

Environmental Monitoring Report

Semi-Annual Report no. 10
For the period covered July-December 2021
Project Numbers: 47381-002, 47381-005
March 2022

Sri Lanka: Mahaweli Water Security Investment Program – Tranches 1 and 2

North Central Province Canal Project (previously Upper Elahera Canal Project)

Prepared by Ministry of Irrigation with the assistance of Program Management, Design and Supervision Consultant (Joint Venture Tractebel Engineering GmbH – GeoConsult ZT GmbH) for Democratic Socialist Republic of Sri Lanka and the Asian Development Bank.

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Mahaweli Water Security Investment Program

Semi Annual Environmental Monitoring Report (SAEMR) No. 10 (July to December 2021) for North Central Province Canal Project (NCCPCP)



**Ministry of Irrigation
Sri Lanka**



March 2022
Final Report

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ABBREVIATIONS

ADB	Asian Development Bank
AIS	Alien Invasive Species
BOQ	Bill of Quantities
CEA	Central Environmental Authority
CECB	Central Engineering Consultancy Bureau
CS	Cross Section
D&B	Drill and Blast
D/S	Down Stream
DS	Divisional Secretary
DWC	Department of Wildlife Conservation
EARF	Environmental Assessment Review Framework
ECP	Environmental Contingency Plan
EEAP	Environmental Emergency Action Plan
EEP	Emergency Environmental Plan
EHS	Environment Health & Safety
EIA	Environmental Impact Assessment
EIR	Environment Incident Records
EMP	Environmental Management Plan
EMS	Environmental Method Statements
	Environmental Monitoring Specialist
E-NCR	Environment Noncompliance Records
EO	Environmental Officer
EPL	Environmental Protection License
FAM	Facility Administration Manual
FD	Forest Department
GN	Grama Niladhari
GoSL	Government of Sri Lanka
GRC	Grievance Redress Committee
GSMB	Geological Survey and Mines Bureau
HSO	Health & Safety Officer
ICB	International contractor bidding
IML	Industrial Mining License
KMTC	Kaluganga Moragahakanda Transfer canal
LS	Longitudinal Section
MASL	Mahaweli Authority of Sri Lanka
MLBCRP	Minipe Left Bank Canal Rehabilitation Project
MMDE	Ministry of Mahaweli Development and Environment
MoU	Memorandum of Understanding
MRB	Mahaweli River Basin
MWSIP	Mahaweli Water Security Investment Program
NATM	New Austrian Tunnelling Method
NCB	National Contractor bidding
NWPCP	North Western Canal Project
PD	Program Director/Project Director
PHI	Public Health Officer
PIU	Project Implementation Unit
PMDSC	Project Management Design Supervision Consultant
PMU	Program Management Unit
PSO	Provisional Sum Order
RE	Resident Engineer
RFO	Regional Forest Officer
RHS	Right Hand Side
SAEMR	Semi Annual Environmental Monitoring Report
SEO	Senior Environmental Officer
SPS	Safeguard Policy Statement
STC	State Timber Cooperation
T1 and T2	Tunnel 1 and Tunnel 2
TBM	Tunnel Boring Machine
UECP	Upper Elahera Canal Project
WMP	Wildlife Management Plan

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1 INTRODUCTION

1.1 Scope of the Report

1. This Semi-Annual Environmental Monitoring Report (SAEMR) No. 10 is prepared to update the progress of North Central Province Canal Project (NCPCP) (formerly called as Upper Elahera Canal Project (UECP)) with respect to environmental safeguard aspects for the period of July to December 2021, which fulfils the Asian Development Bank (ADB) requirement to submit a SAEMR to ADB and Central Environmental Authority (CEA) for the “Category A” projects as documented in FAM¹ and EARF.²

2. The purpose of this report is to ensure that the Project is implemented with due concern for environmental and social safeguards according to the ADB's Safeguard Policy Statement (SPS) 2009, and specifically to ensure that these issues are adequately addressed in compliance with the requirements of ADB. Further, this report is to assess the progress with implementation of the program in complying with the approved Environmental Impact Assessment (EIA) including Addendum to the EIA: UECP Tranche 1 packages (August 2017) and Environmental Management Plan (EMP)³ as per the stipulation No. 14.3 of the EIA approval No. 08/EIA/WATER/07/2012 issued by CEA on 23 February 2016, renewed approval by CEA on 11.03.19 by Letter Ref. Ref.08/EIA/Water/07/2012/ Vol 3, and approval for the addendum (Ref.08/EIA/Water/07/2012/Vol 2 dated 11 April 2018).

3. This SAEMR is prepared addressing the following aspects, based on the available information as of the monitoring period from July to December 2021:

- (i) Background/context of the monitoring report (adequate information on the project, including physical progress of project activities, scope of monitoring report, reporting period, and the monitoring requirements including frequency of submission as agreed upon with ADB);
- (ii) Changes in project scope and adjusted safeguard measures.
- (iii) Qualitative monitoring data;
- (iv) Monitoring results compared against previously established benchmarks and compliance status (e.g., obtaining necessary approvals for establishment of certain facilities, national environmental emission and ambient standards and/or standards set out in the ADB's EHS guidelines; timeliness and adequacy of environmental mitigation measures; and training, capacity building, etc.);
- (v) Corrective action plan in any case of non-compliance or any major gaps identified;
- (vi) Proposed items of focus for the next reporting period and due date.

4. This SAEMR for NCPCP is prepared by the Environmental Specialist of PMDSC based on the monthly monitoring and progress reports received from the Environmental Monitoring Specialists (EMS), and the updates that were received from the Environmental Specialist of PMU and Senior Environmental Officer for PIU of NCPCP.

¹ Paragraph 60 of Facility Administration Manual (FAM), June 2015 prepared by MMDE.

² Paragraph 111 of Environmental Assessment Review Framework (EARF) November 2014 (updated in June 2017) by MMDE.

³ Environmental Impact Assessment Report (EIAR) dated June 2015 and approved by CEA on 31.03.2016.

1.2 Current status of NCPCP

1.2.1 Progress of active construction packages under NCPCP

5. There are two contracts financed under MWSIP Tranche 1 and 2 for which construction work started: UECP-ICB-1, UECP-ICB-2A and UECP-ICB-2B.

6. The UECP-ICB 1 contract has been abandoned. The PIU of the NCPCP has made a special arrangement to ensure the safety of the UECP-ICB-1 site to comply the safeguards aspects through (i) the establishment of the new electrical fences for protect the big animal from accident falling to the deep excavation, (ii) covering the openings of the conduits to avoid animals' entry inside the conduits, and (iii) the establishment the security points to avoid the unauthorized entering

7. Key details related to the active construction packages in UECP-ICB-2A and UECP-ICB-2B are summarized in **Table 1-1**.

Table 1-1: Details of the NCPCP active contract packages (as of December 2021)

PACKAGE	UECP-ICB-2A	UECP-ICB-2B
Work Description	Construction of Upper Elahera Canal from 27+509 km to 55+600 km (Tunnel project)	Construction of Upper Elahera Canal, Kaluganga - Moragahakanda Transfer Canal (KMTC) 0+000 km to 8+830 km
Environmental Significance of the Project Area	<ul style="list-style-type: none"> Except for the short cut and cover sections, the UEC ICB-2A package consists of 2 contiguous tunnels (T3 and T4) that traverse through Elahera-Girithale Sanctuary, Minneriya-Girithale Nature Reserve and Hurulu Forest Reserve Lands. Tunnel 3 – 26 km and 577 m long (chainage 27+700 to 54+277 km), with overburden varying between 15 and 200 m. Tunnel 4 – 1 km and 297 m long (chainage 54+303 to 55+600 km), with overburden varying between 10 and 20 m. 	<ul style="list-style-type: none"> Except for the short open canal off taking from Kaluganga Reservoir, and two short aqueducts, the KMTC consists of 2 tunnels that traverse through Forest Department (FD) lands Tunnel 1: 1,940 m long (chainage 0+557.77 to 2+467.77 km), with overburden varying between 5 and 80 m. Tunnel 2: 6,040 m long (chainage 2+732.77 to 8+772.77 km), with overburden varying between 6 and 378 m.
Package No.	MMDE/MWSIP/ADB/UECP/ICB-2A/P47381-005SRI/ICB/2017/006	MMDE/MWSIP/ADB/UECP/ICB-2B/P47381-005-SRI/ICB/2016/026
Date of Award	15.12.2020	05.04.2018
Completion date:	As per the original program, the contract is to be completed within 51 months, i.e., by 8 June 2025	As per the original program, the contract is to be completed within 36 months, i.e., by 10 September 2021, but the Engineer's Forecast is 31 October 2022.
Name of the Contractor	M/s. China State Construction Engineering Corporation Limited	M/s. Sinohydro Corporation Limited
Address	No.33, 18 Floor, Park Land Building, Park Road, Colombo – 02	5 - 7 Floor, No. 456, R. A. De Mel Mawatha, Colombo 3.
Total Contract Value (LKR)	49,857,463,566.12	8,218,575,075.94

8. The following sections provide a brief description of the physical progress of each contract package mobilized under NCPCP as of December 2021.

1.2.2 UECP-ICB-2A

9. The scope of the construction in this package was changed from NATM to TBM excavation at the southern tunnel drive, and accordingly some areas allocated for contractor's facilities will be changed hence, an addendum for the EIA is being prepared including all relevant changes. A Contract Variation No 1 was approved in December 2021. A summary of the scope changes due to design change according to the variation is summarized as **Table 1-2** and **Figure 1-1**.

