## ANNEX 4 FORM OF MONITORING RESULTS SHEET FOR SUBMITTING TO JICA (J1 PACKAGE)

**Project:** Greater Mekong Subregion (GMS) Ben Luc - Long Thanh Expressway Project

**Implementing Agency:** Vietnam Expressway Corporation (VEC)

**Sub-Project:** Package J1

**Supervision Consultant:** KEI-DNE-OCG-TEDI JV

**Location:** J1 Construction site

**Contractor(s):** J1 Contractor Shimizu-VNCN E&C JO

**Date:** April 2025

**Environmental Monitoring Sub-contractor:** CEECO

**Reporting Period:** 1st Quarter 2025

**Implementation Phase:** Construction

### Contractor(s)

| Contractor(s)' Environmental Awareness | Yes/No | Actions Required | Contractor Response / Comment |
|---|---|---|---|
| Contractor(s) is/are aware of mitigation requirements? | Yes | No | |
| Contractor(s) have a copy of EMP? | Yes | No | |

### 1. Mitigation Measure Compliance

| Impact/ Mitigation Measure (From EMP) | Mitigations Implemented (Yes/No) | Mitigations Effective?* | Impact Observed/ Location | Action Required | Contractor Response/ Comment | Endorsed by: | |
|---|---|---|---|---|---|---|---|
| | | | | | | Implementing Agency | Monitoring Agency |
| 1. Completion of detailed design in accordance with EMP requirements | Yes | 1 | | No | No | | |
| 2. Preparation of tender document included detailed requirements in pollution control and protection of natural ecosystems. | Yes | 1 | | No | No | | |
| 3. Proper preparation of CEMP by contractors | Yes | 1 | | No | No | | |
| 4. Evidence of marking of work site boundaries | Yes | 1 | | No | No | | |
| 5. No cutting trees outside the project ROW | Yes | 1 | | No | No | | |
| 6. Replanting vegetation damaged by site clearance | No site clearance | | | No | No | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7. No dumping of all kinds of wastes and cut trees in rivers, canals, ponds and field | Yes | 2 | | No | No | | |
| 8. General site condition and cleanliness | Yes | 1 | | No | No | | |
| 9. Covering of all trucks moving to and from site | Yes | 2 | | No | No | | |
| 10. Watering road, construction site on rainless day | Yes | 1 | | No | No | | |
| 11. Registration papers and compliance certificates of construction vehicles with Vietnam Automobile Registration Authority. Certification of environmental emissions standards. | Yes | 1 | | No | No | | |
| 12. Installation of temporary waste storage areas at each construction site including segregation of hazardous and non-hazardous wastes. | Yes | 2 | | No | No | | |
| 13. Sanitation conditions at construction camps, included sewage treatment facilities (toilets), domestic solid wastes management, storage etc. | Yes | 1 | pH at sedimentation tank at CBP at the time of monitoring is too high (12). | Yes. Neutralization of alkaline wastewater is needed | No | | |
| 14. Clean water and safe food supply for workers | Yes | 2 | | No | No | | |
| 15. Requirements for vegetation waste (cut trees) burning met | No burning of waste vegetation | 2 | | No | No | | |
| 16. Proper organization of material transport to minimize environmental pollution and community disturbance | Yes | 2 | | No | No | | |
| 17. Condition and effectiveness of erosion controls | Yes | 2 | | No | No | | |
| 18. Condition and effectiveness of construction waste management | Yes | 2 | | No | No | | |
| 19. Evidence of soil and/or water acidification due to leakage of acidic water from construction site to surrounding field, canals | No leakage of water from site | 1 | | No | No | | |
| 20. Evidence of direct or indirect disturbance of mangroves and other vegetation outside defined | No disturbance on outside vegetation | 1 | | No | No | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| worksite boundaries | | | | | | | |
| 21. Stabilization, rehabilitation and landscaping of all land surfaces affected by construction activities | Yes | 2 | | No | No | | |
| 22. Installation of noise and dust control walls | Yes | 1 | | No | No | | |
| 23. Dust generation during windy conditions | Yes | 1 | | No | No | | |
| 24. Number and type of community complaints on environmental issues received | No complaints received | | | No | No | | |
| 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 applicable during construction phase | | | No | No | | |

*Mitigation Effectiveness Rating Criteria (Indicative examples)

1 Very good (all required mitigations implemented)
2 Good (the majority of required mitigations implemented)
3 Fair (some mitigations implemented)
4 Poor (few mitigations implemented)
5 Very Poor (very few mitigations implemented)

