

Environmental Monitoring Report

Quarterly Report (July to September 2014)
October 2014

GMS: Cambodia Northwest Provincial Road Improvement Project (NR 56B)

Prepared by the Korea Consultants International for the Ministry of Public Works and Transport, the Kingdom of Cambodia, and the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 1 October 2014)

Currency unit	–	riel (KR)
KR1.00	=	\$0.000245
\$1.00	=	KR4,085

NOTE

In this report, "\$" refers to US dollars unless otherwise stated.

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

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.



KINGDOM OF CAMBODIA
MINISTRY OF PUBLIC WORKS AND TRANSPORT (MPWT)
PROJECT MANAGEMENT UNIT 3 (PMU3)

ASIAN DEVELOPMENT BANK



**CAMBODIA NORTHWEST PROVINCIAL ROAD
IMPROVEMENT PROJECT**
(Improvement National Road 56B Km29+000 to Samraong)
EDCF LOAN NO. KHM-9

Environment Management
Quarterly Monitoring Report No.8 (Jul-Sep 2014)



KCI KOREA CONSULTANTS INTERNATIONAL

IN ASSOCIATION WITH YOOSHIN ENGINEERING CORPORATION

KUMHO E&C Co., LTD CONTRACTOR



KOREA CONSULTANTS INTERNATIONAL

IN ASSOCIATION WITH YOOSHIN ENGINEERING CORPORATION
EDCF LOAN NO. KHM-9: CAMBODIA NORTHWEST
PROVINCIAL ROAD IMPROVEMENT PROJECT
MINISTRY OF PUBLIC WORKS AND TRANSPORT

17 October 2014

H.E. PHENG Sovicheano
Project Director, PMU3
Under Secretary of State, MPWT
Corner Norodom Blvd. St. 106
Phnom Penh, Cambodia

Our Ref No. KCI-KHM-9-14-424

Ref: EDCF Loan KHM-9: Cambodia Northwest Provincial Road Improvement Project
Subject: Quarterly Monitoring Report No.8 for EMP on September 2014

Dear Excellency,

It is pleasure to submit Two (2) copies of the Monthly Monitoring Report for Environmental Management on September 2014 in accordance with Section 6 Part B Special Technical Specification, Clause 1.10 Protection of the Environment as described in Sub-Clause 1.10.2.9 Reporting.

Find attached the Environmental Management checklist for contractor's construction activities performed during the month of September 2014 in comply with all EMP by IEE to the caption Project.

Your continuous support and kind cooperation for the successful executing of Environmental Mitigation Measures would be highly appreciated.

Sincerely yours

M. G. Lee

Myung-Geun Lee
Team Leader
Korea Consultants International
EDCF Loan KHM-9



GMS: CAMBODIA NORTHWEST PROVINCIAL ROAD IMPROVEMENT PROJECT		
DATE RECD. 17 OCT 2014		
FILE NO.	DOC NO.	
DISTR'N	ACTION	INFO

CC : Mr. Sok Sam An, Project Manager, PMU3
Mr. SAR Vutha, Office Manager, PMU3
Mr. Gun Suk Yoo, RE No.2, KHM-9, KCI
Mr. Yoon Ki Ju, Project Manager, KUMHO E&C

GMS: Cambodia Northwest Provincial Road Improvement Project
EDCF Loan NO. KHM-9

**Assessment of the Contractor's Performance for Environment Management
in 56B on September 2014**

General:

Consultant regularly inspected the environment management activities of the contractor's Civil Works complied with Initial Environmental Evaluation (IEE) to ensure that all environmental checklists for construction base camp site, borrow pits/quarries, cultural heritage, air pollution, noise, erosion, drainage and environmental safeguard during this reporting month. This Monthly EMP report reflects the detail EMP activities to mitigate Environmental Impact undertaken by the contractor in this Month 2014. The Contractor's performance to implement EMP can be commenced as normal in this Month 2014.

There was no major problem to mention with task in this stage for this contract package except Road maintenance of existing road for Public Traffic Safety by periodically maintains and repairs for public traffics operation on road and Villages in this rainy Season.

The Contractor needs to control Civil Works Activities in case of Archaeological Artifacts are found in the project area, which requires that the discovery has to be reported to responsible agency as defined by law and has to be abide by the law as specified in the IEE/EMP. There is no Archaeological Artifacts are found in Bypass area during this Report period till now. The Civil Works for BTC access road 11.50km is not yet monitoring EMA compiled with IEE/EMP, because the EDCF is reviewing Justification with Support Data for this additional work.

Moreover, the Contractor have to pay more attention regularly for the timely and proper disposal solid garbage, supply drinking water and domestic water at base camp workers and officers and work teams to use, and also to provide sanitation through septic tanks on permanent Camp Site for man and woman's toilets. The Fuel Storage Tank have been mounted on concrete hard standing with rain proofing roof following by EMP, Sub-clause 4.3.7 Fuel and Oils (Figure 4-1).

The Asphalt Bitumen Storage Tank for DBST Pavement should be located and maintained during Operating Methods Statement to require mitigation measure by IEE/CEMP's mitigation measures.

Therefore, the Contractors is monitoring the construction environmental management plans (CEMPs) contained specific information on location of various site activities as well as specific measures to be implemented at a certain location related to the Environmental Impacts Mitigation of construction activities for complying with the requirements of last Quarterly EMP/CEMPs by ADB's Comments and MOU of ADB Mission Team after site visits for the Initial Environmental Examination (IEE).

Outstanding matters:

- 1) No any outstanding matters issued relevant to EMP activities during the reporting period except maintenance of existing road in this rainy Season for Public Traffic Safety.
- 2) The BTC access road is not yet monitoring EMP compiled with IEE/EMP, because the EDCF is reviewing Justification for this additional works till now.

Regards


Myung Geun Lee
Team Leader
For EDCF KHM-9 56B

PROJECT MANAGEMENT UNIT (PMU3)

Report Control Form

Project Name: Cambodia Northwest Provincial Road Improvement Project

EDCF Loan No. KHM-9

Report Name: Quarterly Environmental Monitoring Report No.8 July-September 2014

PREPARATION, REVIEW AND AUTHORISATION

Prepared by: Myung-Geun Lee

Signature: M. G. LeePosition: Team Leader
EDCF Loan No. KHM-9Date: 17. October, 2014

Reviewed by: Sok Sam An

Signature: [Signature]

Position: Project Manager, PMU3

Date: 20. Oct. 2014

Approved by: H.E. Mr. Pheng Sovicheano

Signature: [Signature]Position: Project Director, PMU3
Under Secretary of State, MPWTDate: 20. Oct. 2014

ISSUE REGISTER

Distribution List

Ministry of Public Works and Transport

Export-Import Bank of Korea
Economic Development Cooperation Fund

Asian Development Bank, Manila

Ministry of Economy and Finance

KCI Staff: Team Leader, Cambodia

Project File (copy of this form only necessary)

Date Issued	No. of Copies
	2
	1
	1
	1
	1
	1

REVISION, PREPARATION, REVIEW ISSUE

Revision	Date	Prepared by	Reviewed by	Issued to Distribution List by:

CONTENTS

PROJECT LOCATION MAP
PROJECT ROAD MAP
BY-PASS ROAD MAP

I. EXECUTIVE SUMMARY OF EMP

1. The Project
2. The EMP
3. Legislation
4. Preservation of Historical Monuments
5. Agricultural Land for Borrow Pits
6. Quarries and Rock Material
7. Construction Impact
8. Operational Impacts
 - i. Accidents
 - ii. Illegal Settlement along Row
 - iii. Accelerated Loss of Forest
9. Social Issues
10. Public Consultation
11. Social and Environment Unit
12. Environmental Monitoring
13. Summarized Monitoring EMP

II. EXECUTIVE SUMMARY OF CEMP

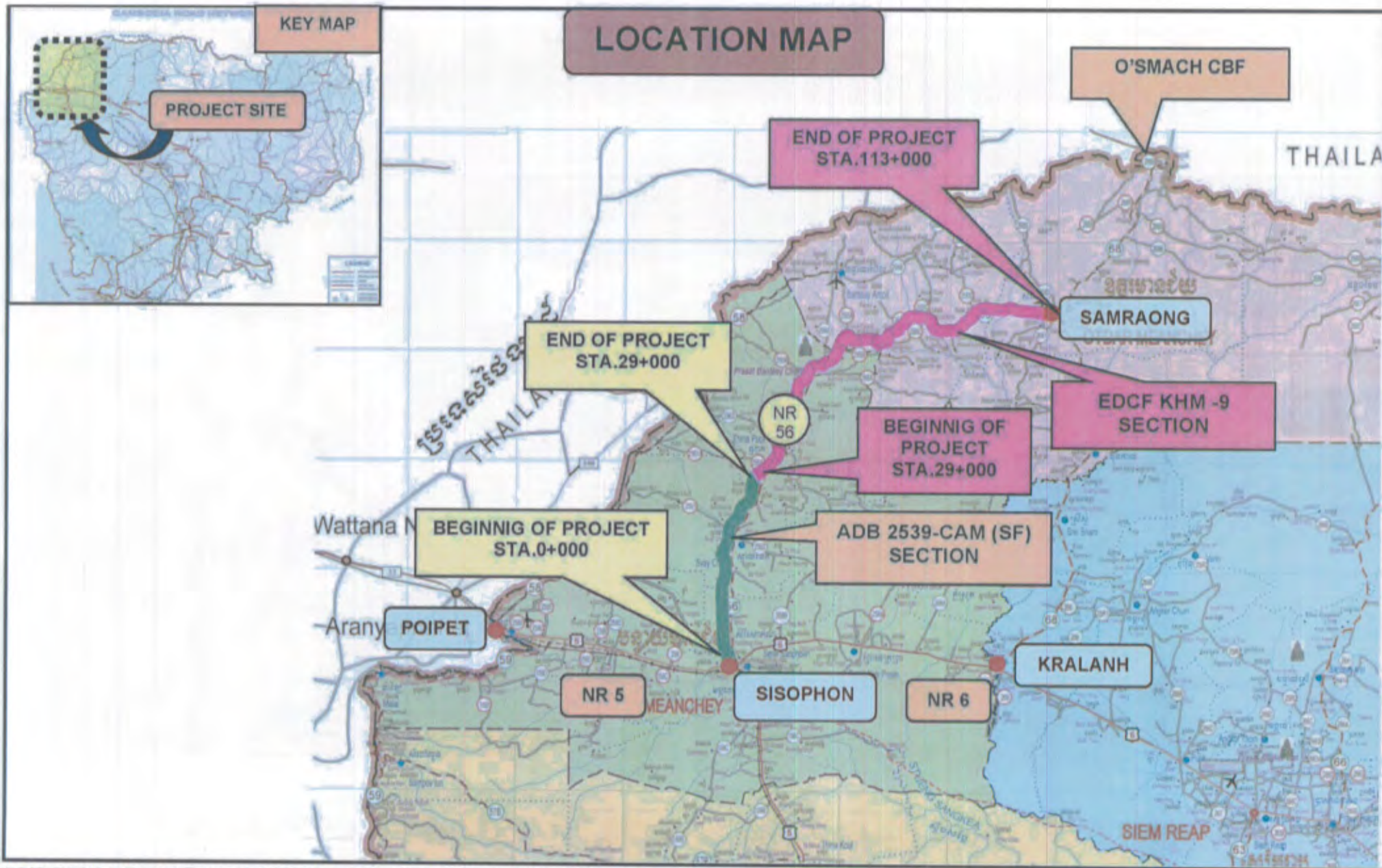
1. Construction Camps
2. Borrow Pits/Quarries
3. Erosion of Slopes
4. Air and Dust Pollution
5. Water Pollution
6. Agriculture
7. Land Contamination
8. Culture Heritage
9. Noise Pollution
10. Drainage and Flooding
11. Construction Camp Closure

APPENDIX

- A. CHECKLIST OF EMP (SEPTEMBER 2014)
- B. PHOTOGRAPH OF EMP (SEPTEMBER 2014)

ABBREVIATIONS

ADB	Asian Development Bank
APL	Angkor Protected Landscape
APSARA	Authority for Protection and Management of Angkor and the Region of Siem Reap
BCPL	Banteay Chhmar Protected Landscape
DDIS	Detailed Design and Implement Supervision Consultant
DoCF	Department of Culture and Fine Arts
DoE	Department of Environment (Provincial Level of MoE)
DPWT	Department of Public Works and Transport (Provincial Level of MPWT)
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
FA	Forestry Authority in MAFF
G	Gabion
Geo	Geo Textile
GoC	Government of Cambodia
GRM	Grievance Redress Mechanism
IEE	Initial Environment Examination
IRC	Inter-Ministerial Resettlement Committee
M	Mattress
MAFF	Ministry of Agriculture Forestry and Fisheries
MoCFA	Ministry of Culture and Fine Arts
MOE	Ministry of Environment
MoH	Ministry of Health
MoWM	Ministry of Water Resource and Metrology
MPWT	Ministry of Public Works and Transport
ROW	Right of Way
RP	Resettlement Plan
SEU	Social and Environment Unit (within MPWT)
TSBR	Tonle Sap Biosphere Reserve



