

## Environmental monitoring result to be reported to JICA (construction phase)

### PACKAGE J1

#### Site Environmental Compliance Inspection and Monitoring Form

**Project** : North-South Expressway Construction Project (Ben Luc-Long Thanh)      **Executing Agency** : Vietnam Expressway Corporation (VEC)  
**Section and Location** :      **Supervision Consultant** : KEI-NE-OCG-TEDI  
**Date** : April 2018      **Contractor(s) for Reporting** : J1 Contractor Shimizu-Vinaconex E&C  
**Reporting Period** : 1<sup>st</sup> Quarter of 2018      **Monitoring Agency** : CEECO

#### 1. Mitigation Compliance Inspection

Mitigation Measure	Mitigations Implemented (Yes, No)	Mitigations Effective? (1 to 5)*	Current situation	Action required	Contractor's action taken
1. Completion of detailed design in accordance with EMP requirements	Yes	1	1	None	None
2. Preparation of tender document included detailed requirements in pollution control and protection of natural ecosystems.	Yes	1	1	None	None
3. Proper preparation of CEMP by contractors	Yes	1	1	None	None
4. Evidence of marking of work site boundaries	Yes	1	1	None	None
5. No cutting trees outside the project ROW	Yes	1	1	None	None
6. Replanting vegetation damaged by site clearance	Not yet implemented	-	-	None	None
7. No dumping of all kinds of wastes and cut trees in rivers, canals, ponds and field	Yes	2	2	None	None
8. General site condition and cleanliness	Yes	1	1	None	None
9. Covering of all trucks moving to and from site	Yes	2	2	None	None
10. Watering road, construction site on rainless day	Yes	2	2	None	None

11.Registration papers and compliance certificates of construction vehicles with Vietnam Register Authority of Police approved environmental emissions standards	Yes	2	2	2	None	None
12.Installation of temporary waste storage areas at each construction site including segregation of hazardous and non-hazardous wastes.	Yes	2	2	2	None	None
13.Sanitation conditions at construction worker camps, included sewage treatment facilities (toilets), domestic solid wastes management, house keeping etc.	Yes	1	1	1	None	None
14.Clean water and safe food supply for workers	Yes	2	2	2	None	None
15.Requirements for vegetation waste (cut trees) burning met	Yes	2	2	2	None	None
16.Proper organization of material transport to minimize environmental pollution and community disturbance	Yes	2	2	2	None	None
17.Condition and effectiveness of erosion controls	Yes	2	2	2	None	None
18.Condition and effectiveness of construction waste management	Yes	2	2	2	None	None
19.Evidence of soil and/or water acidification due to leakage of acidic water from construction site to surrounding field, canals	Not	1	1	1	None	None
20.Evidence of direct or indirect disturbance of mangroves and other vegetation outside defined worksite boundaries	Not occurred	1	1	1	None	None
21.Stabilization, rehabilitation and landscaping of all land surfaces affected by construction activities	Yes	2	2	2	None	None
22.Installation of noise and dust control walls	Yes	1	1	1	None	None
23.Dust generation during windy conditions	Yes	1	1	1	None	None
24.Number and type of community complaints on environmental issues received	No community complaints on environmental issues received	1	1	1	None	None
25.Mangrove replanting for compensation of mangrove area lost by the project at the Thi Vai river, Long Tau and Soai Rap river banks	Not yet implemented	-	-	-	None	None

\* Mitigation Effectiveness Rating Criteria (Indicative examples)

- Very Good** (all required mitigations implemented)
- Good** (the majority of required mitigations implemented)
- Fair** (some mitigations implemented)
- Poor** (few mitigations implemented)
- Very Poor** (very few mitigations implemented)







