

# Environmental Supervision Report

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Semi-Annual Report (July–December 2011)  
February 2012

## VIE: Ho Chi Minh–Long Thanh–Dau Giay Expressway Project

Prepared by Vietnam Expressway Corporation for the Ministry of Transport and the Asian Development Bank.

## **CURRENCY EQUIVALENTS**

(as of 1 February 2012)

Currency unit	–	dong (D)
D1.00	=	\$0.000047
\$1.00	=	D21,005

## **ABBREVIATIONS**

ADB	–	Asian Development Bank
EIA	–	environmental impact assessment
EMP	–	environmental monitoring plan
GOV	–	Government of Vietnam
HCMC	–	Ho Chi Minh City
JICA	–	Japan International Cooperation Agency
JBIC	–	Japan Bank for International Cooperation
kg	–	kilogram
km	–	kilometer
m	–	meter
mg	–	milligram
MONRE	–	Ministry of Natural Resources and Environment
PSC	–	project supervision consultants
VEC	–	Vietnam Expressway Corporation

## **NOTE**

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**THE SOCIALIST REPUBLIC OF VIET NAM**  
**MINISTRY OF TRANSPORT**  
**VIETNAM EXPRESSWAY CORPORATION**  
**HOCHIMINH – LONG THANH – DAU GIAY EXPRESSWAY**  
**PROJECT MANAGEMENT UNIT (HLD EPMU)**



**North-South Expressway Construction Project**  
**Hồ Chí Minh City - Dầu Giây Section (CS)**

**LOAN NO. VNXV-1**



**SEMI-ANNUAL ENVIRONMENTAL SUPERVISION REPORT**

**(July 2011 – December 2011)**

**February 2012**

**Consortium of**  
**Nippon Koei Co., Ltd**  
**TEDI South**

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# 1. Introduction

## 1.1. *Report purpose*

In the surrounding area of Ho Chi Minh City (HCMC), the traffic volume has long been over the capacity of road. It is foreseen that the demand of traffic in HCMC and Dong Nai area where industrial development has been recently significant with the planned development of industrial zones and the international airport will increase significantly. The Government of Vietnam (GOV) has decided to construct the HCMC – Long Thanh - Dau Giay Expressway (HLD Expressway) with the assistance from Asian Development Bank (ADB) and Japan Bank for International Cooperation (JBIC), which was currently named as Japan International Cooperation Agency (JICA) by integrating with previous JICA. The express way was divided into two portions such as HCMC – Long Thanh funded by JICA and Long Thanh - Dau Giay funded by ADB.

Ho Chi Minh –Long Thanh –Dau Giay Expressway crosses thinly population density areas such as agricultural land and some high population density areas. EIA has been implemented for environmental and social consideration according to the Vietnamese environmental law and regulations and JBIC and ADB guidelines for Environmental and Social Considerations and Regulations.

Implementation of Environmental Management Plan (EMP) during construction and post-construction stages is necessary for sustainable development as well as to ensure the environmental protection in the road construction project.

The main purpose of the environmental supervision report (July 2011 – December 2011) is to summarize the environmental supervision activities by Construction Supervision Consultants (CS Consultants) during the period of July 2011 – December 2011 to support VEC to prepare environmental supervision reports to JICA (previous JBIC), ADB as well as to prepare them to other agencies.

The main objectives of this environmental supervision report are follows;

- Grasp the general environmental condition
- Identify the environmental impacts during the construction period and propose mitigation measures
- Summarize the result of environment inspection during construction period.
- Implementation of environmental monitoring in pre-construction and during construction stages

## **1.2. Project Implementation Progress and Change in Project Scope**

### **1.2.1. Implementation Progress**

The construction progress of each package as of December 2011 is described as follows

#### **Package 1a:**

##### ***Temporary Road:***

- All the temporary roads have been completed;

##### ***Casting Yard:***

- 547 pieces of girder have been fabricated.
- 22,382 nos precast concrete plank have been fabricated.
- 1,564 pieces of parapet have been fabricated.

##### ***Earth Work and Soft Soil Improvement***

- Second stage surcharge for all embankment area has finished.
- R.C. pile installation works started in last month. Up to now, total 122 nos (~1380m) of R.C.pile have been installed.

##### ***Bridge structure***

- 1015 pile have been finished
- 547 girders have been fabricated.
- 445 nos of girder have been erected.
- 33.5 spans of crossbeam have been completed.
- 24.5 spans of deck slab works has been completed.

#### **Package 1b:**

##### ***Temporary Works***

- Temporary bridge at Nuoc Duc canal was finished, the construction works for temporary bridges at Ong Lan 1 and Ong Kinh canal are going on, the Contractor plans to finish these bridge in January.

##### ***Casting Yard:***

- Casting yard No.1 (at pier T100): up to now, the repairing works was finished for 05 casting beds.
- Casting yard No.2 (at Tac river): Contractor closely monitor settlement of these casting bed in order to having immediately treatment work.

##### ***Earth Work and Soft Soil Improvement.***

- RC pile fabrication and installation were re-started with 720m of fabrication and 290m of installation.

##### ***Bridge Substructure***

- Up to now, 988 bored piles were completed.
- Pile cap: 99 nos were completed
- Pier column: 96 nos were completed
- Headstock: 80 nos were completed
- 227 girders were fabricated.
- 188 girders were erected.

- Construction works for precast-plank and diaphragm are going on.
- Deck slab construction was executed also, in this month 02 single deck slabs were casted at T97 – T98.

## **Package 2:**

### ***Works at site***

- Constructed 22 working piles D1200.
- Finished 02 lifts of pier column, 01 head stocks.
- Produce casing for bored pile construction at P22, P24
- Casting 7 girders at carting yard at HCMC and 7 girder at casting yard at Dong nai side.
- Continue to repair and maintain service road at Dong Nai side and HCM side

### ***Earth Works and Soft Soil Improvement***

- Continue settlement monitoring at approach road to abutment A1.
- Constructing surcharge material for embankment (permanent embankment : 7000 m3).

### ***Bridge structure***

- Continue to drilling pile from P37 to P46.
- Continue construction of pile cap, column, headstock from P26 to P34.
- Casting 7 girders at carting yard at HCMC and 7 girder at casting yard at Dong nai side.

## **Package 3:**

### ***Temporary Works:***

- Carry out maintenance of service road on site (Except not yet handed over area)
- Ruot Ngua temporary bridge was completed (Except not yet handed over area)
- Temporary box culvert at sta. 15+470 was completed

### ***Earth Work and Soft Soil Improvement***

- Carry out drilling soil cement column (permanent work) at station Km16+396 to Km16+900 is completed
- Carry out installation of PVD material on site is 83.33% completed
- Installation of VCM is in progress at zone D (Km19+320 to Km20+968), zone E (Km21+631 to Km21+860) and zone C (Km16+900 to Km18+084.2)
- Carry out filling material (permanent embankment) at zone E (Km21+631 to Km21+860), Zone D8 (Km20+759 to Km20+964) and Zone C (09+10) (Km17+923 to Km18+084)

### ***Bridge structure***

#### **Dong Mon Bridge:**

- Casting concrete work for pile cap and pier column at Pier 8 have been completed
- Casting concrete work for pile cap, pier column and head stock P1L have been

completed

- Driving RC pile for pile slab is ongoing
- Super T girder production is in progress
- Launching super T girder at span P6 has been completed
- Casting concrete for deck slab of span P5L, span 10R and span P13R have been completed

Nuoc Trong bridge:

- RC pile driving works are ongoing
- RC pile driving work for pile slab is ongoing
- Casting concrete for pile cap A1R, P1L, P2L, P2R and P5L have been completed
- Casting concrete for pile column P1R, P2L, P2R and P5L have been completed
- Casting concrete for head stock P1R and P5L have been completed
- Super T girder production is in progress

Hang Dieu Bridge:

- Casting concrete for wing and wall abutment A1L has been completed
- Casting concrete for head stock P1L has been completed
- Driven RC pile for pile slab is in progress
- I girder production is in progress

Ngon Cung bridge:

- Casting concrete for pile cap P4L and P4R have been completed
- Casting concrete for head stock P6L has been completed
- I girder production is in progress
- Launching I girder for span P6 has been completed

Long Thanh flyover:

- Construction works temporarily suspends due to land acquisition matter
- Super T girder production is in progress

Ruot Ngua bridge:

- Working platform on site is ongoing but frequently obstructed by local people
- Piling works are ongoing

### **1.2.2. Changes in project scope**

HLD Expressway construction project with total length of about 55km, is divided into 2 parts; Part 1: From An Phu Intersection (beginning point) to Ring Road 2 intersection (Km4+000) will be constructed as urban road. This section is funded by Hochiminh City People Committee; Part 2: From Ring Road 2 intersection (Km4+000) to Dau Giay Intersection (ending point). The Project scope is summarized



in following table.

**Table 1. Project Scope**

Section	Distance (Km)
Ring Road 2 intersection to NH-51 interchange (JICA portion); KM.4+000 to KM.23+900	19.900 km
NH-51 interchange to Dau Giay interchange (ADB portion); KM.23+900 to KM.54+982	31.082 km
Total	50.982 km

**Change in project scope:**

**Pk1a:** at approach road, counter berm was changed into reinforced geological cloth

**Pk1b:** no change

**Pk2:** Vacume consolidation method for soft soil in Ho Chi Minh side was changed into PVD and surcharge

**Pk3:** Change in construction method at soft soil section are under review

The above change do not add more impacts to the environment, therefore supplementary mitigations are not required.

## **2. Incorporation of Environmental Requirements into Project Contractual Arrangements**

Environmental requirements were incorporated into Volume 3. General Specification of contract document. Which requires the construction contractors comply with environmental regulations and protection as summarized below

- The Contractor shall submit an Environmental Management Plan detailing how he intends to comply with applicable local laws and regulations concerning protection of the environment and the attached specification for environmental monitoring.
- The contractor shall implement environmental monitoring program which shall be implemented in two phases: prior to the start of construction and during construction. The first phase is required to provide baseline data on environmental quality in the Project area, in particular for houses adjacent to areas of the works. Monitoring programs in the construction phase are required to collect data and evaluate the impact of the Project and the effectiveness of the Contractor's mitigation measures.
- The Contractor shall strictly comply with Vietnamese Laws and Standards regarding the environment on all works associated with the Contract.

- The Contractor shall be responsible for implementing and managing mitigation measures during the construction of the Works. The recommended mitigation measures including measure for air quality, noise and vibration, water environment, waste management, impacts on traffic.

### Implementation arrangement of EMP

The EMP including the explanation of baseline condition at pre-construction and potential impacts and mitigation measures at construction stage and operation stage

EMP has been prepared to monitor the environmental impacts and implement the appropriate mitigation measures during construction and operation stages as required in the EIA. The frameworks of management are described in the following figure.