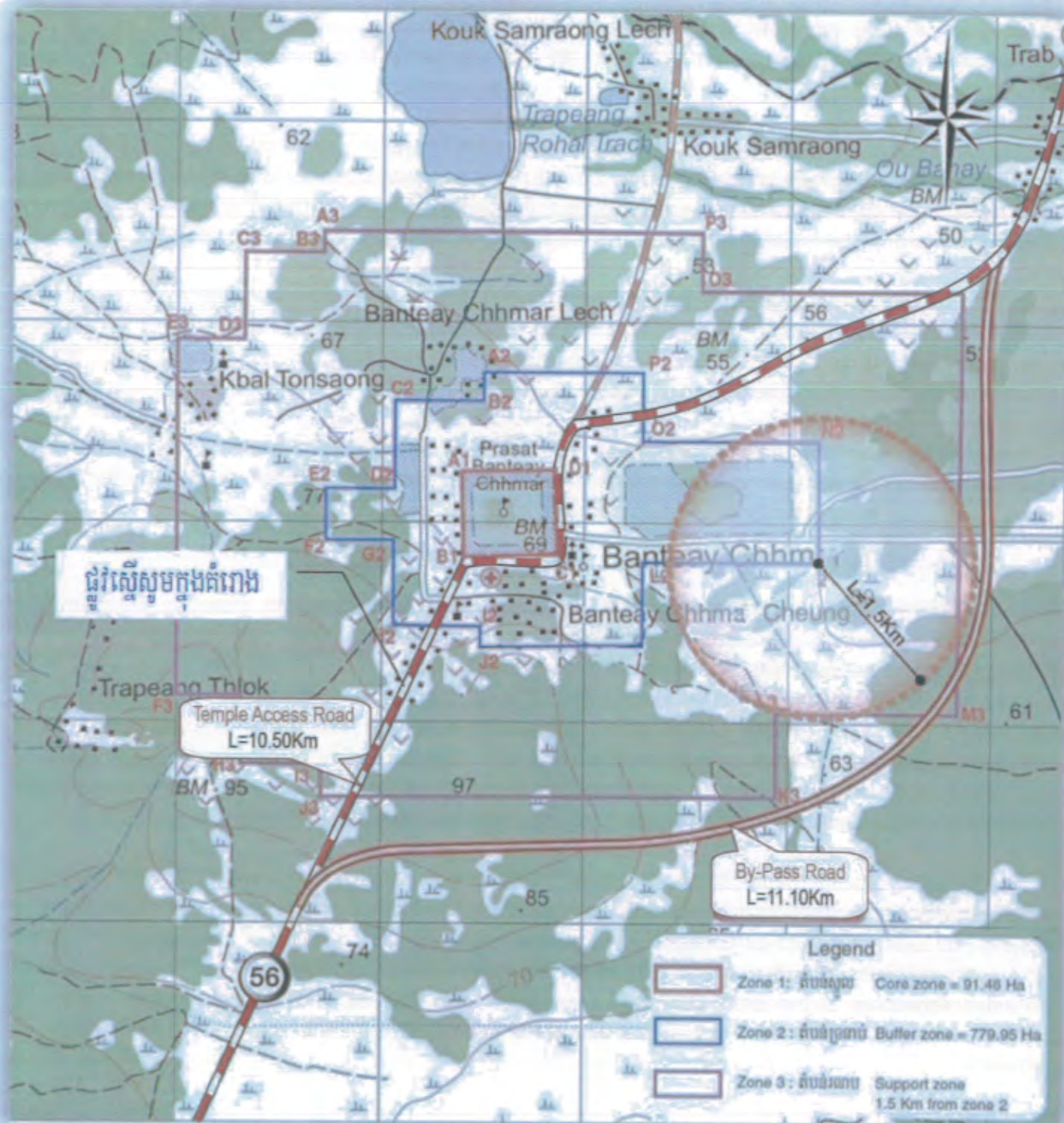
CAMBODIA NORTHWEST PROVENCAL ROAD IMPROVEMENT PROJECT
EDCF Loan KHM-9

PROJECT ROAD

EDCF Loan KHM-9: Cambodia Northwest Provincial Road Improvement Project



EDCF KHM-9



I. EXECUTIVE SUMMARY OF EMP

1. The Project

1 The GMS Cambodia Northwest Provincial Road Improvement Project will be undertaken on the already classified NR56 from Sisophon to Samraong. The road has a length of about 113 km. The rehabilitation of the Sisophon to Samraong section of NR56 is an integral part in the upgrading of the GMS regional road network linking Thailand via Cambodia as well.

EDCF Loan KHM-9 will cover rehabilitation of 84km of NR 56 between 29km from Sisophon and Samraong, provision of equipment's for the CBF at O'smach and installation of ATCS at existing 7weigh station on NR.

2 In order to avoid impacts Banteay Chham temple (BCT) under consideration for World Heritage, 11km bypass which comes under the EDCF Loan KHM-9 financed Contract is planned. Three options for bypass were considered and the Alternative-1 in support zone from Buffer zone 1.5km selected. Therefore, there will be no impacts the BCT. (See Figure 1-2, By-pass Road Map at BCT)

3 The existing bridges and box culverts along NR56 have been improved under ADB Loan 1945-CAM, CRIP. Several pipe culverts were also replaced to improve access for the contractor and public. Two bridges on NR 56 will be widening but excepting these, the improvement for these roads will be limited to the road embankment, DBST pavement and the remaining drainage structures such as pipe culverts.

The improvement for this road will provide all-year, all weather access to remote and poorly serviced rural areas and improve community accessibility to markets and social infrastructure, while facilitating easier access to growing employment opportunities in the surrounding urban areas.

2. The EMP

4 This Environmental Management Plan (EMP) gives guidance on how to mitigate the environmental concerns identified in connection with this project. The project proponent is the General Department of Public Works, Ministry of Public Works and Transport, Royal Government of Cambodia (MPWT). The EMP has been prepared by MPWT with the assistance of the Supervision Consultant project. The EMP identifies potentially significant environmental impacts, appropriate mitigation measures, monitoring requirements and responsibilities. The EMP has been prepared in accordance with "Environmental Assessment Requirements of the Asian Development Bank" (ADB 1998) and taking cognizance of the requirements of the Cambodian Ministry of Environment.

5 The Initial Environmental Examination (IEE) details the environmental concerns with regard to the road improvement works in the transport Infrastructure Development for the MPWT, RGC. The Project has been classified as Category "B" and the IEE has been prepared in accordance with ADB Environmental Policy (2002) and ADB Environmental Assessment Guidelines (2003). The IEE provides an initial screening of the proposed project activates, identifies significant environmental impacts, proposes appropriate mitigation measures, and determines if any further environmental assessment is required.

3. Legislation

6 The contractor must comply with all laws, legislative instruments and regulations which are relevant to the project. The "Law on Environmental Protection and Natural Resource Management"

(1996) enables the Ministry of Environment to pass sub-decrees and regulations to protect the environment. The Environmental Impact Assessment (EIA) Sub-decree was enacted in July 01 2000 and has been adopted pursuant to the Law on Environmental Protection and Natural Resource Management. Even if the regulations are in draft form, the contractors must comply with them. These sub-decrees state parameters to be measured and levels to be met and include:

- 1) EIA Sub-degree is intended to:
 - Promote conservation, protection and appropriate use of natural resources to maintain sustainable economic development and enhance environmental quality
 - Integrate environmental impact assessment (IEIA) within project planning and decision making.
 - Promote public participation in the decision making process
- 2) Law of EP and NRM Sub- decrees (1996) encompass:
 - Sub-Degree on environmental impact assessment
 - Sub-Degree on Air and Noise Pollution Control
 - Sub-Degree on Water Pollution Control
 - Sub-Degree on Solid Waste Management

The contractor must also comply with laws on historical monuments, nature reserves and Wildlife.

4. Preservation of Historical Monuments

7 Banteay Chhmar Temple is located approximately 500 m from the NR56 road. The curtain wall is some 100 m from the road and the water moat lies between the outer wall and NR56, with a shoulder of 2-3 m between the road and the moat. All areas, the moat, the curtain wall and inner temple are protected by royal decree. Under this contract, there are no works near the temple. There will be no impacts from this contract on the Banteay Chhmar Temple.

8 In order to avoid impact on BCT temple, 11km bypass is planned. Three options of protection for Banteay Chhmar Temple were considered and Alternative 1 selected in Support Zone out of Buffer Zone 1.5km. Therefore, there will be no impacts on the Banteay Chhmar Temple.

5. Agricultural Land for Borrow Pits

9 Borrow pits will be located along NR56 as a source of earth for embankment material. Farmers have no objections to sitting pits on private land providing the land is returned in a usable fashion. On NR56B many material of borrow pit may be needed for embankment and 11km by-pass alignment for no impact BCT. The contractors will buy such material from the farmers. As borrow areas will be subject to private contract between the farmers and the contractor, the decision as to rehabilitation will be made on a case by case basis.

Most of farmers stated during consultations that they wished borrow pits to be left open so that could be used for water reservoirs on dry season, duck pond or fish ponds. However the farmers should require specified rehabilitation, the contractor must comply with this request as indicated in the borrow pit excavation plan, to the satisfaction of the engineer by the EMP.

10 If it is not possible to develop suitable uses, then the borrow pits shall be reinstated, re-vegetated and handed back to the owner. Contractor to check that location, use and closure plan of borrow pits is acceptable to the villagers. Also checks borrow roads. Check no grievances over land acquisition.

6. Quarries and Rock Material

11 One existing Market quarry and two possible rock formations have been identified. If existing market quarries which are under private ownership are used then the owner must have obtained permission from the relevant authorities. If new quarries are required then approval must be obtained permission from the relevant authorities.

12 Where rock extraction is to be by explosives blasting, normal industrial standards and safety practices must be followed to minimize noise and vibration impacts. The blasting method statement must be submitted to the RE in advance for his approval.

The contractor or his appointed blasting subcontractor must advise on the location of the drilling hole, depth of drilling, diameter of hole and charge per hole. The Details of the type of explosive and initiation must be stated. Local residents must be made aware of blasting taking place and warned in advance.

13 If explosives are to be stored on site. A license magazine must be used. This must have strict security and restricted access. An inventory of explosives transported in, used and stored must be kept and reported monthly to RE.

7. Construction Impact

14 Construction workers camps will be located away from communities, contractor will prepare a worker health and safety plan, including sanitation facilities, equipment, and medical care, workers will receive health and safety training, and workers will undergo pre-employment health screening. All sanitary waste will pass to septic tanks. Locally manufactured tanks are recommended. Wash water from cooking and showers will be kept separate from sanitary waste and will be treated with grease traps before discharge to water courses. When construction is completed, the contractors will clean up the construction site and workers camps by removing all equipment and buildings and carrying out site remediation work. Three mobile teams will move around NR 56 and occupy temporary quarters. They will be required to rent local accommodation rather than disturb the local community by constructing their own facilities.

15 Concrete structures for RCP will be fabricated in casting yard and be transported to site for installation. Quantities of cement and aggregate that would normally have been brought on site will be significantly reduced and Environmental Impact.

16 Materials such as soil, gravel, sand and rock will be required for road construction. Construction material will be hauled by trucks to the project sites. If contractor trucks exceed weight limits, there may be damage to bridges and road surfaces. Weight restrictions must be imposed on construction vehicles and equipment to prevent damage to structures.

17 Fuels and oil storage areas will have containment. Fuel stored on the site must follow industrial practices. Fuel suppliers must provide skid mounted tanks with a metered off take and pump mounted on concrete hard standing. The concrete base must have a perimeter curb to catch and retain any

minor leaks or spills from the main tank manifold by EMP (Figure 4-1) Spill Protection for Fuel Oil Storage. Waste oil will be stored and disposed in acceptable manner. Wherever possible, refueling and maintenance will be carried out at commercial fuel storage areas and maintenance shop to avoid impact on project area. Stored friable materials will have covers to control dust.

18 The Contractor must maintain dust abatement procedures by periodically water spray to dust control where roads construction site and access areas pass through villages and at the site where workers are employed. Dust abatement in rock quarries must be controlled by contractor unless privately owned.

19 Some blasting may be necessary to borrow rock and demolish structures. This will be strictly controlled for avoid disturbance to residents. Blasting method statements will be required to be submitted for prior approval. For safety reasons, close coordination with the UXO team in case of necessary will be enforced to avoid secondary initiation.

20 There are several nature reserves and protected areas have been identified in the general vicinity of the area. The two main protected areas of interest are Banteay Chhmar protected landscape and the Sarus Crane bird sanctuary. The Workers base camps, fabrication sites and borrow areas will not take place inside a protected area, and also the contractors will not be allowed any incursion into these areas.

8. Operational Impacts

i. Accidents

21 As a result of higher speeds accidents may increase. To date there do not appear to have been any major chemical spills. Vehicles carrying chemicals do follow "HAZCHEM" warning signs.

ii. Illegal Settlement along Row

22 The MPWT needs to establish RoW ownership by use of boundary markers and discourage illegal dwellings, encroachments and squatters.

iii. Accelerated Loss of Forest

23 Illegal logging is controlled by allowing communities to harvest forest products and trees for their own use. The Project is not expected to increase any forest loss as there is no timber yielding forest in the area.

iv. Accelerated Loss of Wildlife

24 There are two main protected areas of interest are Banteay Chhmar Protected Landscape and Sarus Crane bird sanctuary within the area of NR56 but no rare animal species. The Ang Trapang Thmor Sarus Crane Conservation Area (SCCA) lies to the north of NR No.6 at a distant of approximately 25 kms and to the east of NR56 at a distance of approximately 30kms. The "Roneam Doum Sam Wildlife Sanctuary" lies to the southwest of NR No.5 at a distance of 10 kms from the road. There will be no impacts on "Roneam Doum Sam Wildlife Sanctuary".

9. Social Issues

25 The project will have positive benefits which enhance the quality of life and living standards of the local population. The introduction of sexually transmitted diseases or other infections by immigrant workers is being addressed by a separate program.

10. Public Consultation

26 Many consultations have taken place with local authorities and community representatives during project preparation, and these will continue.

11. Social and Environment Unit

27 The Social and Environment Unit (SEU) is a team in MPWT who work in close cooperation with other authorities such as socio-economics, resettlement, environment, HIV Prevention program. Their current duty is to implement "the Resettlement Plan (RP)". SEU works in close cooperation with the IRC and liaises on regular basis. SEU will ensure that the contractors comply with all relevant legislation and follow monitoring and reporting schedules given in the EMP.

12. Environmental Monitoring

28 The essence of monitoring is to ensure compliance with Environmental Legislation. The Contractors will have a "Duty of Care" to comply with the relevant legislation in the compliance with EMP and IEE by CEMP. The Supervising Consultant must check Contractors activities and report in ensuring that the environmental safeguard and social impact of EMP are implemented and provide assistance to mitigate any unforeseen environmental issues in the case of noncompliance with EMP associated with the NPRIP KHM-9 Project.

29 The Contractors should have an environmental specialist on their staff for monitoring who will advise on implementing the EMP. The inspector's responsibility will include environmental issues and also must check activities and progress against environmental checklist (See Appendix)

30 With regard to social impact, STD information and Education program was introduced by MPWT and was also monitored by Environment and Social Safeguard (ESS) during the implementation by consultation with commune council and the NGO.

31 The purpose of meeting with local authority (commune councils) is not only to hear complains, social and environmental impact and satisfaction with the maintenance project but also to verify and confirm whether or not HIV/AIDS campaign are conducted in the project influence area. In addition, it is an effective public disclosure of safeguard information to local authorities.

32 It is observed that there is no adverse environmental and social impact to local community along the project influence area during civil works of road construction.

13. Summarized Monitoring EMP

33 The summarized table of the environmental and social safeguards monitoring from July - September 2014 Attached on Page No. (12-23)

II. EXECUTIVE SUMMARY OF CONTRACTOR'S EMP

The Government of Cambodia has applied for a loan from Economic Development Cooperation Fund (EDCF) the Export-Import Bank toward Cambodia Northwest Provincial Road Improvement Project, which will implement rehabilitation of (i) Sta.29 - Samraong, and (ii) rehabilitation of structures (iii) By-Passing Road Construction at Banteay Chhmar Temple.