Parameter	6.25 (SW3-1)	7.41 (SW2-2)	5.5-9	5.5-9	6.5-8.5	7.11-7.28	No	None	None	19th Mar 2018
pH	15 (SW3-1)	20 (SW1-1)	50	100	-	48-73	No	None	None	<b>Location:</b> <b>SW1-1:</b> Soai Rap river - high tide (upstream) <b>SW1-2:</b> Soai Rap river - low tide (upstream) <b>SW2-1:</b> Soai Rap river - high tide (downstream) <b>SW2-2:</b> Soai Rap river - low tide (downstream) <b>SW3-1:</b> Binh Khanh bridge construction area - high tide (downstream) <b>SW3-2:</b> Binh Khanh bridge construction area - low tide (downstream)
SS	6 (SW2-2)	8 (SW2-1-3)	15	25	5	8-12	No	None	None	
BOD	11 (SW1-2)	15 (SW2/1-1)	30	50	-	15-21	No	None	None	
COD	0	0	0.05	0.05	-	0.014-0.018	No	None	None	
NO <sub>2</sub> -N	0.114(SW1-2)	0.315 (SW3-1)	10	15	-	0.238-0.557	No	None	None	
NO <sub>3</sub> -N	0.036 (SW1-2)	0.082 (SW1-2)	0.9	0.9	-	0.036-0.051	No	None	None	
NH <sub>4</sub> <sup>+</sup> -N	0.015 (SW2-2)	0.029 (SW3-1)	0.3	0.5	-	0.038-0.064	No	None	None	
PO <sub>4</sub> <sup>3</sup> -P	15.7 (SW3-2)	28.2 (SW3-1)	-	-	-	25.6-98.4	No	None	None	
Turbidity	0.14 (SW3-2)	0.24 (SW1-1)	1	1	-	NDT	No	None	None	
Oil&grease	49 (SW1-2)	270 (SW3-1)	7500	10000	-	20-150	No	None	None	
Coliform										

\*1 Please attach the list of results of all monitoring points.

\*2 National Technical Regulation for surface water quality QCVN 08MT:2015/BTNMT. \*\* Unit: N/A for pH, MPN/100ML for coliforms

\*3 Japan Standards for river water quality (Class C)

\*4 The Baseline data is the measured data in 2014 (dry season).

\*5 The location of the monitoring points shall be attached to this form.

## 5. Groundwater quality

Parameter	Result (mg/L) <sup>*1</sup>	Limited values <sup>*2</sup> (mg/L) <sup>**</sup>	Reference Standard <sup>*3</sup> (mg/L)	Baseline <sup>*4</sup> (mg/L)	Action required (Y/N)	Contractor's action taken	Date/ Location <sup>*5</sup>
pH	6.88	5.5-8.5	-	7.48	No	None	<b>Date:</b> 20 <sup>th</sup> Mar 2018 <b>Location:</b> Wells of residents, along with alignment, 200-300m from the central line on western bank (Nha Be district)
COD	1.28	4	-	1.3	No	None	
TDS	-	1500	-	<2	No	None	
NH <sub>4</sub> <sup>+</sup> -N	0.043	1	-	0.043	No	None	
NO <sub>2</sub> -N	NDT	1	-	NDT	No	None	
NO <sub>3</sub> -N	0.119	15	-	0.062	No	None	
PO <sub>4</sub>	-	-	-	-	No	None	
Fe	0.069	5	-	0.043	No	None	
Al	0	-	-	0	No	None	
As	0	0.05	-	0	No	None	
Mn	0.053	0.5	-	0.036	No	None	
Zn	0.014	3	-	0.027	No	None	
EC	131	-	-	1617	No	None	
Hardness	-	500	-	-	No	None	
oil	0	-	-	0	No	None	
E. Coli	0	0	-	0	No	None	

\*1 Please attach the list of results of all monitoring points

\*2 National Technical Regulation for surface water quality QCVN 09MT:2015/BTNMT. \*\* Unit: N/A for pH, MPN/100ML for coliforms



\*3 Japan Ground Water Environmental Standard (1999) as a specified Reference Standard is not available.

\*4 The Baseline data is the measured data in 2014 (dry season).

\*5 The location of the monitoring points shall be attached to this form.

## 6. Waste Water

Parameter	Result (mg/L)*1		Limited values*2 (mg/L)**		Reference Standard*3 (mg/L)	Baseline*4 (mg/L)	Action required (Y/N)	Contractor's action taken		Date/ Location*5
	domestic	Industrial	domestic	Industrial				Contractor's action taken	Contractor's action taken	
pH	7.06 (WW1)	8.54 (WW2)	5-9	5.5-9	-	-	No	None	None	<b>Date:</b> 19 <sup>th</sup> -20 <sup>th</sup> Mar 2018 <b>Location:</b> <b>WW1:</b> Clarifier outlet of concrete batching plant (Nha Be side) <b>WW2:</b> Clarifier outlet of concrete batching plant (Can Gio side) <b>WW3:</b> Worker camp (Nha Be side)
BOD	11 (WW3)	42 (WW2)	50	50	-	-	No	None	None	
TSS	17 (WW1)	56 (WW2)	100	-	-	-	No	None	None	
TDS	-	-	1000	-	-	-	No	None	None	
H2S	-	-	-	Not difficult bear	-	-	No	None	None	
NH <sub>3</sub> -N	1.45 (WW1)	1.83 (WW2)	10	10	-	-	No	None	None	
NO <sub>3</sub> -N	-	-	50	-	-	-	No	None	None	
PO4-P	-	-	10	-	-	-	No	None	None	
Oil & Grease	0.21 (WW3)	2.34 (WW2)	-	-	-	-	No	None	None	
T. Coliform	40 (WW1)	930 (WW2)	5000	5000	-	-	No	None	None	

