

# Environmental Monitoring Report

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Semi-Annual Report (July to December 2015)  
February 2016

## CAM: Provincial Roads Improvement Project

Detailed Design and Implementation Supervision (DDIS) Consulting Services

Prepared by Korea Consultants International in association with Dainichi Consultant Inc., Sambo Engineering Co., Ltd. and Hankuk Engineering Consultants, and in Sub-consultancy with Moha Engineering & Consulting Co., Ltd., SBK, KACE and SAWAC for the Ministry of Public Works and Transport, the Kingdom of Cambodia, and the Asian Development Bank.

The Environmental and Social Performance Report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature. Your attention is directed to the "Terms of Use" section of this website.

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**KINGDOM OF CAMBODIA**

**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

**PROVINCIAL ROADS IMPROVEMENT PROJECT  
ADB LOAN 2839-CAM (SF)/8254-CAM (SCF)**

**Consulting Services for  
Detailed Design and Implementation Supervision (DDIS)**

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**SEMI-ANNUAL ENVIRONMENTAL MONITORING REPORT**

**Covering Period from July to December 2015**

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**February 2016**



**Korea Consultants International**

In association with

**Dainichi Consultant Inc., Sambo Engineering Co., Ltd.  
and Hankuk Engineering Consultants**

In Sub-consultancy with

**Moha Engineering & Consulting Co., Ltd., SBK, KACE and SAWAC**

## Appendix A- Checklist of EMP Implementation for Contract CW-A

### ENVIRONMENTAL MONITORING CHECK LIST

July-December 2015

(New Checklist is applied from September to December 2015 (referring to ADB's comment), and previous checklist was used at July and August 2015)

Provincial Road Improvement Project  
ADB Loan No.2839-CAM (SF)/8254-CAM  
Contract Package CW-A: Improvement of NR13

## Appendix A1: Checklist of EMP Implementation for Contract CW-A (from July – August 2015)

**CHECKLIST 1 Construction Camps**

(N.B. There is no specific regulation for this activity.

"Good Housekeeping" must be observed and "General Industry Practice" followed)

Project Site: Improvement of NR13 from Prey Veng to Svay Rieng 62.43km						
Observer: Dang Peng						
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.						
Date / Time:						
Location / Road Distance:						
Weather Condition:						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?		✓			✓	
If yes, comment on the adverse impacts on the environment:						
Is the camp / yard being properly maintained?	✓			✓		
If no, list what is not being done properly:						
Is the wastewater being disposed of properly?	✓			✓		
If no, comment on how it is being disposed and what are the impacts:						
If no, comment on:						
Have septic tanks been installed?						
Are they working correctly, that is not overflowing, or emitting smell?						
Is the solid waste being disposed off properly?	✓			✓		
If no, comment on how it is being disposed and the impacts of such disposal:						
Is attention being paid to "Good housekeeping"?	✓			✓		
If no, comment on what is not being done:						
Are the contractor's vehicles being maintained at the campsite / yard?	✓			✓		
If yes, are appropriate precaution taken to avoid water and land contamination? Waste oil are collected in a collection bin and stored for reuse as formwork:						
Is the waste from vehicle maintenance being disposed off properly?	✓			✓		
If no, comment on how it is being disposed:						
Is the fuel storage area properly surfaced and has a containment curb around it?	✓			✓		
If no, comment on how the surrounding area is being affected:						
Are occupational health and hygiene precautions being taken?	✓			✓		
If no, comment on where they are being neglected. Bound wall to be constructed						
Does the community have any issues with the camp?		✓			✓	
If yes, what are the issues?						
Any additional comments: Health and safety gadgets are around and waiting delivery						

Inspector's name and signature:

Mr. Zhang JianJun  
Project ManagerTHANAWICH Nitith  
Resident Engineer, KCI

**CHECKLIST 2 Borrow Pits / Quarries**

(N.B. There is no specific regulation for this activity)

<b>Project Site:</b> Improvement of NR13 from Prey Veng to Svay Rieng 62.43km						
<b>Observer:</b> Dang Peng						
<b>Frequency:</b> Check weekly during preparation of borrow pit, at opening, then weekly or in response to complaint.						
<b>Date / Time:</b>						
<b>Location / Road Distance:</b>						
<b>Weather Condition:</b>						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the borrow pit / quarry located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?		✓			✓	
If yes, comment on the adverse impacts on the environment:						
Is the borrow pit / quarry being properly maintained?	✓			✓		
If no, state what is not being done:						
Is there adverse visual impact due to the borrow pit?		✓			✓	
If yes, comment how:						
Is borrow pits / quarries excavation / mining adequately employing drainage and fill methodology to avoid any water pools formation during rains?		✓			✓	
If no, comment: Borrow pit shall be utilized by owner for importing water for domestic used.						
Is the borrow pits / quarry properly rehabilitated at least partially before the start of the rainy season?		✓			✓	
If no, comment on what needs to be done: The owner need the pit to impound water during rainy season						
Are there any signs of erosion and instability?		✓			✓	
If yes, what seems to be the reason?						
Are the cut faces stabilized with appropriate materials and methods?	✓			✓		
If no, what are the impacts?						
Is the borrow pit / quarry to be closed and rehabilitated?		✓			✓	
If yes, is there a closure plan?						
Are the borrow pit / quarry operations creating excessive dust / noise?		✓			✓	
If yes, are any measures being taken to minimize dust and noise?						
Do the communities have any concerns / issues with borrow pit / quarry during operation or after closure?		✓			✓	
If yes, what are those concerns / issues?						
Any additional comments:						

Inspector's name and signature:

 Mr. Zhang JianJun  
 Project Manager

 THANAWICH Nithis  
 Resident Engineer, KCI

**CHECKLIST 3 Erosion of Slopes**

(N.B. There is no specific regulation for this activity)

Project Site: Improvement of NR13 from Prey Veng to Svay Rieng 62.43km						
Observer: Dang Peng						
Frequency: Check weekly or in response to complaint.						
Date / Time:						
Location / Road Distance:						
Weather Condition:						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
What is / are the reason(s) for erosion / landslides / instability?						
a. Improper design / stripping of cut faces		✓			✓	
b. Improper drainage		✓			✓	
c. Clearing of vegetation / lack of gabions, geotextiles		✓			✓	
d. Improper leveling after earth removal		✓			✓	
e. Are the slopes properly stabilized before the start of the rainy season?	✓			✓		
f. Inadequate water channel diversion, or		✓			✓	
g. A combination of some of the reasons above		✓			✓	
Is remedial action required?						
If yes, comment:						
Did the erosion / landslide / instability cause any damage?		✓			✓	
If yes, what was the nature of the damage?						
Did the contractor take appropriate mitigatory measures, pre and post erosion / instability / landslides, to avoid / counter the problem?	✓			✓		
If no, why did the contractor not consider it necessary to take appropriate mitigatory measures?						
Was the erosion brought to the notice of appropriate authorities by the communities?						
If yes, was there any action taken?						
If no, why was action not taken?						
Any additional comments: No Erosion is occurring due to adequate work method						

Inspector's name and signature:

 Mr. Zhang JianJun  
 Project Manager

 THANAWICH Nithis  
 Resident Engineer, KCI

**CHECKLIST 4 Air Pollution**

(N.B. The contractor must carry out his activities to ensure compliance with the regulations stated in draft Sub Decree on Air and Noise Pollution Control)

<b>Project Site:</b> Improvement of NR13 from Prey Veng to Svay Rieng 62.43km						
<b>Observer:</b> Dang Peng						
<b>Frequency:</b> Check weekly or in response to complaint.						
<b>Date / Time:</b>						
<b>Location / Road Distance:</b>						
<b>Weather Condition:</b>						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
What is the nature of air pollution?						
a. Dust from road	✓			✓		
b. Dust from stock piled materials						
c. Generator, batching plant emissions						
d. Vehicular emissions						
Is the problem significant enough to warrant attention?		✓			✓	
If yes, did the contractor take appropriate measure to mitigate the problem?						
What is / are the measures taken?						
a. Periodic water sprays on road surface / borrow pits			✓			✓
b. Vehicle tire washing facilities at borrow pits and other locations						
c. Speed limit enforced on project vehicles			✓			✓
d. Vehicles speeding checked by posting signs on roads, and awareness raising of staff and local communities						
e. Covering of stock piled materials						
f. Vehicles regularly maintained			✓			✓
g. Equipment regularly maintained			✓			✓
Is air pollution creating problems for the surrounding communities?		✓			✓	
If yes, what type of problems?						

Inspector's name and signature:

Mr. Zhang Jianjun  
Project Manager

THANAWICH Nithis  
Resident Engineer, KCI



**CHECKLIST 8 Cultural Heritage (None)**

(N.B. The contractor must carry out his activities to ensure compliance with the regulations stated in "Law on Protection of Cultural and National Heritage", (1996)

<b>Project Site:</b> Improvement of NR13 from Pray Veng to Svay Rieng 62.43km						
<b>Observer:</b> Dang Peng						
<b>Frequency:</b> Check weekly or in response to complaint.						
<b>Date / Time:</b>						
<b>Location / Road Distance:</b>						
<b>Weather Condition:</b>						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Does the project area have any cultural heritage, archaeological, historical or religious sites?		✓			✓	
If yes, are they affected in any way by the project activities?		✓			✓	
If yes, how?						
Did the concerned authorities and the contractor take any appropriate measures to protect the site?		✓			✓	
If yes, what are the measures taken?						
Are the communities satisfied with the measures taken?						
Is the community satisfied with the measures taken by the contractor to protect land?						
If no, how and with what measures can it be improved?						
Is the local administration satisfied with the measures taken by the contractor to protect land?						
If no, what is being suggested by the local administration?						
Any additional comments:						

Inspector's name and signature:

Mr. Zhang JianJun  
Project Manager

THANAWICH Nithis  
Resident Engineer, KCI

**CHECKLIST 9 Noise Pollution**

(N.B. The contractor must carry out his activities to ensure compliance with the regulations stated in draft Sub Decree on Air and Noise Pollution Control)

<b>Project Site:</b> Improvement of NR13 from Prey Veng to Svay Rieng 62.43km						
<b>Observer:</b> Deng Peng						
<b>Frequency:</b> Check weekly or in response to complaint.						
<b>Date / Time:</b>						
<b>Location / Road Distance:</b>						
<b>Weather Condition:</b>						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
What is the nature of noise pollution?						
vehicles on road	✓			✓		
Generators, construction plant	✓			✓		
Construction vehicles	✓			✓		
vibration from equipment	✓			✓		
vibration from road vehicles	✓			✓		
vibration from explosive blasting						
Is the problem significant enough to warrant attention?		✓			✓	
If yes, did the contractor / consultant take appropriate measure to mitigate the problem?						
What is / are the measures taken?						
vehicles regularly maintained and silencers checked			✓			✓
speed limit enforced on project vehicles			✓			✓
construction equipment maintained and silenced			✓			✓
compressors and generators operated with silencing panels closed			✓			✓
awareness raising of staff over causing nuisance to local communities			✓			✓
blasting at fixed times and communities notified						
Avoid undertaking construction activities and blasting close to communities at night			✓			✓
Is noise pollution creating problems (health, aesthetic & nuisance) for the surrounding communities?		✓			✓	
If yes, what type of problems?						

Inspector's name and signature:

Mr. Zhang Jianjun  
 Project Manager

THANAWICH Nithis  
 Resident Engineer, KCI

### CHECKLIST 10 Drainage and Flooding

(N.B. There is no specific regulation for this activity)

Project Site: Improvement of NR13 from Prey Veng to Svay Rieng 62.43km		
Observer: Dang Peng		
Frequency: As required		
Date / Time:		
Location / Road Distance:		
Weather Condition:		

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the flooding extensive or not?		✓			✓	
If yes, give details:						
Have contractors activities caused flooding or blocked drains?		✓			✓	
If yes, give details:						
Have cross drainage structures been built in correct location as shown in contract?						
If no, give details:						
Are cross drainage structures "as built" same as in "detailed design"?						
If no, give details:						
Any other issues						
If yes, give details						

Inspector's name and signature:

Mr. Zhang JianJun  
Project Manager

THANAWICH Nithis  
Resident Engineer, KCI

**CHECKLIST 11 Construction Camps Closure**

(N.B. There is no specific regulation for this activity.)

Project Site: Improvement of NR13 from Prey Veng to Svay Rieng 62.43km		
Observer: Deng Peng		
Frequency: Check at closure of camp.		
Date / Time:		
Location / Road Distance:		
Weather Condition:		

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?		✓			✓	
If yes, comment on the adverse impacts on the environment:						
Has the camp / yard been properly cleared of all debris and revegetated?	✓			✓		
If no, list what was not done properly:						
Was the wastewater disposed of properly?	✓			✓		
If no, comment on how it was being disposed and what were the impacts:						
Were septic tanks installed? Have they been removed?		✓			✓	
If no, why not?						
Was solid waste disposed of properly?	✓			✓		
If no, comment on how it was being disposed and the impacts of such disposal:						
Was attention being paid to housekeeping?	✓			✓		
If no, comment on what was not being done:						
Have all the contractor equipments being removed from the campsite / yard?		✓			✓	
If yes, have all appropriate precautions been taken to avoid water and land contamination?						
Has the scrap metal from vehicle maintenance being disposed of properly?	✓			✓		
If no, comment on how it is to be disposed:						
Has all fuel storage been removed from the site?		✓			✓	
If no, comment on how the surrounding area is being affected: Site in used						
Have all general offices and staff dwellings been removed?		✓			✓	
If no, comment on if they are to be handed over to new owner or other plans: Site in use						
Does the community have any issues with the camp closure?		✓			✓	
If yes, what are the issues?						
Any additional comments:						

Inspector's name and signature:

Mr. Zhang JianJun  
Project Manager

THANAWICH Nithis  
Resident Engineer, KCI

## Appendix A2: Checklist of EMP Implementation for Contract CW-A (from September – December 2015)

Contract Package : CW-A				Inspector's Name : Mr. Morn Piseth											
Inspection Date : July to December 2015				Position : Site Engineer											
EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline	
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				
	September				October				November						December
1. Community Facilities (power lines, irrigation canals, etc.)															
Interruption of utility services are minimized by laying out new lines prior to transfer	✓				✓				✓				✓		
Replacement structure are constructed prior to demolition of existing structure	✓				✓				✓				✓		
Temporary facilities to maintain adequate services are in place	✓				✓				✓				✓		
Coordination with local company or local offices	✓				✓				✓				✓		
Affected parties are informed in advance	✓				✓				✓				✓		
2. Air Quality (Dust and Gaseous Emissions)															
Vehicles and equipment are well maintained and in good condition.	✓				✓				✓				✓		
Borrow areas, casting yard and other project facilities are duly licensed and have all the necessary environmental approvals	✓				✓				✓				✓		
All construction vehicles and equipment are tested for compliance with relevant emission standard and properly licensed	✓				✓				✓				✓		
Parked vehicles on the site works have their engines turned off. Unnecessary engine idling of vehicles and equipment is prohibited.	✓				✓				✓				✓		
Water spraying of roadways, working areas and other construction-related facilities near sensitive receptors and handling of all raw sand and aggregates, and other similar materials.	✓				✓				✓				✓		
Dust barriers are installed as necessary	✓				✓				✓				✓		
Storage areas of construction materials such as sand, gravel, cement, etc., have provisions that prevent them from being blown away towards sensitive receptors.			✓				✓				✓			✓	

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline	
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				
	September				October				November						December
Trucks transporting construction materials (i.e. sand, soil, cement, gravel, etc.) are tightly covered			✓			✓			✓			✓			
Roadways are regularly cleaned of tracked in mud, cement, etc. from construction works			✓			✓			✓			✓			
Stockpiling of spoils near sensitive receptors is prohibited	✓				✓				✓			✓			
Construction vehicles have speed limits (typically 25 km/hour or less) along areas where sensitive receptors are located	✓				✓				✓			✓			
Areas where there is a regular movement of vehicles have an acceptable hard surface and are clear of loose surface material			✓			✓			✓			✓			
Cement and other fine-grained materials delivered in bulk are stored in closed containers			✓			✓			✓			✓			
Conveyor belts are fitted with wind-boards, and conveyor transfer points and hopper discharge areas are enclosed															
Weigh hoppers are vented with a suitable filter															
Wheel washers are used to clean delivery/ haul trucks of mud and dirt as they exit the work area		✓				✓			✓			✓			
Smoke belching vehicles and equipment are not used for the project	✓				✓				✓			✓			
Construction vehicle trips and travel distances for material deliveries are minimized (e.g., by using local materials and labor sources).	✓				✓				✓			✓			
Construction access roads are temporarily paved or sealed		✓				✓			✓			✓			
3. Noise Levels															
Prior notification to the community on construction schedule	✓				✓				✓			✓			