The purpose of this Environmental Management Plan (EMP) is to give guidance on how to mitigate the environmental concerns identified in connection with this project by CEMP. It will form part of the contract between MPWT and the selected contractor and the requirements of the EMP will be contractually binding on the contractor.

In this regard, we would like to outline our Environmental Mitigation plan (EMP) by CEMP in project implementation by discussing the environmental impacts in each section.

1. Construction Camps
2. Borrow Pits/ Quarries
3. Erosion of Slopes
4. Air and Dust Pollution
5. Water Pollution
6. Agriculture
7. Land Contamination
8. Culture Heritage
9. Noise Pollution
10. Drainage and Flooding
11. Construction Camps Closure

- Appendix

Check List of EMP Implementation

1. Construction Camps

The campsite will be located at approved area for the Engineer's and Contractor's quarters including main laboratories, office, and accommodation, workshop, crusher site, asphalt plant site, and production. The area shall be graded as required so that all surface drains naturally bind with the natural terrain and are left in a condition that will facilitate natural re-vegetation, provide for proper drainage and prevent erosion. Sanitary wastes and garbage are the major waste products in the main camp.

Fencing and Site Security

- 1) The Contractor's office, workshops and storage compounds, campsites and all construction areas where exclusion of unauthorized personnel is necessary for safety and security, shall be adequately fenced, gated and guarded.
- 2) The Contractor shall employ an adequate force of properly trained security guards at the work site and the construction camp on 24-hour duty including Sundays and holidays. Storage areas shall be fenced, lighted and regularly patrolled by security guards. Warehouse buildings and explosive magazines shall be kept locked and keys accounted for at all times.

Mitigation of Impact Plan

- A. The place will be graded and left in a manner confirming to the natural appearance of the landscape.
- B. **Re-vegetation** will also be considered after making some adjustments to the drainage of the areas.
- C. **The solid wastes** should be disposed properly by segregate into the following:
 - 1). **Recycle things** (Non-Biodegradable wastes) such as paper, plastics, cans, bottles clothes and the like have to collected in dustbins and shall be given to domestic recyclers approved by local authorities
 - 2). **Organic** (Biodegradable wastes) such as food waste, etc. must be buried at sanitary landfill and covered with soils on a daily basis by garbage collector approved by local authorities and consultant Engineers.

The Camp Site shall be kept clean and free of refuse at all times. No waste shall be dumped in areas other those approved by the Engineer for waste disposal. No waste of any kind shall be deposited in any water courses.

The consultant's quarts will be handover to the client after completion of the works.

2. Borrow Pits/Quarries

• Borrow Pits

It is necessary to locate and exploit borrow pits for earthwork and detour constructions during the progress of the works. For this purpose, the contractor shall obtain site possessions for various borrow pits, which will be partially or fully exhausted. In most cases it is also necessary to construct access roads to this borrow pits. Both borrow pits and their access roads have negative impact on the surrounding environment since impacts on they represent the alteration of the existing natural system. Each borrow pit has its own specific impacts on the natural system of the surrounding. In most cases the contractor will try to work out best solutions in collaboration with land owner, the local agricultural and environmental authorities. The activity will be decided after consultation with the mentioned authorities.

After work is completed borrow areas (borrow pits and access road) must be reinstated to their original condition by the contractor, unless an agreement has been reached with the owner's and local villagers' that the excavated pits may be put to some other use, such as water reservoirs on dry season, duck pond or fish ponds, as to rehabilitation will be made on case by case base.

In this case the borrow areas must still be reinstated to such a condition that they do not pose a hazard to local residents.

• Quarries

It is necessary to locate and exploit quarry sites to obtain parent rocks for aggregate production for concrete chips, sub base course and surfacing aggregates for DBST

For this purpose the contractor shall obtain site possessions for quarry sites which will be partially or fully exhausted.

If existing market quarries which are under private ownership are used then the owner must have obtained permission from the relevant authorities. *(See Quarterly Report December 2012*

Appendix E: Opened Mines and Crushing Plant Certification by MOI, M&E)



In most cases it is also necessary to construct access roads to the quarry sites. Both quarry and their access roads shall have negative impact on the surrounding environment since they represent the alteration of the existing natural system.

3. Erosion of Slopes

Borrow pits, quarries, road embankments, culverts and bridge abutments and road diversions will expose bare soils where material can be eroded. These Areas must be re-vegetated as soon as possible after disturbance. Depending on the season this may require watering to ensure establishment of vegetation before the wet season arrives. Re-vegetation work may be carried out by project affected people within the Resettlement Plan as a form of income generation. Re-vegetation specifications have been included in the Detailed Design for Slop Protection. The contractor must take care to avoid unnecessary work within channels and avoid dumping of excavated

Material into flowing channels. If possible, work which could affect water channels must take place during the dry season, before heavy rainfall flows occur.

4. Air and Dust Pollution

Noise and dust from unpaved roads is a major nuisance for roadside residents and as traffic flows increase, this gets worse unless road surfaces are paved. The paving of the road will reduce noise and dust levels in the future.

During the construction of the works there is a possibility of dust pollution, which results from passing traffic on detours. This can have a negative impact on the adjacent environment such as atmosphere, cultivated fields, corps, residential house etc. sprinkling with or other means by road maintenance team, whenever necessary to reduce the dust nuisance, and to prevent dust which has originated from his operations from damaging crops, cultivated fields, and welling, or causing a nuisance to persons.

Mitigation of Impacts Plan

- A. The detours will be sprayed with water at reasonable intervals so as to control the dust in the dry season to facilitate smooth of traffic.
- B. Damaged corps or cultivated fields will be brought back to their original conditions by an appropriate means approved by the Engineer.
- C. The emission of dust into the atmosphere shall be strictly controlled during the manufacturing, handling and storage of soil, concrete and road aggregates.

5. Water Pollution

The Contractor shall take all possible steps to prevent pollution of streams ,rivers, and other water supplies, at or in the vicinity of the Site and shall comply with applicable laws, orders and regulations in force in the country of the Works concerning the control and abatement of water pollution. Under no circumstances shall the sewage from the camps, or other contaminated water, be released directly into river or other natural streams or any open areas.

Structural works are found in this section. In this regard there may be a possibility of accidental spillage of solid matter, debris etc. into flowing or dry watercourses. Most pollutants in this works consist of demolished masonry and concrete.

Mitigation of impacts Plan

- A. The Demolished part of any existing structure will be transported by dump trucks to a dumping place where ever is suitable.
- B. Excavated materials will not be deposited in water sources. Instead they will be transported to other disposal places or reused as embankment material.
- C. Any structural works or earthwork operation adjacent to or encroaching on streams or watercourses shall be conducted in a manner to prevent muddy water and eroded materials from entering the stream or watercourses by construction of intercepting ditches, bypass channels, barriers, setting ponds any other means recommended by the Engineer.

6. Agriculture

The Contractor shall take all possible steps to prevent pollution of road encroachment on paddy / agricultural land, borrow pit located on agricultural land, spoil dump located on agricultural land, diversion of water channels and road construction resulting in inundation of agricultural land, irrigation channels broken / diverted due to project activities, streams, rivers, and other. There is no protected forest within the ambit of NR56 as NR56 only passes through degraded woodland areas. While the Project will improve access to the upper areas of Otdar Meanchey it is not expected to increase any forest loss beyond that taking place at the moment. The department of Agriculture, Forestry and Fisheries are active in controlling illegal logging and do impound vehicles if caught involved in such activities, oil, grease and fuel road run-off contaminating agricultural fields and any other project activities resulted in destruction of agricultural land

7. Land Contamination

The major land contaminants in the workshop are fuel, oils, grease etc. Considerable amount of solid soil is also available like different spare part packages, damaged tires and spare parts. The environmental impact of these wastes on the surrounding habitat is significant when compared to other operations of the project. Special care will be taken so that no waste fluid enters in to the surface water by filtration or other mechanism sine this can cause health damages to the community including plants and animals.

Mitigation of Impact Plan

- A. The majority of the solid waste will have to be removed by disposal to an approved dump area after making the necessary arrangements with the local authorities.
- B. Hazardous wastes (oily wastes, used batteries and fuel drums etc.) will be segregated from other wastes and its storage, transport and disposal shall not cause contamination/ pollution specially in order to prevent accidental spillages into nearby water streams and farmland. Since these wastes have negative influence on the biodiversity their disposal by collecting into special containers like barrel, or large rectangular pits which is impervious latter will be sent to the agency by national and local regulation.
- C. Non-combustible materials can also be removed by burying after arranging the land with the local authorities. The top surface of the burial will be covered with earthen material after completion.
- D. Sanitary wastes will be disposed in only disposal sites approved by local authorities.



8. Culture Heritage

There is a general law in Cambodia which covers all national monuments. This is the "Law on Protection of Cultural and National Heritage", (1996). This is supplemented by the "Decision on the Definition of 3 Zones to Protect Temple Surrounding Areas in All Provinces and Municipalities except Angkor Wat", 1996. These laws protect small temples or ancient structures.

In addition to the general laws there are some buildings which are considered sufficiently important to warrant a specific protective decree. This includes the "Royal Decree on Banteay Chhmar Temple Park", 2003 which lies alongside NR 56. No structures are to be constructed on the section of NR 56 which passes the temple park. The bypass has been added to the alignment to avoid this Temple Park. A new bypass road alignment has been selected to avoid any impact on the ancient structures at Banteay Chhmar Temple. The Ministry of Culture and Fine Arts (MoCFA) raised no objections to this scheme in discussions.

9. Noise Pollution

Noise from road traffic is a nuisance for roadside residents. As traffic grows, with more heavy goods vehicles, noise levels will increase. However smoother road surfaces can reduce road / wheel interaction noise.

Pile driving, improper silencing of vehicles and equipment used on the road construction site may impact on communities. The Contractor should ensure that machinery is adequately silenced and operations are restricted to normal daylight hours. Blasting noise should also be controlled.

10. Drainage and Flooding

In rainy season, we will suffer from a flood. To minimize the flood damage, the raising of the embankment to a flood free height will avoid flooding of the road. It may cause runoff to be held behind the embankment and so additional cross drainage has been included. Borrow pits, quarries, road embankments, culverts and bridge abutments and road diversions will expose bare soils where material can be eroded. Work within channels and dumping of excavated material into flowing channels can cause blockage of drainage channels. Outflow from drainage structures Erosion of Lands below the roadbed receiving concentrated outflow carried by drainage structures– in contravention of Draft Sub-Decree on Water Quality.

Mitigation of Impacts Plan

- A. Position drainage structures to avoid a cascade effect and to ensure that runoff is conveyed into natural drainage lines at controlled velocities.
- B. Line receiving areas with stones or concrete to protect soils at outflow areas
- C. Incorporate sufficient number of drainage outlets such that flow from any individual outlet is not excessive.

11. Construction Camp Closure

The campsite will be located at approved area for the Engineer's and Contractor's quarters including main laboratories, office, and accommodation, workshop, crusher site, asphalt plant site, and production. The area shall be graded as required so that all surface drains naturally bind with the natural terrain and are left in a condition that will facilitate natural revegetation, provide for proper drainage and prevent erosion. Sanitary wastes and garbage are the major waste products in the main camp.

**Fencing and Site Security**

- 1) The Contractor's office, workshops and storage compounds, campsites and all construction areas where exclusion of unauthorized personnel is necessary for safety and security, shall be adequately fenced, gated and guarded.
- 2) The Contractor shall employ an adequate force of properly trained security guards at the work site and the construction camp on 24-hour duty including Sundays and holidays. Storage areas shall be fenced, lighted and regularly controlled by security guards. Warehouse buildings and explosive magazines shall be kept locked and keys accounted for at all times.
- 3) All employers engaged in the execution and maintenance of the Works shall wear identification when at the work place.

Mitigation of Impacts Plan

- A. The place will be graded and left in a manner confirming to the natural appearance of the landscape.
- B. **Re-vegetation** will also be considered after making some adjustments to the drainage of the areas.
- C. Sanitary waste and garbage is disposed in only disposal sites approved by the Local Authorities.
- D. Disposal of combustible materials shall be segregated by recycle things and organic. The material to be burned shall be piled in designated areas approved by local authority in such a manner as will cause the least fire hazards. The contractor will take special precautions to prevent fire from spreading beyond the piles being burned.
- E. Material to be disposed by dumping shall be hauled to the selected dumping sites approved by local authorities.
- F. Material to be disposed by burial shall be buried in location, size and depth approved by local authorities.
- G. The Site shall be kept clean and free of refuse at all times. No waste shall be dumped in areas other than those approved by the Engineer for waste disposal. No waste of any kind shall be deposited in any watercourses.

The consultant's quarters will be handed over to the client after completion of the works.

Demobilization & Final Clean -Up

- 1) Upon the Completion of Works, or when any plant has completed its functions, the Contractor shall dismantle and demobilize all temporary facilities erected by himself or his subcontractors, and remove all debris, objectionable material, and all other refuse which may have been deposited on site during the construction period. Such material may be deposited properly segregated by recycle thing and organic only in areas approved by the local authorities and consultant engineer. The contractor shall also remove from the site any plant and equipment which he finds at the commencement of the works in accordance with the instructions of the engineer by the EMP/IEE.
- 2) All excavated areas shall be filled, grade and dressed in a clean and orderly condition acceptable to the Engineer by the EMP/IEE. As far as possible, such areas should conform to the natural appearance of the landscape.