\*1 Please attach the list of results of monitoring sites;

A. at construction site; at least 01 ample at discharging point of each concrete batching plant,

B. Workers camp; at least 01 sample at discharging point of septic tank of each workers camp

\*2 National Technical Regulation on domestic waste water QCVN 14:2008/BTNMT. National Technical Regulation on industrial waste water QCVN 24:2009/BTNMT.

\*\* Unit: N/A for pH, MPN/100ML for coliforms

\*3 Japan Ground Water Environmental Standard (1999) as a specified Reference Standard is not available.

\*4 The Baseline data is the measured data in 2014 (dry season).

\*5 The location of the monitoring points shall be attached to this form.

## 7. Waste

Monitoring Item	Monitoring Results during Reporting Period		Disposal Method
	Creating volume (kg/week)	Collecting Proportion (%)	
<b>Domestic waste</b>			
Organic component	32.5	100%	- Contracting with functional unit
Inorganic Component	110	100%	- Separated storage area
Reusable Component	52.5	80%	Separated storage area - Concrete wasted from batching plant is used for surface leveling. - Steel is just recycled partially, the rest

				will be given to demanding units	
<b>Hazardous waste</b>					
Oily waste	3.5	100%	Separated storage area	Not yet	
Asbestos waste	0	0%			
Waste contaminated by heavy metals	0	0%			

\*Solid and hazardous wastes disposal monitoring will be carried out at all work sites.

### 8. Environmental Incidents During Reporting Period (if relevant)

Environmental Incidents (accidents, spills, complaint)	Date / Location	Reported by	Description	Action Taken	Further Action Required
Accidents	None				
Oil/Chemical spills	None				
People Complaint	None				
....					
.....					
.....					

### 9. Natural environment monitoring: Will be implemented by CSC

Aquatic Organism Monitoring	Site 1	Site 2	Site 3	Site 4	Assessment	Action Taken
<b>Aquatic organism</b>						
Location	Long Tau Upstream (GIS point)	Long Tau Downstream (GIS point)	Soai Rap upstream (GIS point)	Soai Rap downstream (GIS point)		
Frequency	annually					
Species composition						
Density and Bio- indexes of planktons, Benthos						
Density of predominant species (Individuals/m <sup>2</sup> )						
Species diversity measured by Shannon Weaver index						



**10. Natural environment monitoring (Mangrove) \*: Will be implemented by CSC**

Mangroves and Wild terrestrial animals Monitoring	Site 1	Site 2	Assessment	Action Taken
<b>Mangroves Monitoring</b>				
Location	Phuoc Khanh commune (Can Gio district) annually	Thi Vai river bank (Dong Nai province) annually		
Frequency				
Date				
Total area (ha) of reforestation				
Biomass of mangroves (kg/m <sup>2</sup> )				
Density of predominant species (individuals/m <sup>2</sup> )				
Species diversity measured by Shannon Weaver index				
Average height and stem diameter				
Wild terrestrial animals (species composition and density)				
Aquatic organisms (planktons, fish; species composition, density and Bioindexes)				

\* In case there is any report of monitoring result which covers all monitoring parameters shown above, it is acceptable to attach the report to this form instead of filling this table.

Signature

: NGUYEN QUOC LUAN

Notes:

Attachment:

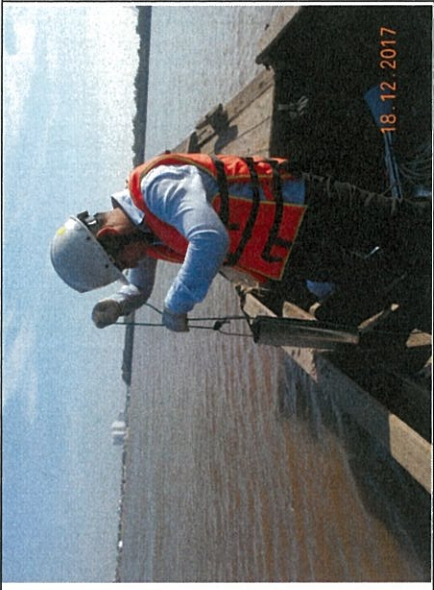
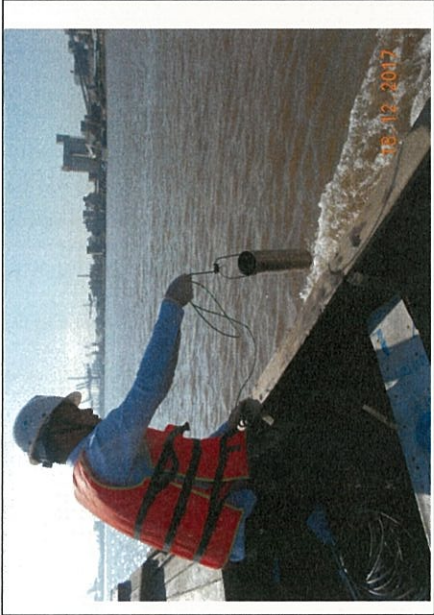

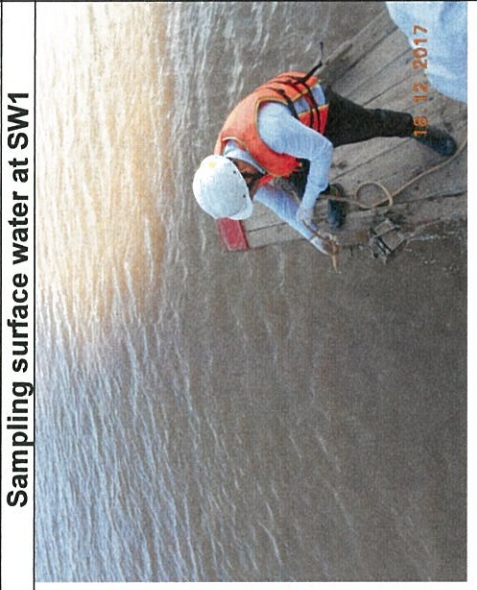
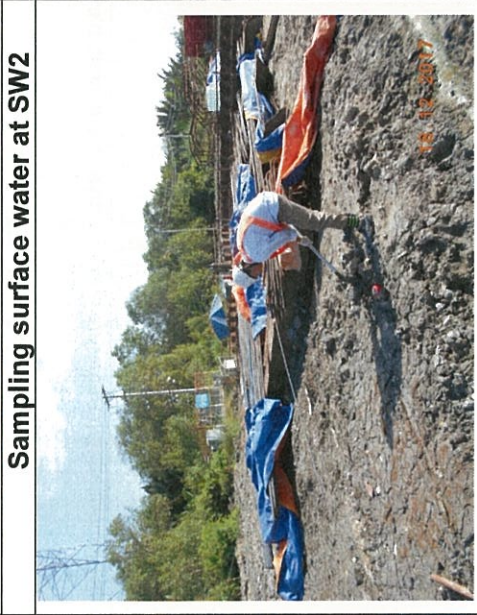
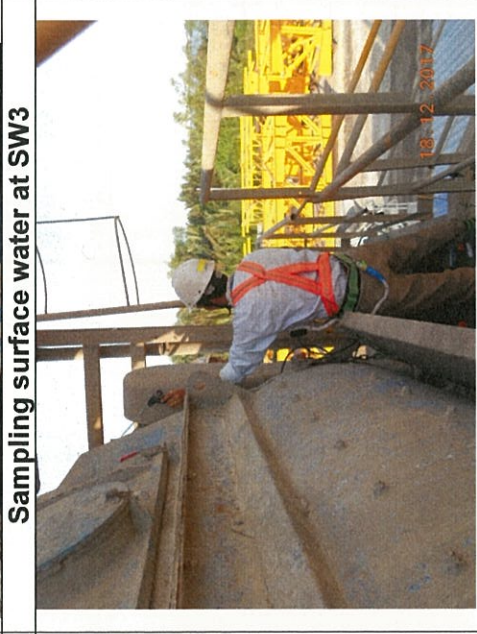
1. Pictures captioned on construction site
2. Location of sampling points



**ATTACHMENT:**

**Attachment 1**

**PICTURES OF SAMPLING SURFACE WATER, SOIL, EMISSION, WASTEWATER, UNDERGROUND WATER – J1 PACKAGE.**

		
		