Table 1-2: UEC-ICB-2A Summary of Design Differences due to change of scope

Component	Original Design	Current Proposal	Summary Environmental implications	Environmental Investigation Work Undertaken
Tunnel construction method (Tunnel 3)	<p>Original Design</p> <p>Single TBM starting from the northern portal (as proposed in MMDE feasibility study and PPTA).</p> <p>Revised Design in Supplement 1</p> <p>Single TBM for construction of 20.2 km from the northern portal and New Austrian Tunneling Method (NATM) drill-and-blast from the southern portal (6.4 km)</p>	<p>Use of 2 x Tunnel Boring Machines (TBMs) for the excavation of 26.6 km portion of the tunnel (Tunnel 3) and a 1.1 km long Drill & Blast Tunnel between the Northern Portal (Tunnel 4) and the northern start shaft.</p> <p>The previously foreseen Drill & Blast Tunnel from the South will therefore be replaced by a TBM Tunnel.</p>	<p>The replacement of the Southern Drill & Blast Tunnel by a TBM Tunnel results in reduced ground vibrations and noise emission.</p> <p>However, since the TBM excavation is faster, a higher quantity of rock material will need to be disposed of and transported to the disposal areas in the South. Furthermore, the TBM excavation is more labour-intensive, i.e. the Southern construction camp will have higher occupancy levels.</p> <p>Other implications:</p> <p>The originally envisaged crushing plant at the Southern Area will be omitted including any transportation of aggregates for the production of concrete to the Northern Area. Instead a rock quarry will be established at the North, which will thus result in overall much reduced traffic in the project area.</p> <p>Furthermore, given that the Southern Drill & Blast Tunnel will be replaced by a much faster TBM Tunnel, the excavated rock volume at the Northern Area will reduce (whilst it will increase at the Southern Area), yet the total combined quantities remain identical.</p>	Implement environmental mitigation measures in line with the activities in the new arrangement

Component	Original Design	Current Proposal	Summary Environmental implications	Environmental Investigation Work Undertaken
Dismantling of TBMs	Dismantling of TBM at the southern portal	It is foreseen that both TBMs will be dismantles in underground caverns with no environmental impact, and retracted through the already completed tunnel.	The TBM dismantling chambers will be constructed underground from the TBM by Drill & Blast methods at a previously identified section along the tunnel in good rock. Where required the disassembly chambers will be sealed against water ingress. Hence no / limited environmental implications are expected.	Limited Environmental Impacts arising due to additional measures need to be assessed
Southern Portal				
Access roads	4.3 km access road from Diyabeduma to Tunnel Chainage 27+700	No changes compared with original design for the main access road to the Southern Portal. However about 1 km of new access road will be constructed to obtain access to disposal area N1 as well as the partial use of an existing local road.	No additional for the main access road to the Southern Portal (4.3 km). New access Road to N1 (1 km) Or Use of existing road to N1	1 km new road is required to obtain access to the site N1, approval has to be obtained from DWLC and a detailed ecological survey along the new access road strip to site N1 has to be conducted. Tree removal plan needs to be prepared
Installation site	Location for Installation and Assembly Area of TBM near Tunnel Chainage 27+ 500. Size of current area at portal is 3.0 ha.	With the changes comprising use of 2 nd TBM at southern portal, installation site at the southern portal will be increased by an additional 1.5 ha. 0.75 ha are required to account for the additional Contractor's installations for a TBM tunnel. Another 0.75 ha are required to be used as a temporary tipping point for the conveyor to provide a minimum temporary stockpiling facility to avoid night-time transportation through the Natural Reserve land. At the Installation Site is also foreseen to locate a batching plant (previously foreseen along the access road to the Southern Portal) to limit concrete	Potential impacts likely, associated with site clearance, noise from operation of short surface conveyor, but with the benefit of avoiding night-time mucking through the Natural Reserve land. Impact of relocation of Batching Plant to Area D from Area B Impact of relocation of Contractor's Camp	Installation area assessed in 2015 EIA and 2017 Supplement. New biodiversity assessment has to be carried out for the additional land area. Prior approval will need to be obtained from DWLC for the changing of land use and the relocation of the Contractor's camp from area A to area B.

Component	Original Design	Current Proposal	Summary Environmental implications	Environmental Investigation Work Undertaken
		<p>transport through the Nature Reserve land.</p> <p>In addition to the TBM installation area, it is intended to re-locate the Contractor's Camp from Area A (along Bakamuna – Girithale Road) to Area B (along access road to the Southern Portal).</p>		
Disposal sites	<p>One disposal site at Di-yabeduma.</p> <p>Lat: 7.9300438</p> <p>Long: 80.8620003</p> <p>Abandoned borrow area</p> <p>Supplement 1 mentions disposal sites required for additional muck of 48,000m³</p> <p>Temporary disposal areas at locations DPS-02 (3 ha of open grassland) and DPS-03 (5 ha of scrubland).</p> <p>Permanent disposal area at location DPS-01 (4.8 ha of old rock quarry adjacent to main road alongside EMYE Canal). This location would also have a crushing plant.</p>	<p>A permanent disposal Area N1 is foreseen of 2.0 ha size, which is located at an abandoned quarry.</p> <p>Further areas for temporary stockpiling are planned for Area B (2.0 ha total, of which 1.6 ha will be used for disposal) and Area C (5.0 ha).</p>	<p>All three proposed disposal sites are in the protected areas governed by the DWLC and FD.</p> <p>Ecological surveys have already been done for the Site B (earlier defined as DPS-02), Site C (earlier defined as DPS-03), site N1 (earlier defined as DPS 01), Site DPN 1&2, Site F and Site D</p>	<p>New ecological surveys have to be undertaken in the vicinity of the new disposal sites and updates of the ecological surveys have to be done for the sites which are changing the land use.</p>

Component	Original Design	Current Proposal	Summary Environmental implications	Environmental Investigation Work Undertaken
Power	No mention in EIA In supplement 1 a generator at the portal is mentioned. Power for the crushing plant at disposal site DPS- 01 would be from CEB mains.	All power demands for the TBM operation and well as Drill & Blast Tunnels will be supplied from independent power supply through generators located at the sites.	No additional environmental implications due to noise from generators, as the generators were also foreseen as an alternative to a power supply from the national grid (through CEB).	No new environmental work required. Sound control measures need to be applied by the Contractor
Northern Shaft and Portal				
Disposal sites	Temporary disposal site 200 m X 50 m along the canal. 48,000m ³ required. In Supplement 1 spoil storage at locations 1 (3.5 ha) and 2 (4 ha) (temporary at location 1 and permanent at location 2). Small permanent spoil storage at location 3 (1.4ha)	At Tunnel 3 areas DPN 1&2 (7.16 ha) for temporary stockpiling, of which 2.4 ha will however be used for other purposes (explosive magazine and crushing / sieving plant.) Area F (3.5 ha) is in close proximity to Areas DPN1/2 and is currently being processed to be used for permanent disposal. At the Northern Portal (Tunnel 4) a permanent disposal area DPN-3 (1.7 ha) is available.	New ecological survey has to be done for the location DPN-03	Ecological survey to be undertaken in the vicinity of proposed disposal sites.

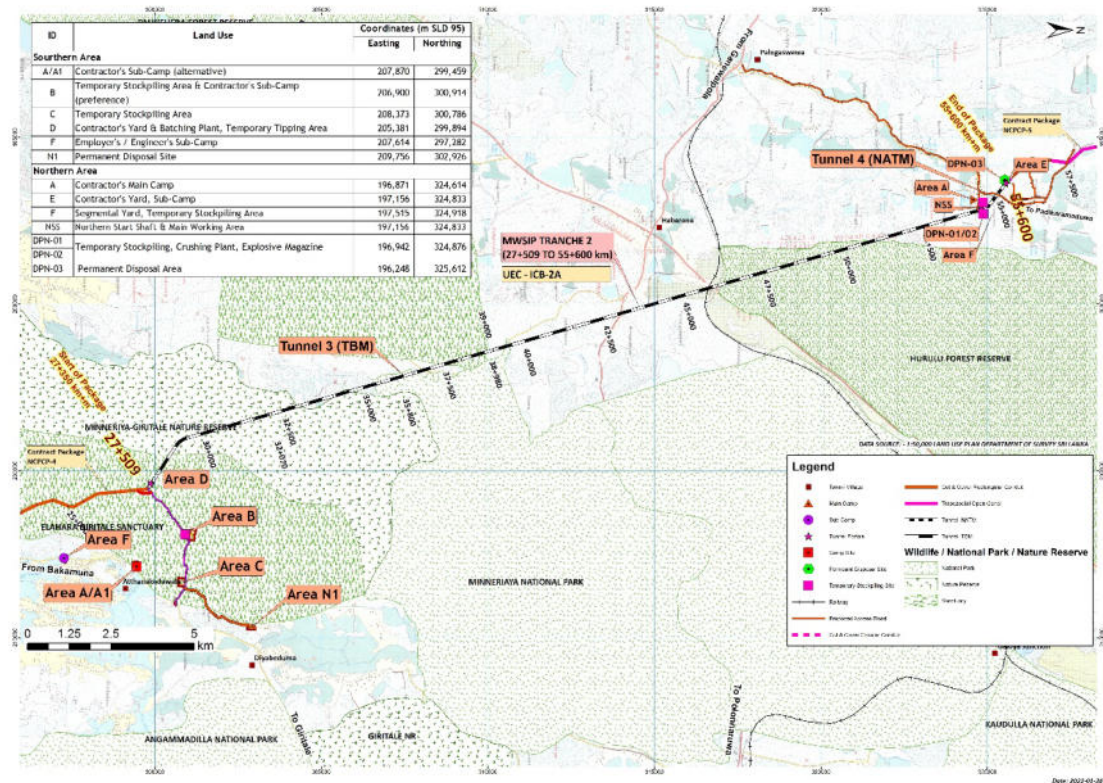


Figure 1-1 Layout Plan for CECP-ICB-2A

10. The Contractor's office and their labourer's and officer's accommodation, concrete batching plant, stockpiles yards concrete segment yards at the Northern portal (main camp) were completed during the reporting period. Further, erection of the electrical fences, which are required to protect the working people in main camp including Tunnel 4, at the Northern portal area were completed in addition to the boundary fences were established. Since, the exposed the construction sites (no interceptions) may experience heavy rain, storm water management was a huge task for the project, accordingly the Contractor prepared drainage plan (including stone/earth bunds, sedimentation ponds, drains etc.) for the main camp Northern portal) to manage the storm water, control the soil erosion and silt of the downstream. The establishment of required environmental protection facilities in the southern portal are in progress.

