

Environmental Due Diligence Report

1 Report
February 2017

People's Republic of China: Guangxi Baise Vocational Education Development Project

Prepared by Guangxi Baise Vocational Education Development Project Management Office for
the Asian Development Bank.

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**Environmental Due Diligence Report (EDDR) of Variation of
Contract Package C01: Site Development & Slope Protection**

**ADB Loan 3215-PRC: Guangxi Baise Vocational Education
Development Project**

**Guangxi Baise Vocational Education Development Project
Management Office**

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1. Basic Situation of C01

1) Status of Procurement

The bid of the civil works procurement package C01: Site Development & Slope Protection, with NCB procurement method and post review by ADB, was opened in January 2016, the contract amount of the bid was RMB31,684,532.85 Yuan. In May 2016, ADB issued no objection to the contract. The contract officially was started on May 18, 2016. The relevant service providers of C01 package are:

- **The Designer: Jianyan Foundation Engineering Co., Ltd.**
- **The Contractor: Guangxi Hongye Urban Construction Group Co., Ltd.**
- **The Supervisor: Guangxi Urban Construction Consulting Co., Ltd.**

2) Main Works of C01 package

Main Works of C01 package include:

- (i) **Site excavation.** The cubic meter of earthworks was about 6,000,000 m³, and transported and disposed to off-site.
- (ii) **Slope protection.** The protection area was about 18,304 m², with length of about 1314m and height of about 10 to 38m; Using pre-stressed anchor as protection, and grid and planted grass inside. There was another rubble retaining wall with 78m long and 0-6.5m high.
- (iii) **Campus road works.** Laid campus road with about 1508m long and 8m wide; About 160m of road slope protection, with M7.5 grouted sloping retaining wall, about 223m concrete inclined retaining wall; part of the road will have water supply, drainage, and sewer system.

3) Content Variations in C01 contract package

- (i) Regarding steel grade change with variation application No. 20160721: Steel grade HRB335 will be replaced by grade HRB400. This change will not affect construction period and cost.
- (ii) Regarding change of municipal water supply and drainage works with variation application No. 20160715: steel wire mesh frame plastic composite pipe will be replaced with anticorrosive spiral steel pipe. This change will cause cost decreased of RMB20133.21.
- (iii) Regarding change of campus road water supply and drainage engineering B5, road filling with variation application No. 20160905: This change will cause cost increased of RMB45923.68.
- (iv) Regarding change of campus road water supply and drainage engineering B4, road filling with variation application No. 20160915: This change will cause cost increased of RMB32789.12.

4) Regarding C01 contract covenant Compliance

In Contract C01, it was clarified that the contractor has the responsibility to ensure the program and all facilities are well prepared, designed, constructed, implemented, operated and maintained in accordance with (a) the borrower's relevant laws and regulations in environment, health and safety; (b) ADB's "Environmental Safeguards"; (C01) all the requirements for measures referred to in the Initial Environmental Assessment (IEE) and the Environmental Management Plan (EMP).

Up to now, total construction payment of RMB17,560,426.33 has been made, accounting for 55% of the total contract amount.

2. Variation situation of C01 package

1) Earthworks change of BOQ (bill of quantity)

In accordance with the actual conditions, the main change in earthworks of this program is estimated to be as follows:

Table 1 Estimated earthworks change of BOQ

No.	Changed Item in the Program	Original BOQ m ³	Estimated Quantity m ³	Increased Earthwork m ³	Change in Cost (10,000 Yuan)
1	Earthwork	151146.31	205476.32	54330.01	187.98
2	Very soft rock	100871.5	194946.87	94075.37	346.29
3	Soft rock	98263.18	79860.29	-18402.89	-9.2
4	Soft rock ~ Hard rock	250251.37	198382.05	51869.32	-5.71
	Total	600532.36	678665.53	78133.17	519.36

The terrain measurement difference between the actual and estimated of this part caused earthwork volume increase of about 78,000 m³. Fig.1 is the situation of landslide place, Fig.2 is the picture of land slide, and Fig.3 is the picture of after-construction



Fig.1 Sketch map of landslide location



Fig.2-1 The landslide spot on the slope outside the building of Chinese and Foreign Languages



Fig.2-2The landslide spot on the slope outside the building of Business School



Fig.3 Picture of after-construction

2) Bill of Quantities (BOQ) Variation in Slope Support Works

The specific BOQ change of slope protection works is detailed in Table 2:

Table 2 Specific BOQ changes of slope protection

No.	Item	Unit	Original Bidding BOQ	The Estimated Amount	Quantities Differences	Change in Cost (10000 Yuan)
1	Bolt (anchor cable)	m	35990.00	46280.00	10290	186.64
2	Pre-stressed steel strand	t	118.88	152.87	34	42.66
3	Anchorage cable frame girder	m ³	1034.77	2034.77	1000	39.39
4	Template framed girder	m ²	6898.48	13698.48	6800	33.14
	Total					303.83

After reviewed, the above earthworks excavation and slope protection changes will increase works cost of RMB5,193,600 and RMB3,038,300 separately, and total of these two items of RMB8,231,900 increased in contract amount.