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially						
	September				October				November						December		
Vehicle and equipment are fitted with emission control and silencers to meet national noise standard	✓				✓				✓				✓				
Vehicles and equipment are well-maintained and checked by the contractor every 6 months		✓				✓				✓				✓			
Only vehicles and equipment that are registered and have necessary permits are used	✓				✓				✓				✓				
Noisy equipment are completely enclosed whenever possible	✓				✓				✓				✓				
Stationary equipment that produce high noise level are positioned as far as is practical from sensitive receptors.	✓				✓				✓				✓				
Noisy construction activities within 200m of a settlement are only during daytime	✓				✓				✓				✓				
Suitable noise control barriers are used in the vicinity of house, school, temples, medical facilities and other sensitive receptors	✓				✓				✓				✓				
Noisy construction activities are avoided near school during examination period and coordinated with school administration	✓				✓				✓				✓				
Noisy construction activities are avoided in the vicinity of sensitive receivers	✓				✓				✓				✓				
Suitable noise level reduction measures are installed by the contractor if construction activities are disruptive	✓				✓				✓				✓				
Speed limits on construction vehicles are imposed		✓				✓				✓				✓			
Construction traffic routes are defined in cooperation with local communities and traffic police	✓				✓				✓				✓				
Asphalt concrete batching plants and crushing plant are located at least 500 m away from inhabited areas and other sensitive receptors	✓				✓				✓				✓				
4. Vibration Levels																	

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Fully loaded trucks are rerouted away from roadways that go through heavily built areas	✓				✓				✓				✓					
Heavy equipment are operated away from vibration-sensitive areas	✓				✓				✓				✓					
Simultaneous activities like demolition, ground impacting and earthmoving are avoided	✓				✓				✓				✓					
Alternative equipment is used	✓				✓				✓				✓					
Use of vibrating rollers near vibration- sensitive structures are avoided	✓				✓				✓				✓					
5. Erosion and Sedimentation																		
Suitable soil erosion control measures are implemented prior to excavation of the bridge pier foundation and construction activities at waterways	✓				✓				✓				✓					
Silted water carried with the spoils during excavation and construction of bridge foundation are properly treated	✓				✓				✓				✓					
Spoils (excavated soil, rocks, removed asphalt, etc.) stockpiles are located at least 50 m from watercourses	✓				✓				✓				✓					
A bund is placed around the spoils stockpile area	✓				✓				✓				✓					
Spoil disposal does not cause sedimentation and obstruction of water flow, damage to agricultural land and densely vegetated areas	✓				✓				✓				✓					
Grading is avoided or minimized during the rainy season particularly in areas of steep topography and/or adjacent to water courses	✓				✓				✓				✓					
Phased grading schedule is implemented to limit the area subject to erosion at any given time	✓				✓				✓				✓					



LMP Requirements (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline	
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				
	September				October				November						December
Appropriate erosion control and stabilizing measures (such as geotextiles, mats, fiber rolls, soil binders that are not toxic to the environment, or vegetation measures/ temporary landscaping) are used in disturbed areas and on graded slopes	✓				✓				✓						
Construction works (for bridges, culverts, drainage, etc.) on or near watercourses do not cause obstruction of channel flow	✓				✓				✓				✓		
Slopes along water channels are stabilized	✓				✓				✓				✓		
Dumping of soil, rocks, construction materials and debris onto watercourses is prohibited	✓				✓				✓				✓		
When construction works cause obstruction of watercourses, the obstruction is immediately cleared to restore channel flow	✓				✓				✓				✓		
6. Spoils Disposal															
Spoils (excavated soil and rocks, cut vegetation, removed pavement such as asphalt, etc.) are immediately transported to disposal sites approved by local authorities	✓				✓				✓				✓		
Temporary spoils stockpiles near paddy fields have bund or silt fence around them	✓				✓				✓				✓		
Temporary spoils stockpile that are planned to be used longer than six months are sodded.	✓				✓				✓				✓		
Height of spoils stockpile are limited to minimize windblown dust	✓				✓				✓				✓		
7. Soil and Groundwater Contamination															
Maintenance shops, fuel and oil depot have impermeable flooring with sump	✓				✓				✓				✓		
Refueling and servicing of equipment are carried out only in adequately equipped areas	✓				✓				✓				✓		

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline		
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially					
	September				October				November						December	
Only minimal chemicals, hazardous substances and fuel are stored on site works, within an enclosed and covered secure area that has an impervious floor and impervious bund around it	✓				✓				✓				✓			
Storage area for chemicals, hazardous substances and fuel are located away from watercourses, flood-prone areas, work camps, and danger areas	✓				✓				✓				✓			
Oil-stained refuse such as oily rags, spent oil filters and used oil are collected and disposed of through recyclers/authorized waste handlers and disposed in authorized waste facilities	✓				✓				✓				✓			
Availability of spill clean-up materials specifically designed for petroleum products and other hazardous substances	✓				✓				✓				✓			
Immediate cleanup of spills or leaks of petroleum products and/or hazardous substances	✓				✓				✓				✓			
Training of relevant construction personnel in handling of fuels/hazardous substances and spill control procedures	✓				✓				✓				✓			
At least weekly check for leakage in containers and immediate repair or replacement when necessary	✓				✓				✓				✓			
Equipment maintenance and fuel storage areas are provided with drainage to an oil-water separator that is regularly skimmed of oil and maintained	✓				✓				✓				✓			
Discharge of oil-contaminated water into the environment is prohibited	✓				✓				✓				✓			
Waste oil, used lubricant and other hazardous wastes are stored in tightly sealed containers with proper labeling	✓				✓				✓				✓			

EMP Requirements (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially						
	September				October				November						December		
Removal and treatment or proper disposal of oil contaminated soils is included in work sites restoration	✓				✓				✓				✓				
<b>8. Water Availability</b>																	
Temporary canals /irrigation channels to prevent disruption of water supply to farmlands.	✓				✓				✓				✓				
<b>9. Water Quality</b>																	
Suitable settling/retention ponds are constructed prior to operation of asphaltic concrete batching plants and casting yards	✓				✓				✓				✓				
Settling/retention ponds are properly operated and maintained to ensure effluent quality meets applicable effluent standards	✓				✓				✓				✓				
Bentonite slurry and sludge, mud and other materials and wastes from drilling are collected and processed to avoid pollution of surface water	✓				✓				✓				✓				
Bentonite slurry and sludge, mud and other materials and wastes from drilling are not discharged into watercourses	✓				✓				✓				✓				
Drilling solutions (e.g., bentonite slurry) for bridge construction, abutment construction, piling, etc. are processed in a closed system	✓				✓				✓				✓				
Proper disposal of bentonite-containing spoils as fill material in appropriate sites	✓				✓				✓				✓				
Spilled bentonite mud in agricultural land is cleaned immediately before it cokes and hardens	✓				✓				✓				✓				
Water from bridge foundation dewatering is not discharged directly into a water body	✓				✓				✓				✓				
Total suspended solids content of discharges into water bodies comply with applicable standards	✓				✓				✓				✓				

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline	
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				
	September				October				November						December
Sanitation facilities with sufficient capacity are provided to handle and treat sewage generated by workers	✓				✓				✓						
Equipment service and maintenance yards are provided with impermeable flooring and collection sump	✓				✓				✓						
All equipment maintenance shops are provided with water-tight receptacles for waste oil, oily rags, spent oil filters, solvents and oily containers	✓				✓				✓						
Disposal of all waste oil, oily rags, spent oil filters, solvents and oily containers are through authorized waste handlers and recyclers	✓				✓				✓						
Paving operations are restricted during wet weather	✓				✓				✓						
Use of sediment control devices downstream of paving activities	✓				✓				✓						
Use of mobile fueling/maintenance units for construction equipment whenever feasible	✓				✓				✓						
Accurate and up-to-date written inventories and labels for all stored hazardous materials	✓				✓				✓						
Use of berms, ditches, and/or impervious liners, etc. in material storage, vehicle/ equipment maintenance and fueling areas	✓				✓				✓						
Material storage, maintenance and fueling areas and septic systems are at least 30 m from storm drains and surface waters	✓				✓				✓						
Facilities for solid and domestic liquid waste management are used and maintained	✓				✓				✓						
16. Solid Waste															
Garbage bins and temporary storage facilities for construction wastes, domestic solid wastes and segregated wastes are provided within the project site	✓				✓				✓						
Waste segregation (hazardous, non-hazardous, reusable) is practiced	✓				✓				✓						

LMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non Compliance	Compliance Status			Remarks/ Reasons for Partial or Non Compliance	Compliance Status			Remarks/ Reasons for Partial or Non Compliance	Compliance Status			Remarks/ Reasons for Partial or Non Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Regular collection and disposal of wastes (by contractor or authorized third party) to sites approved by local authorities	✓				✓				✓				✓					
Wastes are not dumped into watercourses, agricultural land and surrounding areas	✓				✓				✓				✓					
11. Borrow Pits																		
Borrow areas are not located in productive land, forested areas and near water courses such as rivers, streams, etc.	✓				✓				✓				✓					
Topsoil are properly removed, stockpiled and preserved for later use during site restoration and provision of vegetation cover to minimize erosion	✓				✓				✓				✓					
Stable side slopes are provided during excavation of the borrow pits	✓				✓				✓				✓					
Quarry sites lying on small rivers and streams are avoided	✓				✓				✓				✓					
Quarry sections located on the river bed are avoided or reduced if unavoidable	✓				✓				✓				✓					
Borrow pits are left in a tidy state with stable side slopes and proper drainage	✓				✓				✓				✓					
Quarry sites and borrow pits are restored and rehabilitated after use	✓				✓				✓				✓					
12. Traffic Management and Local Access																		
Signs advising that construction is in progress are provided, particularly where the alignment crosses existing roads and where construction related facilities are located	✓				✓				✓				✓					
Flag persons are employed to regulate traffic especially in potentially hazardous areas	✓				✓				✓				✓					
Traffic advisory signs (to minimize traffic build-up) are posted in coordination with local authorities	✓				✓				✓				✓					
Sufficient lighting at night within and in the vicinity of construction sites are provided	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially						
	September				October				November						December		
Regular monitoring of traffic conditions along access roads to ensure that project vehicles are not causing congestion	✓				✓				✓				✓				
Schedules are observed for different types of construction traffic trips (e.g., transport of pre-cast sections, haulage of spoils, delivery of construction materials, etc.)	✓				✓				✓				✓				
Delivery of construction materials and equipment and transport of spoils are during non-peak hours	✓				✓				✓				✓				
Interactions between construction works, traffic flows and pedestrians are minimized by the following safety measures: • Temporary signals or flag controls • Adequate lighting • Fencing • Signage • Road diversion • Traffic cones • Barricades	✓				✓				✓				✓				
Use of escort vehicles and warning signs/ lights to increase public awareness of potential hazards		✓				✓				✓				✓			
Construction activities and schedules are coordinated in advance with local agencies, community representatives, businesses, schools	✓				✓				✓				✓				
Existing access routes are maintained (whenever feasible)	✓				✓				✓				✓				
Provision of alternative access and/or parking when impacts to principal access routes and parking areas cannot be avoided		✓				✓				✓				✓			
Adequate informational and directional signage to improve alternative access function	✓				✓				✓				✓				

LMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Construction operations are scheduled to avoid or minimize conflicts with local uses/ activities	✓				✓				✓				✓					
At least one safe through lane is maintained at all times in construction areas	✓				✓				✓				✓					
<b>13. Damage to Properties and Community Facilities</b>																		
Local roads used by the project are upgraded prior to use	✓				✓				✓				✓					
Local and access roads used by the project are repaired and maintained regularly and fully restored at the end of the project	✓				✓				✓				✓					
Contractor immediately repairs and/or compensates for any damage to properties	✓				✓				✓				✓					
<b>14. Accidental Discovery of Artefacts</b>																		
Immediate stoppage of operations on road section where artifacts/ archaeological finds are unearthed; contractor informs the DOS and CIPM	✓				✓				✓				✓					
CIPM notifies Ministry of Culture and Information (MCI) to obtain advice regarding the next steps	✓				✓				✓				✓					
Work is resumed only after MCI has provided official notification	✓				✓				✓				✓					
<b>15. Occupational Health and Safety</b>																		
Orientation for construction workers regarding health and safety measures, emergency response and prevention of HIV/AIDS and other diseases	✓				✓				✓				✓					
Workers at the bridge site are provided with life vests/buoyancy devices at all times	✓				✓				✓				✓					
Stable footpaths/access with sturdy guardrails to the bridge work sites shall be provided	✓				✓				✓				✓					
Preparation and implementation of a waterway safety plan, approved by the agencies in charge	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Contractor complies with the waterway traffic safety during construction	✓				✓				✓				✓					
First aid facilities that are readily accessible to workers	✓				✓				✓				✓					
Fire-fighting equipment at construction camps and work areas, as appropriate	✓				✓				✓				✓					
Adequate drainage in workers' camps	✓				✓				✓				✓					
Adequate and clean housing and sanitation facilities for all workers at the workers' / construction camps	✓				✓				✓				✓					
Separate sleeping quarters for male and female workers	✓				✓				✓				✓					
Reliable supply of water for drinking, cooking and washing purposes at the workers' camps	✓				✓				✓				✓					
Separate hygienic sanitation facilities/toilets and bathing areas with sufficient water supply for male and female workers	✓				✓				✓				✓					
All wastewater from workers' and construction camps and project-related activities/ facilities are treated consistent with national regulations	✓				✓				✓				✓					
Proper collection and disposal of solid wastes within the workers' /construction camps	✓				✓				✓				✓					
Sturdy fencing on all excavation areas greater than 2 m deep	✓				✓				✓				✓					
Workers are provided and use appropriate and complete safety equipment such as safety boots, protective clothes, breathing mask, ear protection, helmets, gloves, etc.	✓				✓				✓				✓					
Reversing signals are installed on all construction vehicles	✓				✓				✓				✓					
Fall prevention and protection measures whenever a worker is exposed to the hazard of falling more than two meters, falling into operating machinery or through an opening	✓				✓				✓				✓					
18. Public Safety																		



LMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline				
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially							
	September				October				November						December			
Signage are installed at the periphery of the construction site to warn and direct traffic and pedestrians	✓				✓				✓				✓					
Security personnel are deployed in hazardous areas to restrict public access	✓				✓				✓				✓					
Speed limits are imposed on construction vehicles along residential and other sensitive areas (typically 25 km per hour)	✓				✓				✓				✓					
Drivers are taught safe driving practices to minimize accidents and prevent spill of hazardous and other construction materials during transport	✓				✓				✓				✓					
Safe access to properties and establishments affected by construction works	✓				✓				✓				✓					
Safe passageways for pedestrians crossing the construction site	✓				✓				✓				✓					
Excavated areas are immediately backfilled, covered (e.g., with metal plates) and/or repaved		✓		Cross pipe culvert excavated ( half of existing road )		✓		Cross pipe culvert excavated ( half of existing road )		✓		Cross pipe culvert excavated ( half of existing road )		✓		Cross pipe culvert excavated ( half of existing road )	Signage are installed to warn and direct traffic	
All construction vehicles and equipment are secured during non-working periods to prevent unauthorized access or use	✓				✓				✓				✓					
Appropriate safety barriers and warning signs are installed in areas that pose safety risks such as open excavations, cut slopes, erosion-prone slopes, manufactured slopes, drainages, etc.	✓				✓				✓				✓					
17. Flora and Fauna																		
Vegetation removal is coordinated with forest authority																		
Tree-cutting permit is secured, as necessary	✓				✓				✓				✓					

LMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				Yes	No	Partially
	September				October				November						December		
Tree planting and landscaping plan that includes: <ul style="list-style-type: none"><li>• Inventory of the number of species of trees proposed for removal</li><li>• Identifying and documenting quantity, variety, and location of replacement trees</li><li>• Replanting at the outer portions of the ROW and in other locations agreed with local authorities</li><li>• Monitoring and maintenance program to ensure effectiveness of the plan</li><li>• Adopting remedial measures where appropriate (e.g., replacing dead or damaged replanted trees)</li></ul>																	
Clearing of trees is limited to areas that are only necessary based on the project design and as approved by the forestry department			✓			✓			✓			✓					
Cutting of trees for firewood and for use in project is prohibited	✓			✓				✓				✓					
New alien plant species are not used for replanting/revegetation without an existing regulatory framework	✓			✓				✓				✓					
Invasive species are not introduced into new environments	✓			✓				✓				✓					
Workers are prohibited from hunting wild animals and collecting forest products	✓			✓				✓				✓					
Bridge works are scheduled in dry season to minimize adverse impacts to aquatic resources	✓			✓				✓				✓					
Contractors do not buy or use wood from illegal sources (illegal logging)	✓			✓				✓				✓					
No construction camps, asphalt mixing plants, material storage sites and other construction facilities are located in protected areas	✓			✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Construction camps, asphalt mixing plants, material storage sites and other construction facilities are located at least 1 km from the boundaries of national parks and class 1A and 1B watershed designated areas	✓				✓				✓				✓					
Precautions are adopted to ensure that damage to vegetation is avoided should fires resulting from execution of the works occur	✓				✓				✓				✓					
Road improvement works are restricted to the existing ROW boundaries	✓				✓				✓				✓					
Grading methods and facilities i.e., rounding, benching, terracing and retaining walls are used to reduce earthwork and related topographic alteration/vegetation removal	✓				✓				✓				✓					
Suitable wildlife crossing structures are installed at locations agreed with the park management boards and National Environmental Board	✓				✓				✓				✓					

Signature

 Mr. Zhang Han Jun  
 Project Manager

 Mr. THANAWCIN Nithis  
 Resident Engineer

Source: Monthly progress report of contractor (SHINOHYDRO) from July to December 2015

## Appendix B- Checklist of EMP Implementation for Contract CW-B1

### ENVIRONMENTAL MONITORING CHECK LIST

July – December 2015

(New Checklist is applied from September to December 2015 (referring to ADB's comment), and previous checklist was used at July and August 2015)

Provincial Road Improvement Project  
ADB Loan No.2839-CAM (SF)/8254-CAM  
Contract Package CW-B1: Improvement of PR314D

## Appendix B1 – Checklist of EMP Implementation for Contract CW-B1 (from July – August 2015)

**CHECKLIST 1 Construction Camps**

(N.B. There is no specific regulation for this activity.