## 2. Ambient Monitoring (J1 package)

| Parameter | Measured by | Monitoring Equipment | Result | Standard µg/Nm3 | % Exceedance | Action Required | Contractor Responses/ Comments | Endorsed by: | | Date/ Location |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Implementing Agency | Monitoring Agency | |
| $SO_2$ | CEECO | SKC 224-PCXR8 | <78 | 350 | | No | No | | | **Date:** 07/03/2025 **Locations:** A1, A2, A3 |
| $NO_x$ | CEECO | SKC 224-PCXR8 | 41-72 | 200 | | No | No | | | |
| CO | CEECO | SKC 224-PCXR8 | <15,000 | 30,000 | | No | No | | | |
| TSP | CEECO | RIDECO | 85-211 | 300 | | No | No | | | |
| PM10* | Sent to subcontractor | | 25-31 | 100 | | No | No | | | |

***Average of 24 hours

## 3. Noise and vibration (J1 package)

| Parameter | Measured by | Monitoring Equipment | Result | Standard | % Exceedance | Action Required | Contractor Responses/ Comments | Endorsed by: | | Date/ Location |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Implementing Agency | Monitoring Agency | |
| Noise | CEECO | RION | 48.5-69.9 | 6:00-21:00 70 dBA | No | No | | | | **Date:** 07/03/2025 **Locations:** A1, A2, A3 |
| | CEECO | RION | 44.6-52.4 | 21:00-06:00 55 dBA | No | No | | | | |
| Vibration | CEECO | RION VM-83 | 36.7-47.1 | 6:00-21:00 75 dB | No | No | | | | |
| | CEECO | RION-83 | Background level | 21:00-06:00 Baseline Level | No | No | | | | |

## 4. Emissions

| No. | Content | Unit | Result | QCVN 19: 2009/BTNMT |
|---|---|---|---|---|
| | | | E1 | |
| 1 | Dust | $mg/Nm^3$ | 28.7 | **200** |
| 2 | $SO_2$ | $mg/Nm^3$ | <3 | **500** |
| 3 | $NO_x$ | $mg/Nm^3$ | 14 | **850** |
| 4 | CO | $mg/Nm^3$ | 32 | **1000** |

*Note: QCVN 19:2009/ BTNMT: National technical regulation on industrial emissions of dust and inorganic substances.*

## 5. Surface water quality (J1 package):

**Date:** 07/03/2025
**Locations:** SW1, SW2, SW3
Measured by: CEECO

| TT | Thông số | Đơn vị | Kết quả | | | | | | QCVN 08-2023 | | | | % Exceedance | Action required | Contractor Responses / | Endorsed by | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SW1 | | SW2 | | SW3 | | | | | | | | | Implementing | Implementing |
| | | | High time | Low tide | High time | Low tide | High time | Low tide | Level A | Level B | Level C | Level D | | | | | |
| 1 | pH | - | 7.80 | 7.17 | 7.78 | 7.35 | 7.74 | 7.30 | **6.5-8.5** | **6.0-8.5** | **6.0-8.5** | **< 6.0 or > 8.5** | No | No | No | | |
| 2 | DO | mg/L | 5.31 | 5.26 | 5.34 | 5.23 | 5.29 | 5.18 | **≥ 6.0** | **≥ 5.0** | **≥ 4.0** | **≥ 2.0** | No | No | No | | |
| 3 | Turbidity | NTU | 106 | 104 | 14.7 | 13.6 | 20.9 | 21.2 | **-** | **-** | **-** | **-** | No | No | No | | |
| 4 | EC | mS/cm | 20900 | 14000 | 20700 | 14510 | 21300 | 15980 | **-** | **-** | **-** | **-** | No | No | No | | |
| 5 | TSS | mg/L | 34 | 40 | 19 | 22 | 25 | 27 | **≤ 25** | **≤ 100** | **>100 and none floating garbage** | **>100 and having floating garbage** | No | No | No | | |
| 6 | $BOD_5$ | $mgO_2/L$ | 8 | 9 | 7 | 8 | 7 | 8 | **≤ 4** | **≤ 6** | **≤ 10** | **> 10** | No | No | No | | |
| 7 | COD | $mgO_2/L$ | 18 | 20 | 15 | 17 | 16 | 17 | **≤ 10** | **≤ 15** | **≤ 20** | **> 20** | No | No | No | | |
| 8 | $NO_2^-$ (as N) | mg/L | 0.017 | <0.015 | <0.015 | <0.015 | <0.015 | <0.015 | - | - | - | - | No | No | No | | |
| 9 | $NO_3^-$ (as N) | mg/L | 0.206 | 0.199 | 0.129 | 0.136 | 0.162 | 0.157 | **-** | **-** | **-** | **-** | No | No | No | | |
| 10 | $PO_4^{3-}$ (as P) | mg/L | 0.11 | 0.10 | <0.06 | <0.06 | <0.06 | <0.06 | - | - | - | - | No | No | No | | |
| 11 | Asen (As) | mg/L | NDT MDL=0.0003 | NDT MDL=0.0003 | NDT MDL=0.0003 | NDT MDL=0.0003 | NDT MDL=0.0003 | NDT MDL=0.0003 | **-** | **-** | **-** | **-** | No | No | No | | |
| 12 | Zinc (Zn) | mg/L | <0.06 | <0.06 | NDT MDL=0.02 | NDT MDL=0.02 | NDT MDL=0.02 | NDT MDL=0.02 | **-** | **-** | **-** | **-** | No | No | No | | |
| 13 | Iron (Fe) | mg/L | 0.324 | 0.348 | <0.12 | <0.12 | <0.12 | <0.12 | - | - | - | - | No | No | No | | |

