind direction of the main wind direction of the residential area, and adopt windproof cover or watering to reduce the amount of dust generated;
3. Use commercial concrete, finished stones; clear and transport construction waste in time, and cover; reasonably arrange construction and transportation operations; carry out vehicle maintenance;
4. For construction sites, do a fine job in Five 100% Criteria (100% enclosure at the construction site, 100% road hardening on the construction site, 100% water sprinkling on the construction site, 100% water flushing and closed transportation of the vehicle body and wheel of slag transport vehicles at the construction site,100% greening and covering of temporary land not for development);
5. Prior to construction, complete the closed enclosure of the field; harden some construction site and sprinkle water and dust; store and cover all kinds of pileup materials (slags) in closed silos; implement the cleaning of slag transport vehicles to prevent the road with mud;
6. Adopt dust-proof measures for transport vehicles such as sealing and cleaning; tightly cover all the muck transport trucks; strengthen road sprinkling and cleaning operations, and expand scope of cleaning and cleaning; Pile up all kinds of sand and gravel materials and cement to be used in various types of building construction in a concentrated manner, and laying weaving materials on the surface of the pile.

### Prevention & Control of Water Pollution

1. Strengthen construction management and supervision work, and regularly check construction machinery;
2. Treat construction wastewater by oil separation and sedimentation facilities for watering and dust reduction; adopt environmental protection public toilets for domestic wastewater treatment and discharge construction domestic sewage into the municipal sewage pipe network after being treated by the grease trap.
Prevention & Control of Solid Wastes

1) The abandoned spoils or slag under the MR project is proposed to be shipped uniformly to the commercial slag disposal site of Xixingyuan for disposal;
2) Domestic rubbish shall be regularly handed over to the sanitation unit for disposal after being classified and collected;
3) It is not allowed to discard and scatter solid wastes along the way in the course of transportation.

9.2 Environment Protection Acceptance after the Project Completion

According to the relevant regulations in the Regulations on Environmental Protection Management of Construction Projects (Revised in 2017), within six months after the project completion (it may be extended from time to time, but the total period shall not exceed nine months). The construction unit shall, observing the standards and procedures stipulated by the administrative authorities of environment protection of the State Council, organize to check and accept the counterpart environmental protection facilities supported by the project construction, and prepare an EP acceptance report. The construction unit shall record the implementation of “3 Simultaneous Steps” of other environmental protection facilities. See Table 9-2 for the acceptance of “Three Simultaneous Steps” under the project.

Table 9-2 Environment Protection Acceptance After the Project Completion

<table>
<thead>
<tr>
<th>Control Activities</th>
<th>EM Measures</th>
<th>Impl. Locations</th>
<th>Expected Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust Gas Control</td>
<td>Soot purification facilities in the kitchen</td>
<td>Canteen</td>
<td>Meeting the requirements of emission concentration and purification efficiency as specified in the Criteria for Soot Emission of Catering Industry (GB18483-2001);</td>
</tr>
<tr>
<td></td>
<td>The boilers shall use natural gas as a kind of clean energy. Its exhaust gas passes through a special flue into the air at the roof of the Drivers &amp; Conductors Apartment (No.1 Building).</td>
<td>Boiler chamber</td>
<td>Satisfying the requirements of limit values of air pollutants emission concentration of newly built boiler in the Criteria for Boiler Air Pollutants Emission (GB13271-2014);</td>
</tr>
<tr>
<td>Wastewater control</td>
<td>Two septic tanks made of reinforced concrete shall be set up for treatment of domestic sewage, each having Vf=16m³ (5800×2400)</td>
<td>South side of the Bus Terminal</td>
<td>Reaching the Grade III standard of the Criteria for Integrated Sewage Emission (GB8978-1996);</td>
</tr>
<tr>
<td></td>
<td>One grease trap made of reinforced concrete shall be set up for treatment of oily wastewater in the canteen, each having Vf=6m³ (4000×1400)</td>
<td>At canteen wastewater discharge point</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two grease deposition traps shall be set up for treatment of vehicle wash wastewater, each having (Vf=9.60m³, 4400×1600)</td>
<td>Vehicle Wash Area</td>
<td></td>
</tr>
<tr>
<td>Noise Control</td>
<td>Vibration reduction, sound silence and sound insulation for equipment;</td>
<td>Equipment like boilers and CAVs</td>
<td>Reaching the Category IV standard in the Criteria for Ambient</td>
</tr>
<tr>
<td>Solid Wastes Control</td>
<td>Noise Emission at Industrial Enterprise Site Boundary (GB12348-2008);</td>
<td>Meeting the Category II standard of the Criteria for Noise Environment Quality (GB3096-2008);</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Signs for speed limit and no whistling shall be set up;</td>
<td>Qingtang Town</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setup of rubbish bins, assorted collection and regular shipment;</td>
<td>Bus Terminal</td>
<td>Ensure that solid wastes can be properly treated and disposed of.</td>
<td></td>
</tr>
<tr>
<td>Canteen dinning rubbish and animal/vegetable oils separated by grease trap shall be delivered to the cooking garbage treatment plant for harmless treatment;</td>
<td>Canteen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The sludge separated from vehicle wash wastewater after the grease trap shall be delivered to a qualified agency for disposal; and the dangerous wastes storage room of 10m² shall be set up.</td>
<td>Dangerous Wastes Storage Room</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusions and Recommendations (Form 10)