3. Conclusions on Environmental Management Due Diligence in the Progress of C01

According to the submitted monthly environment inspection list and field check, although the earthworks volume caused by C01 package variation extended 78,000 cubic meters, the actual earthworks has been utilized well and unnecessary to transport to muck spoil ground. Presently the earthworks produced and utilization conditions are as follows:

Table 3 Chengbi campus expansion program II of Baise University-earthworks statistics of site development and slope protection works

No.	Earthworks(10000 m ³)	Destination
1	17	Roadbed of Baise Railway Station-Yunnan-Guizhou Line base
2	2	Roadbed of Baise Yifengshangbo city
3	14	Roadbed of Binjia Avenue (section of Nabi-Zhuzhou bridge)
4	30	Chengbi Lake reservoir dam
Total	63	

Statistical date: Jan 30,2017

We have investigated the two sites using earthworks. Chengbi lake reservoir dam is under construction, still needs a lot of earthworks, so is the road, which has used 300,000 square earthworks of this program, but also needs more. As shown in below pictures:



Fig.4 Spotting place of Chengbi lake reservoir dam



Fig.5 Spotting place of Binjia Avenue

In addition, through communication with the contractor, dump site on the north side of Chengbi campus is too high and difficult for sediment trunk to go. If detour from another way, it is too far. The contractor has found a suitable and legal backup dump site with an area of 80 mu where we have investigated, as shown below. It is the maps of spoil ground location, current situation, and procedure chart. Regarding dump procedures, the owner of the spoil ground said that the land planning map shows the land is for construction, can be stacked muck, charging RMB50 yuan per trunk.



Fig.6 Spotting place of backup spoil ground

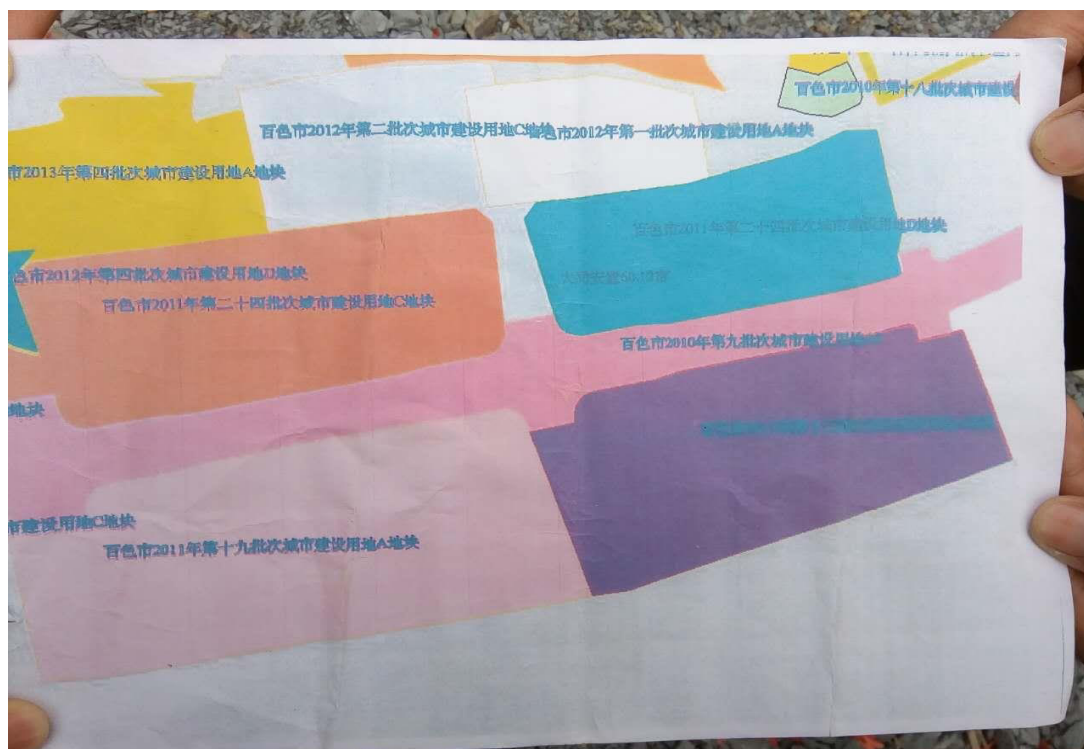


Fig.7 Procedures of backup spoil ground

Thus it can be seen, the extra earthworks caused by C01 package will not bring negative impact to environment.