| TT | Thông số | Đơn vị | Kết quả | | | | | | QCVN 08-2023 | | | | % Exceedance | Action required | Contractor Responses / | Endorsed by | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SW1 | | SW2 | | SW3 | | | | | | | | | Implementing | Implementing |
| | | | High time | Low tide | High time | Low tide | High time | Low tide | Level A | Level B | Level C | Level D | | | | | |
| 14 | Total oil & grease | mg/L | NDT MDL=1.0 | NDT MDL=1.0 | NDT MDL=1.0 | NDT MDL=1.0 | NDT MDL=1.0 | NDT MDL=1.0 | - | - | - | - | No | No | No | | |
| 15 | Coliform | MPN/100mL | 560 | 920 | 600 | 830 | 560 | 910 | ≤ 1.000 | ≤ 5.000 | ≤ 7.500 | > 7.500 | No | No | No | | |

*Note: "NDT": Not detected; "MDL": Minimum detectable level, QCVN 08:2023/BTNMT: National technical Regulation on Surface Water Quality.*

***- Level A**: Good water quality. Aquatic ecosystems have high dissolved oxygen (DO) content. Water can be used for domestic water supply. swimming. and water play purposes after applying appropriate treatment measures.*

***- Level B:** Average water quality. Domestic ecosystems consume a lot of dissolved oxygen due to large amounts of pollutants. Water can be used for industrial and agricultural production purposes after applying appropriate treatment measures.*

***- Level C:** Poor water quality. Domestic ecosystems have a sharply reduced amount of dissolved oxygen due to containing a large amount of pollutants. The water does not cause unpleasant odors and can be used for industrial production purposes after applying appropriate treatment measures.*

***- Level D:** Water quality is very poor. can greatly affect fish and other organisms living in the water environment due to low dissolved oxygen concentration and high pollutant concentration.*

*QCVN 08:2023/BTNMT takes effect from September 12$^{th}$. 2023. replacing QCVN08-MT:2015/BTNMT. Environmental consultants will focus on evaluating the parameters in Table 2. Limit values of parameters in surface water Serves for classifying the water quality of rivers. streams. canals. ditches. slits. and ditches and protecting aquatic habitats.*

## 6. Groundwater quality

Samples were not collected because the wellbore in residential area in previous monitoring period was destroyed.

## 7. Waste water quality (J1 package)

| Parameter | Measured by | Monitoring Equipment | Result | | Standard | | % Exceedance | Action Required | Contractor Responses / Comments | Endorsed by: | | Date/ Location |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | WW 1 | WW 3 | B 1 | B2 | | | | Implementing Agency | Monitoring Agency | |
| pH | CEECO | | 12.29 | **7.9** | 5-9 | 5-9 | 130 | Yes | No | | | **Date:** 07/03/2025 **Locations:** WW1. WW3 |
| BOD ($mgO_2/L$) | CEECO | | 32 | 15 | 30 | 50 | No | No | No | | | |
| TSS (mg/L) | CEECO | | 80 | 17 | 50 | 100 | No | No | No | | | |
| $H_2S$ (mg/L) | CEECO | | NDT MDL=0.0 | NDT MDL=0.03 | 1 | 4 | No | No | No | | | |
| $N\text{-}NO_3^-$ (mg/L) | CEECO | UV-VIS spectrophotometer | NDT MDL=0.0 | 1.11 | 30 | 50 | No | No | No | | | |
| $P\text{-}PO_4^{3}$(mg/L) | CEECO | UV-VIS spectrophotometer | 0.063 | 0.09 | 6 | 10 | No | No | No | | | |
| Total Oil and Grease (mg/L) | CEECO | | NDT MDL=1.0 | NDT MDL=1.0 | 10 | 20 | No | No | No | | | |
| Coliforms (MPN/100mL) | CEECO | | 1500 | 1300 | 3000 | 5000 | 300% | No | No | | | |
| NDT: Not detected | | | | | | | | | | | | |