10.1 Basic Information of the Construction Project

The PT Component – the Wangjiazhai Interchange (Xining Chengxi Bus Terminal) of the Qinghai Xining Urban Transport Project (the Subproject) will have a total construction land area of 98,550 m². The works is divided into two phases, with its first phase (North Side Land) having a land area of 61,189 m². The main construction activities of Phase I Construction: (Building No.1) Drivers & Conductors Apartment, (Building No. 2) Administration Building, Station House and Podium. The total construction area of Phase I Construction has a total construction area of 82,689 square meters, including 21,500 m² of underground construction area and 61,189 m² of above-ground construction area. It is noted that the ground construction area for initial construction is 33,923 m², and the ground floor area reserved for later expansion is 27,266 m². The construction area of Phase I Construction is 33,923 square meters, including: 13,284 m² for (Building No.1) Drivers & Conductors Apartment, 12,084 m² for (Building No. 2) Administration Building, 6,910 m² for Station House and 1,645 m² for Podium. Its plot ratio is 1.00, with a floor area of 8737 m²; a land occupation rate of 25.00%, and a greening rate of 25.00%. The number of parking spaces for motor vehicles is 413 (including 20 on-ground parking spaces for long-transit buses, 160 long-transit buses parking spaces, 110 city bus parking spaces, and 123 on private car parking spaces).

The project has a total investment of 452.46 million yuan, with an environmentally friendly investment of 1.22 million yuan, accounting for 0.27% of the total. It is scheduled to start in August 2018 and to complete in October 2019, with a total construction period of 14 months.

The project shall have a total investment of 452.46 million yuan. Of which the environmental protection investment is 1.22 million yuan, accounting for 0.27% of the total investment. It is scheduled to start in August 2018 and completed in October 2019, with a total construction period of 14 months.

10.2 Analysis of Compliance of Industrial Policies with Plans

The construction content of the project is mainly for the construction of the integrated interchange hub. It is classified into the first item in the 27th category of “Integrated Transport & Transportation” under the encouragement category of Industrial Structure Adjustment Guidance Catalogue (2011 version) (Amended in 2013), namely, "Integrated Construction and Improvement of Transport Hubs". Thus the project construction content is in line with national and local industrial policies, the Xining Municipality General Urban Plan (2001-2020) (revised in 2015) and the Xining Municipality Overall Plan of National Highways Transportation Hubs (2013).

10.3 Present Status of Environment Quality

In 2017, the total number of days of excellent ambient air quality was 296 days, and the excellent air quality rate was 81.1%, an increase of 0.7% over the previous year. All of the four indicators concerning air pollutants such as sulfur dioxide, nitrogen dioxide
and carbon monoxide, met the criteria of the Grade II of Ambient Air Quality Criteria (GB3095-2012). The annual average concentration of inhalable particulate matter (PM₁₀) and fine particulate matter (PM².₅) are 100 μg/m³ and 39 mg/m³, respectively, a decrease of 3% and 17% compared with the previous year.

The project is located about 1.2km north of the Huangshui River secion (Zhamalong-Xigang Bridge). The Huangshui River section (Zamalong-Xigang Bridge) has a provincial assessment monitoring section at the Hizui Bridge. For the section of Hizui Bridge of the mainstream Huangshui River, its water environment quality during the period from May 2017 to April 2018 met the Category III standard of the *Criteria for Surface Water Environmental Quality* (GB3838-2002).

The noise at night around the project boundary and within the EIA scope – the Wangjiazhai Village and the Qingtang Town is in line with the Category II standard limits as required by the *Criteria for Environment Acoustic Quality* (GB3096-2008).

10.4 Pollution Control Measures and Pollutants Emission Compliance

10.4.1 Control Measures & Emission Compliance during the Construction Period

(1) Exhaust Gas

The exhaust gas during the construction period mainly comes from flying dust and automobile exhaust emission. The pollution control measures during the construction period are mainly as follows: complying with relevant construction specifications of the Ministry of Construction for physical construction; setting up fences around the construction site; limiting the speed of transportation vehicles; airtight covering of transportation vehicles leaving the construction site so as to avoid spilling during transportation; not piling up building materials without covering; timely clearing and transporting dregs; sprinkling water on the roads of the travelling vehicles during the construction stage (4 to 5 times a day) for the construction unit.

After taking such measures, in terms of construction flying dust, it will have an impact outside of the project site boundary. Its compliance of daily average value shall be reduced to 30~40m away from the field boundary, thus the impact on the surrounding ambient air can be weakened to some extent. Actually, the impact will also disappear with the end of physical construction.

(2) Wastewater

The wastewater during the construction period mainly includes construction wastewater and domestic sewage. Construction camps shall be equipped with environmentally-friendly public toilets. The manure water can be collected from the public toilets and discharged into the municipal sewage pipeline system. The catering wastewater of construction workers is discharged into the municipal sewage pipeline system after being treated by the grease trap, and will not affect the surrounding environment. The construction wastewater is generated from equipment cleaning and construction, and flushing water for vehicles entering and leaving the construction site. The construction wastewater is, after the treatment in the grease trap, used for sprinkling water for dust reduction, without external emission.
(3) Noise

The noise of the project has a certain impact on the external environment. The construction unit shall reasonably arrange construction time, prohibit night construction, and take measures such as sound silence, vibration reduction and noise reduction for the construction equipment and machinery that generate noise and vibration. It is forbidden to whistle when transportation vehicles enter and leave the construction site. In the course of loading and unloading materials, they should be handled with care. The impact of construction noise over the external environment during the project construction period can be weakened to a certain extent, and the impact will disappear with the end of physical construction.