SUMMARISED POTENTIAL NEGATIVE IMPACTS, MITIGATION MEASURES and MONITORING EMP (From July-September 2014)

Activities related issue	Potential Negative Impacts and/or Positive Impact	Required Mitigation Measures	Observations and Recommendation during Monitoring
1. Detail Design Stage			
(a) Road alignment	Damage to ancient temple on NR 58 in contravention of Law on Protection of Cultural and National Heritage (1996)	<ul style="list-style-type: none"> Road alignment was changed to give by-pass 11.10 Km on Support Zone around Banthey Chhmar Temple and now avoids historical areas on Core Zone. Decision made in collaboration with MoCF. 	Change already specified and included bypass alignment 11.1 Km in detail design stage to avoid impact of historical area at BTC Temple.
(b) Raising Road Affecting Hydrology, Drainage and fish migration.	Increase erosion, possible road failure due to impoundment of flood waters; prevention of fish migration. Irrigation in Agricultural Area.	<ul style="list-style-type: none"> All existing bridges stream flow area increased by 30%. Additional cross drainage Structure provided. Included in detailed design Stage and construction stage. 	Providing additional cross drainage was included in detail design and inundation Area on Dec 2012 in construction Stage
(c) Need for fill material	Loss of live hood, Loss of Agricultural Land for Borrow Pits.	<ul style="list-style-type: none"> Develop alternative uses for borrow pit areas with agreement of farmers and villagers. Some villagers request borrows pits to be left as water ponds for use by village. 	To be negotiated as private contract between villagers and contractor for borrow pits
(d) Cutting of roadside trees	Loss of roadside trees, loss of shade and utility.	<ul style="list-style-type: none"> Compensation to be paid under Resettlement Plan. No replanting is required by contractor, planting will be carried out, if appropriate, by MAFF 	Compensation to be paid under IRC/MEF
(e) Cut faces and borrow pits	Erosion and instability of cut faces and borrow pits	<ul style="list-style-type: none"> Road Design for cut slope used by Cambodia Highway Design standard to minimize instability. Use structural stabilization measures such as retaining walls and gabions, if necessary. Use adequate design, siting, and sizes of drainage structures. <p>All included in detailed design.</p>	1) There is no high cutting faces to make erosion and instability in our Design. 2) Cutting faces of Borrow Pits should be negotiated with Private villager by EMP/IEE
(f) Outflow from drainage structures	Erosion of Lands below the roadbed receiving concentrated outflow carried by drainage structures— in contravention of Draft Sub-Decree on Water Quality.	<ul style="list-style-type: none"> Position of drainage structures to avoid a cascade effect and to ensure that runoff is conveyed into natural drainage lines at controlled velocities. Line receiving areas with stones or concrete to protect soils at outflow areas Incorporate sufficient number of drainage outlets such that flow from any individual outlet is not excessive. <p>Included in detailed design.</p>	1) there is no erosion by drainage structure and contravention of Draft su on water quality 2) Sufficient number of drainage Structure to avoid a cascade effect to convey into natural drainage lines included in detail design and inundation Section by flooding area on Dec 2012 and Aug 2013.

(g) Road alignment next to river/stream	Loss of riverside vegetation	<ul style="list-style-type: none"> Where road alignment is close to the rivers, widening or re-alignment should be on the side not adjacent to the river 	Alignment not adjacent to the river in the detail design
(h) Road widening	Loss of vegetation and habitat through road widening, realignment of right-of-way	Re-grass for slopes and embankments. Specification included in detailed design.	Re-grass already included in the Contract for Civil Works.
(i) Road alignment	Impacts on wildlife through interruption of migratory routes and other habitat disturbances– in contravention of Law on Environmental Protection and Natural Resource Management (1996)	Other than fish migration no impacts.	There is no alignment to impact on Wildlife in contravention of Law on EP and NRM
(j) Road alignment	Encroachment on irrigation structures from road widening and realignment	<ul style="list-style-type: none"> Use appropriate drainage structures to replace those presently used in irrigation systems. Avoid encroachment on irrigation systems in use. Consult with relevant government offices and villagers. 	Appropriate Drainage Structure of pipe culvert to use in future irrigation System.
(k) Road Construction	Encroachment on water supply systems from road construction activities	<ul style="list-style-type: none"> Identify places where there are existing and planned water pipes and make appropriate arrangement avoid water pipes. Detailed design must include plans for avoidance of damage to water systems and replacement/repair of water systems where avoidance is not possible. Coordination should be exercised through the Inter-Ministerial Resettlement Committee, as well as normal inter-ministry liaison. 	Including drainage system for avoidance of damage to water systems where there are existing and planned pipe culverts.
(l) Road widening onto agricultural land	Destruction of agricultural land through road widening and realignment	<ul style="list-style-type: none"> Minimize realignment through agricultural land. Ensure appropriate compensation by MEF/IRC for loss of agricultural lands. 	Compensation for loss of agricultural land by MEF/IRC
(m) Road widening	Encroachment on previously unidentified cultural sites– in contravention of Law on Protection of Cultural and National Heritage (1996)	<ul style="list-style-type: none"> Consult with villagers during detailed design to avoid encroachment on graveyard, and other unidentified sites of cultural importance. 	1) No graveyard, and other National Heritage Culture to avoid encroachment except BTC Temple historical Area
2. Mobilization Stage			
(a) Mobilization of equipment	Accident risk during mobilizing construction equipment	<ul style="list-style-type: none"> Minimize the mobilization of heavy equipment to night time. Over-width and over-length vehicles should display adequate warnings such as flashing lights, signs, and flags on extending parts of equipment. 	1) Mobilization of Equipment equipped adequate warning sign and lights. 2) There was no heavy equipment mobilized during night time.

(b) Mobilizing workforce	The introduction of an outside workforce can have a negative impact, and positive impact on the health and social well-being of local people	<ul style="list-style-type: none"> Conduct special briefing or on-site training on environmental requirement of the project to workers. Strictly supervise workers not to interference with local affairs or quarrel with local people. In case of complaints from local people on the issues caused by workers, the complaints should be solved as soon as possible, by collaboration of contractor and village representatives or Commune Chief 	<p>1) No complaint was received from commune council and from Local people on the issues caused by workers</p> <p>2) Positive impact on the social well – being and life for local people is improved</p>
(c) Impacts on local wildlife by workers	Impacts on local wildlife by workforce– in contravention of Joint Prakas of the Ministry of Environment and the Ministry of Agriculture on Prohibition of Hunting and Catching of Wildlife Animals (1996)	<ul style="list-style-type: none"> Carry out awareness-raising campaigns on wildlife value for workers. Any worker conduct hunting, or buying wildlife from local people, will be dismissed from job. Supply workers with sufficient food from outside the project. 	Awareness-raising campaign on wildlife value is carry out regularly minimum 1 event/month to the workers by the Contractor
(d) Protecting workers safety	Accident risk from mobilizing workers	<p>The following safety precautions should be provided to workers.</p> <ul style="list-style-type: none"> Provide safety or warning signs and manuals at workplace and/or Camps. Provide full PPE; Helmets, boots, warning jackets etc. Conduct safety training on health and safety. Establishment of all relevant safety measures required by law and good engineering practices. 	<ul style="list-style-type: none"> Already provided full PPE to Workers, Contractor checked regularly use of the PEE while at works. Conducted regularly Safety Training to workers by Contractor's Safety Trainer. Already installed for Warning Signs and Safety Manuals at Workplace and/or Base Camps.
(e) Health Aspects	Outbreak of disease	<ul style="list-style-type: none"> The contractor shall have all his workers undergo a medical screening prior to their arrival on site, to check for HIV/AIDS, socially transmitted diseases, and to provide an awareness program. Any workers screening positive for such diseases shall not be allow on the site. Site construction camps far away from local communities and rivers. Keep camps from becoming blight on the local environment. Provide enough water supplies for workers, and ensure sufficient sanitation for the camp; the proper location for solid waste disposal by IEE/ CEMP Make medical treatment available for workers by First Aid Kits, Provide workers mosquito nets and malaria-prevention medication, if needed, spray around camp area with chemicals against mosquitoes. 	<ul style="list-style-type: none"> A separate information education program of STD for HIV/AIDS is conducting monthly to workers by the SBK sub-contractor Provision of Adequate portable water and domestic water are supplying for workers. More Care Sanitation for the camp and proper disposal of solid waste is disposal by requirement of IEE/EMP There is no outbreak of diseases from workers and around Base Camps.

(f) Providing fuel for workers	Depletion of natural resources through demand for building materials, fuel and food for workers– in contravention of Royal Decree on the Creation and Designation of Protected Areas (1993)	<ul style="list-style-type: none"> Do not harvest wood resources within protected area. Where local materials must be used, make agreements with local communities about the areas or the volume that can be harvested without significant impact. Support community development by paying an adequate price for any local resources used. All supplies for building camps should be brought from outside area. 	<ul style="list-style-type: none"> It is normal to use harvested fuel wood outside protected area for cooking in Cambodia for workers Up to now, there is no use harvested wood resources within protected area for building materials.
III. Construction Stage			
(i) Construction work area	Loss of water quality– in contravention of Sub-Decree on Water Quality	<ul style="list-style-type: none"> Revegetation of construction area. This relates to grass seeding of slopes of new embankments for soil stabilization and control of sediment run off. 	<ul style="list-style-type: none"> These grass seeding of slopes on new embankment for soil stabilization are not yet started The Contractor should provide completed slope for grass seeding by construction plan
(ii) Work in stream channels	Loss of water quality– in contravention of Sub-Decree on Water Quality	<ul style="list-style-type: none"> Limit work in channels to low flows. Diversionary works to be completed in dry season. 	<ul style="list-style-type: none"> There is no work plan in stream channels diversionary in our project in contravention of water quality.
(iii) Fuel, lubricants and asphalt	Loss of soil and water quality – in contravention of MOE Praksa No. 992 on the Regulation of Industrial Solid and Liquid Waste Management (1994)	<ul style="list-style-type: none"> Fuel and asphalt storage in properly designed facilities and careful refueling systems following by EMP 	<ul style="list-style-type: none"> Up to now, there is no loss of soil and water quality by fuel and lubricant
(iv) Solid waste disposal	Loss of soil, air and water quality– in contravention of Sub-Decree on Waste Management	<ul style="list-style-type: none"> Solid waste management procedures 	<ul style="list-style-type: none"> Solid waste material by segregation of recycle things is disposing by domestic recyclers by EMP disposal procedures
(v) Dust impact	Loss of quality of life values – in contravention of Sub-Decree on Air pollution Prevention.	<ul style="list-style-type: none"> Road watering for road maintenance and cover stock piles 	<ul style="list-style-type: none"> Maintenance Team is maintained periodically water spraying on construction Road Section and pass through villages. Rock quarry, raw material is watering to prevent dust being blow away No complaint was received from commune council and during house- to -house consultation.

(vi) Noise impacts	Loss of quality of life values– in contravention of Draft Sub-Decree on Noise Prevention	<ul style="list-style-type: none"> ▪ Vehicle and Equipment noise control, Timing of work, Give advance notice of time of blasting ▪ Low speed is maintained when moving heavy vehicle and/or equipment in front of village ▪ Blasting noise must also be controlled to minimize noise and vibration impact. ▪ Commune chief and village chief are informed of the construction activity. 	<ul style="list-style-type: none"> ▪ Speed limit of construction equipment is 40KPH when moving Equipment. ▪ We have no any plan blasting activities in CW.
(vii) Vibration impacts	Loss of quality of life values– in contravention of Draft Sub-Decree on Noise Prevention	<ul style="list-style-type: none"> ▪ Schedule of Work Method to minimize Vibration impact to villager. ▪ Commune and villager chief are informed of the construction Activities 	<ul style="list-style-type: none"> ▪ The Equipment is operating works in daylight hours. ▪ The contractor should be required to minimize vibrating impact at village section where equipment are employed.
(viii) Inadequate sanitation	Increased disease– in contravention of Law on Environmental Protection and Natural Resource Management (1996)	<ul style="list-style-type: none"> ▪ Provide sanitation through septic tanks; potable drinking water, domestic water by wells and tankers. ▪ Underground well to be drill on permanent campsites. ▪ Septic tanks to be installed on permanent campsites. 	<ul style="list-style-type: none"> ▪ The Permanent Camp Sites is providing sanitation treatment facilities through Septic Tanks ▪ Underground well is supplying domestic water for washing and cleaning ▪ Drinking water is supplying market bottle water. ▪ No increased disease was occurred providing Sanitation by EMP.
(ix) Earthworks and operating of quarries and borrow pits	Erosion and instability of cut faces and borrow pits	<ul style="list-style-type: none"> ▪ No new side roads should be permitted in areas with steep slopes. ▪ Minimize major earthworks during the rainy season, to the extent feasible. ▪ Pile topsoil from digging of borrow pits carefully to one side, where it can be later used for reclamation. ▪ During construction, employ erosion prevention measures such as the use of hay bales. ▪ At the end of the construction phase, raconteur borrows pit walls, replace topsoil, and vegetate. 	<ul style="list-style-type: none"> ▪ Topsoil from surface of borrow pits are piling to use later for reclamation negotiated with private land owner ▪ No erosion and instability on cut faces in borrow pit and quarries was occurred till now

(x) Disposal of overburden	Erosion from disposal of cut spoil	<ul style="list-style-type: none"> ▪ Dispose of spoil only where there is vegetated strip at least 50m wide between the disposal site and the nearest water body. To the extent feasible, avoid disposal on slopes greater than 30%. ▪ Where spoil disposal in vegetated sites cannot be avoided, select areas with scrub growth over areas of healthy forest. ▪ No disposal in the area of the BCPL. ▪ No disposal into gullies or watercourses. ▪ No disposal in or adjacent to cultivated areas, unless such areas lie within the road reserve width, in which case owner will be compensated under the Resettlement Plan. ▪ No disposal by direct tipping of spoil down slope. ▪ Vegetate spoil dumps to maintain the soil stability. 	<ul style="list-style-type: none"> ▪ We have no any disposal Soil to make erosion from disposal of cut spoil in our Project.
(xi) Construction near riverside	Loss of riverside vegetation	<ul style="list-style-type: none"> ▪ Avoid clearing riverside vegetation during road construction except where absolutely necessary. Revegetate river banks where clearing is unavoidable. 	<ul style="list-style-type: none"> ▪ We have no any road construction near riverside to make loss of riverside vegetation.
(xii) Construction of detour	Loss of vegetation from detour construction	<ul style="list-style-type: none"> ▪ In flat areas, leave enough of a roadside edge for vehicle to pass on the other half of the roadway. ▪ Remove the base soil of any necessary detours and revegetate after road construction. ▪ Avoid use of detour where at all possible. ▪ Where realignments are being built, use the existing roadway for traffic to pass. ▪ Where detour are unavoidable, as in areas where bridges are being built, limit the length and impact of each detour to the degree possible. ▪ Limit the width of any necessary detours to a minimum. 	<ul style="list-style-type: none"> ▪ We have only one existing UN Bridge widening. When bridges are being built, the existing bridge is using to pass for public traffic. ▪ When BTC Temple Bypass realignment are being built, the public traffic can use the existing roadway. ▪ Whenever drainage Pipe are being install, contractor is avoided loss of vegetation within road width.
(xiii) Construction near forests	Loss of vegetation and habitat through road widening, realignment of right-of-way, quarries and borrow pits– in contravention of Royal Decree on the Creation and Designation of Protected Areas (1993)	<ul style="list-style-type: none"> ▪ Do not allow side roads in forested area. ▪ There must be no new quarries within the BCPL nor in any of the provincial or district prohibited areas. ▪ Do not cut any trees outside of the construction zone. ▪ In case of new quarries operation, the environmental authorities – DoE - must approve the quarries. ▪ Quarrying activity should be limited to a minimum of necessary sites, with previously used sites preferred. 	<ul style="list-style-type: none"> ▪ There is no side roads construction in forested area in our project ▪ Do not cutting any trees outside the construction Zone. ▪ No any New Quarry and borrow pits is in the BCPL nor prohibited area