## 8. Soil quality (J1 package)

| Parameter | Measured by | Monitoring Equipment | Result | | Standard (mg/kg) | | | % Exceedance | Action Required | Contractor Responses / Comments | Endorsed by: | | Date/ Location |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | S1 | S2 | Residential land | Agri. land | Forest land | | | | Implementing Agency | Monitoring Agency | |
| Asen (As) mg/kg | CEECO | AAS | <1.65 | <1.65 | 12 | 12 | 12 | No | No | No | | | **Date:** 07/03/2025 **Locations:** S1. S2 |
| Cadimi | CEECO | AAS | NDT | NDT | 2 | 2 | 5 | No | No | No | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (Cd) mg/kg | | | MDL =0.3 | MDL =0.3 | | | | | | | | | |
| Lead (Pb) mg/kg | C EECO | AAS | <10.5 | 16.7 | 50 | 70 | 70 | No | No | No | | | |
| Copper (Cu) mg/kg | CEECO | AAS | 12.83 | 15.74 | 70 | 100 | 120 | No | No | No | | | |
| Zinc (Zn) mg/kg | CEECO | AAS | 51.5 | 59.7 | 200 | 200 | 200 | No | No | No | | | |
| Iron (Fe) % | CEECO | AAS | 2.24 | 2.38 | Baseline level | Baseline level | Baseline level | | | | | | |
| NDT: Not detected | | | | | | | | | | | | | |

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

| Environmental Incidents (accidents. spills. complaint) | Date / Location | Reported by | Description / Location | Action Taken | Further Action Required | Endorsed by: | |
|---|---|---|---|---|---|---|---|
| | | | | | | Implementing Agency | Monitoring Agency |
| **Accidents** | No | | | No | No | | |
| **Oil/Chemical spills** | No | | | No | No | | |
| **People Complaint** | No | | | No | No | | |

## 10. Natural environment monitoring (for whole project):

| Mangroves and Aquatic Organism Monitoring | Date / Location | Reported by | Assessment | Action Taken | Further Action Required | Endorsed by: | |
|---|---|---|---|---|---|---|---|
| | | | | | | Implementing Agency | Monitoring Agency |
| **Mangroves Monitoring** | | | | | | | |
| Total area (ha) at each site. | Mangrove areas at Phuoc Khanh commune (Can Gio district) and at Thi Vai river bank (Dong Nai province) | | | | | | |
| Biomass of mangroves (kg/$m^2$) | | | | | | | |
| Density of predominant species (individuals/$m^2$) | | | | | | | |
| Species diversity measured by Shannon-Weaver index | | | | | | | |
| Average height and stem diameter | | | | | | | |
| Wild terrestrial animals (species composition and density) | | | | | | | |
| **Aquatic organisms Monitoring** | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Phytoplankton: species composition. density and Bio-indicators | Long Tau. Soai Rap and Thi Vai rivers | | | | | | |
| Zooplanktons: species composition. density and Bio-indicators | | | | | | | |
| Benthos: species composition. density and Bio-indicators | | | | | | | |

## 11. Summary of Actions Required and Follow-up (if relevant)

| **Action Required** | **Timeframe** (e.g. within one week) | **Responsible Parties** | **Follow-up** (to be completed if inspection/monitoring indicates actions are required) |
|---|---|---|---|
| Take action to neutralize the pH at batching station sedimentation tank. Make sure that the water from this tank does not contact with natural water. | Everytime the concrete truck being cleaned up by water. | The Contractor | **Required Action Taken:** |
| | | | **Effectiveness:** |
| | | | **Further Action Required?:** |
| | | | **Prepared by:** |
| | | | **Date:** |