(4) Solid Wastes

In the course of physical construction of the project, enough attention shall be given to the management of domestic garbage, construction wastes and abandoned earthwork. The construction wastes shall be disposed of in accordance with the requirements of the Xining Municipal Wastes Management Department. Domestic garbage is collected by decentralized garbage bins, and cleared and transported daily by the sanitation department. The above wastes will not have a significant impact on the surrounding environment and sensitive points after taking corresponding measures.

10.4.2 Control Measures & Emission Compliance during the Operation Period

(1) Control Measures & Emission Compliance for Exhaust Gas

The main source of pollution during the operation period of the project is automobile exhaust gas at the parking lots. For the underground garage air, the current domestic general-purpose mechanical exhaust fan mode shall be adopted to carry out mandatory mechanical ventilation, with an air exchange of more than 6 times/h. It is discharged through special exhaust vents, exhaust pipes, and entrances and exits of vehicles. After being diluted by air diffusion, the CO concentration of the environment sensitive targets can meet the requirements of the Grade II standard of GB3095-1996. The sooty exhaust gas in the kitchen is discharged after being treated by the soot purification facility.

(2) Control Measures & Emission Compliance for Wastewater

The domestic sewage generated by passengers and staff members is treated by the septic tank, meeting the Grade III standard of the Criteria for Integrated Wastewater Discharge (GB8978-1996), and then discharged into the regional sewage pipeline system. The catering and car wash wastewater are treated separately by the grease trap, reaching the Grade III standard in the Criteria for Integrated Wastewater Discharge (GB8978-1996), and then discharged into the regional sewage pipeline system, and finally enter the Xining Municipality No. 4 Wastewater Treatment Plant for treatment.

(3) Prevention & Control Measures for Noise Pollution

The equipment such as boilers and air conditioners shall be set up in the special machine room, and priority should be given to choosing the equipment with lower
noise in the selection and procurement; and effective measures such as vibration reduction and noise reduction shall be adopted; During the operation, the whistle and speed limit signs shall be set at both ends of the roads where acoustic environmentally sensitive targets such as the Qingtang Town.

(4) Prevention & Control Measures for Solid Wastes

Garbage cans are set up in the Bus Terminal to timely collect the domestic garbage produced by passengers and staff, and timely transported to the domestic waste landfill. The catering kitchen rubbish and the animal/vegetable oils in the canteen after grease trap separation shall be disposed of by the catering wastes treatment plant for harmless treatment. It is strictly forbidden to mix domestic garbage and canteen kitchen waste. The sludge generated by the car wash wastewater shall be treated in the grease trap, with small amount, and it will be temporarily stored in the dangerous wastes storage room and delivered regularly to a qualified unit for disposal.

10.5 Analysis of Compliance of Industrial Policies with Plans

The construction content of the project is mainly for the construction of the integrated interchange hub. It is classified into the first item in the 27th category of “Integrated Transport & Transportation” under the encouragement category of Industrial Structure Adjustment Guidance Catalogue (2011 version) (Amended in 2013), namely, "Integrated Construction and Improvement of Transport Hubs". Thus the project construction content is in line with national and local industrial policies and the Xining Municipality General Urban Plan (2001-2020) (revised in 2015).

10.6 Conclusions

The project construction is in line with relevant national industrial policies and related local plans. According to the evaluation analysis and forecast, the project will generate a certain degree of pollution of exhaust gas, sewage, noise and solid wastes during the construction and after the completion. After strictly adopting the measures proposed in this EIA and implementing the environmental management and monitoring plan, the project impact on the surrounding environment can be controlled within the limits of relevant national criteria and requirements, and will produce better social, economic and environmental benefits. Therefore, the construction scenario and planning of the project are feasible in terms of environmental protection and can be implemented according to the proposed scale and plan.
Opinions of Review & Approval

Opinion of Prior Review:

Processed by:                          Date:

Opinion of Review Expressed by the Subordinating EP Authorities:

Processed by:                          Date:

Opinion of Review & Approval
Notes
II. The EIA report shall have the following annexes and drawings:

Annexes

Annex 1: Power of Attorney for Environmental Impact Assessment;
Annex 2: Registration Form of EIA Work for Single Projects;
Annex 3: Notice on Planning & Design Conditions by the Xining Municipal Urban/Rural Planning & Construction Bureau (Reference No. (2017) Guitiao Zi 049);
Annex 4: Opinion Book on Site Selection
Annex 5: Minutes of the 72nd Symposium of the Xining Municipal Urban/Rural Planning & Approval Committee, which says “Has approved the planning scenario for the Chengxi Bus Terminal, ... can implement the first phase of construction”;
Annex 6: Monitoring Report
Annex 7: Review Comments from the Expert Panel

Drawings:

Drawing 1: Project Geographical Location;
Drawing 2: Project Surrounding Environment;
Drawing 3: Project General Outlay Map;
Drawing 4: Plane Sketch Map of the First Floor of the Bus Terminal;
Drawing 5: Plane Sketch Map of the Basement;
Drawing 6: Sectional Map of Engineering;

Appendixes:
Registration Form for EP Review & Approval of Construction Projects.
PT Component—the Wangjiazhai Interchange
(Xining Chengxi Bus Terminal)
Under the Qinghai Xining Urban Transport Project

Notes on Public Participation

Construction Entity: Xining Chengtong Transport Construction Investment Company, Ltd