"Good Housekeeping" must be observed and "General Industry Practice" followed)

Project Site: Improvement of PR314D from Svay Teab to Prey Vor 25.20km						
Observer: Dang Peng						
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.						
Date / Time:						
Location / Road Distance:						
Weather Condition:						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?		✓			✓	
If yes, comment on the adverse impacts on the environment.						
Is the camp / yard being properly maintained?	✓			✓		
If no, list what is not being done properly:						
Is the wastewater being disposed of properly?	✓			✓		
If no, comment on how it is being disposed and what are the impacts:						
If no, comment on:						
Have septic tanks been installed?						
Are they working correctly, that is not overflowing, or emitting smell?						
Is the solid waste being disposed off properly?	✓			✓		
If no, comment on how it is being disposed and the impacts of such disposal:						
Is attention being paid to "Good housekeeping"?	✓			✓		
If no, comment on what is not being done:						
Are the contractor's vehicles being maintained at the campsite / yard?	✓			✓		
If yes, are appropriate precaution taken to avoid water and land contamination? Waste oil are collected in a collection bin and stored for reuse as formwork						
Is the waste from vehicle maintenance being disposed off properly?	✓			✓		
If no, comment on how it is being disposed:						
Is the fuel storage area properly surfaced and has a containment kerb around it?	✓			✓		
If no, comment on how the surrounding area is being affected:						
Are occupational health and hygiene precautions being taken?	✓			✓		
If no, comment on where they are being neglected: Bound wall to be constructed						
Does the community have any issues with the camp?		✓			✓	
If yes, what are the issues?						
Any additional comments: Health and safety gadgets are around and waiting delivery						

Inspector's name and signature:

 Mr. Zhang JianJun  
 Project Manager

 THANAWICH Nithis  
 Resident Engineer, KCI

**CHECKLIST 2 Borrow Pits / Quarries**

(N.B. There is no specific regulation for this activity)

<b>Project Site:</b> Improvement of PR314D from Svay Teab to Prey Vor 25.20km						
<b>Observer:</b> Dang Peng						
<b>Frequency:</b> Check weekly during preparation of borrow pit, at opening, then weekly or in response to complaint.						
<b>Date / Time:</b>						
<b>Location / Road Distance:</b>						
<b>Weather Condition:</b>						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the borrow pit / quarry located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?		✓			✓	
If yes, comment on the adverse impacts on the environment:						
Is the borrow pit / quarry being properly maintained?	✓			✓		
If no, state what is not being done :						
Is there adverse visual impact due to the borrow pit?		✓			✓	
If yes, comment how:						
Is borrow pits / quarries excavation / mining adequately employing drainage and fill methodology to avoid any water pools formation during rains?		✓			✓	
If no, comment: Borrow pit shall be utilized by owner for importing water for domestic used.						
Is the borrow pits / quarry properly rehabilitated at least partially before the start of the rainy season?		✓			✓	
If no, comment on what needs to be done: The owner need the pit to impound water during rainy season						
Are there any signs of erosion and instability?		✓			✓	
If yes, what seems to be the reason?						
Are the cut faces stabilized with appropriate materials and methods?	✓			✓		
If no, what are the impacts?						
Is the borrow pit / quarry to be closed and rehabilitated?		✓			✓	
If yes, is there a closure plan?						
Are the borrow pit / quarry operations creating excessive dust / noise?		✓			✓	
If yes, are any measures being taken to minimize dust and noise?						
Do the communities have any concerns / issues with borrow pit / quarry during operation or after closure?		✓			✓	
If yes, what are those concerns / issues?						
Any additional comments:						

Inspector's name and signature:

 Mr. Zhang JianJun  
 Project Manager

 THANAWICH Nithis  
 Resident Engineer, KCI

**CHECKLIST 3 Erosion of Slopes**

(N.B. There is no specific regulation for this activity)

Project Site: Improvement of PR314D from Sway Teab to Prey Vor 25.20km						
Observer: Dang Peng						
Frequency: Check weekly or in response to complaint.						
Date / Time:						
Location / Road Distance:						
Weather Condition:						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
What is / are the reason(s) for erosion / landslides / instability?						
a. Improper design / stripping of cut faces		✓			✓	
b. Improper drainage		✓			✓	
c. Clearing of vegetation / lack of gabions, geotextiles		✓			✓	
d. Improper leveling after earth removal		✓			✓	
e. Are the slopes properly stabilized before the start of the rainy season?	✓			✓		
f. Inadequate water channel diversion, or		✓			✓	
g. A combination of some of the reasons above		✓			✓	
Is remedial action required?						
If yes, comment:						
Did the erosion / landslide / instability cause any damage?		✓			✓	
If yes, what was the nature of the damage?						
Did the contractor take appropriate mitigatory measures, pre and post erosion / instability / landslides, to avoid / counter the problem?	✓			✓		
If no, why did the contractor not consider it necessary to take appropriate mitigatory measures?						
Was the erosion brought to the notice of appropriate authorities by the communities?						
If yes, was there any action taken?						
If no, why was action not taken?						
Any additional comments: No Erosion is occurring due to adequate work method						

Inspector's name and signature:

 Mr. Zhang JianJun  
 Project Manager

 THANAWICH Nithis  
 Resident Engineer, KCI

**CHECKLIST 4 Air Pollution**

(N.B. The contractor must carry out his activities to ensure compliance with the regulations stated in draft Sub Decree on Air and Noise Pollution Control)

Project Site: Improvement of PR314D from Svay Teab to Prey Vor 25.20km						
Observer: Dang Peng						
Frequency: Check weekly or in response to complaint.						
Date / Time:						
Location / Road Distance:						
Weather Condition:						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
What is the nature of air pollution?						
a. Dust from road	✓			✓		
b. Dust from stock piled materials						
c. Generator, batching plant emissions						
d. Vehicular emissions						
Is the problem significant enough to warrant attention?		✓			✓	
If yes, did the contractor take appropriate measure to mitigate the problem?						
What is / are the measures taken?						
a. Periodic water sprays on road surface / borrow pits			✓			✓
b. Vehicle tire washing facilities at borrow pits and other locations						
c. Speed limit enforced on project vehicles			✓			✓
d. Vehicles speeding checked by posting signs on roads, and awareness raising of staff and local communities						
e. Covering of stock piled materials						
f. Vehicles regularly maintained			✓			✓
g. Equipment regularly maintained			✓			✓
Is air pollution creating problems for the surrounding communities?		✓			✓	
If yes, what type of problems?						

Inspector's name and signature:

Mr. Zhang JianJun  
Project Manager

THANAWICH Nithis  
Resident Engineer, KCI



**CHECKLIST 8 Cultural Heritage (None)**

(N.B. The contractor must carry out his activities to ensure compliance with the regulations stated in "Law on Protection of Cultural and National Heritage", (1996)

<b>Project Site:</b> Improvement of PR314D from Svay Teab to Prey Vor 25.20km						
<b>Observer:</b> Dang Peng						
<b>Frequency:</b> Check weekly or in response to complaint.						
<b>Date / Time:</b>						
<b>Location / Road Distance:</b>						
<b>Weather Condition:</b>						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Does the project area have any cultural heritage, archaeological, historical or religious sites?		✓			✓	
If yes, are they affected in any way by the project activities?		✓			✓	
If yes, how?						
Did the concerned authorities and the contractor take any appropriate measures to protect the site?		✓			✓	
If yes, what are the measures taken?						
Are the communities satisfied with the measures taken?						
Is the community satisfied with the measures taken by the contractor to protect land?						
If no, how and with what measures can it be improved?						
Is the local administration satisfied with the measures taken by the contractor to protect land?						
If no, what is being suggested by the local administration?						
Any additional comments:						

Inspector's name and signature:

Mr. Zhang JianJun  
Project Manager

THANAWICH Nithis  
Resident Engineer, KCI

**CHECKLIST 9 Noise Pollution**

(N.B. The contractor must carry out his activities to ensure compliance with the regulations stated in draft Sub Decree on Air and Noise Pollution Control)

Project Site: Improvement of PR314D from Svay Teab to Prey Vor 25.20km		
Observer: Dang Peng		
Frequency: Check weekly or in response to complaint.		
Date / Time:		
Location / Road Distance:		
Weather Condition:		

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
What is the nature of noise pollution?						
vehicles on road	✓			✓		
Generators, construction plant	✓			✓		
Construction vehicles	✓			✓		
vibration from equipment	✓			✓		
vibration from road vehicles	✓			✓		
vibration from explosive blasting						
Is the problem significant enough to warrant attention?		✓			✓	
If yes, did the contractor / consultant take appropriate measure to mitigate the problem?						
What is / are the measures taken?						
vehicles regularly maintained and silencers checked			✓			✓
speed limit enforced on project vehicles			✓			✓
construction equipment maintained and silenced			✓			✓
compressors and generators operated with silencing panels closed			✓			✓
awareness raising of staff over causing nuisance to local communities			✓			✓
blasting at fixed times and communities notified						
Avoid undertaking construction activities and blasting close to communities at night			✓			✓
Is noise pollution creating problems (health, aesthetic & nuisance) for the surrounding communities?		✓			✓	
If yes, what type of problems?						

Inspector's name and signature:

Mr. Zhang JianJun  
Project Manager

THANAWICH Nithis  
Resident Engineer, KCI

**CHECKLIST 10 Drainage and Flooding**

(N.B. There is no specific regulation for this activity)

Project Site: Improvement of PR214D from Svay Teab to Prey Vor 25.20km		
Observer: Dang Peng		
Frequency: As required		
Date / Time:		
Location / Road Distance:		
Weather Condition:		

Checklist Question	July			August		
	Yes	No	Add-date	Yes	No	Add-date
Is the flooding extensive or not?		✓			✓	
If yes, give details:						
Have contractors activities caused flooding or blocked drains?		✓			✓	
If yes, give details:						
Have cross drainage structures been built in correct location as shown in contract?						
If no, give details:						
Are cross drainage structures "as built" same as in "detailed design"?						
If no, give details:						
Any other issues						
If yes, give details						

Inspector's name and signature:

 Mr. Zhang JianJun  
 Project Manager

 THANAWICH Nithis  
 Resident Engineer, KCI

**CHECKLIST 11 Construction Camps Closure**

(N.B. There is no specific regulation for this activity.)

<b>Project Site:</b> Improvement of PR314D from Svay Teab to Prey Vor 25.20km		
<b>Observer:</b> Dang Peng		
<b>Frequency:</b> Check at closure of camp.		
<b>Date / Time:</b>		
<b>Location / Road Distance:</b>		
<b>Weather Condition:</b>		

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?		✓			✓	
If yes, comment on the adverse impacts on the environment:						
Has the camp / yard been properly cleared of all debris and revegetated?	✓			✓		
If no, list what was not done properly:						
Was the wastewater disposed of properly?	✓			✓		
If no, comment on how it was being disposed and what were the impacts:						
Were septic tanks installed? Have they been removed?		✓			✓	
If no, why not?						
Was solid waste disposed of properly?	✓			✓		
If no, comment on how it was being disposed and the impacts of such disposal:						
Was attention being paid to housekeeping?	✓			✓		
If no, comment on what was not being done:						
Have all the contractor equipments being removed from the campsite / yard?		✓			✓	
If yes, have all appropriate precautions been taken to avoid water and land contamination?						
Has the scrap metal from vehicle maintenance being disposed of properly?	✓			✓		
If no, comment on how it is to be disposed:						
Has all fuel storage been removed from the site?		✓			✓	
If no, comment on how the surrounding area is being affected: Site in used						
Have all general offices and staff dwellings been removed?		✓			✓	
If no, comment on if they are to be handed over to new owner or other plans: Site in use						
Does the community have any issues with the camp closure?		✓			✓	
If yes, what are the issues?						
Any additional comments:						

Inspector's name and signature:

 Mr. Zhang JianJun  
 Project Manager

 THANAWICH Nithis  
 Resident Engineer, KCI

## Appendix B2 – Checklist of EMP Implementation for Contract CW-B1 (from September – December 2015)

Contract Package : CW-B1				Inspector's Name : Mr. Phok Soviet														
Inspection Date : July to December 2015				Position : Site Engineer														
EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
1. Community Facilities (power lines, irrigation canals, etc.)																		
Interruption of utility services are minimized by laying out new lines prior to transfer	✓				✓				✓				✓					
Replacement structure are constructed prior to demolition of existing structure	✓				✓				✓				✓					
Temporary facilities to maintain adequate services are in place	✓				✓				✓				✓					
Coordination with local company or local offices	✓				✓				✓				✓					
Affected parties are informed in advance	✓				✓				✓				✓					
2. Air Quality (Dust and Gaseous Emissions)																		
Vehicles and equipment are well maintained and in good condition.	✓				✓				✓				✓					
Borrow areas, casting yard and other project facilities are duly licensed and have all the necessary environmental approvals	✓				✓				✓				✓					
All construction vehicles and equipment are tested for compliance with relevant emission standard and properly licensed	✓				✓				✓				✓					
Parked vehicles on the site works have their engines turned off. Unnecessary engine idling of vehicles and equipment is prohibited.	✓				✓				✓				✓					
Water spraying of roadways, working areas and other construction-related facilities near sensitive receptors and handling of all raw sand and aggregates, and other similar materials	✓				✓				✓				✓					
Dust barriers are installed as necessary	✓				✓				✓				✓					
Storage areas of construction materials such as sand, gravel, cement, etc., have provisions that prevent them from being blown away towards sensitive receptors			✓				✓				✓				✓			

(MP Requirement (Mitigating Measures))	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadlines
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Trucks transporting construction materials (i.e. sand, soil, cement, gravel, etc) are tightly covered			✓			✓			✓			✓						
Roadways are regularly cleaned of tracked in mud, cement, etc. from construction works			✓			✓			✓			✓						
Stockpiling of spoils near sensitive receptors is prohibited	✓				✓				✓			✓						
Construction vehicles have speed limits (typically 25 km/hour or less) along areas where sensitive receptors are located	✓				✓				✓			✓						
Areas where there is a regular movement of vehicles have an acceptable hard surface and are clear of loose surface material			✓			✓			✓			✓						
Cement and other fine-grained materials delivered in bulk are stored in closed containers			✓			✓			✓			✓						
Conveyor belts are fitted with wind-boards, and conveyor transfer points and hopper discharge areas are enclosed																		
Weigh hoppers are vented with a suitable filter																		
Wheel washers are used to clean delivery/ haul trucks of mud and dirt as they exit the work area		✓				✓			✓			✓						
Smoke belching vehicles and equipment are not used for the project	✓				✓				✓			✓						
Construction vehicle trips and travel distances for material deliveries are minimized (e.g., by using local materials and labor sources).	✓				✓				✓			✓						
Construction access roads are temporarily paved or sealed		✓				✓			✓			✓						
<b>3. Noise Levels</b>																		
Prior notification to the community on construction schedule	✓				✓				✓			✓						
Vehicle and equipment are fitted with emission control and silencers to meet national noise standard	✓				✓				✓			✓						

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Vehicles and equipment are well-maintained and checked by the contractor every 6 months		✓				✓				✓				✓				
Only vehicles and equipment that are registered and have necessary permits are used	✓				✓				✓				✓					
Noisy equipment are completely enclosed whenever possible	✓				✓				✓				✓					
Stationary equipment that produce high noise level are positioned as far as is practical from sensitive receptors.	✓				✓				✓				✓					
Noisy construction activities within 200m of a settlement are only during daytime	✓				✓				✓				✓					
Suitable noise control barriers are used in the vicinity of house, school, temples, medical facilities and other sensitive receptors	✓				✓				✓				✓					
Noisy construction activities are avoided near school during examination period and coordinated with school administration	✓				✓				✓				✓					
Noisy construction activities are avoided in the vicinity of sensitive receivers	✓				✓				✓				✓					
Suitable noise level reduction measures are installed by the contractor if construction activities are disruptive	✓				✓				✓				✓					
Speed limits on construction vehicles are imposed		✓				✓				✓				✓				
Construction traffic routes are defined in cooperation with local communities and traffic police	✓				✓				✓				✓					
Asphalt concrete batching plants and crushing plant are located at least 500 m away from inhabited areas and other sensitive receptors	✓				✓				✓				✓					
<b>4. Vibration Levels</b>																		
Fully loaded trucks are rerouted away from roadways that go through heavily built areas	✓				✓				✓				✓					
Heavy equipment are operated away from vibration-sensitive areas	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Simultaneous activities like demolition, ground impacting and earthmoving are avoided	✓				✓				✓				✓					
Alternative equipment is used	✓				✓				✓				✓					
Use of vibrating rollers near vibration-sensitive structures are avoided	✓				✓				✓				✓					
5. Erosion and Sedimentation																		
Suitable soil erosion control measures are implemented prior to excavation of the bridge pier foundation and construction activities at waterways	✓				✓				✓				✓					
Silted water carried with the spoils during excavation and construction of bridge foundation are properly treated	✓				✓				✓				✓					
Spoils (excavated soil, rocks, removed asphalt, etc.) stockpiles are located at least 50 m from watercourses	✓				✓				✓				✓					
A bund is placed around the spoils stockpile area	✓				✓				✓				✓					
Spoil disposal does not cause sedimentation and obstruction of water flow, damage to agricultural land and densely vegetated areas	✓				✓				✓				✓					
Grading is avoided or minimized during the rainy season particularly in areas of steep topography and/or adjacent to water courses	✓				✓				✓				✓					
Phased grading schedule is implemented to limit the area subject to erosion at any given time	✓				✓				✓				✓					
Appropriate erosion control and stabilizing measures (such as geotextiles, mats, fiber rolls, soil binders that are not toxic to the environment, or vegetation measures/temporary landscaping) are used in disturbed areas and on graded slopes	✓				✓				✓				✓					



EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline				
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				Yes	No	Partially	
	September				October				November						December			
Construction works (for bridges, culverts, drainage, etc.) on or near watercourses do not cause obstruction of channel flow	✓				✓				✓				✓					
Slopes along water channels are stabilized	✓				✓				✓				✓					
Dumping of soil, rocks, construction materials and debris onto watercourses is prohibited	✓				✓				✓				✓					
When construction works cause obstruction of watercourses, the obstruction is immediately cleared to restore channel flow	✓				✓				✓				✓					
6. Spoils Disposal																		
Spoils (excavated soil and rocks, cut vegetation, removed pavement such as asphalt, etc.) are immediately transported to disposal sites approved by local authorities			✓				✓					✓						
Temporary spoils stockpiles near paddy fields have bund or silt fence around them			✓				✓					✓						
Temporary spoils stockpile that are planned to be used longer than six months are sodded.			✓				✓					✓						
Height of spoils stockpile are limited to minimize windblown dust			✓				✓					✓						
7. Soil and Groundwater Contamination																		
Maintenance shops, fuel and oil depot have impermeable flooring with sump	✓				✓				✓				✓					
Refueling and servicing of equipment are carried out only in adequately equipped areas	✓				✓				✓				✓					
Only minimal chemicals, hazardous substances and fuel are stored on site works, within an enclosed and covered secure area that has an impervious floor and impervious bund around it	✓				✓				✓				✓					
Storage area for chemicals, hazardous substances and fuel are located away from watercourses, flood-prone areas, work camps, and danger areas	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Oil-stained refuse such as oily rags, spent oil filters and used oil are collected and disposed of through recyclers/authorized waste handlers and disposed in authorized waste facilities	✓				✓				✓				✓					
Availability of spill clean-up materials specifically designed for petroleum products and other hazardous substances	✓				✓				✓				✓					
Immediate cleanup of spills or leaks of petroleum products and/or hazardous substances	✓				✓				✓				✓					
Training of relevant construction personnel in handling of fuels/hazardous substances and spill control procedures	✓				✓				✓				✓					
At least weekly check for leakage in containers and immediate repair or replacement when necessary	✓				✓				✓				✓					
Equipment maintenance and fuel storage areas are provided with drainage to an oil-water separator that is regularly skimmed of oil and maintained	✓				✓				✓				✓					
Discharge of oil-contaminated water into the environment is prohibited	✓				✓				✓				✓					
Waste oil, used lubricant and other hazardous wastes are stored in tightly sealed containers with proper labeling	✓				✓				✓				✓					
Removal and treatment or proper disposal of oil contaminated soils is included in work sites restoration	✓				✓				✓				✓					
<b>8. Water Availability</b>																		
Temporary canals /irrigation channels to prevent disruption of water supply to farmlands.	✓				✓				✓				✓					
<b>9. Water Quality</b>																		

(EMP Requirement (Mitigating Measures))	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Suitable settling/retention ponds are constructed prior to operation of asphaltic concrete batching plants and casting yards	✓				✓				✓				✓					
Settling/retention ponds are properly operated and maintained to ensure effluent quality meets applicable effluent standards	✓				✓				✓				✓					
Bentonite slurry and sludge, mud and other materials and wastes from drilling are collected and processed to avoid pollution of surface water	✓				✓				✓				✓					
Bentonite slurry and sludge, mud and other materials and wastes from drilling are not discharged into watercourses	✓				✓				✓				✓					
Drilling solutions (e.g., bentonite slurry) for bridge construction, abutment construction, piling, etc. are processed in a closed system	✓				✓				✓				✓					
Proper disposal of bentonite-containing spoils as fill material in appropriate sites	✓				✓				✓				✓					
Spilled bentonite mud in agricultural land is cleaned immediately before it cakes and hardens	✓				✓				✓				✓					
Water from bridge foundation dewatering is not discharged directly into a water body	✓				✓				✓				✓					
Total suspended solids content of discharges into water bodies comply with applicable standards	✓				✓				✓				✓					
Sanitation facilities with sufficient capacity are provided to handle and treat sewage generated by workers	✓				✓				✓				✓					
Equipment service and maintenance yards are provided with impermeable flooring and collection sump	✓				✓				✓				✓					
All equipment maintenance shops are provided with water-tight receptacles for waste oil, oily rags, spent oil filters, solvents and oily containers	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Disposal of all waste oil, oily rags, spent oil filters, solvents and oily containers are through authorized waste handlers and recyclers	✓				✓				✓				✓					
Paving operations are restricted during wet weather	✓				✓				✓				✓					
Use of sediment control devices downstream of paving activities	✓				✓				✓				✓					
Use of mobile fueling/maintenance units for construction equipment whenever feasible	✓				✓				✓				✓					
Accurate and up-to-date written inventories and labels for all stored hazardous materials	✓				✓				✓				✓					
Use of berms, ditches, and/or impervious liners, etc. in material storage, vehicle/ equipment maintenance and fueling areas	✓				✓				✓				✓					
Material storage, maintenance and fueling areas and septic systems are at least 30 m from storm drains and surface waters	✓				✓				✓				✓					
Facilities for solid and domestic liquid waste management are used and maintained	✓				✓				✓				✓					
10. Solid Waste																		
Garbage bins and temporary storage facilities for construction wastes, domestic solid wastes and segregated wastes are provided within the project site	✓				✓				✓				✓					
Waste segregation (hazardous, non-hazardous, reusable) is practiced	✓				✓				✓				✓					
Regular collection and disposal of wastes (by contractor or authorized third party) to sites approved by local authorities	✓				✓				✓				✓					
Wastes are not dumped into watercourses, agricultural land and surrounding areas	✓				✓				✓				✓					
11. Borrow Pits																		
Borrow areas are not located in productive land, forested areas and near water courses such as rivers, streams, etc.	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Topsoil are properly removed, stockpiled and preserved for later use during site restoration and provision of vegetation cover to minimize erosion	✓				✓				✓				✓					
Stable side slopes are provided during excavation of the borrow pits	✓				✓				✓				✓					
Quarry sites lying on small rivers and streams are avoided	✓				✓				✓				✓					
Quarry sections located on the river bed are avoided or reduced if unavoidable	✓				✓				✓				✓					
Borrow pits are left in a tidy state with stable side slopes and proper drainage	✓				✓				✓				✓					
Quarry sites and borrow pits are restored and rehabilitated after use	✓				✓				✓				✓					
<b>12. Traffic Management and Local Access</b>																		
Signs advising that construction is in progress are provided, particularly where the alignment crosses existing roads and where construction related-facilities are located	✓				✓				✓				✓					
Flag persons are employed to regulate traffic especially in potentially hazardous areas	✓				✓				✓				✓					
Traffic advisory signs (to minimize traffic build-up) are posted in coordination with local authorities		✓				✓				✓				✓				
Sufficient lighting at night within and in the vicinity of construction sites are provided		✓				✓				✓				✓				
Regular monitoring of traffic conditions along access roads to ensure that project vehicles are not causing congestion	✓				✓				✓				✓					
Schedules are observed for different types of construction traffic trips (e.g., transport of pre-cast sections, haulage of spoils, delivery of construction materials, etc.)	✓				✓				✓				✓					
Delivery of construction materials and equipment and transport of spoils are during non-peak hours	✓				✓				✓				✓					

(EMP Requirement (Mitigating Measures))	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Interactions between construction works, traffic flows and pedestrians are minimized by the following safety measures: <ul style="list-style-type: none"> <li>• Temporary signals or flag controls</li> <li>• Adequate lighting</li> <li>• Fencing</li> <li>• Signage</li> <li>• Road diversion</li> <li>• Traffic cones</li> <li>• Barricades</li> </ul>	✓				✓				✓				✓					
Use of escort vehicles and warning signs/lights to increase public awareness of potential hazards		✓				✓				✓				✓				
Construction activities and schedules are coordinated in advance with local agencies, community representatives, businesses, schools	✓				✓				✓				✓					
Existing access routes are maintained (whenever feasible)	✓				✓				✓				✓					
Provision of alternative access and/or parking when impacts to principal access routes and parking areas cannot be avoided		✓				✓				✓				✓				
Adequate informational and directional signage to improve alternative access function	✓				✓				✓				✓					
Construction operations are scheduled to avoid or minimize conflicts with local uses/ activities	✓				✓				✓				✓					
At least one safe through lane is maintained at all times in construction areas	✓				✓				✓				✓					
<b>13. Damage to Properties and Community Facilities</b>																		
Local roads used by the project are upgraded prior to use	✓				✓				✓				✓					
Local and access roads used by the project are repaired and maintained regularly and fully restored at the end of the project	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Contractor immediately repairs and/or compensates for any damage to properties	✓				✓				✓				✓					
<b>14. Accidental Discovery of Artefacts</b>																		
Immediate stoppage of operations on road section where artifacts/ archaeological finds are unearthed; contractor informs the DDIS and CIPM	✓				✓				✓				✓					
CIPM notifies Ministry of Culture and Information (MCI) to obtain advice regarding the next steps	✓				✓				✓				✓					
Work is resumed only after MCI has provided official notification	✓				✓				✓				✓					
<b>15. Occupational Health and Safety</b>																		
Orientation for construction workers regarding health and safety measures, emergency response and prevention of HIV/AIDS and other diseases	✓				✓				✓				✓					
Workers at the bridge site are provided with life vests/buoyancy devices at all times	✓				✓				✓				✓					
Stable footpaths/access with sturdy guardrails to the bridge work sites shall be provided	✓				✓				✓				✓					
Preparation and implementation of a waterway safety plan, approved by the agencies in charge	✓				✓				✓				✓					
Contractor complies with the waterway traffic safety during construction	✓				✓				✓				✓					
First aid facilities that are readily accessible to workers	✓				✓				✓				✓					
Fire-fighting equipment at construction camps and work areas, as appropriate	✓				✓				✓				✓					
Adequate drainage in workers' camps	✓				✓				✓				✓					
Adequate and clean housing and sanitation facilities for all workers at the workers'/ construction camps	✓				✓				✓				✓					
Separate sleeping quarters for male and female workers	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Reliable supply of water for drinking, cooking and washing purposes at the workers' camps	✓				✓				✓				✓					
Separate hygienic sanitation facilities/toilets and bathing areas with sufficient water supply for male and female workers	✓				✓				✓				✓					
All wastewater from workers' and construction camps and project-related activities/ facilities are treated consistent with national regulations	✓				✓				✓				✓					
Proper collection and disposal of solid wastes within the workers'/construction camps	✓				✓				✓				✓					
Sturdy fencing on all excavation areas greater than 2 m deep	✓				✓				✓				✓					
Workers are provided and use appropriate and complete safety equipment such as safety boots, protective clothes, breathing mask, ear protection, helmets, gloves, etc.	✓				✓				✓				✓					
Reversing signals are installed on all construction vehicles	✓				✓				✓				✓					
Fall prevention and protection measures whenever a worker is exposed to the hazard of falling more than two meters, falling into operating machinery or through an opening	✓				✓				✓				✓					
<b>16. Public Safety</b>																		
Signage are installed at the periphery of the construction site to warn and direct traffic and pedestrians	✓				✓				✓				✓					
Security personnel are deployed in hazardous areas to restrict public access	✓				✓				✓				✓					
Speed limits are imposed on construction vehicles along residential and other sensitive areas (typically 25 km per hour)	✓				✓				✓				✓					
Drivers are taught safe driving practices to minimize accidents and prevent spill of hazardous and other construction materials during transport	✓				✓				✓				✓					



EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline				
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				Yes	No	Partially	
	September				October				November						December			
Safe access to properties and establishments affected by construction works	✓				✓				✓				✓					
Safe passageways for pedestrians crossing the construction site	✓				✓				✓				✓					
Excavated areas are immediately backfilled, covered (e.g., with metal plates) and/or repaved		✓		Cross pipe culvert excavated ( half of existing road )		✓		Cross pipe culvert excavated ( half of existing road )		✓		Cross pipe culvert excavated ( half of existing road )		✓		Cross pipe culvert excavated ( half of existing road )	Signage are installed to warn and direct traffic	
All construction vehicles and equipment are secured during non-working periods to prevent unauthorized access or use	✓				✓				✓				✓					
Appropriate safety barriers and warning signs are installed in areas that pose safety risks such as open excavations, cut slopes, erosion-prone slopes, manufactured slopes, drainages, etc.	✓				✓				✓				✓					
17. Flora and Fauna																		
Vegetation removal is coordinated with forest authority																		
Tree-cutting permit is secured, as necessary	✓				✓				✓				✓					
Tree planting and landscaping plan that includes:  • Inventory of the number of species of trees proposed for removal • Identifying and documenting quantity, variety, and location of replacement trees • Replanting at the outer portions of the ROW and in other locations agreed with local authorities • Monitoring and maintenance program to ensure effectiveness of the plan • Adopting remedial measures where appropriate (e.g., replacing dead or damaged replanted trees)																		

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status	Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially						Yes	No	Partially
	September				October				November								December		
Clearing of trees is limited to areas that are only necessary based on the project design and as approved by the forestry department			✓			✓			✓					✓					
Cutting of trees for firewood and for use in project is prohibited	✓				✓				✓				✓						
New alien plant species are not used for replanting/revegetation without an existing regulatory framework	✓				✓				✓				✓						
Invasive species are not introduced into new environments	✓				✓				✓				✓						
Workers are prohibited from hunting wild animals and collecting forest products	✓				✓				✓				✓						
Bridge works are scheduled in dry season to minimize adverse impacts to aquatic resources	✓				✓				✓				✓						
Contractors do not buy or use wood from illegal sources (illegal logging)	✓				✓				✓				✓						
No construction camps, asphalt mixing plants, material storage sites and other construction facilities are located in protected areas	✓				✓				✓				✓						
Construction camps, asphalt mixing plants, material storage sites and other construction facilities are located at least 1 km from the boundaries of national parks and class 1A and 1B watershed designated areas	✓				✓				✓				✓						
Precautions are adopted to ensure that damage to vegetation is avoided should fires resulting from execution of the works occur	✓				✓				✓				✓						
Road improvement works are restricted to the existing ROW boundaries	✓				✓				✓				✓						
Grading methods and facilities i.e., rounding, benching, terracing and retaining walls are used to reduce earthwork and related topographic alteration/vegetation removal	✓				✓				✓				✓						

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Suitable wildlife crossing structures are installed at locations agreed with the park management boards and National Environmental Board	✓				✓				✓				✓					

Signature

 Mr. Zhang Jian Jun  
 Project Manager

 Mr. THANAWCH Nithis  
 Resident Engineer

## Appendix C- Checklist of EMP Implementation for Contract CW-C

### ENVIRONMENTAL MONITORING CHECK LIST

July – December 2015

(New Checklist is applied from September to December 2015 (referring to ADB's comment), and previous checklist was used at July and August 2015)

Provincial Road Improvement Project  
ADB Loan No.2839-CAM (SF)/8254-CAM  
Contract Package CW-C: Improvement of PR150B, NR53 and PR151B

## Appendix C1 – Checklist of EMP Implementation for Contract CW-C (from July – August 2015)

**CHECKLIST 1 Construction Camps**

(N.B. There is no specific regulation for this activity.