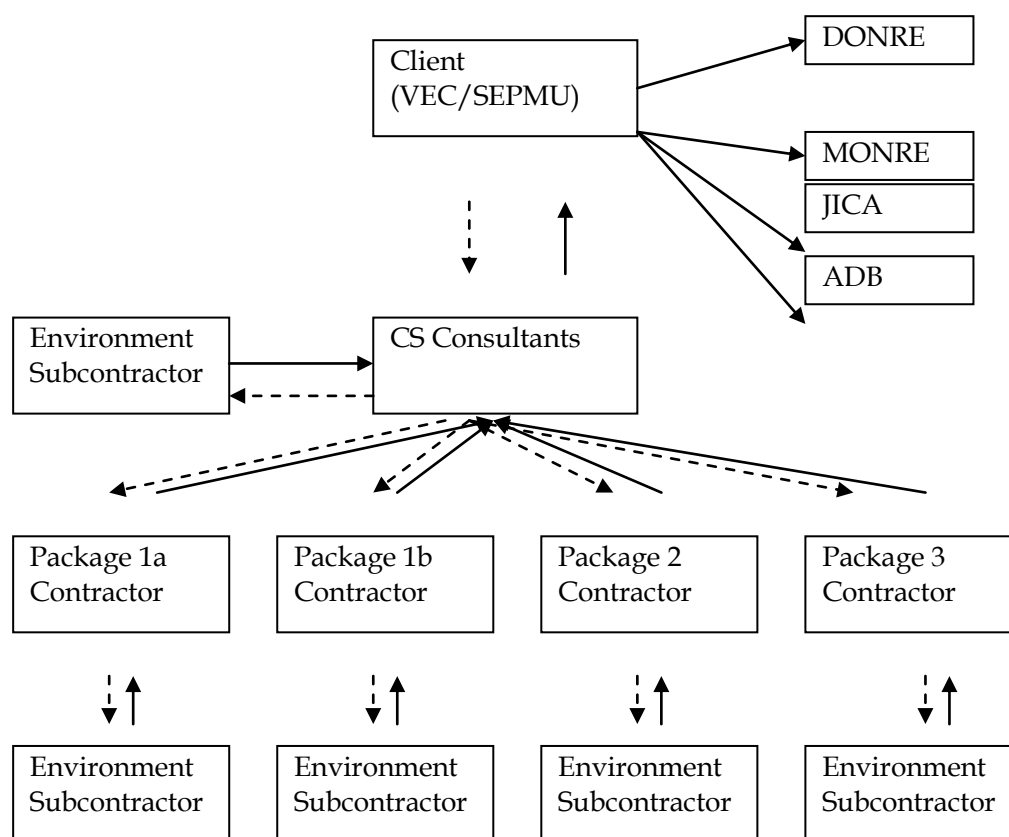


Figure 1. Framework of organizations regarding environmental management

## 3. Summary of Environmental Mitigations and Compliance with EMP

Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
1. Over-all Prepare and implement a site-specific EMP	Good		
2 Air quality			

Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
<b>Construction activities</b>			
<p>No burning of debris or other materials will occur on the site. Dust suppression measures will also be used, including covering and wetting loads, limiting the speed for vehicles transporting construction materials, and watering roads and other open areas regularly. In residential areas, 3m high fences of iron sheets of fibreboards are used around construction sites to minimize dust</p> <p>Dust suppression measures including but not limited to the following will be implemented:</p> <p>Stockpiles of sand and aggregate greater than 20 cubic meters for use in concrete manufacture shall be enclosed on three sides, with walls extending above the pile and two (2) meters beyond the front of the piles. Locations should be indicated by the accompanying site plan(s).</p> <p>Effective water sprays shall be used during the delivery and handling of all raw sand and aggregate, and other similar materials, when dust is likely to be created and to dampen all stored materials during dry and windy weather.</p> <p>Conveyor belts shall be fitted with wind-boards, and conveyor transfer points and hopper discharge areas shall be enclosed to minimize dust emission. All conveyors carrying materials that have the potential to create dust shall be totally enclosed and fitted with belt cleaners. Locations should be indicated by the accompanying site plan(s).</p> <p>Areas of reclamation shall be completed, including final compaction, as quickly as possible consistent with good practice to limit the creation of wind blown dust.</p> <p>Construction walls will be provided in all locations where strong winds could blow dust and debris. In residential areas, such as An Phu and Long Than towns, build 3m high fences with fiberboards and iron sheets to minimize dust.</p>	Good	One value of dust concentration measured in December by sub-contractor at Km 4+400 of package 1a was slightly higher than the standard. The explanation was due to high wind speed during measurement	The contractor improved dust control especially in dry season.
<b>Vehicle operation</b>			
<p>All roads within the construction areas of the site shall be watered at least twice each day, and more if necessary to control dust to the satisfaction of the ESO.</p> <p>Areas within the site where there is a regular movement of vehicles shall have an acceptable hard surface and be kept clear of loose surface material. Locations should be indicated by the accompanying site plan(s).</p> <p>Ensure that vehicles and machinery are used and maintained properly to meet applicable emission standards. Fuel-efficient vehicles shall be preferred.</p> <p>All vehicles, while parked on the site, will be required to have their engines turned off.</p> <p>Any vehicles with an open load carrying area used for moving potentially dust-producing materials shall have properly fitting side and tailboards.</p> <p>Ensure that employees are trained on the proper use and</p>			

Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
<p>maintenance of machinery and vehicles. Use dust suppression measures: cover and wet loads, limit the speed for vehicles transporting construction materials, select suitable transport routes and vehicles, and water roads and other open areas regularly. Limit traffic congestion through planning of transportations in coordination with local officials.</p> <p>Conduct regular site inspections to ensure the use of best practices and report any complaints from local people.</p>			
<p><b>Crushing, concrete and asphalt plant operation</b></p> <p>Dust nuisance as a result of its activities will be avoided. An air pollution control system shall be installed and shall be operated whenever the plant is in operation.</p> <p>Install a three-sided roofed enclosure with a flexible curtain across the entry where dusty materials are being discharged to vehicles from a conveying system at a fixed transfer point. Install exhaust fans for this enclosure and vented to a suitable fabric filter system.</p> <p>Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin in good condition.</p> <p>The concrete batching plant and crushing plant sites and ancillary areas will be frequently cleaned and watered to minimize any dust emissions. The plants shall not be located within 1000 m of settlements, schools, health facilities and other sensitive sites. Provide VEC and PSC a map on the location of plants prior to the beginning of construction works for approval. Dust suppression and other air pollution control measures shall be used in the plants to minimize emission levels</p> <p>Dry mix batching shall be carried out in a totally enclosed area with exhaust to suitable fabric filters.</p> <p>All equipment and machinery on the site will be checked at least weekly and all necessary corrections and or repairs made to ensure compliance with safety and air pollution requirements.</p>			
<p><b>3 Water quality</b></p> <p>Wastewater from mixing materials will be drained to a separate collecting system, and processed by sediment traps before release to the public drainage system.</p> <p>Mud from drilling will be collected and processed to avoid pollution of surface water.</p> <p>Drilling solutions for performing the abutment will be processed in a closed system, especially for abutments at the riverbed.</p> <p>Inner-lined drill holes will be used during piling.</p> <p>Proper drainage systems will be provided at all construction, material exploitation, and storage sites. All existing stream courses and drains within, and adjacent to, the site will be kept safe and free from any debris and any excavated materials arising from the works. Chemicals, sanitary wastewater, spoil, waste oil and concrete agitator washings will not be deposited in the</p>	Fair	<p>Treated wastewater of package 1b, 2, and 3 contained high amount of coliform. This problem was mainly due to drainage system was dirty</p> <p>Package 2: on 24<sup>th</sup> November: Service road</p>	<p>Contractors cleaned floor of batching plant and drainage system to avoid contamination of coliform</p> <p>The service road was cleaned up by 29<sup>th</sup> November</p>

Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
<p>watercourses</p> <p>All water and waste products arising on the site will be collected, removed from the site via a suitable and properly designed temporary drainage system and disposed of at a location and in a manner that will cause neither pollution nor nuisance. The Contractor will ensure that construction camps and other potential sources of secondary impacts are properly sited and provided with drainage and wastewater facilities.</p> <p>Hygiene bathrooms will be set up at all construction camp sites and septic tanks will be used to treat wastewater. Proper drainage will be provided to avoid creation of stagnant water bodies.</p> <p>Extraction of sand and gravel in river beds will be prohibited except (i) where there is no technically and economically feasible alternative, and (ii) provided specific mitigation measures are implemented to minimize impacts on river morphology, water quality (e.g. turbidity), and ecosystems (e.g. reduced extraction during fish spawning period).</p> <p>Equipment and vehicle maintenance area will be provided with adequate drainage facility as well as oil and grease separator to avoid discharge of oil-laden water into the surrounding soil and water courses.</p> <p>Drainage works will be constructed, maintained, removed and reinstated as necessary and all other precautions taken, as necessary, for the avoidance of damage by flooding and silt washed down from the works. Adequate precautions will be taken to ensure that no spoil or debris of any kind is allowed to be pushed, washed down, fallen or be deposited on land adjacent to the site. Stockpiles will not be located near rivers and streams. Dumping of spoils and obstruction of flows along rivers and streams will be avoided.</p> <p>Downstream slopes will be stabilized, where warranted, with concrete, rock gabions or walls to avoid erosion.</p> <p>Prepare emergency response plan in case of fuel and chemical spills</p>		<p>surface was muddy</p>	
<p><b>4 Loss of water resources</b></p> <p>Any source of water (potable or otherwise) for the community, such as wells, ponds or tube wells, accidentally lost will be replaced immediately. The location and siting of the replaced source of water will be as per design or as directed by the engineer. In general, there should be only lateral displacement (of the new site from the old); the replacement will be ready prior to demolition/dismantling of the existing source.</p>	<p>Very good</p>		
<p><b>5 Noise and vibration</b></p> <p>Vehicles and machinery must be used, maintained and equipped so as to avoid unnecessary noise and vibration.</p> <p>Plants must be located away from sensitive areas and noisy construction work, such as crushing, concrete mixing and batching must be done during daylight hours.</p>	<p>Good</p>		

Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
<p>Use of machines causing loud noise and vibration (drill, excavator etc.) is prohibited between 23 pm and 5 am. If night-time construction is necessary, the contractor will apply for a permit from local authorities and inform residents about coming works beforehand.</p> <p>At residential areas, temporary noise walls or boards will be used to minimize noise impacts from construction activities near schools, temples, clinics etc. The contractor will specify the locations and type of temporary noise walls before beginning of construction.</p> <p>Ensure that local authorities and residents are notified in advance about disturbing activities, such as blasting operations. The effectiveness of mitigation activities will be monitored regularly through noise level measuring.</p> <p>Be responsible for repairing any damage caused as the result of vibrations generated from or by the use of his equipment, plant, and machinery.</p> <p>Erect temporary noise barriers where schools and other potentially sensitive receptors (as identified during consultation with local residents) are within 50 meters of construction activities. Temporary barriers of sufficient height with skid footings and a cantilevered upper portion will be erected within a short distance from stationary plants, and at practicable distances from mobile plants.</p> <p>The minimum effective height of the noise barriers should be as such that no part of the noise sources associated with the operation of construction machinery should be visible from the target receptors to be protected. The locations of the temporary noise barriers shall be adjusted where and when necessary taking into consideration the locations and type of receptor involved and the machinery intended to be protected. Use of the proposed noise barriers, as other construction site equipment, should take into account the following standard requirements:</p> <p>A minimum of 4.5 meter wide thoroughfare with not less than 4.5 meter vertical clearance to be maintained at all times for the free passage of fire appliances;</p> <p>The barrier shall not be located where it prevents access to community facilities, residential areas, and places of work or access routes.</p> <p>Ensure that the use of noise sources (i.e., aggregate crushers, operators, etc.) will be avoided as much as possible near sensitive receptors. Non-vibratory rollers (for compaction) will be used near sensitive receptors such as schools and cultural resources.</p> <p>Ensure that all exhaust systems will be maintained in good working order; properly designed engine enclosures and intake silencers will be employed; and regular equipment maintenance will be undertaken.</p> <p>Ensure that stationary equipment will be placed as far from sensitive land uses as practical; selected to minimize objectionable noise impacts; and provided with shielding mechanisms where possible.</p>			
<p><b>6 Waste</b></p> <p>Waste from construction activities, including the</p>	Good		

Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
<p>demolishing of structures before the construction itself begins, must be collected and recycled when possible.</p> <p>The contractor will establish hygienic groups to collect waste from construction camp sites and to ensure the cleanliness of the whole construction area. The contractor will also co-operate with local authorities or companies to organize the waste collection and specify the measures in the site-specific EMP.</p> <p>The EMP will be updated during detailed design and will require that contractors be responsible for spoil disposal in a manner consistent with a site-specific EMP that they will be required to prepare prior to any construction work. Spoils from the works will only be disposed of in selected locations to avoid any adverse impacts to water or soil quality. The locations will be specified by the contractor in the site-specific EMP before the beginning of construction activities. The contractor shall also obtain permission from the authorities to dispose any surplus material or other spoils from the works.</p>			
<p><b>7 Handling of hazardous and toxic materials</b></p> <p>During the construction, fuels, oil, and other dangerous chemical substances will be transported, stored and handled at the site. If adequate mitigation measures are not used, there is a risk of spills into the surrounding area. The contractor will apply for appropriate permits for the transport and handling of hazardous materials and prepare an emergency and contingency plan for fuel and oil spillage. Fuel storage sites will be located away from water bodies on a cement pavement with a surrounding canal leading to an oil and grease separator to facilitate the capture and removal of spilled oil. The contractor also ensures that employees are trained on handling hazardous materials.</p> <p>Fuel storage sites will be located away from water bodies on a cement pavement with embankment. A canal leading to an oil and grease separator will be installed to facilitate the capture and removal of spilled oil.</p> <p>Use and maintain vehicles and machinery properly to avoid accidental spills.</p>	Good		
<p><b>8 Soil</b></p> <p><b>Contamination of soil</b></p> <p>Use good housekeeping practices to avoid any contamination of soil from solid wastes, wastewater and hazardous materials. All wastes shall be disposed in designated disposal sites approved by local authorities. Ensure all workers are aware of the importance of careful handling of hazardous and dangerous materials. Prepare emergency plans for accidents.</p>	Good		
<p><b>9. Spoils disposal</b></p> <p>Waste from construction activities, including the demolishing of structures before the construction itself begins, must be collected and recycled when possible.</p> <p>Establish hygienic groups to collect waste from</p>	Fair	Package 1a on 15 <sup>th</sup> October: : Domestic garbage was dumped	The contractor cleaned the garbage within that day

Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
<p>construction camp sites and to ensure the cleanliness of the whole construction area.</p> <p>Spoils from the works will only be disposed of in selected locations approved by local authorities.</p> <p>Disposal shall not cause adverse impacts to water and soil quality as well as land use.</p> <p>The locations of spoils disposal sites will be specified by the contractor in the site-specific EMP before the beginning of construction activities.</p>			
<p><b>10. Erosion</b></p> <p>Provide temporary or permanent drainage to protect sites susceptible to erosion.</p> <p>Stabilize downstream slopes on rivers and streams prone to erosion problems.</p> <p>Protect sensitive surface/erosion prone sites with vegetation and replace removed trees to ensure interception of rainwater and deceleration of surface runoff as soon as possible after construction works.</p> <p>On streams, downstream slopes can be stabilized with concrete, rock gabions or walls as seen necessary.</p> <p>Careful stockpiling of topsoil in suitable locations to prevent these from being washed away.</p> <p>Specify the erosion protection measures to be used in the site-specific EMP</p>	Good		
<p><b>11. Loss of vegetation cover</b></p> <p>Minimize the clearing of vegetation for construction activities and borrow areas.</p> <p>Re-vegetate embankment slopes and road cuts.</p> <p>Landscape road verges and plant vegetation to contribute to aesthetic value.</p> <p>Where roadside trees are lost as a result of construction activities, the Contractor shall replant trees as a ratio of one-to-one.</p> <p>Where trees cannot be replaced at the roadside due to a lack of roadside space, the Contractor shall consult with affected residents to determine an appropriate alternative planting location and schedule.</p> <p>The Contractor will be responsible for all works associated with tree planting including maintenance of the trees for a one-year period after planting.</p>	Good		
<p><b>12. Changes in Hydrological Situation and Irrigation systems</b></p> <p>Temporary drainage will be established along the expressway to avoid inundation during construction. The contractor shall ensure that activities shall not cause disruption of irrigation into surrounding croplands and that damaged irrigation facilities shall be repaired immediately.</p> <p>The Contractor shall ensure irrigation channels diverted during the construction phase will be returned to their</p>	Good		



Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
original status. Where this is not possible, or where channels are irrevocably altered, consultation will be held with landowners to ensure that an adequate redesign is undertaken to ensure that irrigation channels are returned as closely as possible to their former layout. The Contractor will undertake all necessary works to achieve this status, including provision of labor.			
<p><b>13. Traffic conditions and use of waterways</b></p> <p>Contractor to formulate and implement a traffic management plan minimizing the disturbance caused by construction activities. The plan shall explain the means and methods to be taken for proper and adequate control of traffic during the course of the Works. This plan shall include but not be limited to the traffic control equipment the Contractor proposes to use for the Works; traffic control signage including location and sign descriptions; how and when the Contractor proposes to use traffic control flag men; traffic control means during no-working periods; and traffic control means and devices for night and off-hour periods.</p> <p>The contractor shall also ensure implementation of the following measures: that the traffic management plan shall comply with the traffic control provisions with regard to:</p> <ol style="list-style-type: none"> <li>General traffic management requirements</li> <li>Temporary road works</li> <li>Traffic control</li> <li>Number of lanes for traffic control</li> <li>Half-width construction</li> <li>Extraordinary traffic</li> <li>Vertical clearance</li> <li>Materials for traffic control devices</li> </ol> <p>In order to facilitate traffic through or around the Works, or wherever ordered by the ESC, the Contractor shall erect and maintain at prescribed points on the Works and at the approaches to the Works, traffic signs, lights, flares, barricades, rubber cones with traffic lamps, temporary signaling stations on river and other facilities as necessary or required by the ESC for the proper direction and control of traffic.</p> <p>As necessary for proper control of traffic or when/ where directed by the ESC, the Contractor shall furnish and station competent flagmen whose sole duties shall consist of directing the movement of traffic through or around the Works.</p> <p>Furnish and erect, within or in the vicinity of the project area, such warning and guide signs as may be necessary or ordered by the ESC.</p> <p>In order to minimize disruption to traffic flows the Contractor shall enclose the site with temporary fence to provide a visual barrier between his work and adjacent traffic. The temporary fence shall be two meters high and the movement of men, materials and plant into and out of</p>	Fair	<p>Package 1b on 19<sup>th</sup> September: mooring barge on the temporary bridge at Tac river</p> <p>Package 2, on 26th November: Anchor the barge to the temporary bridge on Dong Nai river.</p>	Contractor corrected the problem within the day. All barges were moored at station satisfying safety

Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
the barrier area shall be controlled by flagmen Organize temporary means of access to avoid such short-term negative impacts. Maintain local roads and bridges used by construction vehicles.			
<b>14. Historic and Cultural Resources</b>  Protect sites of known antiquities, historic and cultural resources by the placement of suitable fencing and barriers.  Not locate construction camps within 500 meters from cultural resources.  Adhere to accepted international practice and all applicable historic and cultural preservation requirements of the Government of Vietnam.  In the event of unanticipated discoveries of cultural or historic artifacts (movable or immovable) in the course of the work, the Contractor shall take all necessary measures to protect the findings and shall notify the ESC / ESO and concerned provincial-level and central government level representatives. If continuation of the work would endanger the discovery, work shall be suspended until a solution for preservation of the artifacts is agreed upon.	Good		
<b>15. Utilities</b>  Ascertain and take into account, in the method of working, the presence of utility services on and in the vicinity of the site.  Take into account the periods required to locate, access, protect, support and divert all utility services, including any periods of notice required to affect such work in consultation with authorities operating such services.  Assume all responsibility to locate or to confirm the details and location of all utility services on or in the vicinity of the project site.  Exercise the greatest care at all times to avoid damage to or interference with services.  The contractor shall assume responsibility for any damage and/or interference caused by them, their agents, directly or indirectly, arising from actions taken or a failure to take action, and for full restoration of the damage.  Wherever existing ground surfaces are to be disturbed for construction of the works, carry out full and adequate preliminary investigations to locate all services in the area by means of hand-dug trial holes and trenches in combination with electronic and electro-mechanical devices, where appropriate. Each service thus exposed shall be identified. Every service at risk shall be fully exposed and adequately protected and supported in situ or diverted to the satisfaction of the appropriate authority prior to the commencement of such construction.  When working in the vicinity of overhead power cables, ascertain and satisfy safety requirements about the safe			

Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
<p>clearances to be maintained from the power cables in consultation with the authority operating the power line. Where existing overhead power lines, communications cables or other major utilities require relocation, the Contractor will use the services of specialist enterprises with the necessary skills and technology to carry out the work.</p> <p>The Contractor will consult with Provincial Departments of Transportation (PDOTs) to determine the proposed schedule for future utilities works on the Project Road. If such works, i.e. cable laying, is proposed in the near future the Contractor should propose an appropriate works schedule to synchronize such activities and reduce potential disruption.</p>			
<p><b>16. Safety</b></p> <p>Ensure that safety, rescue and industrial health matters are given a high degree of publicity to all persons who are regularly or occasionally on the site. Posters, in both Vietnamese and English, drawing attention to site safety, rescue and industrial health regulation shall be made or obtained from the appropriate sources and shall be displayed prominently in relevant areas of the site.</p> <p>Basic medical care shall be provided at camp sites. A fully equipped first aid base shall be set up. Arrangements for emergency medical services shall be made to the satisfaction of the ESC and ESO. Workers shall be provided with potable water supply and appropriate protective equipment. Work camps shall be provided with facilities to ensure the safety of workers, e.g., fire-fighting equipment, adequate storage for hazardous materials, and contingency measures in case of accidents.</p> <p>Borrow pits shall be constructed with proper drainage to prevent the creation of mosquito-breeding sites. Upon completion of extraction activities, the contractor will restore borrow pits through dewatering and installation of fences, as appropriate, to minimize health and safety risks. Borrow pits will be left in a tidy state with stable side slopes and proper drainage in order to avoid creation of stagnant water bodies.</p> <p>Contractors shall ensure that blasting activities shall not cause damage to lives and properties by making sure that the area is clear, adequately warning people using sirens and other appropriate means, and stopping at a safe distance in case blasting is near the road.</p> <p>Implement a Safety Training Program consisting of:</p> <p>(a) Initial Safety Induction Course</p> <p>(b) Periodic Safety Training Courses</p> <p>(c) Safety Meetings</p> <p>(d) Safety Inspections</p> <p>(e) Safety Equipment and Clothing</p>	Fair	<p>Package 1a on 29<sup>th</sup> October: local residents were observed in the construction site</p> <p>Package 1a on 23<sup>th</sup> August: Concrete truck get stuck at temporary road near T38 due to improper maintenance of service road</p> <p>Package 1b on 15<sup>th</sup> September handrail on temporary bridge on Tac river was damaged</p> <p>Package 2 on 20<sup>th</sup> July: No barrier at pier P13 to avoid local resident entering the construction site.</p> <p>Package 2 on 09<sup>th</sup> December: Power supply box installed on steel pile of temporary bridge which may causes dangerous electric leakage</p> <p>Package 1b on 06<sup>th</sup> October: a fatal accident caused the death of one worker. The bucket being</p>	<p>The local residents were asked to go out of the site. Guard men of the contractor were reminded on this problem.</p> <p>The contractor repaired the service road on 28<sup>th</sup> August and maintain the temporary road regularly.</p> <p>The handrail was fixed by 17<sup>th</sup> September</p> <p>The contractor made the barrier on 22<sup>th</sup> July.</p> <p>The power box was removed on 10<sup>th</sup> December</p> <p>Local police investigated and confirmed reason of the accident</p>

Mitigation Measures	Compliance Attained	Comment on Reasons for Non-Compliance	Corrective actions taken
		hanged on the crane above the generator. At that time, the crane did not run. The worker climbed up on the generator to fill up fuel and water. At that time another barge passed in the river making a wave shaking the bucket to hit the worker. He fell on the barge and his head hit the foot of the crane and steel on the barge. The worker then died at the hospital. The accident was due to carelessness of the crane operator (placing the bucket hanging over the generator after stop working) and negligence of the victim	Safety management of the construction team was checked  A meeting and training on reasons of accident and preventive measures were held.
<b>17. Social impacts Consultation and Complaints Procedures</b>  Provide local communities information on upcoming construction related activities and issues related to traffic safety.  Record any complaints received and respond to them promptly.  Co-operate with local authorities to prevent and solve problems related to environmental issues.	Good	The negotiation and compensation for affected local farmers in the dyke broken in package 3 took long time	The compensation was made on 20 <sup>th</sup> December 2011

**Note:**

1. Very good: mitigations are fully effective
2. Good: mitigations are generally effective
3. Fair: mitigations are partially effective
4. Poor: mitigations are generally ineffective
5. Very poor: mitigations are completely ineffective

## **15. Summary of Environmental Monitoring**

### **4.1. Environmental Monitoring by CSC**

#### **4.1.1. Monitoring program**

(1) Monitoring Items

Monitoring items include air quality, noise, vibration, surface water quality,

groundwater quality, soil and wastewater (The detail is described in section 5.1 Environmental Monitoring).