**Inspection Completed by:** NGUYEN TRINH MINH ANH **Date:** April 14th, 2025

**Signature:**

**Notes:**

**Annex 1: Description of sampling locations**

**Phụ lục 1: Mô tả vị trí lấy mẫu**

| No | Symbol | Coordinates | | Description |
|---|---|---|---|---|
| | | N | E | |
| **Air, noise and vibration (*)** | | | | |
| 1 | A1 | 10°39'43.0" | 106°43'52.2" | Construction site office area between the package - Nha Be bank |
| 2 | A2 | 10°39'49.8" | 106°43'39.9" | Household area at Sta: (Km 22+100.00) – nearly the gate of construction site on Road No. 01 - Nearly the intersection with Nguyen Van Tao street |
| 3 | A3 | 10°39'44.9" | 106°44'2.5" | The Northern residential area of the package is nearly construction yard of Pier P19 - Nha Be Bank |
| | | | | |
| **Emission (If any) (**)** | | | | |
| 1 | E1 | 10°39'37.6" | 106°44'7.7" | Concrete batching plant (Nha Be side) |
| **Surface water** | | | | |
| 1 | SW1 | 10°39'44.6" | 106°44'16.9" | Soai Rap river - 500m upstream of Binh Khanh bridge |
| 2 | SW2 | 10°39'30.9" | 106°44'23.8" | Soai Rap river - 500m downstream of Binh Khanh bridge |
| 3 | SW3 | 10°39'20.9" | 106°44'30.7" | Binh Khanh bridge construction area - Soai Rap river |
| **Sediment (***)** | | | | |
| 1 | SD1 | - | - | - |
| 2 | SD2 | - | - | - |
| **Underground water (If any) (***)** | | | | |
| 1 | GW1 | - | - | - |
| **Soil Quality (****)** | | | | |
| 1 | S1 | 10°39'44.2" | 106°43'51.2" | Pier P10 at Sta: (Km22+400.00) |
| 2 | S2 | 10°39'38.6" | 106°44'7.6" | Area nearly construction yard of Pier P19 |
| **Waste water (****)** | | | | |
| 1 | WW1 | 10°39'36.7" | 106°44'7.8" | Clarifier outlet of concrete batching plant (Nha Be side) |
| 2 | WW3 | 10°39' 36.7" | 106°44'5.6" | Worker camp (Nha Be side) |

Note:

- (*) *Sampling locations are changed at residential area nearly construction areas are working according to Letter No. BLLT/C5/J1/SV-770 dated December 16, 2023 of Shimizu - VNCN E&C Joint Venture. Location A2 - coincides with uEMP's monitoring program and should be maintained.*
- *(**) According to Letter No. BLLT/C5/J1/SV-770 dated December 16, 2023 of the Shimizu - VNCN E&C Joint Venture, the Nhon Trach Shore Emissions location is not being implemented.*
- *(***)Sediment and groundwater were collected to assess the impact of the construction process on the potential release of pollutants into surface water sources and underground aquifers, especially during bored pile drilling. However, the drilling process has now ended, so sediment and underground water monitoring is temporarily suspended to suit the actual situation and uEMP 2022.*
- *(****) According to Letter No. BLLT/C5/J1/SV-770 dated December 16th, 2023, the wastewater location of batching plant on Nhon Trach bank is not collected.*
  *According to Letter No. BLLT/C5/J1/SV-770 dated December 16th, 2023, Aquatic quality is not implemented*

**Annex 2: Pictures of ambient air. noise and vibration sampling**

**Phụ lục 2: Hình ảnh thu mẫu khí. đo tiếng ồn và độ dung**

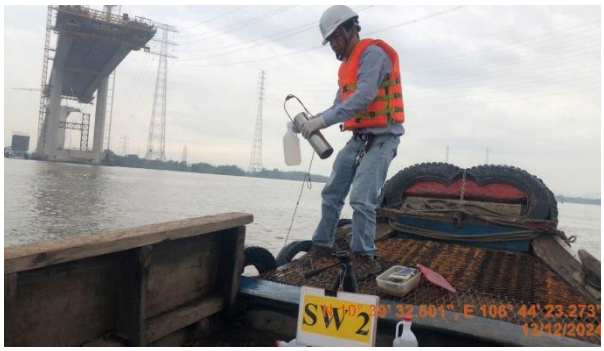
**A1: Day time/ Ban ngày**

**A2: Day time/ Ban ngày**

**A3: Day time/ Ban ngày**

**Annex 3: Pictures of surface water. soil. and wastewater sampling**
**Phụ lục 3: Hình ảnh thu mẫu nước mặt. đất. và nước thải**

**Surface water sampling at SW1 /**
**Thu mẫu nước mặt tại SW1**




**Surface water sampling at SW2 /**
**Thu mẫu nước mặt tại SW2**

**Surface water sampling at SW3 /**
**Thu mẫu nước mặt tại SW3**

**Soil sampling S1 /**
**Thu mẫu đất S1**

**Soil sampling S2 / Thu mẫu đất S2**

**Wastewater sampling at WW1 /**
**Thu mẫu nước thải tại WW1**

**Wastewater sampling at WW3 /**
**Thu mẫu nước thải tại WW3**

**Emission sampling at E1/**
**Thu mẫu khí thải tại E1**

## Annex 4: Sampling location diagram