"Good Housekeeping" must be observed and "General Industry Practice" followed)

Project Site: Improvement of PR150B, NR53 and PR151B						
Observer: Mr. Uth Bora						
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.						
Date / Time:						
Location / Road Distance:						
Weather Condition:						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?		✓			✓	
If yes, comment on the adverse impacts on the environment:						
Is the camp / yard being properly maintained?	✓			✓		
If no, list what is not being done properly:						
Is the wastewater being disposed of properly?	✓			✓		
If no, comment on how it is being disposed and what are the impacts:						
If no, comment on:						
Have septic tanks been installed?						
Are they working correctly, that is not overflowing, or emitting smell?						
Is the solid waste being disposed off properly?	✓			✓		
If no, comment on how it is being disposed and the impacts of such disposal:						
Is attention being paid to "Good housekeeping"?	✓			✓		
If no, comment on what is not being done:						
Are the contractor's vehicles being maintained at the campsite / yard?	✓			✓		
If yes, are appropriate precaution taken to avoid water and land contamination? Waste oil are collected in a collection bin and stored for reuse as formwork						
Is the waste from vehicle maintenance being disposed off properly?	✓			✓		
If no, comment on how it is being disposed:						
Is the fuel storage area properly surfaced and has a containment kerb around it?	✓			✓		
If no, comment on how the surrounding area is being affected:						
Are occupational health and hygiene precautions being taken?	✓			✓		
If no, comment on where they are being neglected: Bound wall to be constructed						
Does the community have any issues with the camp?		✓			✓	
If yes, what are the issues?						
Any additional comments: Health and safety gadgets are around and waiting delivery						

Inspector's name and signature:

 Mr. Mom Moniroth  
 Project Manager, GKC-VSC JV

 Mr. HWANG Jung Joo  
 Resident Engineer, KCI

## CHECKLIST 2 Borrow Pits / Quarries

(N.B. There is no specific regulation for this activity)

Project Site: Improvement of PR150B, NR53 and PR151B						
Observer: Mr. Uth Bora						
Frequency: Check weekly during preparation of borrow pit, at opening, then weekly or in response to complaint.						
Date / Time:						
Location / Road Distance:						
Weather Condition:						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the borrow pit / quarry located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?		✓			✓	
If yes, comment on the adverse impacts on the environment:						
Is the borrow pit / quarry being properly maintained?	✓			✓		
If no, state what is not being done :						
Is there adverse visual impact due to the borrow pit?		✓			✓	
If yes, comment how:						
Is borrow pits / quarries excavation / mining adequately employing drainage and fill methodology to avoid any water pools formation during rains?		✓			✓	
If no, comment: Borrow pit shall be utilized by owner for importing water for domestic used.						
Is the borrow pits / quarry properly rehabilitated at least partially before the start of the rainy season?	✓			✓		
If no, comment on what needs to be done: The owner need the pit to impound water during rainy season.						
Are there any signs of erosion and instability?		✓			✓	
If yes, what seems to be the reason?						
Are the cut faces stabilized with appropriate materials and methods?	✓			✓		
If no, what are the impacts?						
Is the borrow pit / quarry to be closed and rehabilitated?		✓			✓	
If yes, is there a closure plan?						
Are the borrow pit / quarry operations creating excessive dust / noise?		✓			✓	
If yes, are any measures being taken to minimize dust and noise?						
Do the communities have any concerns / issues with borrow pit / quarry during operation or after closure?		✓			✓	
If yes, what are those concerns / issues?						
Any additional comments:						

Inspector's name and signature:

Mr. Mom Moniroth  
Project Manager, GKC-VSC JVMr. HWANG Jung Joo  
Resident Engineer, KCI

**CHECKLIST 3 Erosion of Slopes**

(N.B. There is no specific regulation for this activity)

Project Site: Improvement of PR150B, NR53 and PR151B						
Observer: Mr. Uth Bora						
Frequency: Check weekly or in response to complaint.						
Date / Time:						
Location / Road Distance:						
Weather Condition:						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
What is / are the reason(s) for erosion / landslides / instability?						
a. Improper design / stripping of cut faces		✓			✓	
b. Improper drainage		✓			✓	
c. Clearing of vegetation / lack of gabions, geotextiles		✓			✓	
d. Improper leveling after earth removal		✓			✓	
e. Are the slopes properly stabilized before the start of the rainy season?	✓			✓		
f. Inadequate water channel diversion, or		✓			✓	
g. A combination of some of the reasons above		✓			✓	
Is remedial action required?		✓			✓	
If yes, comment: Correct design, correct drainage, proper leveling after earth removal.						
Did the erosion / landslide / instability cause any damage?		✓			✓	
If yes, what was the nature of the damage?						
Did the contractor take appropriate mitigatory measures, pre and post erosion / instability / landslides, to avoid / counter the problem?	✓			✓		
If no, why did the contractor not consider it necessary to take appropriate mitigatory measures?						
Was the erosion brought to the notice of appropriate authorities by the communities?						
If yes, was there any action taken?						
If no, why was action not taken?						
Any additional comments: No Erosion is occurring due to adequate work method						

Inspector's name and signature:

Mr. Mom Moniroth  
Project Manager, GKC-VSC JV

Mr. HWANG Jung Joo  
Resident Engineer, KCI

**CHECKLIST 4 Air Pollution**

(N.B. The contractor must carry out his activities to ensure compliance with the regulations stated in draft Sub Decree on Air and Noise Pollution Control)

<b>Project Site:</b> Improvement of PR150B, NR53 and PR151B						
<b>Observer:</b> Mr. Uth Bora						
<b>Frequency:</b> Check weekly or in response to complaint.						
<b>Date / Time:</b>						
<b>Location / Road Distance:</b>						
<b>Weather Condition:</b>						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
What is the nature of air pollution?						
a. Dust from road	✓			✓		
b. Dust from stock piled materials						
c. Generator, batching plant emissions						
d. Vehicular emissions						
Is the problem significant enough to warrant attention?		✓			✓	
If yes, did the contractor take appropriate measure to mitigate the problem?						
What is / are the measures taken?						
a. Periodic water sprays on road surface / borrow pits			✓			✓
b. Vehicle tire washing facilities at borrow pits and other locations						
c. Speed limit enforced on project vehicles			✓			✓
d. Vehicles speeding checked by posting signs on roads, and awareness raising of staff and local communities						
e. Covering of stock piled materials						
f. Vehicles regularly maintained			✓			✓
g. Equipment regularly maintained			✓			✓
Is air pollution creating problems for the surrounding communities?		✓			✓	
If yes, what type of problems?						

Inspector's name and signature:

Mr. Mom Moniroth  
 Project Manager, GKC-VSC JV

Mr. HWANG Jung Joo  
 Resident Engineer, KCI



**CHECKLIST 8 Cultural Heritage (None)**

(N.B. The contractor must carry out his activities to ensure compliance with the regulations stated in "Law on Protection of Cultural and National Heritage", (1996)

<b>Project Site:</b> Improvement of PR150B, NR53 and PR151B						
<b>Observer:</b> Mr. Uth Bora						
<b>Frequency:</b> Check weekly or in response to complaint.						
<b>Date / Time:</b>						
<b>Location / Road Distance:</b>						
<b>Weather Condition:</b>						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Does the project area have any cultural heritage, archaeological, historical or religious sites?		✓			✓	
If yes, are they affected in any way by the project activities?						
If yes, how?						
Did the concerned authorities and the contractor take any appropriate measures to protect the site?		✓			✓	
If yes, what are the measures taken?						
Are the communities satisfied with the measures taken?						
Is the community satisfied with the measures taken by the contractor to protect land?						
If no, how and with what measures can it be improved?						
Is the local administration satisfied with the measures taken by the contractor to protect land?						
If no, what is being suggested by the local administration?						
Any additional comments:						

Inspector's name and signature:

Mr. Mom Moniroth  
 Project Manager, GKC-VSC JV

Mr. HWANG Jung Joo  
 Resident Engineer, KCI

**CHECKLIST 9 Noise Pollution**

(N.B. The contractor must carry out his activities to ensure compliance with the regulations stated in draft Sub Decree on Air and Noise Pollution Control)

<b>Project Site:</b> Improvement of PR150B, NR53 and PR151B						
<b>Observer:</b> Mr. Uth Bora						
<b>Frequency:</b> Check weekly or in response to complaint.						
<b>Date / Time:</b>						
<b>Location / Road Distance:</b>						
<b>Weather Condition:</b>						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
What is the nature of noise pollution?						
vehicles on road	✓			✓		
Generators, construction plant						
Construction vehicles	✓			✓		
vibration from equipment						
vibration from road vehicles						
vibration from explosive blasting						
Is the problem significant enough to warrant attention?		✓			✓	
If yes, did the contractor / consultant take appropriate measure to mitigate the problem?						
What is / are the measures taken?						
vehicles regularly maintained and silencers checked			✓			✓
speed limit enforced on project vehicles			✓			✓
construction equipment maintained and silenced			✓			✓
compressors and generators operated with silencing panels closed						
awareness raising of staff over causing nuisance to local communities						
blasting at fixed times and communities notified						
Avoid undertaking construction activities and blasting close to communities at night						
Is noise pollution creating problems (health, aesthetic & nuisance) for the surrounding communities?		✓			✓	
If yes, what type of problems?						

Inspector's name and signature:

Mr. Mom Moniroth  
 Project Manager, GKC-VSC JV

Mr. HWANG Jung Joo  
 Resident Engineer, KCI

**CHECKLIST 10 Drainage and Flooding**

(N.B. There is no specific regulation for this activity)

<b>Project Site:</b> Improvement of PR150B, NR53 and PR151B		
<b>Observer:</b> Mr. Uth Bora		
<b>Frequency:</b> As required		
<b>Date / Time:</b>		
<b>Location / Road Distance:</b>		
<b>Weather Condition:</b>		

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the flooding extensive or not?		✓			✓	
If yes, give details:						
Have contractors activities caused flooding or blocked drains?		✓			✓	
If yes, give details:						
Have cross drainage structures been built in correct location as shown in contract?						
If no, give details: Not yet start						
Are cross drainage structures "as built" same as in "detailed design"?						
If no, give details:						
Any other issues		✓			✓	
If yes, give details						

Inspector's name and signature:

 Mr. Mom Moniroth  
 Project Manager, GKC-VSC JV

 Mr. HWANG Jung Joo  
 Resident Engineer, KCI

**CHECKLIST 11 Construction Camps Closure**

(N.B. There is no specific regulation for this activity.)

Project Site: Improvement of PR150B, NR53 and PR151B						
Observer: Mr. Uth Bora						
Frequency: Check at closure of camp.						
Date / Time:						
Location / Road Distance:						
Weather Condition:						

  

Checklist Question	July			August		
	Yes	No	Add-data	Yes	No	Add-data
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?		✓			✓	
If yes, comment on the adverse impacts on the environment:						
Has the camp / yard been properly cleared of all debris and revegetated?	✓			✓		
If no, list what was not done properly:						
Was the wastewater disposed of properly?	✓			✓		
If no, comment on how it was being disposed and what were the impacts:						
Were septic tanks installed? Have they been removed?		✓			✓	
If no, why not? - When it full pump out.						
Was solid waste disposed of properly?		✓			✓	
If no, comment on how it was being disposed and the impacts of such disposal: <i>No compliance has made on CEMP. Wastes has been thrown to near boundary of Engineer's site Camp and burned it there.</i>						
Was attention being paid to housekeeping?						
If no, comment on what was not being done:						
Have all the contractor equipments being removed from the campsite / yard?	✓			✓		
If yes, have all appropriate precautions been taken to avoid water and land contamination? Yes						
Has the scrap metal from vehicle maintenance being disposed of properly?	✓			✓		
If no, comment on how it is to be disposed:						
Has all fuel storage been removed from the site?	✓			✓		
If no, comment on how the surrounding area is being affected: Site in used						
Have all general offices and staff dwellings been removed?	✓			✓		
If no, comment on if they are to be handed over to new owner or other plans: Site in use						
Does the community have any issues with the camp closure?		✓			✓	
If yes, what are the issues?						
Any additional comments:						

Inspector's name and signature:

 Mr. Mom Moniroth  
 Project Manager, GKC-VSC JV

 Mr. HWANG Jung Joo  
 Resident Engineer, KCI

## Appendix C2 – Checklist of EMP Implementation for Contract CW-C (from September to December 2015)

Contract Package : CW-C				Inspector's Name : Mr. Kim Piseth											
Inspection Date : July to December 2015				Position : Site Engineer											
EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline	
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				
	September				October				November						December
1. Community Facilities (power lines, irrigation canals, etc.)															
Interruption of utility services are minimized by laying out new lines prior to transfer		✓			✓				✓				✓		
Replacement structure are constructed prior to demolition of existing structure	✓				✓				✓				✓		
Temporary facilities to maintain adequate services are in place	✓				✓				✓				✓		
Coordination with local company or local offices	✓				✓				✓				✓		
Affected parties are informed in advance	✓				✓				✓				✓		
2. Air Quality (Dust and Gaseous Emissions)															
Vehicles and equipment are well maintained and in good condition.	✓				✓				✓				✓		
Borrow areas, casting yard and other project facilities are duly licensed and have all the necessary environmental approvals	✓				✓				✓				✓		
All construction vehicles and equipment are tested for compliance with relevant emission standard and properly licensed	✓				✓				✓				✓		
Parked vehicles on the site works have their engines turned off. Unnecessary engine idling of vehicles and equipment is prohibited.	✓				✓				✓				✓		
Water spraying of roadways, working areas and other construction-related facilities near sensitive receptors and handling of all raw sand and aggregates, and other similar materials	✓				✓				✓				✓		
Dust barriers are installed as necessary	✓				✓				✓				✓		

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				Yes	No	Partially
	September				October				November						December		
Storage areas of construction materials such as sand, gravel, cement, etc., have provisions that prevent them from being blown away towards sensitive receptors	✓				✓				✓				✓				
Trucks transporting construction materials (i.e. sand, soil, cement, gravel, etc) are tightly covered	✓				✓				✓				✓				
Roadways are regularly cleaned of tracked in mud, cement, etc. from construction works	✓				✓				✓				✓				
Stockpiling of spoils near sensitive receptors is prohibited	✓				✓				✓				✓				
Construction vehicles have speed limits (typically 25 km/hour or less) along areas where sensitive receptors are located	✓				✓				✓				✓				
Areas where there is a regular movement of vehicles have an acceptable hard surface and are clear of loose surface material	✓				✓				✓				✓				
Cement and other fine-grained materials delivered in bulk are stored in closed containers	✓				✓				✓				✓				
Conveyor belts are fitted with wind-boards, and conveyor transfer points and hopper discharge areas are enclosed	✓				✓				✓				✓				
Weigh hoppers are vented with a suitable filter	✓				✓				✓				✓				
Wheel washers are used to clean delivery/ haul trucks of mud and dirt as they exit the work area		✓			✓				✓				✓				
Smoke belching vehicles and equipment are not used for the project	✓				✓				✓				✓				
Construction vehicle trips and travel distances for material deliveries are minimized (e.g., by using local materials and labor sources).	✓				✓				✓				✓				
Construction access roads are temporarily paved or sealed		✓			✓				✓				✓				

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				Yes	No	Partially
	September				October				November						December		
3. Noise Levels																	
Prior notification to the community on construction schedule	✓				✓				✓				✓				
Vehicle and equipment are fitted with emission control and silencers to meet national noise standard	✓				✓				✓				✓				
Vehicles and equipment are well-maintained and checked by the contractor every 6 months	✓				✓				✓				✓				
Only vehicles and equipment that are registered and have necessary permits are used	✓				✓				✓				✓				
Noisy equipment are completely enclosed whenever possible	✓				✓				✓				✓				
Stationary equipment that produce high noise level are positioned as far as is practical from sensitive receptors.	✓				✓				✓				✓				
Noisy construction activities within 200m of a settlement are only during daytime	✓				✓				✓				✓				
Suitable noise control barriers are used in the vicinity of house, school, temples, medical facilities and other sensitive receptors	✓				✓				✓				✓				
Noisy construction activities are avoided near school during examination period and coordinated with school administration	✓				✓				✓				✓				
Noisy construction activities are avoided in the vicinity of sensitive receivers	✓				✓				✓				✓				
Suitable noise level reduction measures are installed by the contractor if construction activities are disruptive	✓				✓				✓				✓				
Speed limits on construction vehicles are imposed	✓				✓				✓				✓				
Construction traffic routes are defined in cooperation with local communities and traffic police	✓				✓				✓				✓				

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially						
	September				October				November						December		
Asphalt concrete batching plants and crushing plant are located at least 500 m away from inhabited areas and other sensitive receptors	✓				✓				✓				✓				
4. Vibration Levels																	
Fully loaded trucks are rerouted away from roadways that go through heavily built areas	✓				✓				✓				✓				
Heavy equipment are operated away from vibration-sensitive areas	✓				✓				✓				✓				
Simultaneous activities like demolition, ground impacting and earthmoving are avoided	✓				✓				✓				✓				
Alternative equipment is used	✓				✓				✓				✓				
Use of vibrating rollers near vibration- sensitive structures are avoided	✓				✓				✓				✓				
5. Erosion and Sedimentation																	
Suitable soil erosion control measures are implemented prior to excavation of the bridge pier foundation and construction activities at waterways	✓				✓				✓				✓				
Silted water carried with the spoils during excavation and construction of bridge foundation are properly treated	✓				✓				✓				✓				
Spoils (excavated soil, rocks, removed asphalt, etc.) stockpiles are located at least 50 m from watercourses	✓				✓				✓				✓				
A bund is placed around the spoils stockpile area	✓				✓				✓				✓				
Spoil disposal does not cause sedimentation and obstruction of water flow, damage to agricultural land and densely vegetated areas	✓				✓				✓				✓				
Grading is avoided or minimized during the rainy season particularly in areas of steep topography and/or adjacent to water courses	✓				✓				✓				✓				



EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Phased grading schedule is implemented to limit the area subject to erosion at any given time	✓				✓				✓				✓					
Appropriate erosion control and stabilizing measures (such as geotextiles, mats, fiber rolls, soil binders that are not toxic to the environment, or vegetation measures/temporary landscaping) are used in disturbed areas and on graded slopes	✓				✓				✓				✓					
Construction works (for bridges, culverts, drainage, etc.) on or near watercourses do not cause obstruction of channel flow	✓				✓				✓				✓					
Slopes along water channels are stabilized	✓				✓				✓				✓					
Dumping of soil, rocks, construction materials and debris onto watercourses is prohibited	✓				✓				✓				✓					
When construction works cause obstruction of watercourses, the obstruction is immediately cleared to restore channel flow	✓				✓				✓				✓					
6. Spoils Disposal																		
Spoils (excavated soil and rocks, cut vegetation, removed pavement such as asphalt, etc.) are immediately transported to disposal sites approved by local authorities	✓				✓				✓				✓					
Temporary spoils stockpiles near paddy fields have bund or silt fence around them	✓				✓				✓				✓					
Temporary spoils stockpile that are planned to be used longer than six months are sodded.	✓				✓				✓				✓					
Height of spoils stockpile are limited to minimize windblown dust	✓				✓				✓				✓					
7. Soil and Groundwater Contamination																		
Maintenance shops, fuel and oil depot have impermeable flooring with sump	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadlines
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Refueling and servicing of equipment are carried out only in adequately equipped areas	✓				✓				✓				✓					
Only minimal chemicals, hazardous substances and fuel are stored on site works, within an enclosed and covered secure area that has an impervious floor and impervious bund around it	✓				✓				✓				✓					
Storage area for chemicals, hazardous substances and fuel are located away from watercourses, flood-prone areas, work camps, and danger areas	✓				✓				✓				✓					
Oil-stained refuse such as oily rags, spent oil filters and used oil are collected and disposed of through recyclers/authorized waste handlers and disposed in authorized waste facilities	✓				✓				✓				✓					
Availability of spill clean-up materials specifically designed for petroleum products and other hazardous substances		✓			✓				✓				✓					
Immediate cleanup of spills or leaks of petroleum products and/or hazardous substances	✓				✓				✓				✓					
Training of relevant construction personnel in handling of fuels/hazardous substances and spill control procedures	✓				✓				✓				✓					
At least weekly check for leakage in containers and immediate repair or replacement when necessary	✓				✓				✓				✓					
Equipment maintenance and fuel storage areas are provided with drainage to an oil-water separator that is regularly skimmed of oil and maintained	✓				✓				✓				✓					
Discharge of oil-contaminated water into the environment is prohibited	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline	
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				
	September				October				November						December
Waste oil, used lubricant and other hazardous wastes are stored in tightly sealed containers with proper labeling	✓				✓				✓						
Removal and treatment or proper disposal of oil contaminated soils is included in work sites restoration	✓				✓				✓						
<b>8. Water Availability</b>															
Temporary canals /irrigation channels to prevent disruption of water supply to farmlands.	✓				✓				✓						
<b>9. Water Quality</b>															
Suitable settling/retention ponds are constructed prior to operation of asphaltic concrete batching plants and casting yards	✓				✓				✓						
Settling/retention ponds are properly operated and maintained to ensure effluent quality meets applicable effluent standards	✓				✓				✓						
Bentonite slurry and sludge, mud and other materials and wastes from drilling are collected and processed to avoid pollution of surface water	✓				✓				✓						
Bentonite slurry and sludge, mud and other materials and wastes from drilling are not discharged into watercourses	✓				✓				✓						
Drilling solutions (e.g., bentonite slurry) for bridge construction, abutment construction, piling, etc. are processed in a closed system	✓				✓				✓						
Proper disposal of bentonite-containing spoils as fill material in appropriate sites	✓				✓				✓						
Spilled bentonite mud in agricultural land is cleaned immediately before it cakes and hardens	✓				✓				✓						
Water from bridge foundation dewatering is not discharged directly into a water body	✓				✓				✓						

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				Yes	No	Partially
	September				October				November						December		
Total suspended solids content of discharges into water bodies comply with applicable standards	✓				✓				✓				✓				
Sanitation facilities with sufficient capacity are provided to handle and treat sewage generated by workers	✓				✓				✓				✓				
Equipment service and maintenance yards are provided with impermeable flooring and collection sump	✓				✓				✓				✓				
All equipment maintenance shops are provided with water-tight receptacles for waste oil, oily rags, spent oil filters, solvents and oily containers	✓				✓				✓				✓				
Disposal of all waste oil, oily rags, spent oil filters, solvents and oily containers are through authorized waste handlers and recyclers	✓				✓				✓				✓				
Paving operations are restricted during wet weather	✓				✓				✓				✓				
Use of sediment control devices downstream of paving activities		✓			✓				✓				✓				
Use of mobile fueling/maintenance units for construction equipment whenever feasible	✓				✓				✓				✓				
Accurate and up-to-date written inventories and labels for all stored hazardous materials	✓				✓				✓				✓				
Use of berms, ditches, and/or impervious liners, etc. in material storage, vehicle/ equipment maintenance and fueling areas	✓				✓				✓				✓				
Material storage, maintenance and fueling areas and septic systems are at least 30 m from storm drains and surface waters	✓				✓				✓				✓				
Facilities for solid and domestic liquid waste management are used and maintained	✓				✓				✓				✓				
10. Solid Waste																	

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially						
	September				October				November						December		
Garbage bins and temporary storage facilities for construction wastes, domestic solid wastes and segregated wastes are provided within the project site	✓				✓				✓				✓				
Waste segregation (hazardous, non-hazardous, reusable) is practiced	✓				✓				✓				✓				
Regular collection and disposal of wastes (by contractor or authorized third party) to sites approved by local authorities	✓				✓				✓				✓				
Wastes are not dumped into watercourses, agricultural land and surrounding areas	✓				✓				✓				✓				
11. Borrow Pits																	
Borrow areas are not located in productive land, forested areas and near water courses such as rivers, streams, etc.	✓				✓				✓				✓				
Topsoil are properly removed, stockpiled and preserved for later use during site restoration and provision of vegetation cover to minimize erosion	✓				✓				✓				✓				
Stable side slopes are provided during excavation of the borrow pits	✓				✓				✓				✓				
Quarry sites lying on small rivers and streams are avoided	✓				✓				✓				✓				
Quarry sections located on the river bed are avoided or reduced if unavoidable	✓				✓				✓				✓				
Borrow pits are left in a tidy state with stable side slopes and proper drainage	✓				✓				✓				✓				
Quarry sites and borrow pits are restored and rehabilitated after use	✓				✓				✓				✓				
12. Traffic Management and Local Access																	
Signs advising that construction is in progress are provided, particularly where the alignment crosses existing roads and where construction related facilities are located	✓				✓				✓				✓				

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Flag persons are employed to regulate traffic especially in potentially hazardous areas	✓				✓				✓				✓					
Traffic advisory signs (to minimize traffic build-up) are posted in coordination with local authorities	✓				✓				✓				✓					
Sufficient lighting at night within and in the vicinity of construction sites are provided	✓				✓				✓				✓					
Regular monitoring of traffic conditions along access roads to ensure that project vehicles are not causing congestion	✓				✓				✓				✓					
Schedules are observed for different types of construction traffic trips (e.g., transport of pre-cast sections, haulage of spoils, delivery of construction materials, etc.)	✓				✓				✓				✓					
Delivery of construction materials and equipment and transport of spoils are during non-peak hours	✓				✓				✓				✓					
Interactions between construction works, traffic flows and pedestrians are minimized by the following safety measures: • Temporary signals or flag controls • Adequate lighting • Fencing • Signage • Road diversion • Traffic cones • Barricades	✓				✓				✓				✓					
Use of escort vehicles and warning signs/lights to increase public awareness of potential hazards	✓				✓				✓				✓					
Construction activities and schedules are coordinated in advance with local agencies, community representatives, businesses, schools	✓				✓				✓				✓					

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Existing access routes are maintained (whenever feasible)	✓				✓				✓				✓					
Provision of alternative access and/or parking when impacts to principal access routes and parking areas cannot be avoided	✓				✓				✓				✓					
Adequate informational and directional signage to improve alternative access function	✓				✓				✓				✓					
Construction operations are scheduled to avoid or minimize conflicts with local uses/activities	✓				✓				✓				✓					
At least one safe through lane is maintained at all times in construction areas	✓				✓				✓				✓					
13. Damage to Properties and Community Facilities																		
Local roads used by the project are upgraded prior to use	✓				✓				✓				✓					
Local and access roads used by the project are repaired and maintained regularly and fully restored at the end of the project	✓				✓				✓				✓					
Contractor immediately repairs and/or compensates for any damage to properties	✓				✓				✓				✓					
14. Accidental Discovery of Artefacts																		
Immediate stoppage of operations on road section where artifacts/ archaeological finds are unearthed; contractor informs the DDIS and CIPM	✓				✓				✓				✓					
CIPM notifies Ministry of Culture and Information (MCI) to obtain advice regarding the next steps	✓				✓				✓				✓					
Work is resumed only after MCI has provided official notification	✓				✓				✓				✓					
15. Occupational Health and Safety																		

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially		Yes	No	Partially			
	September				October				November				December					
Orientation for construction workers regarding health and safety measures, emergency response and prevention of HIV/AIDS and other diseases	✓				✓				✓				✓					
Workers at the bridge site are provided with life vests/buoyancy devices at all times	✓				✓				✓				✓					
Stable footpaths/access with sturdy guardrails to the bridge work sites shall be provided	✓				✓				✓				✓					
Preparation and implementation of a waterway safety plan, approved by the agencies in charge	✓				✓				✓				✓					
Contractor complies with the waterway traffic safety during construction	✓				✓				✓				✓					
First aid facilities that are readily accessible to workers	✓				✓				✓				✓					
Fire-fighting equipment at construction camps and work areas, as appropriate	✓				✓				✓				✓					
Adequate drainage in workers' camps	✓				✓				✓				✓					
Adequate and clean housing and sanitation facilities for all workers at the workers'/ construction camps	✓				✓				✓				✓					
Separate sleeping quarters for male and female workers	✓				✓				✓				✓					
Reliable supply of water for drinking, cooking and washing purposes at the workers' camps	✓				✓				✓				✓					
Separate hygienic sanitation facilities/toilets and bathing areas with sufficient water supply for male and female workers	✓				✓				✓				✓					
All wastewater from workers' and construction camps and project-related activities/ facilities are treated consistent with national regulations	✓				✓				✓				✓					
Proper collection and disposal of solid wastes within the workers'/construction camps	✓				✓				✓				✓					



EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				Yes	No	Partially
	September				October				November						December		
Sturdy fencing on all excavation areas greater than 2 m deep	✓				✓				✓				✓				
Workers are provided and use appropriate and complete safety equipment such as safety boots, protective clothes, breathing mask, ear protection, helmets, gloves, etc.	✓				✓				✓				✓				
Reversing signals are installed on all construction vehicles	✓				✓				✓				✓				
Fall prevention and protection measures whenever a worker is exposed to the hazard of falling more than two meters, falling into operating machinery or through an opening	✓				✓				✓				✓				
16. Public Safety																	
Signage are installed at the periphery of the construction site to warn and direct traffic and pedestrians	✓				✓				✓				✓				
Security personnel are deployed in hazardous areas to restrict public access	✓				✓				✓				✓				
Speed limits are imposed on construction vehicles along residential and other sensitive areas (typically 25 km per hour)	✓				✓				✓				✓				
Drivers are taught safe driving practices to minimize accidents and prevent spill of hazardous and other construction materials during transport	✓				✓				✓				✓				
Safe access to properties and establishments affected by construction works	✓				✓				✓				✓				
Safe passageways for pedestrians crossing the construction site	✓				✓				✓				✓				
Excavated areas are immediately backfilled, covered (e.g., with metal plates) and/or repaved	✓				✓				✓				✓				
All construction vehicles and equipment are secured during non-working periods to prevent unauthorized access or use	✓				✓				✓				✓				

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline			
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				Yes	No	Partially
	September				October				November						December		
Appropriate safety barriers and warning signs are installed in areas that pose safety risks such as open excavations, cut slopes, erosion-prone slopes, manufactured slopes, drainages, etc.	✓				✓				✓				✓				
17. Flora and Fauna																	
Vegetation removal is coordinated with forest authority	✓				✓				✓				✓				
Tree-cutting permit is secured, as necessary	✓				✓				✓				✓				
Tree planting and landscaping plan that includes: • Inventory of the number of species of trees proposed for removal • Identifying and documenting quantity, variety, and location of replacement trees • Replanting at the outer portions of the ROW and in other locations agreed with local authorities • Monitoring and maintenance program to ensure effectiveness of the plan • Adopting remedial measures where appropriate (e.g., replacing dead or damaged replanted trees)	✓				✓				✓				✓				
Clearing of trees is limited to areas that are only necessary based on the project design and as approved by the forestry department	✓				✓				✓				✓				
Cutting of trees for firewood and for use in project is prohibited	✓				✓				✓				✓				
New alien plant species are not used for replanting/revegetation without an existing regulatory framework	✓				✓				✓				✓				
Invasive species are not introduced into new environments	✓				✓				✓				✓				
Workers are prohibited from hunting wild animals and collecting forest products	✓				✓				✓				✓				

EMP Requirement (Mitigating Measures)	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Compliance Status			Remarks/ Reasons for Partial or Non- Compliance	Recommendations	Deadline				
	Yes	No	Partially		Yes	No	Partially		Yes	No	Partially				Yes	No	Partially	
	September				October				November						December			
Bridge works are scheduled in dry season to minimize adverse impacts to aquatic resources	✓				✓				✓				✓					
Contractors do not buy or use wood from illegal sources (illegal logging)	✓				✓				✓				✓					
No construction camps, asphalt mixing plants, material storage sites and other construction facilities are located in protected areas	✓				✓				✓				✓					
Construction camps, asphalt mixing plants, material storage sites and other construction facilities are located at least 1 km from the boundaries of national parks and class 1A and 1B watershed designated areas	✓				✓				✓				✓					
Precautions are adopted to ensure that damage to vegetation is avoided should fires resulting from execution of the works occur	✓				✓				✓				✓					
Road improvement works are restricted to the existing ROW boundaries	✓				✓				✓				✓					
Grading methods and facilities i.e., rounding, benching, terracing and retaining walls are used to reduce earthwork and related topographic alteration/vegetation removal	✓				✓				✓				✓					
Suitable wildlife crossing structures are installed at locations agreed with the park management boards and National Environmental Board	✓				✓				✓				✓					

Signature

Mr. MOM Moniroth  
Project Manager

Mr. HWANG Jung Joo  
Resident Engineer

## Appendix D – Letter CW-A and CW-B1



**KOREAN CONSULTANTS INTERNATIONAL**  
PROVINCIAL ROADS IMPROVEMENT PROJECT  
ADB LOAN NO. 2839-CAM (SF)/8254-CAM  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

03 November 2015

Mr. Zhang Jianjun  
Project Manager  
Sinhydro Bureau 15 Cambodia  
NR13 & PR314D Highway Project Department

Our Ref No. ADB-2839-15-228

Ref. ADB Loan No. 2839-CAM (SF)/8254-CAM: Provincial Roads Improvement Project

**Subject: Improvement of NR13 and PR314D  
Non-compliance issues related EMP implementation**

Dear Mr. Zhang,

The DDIS Consultant would like to advise you that non-compliance issues related Environmental Management Plan (EMP) implementation have been addressed from ADB Loan Review Mission on 9 October 2015 as attached herewith. Therefore, you are requested to correct non-compliance issues commented by ADB and submit the results of corrective action with photos by 30 November 2015.