(xiv) Construction near Areas Protected by Royal Decree	Impacts on wildlife through interruption of migratory routes and other habitat disturbances– in contravention of Royal Decree on the Creation and Designation of Protected Areas (1993)	<ul style="list-style-type: none"> ▪ Strict monitoring in this area should be used to prevent opportunistic "salvage" logging or illegal timber harvest. If observed, notify relevant authorities or police. ▪ No side roads should be built in the BCPL, as may encourage poaching of wildlife. If observed, notify BCPL rangers or police. 	<ul style="list-style-type: none"> ▪ Our Project have no side roads Plan to build in BCPL, as can encourage poaching of wildlife. ▪ there is no impact on wildlife and opportunistic "salvage" logging or illegal timber harvest and no side roads at BCPL ▪ It's recommended if contractor observed impact on wildlife, notify MOC and BCPL rangers.
(xv) Construction near village water supplies	Encroachment on water supply systems from road construction activities	<ul style="list-style-type: none"> ▪ Contractors should pay a fee to villagers for damage to water system, perhaps based on number of days without water until the system is fixed. ▪ Fees might be specifically targeted toward women's groups, since they are usually the ones who will have the main burden of carrying water when the system is down. 	<ul style="list-style-type: none"> ▪ Contractor is supplying only domestic water for washing and Cleaning by digging wall ▪ Drinking Water is supplying market bottled water to workers and Staffs ▪ Contractor is supplying spray water and construction water at river bed by water tank. ▪ There is no encroachment on villager's water supply systems to make damage from civil works activities.
(xvi) Construction near cultural sites	Encroachment on previously unidentified cultural heritage sites– in contravention of Law on Protection of Cultural and National Heritage (1996)	<ul style="list-style-type: none"> ▪ Alert local authority upon discovery of any objects of possible archaeological significance that may be uncovered during construction. ▪ Construction activity affecting the area of the find should stop until qualified site assessment has been made and contractors have been given permission to proceed. ▪ Bring in a qualified archaeologist as needed. 	<ul style="list-style-type: none"> ▪ The MoCFA have been finished salvage for archaeological artifact at Bypass by MoCFA Expert Team on 31 Dec 2013. ▪ There is no anymore artifacts and relics on previously unidentified cultural heritage sites during Civil works till now ▪ Civil works activities should be stop until discovery has been by MoCFA Expert Team.
(xvii) Construction Causing Noise	Noise and Vibration– in contravention of Draft Sub-Decree on Noise Prevention	<ul style="list-style-type: none"> ▪ All road construction vehicles must have working mufflers and be properly maintained.. ▪ Avoid working at night Times in near village areas. ▪ Inform people of possible damage from vibration before using Vibrating Rollers near to village area, ▪ Avoid, as much as possible, using Vibration Rollers for soil compaction in settled areas ▪ In the case of mass blasting, time blasting Method is used to decrease noise, dust and impact by detonator fuse at near to village 	<ul style="list-style-type: none"> ▪ Making close communication Networks to Governor to inform the Schedule/ Timeframe, for Safety Control near to village Area before starting works. ▪ We don't have any plan to need Time blasting Method to disrupt local people at Quarry and Civil Works. ▪ The Contractor never working to using Vibrating Roller at night time near to village area

(xviii)	Excavation of Borrow pits	Creation of stagnant water bodies in borrow pits, quarries	<ul style="list-style-type: none"> ▪ Incorporate adequate drainage and fill in borrow pits and quarries. ▪ Maintain borrow pits and quarries by landscaping and revegetating after operation. 	<ul style="list-style-type: none"> ▪ Topsoil of borrow pits and quarries piled to use landscaping and revegetating after operation. ▪ Borrow pits have been left open to use water reservoirs for Farmer's needs by agreement between landowners and Contractors before use. ▪ It's recommended the Contractor should be required landscaping Quarry by approved condition from Authority after finished operation.
(xix)	Construction of by-pass	Accidental risks by traffic disruption during construction	<ul style="list-style-type: none"> ▪ Employ "flag men" to regulate the traffic flow. ▪ Where new alignments are being built, allow traffic to continue on old alignments. ▪ Where possible, as in flat areas, provide enough edge space for one-way traffic flow. 	<ul style="list-style-type: none"> ▪ Whenever new by-pass alignment 11.5 Km at BTC Temple are being built, all public traffic should be used existing NR 56 ▪ Contractor have been installed Traffic Control Sign with "flagman" to control Public Traffic during Civil Works ▪ There are no accident risks during civil works till now.
(xx)	Visual impact of construction	Visual Impact of road cut, spoil disposal, borrow pits, and quarries.	<ul style="list-style-type: none"> ▪ Where feasible, quarries should be sited away from the road. ▪ In sites where quarries must be close to the road, trees and other vegetation should be left between the quarry/crushing plant sites and the road. 	<ul style="list-style-type: none"> ▪ Our Project have no road cut and Spoil disposal in detail design close to the NR 56. ▪ Already approved all Borrow Pits and Quarries is not in near our road to make Visual Impacts.
(xxi)	Setting up and operating an asphalt bitumen operation area.	Water pollution by oil, grease, and fuel around gas stations and parking areas—in contravention of Draft Sub-Decree on Hazardous Substances	<ul style="list-style-type: none"> ▪ Locate storage areas for diesel and bitumen at least 500 meters from watercourses. ▪ Employ safe practices in filling bitumen distributor tanks and in heating bitumen. Do not allow smoking or fire of any kind in the vicinity of bitumen and kerosene blending tanks. Provide a carbon dioxide fire extinguisher at the bitumen tank site for fire-fighting. 	<ul style="list-style-type: none"> ▪ DBST Pavement will start on Oct 2014 by modified schedule until 31 May 2015. ▪ The Consultant will monitor contractor's Setting up Operating Methods Statement for DBST to required mitigation Measure by CEMP/IEE. ▪ There is no sign setting an asphalt

		<ul style="list-style-type: none"> Collect and recycle all lubricants and take precautions to prevent accidental spills. Prohibit road asphaltting activities during rainfall. Develop and implement plans for safe storage of all toxic and potentially toxic materials into construction planning and design. 	<p>bitumen operation area for DBST till this QEMR,</p>
(xxii) Construction activities near prime agricultural lands	Destruction of agricultural land through spoil and construction waste disposal— in contravention of Draft Sub-Decree on Waste Management	<ul style="list-style-type: none"> Do not dispose cut spoil and construction waste at agricultural land. 	<ul style="list-style-type: none"> We have no any cut spoil and construction waste disposal for civil works.
(xxiii) Construction Camps Operation	Solid waste— in contravention of Draft Sub-Decree on Waste Management	<ul style="list-style-type: none"> Provide garbage bins & sanitary facilities for workers. Waste in the bins should be cleared periodically. Special attention should be paid to the sanitary condition of camps. 	<ul style="list-style-type: none"> The contractor is providing garbage bins in base camp to collect segregated by recycle things and Material. The sanitation facilities by septic tank have been installed at base camp.
(xxiv) Residual Effects from Construction Camps	Depletion of natural resources through demand for building materials, fuel and food for workers— in contravention of Law on Environmental Protection and Natural Resource Management (1996)	<ul style="list-style-type: none"> Do not harvest wood resources within the BCPL Do not allow construction camps to become permanent settlements. Remove camps prior to project completion. Use non-wood fuels such as Liquid Propane Gas or kerosene for cooking food. Where local materials must be used, make agreements with local communities about the areas or the volume that can be harvested without significant impact. Support community development by paying an adequate prices for any local resources used. All supplies for building camps should be brought from outside the area. Upon close of construction, consider transferring camp structures to local people for community or government use. 	<ul style="list-style-type: none"> All Construction Base Camp material have been brought from outside market material approved by consultant Market Liquid Propane Gas tank for cooking food is supplying 10 Nos of Engineers' Base Camp for Engineers Living have been built in DPWT premises will be turned over to DPWT after completed project.
(xxv) Health Effect from Construction Camps	Creation of a new pathway for disease vectors affecting humans	<ul style="list-style-type: none"> All workers will have a medical screening conducted by "Cambodian Red Cross", to check for HIV/AIDS, sexually transmitted diseases, etc. Keep camps from becoming blight on the local environment. Provide enough water supplies for workers, and ensure sufficient sanitation for the camp; the proper drainage 	<p>There is no outbreak of diseases in construction Base Camps.</p>

		<p>systems and the proper location for solid waste disposal.</p> <ul style="list-style-type: none"> ▪ Make medical treatment available for workers. Provide workers mosquito nets and malaria-prevention medication. If needed, spray around camp area with chemical against mosquitoes. ▪ Plan post-construction clean-up activities to assure no unsanitary or otherwise hazardous debris are left behind at camp sites. 	
(xxvi) First aid Kits at Camp Site	Response to injury, and illness at Camp Site	<ul style="list-style-type: none"> ▪ Provide First aid kit for all worker's Camp Site to make Emergency Medical Treatment available for workers ▪ Keep medical emergency measure system and networks for response to injury, and illness on site identifying nearest medical facilities 	<ul style="list-style-type: none"> ▪ First aid kits were provided at all camp site for EMT for workers simple injury. ▪ Training to the Workers for EMP is conducting by Contractor's Safety Trainer. ▪ Nearest Medical Facilities for EMT were identified with medical Capacities size and doctors by Contractor.
(xxvii) Fire Fighting facilities	The fire extinguisher is installed at Camp Site for prevention of fire disaster	<ul style="list-style-type: none"> ▪ Fire extinguisher should be place in convenience and reachable place. 	<ul style="list-style-type: none"> ▪ It is recommended that fire extinguisher are maintained regularly by supplier.
IV. Operation and Maintenance Stage			
(a) Better quality road and higher speeds	Increase in road accidents to people and livestock	<ul style="list-style-type: none"> ▪ Speed limits enforced. Driver and community awareness; road signs 	<ul style="list-style-type: none"> ▪ Road sign for speed limit by Cambodia Standard already included in the Civil works ▪ Not yet installed in this stage for Civil Works. ▪ Police should be enforced speed limit to driver decreasing Traffic Accident
(b) More traffic volume	Increased air pollution and noise – in contravention of Draft Sub-Decree on Noise and Air Pollution Prevention	<ul style="list-style-type: none"> ▪ Control of vehicle air and noise emissions from vehicles. Paved road will decrease noise and dust. 	<ul style="list-style-type: none"> ▪ The DPWT and MoE/DoE should be monitor air prolusion, noise and emission due to increased Traffic Volume
(c) Poor control of increased traffic volume with more vehicles carrying hazardous chemicals.	Accidental Risk of Toxic Spills – in contravention of Draft Sub-Decree on Hazardous Substances	<ul style="list-style-type: none"> ▪ Enforcement of transport regulations and HAZCHEM procedures 	<ul style="list-style-type: none"> ▪ The DoE, Police should be enforced vehicle carrying hazardous chemicals by transport regulations and HAZCHEM procedures

(d) Increased access	Illegal settlement along RoW	<ul style="list-style-type: none"> ▪ Restriction of development within Row; offer of alternative sites for activities 	<ul style="list-style-type: none"> ▪ SEU/MPWT/DPW should be supervised and monitored development along ROW
(e) Increased access	Accelerated Loss of Forests and Wildlife's – in contravention of Joint Prakas of the MoE and the MoA on prohibition of Hunting and Catching of Wildlife Animals (1996)	<ul style="list-style-type: none"> ▪ Not anticipated as no wildlife conservation areas near to Project Roads. BCPL contains no rare Spices; Crane conservation area is 5Kms away 	<ul style="list-style-type: none"> ▪ The MoE/DoE, MAFF should be supervised and monitored Loss of Forests and Wildlife's.
(f) Increased vehicular traffic	Overexploitation of forest resources through illegal and unsustainable harvesting – in contravention of Royal Decree on the creation and designation of Protected Areas (1993)	<ul style="list-style-type: none"> ▪ Strengthen enforcement of existing laws regulating Timber harvest, achieved through inputs in training, staffing, resources and regulatory powers of Forestry officials at all levels 	<ul style="list-style-type: none"> ▪ The implementing Organization at all levels should be reviewed strengthen enforcement of existing laws of forest resources
(g) Increased vehicular traffic	Impact of wildlife through increased pressure from illegal trade – in contravention of Joint Prakas of the MoE and the MoA on prohibition of Hunting and Catching of Wildlife Animals (1996)	<ul style="list-style-type: none"> ▪ Enforce of existing wildlife regulations prohibiting trade in endangered species. ▪ Build Cambodia Government Capacity for enforcement of wildlife laws through training, resources, and increased staffing. ▪ Improved boarder area controls on all sides (Thailand and Cambodia) with increased staffing, training and resources 	<ul style="list-style-type: none"> ▪ The FA/MAFF and DoE/ MoE at all level should be reviewed strengthen for wildlife regulations prohibiting trade and wildlife laws ▪ The CBF and CBE at O'smarch boarder included improved new border facility to control illegal trade by Bag and Container Scanner by MPWT
(h) Increased vehicular traffic	Loss of cultural resources and tradition – in contravention of Law on the Protection of Cultural and National Heritage (1996)	<ul style="list-style-type: none"> ▪ Support well- planed Eco-tourism that involves solicitation of continuous feedback from both local residents and travelers ▪ Support the development of village cultural preservation groups, as already occur in several villages along the Project road 	<ul style="list-style-type: none"> ▪ The MoCF/DoCF should be supported well-planed Eco- tourism and cultural preservation along the Project road ▪ The MPWT will support rehabilitation of BTC temple access road for Cambodia Tourism Industry approved by ADB's IEE/EMP.