11. The major construction activities of the tunnels, including underground excavation has not been started yet and overall work progress is slightly behind the programme. Current physical progress is about 5.2% against the target progress 9.3% as per the original Cumulative Progress, at the end of December 2021. Note that the new construction programme reflecting the incorporation of the 2nd TBM was under preparation by the contractor at the time of this reporting period.

12. Summary of the physical progress as of December 2021 by the UECP-ICB-2A Contractor M/s. China State Construction Engineering Corporation Limited is described in **Table 1-3**.

Table 1-3: Summary of Physical progress in UECP ICB 2A (as of 31 December 2021)

Construction work:	Status: Completion 28.5%
Concrete batching plant:	Northern portal (Main camp): 100%
Construction of start shaft ring beam	Northern portal: 30%
Crusher Plant	Northern portal: 70%
Construction activities	<ul style="list-style-type: none"> Tunnel 3: 1,297 m / 1,297 m Excavation: 0% Tunnel 4: 26,577 m / 26,577 m Excavation: 0% Cut and cover: 0% Northern access road: 0% Southern access road: 15%

1.2.3 UECP-ICB-2B

13. The excavation of the KMTC tunnels was completed by end of July 2021; however, overall work progress is behind the programme for other Works in the package in the concrete aqueduct crossings and roadworks. Current physical progress is about 68% against the target progress 100% (2nd EOT has not been approved yet) as per the consented construction programme at the end of December 2021 as described in the **Figure 1-2** and **Table 1-4**.

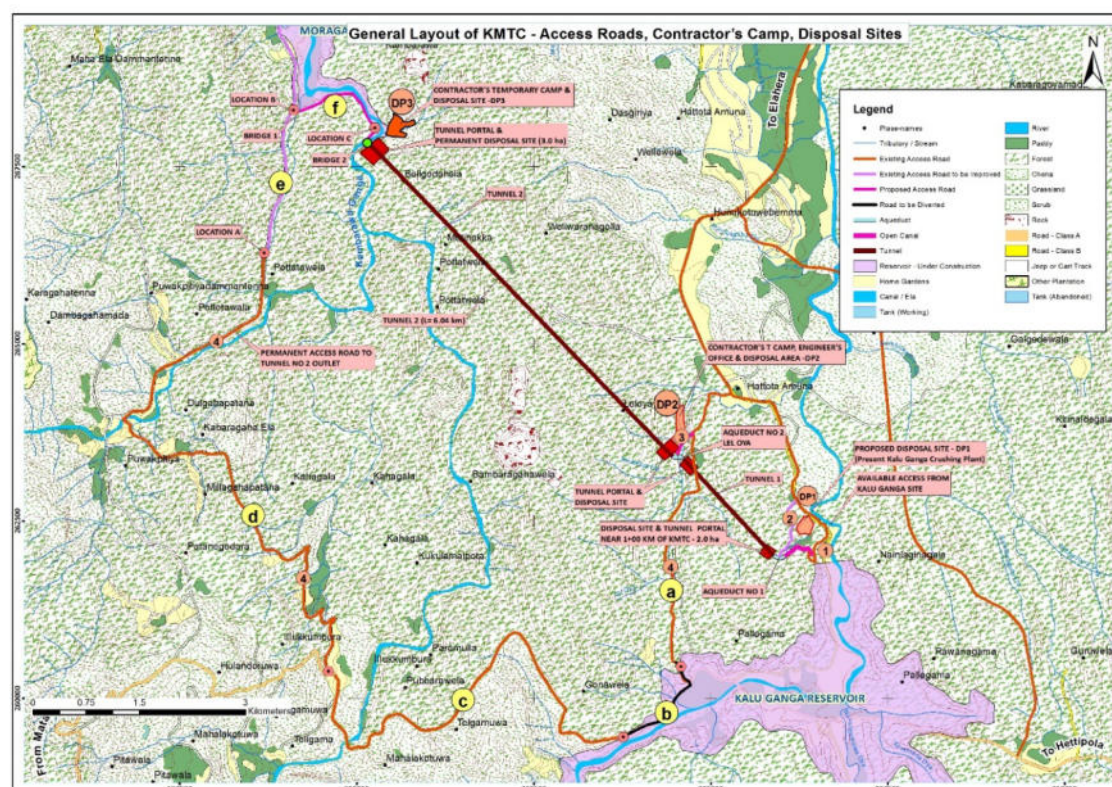
**Figure 1-2 KMTC Layout Plan**

Table 1-4: Summary of Physical progress in UECP ICB 2B as of December 2021.

Construction work:	Status: Completion 28.5%
Concrete batching plant:	Lel Oya: 100%, Kabarawa: 100% Issues related to storm water management, no sprinkler system to control dust in the premises, and sedimentation tanks for waste water treatment is function but untidy condition in and out tanks due to cleaning is not practised regularly.
Crusher Plant	Lal Oya: 100%, Kabarawa: 100%
Construction activities	<ul style="list-style-type: none"> ▪ Tunnel 1: Excavation completed 1,910 m/ 1,910 m excavation ▪ Tunnel 2: Excavation completed 6,040 m / 6,040 m excavation ▪ Open canal: 45% ▪ Aqueduct no. 1: 55% ▪ Aqueduct no. 2: 40% ▪ Road section -d: 7.1% ▪ Tunnel short creating T1: 80%, T2: 55% ▪ Cut and cover: 60%

2 ENVIRONMENTAL MONITORING FINDINGS

14. This section summarizes the key environmental issues recorded during the monitoring period from July to December 2021, and the corrective actions taken by the Contractor. Since UEC-ICB-1 package was terminated in June 2021, there is no any physical progress recorded in the reporting period except the measures taken to fulfil the safeguards requirements.

2.1 Qualitative records

2.1.1 UECP-ICB-2A

15. The environmental performance by CSCEC has significantly improved, except for some operational environmental issues observed during the monitoring period from July to December 2021.

16. **Table 2-1** summarizes the specific issues noted and status of contractor's response attending required corrective actions.

Table 2-1: Summary of the monitoring findings related to UECP ICB 2A with specific issues

Location	Issue recorded	Date of record	Corrective Measure attended	Date
Main camp	Washed out the berm established for erosion controlling	21 April 2021	Repaired the earth bags bund	31 July 2021
Main camp - campsite	Solid wastes are left at the site	16 August 2021	Collected the wastes	18 August 2021
Southern portal – Access Road	No action taken for dust controlling	18 August 2021	Water application take place	19 August 2021
Main camp - Northern portal	Soil bund washed away due to heavy rain, Main camp	25 Sept. 2021	Prepared new bund with rock boulders	25 Sep. 2021
Main camp - campsite	No turfing for earth structure	07 Sept. 2021	Earth structure covered with turfing	29 Sept. 2021
Main camp disposal site	Deep excavation pits are open and risk for animal falling, main camp	15 July 2021	Pits covered with elephant fence	10 Oct. 2021
Main camp - campsite	No gate for the waste collecting point main camp	20 August 2021	Fixed the gate	15 Oct. 2021
Main camp Segment yard	Eroded earthen structures due to heavy rain Main camp	20 Nov. 2021	Provided concrete drain,	21 Nov. 2021
Main camp Segment yard	Cement waste disposed on the ground	10 Nov. 2021	Cement waste disposed into deep pit	21 Nov. 2021
Main camp	Uncompleted siltation/evaporation pond in BP premises	28 Oct. 2021	Completed sedimentation tank	22 Dec. 2021
Northern portal	Excavated earth materials are left at road verge without removed at Southern portal	13 Nov. 2021	Removed and levelled in the adjacent land	12 Dec. 2021
Main camp-campsite	Absence of roof for waste collecting point	15 Oct. 2021	Provided shade for avoiding get wet the garbages	10 Dec. 2021

17. The summary of the Environment Non-Compliance Reports (NCR) or issuing Environment Incident Records (EIR) during the reporting period is given in the **Table 2-2**.

