

Contract No. CPW 02/2023

**Independent Environmental Checker Services for
Relocation of Sha Tin Sewage Treatment Works
to Caverns**

Proposal on the Reporting Mechanism

for

Drainage Services Department


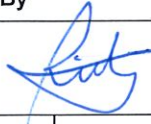

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1 INTRODUCTION

1.1 Background

1.1.1 ANewR Consulting Limited (ANewR) was commissioned by Drainage Services Department (DSD) on 20 February 2023 to undertake the Independent Environmental Checker (IEC) services as required and/or implied, both explicitly and implicitly, in the relevant documents under the Environmental Impact Assessment Ordinance (EIAO) including Environmental Permit (EP), Environmental Impact Assessment Report (EIA Report) and Environmental Monitoring and Audit Manual (EM&A Manual) for the Relocation of Sha Tin Sewage Treatment Works to Caverns (the Project).

1.2 Project Description

1.2.1 The Relocation of Sha Tin Sewage Treatment Works to Caverns (the Project) is implemented so as to release the existing site, of a size about 28 hectare, for other uses.

1.2.2 Contract No. DC/2018/05 is one of the contracts under the Project. The construction works under this contract include site preparation works at the main access tunnel portal area, construction of a section of main access tunnel leading to the proposed cavern complex at Nui Po Shan and construction of an access road leading to the proposed ventilation shaft.

1.2.3 Contract No. DC/2020/05 is the second contract under the Project. The construction works under this contract include construction of a main caverns complex; construction of about 260m long secondary access tunnel to connect the main caverns complex and Mui Tsz Lam Road; construction of ventilation shaft and ventilation ducts; construction of about 320m long effluent pipelines to existing THEES tunnel; demolition and temporary re-provisioning part of the facilities in the existing Sha Tin Sewage Treatment Works and other associated works.

1.3 Purpose of the Proposal

1.3.1 Pursuit to the Environmental Permit (EP) with permit number EP-533/2017A Condition 2.9 of the Project, the purpose of this Proposal on the Reporting Mechanism (the Proposal) is to describe the approaches for the IEC and the supporting team to report to the Director of Environmental Protection (the Director) on:

- (i) How to discharge all the IEC duties specified under the Environmental Monitoring and Audit (EM&A) Programme and EP by considering the construction activities and programme of the Project and Conditions 2.3 to 2.7 of the EP;
- (ii) How to handle each and every change of circumstances, emergency events relating to violation of environmental legislations or non-compliances (including suspects of non-compliance) with the recommendations (such as construction methods, mitigation measures, and environmental standards) of the approved Environmental Impact Assessment (EIA) Report (Register No. AEIAR-202/2016), the Updated EM&A Manual, the Environmental Review Report (ERR) submitted under the Application for Variation of Environmental Permit (Application No.: VEP-618/2022) and Environmental Permit, which might affect the monitoring or control of adverse environmental impacts from the Project; and
- (iii) How to keep proper records in order to respond to questions and enquiries from the Director on the EM&A programme and duties discharged by the IEC.