August, 2018
Contents

1 Objectives of Public Participation ......................... 1
2 Survey Scope .................................................. 3
3 Survey Contents ................................................ 3
4 Survey Procedure and Opinions ............................... 3
   4.1 First Webpage Disclosure ................................ 3
   4.2 First Information Board Disclosure ........................ 5
   4.3 Second Information Board Disclosure (Simplified Version) ............................................... 7
   4.4 Third Information Board Disclosure .......................... 10
      (Inform the Xining Municipal EP Bureau Website to publish in full text) ......................... 10
   4.5 Disclosure at the Xining Municipal EP Bureau Website ............................................. 13
5 Feedback of Public Opinions .................................... 16
6 Attachments ....................................................... 17
   Attachment 1: .................................................... 17
   First Public Disclosure on the Project EIA .......................................................... 17
   Attachment 2: ..................................................... 20
   Second Public Disclosure on the Project EIA ......................................................... 20
   Attachment 3: ..................................................... 27
   Public Notice on the Information Disclosure of the EIA Report ................................... 27
Public Participation

Public participation is not only an important part of environmental impact assessment (Hereafter referred to as EIA) of engineering construction projects, but also a two-way exchange between the project construction unit, the evaluation unit and local communities. Public participation can lead to an in-depth understanding of environmental issues that are of public concern, so as to assist relevant departments to formulate practical and feasible environmental protection measures, to make the EIA work more open and its conclusions more realistic, and to ensure that the construction projects can achieve their expected society socio-economic benefits.

1 Objectives of Public Participation

The project public participation has the following objectives:

(1) The general public are encouraged to get informed of the purpose, scale, construction site and the various impacts of the project construction process and the project completion on the communities along the urban roads, and the proposed strategies and measures to be taken as well, and encourage the general public to make their comments or voice their concerns so as to obtain their understanding, support and cooperation;

(2) Through the use of consultation results regarding local people's personal experiences and intuitive feelings from long exposure to their living environment, it can help analyze the pollution environment characteristics of the area and the current quality level of various environmental elements, thus reflecting the objectivity of the EIA and protecting the best interests of the general public;

(3) The public is familiar with the natural ecology, economic development, and value of living materials involved in the EIA. In the form of public participation, they are invited to participate in the confirmation of environmental resource protection measures and to understand their needs, which can enable various EP measures proposed by this EIA to be more feasible and more effective;

(4) The general public can have the opportunity to participate in deciding the feasibility of the project construction.
2 Survey Scope

According to the *Environmental Impact Assessment Law of the People's Republic of China*, the *Interim Measures for Public Participation in Environmental Impact Assessment* (Reference No. Huanfa [2006] 28), and the World Bank Operational Policy OP4.01 entitled the *Environmental Evaluation*, the World Bank Business Policy BP17.05 entitled the *Public Participation*, the surveys were conducted within the areas that may be affected around the PT Component - Wangjiazhai Interchange Hub (Xining Chengxi Bus Terminal) under the Qinghai Xining Urban Transport Project. The respondents were mainly from the local communities of the Qingtang Town and the Wangjiazhai Village around the project.

3 Survey Contents

The public participation surveys mainly included:
(1) the understanding of the proposed project and attitudes towards it the general public has;
(2) what positive and negative impacts to be generated after the completion of the proposed project they think;
(3) what environmental impacts to be generated in the construction and operation of the proposed project they think;
(4) How to properly solve the environmental impact issues brought about by the proposed project;
(5) Other environmental protection issues of public concern.

4 Survey Procedure and Opinions

Public participation in the surveys is based on webpage disclosure and information board disclosure.

4.1 First Webpage Disclosure

After receiving the entrustment of the EIA work, the first public disclosure was made on the official website of the Qinghai Provincial Environmental Protection Bureau on September 21, 2015 (related website connection: [http://www.qhepb.gov.cn/hjgl/qyzc/jsxmgzcy/201509/t20150921_376791.html](http://www.qhepb.gov.cn/hjgl/qyzc/jsxmgzcy/201509/t20150921_376791.html))
tml), designed to collect opinions and suggestions of the general public on the project and environmental impact assessment work, as shown in Photo 1.

No feedback was received during the period of public disclosure.

Photo 1: First Webpage Disclosure
4.2 First Information Board Disclosure

For the project design reason, after September 2015, the EIA work was suspended. In September 2017, the project EIA was restarted and the first public participation was re-opened. The public participation was mainly in the form of information board disclosure. The survey respondents were the residents of the Qingtang Town and the Wangjiazhai Village around the project.

On September 11, 2018, the Xining Chengtong Transport Construction Investment Co., Ltd. (construction unit) posted the First Public Disclosure on the EIA for the PT Component – the Wangjiazhai Interchange Hub (the Xining Chengxi Bus Terminal) under the Qinghai Xining Urban Transport Project on the bulletin boards (information boards) at the entrance and exit of the Qingtang Town and those of the Wangjiazhai Village Committee in the concentrated residential areas around the project. The first public disclosure was meant to get the general public informed of the content, scale and period of the project construction, the name and contact information of the construction unit and the EIA agency undertaking the evaluation work, and the EIA work procedure, major activities and public opinion solicitation. The public can directly express opinions to the construction unit and the EIA agency by mail, letter and telephone, etc. When posting the public notices, some of the public's opinions on the project EIA work were also sought on-site. The respondents all agreed to the project construction and there were no opinions and suggestions. The first posting of information board disclosure is shown in Photos 2-3.