Table 2-2: Summary of NCRs and EIRs issued during the monitoring period for UEC ICB 2A

NCR / Env Incident records (Ref. No. & Date)	Subject	Response from the contractor (Ref/Date)		Corrective actions attended		Remarks as per EMS observations / close NCR etc	
		Ref No.	Date	Action	Date completed	Follow up letter Ref	Date
NCR-001, 19 May 2021 (This NCR still not closed)	Soil erosion and siltation of downstream land/tank	Soil erosion and siltation of downstream land/tank	CSCE C-SLK-UECI CB2A-CONS T-037-2021	19 May 2021	Established stone bund to control storm water and reduce turbidity water pass to village tank. Prepared siltation tanks along the run-off water path.	25 Sept. 2021	PMDSC - SITE-CSCEC 191

18. In addition to above site-specific corrective actions, following good practices and general mitigation measures were adopted by the contractor's HSE team under the guidance and support from Employer and the Engineer:

Item	Documentation	Remarks
MS for Batching plant Construction	Method Statement was submitted for the Engineer's approval (Ref. CDS-008 dated 31 July 2021)	The Engineer advised contractor to strictly follow the guideline issued via Engineer's Letter No: PMDSC-SITE-ICB2A-CSCEC-0218, dated 23 July 2021
MS for Northern shaft ring beam construction	Method Statement was submitted for the Engineer's approval (Ref. CDS-010 dated 31 July 2021)	Returned for resubmission (RR)
Revised MS for Southern access road -Rev. 02	Method Statement was submitted for the Engineer's approval (Ref. CDS-012 dated 02 August 2021)	Returned for resubmission (RR)
Revised MS for Southern access road-Rev. 03	Method Statement was submitted for the Engineer's approval (Ref. CDS-014 dated 16 August 2021)	Approved as Noted (AN)
MS for Northern shaft ring beam construction -Rev. 01	Method Statement was submitted for the Engineer's approval (Ref. CDS-020 dated 21 August 2021)	Approved as Noted (AN)
MS for Soil Disposal	Method Statement was submitted for the Engineer's approval (Ref. CDS-018 dated 30 August 2021)	Returned for resubmission (RR)

Item	Documentation	Remarks
MS for Soil Disposal- Rev.001	Method Statement was submitted for the Engineer's approval (Ref. CDS-018 dated 23 Oct. 2021)	Returned for resubmission (RR)
MS for Temporary Baily bridge Rev.02	Method Statement was submitted for the Engineer's approval (Ref. CDS-022 dated 03 Sept. 2021) Method Statement was submitted for the Engineer's approval (Ref. CDS-024 dated 09 Sept. 2021)	Approved as Noted (AN)
MS for Open cut Excavation at Southern portal	Method Statement was submitted for the Engineer's approval (Ref. CDS-026 dated 11 Sept. 2021)	Approved as Noted (AN)
MS for Southern access road Structures	Method Statement was submitted for the Engineer's approval (Ref. CDS-0026 dated 11 Nov. 2021)	Approved as Noted (AN)
MS for Southern access road Structure-Rev. 01	Method Statement was submitted for the Engineer's approval (Ref. CDS-030 dated 19 Sept. 2021)	Approved as Noted (AN)
MS for Open cut Excavation Northern Portal	Method Statement was submitted for the Engineer's approval (Ref. CDS-032 dated 20 Sept. 2021)	Approved as Noted (AN)
MS Spoil management plan	Method Statement was submitted for the Engineer's approval (Ref. CDS-034 dated 21 Sept. 2021)	Returned for resubmission (RR)
MS for Northern shaft ring beam construction-Rev. 02	Method Statement was submitted for the Engineer's approval (Ref. CDS-036 dated 24 Sept. 2021)	Approved as Noted (AN)
MS for Temporary Baily bridge -Rev. 03	Method Statement was submitted for the Engineer's approval (Ref. CDS-038 dated 22 Sept. 2021)	Approved as Noted (AN)
MS for Northern Start shaft Excavation and support	Method Statement was submitted for the Engineer's approval (Ref. CDS-042 dated 07 Nov. 2021)	Returned for resubmission (RR)
MS for Temporary Baily bridge -Rev. 04	Method Statement was submitted for the Engineer's approval (Ref. CDS-046 dated 19 Nov. 2021)	Approved
MS for Northern shaft ring beam construction-Rev. 02	Method Statement was submitted for the Engineer's approval (Ref. CDS-048 dated 29 Nov. 2021)	Approved as Noted (AN)
MS Spoil management plan-Rev. 02	Method Statement was submitted for the Engineer's approval (Ref. CDS-050 dated 06 Dec. 2021)	Approved as Noted (AN)
MS for Permanent concrete bridge Southern access road	Method Statement was submitted for the Engineer's approval (Ref. CDS-052 dated 13 Dec. 2021)	Approved as Noted (AN)
MS Spoil management plan-Rev. 03	Method Statement was submitted for the Engineer's approval (Ref. CDS-032 dated 13 Dec. 2021)	Approved as Noted (AN)

19. Some photographic records on the key aspects during environmental monitoring within the reporting period under UECP-ICB-2A are shown in Figure 2-1.

	
<p>Washed out the berm established for erosion controlling, identified on 21 April 2021</p>	<p>Repaired earth bags on bund, 31 July 2021</p>
	
<p>Solid waste left at the site, 16 August 2021</p>	<p>Collecting waste, 18 August 2021</p>
	
<p>No action taken for dust control, 18 August 2021</p>	<p>Water application take place, 19 August 2021</p>

	
<p>Soil bund washed away due to heavy rain, Main camp, 25 Sept. 2021</p>	<p>Prepared new bund with rock boulders, 25 Sep. 2021</p>
	
<p>No turfing for earth structure, 7 Sept. 2021</p>	<p>Earth structure covered with turfing, 29 Sept. 2021</p>
	
<p>Deep excavation pits are open and risk for animal falling, Main camp, 15 July 2021</p>	<p>Pits covered with elephant fence 10 Oct. 2021</p>

	
<p>No gate for the waste collection point, Main camp, 20 August 2021</p>	<p>Fixed the gate, 15 Oct. 2021</p>
	
<p>Eroded earthen structures due to heavy rain Main camp, 20 Nov. 2021</p>	<p>Provided concrete drain, 21 Nov. 2021</p>
	
<p>Cement waste disposed on the ground Main camp, 10 Nov. 2021</p>	<p>Cement waste disposed in to deep pit, 21 Nov. 2021</p>

	
<p>Uncompleted siltation/evaporation pond in BP premises, 28 Oct. 2021</p>	<p>Completed sedimentation tank, 22 Dec. 2021</p> <p>Bottom of the sedimentation tanks is sealed, not possible to happen infiltration incident and water in final tank of the sedimentation unit is clear and indicates less than 8.5 pH value.</p>
	
<p>Excavated earth material is left at road edge without removed at Southern portal, 13 Nov. 2021</p>	<p>Removed excavated earth from road side, 12 Dec. 2021</p> <p>Road corridors has been identified and marked with the consent of the both sides land owners and excavated soil generated from neighbour's land handed over to the land owners with consent letters.</p>

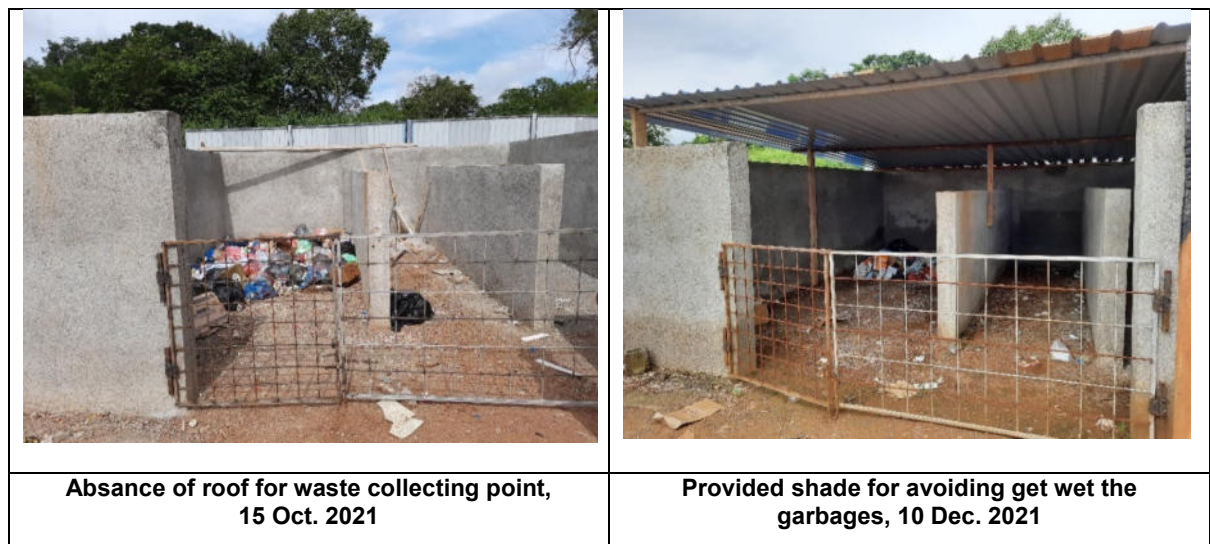


Figure 2-1: Photographic records – UEC-2A

2.1.2 UECP-ICB-2B

20. The environmental performance by the Sinohydro has significantly improved except for some operational environmental issues observed during the monitoring period from July to December 2021. Poor housekeeping practices at the site was an issue noted in SAEMR-09 that has been rectified to some extent by deploying dedicated labourers for the specific task. Poor maintenance of the Section-d road was made better by attending to the maintenance work. No drainage systems and untidy condition in batching plant premises were identified at the stage of preparation of SAEMR-09 and it has been improved during the reporting period as a result of issuing an NCR. The NCR has been closed due to rectification of the issue.