<p><b>Sampling surface water at SW1</b></p>	<p><b>Sampling surface water at SW2</b></p>	<p><b>Sampling surface water at SW3</b></p>
<p><b>Sampling sediment</b></p>	<p><b>Sampling soil</b></p>	<p><b>Sampling emission</b></p>





**Sampling waste water at WW1**



**Sampling waste water at WW2**



**Sampling waste water at WW3**



**Sampling underground water**



**Ambient air sampling at A1**



**Ambient air sampling at A1- Night time**





**Ambient air sampling at A2**



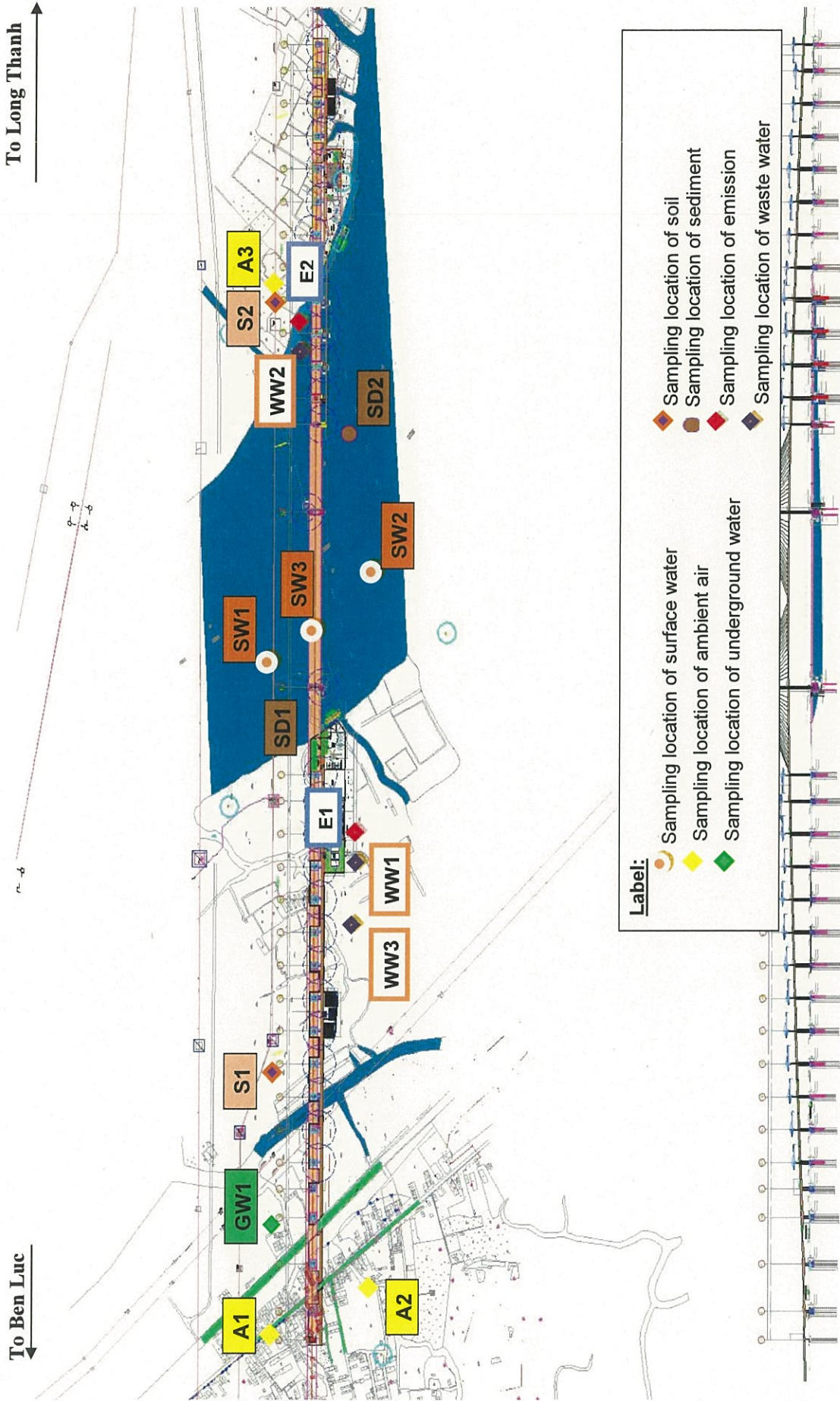
**Ambient air sampling at A3**



**Ambient air sampling at A3 – Night time**



# Attachment 2: Sampling location diagram



To Ben Luc

To Long Thanh