(2) Environmental reference standards

The environmental standards to be referred were updated in line with recent Vietnamese standards from the EMP as follows.

**Table 2. Environmental standards**

No	Environmental component	Environmental standard
1	Air quality	QCVN 05:2009/BTNMT “ National Technical Regulation on ambient air quality” QCVN 06:2009/BTNMT “ National Technical Regulation on hazardous substances in ambient air”
2	Noise	QCVN 26:2010/BTNMT – National technical regulation on noise
3	Vibration	QCVN 27:2010/BTNMT – National technical regulation on vibration
4	Surface water	QCVN 08:2008/BTNMT “ National Technical Regulation on surface water quality”
5	Ground water	QCVN 09:2008/BTNMT “ National Technical Regulation on groundwater quality”
6	Soil	QCVN 03:2008/BTNMT “ National Technical Regulation on soil quality”
7	Industrial Wastewater	QCVN 24:2009/BTNMT “National Technical Regulation on industrial waste water”
8	Domestic wastewater	QCVN 14:2008/BTNMT “National Technical Regulation on domestic waste water”

(3) Monitoring Locations

Monitoring locations of air, noise, vibration, surface water, groundwater and soil are selected for most affected areas during construction and operation stages. The monitoring of wastewater will be carried out during only construction stages for affected area. The monitoring locations are summarized as following table. Map of sampling location is presented in the Appendix 1.

**Table 3. Monitoring locations**

Location	Sample No	Pk1a	Pk1b	Pk2	Pk3
Air, Noise, Vibration					
1. Intersection Nguyen Duy Trinh Str with HLD Expressway	A1	6+150			
2. Truong Khanh Shrine (Near Residential Area)	A2			11+300	
3. Long Thanh town near NH51	A3				23+300
Surface Water					
1. Ong Nhieu river (Ong Nhieu bridge)	SW1-1, SW1-2	7+100			
2. Tac river (Song Tac bridge)	SW2-1, SW2-2		10+400		
3.					
4. Dong Nai river (Long Thanh bridge)	SW3-1, SW3-2			12+600	
5. Dong Mon bridge (Dong Mon river)	SW4-1, SW4-2				21+350
Groundwater					
1. Tan Dien A Hamlet – Phu Huu (District 9)	GW1-1, GW1-2, GW1-3	5+250			
2. Long Phuoc Ward, near Dong Nai river	GW2-1, GW2-2, GW2-3		10+400		
3. Long Thanh Town	GW3-1, GW3-2, GW3-3				23+300
Soil					
1. Phu Huu Ward, District 9, HCMC (Land bank)	S1-1, S-2, S1-3	4+200			

Location	Sample No	Pk1a	Pk1b	Pk2	Pk3
2. Truong Khanh ward, district 9	S2-1, S2-2, S2-3			11+300	
3. Long Thanh Town	S3-1, S3-2, S3-3				23+300
Wastewater	WW1-1, WW1-2, WW1-3	4+350, 4+980 5+480	-	-	-
	WW2-1, WW2-2, WW2-3	-	7+900 10+300 10+500	-	-
	WW3-1, WW3-2, WW3-3	-	-	11+500 12+300 12+900	-
	WW4-1, WW4-2, WW4-3	-	-	-	18+300 19+100 21+350

#### (4) Monitoring Schedule

The environmental monitoring is quarterly carried out during the construction stage and semiannually during the defect liability period of operation stage. The environmental monitoring schedule described in the EMP is summarized as follows.

**Table 4. Monitoring schedule**

Year	Month	Package 1a	Package 1b	Package 2	Package 3
2009	12	X/1 (Initial Survey)			
2010	3	X/2	X /1 (Initial Survey)	X /1 (Initial Survey)	X /1 (Initial Survey)
	6	X/3	X/2	X/2	X/2
	9	X/4	X/3	X/3	X/3
	12	X/5	X/4	X/4	X/4
2011	3	X/6	X/5	X/5	X/5
	6	X/7	X/6	X/6	X/6

Year	Month	Package 1a	Package 1b	Package 2	Package 3
	9	X/8	X/7	X/7	X/7
	12	X/9	X/8	X/8	X/8
2012	3	X/10	X/9	X/9	X/9
	6	X/11	X/10	X/10	X/10
	9	X/12	X/11	X/11	X/11
	12	X/13	X/12	X/12	X/13
2013	3	X/14	X/13	X/13	X/14
	9	X/15	X/14	X/14	X/15
2014	3	X/16	X/15	X/15	X/16
	9	X/17	X/16	X/16	X/17
2015	3	X/18	X/17	X/17	X/18



: Construction period (PK-1a & 1b=32 months, PK-2 & 3= 36 months)



: Operation period (Defect liability Period=24 months)

X/No : The month when the environmental monitoring will be conducted.

## 4.1.2. Monitoring Result

### 4.1.2.1. Package 1a

#### Result of monitoring in September 2011

- Air quality: The content of dust: is under the allowable value according to QCVN05:2009 and more lower than monitoring before (in March and June, 2011).

- Noise: According to the National technical regulation on noise 26-2010:

+ 21h to 22h: Noise level is higher allowable value (14.7dBA)

In the night time, although the site is not working but the noise level is also high. The noise is high causing by high density of heavy loading trucks for building material transportation in this area. Private houses living near the road (at distance of 15m) so it is possible for them to have a significant effect of noise.

-Vibration: According to the National technical regulation on Vibration 27-2010: Vibration level is lower allowable value.

- Surface water:

+ SS at all position than allowable value according to QCVN08:2008



- + All of others parameters are meeting the allowable levels.
- Underground water:
  - + pH level at 3 underground water samples did not meet QCVN09:2008
  - + There is a sign of underground water that is contaminated by Fecal Coliform in all of three samples.
- Soil: All parameters are meeting the QCVN03:2008.
- Waste water: Coliform at W1-2 is higher than allowable value that is 3 times.

### **Result of monitoring in December 2011**

- Air quality: the value of Dust, NO<sub>2</sub>, CO, SO<sub>2</sub> and HC: from 6am to 10pm, in average per 1 hour, are under the allowable values in QCVN05:2009 and QCVN06:2009.
- Noise: According to the National technical regulation on noise 26-2010:
  - + 6h to 21h: Noise level is higher than allowable value (1.1dBA)
  - + 21h to 22h: Noise level is higher than allowable value (14.7dBA)

In the night time, although the site is not working but the noise level is also high. The noise is high causing by high density of heavy loading trucks for building material transportation in this area. Private houses living near the road (at distance of 15m) so it is possible for them to have a significant effect of noise.
- Vibration: According to the National technical regulation on Vibration 27-2010: Vibration level is lower allowable value.
- Surface water:
  - + SS value at all position is higher than allowable value according to QCVN08:2008 (1.4 - 2.7 times).
  - + Coliform value at SW1-3 position is higher than followable limit according to QCVN08:2008 to being 6.1 times.

- Underground water:
  - + pH level at 3 underground water samples did not meet QCVN09:2008
  - + There is a sign of underground water that is contaminated by Fecal Coliform in all of three samples.
  - + Coliform value at GW1-3 position is higher than allowable value 50 times.
- Soil:
  - + As value is S1-1 position higher than allowable value 1.36 times.

- + Others parameters are meeting the QCVN03:2008.
- Waste water: All parameters are meeting the column B, QCVN24:2009.

#### **4.1.2.2. Package 1b**

##### **Result of monitoring in September 2011**

- Surface water:
  - + Colifom at SW2-2; SW2-4 are higher than allowable value.
  - + SS at SW2-1; SW2-3; SW2-4 are higher than allowable value.
- Underground water:
  - + Underground water samples GW2-1; GW2-2; GW2-3:  $\text{Cl}^-$  is higher allowable value (2.3 – 4.0 times). The high  $\text{Cl}^-$  concentration is possibly caused by natural impacts (for salt intrusion and high conductivity).
  - + Underground water samples GW2-2 and GW2-3: Fe and Mn is higher allowable value.
  - + Water samples in three locations are contaminated by Fecal Coliform. Water sample GW2-1: Coliform is higher allowable value ( $4.9 \times 10^3 \text{MPN}/100\text{ml}$ ).

Analyzed results of underground water in package 1b show that the concentrations of  $\text{Cl}^-$ , Fe, Mn are always higher than allowable values. The cause may be from natural resources of the underground water in this area.

- Waste water: All parameters are meeting the column B, QCVN24:2009.

##### **Result of monitoring in December 2011**

- Surface water:
  - + All of DO parameter's values aren't in allowable limit.
  - + Coliform value is SW2-3 higher than allowable value.
  - + SS value at SW2-3; SW2-3; SW2-4 are higher than allowable value.
- Underground water:
  - + Underground water samples GW2-1; GW2-2; GW2-3:  $\text{Cl}^-$  is higher allowable value from 2.5 to 3.9 times.
  - + Underground water samples GW2-2 and GW2-3: Fe is higher allowable value from 4.7 to 5.14 times.
  - + Underground water samples GW2-2 and GW2-3: Mn is higher allowable value from

1.80 to 2.68 times.

+ Water samples in three locations are contaminated by Fecal Coliform. Water sample GW2-1: Coliform is higher allowable value ( $7.5 \times 10^4$  MPN/100ml).

Analyzed results of underground water in package 1b show that the concentrations of  $\text{Cl}^-$ , Fe, Mn are always higher than allowable values. The cause may be from natural resources of the underground water in this area.

- Waste water: Coliform value are W2-2 and W2-3 higher than allowable limit (3 and 30 times).

#### **4.1.2.3. Package 2**

##### **Result of monitoring in September 2011**

- Air quality: All parameters are meeting the allowable value (in day for the noise and night levels).

The noise and vibration levels (at night) are depending on the time of monitoring and number of motorcycles in the area.

- Surface water: + SS at SW3-1 is higher than allowable value 1.12 times

+ All of others parameters are under according to QCVN08:2008

- Soil and Waste water: All parameters are meeting allowable value.

##### **Result of monitoring in December 2011**

- Air quality: All parameters are meeting the allowable value (in day for the noise and night levels).