21. **Table 2-2** summarizes the specific issues noted and status of the Contractor's response attending to the required corrective actions.

Table 2-2: Summary of the monitoring findings related to UECP ICB 2B with specific issues

Location	Environmental Issue	Date of record	Corrective Measure	Date Attended
Batching plant at Lel Oya	Wastewater drain covered with cement sludge aggregates	16 Dec. 2021	Started the improvement work of the batching plant premises	30 Dec. 2021
	Dust emits from batching plant cement storage silo	24 Dec. 2021	Mess fixed inside the silo should be cleaned properly	Pending
	No proper place to remove the cement sludge	25 Oct. 2021	Prepared new location for sludge collecting	27 Oct.2021
Tunnel-2 inlet	Cement waste is left outside of the tunnel -2 inlet,	29 Sept. 2021	Removed concrete waste to designated location	01 Oct. 2021
Tunnel 1 inlet	Solid wastes are left at worksite	10 Nov. 2021	Removed from worksite	10 Nov. 2021
Open canal	Cement waste are left out of canal trace	12 August 2021	Removed from site	16 Aug. 2021
	Debris are left at the site,	22 Spt. 2021	Removed debris	01 Oct. 2021
	Used tyres are left at the site and noted water remained inside	09 Oct. 2021	Removed from the site	15 Oct. 2021
Section -d	Construction materials are left along the access, 22 Dec. 2021	22 Dec. 2021	Removed from worksite	24 Dec. 2021
	Water stagnated location are present at site section -d, 10 Dec. 2021	10 Dec. 2021	Removed water and covered	10 Dec. 2021
Workshop - Lel Oya	Water stagnated location and mosquito breeding	25 Oct. 2021	Removed water from relevant location and covered with plastic sheet	27 Oct.2021

22. The summary of the Environment Noncompliance reporting (NCR) or issuing Environment Incident Records (EIR) during the reporting period is given in the Table 2-3.

Table 2-3: Summary of NCR and EIR issued during the monitoring period for UEC-ICB-2B

NCR / Env Incident records (Ref. No. & Date)	Subject	Response from the contractor (Ref/Date)		Corrective actions attended		Remarks as per EMS observations / close NCR etc.	
		Ref No.	Date	Action	Date completed	Follow up letter Ref	Date
Nil							

23. In addition to above site-specific corrective actions, following good practices and general mitigation measures were adopted by the contractor's EHS team under the guidance and support from Employer and the Engineer:

MS for Concrete Construction and associated work of canal	Method Statement was submitted for the Engineer's approval (Ref. L-KMTC-2021316 dated 22 July 2021)	Approved
MS for Concrete defect treatment	Method Statement was submitted for the Engineer's approval (Ref. L-KMTC-2021278 dated 08 July 2021)	Returned for resubmission Approved

MS for Concrete defect treatment	Method Statement was submitted for the Engineer's approval (Ref. L-KMTC-2021281 dated 02 July 2021)	Approved
Ms for Breaking - through tunnel-2	Method Statement was submitted for the Engineer's approval (Ref. L-KMTC-2021297 dated 12 July 2021)	No status.
MS for consolidation grouting in tunnel		Reply has been sent through the letter PMDSC-KMTC-RE/ICB-2B/ShCL/L1432

24. Some photographic records on the key aspects during environmental monitoring under UECP-ICB-2B are shown in **Figure 2-2**.

	
Trash is left at batching plant at Lel Oya, 6 July 2021	Cleaned the site, 7 July 2021
	
Used tyres are left openly at workshop, 7 July 2021	Removed from the site

	
<p>Cement waste are left out of canal trace, 12 August 2021</p>	<p>Removed from site, 16 August 2021</p>
	
<p>Earth drain blocked with ABC at BP Lel Oya, 22 Sept. 2021</p>	<p>Removed ADC and prepared drain, 24 Sept. 2021</p>
	
<p>Debris are left at the site, 22 Sept. 2021</p>	<p>Removed debris, 1 Oct. 2021</p>

	
<p>Used tyres are left at the site and noted water remained inside, 9 Oct. 2021</p>	<p>Removed the used tyres from site, 15 Oct. 2021</p>
	
<p>Solid waste is not managed in proper way at section -d site office, 10 Nov. 2021</p>	<p>Removed from worksite, 10 Nov. 2021</p>
	
<p>Poor housekeeping at the worksite in section-d, 5 Nov.2021</p>	<p>Removed debris from the worksites, 7 Nov. 2021</p>



Figure 2-2: Photographic records – KMTC

2.1.3 Progress of Implementing CAP for KMTC

25. A study was carried out by IUCN for restoration of the damage area of the Beligoda Forest and according to the study it was proposed CAP. The progress of the CAP as follows up to month of December 2021.

- All the retaining walls proposed to side wall strengthen have been completed using the main power without entering any machinery.
- Planted root ball plants though out the area however later, it was noted some of the plant died accordingly FD proposed to plant 12* 8 bag plants instead of root ball plants. The Contractor completed the planting work in year 2021.
- Completed all the dully lugs which had been proposed for the natural stream location.
- Bush wood spreading throughout the area was completed to avoid the soil erosion. In December 2021 but it was noted some bush wood to be rearranged. Accordingly, it was completed the Contractor.
- FD had the joint site inspection end of the December 2021 and they have accepted the restoration work verbally; however; the Contractor is waiting for the FD's inwriting acceptance in this regard.

2.2 Quantitative records

2.2.1 UEC-ICB-2A

26. All the documents required to carry out and record monitoring of the environmental quality for the UEC-ICB-2A have been prepared and sent to the PIU for approval., Report of the water quality of the four locations within the campsite to establish a well in the campsite submitted to the Engineer and it was rejected due to the quality of water in not in the required standards. See Annex 02.

2.2.2 UEC-ICB-2B

27. Environmental quality monitoring is carried out by using the available equipment of the Contractor for air quality, water quality and noise and vibration.

28. Measurement of the environmental quality monitoring is carried out quarterly for selection locations in Lel Oya and Kabarawa.
29. Environmental quality monitoring parameters such as pH value for water quality, CO, CO₂, O₂ and CH₄ for air quality and boundary noise level at worksites are being monitored monthly.

3 ENVIRONMENTAL SAFEGUARD COMPLIANCE STATUS: NCPCP

30. The overall environmental safeguard compliance in terms of implementing the recommendations and conditions given in the EIA and EMP for NCPCP, conditional approvals issued by CEA and other stakeholder agencies such as DWC, FD and the ADB requirements are addressed by the Employer and the PMDSC, simultaneously with the environmental monitoring and supervision carried out based on the contractor's CEMP is continuously monitored by the Engineer (PMDSC).

31. The activities and measures carried out during the monitoring period from July to December 2021 are briefly described under this chapter.

3.1 Compliance Status Related to the CEA Approval Conditions

32. **Table 3-1** summarizes the activities carried out jointly by the Employer and PMDSC to meet the conditions given in the CEA approval. Information about the Wildlife Management Plan (WMP) is provided by the Employer (PMDSC is not involved in compliance monitoring of the WMP).

Table 3-1: Key Actions in Compliance with the CEA approval conditions

No.	Approval condition	Compliance status	Remarks
1	Preparation of Wildlife Management Plan (WMP)	Plan prepared and approved by CEA	Implementation in progress by PMU/PIU
2	Implementing recommendations of WMP	Implementation works of the WMP is in progress Work plan and activity plan prepared for implementation	<ul style="list-style-type: none"> 250 ha reforestation implemented (200 ha in Polonnaruwa Division and 50 ha in Kaluganga Area) GIS mapping completed in 5 tanks for ecological restoration – (Halmillewa wewa, Ritico wewa, Paburugaswewa, Pandithaya wewa, Etaweerawewa) Tank Restoration for habitats for fauna in (3 tanks: GIS mapping completed/ Engineering survey on going (Alistanwewa at Ritigala, Olumaduwa wewa and Weheragalawewa at Kaudulla NP) Eradication of Invasive Flora (<i>Mimosa pigra</i>) – 10 ha identified at Elahera – Giritale Sanctuary with DWC officials Establish elephant corridors – 10 elephant Corridors identified including Hurulu – Thumbikulama Model Elephant corridor. <ul style="list-style-type: none"> (i) Elahera –Moragahakanda (ii) Manankattiya – Labunoruwa (Bathalayaya) (iii) Ritigala – Labunoruwa (Unagollewa) (iv) Thumbikulama – Murungahitikanda (Thibalawewa) (v) Inamaluwa – Diganpathaha (vi) Hurulu – Thumbikulama (vii) Minneriya – Rathmale (viii) Hurulu –Halmillewa (ix) Hurulu – Galapitagala

No.	Approval condition	Compliance status	Remarks
			<p>(x) Habarana - Hiriwadunna</p> <p>(xi) Establishment of Thumbikulama – Hurulu Model Elephant Corridor</p> <ul style="list-style-type: none"> • Site selections are completed • Site selections are completed for establishing DWC beat offices (Kithul uthuwa beat - Polonnaruwa DWC Division and Mahakanadawa beat office – Anuradhapura DWC Division) • Awareness meetings on implementation of Wildlife Management Plan <ul style="list-style-type: none"> (i) Discussion on Establishment of Model Elephant Corridor at 2019.07.04 at Palugaswewa DS office and field visit 2019.05.18 with relevant stakeholders. (ii) Awareness meeting at Galanbidunuwewa DS office for Regional officials on 2019.07.29 (iii) Awareness meeting at Mahadiulwewa for Farmer Organization on 2019.09.06
3.	Implementing recommendations of EIAR non-construction based, (e.g. reforestation)	<p>Preparation and signed a MoU for 50 ha. of reforestation in Kaluganga area with DFO division, Matale</p> <ul style="list-style-type: none"> • Plant production (30,000 nos.) • Purchasing Seedlings from outside of Nurseries (government or Private) • Survey and Preparation of maps • Land preparation (50 Ha) • Seedling transportation and Tree Planting. • Fertilizer Application • Maintenances for Five Years from the year 2019 to 2023 • Gap filling planting. • Establishment and Maintenance of Fire Belts (10 km) • Maintenance of Gliriseediya Planting in Fire Belts. <p>Preparation of a MoU for 200 ha. of reforestation in Polonnaruwa Division with</p>	<ul style="list-style-type: none"> • Payment release to FD according to MOU conditions • 20,000 plants production in nurseries of FD at 2019 • Tree planting of 10 ha Naula range and 15 at Rabukoluwa under MoU, Matale.