2 DUTIES OF THE INDEPENDENT ENVIRONMENTAL CHECKER

2.1 Overview

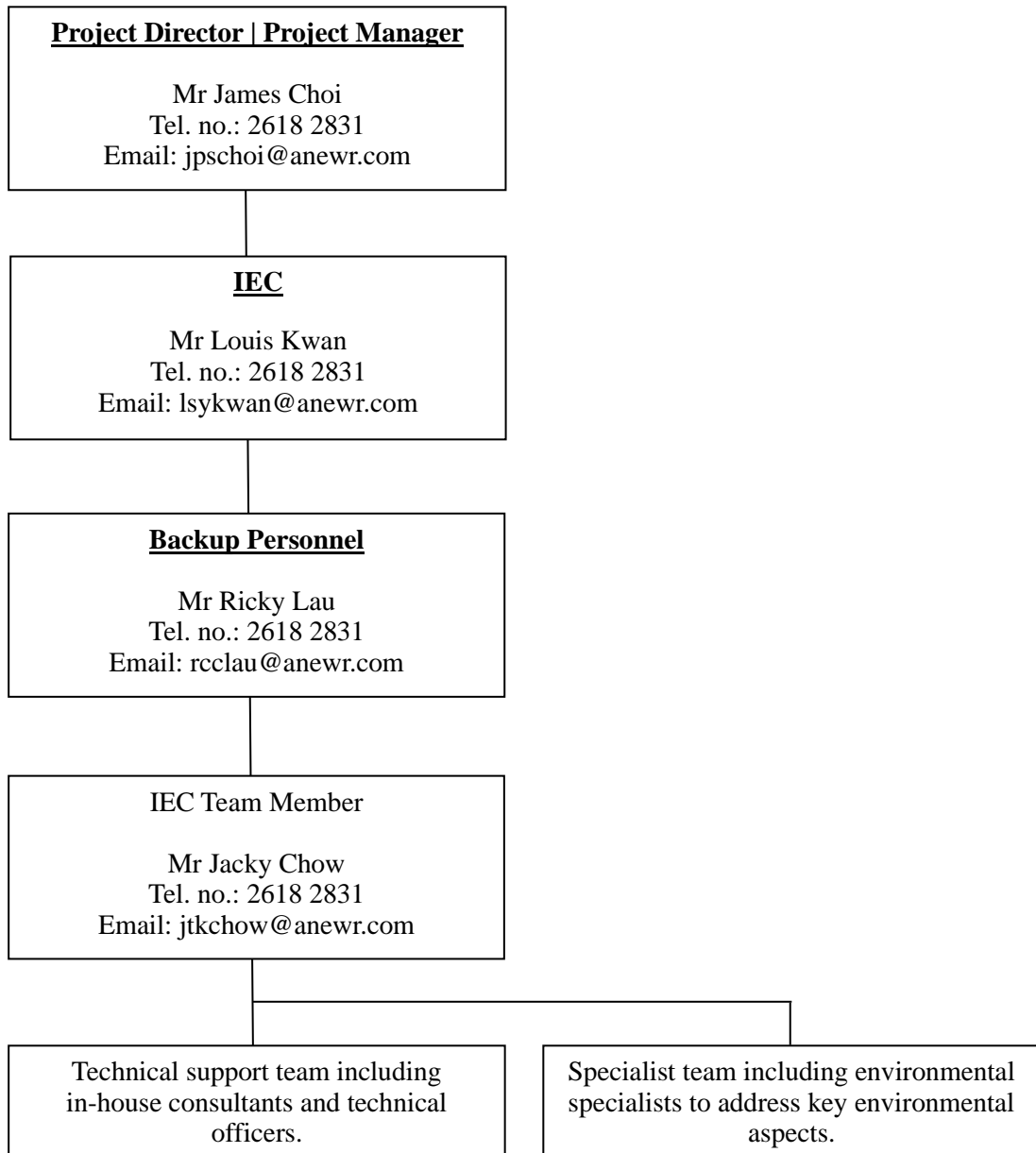
2.1.1 The Independent Environmental Checker (IEC) shall be responsible for duties defined in the Updated EM&A Manual section 1.5.1.7 and the EP, including but not limited to the following:

- (i) To audit the overall EM&A performance, including the implementation of all environmental mitigation measures and monitoring activities on site;
- (ii) To verify the environmental acceptability of permanent and temporary works, relevant design plans and submissions required in the Updated EM&A Manual and under the EP;
- (iii) To verify the logbook(s) mentioned in Condition 2.4(v) of the EP;
- (iv) To notify the Director by fax or email, within one working day of receipt of notification from the ET Leader, or identification by the IEC and his/her team, of each and every change of circumstances and emergency events mentioned in Condition 2.9(ii) of the Permit. Notification by the Permit Holder is the same as notification by the IEC for the purpose of this EP Condition;
- (v) To accompany the Director in carrying out site inspections and attending meetings when requested;
- (vi) To offer objective and professional advice on environmental issues, when requested, and to respond to questions and enquires from the Director on the EM&A programme and duties discharged by the IEC, with the support of relevant information, documents and records as appropriate;
- (vii) To allocate adequate resources, including any necessary specialist supports having regard to the specialists in the ET under Conditions 2.6 to 2.7 of the EP for discharging the duties required in the EP and the Updated EM&A Manual;
- (viii) To review the EM&A works performed by the ET (at least at monthly intervals);
- (ix) To carry out random sample check and audit the monitoring activities and results (at least at monthly intervals);
- (x) To conduct random site inspection;
- (xi) To review the EM&A reports submitted by the ET;
- (xii) To review the effectiveness of environmental mitigation measures and project environmental performance;
- (xiii) To review the proposal on mitigation measures submitted by the Contractor in accordance with the Event and Action Plans;
- (xiv) To check the mitigation measures that have been recommended in the EIA, the ERR submitted under the Application for Variation of Environmental Permit (Application No.: VEP-618/2022) and EM&A Manual, and ensure they are properly implemented in a timely manner, when necessary; and adhere to the procedures for carrying out complaint investigation.