During the period of first information board disclosure, the construction unit and the EIA agency did not receive any feedback on the project from the general public.
Photo 2: First Information Board Disclosure
(Information Board of the Wangjiazhai Village Committee)

Photo 3: First Information Board Disclosure (Bus Stop of Qingtang Town)
4.3 Second Information Board Disclosure (Simplified Version)

After the completion of the initial draft of the project report, the Xining Chengtong Transport Construction Investment Co., Ltd. (construction unit) posted the Second Public Disclosure on the Project EIA Report Forms for the PT Component – the Wangjiazhai Interchange Hub (the Xining Chengxi Bus Terminal) under the Qinghai Xining Urban Transport Project on the bulletin boards (information boards) at the entrance and exit of the Qingtang Town and those of the Wangjiazhai Village Committee in the concentrated residential areas around the project on April 3, 2018. The second public disclosure was meant to spread the project information in terms of engineering overview, environmental overview and environmental quality status, environmental impact analysis and proposed EP measures; and it also informs the general public about the salient points of the conclusions proposed in the EIA report, and provide the name and contact information of the construction unit and the EIA agency undertaking the evaluation work. The public can express opinions to the construction unit and the evaluation agency and they have been told that they can have easy access to the full-text paper available in the office of the Xining Chengtong Transport Construction Investment Co., Ltd. for public supervision. At the time of posting, the information board disclosure was also introduced to the local public on the project overview and the impacts on the environment. Some of the public's opinions on the environmental aspects of the project were solicited. The interviewees all expressed no opinions and suggestions and agreed to the project construction. The second posting of information board disclosure (Simplified Version) is shown in Photos 4-5.

During the period of second information board disclosure, the construction unit and the EIA agency did not receive any feedback on the project from the general public.
Photo 4: Second Information Board Disclosure (Simplified Version) (Information Board of the Wangjiazhai Village Committee)
Photo5: Second Information Board Disclosure (Simplified Form)
(At the Entrance and Exit of the Qingtang Town)
4.4 Third Information Board Disclosure

(Inform the Xining Municipal EP Bureau Website to publish in full text)

After the Xining Municipal EP Bureau accepted publishing the project information on its official website, the Xining Chengtong Traffic Construction Investment Co., Ltd. (construction unit) posted *Information Public Disclosure on the EIA for the PT Component – the Wangjiazhai Interchange Hub (the Xining Chengxi Bus Terminal) under the Qinghai Xining Urban Transport Project* on the bulletin boards (information boards) at the entrance and exit of the Qingtang Town and those of the Wangjiazhai Village Committee in the concentrated residential areas around the project. The general public was informed that the full electronic version of the project was published on the official website of the Xining Municipal EP Bureau (http://www.xnepb.gov.cn/Article/Content/?id=13665), and make the paper documents available in the office of the Xining Chengtong Transport Construction Investment Co., Ltd. for public access. The third posting of information board disclosure is shown in Photos 6-7.

During the period of information board disclosure, no feedback on the project was received from the general public.
Photo 6: Third Board Information Disclosure
(Information Board of the Wangjiazhai Village Committee)
Photo 7: Third Information Board Disclosure (Simplified Form)  
(At the Entrance and Exit of the Qingtang Town)
4.5 Webpage Disclosure at the Xining Municipal EP Bureau Website

(1) Processing Public Disclosure

On July 17, 2018, the website of the Xining Municipal EP Bureau published the full text of the Project EIA document. The connection website is: http://www.xnepb.gov.cn/Article/Content/?id=13665. No public comments were received during the period of public disclosure.
(2) Webpage Disclosure for Proposed Project Approval

On July 31, 2018, the Xining Municipal EP Bureau website published the webpage disclosure of proposed approval of the project EIA document. The connection website is: http://www.xnepb.gov.cn/Article/Content/?id=13669. No public comments were received during the period of public disclosure.
(3) Public Disclosure of EIA Review and Approval

On August 13, 2018, the website of the Xining Municipal EP Bureau published the webpage disclosure of the review & approval of the Environment Impact Assessment of the project. The connection website is: http://www.xnepb.gov.cn/Article/Content/?id=13697. No public comments were received during the period of the webpage disclosure.
5 Feedback of Public Opinions

According to the requirements of national public participation in environmental impact assessment, the project carried out different forms of public participation survey in the project area. The survey results show that the public participation in the project did not receive any feedback from the public, indicating that the public around the project had no objection to the construction of the project or to the environmental protection measures to be adopted.
6 Attachments

Attachment 1:

First Public Disclosure on the Project EIA
for the Xining Chengxi Bus Terminal
Under the Xining Urban Transport Project

According to the Law on Environmental Protection of the People's Republic of China and the Law on Environmental Impact Assessment of the People's Republic of China", the Zhongnan Safe Environment Tech Institute Company, Ltd. was entrusted by the Xining Chengtong Transport Construction Investment Co., Ltd. to undertake the EIA work for the Xining Chengxi Bus Terminal under the Qinghai Xining Urban Transport Project. In order to make the project better serve the public along the route and reduce its negative environmental impact on the local communities, we sincerely hope that you can provide valuable advice or express opinions on protecting the environment around the project.

I. Project Overview

The Qinghai Xining Urban Transport Project was studied for mid-term restructuring in 2017. Among them, the Bus Interchange Hub, which was originally located in the Yanxiao Village, Xichuan, was adjusted to build the Wangjiazhai Interchange Hub in the Wangjiazhai Village (Xining Chengxi Bus Terminal) as part of mid-term restructuring project. The Xining Chengxi Bus Terminal is located on the northeast side of the intersection of Wusixi Road and Xicheng Avenue in Xining City. The Xining Chengxi Bus Terminal will have a total construction land area of 98,550 m². The works is divided into four phases, with its first phase of construction having a land area of 33,923 m². The main construction activities of Phase I Construction: (Building No.1) Drivers & Conductors Apartment, (Building No. 2) Administration Building, Station House and Podium. The total construction area of Phase I Construction has a total construction area of 53,245 square meters, including 193,220 m² of underground construction area and 33,923 m² of above-ground construction area. Its plot ratio is 1.00, with a greening rate of 25.00%. The number of parking spaces for motor vehicles is 507.