Sincerely yours,

  
**KIM Cheol Hyun**  
Team Leader  
Korea Consultant International



Cc: H.E. Mr. PHENG Sovicheano, Project Director of PMU3, Under-Secretary of State, MPWT  
Mr. SAR Vutha, Project Manager, PMU3, MPWT  
Mr. SAO Premarak, Senior Counterpart, PMU3, MPWT  
Mr. THANAWICH Nithis, Resident Engineer, DDIS Consultants, KCI

Enclosure (as stated)

Korean Consultant International  
Project Management Unit 3  
Ministry of Public Works and Transport  
4<sup>th</sup> Floor, Eastern Building, Corner Norodom Blvd. & St. 106  
Phnom Penh, CAMBODIA  
Tel: 855-23-822-487, Fax: 855-23-724-565, E-mail: ckim@kcieng.com

Non-compliance Issues related EMP Implementation

The followings are observations made during the site visits and the agreed action plans to correct non-compliance issues:

- (i) Use of personal protective equipment (PPE) and workers' safety.  
In casting yards, workers were observed to have incomplete and inappropriate PPE. Some workers handling construction materials do not have gloves to protect their hands. Some workers whose feet are constantly exposed to water and cement do not wear boots. Many workers had helmets even though they are unnecessary in the type of work they were doing. It was agreed that contractors would provide the appropriate PPE to their works and their use will be strictly enforced and regularly monitored by the contractors and the DDIS consultants. In fabrication yard, electrical sockets are left in the open and exposed to the elements. These pose electrical hazards to workers and it was agreed that electric wires should be elevated and above reach and electric sockets and wires should be protected from getting wet.
- (ii) Management of garbage and good housekeeping.  
Empty cement bags and other garbage was observed in the casting yards. It was agreed that garbage should be collected and preferably segregated, stored in covered bins while waiting for collection and disposal. Arrangements for its collection and proper disposal will be made with the district or commune.
- (iii) Proper storage of construction materials.  
In the casting yard for CW-A and CW-B1, RC pipes were scattered unsystematically all over the casting yard including the adjacent areas. In some sections of N13 however, RC pipes are stored neatly. It was agreed that all construction materials will be stored neatly and systematically. Materials that have encroached on public and private lands will be removed accordingly.
- (iv) Drainage.  
There are no clear drainage canals in the casting and fabrication yards of both contractors and puddles and mossy areas can be observed. Even in the engineer's camp in CW-A and CW-B1, there is no clear drainage system. The down spout from the roof of a building was observed to go directly to the ground. It was agreed that adequate drainage canals will be provided in all project facilities.
- (v) Dust management.  
Even though it is rainy season, there are still occasions when the ground becomes dry and dust becomes a nuisance as observed during the site visit. It was agreed that water spraying in populated areas will be continued when dust becomes a problem.
- (vi) Warning signs and traffic safety.  
Although warning signs and traffic safety barriers in work areas seemed adequate during a clear day, they may be inadequate during night time and during a heavy rain when visibility is low. It was agreed that more visible warning signs, preferably reflectorized will be installed in strategic areas.





中国水电十五局柬埔寨  
NR13 暨 PR314D 公路工程项目部  
SINOHYDRO BUREAU 15 CAMBODIA  
NR13& PR314D HIGHWAY ENGINEERING PROJECT DEPARTMENT

18-Nov-2015  
2:52 AM

No. ADB-SIN-2839-15-225

Date: 17<sup>th</sup> Nov. 2015

Attn: Mr. THANAWICH Nithis  
Resident Engineer  
DDIS Consultant  
Korea Consultants International (KCI)

Reference: ADB Loan No. 2839-CAM (SF)/8254-CAM; Provincial Roads Improvement Project

Contract No.: PRIP-CW-A-ICB-2013-02, Improvement of NR13

Subject: Reply to "Non-compliance issues related EMP Implementation"

Dear Mr. THANAWICH Nithis,

Reference is made to your letter No. ADB-2839-15-225 dated 3<sup>rd</sup> Nov. 2015. you requested us to correct non-compliance issues commented by ADB mission. After received your letter, we actively organize equipment and personnel to correct non-compliance issues about EMP implementation. Now we complete correcting all the issues. For corrected results, please refer to attachment.

Your support for our work will be highly appreciated.

Attachment: The Results of Corrective Action Relating to Non-compliance Issues about EMP Implementation

Sincerely yours,



Mr. Zhang Jianjun  
Project Manager  
SinoHydro Bureau 15 Cambodia NR13&PR314D Highway Engineering Project Department

CC: H. E. PHENG Sovichane, Project Director, PMU/3, Under-Secretary of State, MPWT  
Mr. SAR Vutha, Project Manager, PMU/3, MPWT  
Mr. SAO Pimarak, Coordinator, PMU/3, MPWT  
Mr. KIM Cheol Hyun, Team Leader, DDIS Consultant, KCI

地址: 柬埔寨暹罗省 NR13 公路 K58+400m 处  
Add: K58+400m of NR13 Highway, Svay Rieng, Cambodia  
电话(Tel): 016-723-661

Attachment: The Results of Corrective Action Relating to Non-compliance Issues about EMP Implementation

1. Use of personal protective equipment (PPE) and worker's safety

① Corrective Photos for Personal Protective Equipment









② Corrective Photos for Construction Power Supply







2. Management of garbage and good housekeeping



3. Proper storage of construction materials





4. Drainage





5. Dust Management





6. Warning signs and traffic safety.



We have installed safety and alarming signs for construction area, and arranged special personnel to direct the traffic. Meanwhile, we will make more traffic safety and alarming signs for projects.





**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
PROVINCIAL ROAD IMPROVEMENT PROJECT  
ADB LOAN NO. 2839-CAM (SF)/8254-CAM  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Our Ref No. ADB-2839-18S-027

06<sup>th</sup> February, 2016

**Mr. Bao Po**  
Acting Project Manager  
Sino-Hydro Bureau 15 Cambodia  
NR 13 & PR314D Highway Project Department

Ref. Provincial Road Improvement Project (NR13 & PR-314D)

**Subject: Non-compliance issues related EMP implementation**

Dear Mr. Bao Po,

The DDIS consultant would like to advise you that non-compliance issues related Environment Management Plan (EMP) implementation have been addressed from ADB loan Review Mission on 26 January 2016 as attached herewith. Therefore, you are requested to correct non-compliance issues commented by ADB and submit the results of corrective action with photos by 29 February 2016.

Sincerely Yours,

**THANAWICH Nithis**  
Resident Engineer  
DDIS Consultants  
Korea Consultants International (KCI)

Cc. : H.E. PHENG Sovichano, Project Director, PMU3  
Mr. SAR Vutha, Project Manager, PMU3  
Mr. SAO Premarak, Senior Counterpart, PMU3  
Mr. KIM Cheol Hyun, Team Leader, DDIS Consultants, KCI  
Mr. KIT Sokea, Assistant Resident Engineer, DDIS Consultants, KCI

Department of Public Works & Transport,  
Bangkok Pot Ta Hlo,  
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### Non-compliance Issues related EMP implementation

The followings are observations made during the site visit and the agreed action plans to correct non-compliance issues:

(i) Permits and clearances for allied project facilities

Strict implementation of this EMP requirement will be required of all contractors prior to establishing project facilities such as batching plants, casting yards, disposal sites, etc. Contractor will be required to seek prior approval of PMU3 and DQIS consultants before putting up these facilities. This would ensure that the criteria for the location of project facilities are strictly followed. Permits from the commune and other relevant government agencies should also be secured. DQIS consultants will closely monitor this for two other batching plants that are proposed to be established for CWA and CWA-B1.

(ii) Dust control for the cement stabilization batching plant in NR 13

To provisionally allow the operation of the batching plant in NR 13 provided the following conditions are met: a) dust emissions will be contained within the plant by putting up adequate dust control measures such as filter bags and containment walls like zinc sheets, fine-mesh screens and water sprays; and b) a sedimentation tank will be provided for any wastewater generated, before it is released in the drainage canal; drainage water will not be allowed to flow to agricultural land. DQIS consultants and PMU3 will closely monitor the operation of the plant and photovideos of the plant during operation will be provided to ADB and PMU3 and included in SEMR. Complaints from the community will be addressed immediately, otherwise, the plant will be asked to transfer to other location.

(iii) Warning signs, traffic safety and use of PPE

Work sites need more visible and preferably bigger and reflectorized warning and traffic safety signs especially near dangerous area such as deep excavations and narrow areas. Signs to reduce traffic speed should also be in place. Dust generated by passing vehicles reduces visibility of these signs hence they should be placed in strategic places. Pylons consisting of painted bamboo sticks on a concrete base are hardly visible and too far apart hence they should be supplemented by a tape or appropriate fencing. Whenever possible, access paths should be provided to school children to keep them away from construction sites. If it is not possible, contractors should assign a staff to safety guide them while passing work sites.

(iv) Dust management

The number of water spray trucks is inadequate to effectively mitigate the heavy dust generated along the project roads. Water spraying should focus on populated areas and sensitive locations such as school zones and health centers. Scheduling of water spraying during peak hours when school children and workers are going to coming from schools and work respectively would benefit more people. Giving out face masks to affected people would be helpful.



(v) Management of garbage, good housekeeping and drainage

Good housekeeping, drainage and management of garbage should be further enhanced in all contract packages as only minor improvement had been observed especially in the casting and fabrication yards. Provision of an adequate drainage system to avoid collection of stagnant water and prohibition of animals in all project facilities should be given importance.



## Appendix E – Letter CW-C

**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Our Ref. No. ADB-2839-KCI/KPC-15-149

01 October 2015

**Mr. MOM Moniroth**

Project Manager

Gumkang Construction Co., Ltd.-Visvakam Samnang Construction Co., LTD. JV.

Tel: 012 52 81 13 E-mail: [yangkim1@yahoo.co.kr](mailto:yangkim1@yahoo.co.kr) / [visvakamsamnang@gmail.com](mailto:visvakamsamnang@gmail.com)

Ref. ADB Loan No. 2839-CAM (SF)/8254-CAM: PRIP, Package CW-C

**Subject: Disposal of Debris**

Dear Mr. Moniroth,

You are requested to remove all debris from the site many times, but it is still observed along the road sides.



Therefore, you are requested to remove all debris from the site as soon as possible clearly.

Sincerely yours,

**HWANG Jung Joo**Resident Engineer, DDIS Consultants  
Korea Consultants International (KCI)

Cc: H. E. PHENG Sovicheano, Project Director, PMU3, Under-Secretary of State, MPWT

Mr. SAR Vutha, Project Manager, PMU3

Mr. SOK Sam An, Senior Counterpart, PMU3

Mr. KIM Cheol Hyun, Team Leader, DDIS Consultants, KCI

Mr. AY Sokha, Assistant Resident Engineer, DDIS Consultants, KCI

Project Management Unit 3  
Ministry of Public Works and Transport  
4<sup>th</sup> Floor, Eastern Building, Corner Norodom Blvd. & St. 106  
Phnom Penh, CAMBODIATel: 855-77-692-676  
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E-mail: [hj0203@hanmail.net](mailto:hj0203@hanmail.net)

**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Our Ref. No. ADB-2839-KCI/KPC-15-157

08 October 2015

**Mr. MOM Moniroth**

Project Manager

Gumkang Construction Co., Ltd.-Visvakam Samnang Construction Co., LTD. JV.

Tel: 012 52 81 13 E-mail: [yangkim1@yahoo.co.kr](mailto:yangkim1@yahoo.co.kr) / [visvakamsamnang@gmail.com](mailto:visvakamsamnang@gmail.com)

Ref: ADB Loan No. 2839-CAM (SF)/8254-CAM: PRIP, Package CW-C

**Subject: Unsuitable Disposal of Wastes..**

Dear Mr. Moniroth,

It is observed that you have burned trashes and dug-pit for trash at casting yard of bridge. According to Sub-clause 9.1.3, Part I General Technical Specifications, Volume 2-Specifications, the burning of waste materials, particularly oil and petroleum wastes, rubber, plastics and similar materials will not be permitted. The dug pit should be backfilled right away.

Therefore, you are requested to install dumping area at working area and dispose it properly.

Sincerely yours,

**HWANG Jung Joo**

Resident Engineer, DDIS Consultants

Korea Consultants International (KCI)

Cc: H. E. PHENG Sovicheano, Project Director, PMU3, Under-Secretary of State, MPWT

Mr. SAR Vutha, Project Manager, PMU3

Mr. SOK Sam An, Senior Counterpart, PMU3

Mr. KIM Cheol Hyun, Team Leader, DDIS Consultants, KCI

Mr. AY Sokha, Assistant Resident Engineer, DDIS Consultants, KCI





**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Our Ref. No. ADB-2839-KCI/KPC-15-162

03 November 2015

**Mr. MOM Moniroth**

Project Manager

Gumkang Construction Co., Ltd.-Visvakam Samnang Construction Co., LTD. JV.

Tel: 012 52 81 13 E-mail: yangkim1@yahoo.co.kr/visvakamsamnang@gmail.com

Ref: ADB Loan No. 2839-CAM (SF)/8254-CAM: PRIP, Package CW-C

**Subject: Comments for non-compliance issues related EMP.**

Dear Mr. Moniroth,

The ADB Mission commented some non-compliance issues related to environmental management plan (EMP) implementation during site visit on 7<sup>th</sup> October 2015 and you agreed action plans to correct non-compliance issues.

Therefore, you are requested to correct non-compliance issues commented by ADB safeguards officer (environment) and submit the results of remedy action with photos by 30 November 2015.

The commented non-compliance issues by ADB safeguards officer (environment) are as follows:

- (i) Use of personal protective equipment (PPE) and worker's safety. In casting yards, workers were observed to have incomplete and inappropriate PPE. Some workers handling construction materials do not have gloves to protect their hands. Some workers whose feet are constantly exposed to water and cement do not wear boots. A welder did not have protective glasses. Many workers had helmets even though they are unnecessary in the type of work they were doing. It was agreed that contractor would provide the appropriate PPE to their workers and their use will be strictly enforced and regularly monitored by the contractor and the DDIS consultants. In fabrication yard, electrical wires are left lying on the ground and gets wet when the concrete piles are being cured with water spray. These pose electrical hazards to workers and it was agreed that electric wires should be elevated and above reach and electric sockets and wires should be protected from getting wet.
- (ii) Proper storage of equipment with flammable material. The site office had a generator set outside in the sun, with diesel tank exposed to direct sunlight. It was agreed that this equipment should be provided with a protective housing from the sun.
- (iii) Management of garbage and good housekeeping. Open burning of garbage, including plastic materials was observed in the casting yard. A pit with some garbage was also observed. These acts are absolutely prohibited in the EMP. Empty cement bags and other garbage was observed in the casting yards. It was agreed that garbage should be collected and preferably segregated, stored in covered bins while waiting for collection and disposal. Arrangement for its collection and proper disposal will be made with the district or commune. Many chickens were observed in the casting yard. Animals, including pets are prohibited in all project facilities and it was agreed that workers would be informed of this and will be asked to comply.

*To be continued*

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 Ministry of Public Works and Transport  
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**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Continued from No. ADB-2839-KCI/KPC-15-162

03 November 2015

- (iv) Proper storage of construction materials. Along the project roads, some encroachment of embankment materials was observed on agricultural lands and open canals. It was agreed that all construction materials will be stored neatly and systematically. Materials that have encroached on public and private lands will be removed accordingly.
- (v) Drainage. There are no clear drainage canals in the casting and fabrication yards and puddles and mossy areas can be observed. It was agreed that adequate drainage canals will be provided in all project facilities.
- (vi) Dust management. Even though it is rainy season, there are still occasions when the ground becomes dry and dust becomes a nuisance as observed during the site visit. It was agreed that water spraying in populated areas will be continued when dust becomes a problem.
- (vii) Borrow pit. The largest borrow pit is along NR53, about 15m from the road. It is owned by the local district. Because it is easily accessible to the road and the excavation is quite deep. It was agreed that warning signs should be put in the place for the protection of the public. DDIS consultants and contractor would also consult with the local district regarding its long-term plan for the borrow pit so that appropriate safety measures will be adopted.
- (viii) Warning signs and traffic safety. Although warning signs and traffic safety barriers in work areas seemed adequate during a clear day, they may be inadequate during night time and during a heavy rain when visibility is low. It was agreed that more visible warning signs, preferably reflectorized will be installed in strategic areas.

Sincerely yours,



**HWANG Jung Joo**  
 Resident Engineer, DDIS Consultants  
 Korea Consultants International (KCI)

Cc: H. E. PHENG Sovicheano, Project Director, PMU3, Under-Secretary of State, MPWT  
 Mr. SAR Vutha, Project Manager, PMU3  
 Mr. SOK Sam An, Senior Counterpart, PMU3  
 Mr. KIM Cheol Hyun, Team Leader, DDIS Consultants, KCI  
 Mr. AY Sokha, Assistant Resident Engineer, DDIS Consultants, KCI  
 Mr. Yang Jung Kun, Director, Gumkang Construction Co., Ltd

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**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Our Ref. No. ADB-2839-KCI/KPC-15-175

02 December 2015

**Mr. MOM Moniroth**

Project Manager

Gumkang Construction Co., Ltd.-Visvakam Samnang Construction Co., LTD. JV.

Tel: 012 52 81 13 E-mail: yangkim1@yahoo.co.kr/ visvakamsamnang@gmail.com

Ref: ADB Loan No. 2839-CAM (SF)/8254-CAM: PRIP, Package CW-C

**Subject: Comments for non-compliance issues related EMP.**

Dear Mr. Moniroth,

This refers to our letter to you: ADB-2839-KCI/KPC-15-162 dated 3 November 2015 regarding the subject matter.

You were requested to correct non-compliance issues commented by ADB safeguards officer (environment) and submit the results of remedy action with photos by 30 November 2015. However, it is observed that most comments are not corrected at site so far. We are disappointed with your poor working system.

You are requested strongly again to correct non-compliance issues and submit the results with photos by 04 December 2015.

Sincerely yours,

**HWANG Jung Joo**

Resident Engineer, DDIS Consultants

Korea Consultants International (KCI)

Cc.: H. E. PHENG Sovicheano, Project Director, PMU3, Under-Secretary of State, MPWT

Mr. SAR Vutha, Project Manager, PMU3

Mr. SOK Sam An, Senior Counterpart, PMU3

Mr. KIM Cheol Hyun, Team Leader, DDIS Consultants, KCI

Mr. AY Sokha, Assistant Resident Engineer, DDIS Consultants, KCI

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**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Our Ref. No. ADB-2839-KCI/KPC-15-201

14 December 2015

**Mr. MOM Moniroth**

Project Manager

Gumkang Construction Co., Ltd.-Visvakam Samnang Construction Co., LTD. JV.