The noise and vibration levels (at night) are depending on the time of monitoring and number of motorcycles in the area.

- Surface water:

+ SS value at SW3-1 is higher than allowable value 1.14 times

+ DO parameter's values are SW3-1 and SW3-2 position lower than allowable limit (3.38/4 and 3.67/4).

+ All of others parameters are under according to QCVN08:2008

- Soil: All parameters are meeting allowable value.

- Waste water: the Coliform value is W3-1 sample higher allowable limit ( $7.5 \times 10^3$ /5000 MPN).

#### **4.1.2.3. Package 3**

### **Result of monitoring in September 2011**

- Air quality: The content of dust is higher allowable value about 2.1 times. . The causing may be the monitoring location is near National Highway No.51 where there are many vehicles transporting goods from Vung Tau to industrial parks and on the contrary.
- Noise: Noise (Leq) level is higher allowable value from 6.8 – 21.4dBA
- Vibration: According to the National technical regulation on vibration 27-2010
  - + 6h to 21h: Vibration level is lower allowable value (22dBA)
  - + 21h to 22h: Vibration level is higher allowable value (due to the initial level measured on Mar, 2020 is very low).
- Surface water: + DO at SW4-1 and SW4-3 is not under allowable value
  - + COD at SW4-1 and SW4-2 is higher allowable value
- Underground water:
  - + Cl<sup>-</sup> value at GW3-1 và GW3 - 2 is higher allowable value to 1.1 from 2.3 times.
  - + pH, Fe and Mn values at GW3-1 is not allowable value
  - + NO<sub>3</sub><sup>-</sup> (as N), Coliform and Fecal Coliform value are higher allowable value in all of three samples.
- Soil and Waste water: All parameters are meeting allowable value.

### **Result of monitoring in December 2011**

- Air quality: The content of dust is higher allowable value about 1.23 times. The causing may be the monitoring location is near National Highway No.51 where there are many vehicles transporting goods from Vung Tau to industrial parks and on the contrary.
- Noise: Noise (Leq) level is higher allowable value from 9.8 – 29.1dBA
- Vibration: According to the National technical regulation on vibration 27-2010
  - + 6h to 21h: Vibration level is lower allowable value
  - + 21h to 22h: Vibration level is higher allowable value (due to the initial level measured on Mar, 2020 is very low).
- Surface water:
  - + DO at SW4-1 position is under allowable value.
  - + SS values at SW4-2, SW4-3 and SW4-3 are higher than allowable
  - + Coliform value at SW4-2 and SW4-4 position are higher allowable limit
- Underground water:

- + Cl<sup>-</sup> value at GW3-1 và GW3-2 is higher allowable value to 1.1 from 1.15 times.
  - + Pb<sup>-</sup> value at GW3-1 sample is higher followable value 1.3 times.
  - + pH value at GW3-1 is not allowable value (making acidic water)
  - + Coliform and Fecal Coliform value are higher allowable value in all of three samples.
- Soil: All parameters are meeting allowable value.
- Waste water the Coliform parameter is W4-1 and W4-2 sample higher than followable limit 1.5 and 30 times.

## 4.2. Environmental Monitoring by Contractors

### 4.2.1. Monitoring Program

According to the Clause 2 - Environmental Monitoring - Section 01300 – Volume 3 of Tender Document, the contractor shall implement environmental monitoring work in two phases: prior to the start of construction and during construction.

**Table 5. Environmental monitoring plan of contractors**

	Item	Pk1a	Pk1b	Pk2	Pk3
	Air (3 samples/point)	3 points: Km 4+400 Km 6+150 Km 7+400	2 points: Km 8+000 Km 10+600	2 points: Km 12+000 Km 14+600	3 points: Km 23+300 Km 22+850 Km 16+100
	Noise (3 samples/point)	3 points: Km 4+400 Km 6+150 Km 7+400	2 points: Km 8+000 Km 10+600	2 points: Km 12+000 Km 14+600	3 points: Km 23+300 Km 22+850 Km 16+100
	Vibration (3 samples/point)	3 points: Km 4+400 Km 6+150 Km 7+400	2 points: Km 8+000 Km 10+600	2 points: Km 12+000 Km 14+600	3 points: Km 23+300 Km 22+850 Km 16+100
	Surface water quality (2 samples/point)	3 points: Km 4+440 Km 5+480 Km 7+100	3 points: Km 8+350 Km 9+300 Km 10+450	1 point: Km 12+600	5 points: Km 14+600 Km 16+100 Km 18+300 Km 19+200

	<b>Item</b>	<b>Pk1a</b>	<b>Pk1b</b>	<b>Pk2</b>	<b>Pk3</b>
					Km 21+250
	Ground water quality (1 sample/point)	1 point: Km 6+200	1 point: Km 7+800	1 point: Km 11+800	1 point: Km 23+150
	Soil quality (1 sample/point)	1 point: Km 4+450	1 point: Km 8+000	1 point: Km 11+800	1 point: Km 23+150
	Excavated soil (1 sample/point)	1 point	1 point	1 point	1 point

The monitoring of construction contractors is carried out every three months as shown in table 6.

**Table 6. Environmental monitoring schedule of contractors**

<b>Monitoring</b>	<b>Pk1a</b>	<b>Pk1b</b>	<b>Pk2</b>	<b>Pk3</b>
1 <sup>st</sup> monitoring (Baseline monitoring)	03/2010	06/2010	07/2010	07/2010
2 <sup>nd</sup> monitoring	6/2010	09/2010	10/2010	10/2010
3 <sup>rd</sup> monitoring	9/2010	12/2010	01/2011	01/2011
4 <sup>th</sup> monitoring	12/2010	03/2011	04/2011	04/2011
5 <sup>th</sup> monitoring	03/2011	06/2011	07/2011	07/2011
6 <sup>th</sup> monitoring	06/2011	09/2011	10/2011	10/2011
7 <sup>th</sup> monitoring	09/2011	12/2011	01/2012	01/2012
8 <sup>th</sup> monitoring	12/2011	-	-	-

## 4.2.2. Monitoring Result

### 4.2.2.1. Monitoring of package 1a:

The monitoring result in September 2011 is summarized as follows:

Air quality: The concentrations of parameters such as CO, SO<sub>2</sub>, NO<sub>2</sub>, Pb monitored in three sampling positions in three times in construction phase changed insignificantly in comparison with those monitored in pre-construction phase and still fully satisfied the limited values in National Technical Regulation on ambient air quality QCVN 05:2009/BTNMT.

Noise level: one value at Km 4+400 and one value at Km6+150 were around 5dBA higher than the standard. Other values meet the standard QCVN 26:2010/BTNMT

Vibration level: All the measured values were much lower than allowable value of standard QCVN 27:2010/BTNMT.

Surface water quality: Most of organic parameters (such as DO, BOD) at monitoring locations in both tide periods meet limited values of QCVN 08:2008/BTNMT-level B1, except at Km5+480 at both high tide and low tide. In comparison with the baseline values in pre-construction phase, water quality in September 2011 have signs better because monitoring results of organic matter DO, BOD, COD, nutrient pollution in September 2011 are lower than baseline values. Coliform values and nutrient (T-N and T-P) did not meet the limited values (in National technical regulation on QCVN 08:2008/BTNMT-Column B1.

Ground water quality: Groundwater quality at project area measured in construction phase in September 2011 was rather good. Most of parameters meet the limited value in National Technical Regulation on ground water quality QCVN 09:2008/BTNMT.

Soil quality: Heavy metal concentrations of soil are low but some value higher than the baseline value (Cu, Zn, Fe). The results of analysis of pollution indicators in September 2011 satisfied the limited values in the Regulation QCVN 03:2008/BTNMT.

**The monitoring result in December 2011 is summarized as follows:**

Air quality: The concentrations of parameters such as CO, SO<sub>2</sub>, NO<sub>2</sub> monitored in three sampling positions in three times in construction phase changed insignificantly in comparison with those monitored in pre-construction phase and still fully satisfied the limited values in National Technical Regulation on ambient air quality QCVN 05:2009/BTNMT. Except one value of TSP at Km4+400 was slightly higher than the standard

Noise level: all measured values were within the standard of National technical regulation QCVN 26:2010/BTNMT

Vibration level: All the measured values were much lower than allowable value of standard QCVN 27:2010/BTNMT.

Surface water quality: surface water quality at project area in December 2011 is better than the previous monitoring period. All organic parameters (such as COD, BOD) at monitoring locations in both tide periods are lower than the limited values of QCVN 08:2008/BTNMT-level B1. In comparison with the baseline values in pre-construction

phase, water quality in December 2011 is much better because monitoring results of organic matter DO, BOD, COD, nutrient pollution in December 2011 were lower than baseline values.

Groundwater quality: Groundwater quality at project area measured in construction phase in December 2011 is rather good. Most of parameters meet the limited value in National Technical Regulation on ground water quality QCVN 09:2008/BTNMT. Except 2 parameters are  $\text{Cl}^-$  and Fe.

Soil quality: Heavy metal concentrations of soil were low but some value higher than the baseline value (Cu, Zn, Fe). The results of analysis of pollution indicators in June 2011 satisfied the limited values in the Regulation QCVN 03:2008/BTNMT.

#### **4.2.2.2. Monitoring of package 1b:**

**The monitoring result in March 2011 is summarized as follows:**

Air quality: air environment quality in project area is rather good. The concentrations of pollution parameters (such as TSP,  $\text{SO}_2$ ,  $\text{NO}_2$ , CO monitored at two sampling positions in three times in September 2011) still fully satisfy the limited values in National Technical Regulation on ambient air quality QCVN 05:2009/BTNMT.

Noise level: some measure values were higher the baseline value but within the standard of the National technical regulation QCVN26:2010/BTNMT

Vibration level: All the measured values were much lower than allowable value of standard QCVN 27:2010/BTNMT.

Surface water quality: surface water quality at project area in September 2011 had sign of micro-organism pollution. DO, SS, lubricant satisfy the limited values but some location of BOD, COD little higher than the limited values of QCVN 08:2008/BTNMT-level B1. In comparison with the values in pre-construction phase water quality in September 2011 still relatively good

Ground water quality: Groundwater quality at project area measured in construction phase in September 2011 is rather good. Most of parameters meet the limited value in National Technical Regulation on ground water quality QCVN 09:2008/BTNMT, except for  $\text{Cl}^-$ , Coliform and Mn.

Soil quality: Heavy metal concentrations of soil are low. All these results are within the limited values in the Regulation QCVN 03:2008/BTNMT. In comparison with the survey results in the pre-construction phase most of the results in September 2011 change insignificantly.

**The monitoring result in December 2011 is summarized as follows:**

Air quality: air environment quality in project area is rather good. The concentrations of pollution parameters (such as TSP,  $\text{SO}_2$ ,  $\text{NO}_2$ , CO monitored at two sampling positions in three times in December 2011) still fully satisfy the limited values in National Technical Regulation on ambient air quality QCVN 05:2009/BTNMT.



Noise level: All the measured values were lower than limit values of National technical regulation QCVN26:2010/BTNMT or baseline values

Vibration level: All the measured values were lower than allowable value in the National technical regulation QCVN27:2010/BTNMT

Surface water quality: surface water quality at project area in December 2011 has sign of micro-organism pollution. DO, SS, COD, lubricant satisfy the limited values but some location of BOD little higher than the limited values of QCVN 08:2008/BTNMT-level B1. In comparison with the values in pre-construction phase water quality in December 2011 still relatively good..

Ground water quality: Groundwater quality at project area measured in construction phase in December 2011 is rather good. Most of parameters meet the limited value in National Technical Regulation on ground water quality QCVN 09:2008/BTNMT, except for  $Cl^-$ , Fe and Mn.