The project has a total investment of 410.31 million yuan, It is scheduled to start in August 2018 and to complete in October 2019, with a total construction period of 14 months.
II. General Information of the Construction Entity
Construction Entity: Xining Chengtong Transport Construction Investment Co., Ltd.
Contact: Li Zhili
Tel: 13997250810
E-mail: 564957534@qq.com
Address: Building B, Sanyu Xichengtian Street, Haihu Xingqu Wenyi Road, Chengxi District, Xinin, Qinghai

III. General Information of the EIA Agency
EIA Agency: Zhongnan Safe Environment Tech Institute Company, Ltd.
Contact: Mo Gong
Telephone: 027-87335903
E-mail: wjin027@163.com
Address: No. 2, Zhongnan-er Road, Wuchang District, Wuhan, Hubei

IV. EIA Work Procedure and Major Activities

1. EIA Work Procedure
(1) The construction entity and the EIA agency goes through the formalities for entrusting the project EIA work;
(2) The construction entity signs an EIA contract with the EIA agency;
(3) The EIA agency sends its EIA staff, conducts surveys, reviews materials, and carries out construction sites;
(4) Such activities as environmental status monitoring, engineering analysis and model calculation are undertaken;
(5) Based on assignment and environmental characteristics and laws and regulations, Reports are developed to propose EP countermeasures and recommendations, and to draw conclusions;
(6) Convene the expert panel conference for review of the report produced;
(7) According to review comments made by the expert panel, revisions and additions are made in the report, and the construction agency submits the updated report to the EP authorities.

2. Major Activities
(1) Construction project engineering analysis;
(2) Environmental status survey and evaluation;
(3) Environmental impact identification and environmental protection targets;
(4) Environmental impact prediction and evaluation;
(5) Environmental protection measures and feasibility studies;
(6) Environmental management and monitoring plan;
(7) Conclusions of environmental impact assessment.

V. Major Inquiries for Public Opinions

The related units and individuals can make complaints, express opinions or offer valuable recommendations by voicing their concerns as follows:

(1) the understanding of the proposed project and attitudes towards it the general public has;
(2) what positive and negative impacts to be generated after the completion of the proposed project they think;
(3) what environmental impacts to be generated in the construction and operation of the proposed project they think;
(4) How to properly solve the environmental impact issues brought about by the proposed project;
(5) Other environmental protection issues of public concern.

VI. Means of Voicing Concerns

The general public can make complaints, express opinions or offer valuable recommendations by means of email, letter and telephone in a real-name way of leaving contact information:

VII. Period of Voicing Concerns

The period of voicing concerns for the general public is within 10 working days from the date of issuing this announcement for public disclosure, that is, from September 11, 2017 to September 22, 2017.

[Note]: the public is requested to provide detailed contact information while offering your concerns, so that we can provide you with relevant feedback in a timely manner.
Attachment 2:
Second Public Disclosure on the Project EIA
For the Xining Chengxi Bus Terminal
Under the Xining Urban Transport Project
(Simplified Version)

According to the Law on Environmental Protection of the People's Republic of China and the Law on Environmental Impact Assessment of the People's Republic of China", the Zhongnan Safe Environment Tech Institute Company, Ltd. was entrusted by the Xining Chengtong Transport Construction Investment Co., Ltd. to undertake the EIA work for the Xining Chengxi Bus Terminal under the Qinghai Xining Urban Transport Project. In order to make the project better serve the public along the route and reduce its negative environmental impact on the local communities, we sincerely hope that you can provide valuable advice or express opinions on protecting the environment around the project.

I. Project Overview

The Qinghai Xining Urban Transport Project was studied for mid-term restructuring in 2017. Among them, the Bus Interchange Hub, which was originally located in the Yanxiao Village, Xichuan, was adjusted to build the Wangjiazhai Interchange Hub in the Wangjiazhai Village (Xining Chengxi Bus Terminal) as part of mid-term restructuring project. The Xining Chengxi Bus Terminal is located on the northeast side of the intersection of Wusixi Road and Xicheng Avenue in Xining City. The Xining Chengxi Bus Terminal will have a total construction land area of 98,550 m². The works is divided into four phases, with its first phase of construction having a land area of 33,923 m². The main construction activities of Phase I Construction: (Building No.1) Drivers & Conductors Apartment, (Building No. 2) Administration Building, Station House and Podium. The total construction area of Phase I Construction has a total construction area of 53,245 square meters, including 193,220 m² of underground construction area and 33,923 m² of above-ground construction area. Its plot ratio is 1.00, with a greening rate of 25.00%. The number of parking spaces for motor vehicles is 507.

The project has a total investment of 410.31 million Yuan, It is scheduled to start in August 2018 and to complete in October 2019, with a total construction period of 14 months.