Tel: 012 52 81 13 E-mail: [yangkim1@yahoo.co.kr](mailto:yangkim1@yahoo.co.kr) / [visvakamsamnang@gmail.com](mailto:visvakamsamnang@gmail.com)

Ref: ADB Loan No. 2839-CAM (SF)/8254-CAM: PRIP, Package CW-C

**Subject: Correct non-compliance issues related EMP.**

Dear Mr. Moniroth,

This refers to our letters to you; ADB-2839-KCI/KPC-15-162 on 3 November 2015, ADB-2839-KCI/KPC-15-175 on 2 December 2015 and ADB-2839-KCI/KPC-15-193 on 8 December 2015 regarding the subject matter.

You were requested three times to correct non-compliance issues commented by ADB safeguards officer (environment) and submit the results of remedy action with photos by 12 December 2015. However, nothing is submitted and most comments are not corrected at site so far. Moreover, you were requested to mobilize the Environment, Health and Safety Officer who is in charge of health, safety and environment at site, but no one is mobilized so far. You should reply to our letters within due date.

This is 4<sup>th</sup> request that you should correct non-compliance issues and submit the results with photos, and mobilize the Environment, Health and Safety Officer after approval by 18 December 2015.

Sincerely yours,

**HWANG Jung Joo**

Resident Engineer, DDIS Consultants

Korea Consultants International (KCI)

Cc.: H. E. PHENG Sovicheano, Project Director, PMU3, Under-Secretary of State, MPWT

Mr. SAR Vutha, Project Manager, PMU3

Mr. SOK Sam An, Senior Counterpart, PMU3

Mr. KIM Cheol Hyun, Team Leader, DDIS Consultants, KCI

Mr. AY Sokha, Assistant Resident Engineer, DDIS Consultants, KCI

Mr. Yang Jung Kun, Director, Gumkang Construction Co., Ltd

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**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Our Ref. No. ADB-2839-KCI/KPC-15-218

29 December 2015

**Mr. MOM Moniroth**

Project Manager

Gumkang Construction Co., Ltd.-Visvakam Samnang Construction Co., LTD. JV.

Tel: 012 52 81 13 E-mail: [yangkim1@yahoo.co.kr](mailto:yangkim1@yahoo.co.kr) / [visvakamsamnang@gmail.com](mailto:visvakamsamnang@gmail.com)

Ref: ADB Loan No. 2839-CAM (SF)/8254-CAM: PRIP, Package CW-C

**Subject: Correct non-compliance issues related EMP.**

Dear Mr. Moniroth,

This refers to our letters to you; ADB-2839-KCI/KPC-15-162 on 3 November, ADB-2839-KCI/KPC-15-175 on 2 December, ADB-2839-KCI/KPC-15-193 on 8 December and ADB-2839-KCI/KPC-15-201 on 14 December 2015 regarding the subject matter.

You were requested four times to correct non-compliance issues commented by ADB safeguards officer (environment) and submit the results of remedy action with photos from 03 November 2015. However, nothing is submitted for four requests and most comments are not corrected at site so far. Moreover, you were requested to mobilize the Environment, Health and Safety Officer who is in charge of health, safety and environment from 16<sup>th</sup> October 2015, but nobody has been mobilized so far.

This is 5<sup>th</sup> request that you should correct non-compliance issues and submit the results with photos, and mobilize the Environment, Health and Safety Officer after approval by 4 January 2016.

Sincerely yours,

**HWANG Jung Joo**

Resident Engineer, DDIS Consultants

Korea Consultants International (KCI)

Cc: H. E. PHENG Sovicheano, Project Director, PMU3, Under-Secretary of State, MPWT

Mr. SAR Vutha, Project Manager, PMU3

Mr. SOK Sam An, Senior Counterpart, PMU3

Mr. KIM Cheol Hyun, Team Leader, DDIS Consultants, KCI

Mr. AY Sokha, Assistant Resident Engineer, DDIS Consultants, KCI

Mr. Yang Jung Kun, Director, Gumkang Construction Co., Ltd

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**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Ref. No. ADB-2839-KCI/KPC-16- 017

12 January 2016

**Mr. MOM Moniroth**

Project Manager

Gumkang Construction Co., Ltd.-Visvakam Samnang Construction Co., LTD. JV.

Tel: 012 52 81 13 E-mail: yangkim1@yahoo.co.kr/ visvakamsamnang@gmail.com

Ref: ADB Loan No. 2839-CAM (SF)/8254-CAM: PRIP, Package CW-C

**Subject: Correct non-compliance issues related EMP.**

Dear Mr. Moniroth,

This refers to our letters to you; ADB-2839-KCI/KPC-15-162 on 3 November, ADB-2839-KCI/KPC-15-175 on 2 December, ADB-2839-KCI/KPC-15-193 on 8 December, ADB-2839-KCI/KPC-15-201 on 14 December and ADB-2839-KCI/KPC-15-218 on 29 December 2015 regarding the subject matter.

You were requested five times to correct non-compliance issues commented by ADB safeguards officer (environment) and submit the results of remedy action with photos from 3 November 2015. However, nothing is replied for five requests and most comments are not corrected at site so far. Moreover, you were requested to mobilize the Environment, Health and Safety Officer who is in charge of health, safety and environment from 16 October 2015, but nobody has been mobilized so far.

This is 6<sup>th</sup> request that you should correct non-compliance issues and submit the results with photos, and mobilize the Environment, Health and Safety Officer after approval by 18 January 2016.

Sincerely yours,

**HWANG Jung Joo**

Resident Engineer, DDIS Consultants

Korea Consultants International (KCI)

Cc: H. E. PHENG Sovicheano, Project Director, PMU3, Under-Secretary of State, MPWT

Mr. SAR Vutha, Project Manager, PMU3

Mr. SOK Sam An, Senior Counterpart, PMU3

Mr. KIM Cheol Hyun, Team Leader, DDIS Consultants, KCI

Mr. AY Sokha, Assistant Resident Engineer, DDIS Consultants, KCI

Mr. Yang Jung Kun, Director, Gumkang Construction Co., Ltd

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**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Our Ref. No. ADB-2839-KCI/KPC-16-019

20 January 2016

**Mr. MOM Moniroth**

Project Manager

Gumkang Construction Co., Ltd.-Visvakam Samnang Construction Co., LTD. JV.

Tel: 012 52 81 13 E-mail: yangkim1@yahoo.co.kr/ visvakamsamnang@gmail.com

Ref: ADB Loan No. 2839-CAM (SF)/8254-CAM: PRIP, Package CW-C

**Subject: Correct non-compliance issues related EMP.**

Dear Mr. Moniroth,

This refers to our letters to you; ADB-2839-KCI/KPC-16-017 on 12 January 2016 regarding the subject matter.

You were requested six times to correct non-compliance issues commented by ADB safeguards officer (environment) and submit the results of remedy action since 3 November 2015. However, nothing is replied and most comments are not corrected at site so far. Moreover, you were requested to mobilize the Environment, Health and Safety Officer who is in charge of health, safety and environment from 16 October 2015, but nobody has been mobilized so far.

This reminds you that the following issues commented by ADB safeguards officer (environment) should be corrected without further delay.

- (i) Use of personal protective equipment (PPE) and worker's safety. In casting yards, workers were observed to have incomplete and inappropriate PPE. Some workers handling construction materials do not have gloves to protect their hands. Some workers whose feet are constantly exposed to water and cement do not wear boots. A welder did not have protective glasses. Many workers had helmets even though they are unnecessary in the type of work they were doing. It was agreed that contractor would provide the appropriate PPE to their workers and their use will be strictly enforced and regularly monitored by the contractor and the DDIS consultants. In fabrication yard, electrical wires are left lying on the ground and gets wet when the concrete piles are being cured with water spray. These pose electrical hazards to workers and it was agreed that electric wires should be elevated and above reach and electric sockets and wires should be protected from getting wet.
- (ii) Proper storage of equipment with flammable material. The site office had a generator set outside in the sun, with diesel tank exposed to direct sunlight. It was agreed that this equipment should be provided with a protective housing from the sun.
- (iii) Management of garbage and good housekeeping. Open burning of garbage, including plastic materials was observed in the casting yard. A pit with some garbage was also observed. These acts are absolutely prohibited in the EMP. Empty cement bags and other garbage was observed in the casting yards. It was agreed that garbage should be collected and preferably segregated, stored in covered bins while waiting for collection and disposal. Arrangement for its collection and proper disposal will be made with the district or commune. Many chickens were observed in the casting yard. Animals, including pets are prohibited in all project facilities and it was agreed that workers would be informed of this and will be asked to comply.

To be continued .....

Project Management Unit 3,  
 Ministry of Public Works and Transport  
 4<sup>th</sup> Floor, Eastern Building, Corner Norodom Blvd. & St. 106  
 Phnom Penh, CAMBODIA





**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Continued from No. ADB-2839-KCI/KPC-16-019

20 January 2016

- (iv) Proper storage of construction materials. Along the project roads, some encroachment of embankment materials was observed on agricultural lands and open canals. It was agreed that all construction materials will be stored neatly and systematically. Materials that have encroached on public and private lands will be removed accordingly.
- (v) Drainage. There are no clear drainage canals in the casting and fabrication yards and puddles and mossy areas can be observed. It was agreed that adequate drainage canals will be provided in all project facilities.
- (vi) Dust management. Even though it is rainy season, there are still occasions when the ground becomes dry and dust becomes a nuisance as observed during the site visit. It was agreed that water spraying in populated areas will be continued when dust becomes a problem.
- (vii) Borrow pit. The largest borrow pit is along NR53, about 15m from the road. It is owned by the local district. Because it is easily accessible to the road and the excavation is quite deep. It was agreed that warning signs should be put in the place for the protection of the public. DDIS consultants and contractor would also consult with the local district regarding its long-term plan for the borrow pit so that appropriate safety measures will be adopted.
- (viii) Warning signs and traffic safety. Although warning signs and traffic safety barriers in work areas seemed adequate during a clear day, they may be inadequate during night time and during a heavy rain when visibility is low. It was agreed that more visible warning signs, preferably reflectorized will be installed in strategic areas.

Recently, working areas have been extended along the whole project roads, but road safety devices are so insufficient at narrow areas with high embankment, box and pipe culverts. The flagmen should be arranged where working teams occupy the whole width of project roads and dangerous crossing section such as beginning point of PR150B-W with NR5.

Therefore, you are requested to correct the above-mentioned non-compliance issues and submit the results of remedy action with photos soonest.

Sincerely yours,



**HWANG Jung Joo**  
 Resident Engineer, DDIS Consultants  
 Korea Consultants International (KCI)

Cc: H. E. PHENG Sovicheano, Project Director, PMU3, Under-Secretary of State, MPWT  
 Mr. SAR Vutha, Project Manager, PMU3  
 Mr. SOK Sam An, Senior Counterpart, PMU3  
 Mr. KIM Cheol Hyun, Team Leader, DDIS Consultants, KCI  
 Mr. AY Sokha, Assistant Resident Engineer, DDIS Consultants, KCI  
 Mr. Yang Jung Kun, Director, Gumkang Construction Co., Ltd

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**ក្រុមហ៊ុន ហ្គាំកាង-វិស្វកម្មសំណង់ ខេត្តស្រះសីមា ឯ.ក**  
**GUMKANG-VISVAKAM SAMNANG CONSTRUCTION**  
**JOINT VENTURE CO., LTD**

**ទីស្នាក់ការ:** លេខ២៧ផ្លូវលេខ១២ ក្រុងប៉ោយប៉ែត ខេត្តកំពង់ចាម  
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Ref. No.: GKC-VSC JV, PM/2016/0321  
Date: 1<sup>st</sup> February, 2016

To: **Mr. HWANG Jung Joo**  
**Resident Engineer, DDIS Consultants**  
Korea Consultants International (KCI)  
4<sup>th</sup> Floor Eastern Building Corner Norodom Blvd. and St.106  
Ministry of Public Works and Transport, Phnom Penh, Cambodia  
Email: [hjj0203@hanmail.net](mailto:hjj0203@hanmail.net)

Ref.: ADB Loan No. 2839-CAM (SF)/8254-CAM: PRIP-CW-C-ICB-2013-01, Improvement of PR150B, NR53 and PR151B.

**Subject: Correct Non-Compliance Issues Related with EMP.**

Dear Sir,

Refer to your last letter No. ADB-2839-KCI/KPC-16- 019 dated on 20 January 2016, regarding "Correct non-compliance issues related EMP", I apologize you that I didn't reply to your letters on-time. Therefore we would like to inform you that we try our best to remedy and minimize the non-compliance issues commented by ADB during their mission last time, the corrected results of PPE and EMP as attached photos for you to review and approval.

Sincerely yours,

for Gumkang-Visvakam Samnang Construction JV



**MOM Moniroth**  
Project Manager

Please see attached photos.

CC:- **H.E. PHENG Sovichano**, Project Director, PMU3, Under-Secretary of State, MPWT  
- **Mr. SAR Vutha**, Project Manager, PMU3, MPWT  
- **Mr. KIM Cheol Hyun**, Team Leader, DDIS Consultants, KCI  
- **Mr. AY Sokha**, Assistant Resident Engineer, KCI





**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
**ADB LOAN NO. 2839-CAM (SF)/8254-CAM**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

Our Ref. No. ADB-2839-KCI/KPC-16-029

09 February 2016

**Mr. MOM Moniroth**

Project Manager

Gumkang Construction Co., Ltd.-Visvakam Samnang Construction Co., LTD. JV.

Tel: 012 52 81 13 E-mail: yangkim1@yahoo.co.kr/ visvakamsamnang@gmail.com

Ref: ADB Loan No. 2839-CAM (SF)/8254-CAM: PRIP, Package CW-C

**Subject: Comments for non-compliance issues related EMP.**

Dear Mr. Moniroth,

This refers to your letter to us; GKC-VSC-JV, PM/2016/0321 on 1 February 2016 regarding the subject matter.

We have checked your submission at site and the ADB Mission commented some non-compliance issues related to environmental management plan (EMP) implementation during site visit on 25 January 2016. The comments by the ADB Mission are almost coincided with Engineer's observation. Moreover, you were requested to mobilize the Environment, Health and Safety Officer who is in charge of health, safety and environment from 16<sup>th</sup> October 2015, but nobody has been mobilized so far.

Therefore, you are requested to correct non-compliance issues commented by ADB safeguards officer (environment) and mobilize the Environment, Health and Safety Officer and submit the results of remedy action with photos by the end of February 2016.

The commented non-compliance issues by ADB safeguards officer (environment) are as follows:

- (i) Warning signs and traffic safety barriers are still inadequate. Work sites need more visible and preferably bigger and reflectorized warning and traffic safety signs especially near dangerous areas such as deep excavations and narrow areas. Signs to reduce traffic speed should also be in place. Dust generated by passing vehicles reduces visibility of these signs hence they should be placed in strategic places. Pylons consisting of painted bamboo sticks on a concrete base are hardly visible and too far apart hence they should be supplemented by a tape or appropriate fencing. Whenever possible, access paths should be provided to school children to keep them away from construction sites. If this is not possible, contractors should assign a staff to safely guide them while passing work sites.
- (ii) Dust management. The number of water spray trucks is inadequate to effectively mitigate the heavy dust generated along the project roads. Water spraying should focus on populated areas and sensitive locations such as school zones and health centers. Scheduling of water spraying during peak hours when school children and workers are going to and coming from schools and work respectively would benefit more people. Giving out face masks to affected people would be helpful.

To be continued .....

Project Management Unit 3  
 Ministry of Public Works and Transport  
 4<sup>th</sup> Floor, Eastern Building, Corner Norodom Blvd. & St. 109  
 Phnom Penh, CAMBODIA





**KOREA CONSULTANTS INTERNATIONAL (KCI)**  
**PROVINCIAL ROADS IMPROVEMENT PROJECT**  
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**MINISTRY OF PUBLIC WORKS AND TRANSPORT**

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09 February 2016

- (iii) Management of garbage and good housekeeping and drainage. Good housekeeping, drainage and management of garbage should be further enhanced in all contract packages as only minor improvement had been observed especially in the casting and fabrication yards. Provision of an adequate drainage system to avoid collection of stagnant water and prohibition of animals in all project facilities should be given importance. Cut trees and excavated soil in PR150B will be cleared from agricultural land and in the yards of local people. Chicken and cows are still within the casting yard and garbage is scattered outside the perimeter fence of the contractor's camp.
- (iv) Personal protective equipment (PPE). Some workers still lack or are not using the appropriate personal protective equipment(PPE)

Sincerely yours,



**HWANG Jung Joo**  
 Resident Engineer, DDIS Consultants  
 Korea Consultants International (KCI)

Cc.: H. E. PHENG Sovicheano, Project Director, PMU3, Under-Secretary of State, MPWT  
 Mr. SAR Vutha, Project Manager, PMU3  
 Mr. SOK Sam An, Senior Counterpart, PMU3  
 Mr. KIM Cheol Hyun, Team Leader, DDIS Consultants, KCI  
 Mr. AY Sokha, Assistant Resident Engineer, DDIS Consultants, KCI

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