3 DUTIES OF THE INDEPENDENT ENVIRONMENTAL CHECKER

3.1 Organization Chart

3.1.1 The organization chart is presented as follow:



3.1.2 CV of IEC team is given in **Appendix B**.

3.2 Duties of Key Staff and Specialist Team

- 3.2.1 According to Condition 2.8 of the EP, a single full time on-site IEC with a supporting team, shall be employed by DSD for the project. Full time on-site IEC is defined as the IEC shall be at the project site during office hours. Project site refers to all area that host operations related to the project, including construction works sites, meeting with stake holders related to the project or other work sites outside the project area where applicable, e.g. sensitive receivers, monitoring locations, off site works area, public sorting facilities, waste treatment facilities, a casting yard, rock crushing facilities, etc.
- 3.2.2 In case the IEC cannot attend the site, the Backup Personnel as described in S.3.2.3(ii) will take up his role and will carry out all on-site duties of the IEC specified in Updated EM&A Manual and the EP. All documents shall still be reviewed and verified by the IEC.
- 3.2.3 Key staffs and specialists of the project team are presented below:
- (i) IEC will be responsible for day-to-day management and conduct the duties of the IEC as stipulated in Section 2. He will be the main coordinator between various parties of the project, including DSD, EPD, ET, Contractors, other Government Departments and other related stake holders. He will also liaise with the support team to provide necessary support;
 - (ii) Backup Personnel is responsible for taking up all on-site duties of the IEC during his absence as discussed in Section 3.2.2. He will assist the IEC to undertake the assigned duties as presented in Section 2.1.1. All documents shall still be reviewed and verified by the IEC. In case of any change of circumstances, emergency events, Backup Personnel will call or zoom with IEC to seek for advice;
 - (iii) IEC Team Member will assist IEC to coordinate with Technical Support Team and Specialist Team;
 - (iv) Technical Support Team will help conduct site inspections, independent environmental data measurements and other document review;
 - (v) Specialist Team will provide specialist support for this Project to address key environmental aspects (including air quality, noise, water quality, ecology, landscape and visual, waste management and land contamination) and / or engineering aspects of the Project.
- 3.2.4 The IEC, Backup Personnel and the IEC team members are not an associated body of the Engineer's Representative (ER), the Contractor or the Environmental Team (ET) for the Project and are not employed as an ET Leader or an IEC on a full time basis for another project.

4 PROPOSED REPORTING MECHANISM

4.1 Overview

4.1.1 The reporting mechanism for the Project is proposed in this section. The duties of the IEC for this Project under the proposed reporting mechanism can be summarized in the following aspects:

- (i) To audit the overall EM&A performance, including the implementation of all environmental mitigation measures and monitoring activities on site;
- (ii) To verify the environmental acceptability of permanent and temporary works, relevant design plans and submissions required in the Updated EM&A Manual and the EP;
- (iii) To verify the log-book mentioned in Condition 2.4(v) of the EP;
- (iv) To notify the Director by fax or email, within 1 working day of receipt of notification from the ET Leader, or identification by the IEC and his team, of each and every change of circumstances and emergency events mentioned in Condition 2.10(iv) of the EP;
- (v) To accompany the Director in carrying out site inspections and attending meetings when requested;
- (vi) To offer objective and professional advice on environmental issues, when requested, and to respond to questions and enquires from the Director on the EM&A programme and duties discharged by the IEC, with support of relevant information, documents and records as appropriate;
- (vii) To allocate adequate resources, including any necessary specialist support having regard to specialists in the ET under Conditions 2.6 to 2.7 of the EP, for discharging the duties required in the EP and the Updated EM&A Manual;
- (viii) To report the findings of the site inspections and other environmental performance reviews to the Engineer Representative (ER);
- (ix) To advise on proactive actions;
- (x) To validate and confirm the accuracy of monitoring results, monitoring equipment, monitoring locations, monitoring procedures and locations of sensitive receivers;
- (xi) To carry out random sample checks and audit the monitoring activities, monitoring data, results and sampling procedures;
- (xii) To conduct random site inspections and audit the ET monitoring methodology, and;
- (xiii) To review and verify the Monthly and Quarterly EM&A reports submitted by the ET.