No.	Approval condition	Compliance status	Remarks
		<p>DFO division, Polonnaruwa</p> <ul style="list-style-type: none"> • Reforestation of 100 ha of Elahera Reserve Forest & 100 ha of Hurulu Conservation • Plants production (44,000 plants) • Maintenances of established forest plantation from the year 2019 to 2023 • Improvement of existing plant nursery of Forest Department at Iirigeoya, Habarana • Removal of Invasive plant species of Lantana camara in the Elahera Reserve Forest, Galoya Forest Reserve and Hurulu Reserve (400 ha) • Rehabilitation of Existing Tanks (Milankulamawewa Tank and Bogahawewa) within Hurulu Forest Reserve <p>Nursery establishments and plant production, site preparation and tree planting in progress under restoration program of the canal trace ICB-01</p>	<ul style="list-style-type: none"> • 3 rural nurseries established (affected families of UEC Project) and 2,195 plants have been purchased by Contactor. • Approximately 200 m of canal trace has been restored and 265 plants are planted.

33. Progress of the implementation of CEMP/CEA requirements under contract package of UEC ICB-2B from July to December 2021 as in following:

Impacts likely pre-construction/during the construction/requirements	Rectification actions taken	Level of the action taken	Description/ remarks
General			
Appointment of the Env. officer	Appointed	Satisfied	Env. officer is available at the site fulltime.
Submission of the method statements	Submitted	Satisfied	.
Site security and register book	Available	Satisfied	Book is available at each site entrance.
Approvals/licenses are required for activities	Available	Satisfied	Necessary approvals/permissions are obtained
Accommodation for workers with facilities	Provided	Satisfied	
Air pollution/dust generation			
Dust generation in access roads and work premises due vehicles and machinery	Dust controlling is done by water sprinkling. Water bowsers are used for it	Satisfied	Water application frequency to be increased heavy dry period.
Dust emission of Crusher plant/batching plant	Water sprinklers have been fixed and wet the rock before inserting the plant.	Satisfied	

Impacts likely pre-construction/during the construction/requirements	Rectification actions taken	Level of the action taken	Description/ remarks
Black fume emission from vehicles	Emission reports are not available	Unsatisfied	
Monitoring of air quality periodically	Monitoring takes place quarterly	Satisfied	Results are within the acceptable. Not done third party, carrying out by the Contractor by using own equipment
Noise pollution and vibration			
Monitoring of noise level and vibration periodically	Monitoring takes place quarterly	Satisfied	Results are within the acceptable. Not done third party, carrying out by the Contractor by using own equipment
Noise barriers/proofs for sensitive location	Not needed to apply		
Water pollution and soil erosion			
Drainage facilities are required for storm water run off	Drainage facilities have been provided for around the tunnel portals	Moderately satisfied	Drainage facilities are required for premises such as campsite and disposal sites and batching plant to be improved further
Oil spillage takes place at worksites and mixing with water body	Trays are used to collect oil at the workshops	Satisfied	
Soil erosion takes place during the rainy period	Exposed sloppy areas have been covered with grouting and tunnel muck/natural vegetation	Satisfied	
Water inundation locations/utensils are available at site worksites	Clearing is often done, so risk for spreading mosquito population and disease incident is low.	Moderately satisfied	Perhaps, cleaning work is not happened regularly
Water quality monitoring is done periodically	pH value is measured quarterly	Satisfied	pH value is at acceptable level. But there is no other equipment to measure other parameters
Land slips/failures takes place at slop cuts	Not recorded in the reporting period		
Waste management			
Generating of solid waste in the construction sites	Bins have been placed and a person who is used to collect the waste each worksite.	Moderately Satisfied	If had instructed to appoint separate person for the task, it would not have happened
Housekeeping is required as a routing work in work sites	Housekeeping is done but not happen regularly	Moderately Satisfied	If had instructed to appoint separate person for the task, it would not have happened
Sign and text boards are in placed each worksite adequately	Erection of some boards to educate the workers.	Moderately satisfied	Requirement is not fulfilled
Hazard wastes and chemicals are stored and handled carefully	Store and carefully handled under the MSDS	Satisfied	
Open burning for waste is practised at the sites	Educated not to burn waste as a disposal method.	Satisfied	
Wastewater generating in plants and tunnel work	Established sedimentation tanks for wastewater treatment.	Stansfield	
Ecological aspects			

Impacts likely pre-construction/during the construction/requirements	Rectification actions taken	Level of the action taken	Description/ remarks
Tree felling is required for land clearing for purpose of construction	Tree removing takes place now only prior approval of the relevant land owner	Satisfied	
Ecological surveys for land before using for construction	Carried out before using the land	Satisfied	
Protection of fauna (No hunting or fishing)	Stopped hunting/fishing by educating the workers and closed supervision	Satisfied	Refreshment is being done in this regard in the toolbox meeting weekly.
Human and elephant conflict taking place at project sites	All the work sites have been covered with elephant fences. Advised not to leave site at night time	Satisfied	Advised to the Contractor, when not working the fence properly, to get service from DWC officers.
Following the instructions made by DWC/FD are essential	Workers have been educated to follow the rules and regulations applied for inside forest reserve	Satisfied	Refreshment is being done in the toolbox meeting weekly.
Maintaining of the Elephant fences regularly	Maintaining is often place	Satisfied	
Training and awareness programme			
Conducting toolbox meeting	Weekly toolbox meeting is done with participation site staff.	Satisfied	Instructed the Contractor his EO to be participated to the meeting always.
Conducting of the GRC meeting	Conducted the 2-awareness programme to solve labourer issues at section -d by PIU	Satisfied	
Health and Safety aspects			
Use of PPE	Providing necessary PPEs for all worksite in the project	Moderately satisfied	Workers who are at section -d are not used PPE adequately
Erection of warning text and sign boards place where needs	Placed at most of locations except few places of the site	Moderately satisfied	To be improved
Ventilation and lighting inside the tunnel	Break though of the tunnel happened June 23 2021		
Sanitation facilities	Provided sanitation facilities for workers who are working outside tunnel	Moderately satisfied	However, sanitary facilities are required for tunnel side people have not been provided
Handling of Explosive magazine	Completed the blasting work By 23 June 2021		

34. Progress of the implementation of CEMP/CEA requirements under contract package of UEC ICB-2A from July to December 2021 as following:

Impacts likely pre-construction/during the construction/requirements	Rectification actions taken	Level of the action taken	Description/ remarks
General			
Appointment of the Env. officer	Appointed	Satisfied	Env. officer is available at the site fulltime.
Submission of the method statements	Submitted	Satisfied	.

Impacts likely pre-construction/during the construction/ requirements	Rectification actions taken	Level of the action taken	Description/ remarks
Site security and register book	Available	Satisfied	Book is available at each site entrance.
Approvals/licenses are required for activities	Available	Moderately satisfied	Balance necessary approvals/permission to be obtained
Accommodation for workers with facilities	Provided	Satisfied	
Air pollution/dust generation			
Dust generation in access roads and work premises due vehicles and machinery	Dust controlling is done by water sprinkling. Water bowlers are used for it	Satisfied	Water application frequency to be increased heavy dry period.
Dust emission of Crusher plant/batching plant	Water sprinklers have been fixed and wet the rock before inserting the plant.	Satisfied	Dust barriers may be installed if not sprinkler is not adequate
Black fume emission from vehicles	Emission reports are available	Satisfied	
Monitoring of air quality periodically	Baseline monitoring is not carried out yet	Unsatisfied	Still waiting for the PIU approval for the task
Noise pollution and vibration			
Monitoring of noise level and vibration periodically	Baseline monitoring is not carried out yet	Unsatisfied	Still waiting for the PIU approval for the task
Noise barriers/proofs for sensitive location	Not required yet		
Water pollution and soil erosion			
Drainage facilities are required for storm water run off	Planned to applied drainage system		
Oil spillage takes place at worksites and mixing with water body	Trays are used to collect oil at the workshops	Satisfied	
Soil erosion takes place during the rainy period	Applying drainage plan approved by the Engineer	Satisfied	
Water inundation locations/utensils are available at site worksites	Action taken to remove the water	Satisfied	
Water quality monitoring is done periodically	Baseline monitoring is not carried out yet	Unsatisfied	Still waiting for the PIU approval for the task
Land slips/failures takes place at slop cuts	Not recorded in the reporting period		
Waste management			
Generating of solid waste in the construction sites	Bins have been placed and a person who is used to collect the waste each worksite.	Satisfied	
Housekeeping is required as a routing work in work sites	Housekeeping is done regularly	Satisfied	
Sign and text boards are in placed each worksite adequately	Under preparation	Unsatisfied	To be fulfilled
Hazard wastes and chemicals are stored and handled carefully	Store and use carefully and waste carefully handled under the MSDS	Satisfied	
Open burning for waste is practised at the sites	Educated not to burn waste as a disposal method.	Satisfied	
Ecological aspects			