➤ Abbreviations

G	: Gabion
M	: Mattress
Geo	: Geo Textile
RP	: Resettlement Plan
DoE	: Department of Environment, MoE = Ministry of Environment
BCPL	: Bantey Chhmar Protected Landscape
FA	: Forestry Administration, MAFF
MAFF	: Ministry of Agriculture, Forestry and Fisheries
DoCF	: Department of Culture and Fine Arts, MoCF = Ministry of Culture and Fine Arts
SEU	: Social and Environment Unit
MPWT	: Ministry of Public Works and Transport
IRC	: Inter-Ministerial Resettlement Committee
MoH	: Ministry of Health
MoWM	: Ministry of Water Resource and Meteorology

APPENDIX

- A. CHECK LIST OF EMP (September 2014)
- B. PHOTOGRAPH OF EMP (September 2014)

APPENDIX A

CHECK LIST OF EMP (September 2014)



Activity of Environment Mitigation (September, 2014)

Consultants : KCI/Yooshin

Contractor : Kumho E&C/Hwang Bo

Environmental Specialist :

In charge Person : Jung Woong Doo

Construction Activities

- | | |
|------------------------------------|--------------------------------|
| 1. Mobilization | 5. Engineer Site Camp |
| 2. Mine/UXO Clearance Work | 6. HIV/AIDS Prevention Program |
| 3. Survey Work | |
| 4. Maintain Safe Traffic Operation | |

Summary of Inspection Result

No	Category	Activities	Remark
1	Construction Camp	· Routine Observation by checklist : 01 to 30 September 2014	Two times per month
2	Borrow Pits / Quarries	· Routine Observation by checklist : 01 to 30 September 2014	Two times per month
3	Erosion of Slopes	· Routine Observation by checklist : 01 to 30 September 2014	Two times per month
4	Air Pollution	· Routine Observation by checklist : 01 to 30 September 2014	Two times per month
5	Water Pollution	No complaint	
6	Agriculture	No complaint	
7	Land Contamination	No complaint	
8	Cultural Heritage	No complaint	
9	Noise Pollution	· Routine Observation by checklist : 01 to 30 September 2014	Two times per month
10	Drainage and Flooding	· Routine Observation by checklist : 01 to 30 September 2014	Two times per month
11	Construction Camps Closure	No complaint	

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo

Kumho E&C
Chief.Con.Manager

P.M of Kumho E&C

IME of KCI

R.E II of KCI

Checklist 1 Construction Camp (Main Contractor)

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

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

Project Site: Improvement of NR56-B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.	
Date: 1-15 September 2014	Time: 8:00 AM
Location / Road Distance: Kumbo Site Office	
Weather Condition: Sunny, cloudy & Raining	

Checklist Question	Yes	No	Additional Data needs
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment: Kumbo's office is not located next to a community water source. It is over 500m from the office to the water source.			
Are the camp / yard being properly maintained?			
Contractor's office building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Casting yard (Not Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel tank (Not Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's accommodation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's toilets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The areas where construction vehicles/equipment pass constantly is covered with gravel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compact and proper grade of the camp ground	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, describe details what is not being done properly and what is requested for mitigation:			
Is the wastewater being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment how the wastewater is being disposed	If no, comment on how it is being disposed and what are the impacts:		
The wastewater is being disposed of by disposing through drainage system into septic tanks in the campsite.	<p>If no, comment on. Have septic tanks been installed? Yes, they have. Are they working correctly, that is not overflowing, or emitting smell? Yes, they're working correctly and they are not overflowing or emitting smell. They're checked properly.</p>		

Checklist Question	Yes	No	Additional Data needs
Is the solid waste being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how it is being disposed and the impacts of such disposal: <i>Yes, it is being moved to dispose of from the office in every 2 time a week.</i>			
Is attention being paid to "Good housekeeping"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what is not being done:			
Are the contractor's vehicles being maintained at the campsite / yard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on What appropriate precautions are taken to avoid water and land contamination? How is waste from vehicle maintenance being disposed of?			
Is the fuel storage area properly surfaced and has a containment kerb around it?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment on how the surrounding area is being affected:			
Health and hygiene			
Are occupational health and hygiene precautions being taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers provided with enough clean water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers adequately protected from the elements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers' quarters well-lighted and well-ventilated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there enough sanitary toilets and bathrooms?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on where they are being neglected:			
Does the community have any issues with the camp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are the issues? <i>No, there is no any issues from the nearby community.</i>			
Any additional comments:			

Inspector's name and signature:

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo

Jung Doo Jung
Chief Con. Manager
Of Kumho E&C

[Signature]
P.M of Kumho E&C

[Signature]
I.M.E of K.C.I

[Signature]
R.E-2 of KCI

Checklist 1 Construction Camp (Engineering Site Camp)

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

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

Project Site: Improvement of NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.	
Date: 1-15 September 2014	Time: 8:15 AM
Location / Road Distance: Engineer's Site Camp	
Weather Condition: Sunny, cloudy & Raining	

Checklist Question	Yes	No	Additional Data needs
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment: The camp is not located next to a community water source.			
Are the camp / yard being properly maintained?			
KCI's office building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Casting yard (Not Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel tank (Not Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's accommodation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's toilets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The areas where construction vehicles/equipment pass constantly is covered with gravel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compact and proper grade of the camp ground	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, describe details what is not being done properly and what is requested for mitigation:			
Is the wastewater being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment how the wastewater is being disposed	If no, comment on how it is being disposed and what are the impacts:		
The wastewater is being disposed of from the buildings properly. It is being disposing through drainages which were installed in the camp.	<p>If no, comment on. Have septic tanks been installed? Yes, they have Are they working correctly, that is not overflowing, or emitting smell? Yes, they're working correctly & they're not overflowing or emitting smell. They're checked every week.</p>		

Checklist Question	Yes	No	Additional Data needs
Is the solid waste being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how it is being disposed and the impacts of such disposal: <i>It is being disposed of from the campsite properly by a private sanitation company always comes to collect the solid waste.</i>			
Is attention being paid to "Good housekeeping"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what is not being done:			
Are the KCI's vehicles being maintained at the campsite / yard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on What appropriate precautions are taken to avoid water and land contamination? How is waste from vehicle maintenance being disposed of?			
Is the fuel storage area properly surfaced and has a containment kerb around it?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment on how the surrounding area is being affected:			
Health and hygiene			
Are occupational health and hygiene precautions being taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers provided with enough clean water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers adequately protected from the elements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers' quarters well-lighted and well-ventilated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there enough sanitary toilets and bathrooms?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on where they are being neglected:			
Does the community have any issues with the camp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are the issues? <i>No, there is no any issues from the nearby community.</i>			
Any additional comments:			

Inspector's name and signature:

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo

Jung. W.D.
Chief Con. Manager
Of Kumho E&C

[Signature]
P.M of Kumho E&C

[Signature]
I.M.E of K.C.I

[Signature]
R.E-2 of KCI

Checklist 1 Construction Camp (Team - 1)

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

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

Project Site: Improvement of NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.	
Date: 1-15 September 2014	Time: 13:45 PM
Location / Road Distance: Construction Site Camp (team T)	
Weather Condition: Sunny, Cloudy & Raining	

Checklist Question	Yes	No	Additional Data needs
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment: No, it is not located next to a community water source.			
Are the camp / yard being properly maintained?			
Contractor's office building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Casting yard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel tank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's accommodation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's toilets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The areas where construction vehicles/equipment pass constantly is covered with gravel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compact and proper grade of the camp ground	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, describe details what is not being done properly and what is requested for mitigation:			
Is the wastewater being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment how the wastewater is being disposed	If no, comment on how it is being disposed and what are the impacts:		
Yes, it is being disposed of from the camp properly.	<p>If no, comment on: Have septic tanks been installed? Yes, they have. Are they working correctly, that is not overflowing, or emitting smell? Yes, they're working correctly & they're not overflowing or emitting smell. They are checked every week.</p>		

Checklist Question	Yes	No	Additional Data needs
Is the solid waste being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how it is being disposed and the impacts of such disposal: <i>Yes, it is being kept in the garbage bin/bag after using and it is moved out from the camp every week day.</i>			
Is attention being paid to "Good housekeeping"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what is not being done:			
Are the contractor's vehicles being maintained at the campsite / yard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment on What appropriate precautions are taken to avoid water and land contamination? How is waste from vehicle maintenance being disposed of?			
Is the fuel storage area properly surfaced and has a containment kerb around it?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how the surrounding area is being affected:			
Health and hygiene			
Are occupational health and hygiene precautions being taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers provided with enough clean water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers adequately protected from the elements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers' quarters well-lighted and well-ventilated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there enough sanitary toilets and bathrooms?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on where they are being neglected:			
Does the community have any issues with the camp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are the issues? <i>No, there is no any issues with the camp.</i>			
Any additional comments:			

Inspector's name and signature:

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo

Jung. W. D.
Chief Con. Manager
Of Kumho E&C

[Signature]
P.M of Kumho E&C

[Signature]
I.M.E of K.C.I

[Signature]
R.E-2 of KCI

Checklist 1 Construction Camp (Team - 3)

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

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

Project Site: Improvement of NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.	
Date: 1-15 September 2014	Time: 9:15 AM
Location / Road Distance: Construction Site Camp (team III)	
Weather Condition: Sunny, Cloudy & Raining	

Checklist Question	Yes	No	Additional Data needs
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment: No, the campsite is not located next to a community water source.			
Are the camp / yard being properly maintained?			
Contractor's office building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Casting yard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel tank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's accommodation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's toilets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The areas where construction vehicles/equipment pass constantly is covered with gravel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compact and proper grade of the camp ground	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, describe details what is not being done properly and what is requested for mitigation:			
Is the wastewater being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment how the wastewater is being disposed	If no, comment on how it is being disposed and what are the impacts:		
Yes, the wastewater is being disposed of from the camp by disposing into the septic tanks which locates in the camp yard.	If no, comment on. Have septic tanks been installed? Yes, they have. Are they working correctly, that is not overflowing, or emitting smell? Yes, they're working correctly & they're not overflowing or emitting smell. They are checked every week.		

Checklist Question	Yes	No	Additional Data needs
Is the solid waste being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how it is being disposed and the impacts of such disposal:			
Is attention being paid to "Good housekeeping"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what is not being done:			
Are the contractor's vehicles being maintained at the campsite / yard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment on What appropriate precautions are taken to avoid water and land contamination?			
How is waste from vehicle maintenance being disposed of?			
Is the fuel storage area properly surfaced and has a containment kerb around it?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how the surrounding area is being affected:			
Health and hygiene			
Are occupational health and hygiene precautions being taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers provided with enough clean water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers adequately protected from the elements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers' quarters well-lighted and well-ventilated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there enough sanitary toilets and bathrooms?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on where they are being neglected:			
Does the community have any issues with the camp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are the issues? <i>No, there is no any issues with the camp from the community.</i>			
Any additional comments:			

Inspector's name and signature:

Prepared by:

Woong Doo Jung

Checked by:

Yoon, Ki Joo

Checked by:

Hyun mo Cho

Confirmed by:

Gun Suck Yoo

Jung. W. D.
Chief Con. Manager
Of Kumho E&C

[Signature]
P.M of Kumho E&C

[Signature]
I.M.E of K.C.I

[Signature]
R.E-2 of KCI

Checklist – weekly or in response to complaint

Checklist 2 Borrow Pit

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

Project Site: Improvement of NR56AB	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of borrow pit, at opening, then weekly or in response to complaint.	
Date: 1-15 September 2014	Time: 9:45 AM
Location / Road Distance: Borrow Pit at Pk: 43+300-RHS-2km	
Weather Condition: Cloudy & Raining	

Checklist Question	Yes	No	Additional Data needs
Is the borrow pit located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment: No, it is not located next to a community water source.			
Is the borrow pit being properly maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, state what is not being done :			
Is there adverse visual impact due to the borrow pit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment how:			
Is borrow pit excavation / mining adequately employing drainage and fill methodology to avoid any water pools formation during rains?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment:			
Is the borrow pit properly rehabilitated at least partially before the start of the rainy season?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment on what needs to be done:			

Checklist Question	Yes	No	Additional Data needs
Are there any signs of erosion and instability?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what seems to be the reason?			
Are the cut faces stabilized with appropriate materials and methods?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, what are the impacts?			
Is the borrow pit to be closed and rehabilitated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, Is there a closure plan?			
Are the borrow pit operations creating excessive dust / noise?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
What measures are being undertaken to minimize dust and noise?			
Do the communities have any concerns / issues with borrow pit during operation or after closure?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are those concerns / issues? <i>No, there is no any concern from the nearby community about the borrow pit.</i>			
Any additional comments:			

Inspector's name and signature:

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo

Jung.W.D
Chief Con. Manager
Of Kumho E&C

[Signature]
P.M of Kumho E&C

[Signature]
I.M.E of K.C.I

[Signature]
R.E-2 of KCI

Checklist 3 Erosion of Slopes

(N.B. There is no specific regulation for this activity) / there is no Erosion of Slopes in the site.

Project Site: Improvement of NR56AB	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly or in response to complaint.	
Date: September 2014	Time: 8:30AM - 16:00PM
Location / Road Distance: 29+000 to 113+417	
Weather Condition: Sunny, Raining & cloudy	

Checklist Question	Yes	No	Additional Data needs
What is / are the reason(s) for erosion / landslides / instability?			
Improper design / stripping of cut faces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Improper drainage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Clearing of vegetation / lack of gabions, geotextiles	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Improper leveling after earth removal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Are the slopes properly stabilized before the start of the rainy season?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inadequate water channel diversion, or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
A combination of some of the reasons above	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is remedial action required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment:			
Did the erosion / landslide / instability cause any damage?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, was there any action taken?			
If no, why was action not taken?			
Any additional comments:			

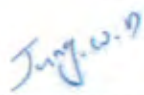
Inspector's name and signature:


Prepared by:
Woong Doo Jung


Checked by:
Yoon, Ki Joo

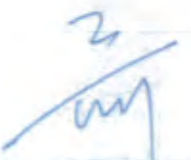
Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo


Chief Con. Manager
of Kumho E&C


P.M of Kumho E&C


I.M.E of K.C.I


R.E-2 of 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 NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly or in response to complaint.	
Date: 1-15 September 2014	Time: 14:00PM
Location / Road Distance: Water spray at Pk: 32+700 - 33+600	
Weather Condition: Sunny & cloudy	

Checklist Question			
What is the nature of air pollution?			
Dust from road	<input checked="" type="checkbox"/>		
Dust from stock piled materials			
Generator, batching plant emissions			
Vehicular emissions	<input checked="" type="checkbox"/>		
Checklist Question	Yes	No	Additional Data needs
Is the problem significant enough to warrant attention?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, did the contractor take appropriate measure to mitigate the problem?			
What is / are the measures taken?			
Periodic water sprays on road surface / borrow pits	<input checked="" type="checkbox"/>		
Vehicle tire washing facilities at borrow pits and other locations			
Speed limit enforced on project vehicles			
Vehicles speeding checked by posting signs on roads, and awareness raising of staff and local communities	<input checked="" type="checkbox"/>		
Covering of stock piled materials			
Vehicles regularly maintained			
Equipment regularly maintained	<input checked="" type="checkbox"/>		

Is air pollution creating problems for the surrounding communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what type of problems?			