According to the Environmental Impact Assessment Law of the People's Republic of China, the Interim Measures for Public Participation in
Environmental Impact Assessment, and the World Bank Business Policy BP17.05 entitled the Public Participation, the EIA Report Forms regarding the PT Component - Wangjiazhai Interchange Hub (Xining Chengxi Bus Terminal) under the Qinghai Xining Urban Transport Project are being posted for public disclosure and public opinion solicitation from this day on, and it is meant to inform the general public about such information as project overview, environment impacts and EP measures. In the meanwhile, the full-text paper documents of the Project EIA Report is made available in the office of the Xining Chengtong Transport Construction Investment Co. Ltd for public access. Within the ten days after issuing this announcement of public disclosure, that is, the period from April 3, 2018 to April 14, 2018, you can offer your valuable comments and recommendations through the following contact information.

(1) General Information of the Construction Entity
Construction Entity: Xining Chengtong Transport Construction Investment Co., Ltd
Contact: Li Zhili
Tel: 13997250810
E-mail: 564957534@qq.com
Address: Building B, Sanyu Xichengtian Street, Haihu Xingqu Wenyi Road, Chengxi District, Xining, Qinghai

(2) General Information of the EIA Agency
EIA Agency: Zhongnan Safe Environment Tech Institute Company, Ltd.
Contact: Mo Gong
Telephone: 027-87335903
E-mail: wjin027@163.com
Address: No. 2, Zhongnan-er Road, Wuchang District, Wuhan, Hubei

(3) The Project EIA Report for the Xining Chengxi Bus Terminal under the Qinghai Xining Urban Transport Project (Simplified Version)
The Project EIA Report for the Xining Chengxi Bus Terminal
Under the Qinghai Xining Urban Transport Project
(Simplified Version)

I. Project Overview

The Xining Chengxi Bus Terminal is located on the northeast side of the intersection of Wusixi Road and Xicheng Avenue in Xining City. The Xining Chengxi Bus Terminal will have a total construction land area of 98,550 m². The works is divided into four phases, with its first phase of construction having a land area of 33,923 m². The main construction activities of Phase I Construction: (Building No.1) Drivers & Conductors Apartment, (Building No. 2) Administration Building, Station House and Podium. The total construction area of Phase I Construction has a total construction area of 53,245 square meters, including 193,220 m² of underground construction area and 33,923 m² of above-ground construction area. Its plot ratio is 1.00, with a greening rate of 25.00%. The number of parking spaces for motor vehicles is 507 (including 20 on-ground parking spaces for long-transit buses, 160 long-transit buses parking spaces, 165 city bus parking spaces, and 162 on private car parking spaces).

The project has a total investment of 410.31 million Yuan, of which 0.71 million is used for engineering EP investment, accounting for 0.17% of the project total investment. It is scheduled to start in August 2018 and to complete in October 2019, with a total construction period of 14 months.

II. Compliance of Industrial Policies with Project Construction Plans

The construction content of the project is mainly for the construction of the integrated interchange hub. It is classified into the first item in the 27th category of “Integrated Transport & Transportation” under the encouragement category of Industrial Structure Adjustment Guidance Catalogue (2011 version) (Amended in 2013), namely, "Integrated Construction and Improvement of Transport Hubs". Thus the project construction content is in line with national and local industrial policies, the Xining Municipality General Urban Plan (2001-2020) (revised in 2015) and the Xining Municipality Overall Plan of National Highways Transportation Hubs (2013).
IV. Natural & Social Environments and Environment Quality Status

1. Natural Environment

Located in the suburbs, the project site is affected by human activities, thus having a relatively high agriculture ecological system based on cultivated lands. There is no native vegetation within the evaluation scope. The existing vegetation is dominated by cultivated plants such as street trees and farmland shelter forests on both sides of the road, with singular plant species. It has major arbors such as poplars and elm and main shrubs like Changshou Grass, Batian Sorrel, Plantain, and Wormwood. No rare wild and endangered flora resources or distribution of ancient and famous trees were found in the project area, thus there were no ecological environment sensitive points.

2. Environment Quality Status

Status of ambient air quality: The hourly, daily average concentration and PM$_{10}$ daily average concentration of SO$_2$, NO$_2$, CO at the project site all meet the requirements of the Grade II standard in GB3095-2012 Ambient Air Quality Criteria, indicating that the current ambient air quality is better in the project area.

Current status of surface water environment quality: for the section of Xigang Bridge over the Huangshui River during the period from January to August 2017, its water quality only in June 2017 reached the Category IV water quality standard, while for the rest of months in the period, its water quality exceeded the Category III water quality standard of (GB3838-2002) Surface Water Environmental Quality Criteria due to its ammonia nitrogen exceeding the standard. The overstandard is mainly due to the non-point source pollution of the farmlands along the river course and the acceptance of domestic living sewage between the river sections.

Acoustic environmental quality status: The night noise of residential compounds in the Wangjiazhai Village and the Qingtang Town around the project boundaries and within the evaluation scope are all in compliance with the Category II standard limit requirements of the Environmental Acoustic Quality Criteria (GB3096-2008).

IV. Major Environmental Impacts and Proposed EP Measures
1. Atmospheric Pollution Impacts and Prevention & Control Measures

(1) Construction Period

Exhaust gas during construction period mainly includes dust and automobile exhaust. The pollution prevention measures during the construction period mainly include: a) construction should comply with the relevant construction specifications of the Ministry of Construction; b) fences shall be set up; c) the speed of the transport vehicles shall be limited; d) transport vehicles must be closed when exiting, to avoid spilling during transportation; e) building materials should not be piled up, and the waste residue will be cleared and transported; the implementation unit will sprinkle water on the roads of the vehicles during the construction phase (4 to 5 times a day).