Impacts likely pre-construction/during the construction/ requirements	Rectification actions taken	Level of the action taken	Description/ remarks
Tree felling is required for land clearing for purpose of construction	Tree removing takes place now only prior approval of the relevant land owner	Satisfied	
Conducting of Ecological surveys	Carried out ecological surveys for land obtained from FD/DWC	Satisfied	
Protection of fauna (No hunting or fishing)	Stopped hunting/fishing by educating the workers and closed supervision	Satisfied	Refreshment is being done in this regard in the toolbox meeting weekly.
Human and elephant conflict taking place at project sites	All the work sites have been covered with elephant fences. Advised not to leave site at night time	Satisfied	Advised to the Contractor, when not working the fence properly, to get service from DWC officers.
Following the instructions made by DWC/FD are essential	Workers have been educated to follow the rules and regulations applied for inside forest reserve	Satisfied	Refreshment is being done in the toolbox meeting weekly.
Maintaining of the Elephant fences regularly	Maintaining is often place	Satisfied	
Training and awareness programme			
Conducting toolbox meeting	Weekly toolbox meeting is done with participation site staff.	Satisfied	Instructed the Contractor his EO to be participated to the meeting always.
Safety from wild animal	Programme conducted by DWC	Satisfied	
Health and Safety aspects			
Use of PPE	Providing necessary PPEs for all worksite in the project	Satisfied	
Erection of warning text and sign boards place where needs	Placed at most of locations except few places of the site	Moderately satisfied	To be improved
Sanitation facilities	Provided necessary facilities	Satisfied	
Handling of Explosive magazine	Maintaining under the police protection	Moderately satisfied	No permission for explosive transporting vehicle

35. Progress of the conditions specified in EIA Approval granted by CEA on 13 April 2018 to the alterations made for the NCPC described in the study report dated 2018.02 10 as follows:

KMTC-UEC ICB-2B

- Approval was granted by FD for 1.8 km road segment with 10 m width.
- According to the PIU request, FD granted to tree felling accordingly PIU marked the trees to be removed for the project purposes. Marked trees removed and transported to their yards by TC according to request of FD. However, at first, if trees had marked to be removed the trees along the trace and premises, some trees were saved as not to be removed.
- Instructed to remove the marked trees only and removing to be done without damage to adjacent trees.

- Ensured not to remove unwanted trees during the construction through the Engineer's instructions.
- If need to remove additional trees, Engineer instructed to follow the accepted method for it.
- Engineer instructed not to remove any additional trees or tree branches without proper approval of the relevant authority.
- Instructed and refreshed at the meeting not to entry to the protected areas without permission of the FD/DWC
- Instructed to the Contractor to be erected text and sign boards such as No hunting/poaching, No fire, no fishing, No entering, No cutting trees and no collecting specimens for flora-fauna protection.
- Ground water monitoring is carried out continuously with bi weekly by Geological team.

Environmental Approval Status

UEC-ICB-2A

Activity/item	Permission approval	Institute	31 by Dec 2021
CEMP	Approval	Engineer	Approved up to next updating
Land for construction	Approval	FD/DWC	Available
Campsite-Main camp	EPL	CEA	Available
Removal of trees/Site clearing	Approval	FD/DWC	Available
DS-DPN1	Env. Rec	CEA	Available
DS-DPN2	Env. Rec	CEA	Available
DS-DPN3	Env. Rec	CEA	Renewal
DS-DPSN1	Env. Rec	CEA	Pending
BP-NP	EPL	CEA	Available
Mining activities	Licenses	GSMB	Available
Tub well	Permission	WRB	Available

KMTC-UEC ICB-2B

Activity	Permission approval	Institute	31 by Dec 2021
Implementation of the Project	Approval	CEA	Available
Leloya Accommodation	Approval	FD	Available
T2 Outlet Accommodation	Approval	FD	Available
Crusher Plant-Leloya	EPL	CEA	Expired
Batching Plant-Leloya	EPL	CEA	Expired
Batching Plant-T2 outlet	EPL	CEA	Expired
Disposal Yard 1 (DP-1)	Env. rec.	CEA	Not available
Quarry Dust Washing Plan	EPL	CEA	Available

- Ecological surveys were carried out land block for "F – 3.5 ha and C – 5 ha in Southern portal area of UEC-ICB-2A before commence the land clearances through 3rd party institute.
- Monitoring mechanism: NCPCP and KMTC
 - Tool Box Meeting: HSE

- Environmental monitoring Inspection: bi-weekly
- Environmental Checklist: bi-weekly
- Environmental Inspection Report: when and as required
- Environmental MPM/project MPM
- Maintaining daily Environmental issue log-EO
- Monthly PR including Environmental management
- **Complaint Register: common place in Southern access road in UEC ICB-2A and Section-d KMTC**
- Crack survey
- KMTC: UEC ICB-2B
 - Building/house property condition survey was carried out through GSMB technical team for 10.5 km long section -d access road with 50m from RoW. It was covered 48 houses/buildings before commence the road construction work.

36. **Table 3-2** summarizes the construction-based activities involved by the Employer and the PMDSC with the Contractor and other key stakeholder agencies during the monitoring period.

Table 3-2: Construction based events carried out during the monitoring period

Date	Activity	Location
2021.08.08	Joint site inspection with HSE team	Lel Oya and section -d
2021.07.14	Field visit to main camp with ASD officers to observe the lands for reforestation	UEC ICB 2A main camp rea
2021.07.17	Joint site inspection with HSE team	Lel Oya and section -d
2021.07.20	Conducted the workshop on wildlife safety during the construction work	DS office Palu-gaswewa
2021.08.03	Field visit to Southern portal attending with DWC, PIU and PMDSC officers	Southern portal-N1 area
2021.08.13	Carried out the ecological survey with third party experts	Land block -C
2021.08.14	Carried out the ecological survey with third party experts	Land block -F
2021.09.16	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Northern portal
2021.09.17	BI weekly HSE joint site inspection to fill the env. checklist	SUEC ICB 2A, Southern portal
2021.09.22	Joint site inspection with HSE team	Lel Oya and section -d
2021.09.29	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Northern portal
2021.09.30	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Southern portal
2021.10.08	Joint site inspection with HSE team	Lel Oya and section -d
2021.10.14	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Northern portal
2021.10.15	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Southern portal

Date	Activity	Location
2021.10.27	Joint site inspection with HSE team	Lel Oya and section -d
2021.11.11	Joint site inspection with HSE team	Lel Oya and section -d
2021.11.15	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Southern portal
2021.11.16	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Southern portal
2021.11.26	Joint site inspection with HSE team	Lel Oya and section -d
2021.11.29	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Northern portal
2021.11.29	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Southern portal
2021.12.13	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Southern portal
2021.12.17	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Northern portal
2021.12.29	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Southern portal
2021.12.30	BI weekly HSE joint site inspection to fill the env. checklist	UEC ICB 2A, Northern portal

37. There are number of meetings, training programs carried out during the monitoring period with the participation of relevant officers representing PMU, PIU, Engineer, PMDSC and the Contractor. A summary of the details is given in **Table 3-3**.

Table 3-3: Summary of the meetings and training conducted during the monitoring period

Date	Activity	Location
2021.07.07	Monthly Progress review meeting KMTC	RE's office
2021.08.06	Monthly Progress review meeting UEC ICB-2A	Contractor's office
2021.08.28	Meeting with PD -PIU	PIU office Madatugama
2021.10.08	Monthly progress review meeting UEC ICB-2A	Contractor's office
2021.10.13	Monthly Progress review meeting KMTC	RE office
2021.11.03	Monthly Progress review meeting KMTC	RE office
2021.11.05	Monthly Progress review meeting UEC ICB -2A	Contractor's office
2021.11.24	Meeting had with EMS handled by ES -National	RE-office at NWCP-ICB-1
2021.12.07	Monthly Progress review meetings	Contractor's office
2021.12.08	Monthly Progress review meeting KMTC	RE's office
2021.12.08	Meeting had to discuss on supplementary EIA -UEC-ICB -2A	CRE office
2021.12.15	Meeting with DWC and PIU on approval for night time work	Minneriya National Park

3.2 Grievance Redress Committee (GRC) Activities

38. Any of Grievance Redress Committee meetings did not carried out in this reporting period.

39. There are other meetings carried out as awareness sessions, informal communications under GRC mechanism and the **Table 3-4** summarized such meetings conducted related to KMTC.