Inspector's name and signature:

Prepared by:

Woong Doo Jung

Checked by:

Yoon, Ki Joo

Checked by:

Hyun mo Cho

Confirmed by:

Gun Suck Yoo



Chief Con. Manager
Of Kumho E&C



P.M of Kumho E&C



I.M.E of K.C.I



R.E-2 of 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 NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly or in response to complaint.	
Date: 1-15 September 2014	Time: 8:00AM to 17:00PM
Location / Road Distance: All the Project Site PK: 29+000 to PK: 64+700	
Weather Condition: Sunny, Raining & Cloudy	

Checklist Question			
What is the nature of noise pollution?			
vehicles on road			<input checked="" type="checkbox"/>
Generators, construction plant			<input type="checkbox"/>
Construction vehicles			<input checked="" type="checkbox"/>
vibration from equipment			<input checked="" type="checkbox"/>
vibration from road vehicles			<input checked="" type="checkbox"/>
vibration from explosive blasting			<input type="checkbox"/>
Checklist Question	Yes	No	Additional Data needs
Is the problem significant enough to warrant attention?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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			<input checked="" type="checkbox"/>
speed limit enforced on project vehicles			<input checked="" type="checkbox"/>
construction equipment maintained and silenced			<input checked="" type="checkbox"/>

compressors and generators operated with silencing panels closed	<input checked="" type="checkbox"/>
awareness raising of staff over causing nuisance to local communities	<input type="checkbox"/>
blasting at fixed times and communities notified	<input checked="" type="checkbox"/>
Avoid undertaking construction activities and blasting close to communities at night	<input type="checkbox"/>
Is noise pollution creating problems (health, aesthetic & nuisance) for the surrounding communities?	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
If yes, what type of problems? What measures are undertaken to minimize?	

Inspector's name and signature:

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo

Jung.w.d

[Signature]

[Signature]

[Signature]

Chief Con. Manager
Of Kumho E&C

P.M of Kumho E&C

I.M.E of K.C.I

R.E-2 of KCI

Checklist 10 Drainage and Flooding

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

Project Site: Improvement of NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly or in response to complaint.	
Date: September 2014	Time: 8:30AM to 15:30PM
Location / Road Distance: 29+000 - 113+417	
Weather Condition: Sunny, Raining & Cloudy	

Checklist Question	Yes	No	Additional Data needs
Is the flooding extensive or not?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, give details:			
Have contractors activities caused flooding or blocked drains?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, give details:			
Have cross drainage structures been built in correct location as shown in contract?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, give details: The drainage works are ongoing now.			
Are cross drainage structures "as built" same as in "detailed design"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, give details:			
Any other issues	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, give details			


Inspector's name and signature:


Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo


Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo


Chief Con. Manager
Of Kumho E&C


P.M of Kumho E&C


I.M.E of K.C.I


R.E-2 of KCI

Checklist 1 Construction Camp (Main Contractor)

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

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

Project Site: Improvement of NR56-B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.	
Date: 16-30 September	Time: 8:00 AM
Location / Road Distance: Kumho's Site Office	
Weather Condition: Sunny & Raining	

Checklist Question	Yes	No	Additional Data needs
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment: The Kumho's Site Office is far from a community water source.			
Are the camp / yard being properly maintained?			
Contractor's office building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Casting yard (Not Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel tank (Not Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's accommodation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's toilets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The areas where construction vehicles/equipment pass constantly is covered with gravel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compact and proper grade of the camp ground	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, describe details what is not being done properly and what is requested for mitigation:			
Is the wastewater being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment how the wastewater is being disposed	If no, comment on how it is being disposed and what are the impacts:		
Yes, the wastewater is being disposed of from the buildings correctly by disposing through drainage to the septic tanks.	<p>If no, comment on:</p> <p>Have septic tanks been installed? Yes, they have.</p> <p>Are they working correctly, that is not overflowing, or emitting smell?</p> <p>Yes, they're working correctly, they are not overflowing or emitting smell. They are checked every week.</p>		

Checklist Question	Yes	No	Additional Data needs
Is the solid waste being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how it is being disposed and the impacts of such disposal: <i>The solid waste is being removed to dispose of from the camp in every two times a week.</i>			
Is attention being paid to "Good housekeeping"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what is not being done:			
Are the contractor's vehicles being maintained at the campsite / yard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on What appropriate precautions are taken to avoid water and land contamination? How is waste from vehicle maintenance being disposed of?			
Is the fuel storage area properly surfaced and has a containment kerb around it?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment on how the surrounding area is being affected:			
Health and hygiene			
Are occupational health and hygiene precautions being taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers provided with enough clean water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers adequately protected from the elements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers' quarters well-lighted and well-ventilated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there enough sanitary toilets and bathrooms?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on where they are being neglected:			
Does the community have any issues with the camp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are the issues? <i>No, the nearby community doesn't have any issues with the camp.</i>			
Any additional comments:			

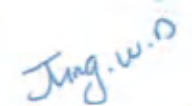
Inspector's name and signature:


Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo


Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo


Chief Con. Manager
Of Kumho E&C


P.M of Kumho E&C


I.M.E of K.C.I


R.E-2 of KCI

Checklist 1 Construction Camp (Engineering Site Camp)

(N.B. There is no specific regulation for this activity.
"Good Housekeeping" must be observed and "General Industry Practice" followed)

Project Site: Improvement of NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.	
Date: 16-30 September 2014	Time: 8:15 AM
Location / Road Distance: Engineer's Site Camp	
Weather Condition: Sunny & Raining	

Checklist Question	Yes	No	Additional Data needs
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment: No, the Engineer's Site Camp is far from a community water source.			
Are the camp / yard being properly maintained?			
KCI's office building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Casting yard (Not Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel tank (Not Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's accommodation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's toilets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The areas where construction vehicles/equipment pass constantly is covered with gravel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compact and proper grade of the camp ground	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, describe details what is not being done properly and what is requested for mitigation:			
Is the wastewater being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment how the wastewater is being disposed	If no, comment on how it is being disposed and what are the impacts:		
Yes, the wastewater is being disposed of from the camp by flowing through the drainage to the septic tanks in the camp yard.	<p>If no, comment on. Have septic tanks been installed? Yes, they have. Are they working correctly, that is not overflowing, or emitting smell? Yes, they're working correctly, they are not overflowing or emitting smell. They are checked every week.</p>		

Checklist Question	Yes	No	Additional Data needs
Is the solid waste being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how it is being disposed and the impacts of such disposal: <i>Yes, the solid waste is being disposed of from the camp properly. A private truck always comes to collect the solid waste.</i>			
Is attention being paid to "Good housekeeping"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what is not being done:			
Are the KCI's vehicles being maintained at the campsite / yard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on What appropriate precautions are taken to avoid water and land contamination?			
How is waste from vehicle maintenance being disposed of?			
Is the fuel storage area properly surfaced and has a containment kerb around it?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment on how the surrounding area is being affected:			
Health and hygiene			
Are occupational health and hygiene precautions being taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers provided with enough clean water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers adequately protected from the elements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers' quarters well-lighted and well-ventilated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there enough sanitary toilets and bathrooms?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on where they are being neglected:			
Does the community have any issues with the camp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are the issues? <i>No, there is no complain between the community with the camp.</i>			
Any additional comments:			

Inspector's name and signature:

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo

Jung W.D
Chief Con. Manager
Of Kumho E&C

[Signature]
P.M of Kumho E&C

[Signature]
I.M.E of K.C.I

[Signature]
R.E-2 of KCI

Checklist 1 Construction Camp (Team - 1)

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

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

Project Site: Improvement of NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.	
Date: 16-30 September 2014	Time: 13:45 PM
Location / Road Distance: Construction Site Camp (team I)	
Weather Condition: Sunny, Raining & Cloudy	

Checklist Question	Yes	No	Additional Data needs
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment: No, the camp is far from a community water source.			
Are the camp / yard being properly maintained?			
Contractor's office building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Casting yard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel tank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's accommodation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's toilets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The areas where construction vehicles/equipment pass constantly is covered with gravel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compact and proper grade of the camp ground	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, describe details what is not being done properly and what is requested for mitigation:			
Is the wastewater being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment how the wastewater is being disposed	If no, comment on how it is being disposed and what are the impacts:		
Yes, the wastewater is being disposed of from the camp well. keeping in the sinks during cooking time and disposing into the septic tank after finishing the work.	If no, comment on. Have septic tanks been installed? Yes, they have. Are they working correctly, that is not overflowing, or emitting smell? Yes, they are working correctly, they are not overflowing or emitting smell. They are checked every week.		

Cambodia Northwest Provincial Road Improvement
Project National Road No. 56B (EDCF Loan No. KHM-9)

Checklist Question	Yes	No	Additional Data needs
Is the solid waste being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how it is being disposed and the impacts of such disposal:			
Is attention being paid to "Good housekeeping"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what is not being done:			
Are the contractor's vehicles being maintained at the campsite / yard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment on What appropriate precautions are taken to avoid water and land contamination?			
How is waste from vehicle maintenance being disposed of?			
Is the fuel storage area properly surfaced and has a containment kerb around it?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how the surrounding area is being affected:			
Health and hygiene			
Are occupational health and hygiene precautions being taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers provided with enough clean water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers adequately protected from the elements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers' quarters well-lighted and well-ventilated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there enough sanitary toilets and bathrooms?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on where they are being neglected:			
Does the community have any issues with the camp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are the issues? <i>No, there is no any issues/concerns with the camp.</i>			
Any additional comments:			

Inspector's name and signature:

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo

Jung.W.D

Chief Con. Manager
Of Kumho E&C

[Signature]

P.M of Kumho E&C

[Signature]

I.M.E of K.C.I

[Signature]

R.E-2 of KCI

Checklist 1 Construction Camp (Team - 3)

(N.B. There is no specific regulation for this activity.
"Good Housekeeping" must be observed and "General Industry Practice" followed)

Project Site: Improvement of NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of camp, at opening of camp, then weekly or in response to complaint.	
Date: 16-30 September 2014	Time: 9:15 AM
Location / Road Distance: Construction Site Camp (team III)	
Weather Condition: Sunny, Raining & Cloudy	

Checklist Question	Yes	No	Additional Data needs
Is the camp / yard located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment: No, the camp is far from a community water source.			
Are the camp / yard being properly maintained?			
Contractor's office building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Casting yard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel tank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's accommodation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worker's toilets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The areas where construction vehicles/equipment pass constantly is covered with gravel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compact and proper grade of the camp ground	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, describe details what is not being done properly and what is requested for mitigation:			
Is the wastewater being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment how the wastewater is being disposed Yes, it is being disposed of from the camp properly. During cooking time, it is kept in the sink and disposing into the septic tanks after finish the work.	If no, comment on how it is being disposed and what are the impacts: If no, comment on. Have septic tanks been installed? Yes, they have. Are they working correctly, that is not overflowing, or emitting smell? The septic tank is being checked. They are working correctly, not overflowing or emitting smell.		

Checklist Question	Yes	No	Additional Data needs
Is the solid waste being disposed of properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how it is being disposed and the impacts of such disposal: <i>Yes, it is being kept in the garbage-bags before it is removed to dispose of from the camp.</i>			
Is attention being paid to "Good housekeeping"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what is not being done:			
Are the contractor's vehicles being maintained at the campsite / yard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment on What appropriate precautions are taken to avoid water and land contamination? How is waste from vehicle maintenance being disposed of?			
Is the fuel storage area properly surfaced and has a containment kerb around it?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on how the surrounding area is being affected:			
Health and hygiene			
Are occupational health and hygiene precautions being taken?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers provided with enough clean water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers adequately protected from the elements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are workers' quarters well-lighted and well-ventilated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there enough sanitary toilets and bathrooms?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on where they are being neglected:			
Does the community have any issues with the camp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are the issues? <i>No, there is no any issues with the camp.</i>			
Any additional comments:			

Inspector's name and signature:

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo

Jung.W.D
Chief Con. Manager
Of Kumho E&C

[Signature]
P.M of Kumho E&C

[Signature]
I.M.E of K.C.I

[Signature]
R.E-2 of KCI

Checklist – weekly or in response to complaint

Checklist 2 Borrow Pit

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

Project Site: Improvement of NR56AB	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of borrow pit, at opening, then weekly or in response to complaint.	
Date: 16-30 September 2014	Time: 15:30 PM
Location / Road Distance: Borrow Pit at PK. 31+100-LHS-400 m.	
Weather Condition: Sunny & Cloudy	

Checklist Question	Yes	No	Additional Data needs
Is the borrow pit located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment:			
Is the borrow pit being properly maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, state what is not being done :			
Is there adverse visual impact due to the borrow pit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment how:			
Is borrow pit excavation / mining adequately employing drainage and fill methodology to avoid any water pools formation during rains?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment:			
Is the borrow pit properly rehabilitated at least partially before the start of the rainy season?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment on what needs to be done:			

Checklist – weekly or in response to complaint

Checklist 2 Borrow Pit

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

Project Site: Improvement of NR56AB	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of borrow pit, at opening, then weekly or in response to complaint.	
Date: 16-30 September 2014	Time: 15:30 PM
Location / Road Distance: Borrow Pit at PK: 31+100-LHS-400m.	
Weather Condition: Sunny & Cloudy	

Checklist Question	Yes	No	Additional Data needs
Is the borrow pit located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment:			
Is the borrow pit being properly maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, state what is not being done :			
Is there adverse visual impact due to the borrow pit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment how:			
Is borrow pit excavation / mining adequately employing drainage and fill methodology to avoid any water pools formation during rains?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment:			
Is the borrow pit properly rehabilitated at least partially before the start of the rainy season?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment on what needs to be done:			

Checklist Question	Yes	No	Additional Data needs
Are there any signs of erosion and instability?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what seems to be the reason?			
Are the cut faces stabilized with appropriate materials and methods?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, what are the impacts?			
Is the borrow pit to be closed and rehabilitated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, Is there a closure plan?			
Are the borrow pit operations creating excessive dust / noise?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
What measures are being undertaken to minimize dust and noise?			
Do the communities have any concerns / issues with borrow pit during operation or after closure?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are those concerns / issues?			
Any additional comments:			

Inspector's name and signature:


Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

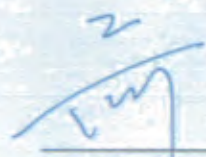
Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo


Chief Con. Manager
Of Kumho E&C


P.M of Kumho E&C


I.M.E of K.C.I


R.E-2 of KCI

Checklist – weekly or in response to complaint

Checklist 2 Quarries

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

Project Site: Improvement of NR56AB	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of borrow pit, at opening, then weekly or in response to complaint.	
Date: 16-30 September 2014	Time: 16:15 PM
Location / Road Distance: Quarry- 19+400 LHS-5km.	
Weather Condition: Sunny & Cloudy	