4.1.2 The detailed methodology on discharging the duties mentioned above are given in Section 4.2 to Section 4.4.

4.2 Discharge of Routine Duties

As discussed in Section 4.1, the duties of IEC can be divided into 13 different aspects. The proposed routine to discharge these duties will be discussed as follows.

4.2.1 Document and Data Verification

4.2.1.1 The IEC shall allocate adequate resources, including any necessary specialist supports having regard to the specialists in the ET, and audit the overall EM&A performance, including the implementation of all environmental mitigation measures and monitoring activities on site in connection with the EP and the Updated EM&A Manual undertaken by the ET.

4.2.1.2 According to EP condition 1.9, all submissions or any variation of the submissions shall be certified by the Environmental Team Leader and verified by the Independent Environmental Checker before submitting to the Director. The relevant EP submissions or any variation of the submissions under the requirements of the EP including EM&A report, shall be reviewed and verified by our IEC team before submitting to the EPD. **Table 4.1** has outlined the list of environmental submissions for review and verification by IEC before and during construction phases; and before operational phase:

Table 4.1 List of Environmental Submissions for Review and/or Verification by Our IEC

EP Submission Items	Description	Reference
Detailed Woodland Compensation Plan	To verify the Detailed Woodland Compensation Plan by Baseline ET under Service Contract No. SPW 9/2018. The Detailed Woodland Compensation Plan shall include implementation details, management requirement, as well as monitoring requirements of the compensatory planting area; and it shall be submitted to the Director for approval no later than 3 months before the commencement of compensatory woodland planting.	EP Condition 2.15
Detailed Vegetation Survey Report and Protection and Transplantation Proposal	To verify the implementation of the approved Detailed Vegetation Survey Report and Protection and Transplantation Proposal to be carried out by the ET under Condition 2.13 of the EP.	EP Condition 2.13
Landscape and Visual Mitigation and Tree Preservation Plan(s)	To verify the Landscape and Visual Plan and Tree Preservation Plan(s) as per Condition 2.18 of the EP.	EP Condition 2.18
Supplementary Contamination Assessment Plan (SCAP)	To review, comment and verify the SCAP, CAR and if necessary, RAP and RR prepared by the ET.	EP Condition 2.21
Measure to Mitigate Traffic Noise from Ma On Shan Road	To verify the Plan on Measure to Mitigate Traffic Noise from Ma On Shan Road.	EP Condition 2.22
Measure to Minimize Vibration	To verify the Measure to Mitigate Vibration	EP Condition 2.23
Measures to Mitigate Water Quality Impacts	The preparation and construction works of new pipelines form the CSTW underneath Shing Mun River shall be built by trenchless method. The preparation and construction works shall be certified by the ET Leader, verified by the IEC and reported in the EM&A programme.	EP Condition 2.26
	The preparation and construction of the THEES connection works shall be certified by the ET Leader, verified by the IEC and reported in the EM&A programme.	EP Condition 2.27
	To verify impact water quality monitoring as per Condition 3.2 and the EP and Clause 4.4 of the EM&A Manual.	EP Condition 3.2 Clause 4.4 of the Updated EM&A Manual
Measures to Mitigate Air Quality Impacts	To verify commissioning test plan	EP Condition 2.29 Section 3.11.2 and Appendix 3.8E of the ERR

EP Submission Items	Description	Reference
Measures to Protect Species of Conservation Importance	The preparation and construction work of proposed access roads shall be certified by the ET Leader, verified by the IEC and reported in the EM&A programme.	EP Conditions 2.30
Monthly EM&A Report	The Permit Holder shall submit copy of Monthly EM&A Report within 2 weeks after the end of the report month. The submission shall be certified by the ETL and verified by the IEC. Report in HTML format shall be submitted at the same time as the hard copies.	EP Conditions 3.5 and 4.1
Final design of the building(s)	The final design of the building(s) shall be submitted to the Director for approval before commencement of construction of the building(s).	EP Condition 2.19
Measure to Mitigate Operation Noise Impacts	Not later than 1 month before the commencement of operation of the Project, a commissioning test shall be conducted for the ventilation building(s), ventilation shaft, ventilation fan for chiller plant room at administration building and cooling tower at the administration building. No later than 2 weeks after completion of the commissioning test, the Permit Holder shall deposit with the Director 4 hard copies and 2 electronic copies of report showing the compliance with the relevant design maximum Sound Power levels determined in the approved EIA Report (Register No. AEIAR-202/2016). The report shall be certified by the ET Leader and verified by the IEC.	EP Condition 2.36