Table 3-4: Summary of the other meetings, awareness sessions conducted under KMTC

Type of event	Purpose	No. of participants	Location (GN-DS)	Date	Resource persons	Remarks
Awareness	To find the solution for village worker's working issues at section-d	124	Ilukkumbura Temple	11 Nov. 2021	Communication officer-PIU GN-Ilukkumbura GN-Kahagala	
Awareness	To find the solution for village worker's working issues at section		Puwakpitiya Temple	11 Nov. 2021	Communication officer-PIU, GN- Puwakpitiya GN- Poththawela	

4 PROPOSED ACTIVITIES FOR NEXT REPORTING PERIOD (JANUARY TO JUNE 2022)

Table 4-1: Environmental Plan for next reporting period by PMDSC January to June 2022

Task	Date of Commencement	Expected Date of completion
Preparation and obtain approval of Addendum for the design change in variation 01 in UECP-ICB -2A	December 2021	March 2022
Updating of EMP for UECP-ICB -2A	January 2022	February 2022
Updating and review of CEMP for UECP-ICB -2A	April 2022	May 2022
Environmental quality measurements for UECP-ICB -2A	February 2022	March 2022
Implementation of site restoration plan for KMTC	May 2022	December 2022

Annex 1: Environmental Quality Measurements Results in December 2021

UEC-ICB-2B

a. Water quality Monitoring

Last sedimentation tank of T1Outlet water	7.5
Last sedimentation tank of T2Inlet water	7.2
Quarry dust washing water	8.3
Last sedimentation tank of Lel Oya batching plant	8.4
Sec. d Ch. 2+430	7.0
Ch. 5+860	7.2
Ch. 10+337	7.1
Last sedimentation tank of T2O batching plant	7.5
Stream3 of T2O	6.9

b. Air quality and Noise level Monitoring

Parameter	Unit	Standard Value	Locations					
			Lel Oya work site gate	T2Inlet Portal	Lel Oya - Batching Plant	T2Out Batching Plant	T2Out Portal	Sec. 'd' site Camp
PM 2.5	g/m ³	3000	40	41	67	45	50	49
PM 5	g/m ³	8000	43	40	63	42	47	45
CO ₂	ppm	5000	458	470	461	473	491	466
O ₂	%	20-21	20.9	20.9	20.9	20.9	20.9	20.9
CH ₄	%	10	00	00	02	6	7	4
Noise	dB	85day/55night	51	50	69	55	49	55

Annex-02

UEC- ICB-2A

Testing report of water quality for drinking and concreting of Campsite wells.

中遠股份斯里兰卡埃勒馬勒連河27.7km引水隧洞工程項目
PROJECT (UECP- ICB- 2A) OF CHINA STATE CONSTRUCTION ENGINEERING CORP. LTD


Table 2: Water test result summary and Compliance

No.	Characteristic	Unit	Test Result								Requirement	WHO Quality Criteria for Drinking Water	BS EN 1008 for Concrete	Compliance							
			Well 01A	Well 01B	Well 02A	Well 02B	Well 03A	Well 03B	Well 04A	Well 04B	SLS 614 for Drinking Water			For Drinking				For Concrete			
														Well 01	Well 02	Well 03	Well 04	Well 01	Well 02	Well 03	Well 04
Physical requirement																					
1	Colour	Hazen	ND	NR	18	NR	14	NR	ND	NR	15	15	Water not from sources classified in 3.2. The colour shall be assessed qualitatively as pale yellow or paler	✓	✗	✓	✓	✓	✓	✓	✓
2	Turbidity	NTU	2.9	NR	7.2	NR	2.8	NR	1.4	NR	2	<5	NM	✗	✗	✗	✓	✓	✓	✓	✓
3	Temperature	°C	25.4	25.4		25.6		25.4	25.4	25.5	NM	22	NM	✓	✓	✓	✓	✓	✓	✓	✓
4	Total suspended solid	mg/L	NR	1		2		7	NR	3	NM	25	Water from sources classified in 3.2. water from other sources max. 4ml sediment	✓	✓	✓	✓	✓	✓	✓	✓

中遠股份斯里兰卡埃勒馬勒連河27.7km引水隧洞工程項目
PROJECT (UECP- ICB- 2A) OF CHINA STATE CONSTRUCTION ENGINEERING CORP. LTD

No.	Characteristic	Unit	Well 01A	Well 01B	Well 02A	Well 02B	Well 03A	Well 03B	Well 04A	Well 04B	SLS 614 for Drinking Water	WHO Quality Criteria for Drinking Water	BS EN 1008 for Concrete	Well 01	Well 02	Well 03	Well 04	Well 01	Well 02	Well 03	Well 04
5	Taste and odour	/									Unobjectionable	cause should be investigated	No smell	✓	✓	✓	✓	✓	✓	✓	✓
6	Oil and grease	mg/L	ND	NR		NR		NR	ND	NR	0.2		Not more than visible traces	✓	✓	✓	✓	✓	✓	✓	✓
Chemical requirement																					
7	pH @25°C	-	7.3	7.2	7.1	7.4	7.1	7.4	7.2	7.5	6.5-8.5	6.5-9.5	≥4	✓	✓	✓	✓	✓	✓	✓	✓
8	Electrical conductivity	μS/cm			1089		1072				NM	1000	NM	✓	✗	✗	✓	✓	✓	✓	✓
9	Total dissolved solids	mg/L	802	NR	697	NR	666	NR	1573	NR	500	1000	NM	✗	✗	✗	✗	✓	✓	✓	✓
10	Chloride (as Cl ⁻)	mg/L	136	134	134	124	112	76	606	508	250	250	1000	✓	✓	✓	✗	✓	✓	✓	✓
11	Total Alkalinity (as CaCO ₃)	mg/L	495	NR	490	NR	500	NR	526	NR	200	500	1500	✗	✗	✗	✗	✓	✓	✓	✓
12	Total hardness (as CaCO ₃)	mg/L	1904	NR	650	NR	420	NR	2248	NR	250	NM	NM	✗	✗	✗	✗	✓	✓	✓	✓
13	Nitrite (as NO ₂ ⁻)	mg/L	4.6	3.9	0.9	1.4	0.9	2.8	2	1.6	50	50	500	✓	✓	✓	✓	✓	✓	✓	✓
14	Nitrite (as NO ₂ ⁻)	mg/L	ND	NR	<0.1	NR	<0.1	NR	ND	NR	3	NM	NM	✓	✓	✓	✓	✓	✓	✓	✓
15	Sulphate (as SO ₄ ²⁻)	mg/L	18	11	9	11	8	17	20	ND	250	250	2000	✓	✓	✓	✓	✓	✓	✓	✓

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中建股份斯里兰卡埃勒加勒河27.7km引水隧洞工程项目
PROJECT (UECP-10B-2A) OF CHINA STATE CONSTRUCTION ENGINEERING CORP. LTD.

No.	Characteristic	Unit	Well 01A	Well 01B	Well 02A	Well 02B	Well 03A	Well 03B	Well 04A	Well 04B	SLS 614 for Drinking Water	WHO Quality Criteria for Drinking Water	BS EN 1068 for Concrete	Well 01	Well 02	Well 03	Well 04	Well 01	Well 02	Well 03	Well 04
16	Fluoride (as F ⁻)	mg/L			1.1		1.2				1	NM	NM	✓	✗	✗	✓	✓	✓	✓	✓
17	Total phosphates (as PO ₄ -P)	mg/L	0.075	0.05	0.6	0.13	0.6	0.12	0.17	0.05	2	NM	NM	✓	✓	✓	✓	✓	✓	✓	✓
18	Iron (as Fe)	mg/L	ND	NR	0.2	NR	0.1	NR	ND	NR	0.3	0.3	NM	✓	✓	✓	✓	✓	✓	✓	✓
19	Manganese (as Mn)	mg/L			0.1		<0.1				0.1	NM	NM	✓	✓	✓	✓	✓	✓	✓	✓
20	Calcium (as Ca)	mg/L			NT		NT				100	NM	NM	✓	✓	✓	✓	✓	✓	✓	✓
21	Magnesium (Mg)	mg/L			NT		NT				30	NM	NM	✓	✓	✓	✓	✓	✓	✓	✓
22	Total coliforms per 100ml at 37°C	/			92		>1000				NM	none	NM	✓	✓	✓	✓	✓	✓	✓	✓
23	Faecal coliforms per 100ml	/			NILL		NILL				NM	/	NM	✓	✓	✓	✓	✓	✓	✓	✓
24	Ammonia (as NH ₃)	mg/L	0.31	NR		NR		NR	0.41	NR	0.06	1.5	NM	✓	✓	✓	✓	✓	✓	✓	✓
	Laboratory		✓	✓	✓	✓	✓	✓	✓	✓											

Remarks: NM - the relevant test item is Not mentioned

NT - Not tested

ND - Not detected

NR - Not required

Annex 3

Photographic Evidences

UEC-ICB-2A



Joint site inspection with ASD officers -UEC ICB -2A, 14 July 2021



Workshop for safety elephant attacks - UEC ICB -2A, 20 July 2021



Practical session for safety elephant attacks -UEC ICB -2A, 20 August 2021



Field visit had with DWC/PIU officers, UEC ICB -2A, 03 August 2021



Monthly progress review meeting UEC ICB-2A, 06 August 2021



Workshop had with DWC/PIU UEC ICB-2A, 15 Dec. 2021



CEA site inspection to check the batching plant operation-UEC ICB-2A, 30 Nov. 2021



HSE joint site inspection the Engineer the Contractor UEC ICB-2A, 28 Oct. 2021



Crack survey is carried out along the tunnel trace-UEC ICB-2A, 31 Dec. 2021



Inspection with attending FD and PIU officers, 22 Oct. 2021



**Field visit of PHI -Laggala, UEC ICB-2B,
19 Oct. 2021**



**GRC meeting held at Puwakpitiya temple,
11 Nov. 2021**



**GRC meeting held at Ilukkumbura -Section -
d, UEC ICB-2B, 29 Nov. 2021**



**Site inspection had with FD officers
section-d -UEC ICB-2B, 12 Dec 2021**