Soil quality: Heavy metal concentrations of soil are low. All these results are within the limited values in the Regulation QCVN 03:2008/BTNMT. In comparison with the survey results in the pre-construction phase, most of the results in December 2011 change insignificantly.

#### **4.2.2.3. Monitoring of package 2:**

**The monitoring result in July 2011 is summarized as follows:**

Air quality: air environment quality in project area is rather good. The concentrations of pollution parameters such as TSP,  $SO_2$ ,  $NO_2$ , CO monitored in two sampling positions in three times in pre-construction phase still fully satisfy the limited values in National Technical Regulation on ambient air quality QCVN 05:2009/BTNMT. - Noise level: All the measured values were lower than limit values of National technical regulation QCVN26:2010/BTNMT or baseline values.

Vibration level: All the measured values were lower than allowable value in the National technical regulation QCVN27:2010/BTNMT.

Surface water quality: monitoring results show that BOD, COD and Coliform of surface water quality of Dong Nai River were higher than the limited values of QCVN 08:2008/BTNMT. Other parameters satisfied the standard

Ground water quality: Groundwater quality at project area was quite good. All of parameters meet the limited value in National Technical Regulation on ground water quality QCVN 09:2008/BTNMT.

Soil quality: All these results of soil monitoring in construction phase were lower than the limited values in the Regulation QCVN 03:2008/BTNMT.

**The monitoring result in October 2011 is summarized as follows:**

Air quality: environment air quality in project area is rather good. The concentrations of pollution parameters such as TSP,  $SO_2$ ,  $NO_2$ , CO monitored at two sampling

positions in three times still fully satisfy the limited values in National Technical Regulation on ambient air quality QCVN 05:2009/BTNMT.

Noise level: All the measured values were lower than limit values of National technical regulation QCVN26:2010/BTNMT or baseline values.

Vibration level: All the measured values were lower than allowable value in the National technical regulation QCVN27:2010/BTNMT.

Surface water quality: monitoring results show that BOD, COD and Coliform of surface water quality of Dong Nai River were higher than the limited values of QCVN 08:2008/BTNMT. Most parameters were lower than the baseline. These demonstrates the operation of the project activity does not significantly affect to the environment surrounding the project.

Ground water quality: Groundwater quality at project area was quite good. All of parameters meet the limited value in National Technical Regulation on ground water quality QCVN 09:2008/BTNMT.

Soil quality: All these results of soil monitoring in construction phase were lower than the limited values in the Regulation QCVN 03:2008/BTNMT.

#### **4.2.2.4. Monitoring of package 3:**

**The monitoring result in July 2011 is summarized as follows:**

Air quality: , the concentrations of some pollution parameters such as TSP, SO<sub>2</sub>, NO<sub>2</sub>, CO, monitored in three sampling positions in six times in July/2011 higher results in pre – construction phase. This demonstrates the operation of the project affect to the air environment surrounding the project. However, all of values meet with the limited values in the Vietnamese Regulation QCVN 05:2009/BTNMT applied for ambient air environment quality and QCVN 06:2009/BTNMT applied for hazardous gases. Except particulates concentrations at Km 23+300.

Noise level: values measured at Km 23+300 were higher than limit values of National technical regulation QCVN26:2010/BTNMT. Noise level at two other sampling locations were lower than the limit values.

Vibration level: All the measured values were lower than allowable value in the National technical regulation QCVN27:2010/BTNMT.

Surface water quality: surface water quality at project area in July 2011 had a sign of organic pollution and micro-organism pollution. Some of parameters (such as COD, BOD, SS and coliform) were higher than the limited values of QCVN 08:2008/BTNMT-level B1. In comparison with the baseline values in pre-construction phase, monitoring results in 07/2011 change insignificantly.

Ground water quality: All of parameters meet the limited value in National Technical Regulation on ground water quality QCVN 09:2008/BTNMT. Except the values Coliform.

Soil quality: All these results were than the limited values in the Regulation QCVN 03:2008/BTNMT. In comparison with the survey results in the pre-construction phase, most of the results in this period changed insignificantly. This proves the soil quality in the project area was not affected by the activities of the project.

**The monitoring result in October 2011 is summarized as follows:**

Air quality: the concentrations of some pollution parameters such as TSP, SO<sub>2</sub>, NO<sub>2</sub>, monitored in three sampling positions in six times in October 2011 were lower than results in pre – construction phase. Except, Parameters of concentration CO are higher than results in pre - construction phase. All of values meet with the limited values in the Vietnamese Regulation QCVN 05:2009/BTNMT applied for ambient air environment quality and QCVN 06:2009/BTNMT applied for hazardous gases.

Noise level: Noise level at Km 23+300 were higher than the limit value. All other measured values were lower than limit values of National technical regulation QCVN26:2010/BTNMT.

Vibration level: All the measured values were lower than allowable value in the National technical regulation QCVN27:2010/BTNMT.

Surface water quality: surface water quality at project area in October 2011 has a sign of organic pollution and micro-organism pollution. Parameters (such as DO, COD, BOD, SS meet the limited values of QCVN 08:2008/BTNMT-level B1, except result of Coliform. In comparison with the baseline values in pre-construction phase monitoring results in October/2011 changed insignificantly.

Groundwater quality: All of parameters meet the limited value in National Technical Regulation on ground water quality QCVN 09:2008/BTNMT, except values of coliform.

Soil quality: Results of soil monitoring in 010/2011 was quite good. All these results were than the limited values in the Regulation QCVN 03:2008/BTNMT. In comparison with the survey results in the pre-construction phase, most of the results in this period changed insignificantly. This proves the soil quality in the project area was not affected by the activities of the project.

### **4.3. Assessment of Monitoring Results**

Through the monitoring of CS Consultant and contractors, there are finding as follows:

In general, the environmental condition measured in monitoring in the last six months did not changed considerably in comparison with previous monitoring. Some environmental parameters which did not meet permissible limits are TSP, noise, organic compounds in surface water.

The noise level and dust content increased at intersection with public roads such as Nguyen Duy Trinh road (Pk1a), high way No.51. Although the circulation vehicle in the project were strictly supervised such as limit speed of 5km/h and no horn used,

spraying water. Noise and dust level (even in rainy season were higher than standard). This is the common problem in Hochiminh City and Dong Nai province. The noise and dust (TSP) level measured at many place are much higher than standard. This is due to the increase in traffic in these big cities. Noise and dust reducing methods that are suggested in EMP (covering by corrugated iron at sensitive sites, regular machinery maintaining, do not operate all machinery simultaneously) are effectively implemented. Spraying water shall be implemented especially in dry days and at residential areas to avoid impacts on people's health. These two parameter are increasing proportionally with increase of vehicles and decrease of road quality. Moreover, the high way No.51 is being upgraded, contributing to increase of pollution to the air quality.

One level of dust level at km 4+400 of package 1a slightly exceeded the standard. The reason was attributed to the high wind during the measurement. However, this problem could be avoided with enhancement of spraying water.

Surface water especially in rainy seasons, some of parameters (such as DO, COD, BOD, SS, nutrient and coliform) did not meet the standard values of QCVN 08:2008/BTNMT. This is same issue in all monitoring including baseline monitoring.

Most of underground water samples in package 1a, 1b and 3 were contaminated by Cl-, Fe, Mn and Coliform. It is not possible for workers and households to use this water directly. This may cause infectious disease if there is not treatment before using. If using this water for washing.

Arsenic level in one soil sample of package 2 from 15.3 mg/kg (higher than the standard of 12 mg/kg) reduced and it was not detected in the 9<sup>th</sup> monitoring.

Wastewater in the monitoring in December 2011 contained high amount of coliform. This is mainly due to runoff of rainwater and improper hygiene of drainage system

Other monitoring parameters in general satisfied environmental standards.

## **5. Environmental and Training and Orientation**

An Environmental Training Program is required and shall consist of:

- Initial Induction Course: All workmen shall be required to attend a induction course within their first week on site.
- Periodic Training Courses: Periodic safety course shall be conducted not less than once every six months. All employees will be required to participate in relevant training courses appropriate to the nature, scale and duration of the Works. Training courses shall be organized for all workmen on the site and at all levels of supervision and management. Regular environmental and safety meetings will be conducted on a monthly basis and shall require attendance by the ESO and safety representatives of Subcontractors.

### ***(a) Scope of training program:***

- Requirements of environmental protection during construction

- Measures to collect, dispose and treat wastes including fuel, oil, grout, concrete, living waste and spoils from equipment repair,...
- Handling procedures in case of chemicals, hazardous substance spills,...
- Occupational safety and health act matters
- How to work in compliance with standard of safety
- Other safety and health management.

**(b) Training schedule:** every month

**(c) Participants:** All staff and workers of contractors and subcontractors

**(d) Resources trainers/persons:** Environmental Specialist and Safety officers of the main Contractor

**(e) Training document:** site environmental management plans and health and safety plans of contractors, environmental management plan updated June 2010.

**Table 6: Number of workers participating in environmental and safety trainings**

Time	Package 1a		Package 1b		Package 2		Package 3	
	Induction	Regular training	Induction	Regular training	Induction	Regular training	Induction	Regular training
07/2011	18	81	-	112	49	64	62	185
08/2011	0	52	-	-	46	75	78	157
09/2011	32	76	18	95		86	68	192
10/2011	25	95	-	177	41	88	87	287
11/2011	19	74	17	149	51	90	187	301
12/2011	15	82	-	57	25	62	98	358

## 6. Key Environmental Issues

### 6.1. Key Issues Identified

The noise level and dust content increased at intersection with public roads and were higher than allowable values.

Wastewater in the monitoring in December 2011 contained high amount of coliform. This is mainly due to runoff of rainwater and improper hygiene of drainage system.

Contractor package 1a already submitted environmental permit of site batching plant. Up to now all required environmental permits of contractors have been submitted (Appendix 3).

Flooded agricultural area due to broken dykes in Nhon Trach District (Package 3): This issue was solved and contractor already compensated loss of affected farmers (Appendix 4).

- Summary of the situation: In October 2010, farmers complained about a small portion of a dyke which collapsed due to the expressway civil works. On 25 November a first meeting was held at the commune level (Phuoc Thien commune, Nhon Trach District) with representatives of affected farmers, EPMU and contractor. Commune authorities required repair of the broken dykes to allow farmers to plant winter-spring crops; The contractors refilled the dykes two times however the dyke collapsed again and create more serious damage than previous case; Farmers were unable to plant rice seed for the winter-spring crops;
- Property damage: A dyke collapsed damaging agriculture land in Nhon Trach District
  - Area cannot be cultivated: 91.4 ha (60 HH)
  - Cultivated area where planting rice was delayed: 22.0 ha (19 HH)
  - Cultivated area where crops was lost: 4.9 ha (1 HH).
- Up to now, farmers with support of local authorities already agreed with compensation from the contractor. On 20<sup>th</sup> December 2011, contractor transferred the compensation of 215.000.000 VND to Phuoc Thien PPC who was representative for affected farmers.
- The dyke brake and flooding did not cause negative impacts on the environment as quality of flooding water from river is rather goods (refer to regular monitoring results) and the contractor has already repaired the broken dyke.

## **6.2. Action Taken**

Action taken to mitigate/eliminate the above environmental problems:

- Implementation of necessary measures to avoid environmental issues cited in previous report and suggested by ADB during the mission: spraying water to reduce dust, regular clean of batching plant, supply of garbage bins, training of workers on environment and safety, etc.
- Submission of all required environmental permits for facilities used in the project.
- Environmental and safety problems were promptly corrected, especially for safety issue the contractor immediately stopped the work and only resume the work after the problem was solved.
- Serious cases were informed to all the contractors as lessons learnt and to check the site to avoid similar problems.