- 4.2.1.3 IEC's response for each document submitted will be completed within five working days upon receipt. Monthly EM&A Report will be commented or verified within three working days. Verification letters will be printed for signature. Signed and issued letters will be archived on site for record. On-site log-book to be updated and kept by the ET as required under the EP Condition 2.4 will be inspected by our IEC team. Any instance or circumstance or change of circumstances will be acknowledged by signature on the log-book, and no soft copy will be kept. Other documents kept on-site, if any, will be treated similarly.
- 4.2.1.4 Environmental monitoring data will be audited by the IEC at least once per month, additional audit(s) may be conducted where necessary. The IEC will conduct random sample checks and audit at least at monthly intervals on the monitoring activities, monitoring data, results and sampling procedures, etc. Our IEC will verify that the monitoring equipment used by the ET team on site are well calibrated and maintained with valid calibration records according to the Updated EM&A Manual.
- 4.2.1.5 The findings of each independent audit on environmental monitoring data will be reported and delivered to the ET, ER, the Main Contractor, and the DSD for their records. If there are any deficiencies in and/or non-compliance with the monitoring requirements of the Updated EM&A Manual, our IEC team will issue a request for follow-up action as well as the IEC Inspection Checklist (**Appendix A**) to the ET for their immediate responses and actions for rectification.

4.2.2 Compliance with the Event and Action Plan

- 4.2.2.1 Before commencing impact dust and noise monitoring, the ET should inform our IEC the impact monitoring programme such that our IEC team can conduct on-site audits to ensure the requirements of environmental monitoring works in full compliance with the Updated EM&A Manual and keep accuracy of the impact monitoring results.
- 4.2.2.2 Exceedance on monitoring results, including noise, construction dust, etc, will be recorded by the ET, and ET shall inform IEC, contractor and ER in accordance with the Updated EM&A Manual. Upon receipt of any exceedance event, the IEC will follow the actions specified in the Event and Action Plan of the Updated EM&A Manual, and upon receipt of mitigation measures proposed by the contractor, to review and verify the effectiveness of the proposed mitigation measures.
- 4.2.2.3 Where necessary, IEC shall discuss with relevant parties and specialists, including Contractor, ET, ER, and the specialist team (Section 3.2.3), before verifying the mitigation measures. Ad-hoc site inspections shall be arranged to ensure that the mitigation measures proposed have been properly implemented and exceedances have been mitigated.
- 4.2.2.4 Verification of monitoring data will be conducted whenever an exceedance has been recorded. Further ad-hoc inspections shall be arranged where necessary.
- 4.2.2.5 The ET shall conduct investigation and submit an Investigation Report on each exceedance event; the IEC will verify the Investigation Report and may include any additional recommendations as necessary before submission to the EPD by the ET.
- 4.2.2.6 Environmental complaints are in normal case directed to the EPD, and the ER, the Main Contractor and the ET will be informed. The ET will undertake the complaint investigation to check whether it would be related to the project or not. Our IEC will monitor and ensure that the Main Contractor and the ET strictly follow the environmental complaint response procedure and reporting channel in handling environmental complaints in accordance with Section 12.3 of the Updated EM&A Manual and in full compliance with the procedures for carrying out complaint investigation.
- 4.2.2.7 Our IEC shall check and verify the root causes of the complaint and effectiveness of relevant mitigation measures and controls undertaken by the Main Contractor. Our IEC will review each ET's investigation/ incident report which should contain details of the complaint, results of the investigation, subsequent actions taken to address the complaint and updated situation including the effectiveness of the remedial measures, and any regular and additional monitoring results. Our IEC will keep the DSD and the EPD informed about the status of follow-up actions in each environmental complaint.
- 4.2.2.8 If a complaint is received by the IEC directly, IEC will forward the complaint to the Main Contractor, the ET and the ER to follow up the investigation as specified in the Updated EM&A Manual. The complaint will also be forwarded to the DSD and the EPD at the same time for their record.