Checklist Question	Yes	No	Additional Data needs
Is the quarry located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment:			
Is the quarry being properly maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, state what is not being done :			
Is there adverse visual impact due to the quarry?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment how:			
Is the quarry excavation / mining adequately employing drainage and fill methodology to avoid any water pools formation during rains?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment:			
Is the quarry properly rehabilitated at least partially before the start of the rainy season?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what needs to be done:			

Checklist Question	Yes	No	Additional Data needs
Are there any signs of erosion and instability?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what seems to be the reason?			
Are the cut faces stabilized with appropriate materials and methods?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, what are the impacts?			
Is the quarry to be closed and rehabilitated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, Is there a closure plan?			
Are the quarry operations creating excessive dust / noise?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What measures are being undertaken to minimize dust and noise?			
Do the communities have any concerns / issues with quarry during operation or after closure?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are those concerns / issues? <i>No, there is no any complain from the community about this quarry.</i>			
Any additional comments:			

Inspector's name and signature:

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo



Chief Con. Manager
Of Kumho E&C



P.M of Kumho E&C



I.M.E of K.C.I



R.E-2 of KCI

Checklist – weekly or in response to complaint

Checklist 2 Quarries

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

Project Site: Improvement of NR56AB	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of borrow pit, at opening, then weekly or in response to complaint.	
Date: 16-30 September 2014	Time: 11:15 AM
Location / Road Distance: Quarry- 47+000, RHS- 19km.	
Weather Condition: Sunny, Raining & Cloudy	

Checklist Question	Yes	No	Additional Data needs
Is the quarry located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment:			
Is the quarry being properly maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, state what is not being done :			
Is there adverse visual impact due to the quarry?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment how:			
Is the quarry excavation / mining adequately employing drainage and fill methodology to avoid any water pools formation during rains?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment:			
Is the quarry properly rehabilitated at least partially before the start of the rainy season?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what needs to be done:			

Checklist Question	Yes	No	Additional Data needs
Are there any signs of erosion and instability?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what seems to be the reason?			
Are the cut faces stabilized with appropriate materials and methods?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, what are the impacts?			
Is the quarry to be closed and rehabilitated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, Is there a closure plan?			
Are the quarry operations creating excessive dust / noise?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What measures are being undertaken to minimize dust and noise?			
Do the communities have any concerns / issues with quarry during operation or after closure?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are those concerns / issues? <i>No, there is no any issues with the quarry.</i>			
Any additional comments:			

Inspector's name and signature:


Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo


Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo


Chief Con. Manager
Of Kumho E&C


P.M of Kumho E&C


I.M.E of K.C.I


R.E-2 of KCI

Checklist – weekly or in response to complaint

Checklist 2 Quarries

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

Project Site: Improvement of NR56AB	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly during preparation of borrow pit, at opening, then weekly or in response to complaint.	
Date: 16-30 September 2014	Time: 9:45 AM
Location / Road Distance: - Quarry - 91+000, RHS 15km.	
Weather Condition: Sunny, Raining & cloudy.	

Checklist Question	Yes	No	Additional Data needs
Is the quarry located in a protected area, next to a community water source or any other ecologically or otherwise sensitive area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment on the adverse impacts on the environment:			
Is the quarry being properly maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, state what is not being done :			
Is there adverse visual impact due to the quarry?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, comment how:			
Is the quarry excavation / mining adequately employing drainage and fill methodology to avoid any water pools formation during rains?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, comment:			
Is the quarry properly rehabilitated at least partially before the start of the rainy season?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, comment on what needs to be done:			

Checklist Question	Yes	No	Additional Data needs
Are there any signs of erosion and instability?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what seems to be the reason?			
Are the cut faces stabilized with appropriate materials and methods?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, what are the impacts?			
Is the quarry to be closed and rehabilitated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, Is there a closure plan?			
Are the quarry operations creating excessive dust / noise?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What measures are being undertaken to minimize dust and noise?			
Do the communities have any concerns / issues with quarry during operation or after closure?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what are those concerns / issues? <i>No, there is no any issues with this quarry</i>			
Any additional comments:			

Inspector's name and signature:


Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

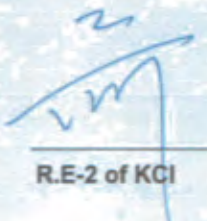
Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo


Chief Con. Manager
Of Kumho E&C


P.M of Kumho E&C


I.M.E of K.C.I


R.E-2 of KCI

Checklist 3 Erosion of Slopes

(N.B. There is no specific regulation for this activity) / there is no Erosion of Slopes in the site.

Project Site: Improvement of NR56AB	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly or in response to complaint.	
Date: September 2014	Time: 8:00 AM - 17:00 PM
Location / Road Distance: PK: 29+000 to PK: 113+417	
Weather Condition: Sunny, Cloudy/Raining	

Checklist Question	Yes	No	Additional Data needs
What is / are the reason(s) for erosion / landslides / instability?			
Improper design / stripping of cut faces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Improper drainage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Clearing of vegetation / lack of gabions, geotextiles	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Improper leveling after earth removal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Are the slopes properly stabilized before the start of the rainy season?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inadequate water channel diversion, or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
A combination of some of the reasons above	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is remedial action required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, comment:			
Did the erosion / landslide / instability cause any damage?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, was there any action taken?			
If no, why was action not taken?			
Any additional comments:			

Inspector's name and signature:

Prepared by:
Woong Doo Jung


Checked by:
Yoon, Ki Joo

Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo




Chief Con. Manager
of Kumho E&C



P.M of Kumho E&C



I.M.E of K.C.I



R.E-2 of 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 NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly or in response to complaint.	
Date: 16-30 September 2014	Time: 13:10 PM
Location / Road Distance: Water spray at PK: 39+500 - 41+000	
Weather Condition: Sunny & Cloudy / Raining.	

Checklist Question			
What is the nature of air pollution?			
Dust from road			<input checked="" type="checkbox"/>
Dust from stock piled materials			<input type="checkbox"/>
Generator, batching plant emissions			<input type="checkbox"/>
Vehicular emissions			<input checked="" type="checkbox"/>
Checklist Question	Yes	No	Additional Data needs
Is the problem significant enough to warrant attention?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, did the contractor take appropriate measure to mitigate the problem?			
What is / are the measures taken?			
Periodic water sprays on road surface / borrow pits			<input checked="" type="checkbox"/>
Vehicle tire washing facilities at borrow pits and other locations			<input type="checkbox"/>
Speed limit enforced on project vehicles			<input type="checkbox"/>
Vehicles speeding checked by posting signs on roads, and awareness raising of staff and local communities			<input checked="" type="checkbox"/>
Covering of stock piled materials			<input type="checkbox"/>
Vehicles regularly maintained			<input type="checkbox"/>
Equipment regularly maintained			<input checked="" type="checkbox"/>

Is air pollution creating problems for the surrounding communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, what type of problems?			

Inspector's name and signature:

Prepared by:	Checked by:	Checked by:	Confirmed by:
Woong Doo Jung	Yoon, Ki Joo	Hyun mo Cho	Gun Suck Yoo



Chief Con. Manager
Of Kumho E&C



P.M of Kumho E&C



I.M.E of K.C.I



R.E-2 of 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 NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly or in response to complaint.	
Date: 16-30 September 2014	Time: 8:30 AM - 17:30 PM
Location / Road Distance: All the Project Site	
PK: 64+700 to PK: 113+417	
Weather Condition: Sunny & cloudy/Raining	

Checklist Question			
What is the nature of noise pollution?			
vehicles on road			<input checked="" type="checkbox"/>
Generators, construction plant			<input type="checkbox"/>
Construction vehicles			<input checked="" type="checkbox"/>
vibration from equipment			<input checked="" type="checkbox"/>
vibration from road vehicles			<input checked="" type="checkbox"/>
vibration from explosive blasting			<input type="checkbox"/>
Checklist Question	Yes	No	Additional Data needs
Is the problem significant enough to warrant attention?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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			<input checked="" type="checkbox"/>
speed limit enforced on project vehicles			<input checked="" type="checkbox"/>
construction equipment maintained and silenced			<input checked="" type="checkbox"/>

compressors and generators operated with silencing panels closed	<input checked="" type="checkbox"/>
awareness raising of staff over causing nuisance to local communities	<input type="checkbox"/>
blasting at fixed times and communities notified	<input checked="" type="checkbox"/>
Avoid undertaking construction activities and blasting close to communities at night	<input type="checkbox"/>
Is noise pollution creating problems (health, aesthetic & nuisance) for the surrounding communities?	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
If yes, what type of problems? What measures are undertaken to minimize?	

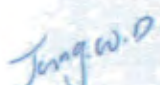
Inspector's name and signature:


Prepared by:
Woong Doo Jung


Checked by:
Yoon, Ki Joo


Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo


Chief Con. Manager
Of Kumho E&C


P.M of Kumho E&C


I.M.E of K.C.I


R.E-2 of KCI

Checklist 10 Drainage and Flooding

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

Project Site: Improvement of NR56B	
Observer: Saing Soveana (M.E of K.C.I)	
Frequency: Check weekly or in response to complaint.	
Date: September 2014	Time: 8:00AM to 16:00PM
Location / Road Distance: 29+000 - 113+417	
Weather Condition: Sunny & Cloudy/Raining	

Checklist Question	Yes	No	Additional Data needs
Is the flooding extensive or not?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, give details:			
Have contractors activities caused flooding or blocked drains?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, give details:			
Have cross drainage structures been built in correct location as shown in contract?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, give details: The drainage works are ongoing now.			
Are cross drainage structures "as built" same as in "detailed design"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, give details:			
Any other issues	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, give details			

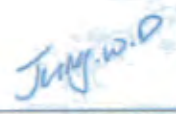
Inspector's name and signature:

Prepared by:
Woong Doo Jung

Checked by:
Yoon, Ki Joo

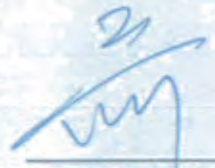
Checked by:
Hyun mo Cho

Confirmed by:
Gun Suck Yoo


Chief Con. Manager
Of Kumho E&C


P.M of Kumho E&C


I.M.E of K.C.I


R.E-2 of KCI

APPENDIX B

**PHOTOGRAPH OF EMP
(September 2014)**

Improvement of National Road No. 56B from Km 29+000 to Samraong

EDCF Loadn No. KHM-9

Subject: Environment Management Plan for September 2014

Other activities in September 2014



Engineer's Site Camp Bathroom (Man)

Engineer's Site Camp Bathroom (Woman)



Pantry in KCI's Office

Pantry in KUMHO's Office



KUMHO Site Office Bathroom (Man)

KUMHO Site Office Bathroom (Woman)

Prepared by (Contractor)

Checked by (Consultants)

Confirmed by (Consultants)

Yoon, Ki Joo

Hyun mo Cho

Gun Suck Yoo

Project Manager

IME

Resident Engineer 2

Improvement of National Road No. 56B from Km 29+000 to Samraong

EDCF Loadn No. KHM-9

Subject: Environment Management Plan for September 2014

Other activities in September 2014

			
Personal Protective Equipment		Traffic Sign	
			
Personal Protective Equipment		Traffic Sign	
			
Personal Protective Equipment		Traffic Sign	
			
Personal Protective Equipment		Traffic Sign	
Prepared by (Contractor)	Checked by (Consultants)	Confirmed by (Consultants)	
			
Yoon, Ki Joo	Hyun mo Cho	Gun Suck Yoo	
Project Manager	IME	Resident Engineer 2	

Improvement of National Road No. 56B from Km 29+000 to Samraong

EDCF Loan No. KHM-9

Subject: Environment Management Plan for September 2014

Construction Site Camp Section III

			
Outside Office of Section III		Kitchen	
			
Diesel Tank		Bedroom & W.C	
			
Garbage-bags		Toilet behind the Office	
Prepared by (Contractor)	Checked by (Consultants)	Confirmed by (Consultants)	
			
Yoon, Ki Joo	Hyun mo Cho	Gun Suck Yoo	
Project Manager	IME	Resident Engineer 2	

Improvement of National Road No. 56B from Km 29+000 to Samraong

EDCF Loadn No. KHM-9

Subject: Environment Management Plan for September 2014










Quarry Pictures in September 2014

 <p>10 09 2014</p>		 <p>30 09 2014</p>	
Quarry at PK: 19+400, LHS 5Km		Quarry at PK: 19+400, LHS 5Km	
 <p>06 10 2014</p>		 <p>06 10 2014</p>	
Quarry at PK: 47+000, RHS 19Km		Quarry at PK: 47+000, RHS 19Km	
		 <p>30 09 2014</p>	
Quarry at PK: 81+900, RHS 18KM		Quarry at PK: 81+900, RHS 18KM	
Prepared by (Contractor)	Checked by (Consultants)	Confirmed by (Consultants)	
			
Yoon, Ki Joo	Hyun mo Cho	Gun Suck Yoo	
Project Manager	IME	Resident Engineer 2	

Improvement of National Road No. 56B from Km 29+000 to Samraong

EDCF Loadn No. KHM-9

Subject: Environment Management Plan for September 2014

Check Erosion of Slopes in September 2014		Check Erosion of Slopes in September 2014	
			
Slope Protection PK: 108+200		Slopes Protection at PK:107+500	
			
Slopes Protection at PK:40+700		Slopes Protection at PK:39+500	
			
Slopes Protection at PK:90+200		Slopes Protection at PK:82+550	
Prepared by (Contractor)	Checked by (Consultants)	Confirmed by (Consultants)	
			
Yoon, Ki Joo	Hyun mo Cho	Gun Suck Yoo	
Project Manager	IME	Resident Engineer 2	

Improvement of National Road No. 56B from Km 29+000 to Samraong

EDCF Loadn No. KHM-9

Subject: Environment Management Plan for September 2014

Check Drainage & Flooding in September 2014		Check Drainage & Flooding in September 2014	
			
Pipe Culvert at PK: 82+900-BS		Pipe Culvert at PK:	
			
Pipe Culvert at PK: 80+450-BS		Pipe Culvert at PK: 80+900-BS	
			
Pipe Culvert at PK: 111+450-BS		Pipe Culvert at PK: 111+450-BS	
Prepared by (Contractor)	Checked by (Consultants)	Confirmed by (Consultants)	
			
Yoon, Ki Joo	Hyun mo Cho	Gun Suck Yoo	
Project Manager	IME	Resident Engineer 2	