## **6.3. Additional Action Required**

Although contractors have implemented mitigations, continuous and further actions shall be conducted as follows:

- Regular clean of batching plant and drainage system to avoid coliform contamination to treated wastewater.
- Regular spraying water and this practice shall be enhanced in dry day and strong wind

- Safety onsite was not properly implemented. Contractors shall strongly implement safety measures and the consultant shall more closely supervise the site to immediately stop violation of safety.

## **7. Conclusion and Recommendation**

The result of environmental monitoring results shows that most of the parameters for air, noise, vibration and surface water, groundwater are under the current Vietnamese standards, except TSP and the noise level at intersection with local roads and some surface water parameters (DO, SS, COD, BOD).

Mitigation measures such as spraying water for reducing TSP especially at Km 4+400 of package 1a shall be effectively implemented as specified in updated site environmental management plans of contractors. In dry season, the concentration of dust is expected to increase, preventive measures shall be carried out properly.

Concentration of coliform in wastewater was high due to improper maintenance of drainage system. The drainage system shall be regularly checked and cleaned to avoid contamination of waste and run-off water.

There were safety problems due to carelessness and unawareness of workers as well as improper supervision. Training on environment and safety shall be implemented and supervised regularly and new construction workers are immediately trained before starting their works onsite. Problems or accidents shall be informed to all contractors as lessons learnt.





## **Appendix 1. Map of Sampling locations**



Map of Sampling locations (Bản đồ vị trí lấy mẫu)

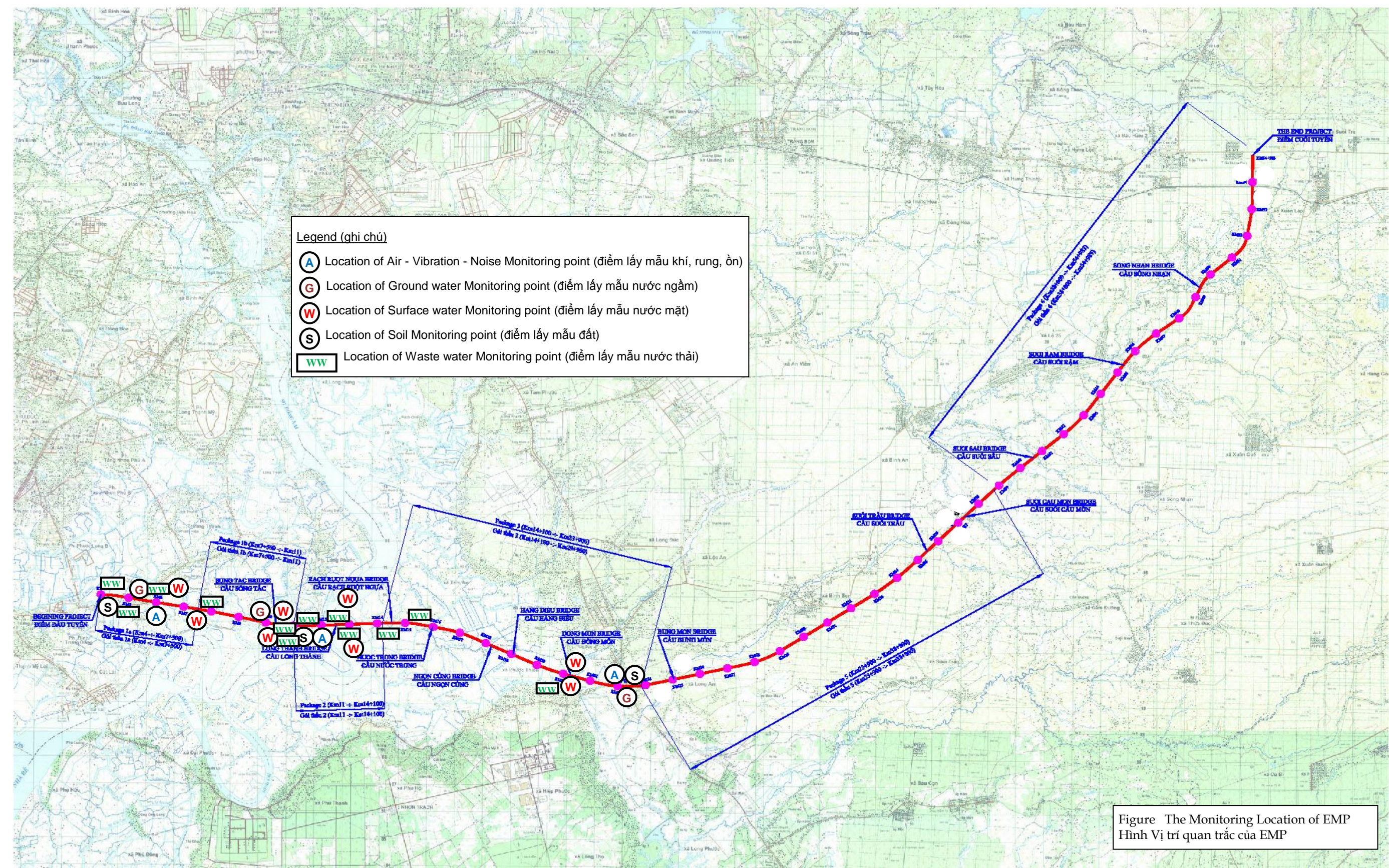


Figure The Monitoring Location of EMP  
Hình Vị trí quan trắc của EMP



## Appendix 2. Photos of Environmental Monitoring and Supervision

### Environmental monitoring by CS Consultant



Soil sampling at Km4+200, Pk 1a



Soil sampling equipment



Wastewater sampling, Pk1a



Groundwater Ground water sampling, Pk 1b



Surface water sampling at Km 21+350,  
Dong Mon River, Pk 3.



Air sampling km 23+150, Pk 3

### Environmental monitoring by contractors



Surface water sampling on Ong Nhieu river, Pk 1a



Air, noise and vibration monitoring  
km 8+000, pk 1b.



Surface water sampling on Dong Nai river, Pk 2



Air, noise and vibration monitoring  
Pk 3



Surface water sampling, Pk 3



Soil sampling, Pk 3



## Supervision activities



Barge was anchored in the temporary bridge, Pk 1b.



Temporary was muddy, Pk 2



Workers were reminded on safety measures



Rigid handrail and proper access are provided for cross head construction.  
Pk 1b



Rigid handrail are provided for sheet pile cofferdam.



Life-jacket and float are provided on the boat at Nuoc Duc canal

## **Appendix 3. Environmental Permit of Site Batching Plant of Package 1a**

PEOPLE'S COMMITTEE OF HCMC  
DEPARTMENT OF NATURAL  
RESOURCES AND ENVIRONMENT

SOCIALIST REPUBLIC OF VIETNAM  
Independence – Freedom – Happiness

No. 01/GP-TNMT-QLTN

HCMC, 03<sup>rd</sup> Jan 2012

## **CERTIFICATE OF WASTE WATER DISCHARGE TO WATER RESOURCE**

**DIRECTOR OF DEPARTMENT OF WATER RESOURCE AND ENVIRONMENT OF  
HO CHI MINH CITY**

Pursuant to Law of Water Resource on 20<sup>th</sup> May 1998;

Pursuant to Decree No.149/2004/ND-CP dated 27<sup>th</sup> Jul 2004 by the Government regulating the grant of exploring, exploiting and using water resource and discharging waste water to water resource;

Pursuant to Circular No. 02/2005/IT-BTNMT dated 24<sup>th</sup> June 2005 by Ministry of Natural Resources and Environment guiding the execution of Decree No. 149/2004/ND-CP dated on 27<sup>th</sup> Jul 2004 by the Government regulating the grant of exploring, and using water resource and discharging waste water to water resource;

Pursuant to Decision No. 121/2003/QD-UB dated 18<sup>th</sup> Jul 2003 regarding the establishment of Department of Natural Resources and Environment directly under People's Committee of HCMC;

Pursuant to Decision No. 17/2006/QD-UBND dated 09<sup>th</sup> Feb 2006 of the City People's Committee issuing Regulation of Water Resource Management in Ho Chi Minh City;

Pursuant to Letter No. 1919/UBND-VX dated 26<sup>th</sup> April 2011 by HCMC People's Committee authorizing Deputy Director to sign for Director of Department regarding letters authorized by the City People's Committee in water-resource sector;

Pursuant to Decision No.360/QD-TNMT-VP dated 06<sup>th</sup> May 2011 by the Director of Department of Water Resources and Environment regarding the assignment of signing issuance letters in water-resource sector;

Considering the proposal of granting Certificate of Waste Water Discharge to Water Resource of Executive Office in Ho Chi Minh City – China Road & Bridge Corporation dated 01<sup>st</sup> Aug 2011 and attached documents;

Pursuant to the proposal of Manager of Department of Water and Mineral Resource Management,

### **DECIDES:**

**Article 1:** Executive Office in Ho Chi Minh City – China Road & Bridge Corporation, located at 811/59/2 Bach Khoa University Residential Area, Nguyen Duy Trinh Street, Phu Huu Ward, Dist 9, HCMC, with Tax Registration Certificate No.0309477140 dated 05<sup>th</sup> Oct 2009 granted by Ministry of Finance, is permitted to discharge waste water to water resource with the following items:

1. Water resource for waste water discharge: Ong Nhieu River managed by Phu Huu Ward, Dist.9, HCMC.

2. Location of works requiring waste-water discharge: in the area of Ho Chi Minh City-Long Thanh-Dau Giay Expressway Construction Project.

Coordinates of discharge location: X: 06.15.359 Y: 11.94.502.

3. Method and state of waste-water discharge: self-flow, continuous discharge.

4. Waste water flow rate permitted to be discharged: 100m<sup>3</sup>/day and night.

5. Limit of factor and pollutant concentration permitted to be discharged: waste water after treatment meets National Technical Code of Industrial Waste Water QCVN 24:2009/ BTNMT, column B.

6. Expiry date of the Certificate: after 01 year.

**Article 2: Requirements for Executive Office in Ho Chi Minh City – China Road & Bridge Corporation:**

1. Carry out waste-water treatment meeting National Technical Code of Industrial Waste Water QCVN 24:2009/ BTNMT, column B before discharging to destination source.

2. Monitor quality of waste water after treatment and report to the Office of Grant for the countermeasure.

3. Inspect waste water flow rate discharged to the source, record discharged waste water flow rate daily and monthly.

4. In case of abnormal occurrences affecting destination water resource as well as environment change caused by waste water discharge, these must be reported to department of granting for countermeasure.

5. Comply with regulations on public work corridor and legal regulations on using land where waste discharge works locate.

6. Comply with regulations stated in Article 1 and other applicable relevant regulations of the Government.

**Article 3:** Executive Office in Ho Chi Minh City – China Road & Bridge Corporation enjoys legal rights stated at Article 17 and takes responsibilities stated at Article 18 of Decree No. 149/2004/ND-CP dated 27<sup>th</sup> July 2004 by the Government regulating the grant of exploring, exploiting and using water resource and discharging waste water to the water resource.

**Article 4:** This Certificate takes effects from the signing date. Three months before the expiry date of this Certificate, if Executive Office in Ho Chi Minh City – China Road & Bridge Corporation still requires waste water discharge, you shall execute the extension of this Certificate as regulated.