4.2.3 Site Inspection and Audit

4.2.3.1 After site inspection and audit, an IEC Site Inspection Report will be generated. A sample IEC site inspection checklist is shown in *Appendix A*. The report shall cover all relevant information including the date and time of the inspection(s), works area(s) inspected, respective contract(s), the implementation status of the mitigation measures (e.g. waste management, dust control, noise mitigation, ecological protection, etc), any observation and/or deficiency (e.g. tire track outside the construction site, oil leakage, deviation from the mitigation measures, etc.) identified during the inspection, and any mitigation measures proposed in response to the observations. The IEC Site Inspection Report will be submitted to the DSD and sent to the Main Contractor, ET, and ER for their records and/or follow-up actions.

4.2.3.2 Site inspection and audit will be conducted at least once a month. Additional audit(s) will be conducted when necessary. An IEC Site Inspection Report will be submitted to DSD and sent to the Contractor, ET, and ER for their record for each site inspection and audit conducted before the end of the next working day. The IEC will notify the DSD and the EPD any change of circumstances, emergency events related to violation of environmental legislation or non-compliance with the recommendations of the approved EIA Report (Register No. AEIAR-202/2016), the Updated EM&A Manual, the ERR submitted under the Application for Variation of Environmental Permit (Application No.: VEP-618/2022) and the EP observed, which might affect the monitoring or control of adverse environmental impacts from the Project, within 1 working day. Notification will also be issued to the Contractor, the ET and the ER for investigation and rectification.

4.2.3.3 Site inspection and audit will either be a scheduled one, or an ad-hoc one. Scheduled site inspections are at least monthly site inspections and audits arranged by the ET, the Contractor, the ER, the DSD and/ or the EPD during the construction phase. For example, Site Safety and Environmental Management Committee (SSEMC) shall hold a joint site inspection once per month. IEC Team will assign staff to conduct the scheduled site inspections and audits where necessary. Ad-hoc site inspection by the IEC is to be agreed with the Employer upon request.

4.2.4 Attending Meeting

4.2.4.1 Meetings to be attended by the IEC would include the scheduled Site Safety and Environmental Management Committee (SSEMC) meetings, liaison meetings with the DSD, the ET, the ER and the contractors regarding to the EM&A programme implementation, liaison meetings with stakeholders and other Government Departments, etc.

4.2.4.2 Once the schedule of the meeting is proposed, the IEC will discuss with the host and other parties to understand the purpose of the meeting, and the role of the IEC in the meetings. It is expected that the IEC can take proactive role to share advice with the Main Contractor, the ER, the ET and the DSD on EM&A matters related to the Project and discuss amongst relevant parties on the proposed and potential remedial measures/ actions if exceedance of Action/ Limit Levels occurs so as to ensure effective implementation of the mitigation measures and enhance the acceptability of the project's overall environmental performance.

4.2.5 Offer Objective and Professional Advice on Environmental Issues

4.2.5.1 Our IEC Team will take a proactive approach when offering advices on environmental issues. During the routine inspection, the IEC Team may identify environmental issues or identify potential risks that may lead to environmental issues (e.g. noise, water, dust impact) and ecological disturbances.

4.2.5.2 The IEC Team will then evaluate the potential risks of the issues, including the likeliness of exceedance, additional nuisance, potential breaching of environmental legislation etc, and would propose suitable mitigation measures, including implementing additional mitigation measures, or application for appropriate license, etc. The IEC Team will constantly review the data collected and conduct ad-hoc site inspections where necessary and report the findings to the DSD and the EPD by the end of the next working day.

4.2.5.3 Our IEC will continuously review and monitor the environmental performance throughout the EM&A programme. The DSD, the EPD and the Agriculture, Fisheries and Conservation Department (AFCD) will be notified, if appropriate, any advice that has been proposed and agreed. Formal conclusion or suggestion, e.g. proposed rescheduling of site works to avoid cumulative impacts, use of additional mitigation measures, or license application including variation of the EP, would be covered.