After taking the above measures, the construction dust during the construction period will have an impact on the field boundary, but its daily average value can be reduced to 30~40m from the field boundary, and the impact on the surrounding ambient air can be weakened to some extent. The impact will also disappear after the construction is over.

(2) Operational Period

The main source of pollution during the operation period of the project is vehicle exhaust from parking lots. For underground garage air, the current domestic general-purpose mechanical fan exhausting mode shall be adopted to carry out mandatory mechanical ventilation, with the number of air exchanges of over 6 times/h. It is ventilated through special exhaust vents, exhaust pipes, and entrances and exits for vehicles. After being diluted by air diffusion, the CO concentration of environmentally sensitive targets can meet the requirements of the Grade II standard of GB3095-1996.

2. Wastewater Pollution Impacts and Prevention & Control Measures

(1) Construction Period

The construction wastewater mainly includes construction wastewater and domestic sewage. The construction domestic wastewater is used for fertilization in the field after being treated by the septic tank, and will not affect the surrounding environment. The construction wastewater is mainly used for equipment cleaning and construction, flushing water in and out of
the vehicle, etc. The construction wastewater is treated by the oil separation sedimentation tank and then used for watering and dust reduction, with no external discharge.

(2) Operational Period

Under the project, the wastewater during the operational period mainly consists of domestic living sewage. It shall be collected at the centralized place and discharged into the septic tank uniformly and eventually into the sewage pipeline system.

3. Noise Pollution Impacts and Prevention & Control Measures

(1) Construction Period

The noise of the project has a certain impact on the external environment. The construction unit shall reasonably arrange the construction time, prohibit the night construction, and take measures such as noise reduction, vibration reduction and noise reduction for the construction equipment and machinery that generate noise and vibration. It is forbidden to whistle when transport vehicles enter and leave the site. The loading and unloading materials should be handled with care. The construction noise during the construction period of the project can be weakened to a certain extent, and the impact will disappear after the construction.

(2) Operational Period

The boiler room, air conditioner and other equipment shall be set in the special machine room. When the equipment is selected and ordered, the equipment with lower noise is preferred; effective measures such as vibration reduction and noise reduction shall be adopted. During operation, the whistle and speed limit signs shall be set at both ends of the roads where acoustic environmentally sensitive targets such as the Qingtang Town.

4. Solid Wastes Impacts and Prevention & Control Measures

(1) Construction Period

During the construction of the project, it is necessary to strengthen the management of domestic garbage and construction waste spoil, and the resulting construction waste shall be disposed of in accordance with the
requirements of the Xining Municipal Waste Management Department. Domestic garbage shall be collected by decentralized garbage bins and cleared and transported daily by the environmental sanitation department for harmless disposal. After taking corresponding measures, the above wastes will not have a significant impact on the surrounding environment and sensitive points.

(2) Operational Period

The solid waste during the operation period of the project is mainly domestic garbage. Municipal utilities such as cleaning cylinders and garbage trucks in the passenger station shall be provided to collect domestic garbage produced by passengers and staff, and the solid wastes can be transported to the domestic waste landfill.

V. EIA Conclusions

The implementation of road engineering construction under the project can improve the construction of urban road network and effectively alleviate the traffic pressure in urban areas. And the ITS system can coordinate the traffic conditions to keep the roads in sound operation.

The project construction will generate dust, domestic sewage, noise and solid wastes, which will have a certain degree of impact over the surrounding environment. However, after strictly implementing the “3 Simultaneous Steps” system and fully implementing the pollution prevention & control measures proposed in the Project EIA Report, the negative impacts of the physical construction on the environment can be better controlled, thus meeting the environmental functional requirements in the region. In the meanwhile, the implementation of the project is in line with the national industrial policies and the overall urban planning. Therefore, generally, it conforms to the principle of coordinated development of environmental, social and economic interests.
Attachment 3:  
**Public Notice on the Information Disclosure of the EIA Report**  
For the PT Component – the Wangjiazhai Interchange  
(Xining Chengxi Bus Terminal)  
Under the Qinghai Xining Urban Transport Project

According to the "Law on Environmental Impact Assessment Law of the People's Republic of China", entrusted by the Xining Chengtong Transport Construction Investment Co., Ltd., the Zhongnan Safe Environment Tech Institute Company, Ltd, undertakes the project EIA work for the PT Component – the Wangjiazhai Interchange (Xining Chengxi Bus Terminal) under the Qinghai Xining Urban Transport Project. From now on, the Xining Municipal Environment Protection Bureau will publish the Project EIA Report Forms in electronic version on its official website, with its connection address of [http://www.xnepb.gov.cn/Article/Content/?id=13665](http://www.xnepb.gov.cn/Article/Content/?id=13665). In the meanwhile, its paper documents shall be made available in the office of the Xining Chengtong Transport Construction Investment Co., Ltd. for public access. Everyone is welcome to provide valuable comments and suggestions.

(1) **General Information of the Construction Entity**
Construction Entity: Xining Chengtong Transport Construction Investment Co., Ltd.
Contact: Li Zhili  
Tel: 13997250810  
E-mail: 564957534@qq.com  
Address: Building B, Sanyu Xichengtian Street, Haihu Xingqu Wenyi Road, Chengxi District, Xining, Qinghai

(2) **General Information of the EIA Agency**
EIA Agency: Zhongnan Safe Environment Tech Institute Company, Ltd.
Contact: Mo Gong  
Telephone: 027-87335903  
E-mail: wjin027@163.com  
Address: No. 2, Zhongnan-er Road, Wuchang District, Wuhan, Hubei