**Recipients:**

- Executive Office in Ho Chi Minh City – China Road & Bridge Corporation
- Office of Natural Resources and Environment of Dist.9
- The City Taxation Bureau
- Filed VT-QLTN (Thao)

**FOR DIRECTOR  
DEPUTY DIRECTOR**

**Nguyen Hoai Nam**



## **Appendix 4. Compensation Document for Dyke Broken in Package 3**

Date: Dec 27, 2011  
Our Ref: POS-EPMUHLD-2011- 076

The Employer  
Mr. Le Manh Hung/ Director  
Expressway Project Management Unit (EPMU HLD)  
4<sup>th</sup> Floor, 194 Golden Building, 473 Dien Bien Phu St.,  
Ward 25, Binh Thanh Dist., HCMC

Subject : Completely supported for farmers' damage to be affected by broken dike at Phuoc Thien Commune

Dear Sir,

Related to the above subject. We would like to report to you that we have completely supported for the farmers' damage to be affected by broken at Phuoc Thien Commune as follows:

Reference is made to letter No. 143/UBND-KT of People's Committee (PC) of Phuoc Thien Commune dated Nov 10<sup>th</sup>, 2011 regarding on agreeing the support amount of POSCO E&C is 215.000.000 VND (two hundred fifteen million Viet Nam dong) to support for all households to be affected due to broken dike at Phuoc Thien Commune. (please see the attached letter)

Reference is made to letter No. 175/ UBND-KT of PC of Phuoc Thien Commune dated Dec 15<sup>th</sup>, 2011. People's Committee and Relevant Departments of Phuoc Thien Commune committed that after receiving the support amount, all claims of the local farmers (if any) will be solved by Phuoc Thien Commune. Contractor POSCO E&C will not take any responsibilities to households anymore.

On Dec 20<sup>th</sup>, 2011, POSCO E&C company has transferred 215.000.000 VND to PC of Phuoc Thien Commune' account at Treasury of Nhon Trach District. (please see the attached documents)  
On Dec 26<sup>th</sup>, 2011, PC of Phuoc thien Commune had a responsive letter to inform to POSCO E&C that they have received enough the above support amount.

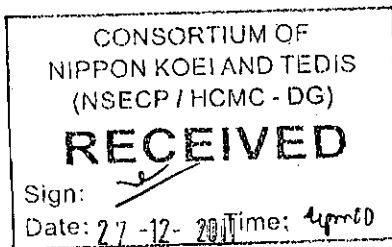
The above content is Report of POSCO E&C to EPMU HLD regarding support for local farmers' damage affected by broken dike of 2010 – 2011 Winter – Spring crop.

Yours Faithfully,



Sang Hoon Lee  
Project Director  
POSCO Engineering & Construction Co., Ltd.

Enclosure (s): as above  
C.C.: CS Consultant  
Office copy



CIRCULATION		
Date:	27/12/11	
Position	Act.	Sign.
PM/ TL	0	
Co-TL	0	
S/Contract/OS	0	
RE3	0	
ARE Pk3	0	
Geo. Specialist		
S. Structural Eng.		
Envi. Specialist	0	
Inter. Material Eng.		
Material Eng.		
S. Highway Eng.		
Highway Eng. 1	0	
ITS Expert		
Schedule Manager		
Office Manager		
Surveyor		
QS 1		
OS Pk3		
Highway Inspector		
structural Inspector		
Structural Eng Pk3		
Geo Engineer Pk3		
Secretary Pk3		

TRANSLATION

People's Committee  
Phuoc Thien Commune

SOCIALIST REPUBLIC OF VIETNAM  
Independence - Freedom - Happiness

No.: 162/ UBND-KT

Phuoc Thien, Dec 06<sup>th</sup>, 2011

*Re: To inform the Account Number of Phuoc Thien Commune*

To: The Leaders of POSCO E&C

Reference is made to POSCO E&C's letter No. POS-NT-2011-002 dated Nov 22<sup>nd</sup>, 2011, regarding on agreeing the support amount for local residents affected due to broken dike at Phuoc Thien Commune with total amount: 215.000.000 VND

Therefore, People's Committee would like to inform the Account Number of Phuoc Thien as follows.

- Unit: People's Committee of Phuoc Thien Commune
- Budget Connection Code: 9046116
- Account No: 3751
- At Nhon Trach Government Treasury

On behalf of President

(signed and Stamped)

Mr. Truong Van Quyen

People's Committee of  
PHUOC THIEN Commune

SOCIALIST REPUBLIC OF VIETNAM  
Independence - Freedom - Happiness

No.: 143/UBND-KT

Phuoc Thien, Nov 10<sup>th</sup>, 2011

*Re: Support for the local farmer's damage due to construction of HLD Expressway Project*

To: Director of POSCO E & C

Based on letter No. POSCO LTD-2011-007 dated Oct 12<sup>th</sup>, 2011 regarding support for local residents of Phuoc Thien Commune who are affected due to broken dike.

Content: Support amount is 200.000.000 VND/120 hectare of 80 households.

Based on conclusion of the meeting dated Oct 16<sup>th</sup>, 2011 of People's Committee of Nhon Trach District.

On Nov 05<sup>th</sup>, 2011 at the meeting-hall of People's Committee (PC) of Phuoc Thien Commune, People's Committee of Commune has coordinated with Economic Dept. of Nhon Trach Dist. and together with households who are damaged due to the construction of Expressway Project in order to declare the support amount of POSCO E & C. Through the content of letter No. POSCO LTD-2011-007 dated Oct 12<sup>th</sup>, 2011 and some exchanged comments then 100/100 of households agreed to receive the support amount of POSCO E&C.

Based on the content of letter No.141/UBND-KT dated Nov 08<sup>th</sup>, 2011 of People's Committee of Phuoc Thien Commune regarding support for local farmer's damage due to construction HLD Expressway Project.

Based on all households' comments, PC of Phuoc Thien Commune now agrees the support amount due to construction Expressway is 215.000.000vnd (two hundred fifteen million Viet Nam dong).

After POSCO E&C hands over above support amount to PC of Phuoc Thien Commune to support for 80HHs, all claims of local farmers (if any) will be solved by PC of Phuoc Thien.

The above content is the Written of PC of Phuoc Thien Commune regarding the support amount of households who are affected due to construction of the Expressway Project.

This Written is forwarded to POSCO E&C's Director for reviewing and transferring money to PC of Phuoc Thien Commune in order to support for local farmers.

Faithfully yours,

Recipient:

As above

Office copy:

On behalf of President

(signed and Stamped)

Mr. Truong Van Quyen

People's Committee of  
PHUOC THIEN Commune

No.: 175/UBND-KT.

SOCIALIST REPUBLIC OF VIETNAM  
Independence - Freedom - Happiness

Phuoc Thien, Dec 15<sup>th</sup>, 2011

*Re: Commitment of support amount for the farmer's damage due to construction of HLD Expressway Project.*

To: Director of POSCO E & C

Based on letter No. 143/UBND-KT dated Nov 10<sup>th</sup>, 2011 of People's Committee (PC) of Phuoc Thien Commune regarding support for farmers' damage due to construction of HLD Expressway (attached letter) of 2010-2011 Winter-Spring crop.

The content of letter No. 143/UBND-KT dated Nov 10<sup>th</sup>, 2011 "PC of Phuoc Thien Commune has agreed amount that support for farmers' damage due to construction of Expressway is 215.000.000vnd (two hundred fifteen million Viet Nam dong)"

Today, People's Committee and Relevant Departments of Phuoc Thien Commune commit that after receiving the above support amount, all claims of the households (if any) will be solved by Phuoc Thien Commune, The Contractor POSCO E & C will not take any responsibilities to these households.

However, during construction period until the HLD Expressway is accepted, if there are ~~any arising issues due to construction of Expressway (at section crossing Phuoc Thien Commune)~~ then the Contractor and PC of Phuoc Thien Commune will be solved together.

The above content is commitment of PC and Relevant Departments of Phuoc Thien Commune regarding support amount for farmers' damage of 2010-2011 Winter-Spring crop.

Faithfully yours,

For Fatherland Front of Commune

Vice president

Vo Tan Loi (signed)

For Farmer Association

President

Huynh Quoc Nguyen (signed)

For People's Committee

Vice President

Truong Van Quyen (signed)

TRANSLATION

People's Committee of  
PHUOC THIEN Commune

No.: 185/ UBND-KT

SOCIALIST REPUBLIC OF VIETNAM  
Independence - Freedom - Happiness

Phuoc Thien, Dec 26<sup>th</sup>, 2011

*Re: Support amount for farmer's damage*

To: Director of POSCO E & C

Based on the letter POS-NT-2011-002 dated Nov 22<sup>nd</sup>, 2011 of POSCO E&C regarding on agreeing support amount for local residents affected due to broken dike at Phuoc Thien Commune.

At 4:00 PM dated Dec 22<sup>nd</sup>, 2011, POSCO E&C company transferred the support amount : 215.000.000 VND (two hundred fifteen million) to People's Committee (PC) of Phuoc Thien Commune's Account at Nhon Trach District's Treasury.

Today, PC of Phuoc Thien Commune makes this letter to inform to Director Board of POSCO E&C that PC of Phuoc Thien Commune has received enough the support amount is 215.000.000 VND.

Attachment:

Report No.181/BC-UBND

Faithfully yours,

For President

Truong Van Quyen (signed)

Recipient:

As above

Office copy

People's Committee of  
PHUOC THIEN Commune

No.: 181/ BC.UBND

SOCIALIST REPUBLIC OF VIETNAM  
Independence - Freedom - Happiness

Phuoc Thien, Dec 21<sup>st</sup>, 2011

## Report

*Re: Spending on support amount for the farmers to be affected by HLD Expressway construction*

Based on the Notice of Conclusion of the meeting content dated Oct 16<sup>th</sup>, 2011 of People's Committee (PC) of Nhon Trach District about support level for farmers' damage who have been affected by HLD Expressway Construction.

On Nov 05<sup>th</sup>, 2011 at the meeting room of PC of Phuoc Thien Commune, People's Committee and Economic Dept. of Nhon Trach Dist. met all households who have been damaged due to Expressway construction to declare the support amount of POSCO E & C through the Written No. POSCO-LTD-2011-007 dated Oct 12<sup>th</sup>, 2011: With total of support amount is 200.000.000 VND (two hundred million Viet Nam dong) / total of areas 124,6Ha, average of 1Ha will be received the support amount is 1.600.000VND (One million and six hundred Viet Nam dong). Result: 100/100 of households agreed to receive the above amount.

On Nov 08, 2011, PC of Phuoc Thien Commune made a Written No. 141/ UBND-KT to propose POSCO E&C to support more for damaged cost (this amount will be used to take care of poor people on Lunar New Year) and Written No. 143/UBND-KT dated Nov 10th, 2011 regarding on agreeing the support amount for farmers due to HLD Expressway construction with total of support amount of POSCO E&C is 215.000.000VND (two hundred fifteen million Viet Nam dong)

At 16:00 dated Dec 20<sup>th</sup>, 2011, POSCO E&C company transferred 215.000.000 VND to PC of Phuoc Thien Commune account at Treasury of Nhon Trach Dist.

Support spending schedule:

Total of households: 67HHs

Total of areas 124,6 Ha

Total of spending amount: 200.000.000 VND (two hundred million)

The support amount for poor people on Lunar New Year is 15.000.000 VND (Fifteen million Viet Nam dong)

Total of spending amount: 215.000.000 VND ( two hundred fifteen million Viet Nam dong)

Spending location: Office of PC of Phuoc Thien Commune.

Spending date: Dec 22<sup>nd</sup>, 2011

The above content is Report of PC of Phuoc Thien Commune regarding on spending support amount for farmers who have been affected by HLD Expressway construction. We would like to report to Economic Dept. of PC of Nhon Trach Dist.

Recipient:

- PC of Dist.
- Economic Dept.
- Office copy

For President

: Truong Van Quyen (*signed*)

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