4.2.6 Report to the DSD and DEP

4.2.6.1 The IEC Team will frequently review the EM&A works performed by the ET by reviewing the monitoring data collected by the ET. Whenever the latest monitoring results are available, the IEC Team will review and compare against previous results and environmental standards to assess the EM&A performance of the ET. Findings, if any, will be reported to the DSD and the EPD.

4.2.6.2 In addition, the IEC will continuously report and liaise with the DSD and the EPD on any circumstances or observations. Informal but effective communications, such as phone calls and messages, would be initiated whenever convenient, especially under contingency and immediate reporting is required.

4.3 Handle Each and Every Change of Circumstances, Emergency Events Relating to Violation of Environmental Legislation

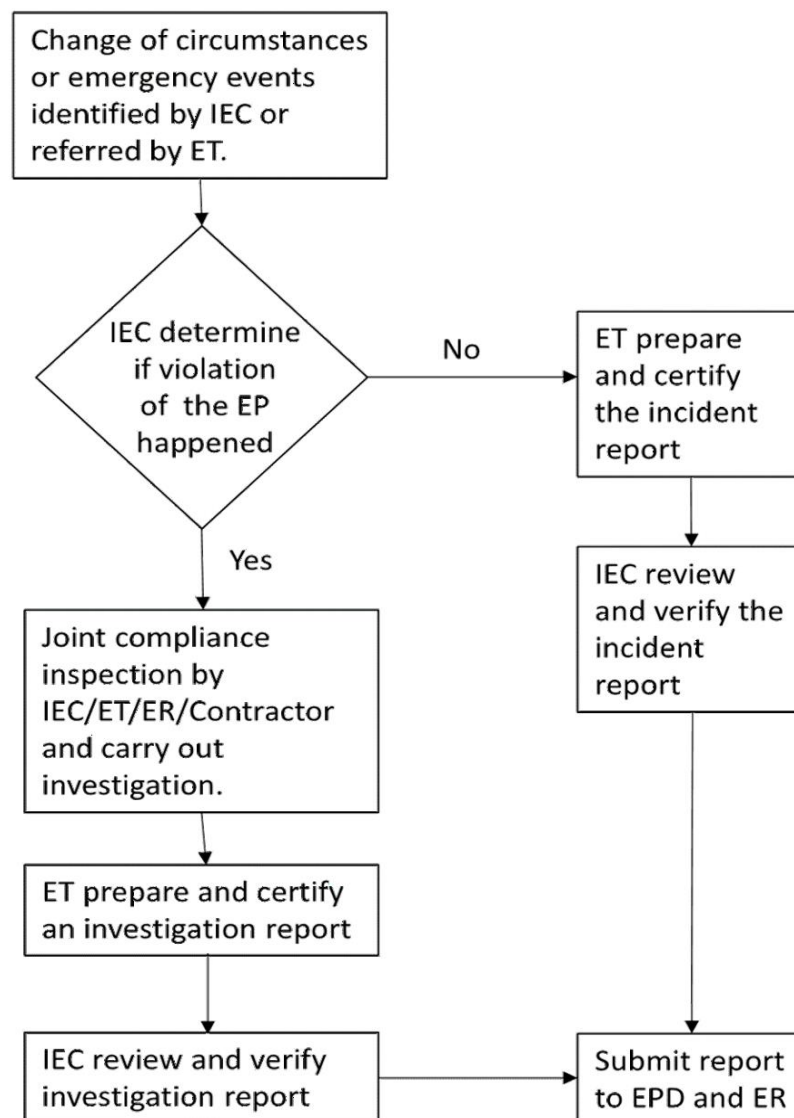
4.3.1 On every instance or circumstance or change of circumstances which may affect the compliance with the recommendations of the EIA Report or the EP, the ET shall be responsible to notify the IEC within one working day. The IEC may also identify any instance or circumstance during their routine inspections and audits. Upon receipt of notification from the ET, or identified by the IEC during inspection and audits, the IEC shall discuss with the ET, the ER and the Contractor on such instance and initiate a joint site inspection where necessary.

4.3.2 The IEC will issue the notification, together with the associated IEC Site Inspection Report, if available, to the EPD and copied to the Contractor, the ET, the ER, and the DSD by the end of the next working day upon receipt of the notification from the ET.

4.3.3 Should events relating to violation of environmental legislation, or at least having EP liability, be observed, such events will be classified as emergency issues and will be addressed immediately. The IEC Team member responsible for the identification of the event will promptly report to the IEC. The IEC will immediately determine if the event would contribute to violation of the EP and if the event has no EP liability, then the event will be recorded in the respective IEC Site Inspection Report.

4.3.4 If violation of environmental legislation is suspected, respective photo records will be sent to the Contractor, the ET and the ER immediately for further investigation. The DSD and the EPD will also be notified by e-mail immediately. Event investigation will be conducted as soon as possible, and an Event Investigation Report will be prepared. The Event Investigation Report will be delivered to the ET, the ER, and the Main Contractor for review, and subsequently submitted to the DSD and the EPD. **Figure 4.1** shows the event flow chart of handling on change of circumstances, emergency events relating to violation of environmental legislation.

Figure 4.1 Flow Chart of handling on change of circumstances, emergency events relating to violation of environmental legislation



4.4 Proper Record Keeping and Report and Information Transfer Mechanism

- 4.4.1 To achieve an environmental-friendly EM&A Programme, facsimile as a communication channel will be avoided as far as possible. E-mail will be the main communication channel to minimize printing. All submissions will be delivered by email until formal submission, where hardcopies will be printed in accordance with the specific requirement.
- 4.4.2 Soft copies of all received submissions will be saved under the respective categories, and the received documents will be logged under the document log file and actions required, including review, comment, verify, record only, will be assigned. The IEC Team will then review the document, seeking for professional review / advisory if required, and provide comments. If no comments are raised, an IEC verification letter or a letter of no adverse comments will be issued.
- 4.4.3 Comments will be saved with the received document in the same folder for easy reference. Further updates will be divided into different folder to avoid confusion.
- 4.4.4 A document index log will also be created and the respective date of receipt, action required, and response date will be recorded for all documents received from the ET, the Main Contractor, and other parties. This will allow the IEC team to quickly review if any response to submission was outstanding and required immediate action.
- 4.4.5 Site audit reports received and monitoring data collected will also be archived under the folder of respective reporting month.
- 4.4.6 All submitted documents, correspondences, reports, and received reports, information, data, etc will be saved in a computer with backup system located on site. The documents will be organized under a file system implemented for the project. This filing mechanism will enable the IEC to retrieve necessary information quickly if needed.
- 4.4.7 On request by the EPD, the DSD, the ET or the ER, required information will be extracted and sent to the requested parties where appropriate. **Table 4.2** summarizes the IEC duties, actions to be taken and target response time.

Table 4.2 IEC Duties, Action, and Response Time

Actions	Objectives of the Action	Timing /Frequency	Target Response Turnaround Time	EP Condition
<u>Routine Duties</u>				
<u>Document Verification/Inspection</u>				
Submission Verification	Verification of all submissions to the EPD pursuant to Updated EM&A Manual requirements, EP conditions and other submissions.	Whenever a submission is received for verification.	5 working days (3 working days for Monthly EM&A Report)	1.9, 2.13, 2.15, 2.18, 2.21, 2.23, 2.26, 2.27, 2.29, 2.30, 3.5
Verification of on-site logbook (EP 2.10(iii))	Inspect and acknowledgement of the on-site logbook as per EP Condition 2.4 (v) prepared by the ET.	At least once per month, or when occurrence of an instance or circumstance or change of circumstances, which may affect the compliance with the recommendations of the approved EIA Report (AEIAR – 202/2016) and the EP.	1 working day	2.10
Checking of other data (waste flow table, site inspection checklists, etc.)	Inspect and verify all data collected by the ET and Contractor during the Project progress.	At least once per month, or whenever the data was received from respective parties.	3 working days	3.6
Verification of environmental monitoring data	To verify the data collected by the ET through independent environmental monitoring and verification.	At least once per month, or when necessary including event of exceedance, receipt of complaint, etc.	3 working days	3.6
<u>Compliance with the Event and Action Plan</u>				
Conduct necessary actions specified within the Event and Action Plan in the Updated EM&A Manual	To fulfill the task required by the Updated EM&A Manual.	Whenever an exceedance or other events that triggers the Event and Action Plan.	1 working day	3.2

Actions	Objectives of the Action	Timing /Frequency	Target Response Turnaround Time	EP Condition
<i>Site Inspection and Audits</i>				
Schedule site inspections and audits	To take part in the routine site inspections and audits including Safety and Environmental Management Committee (SSEMC), and those initiated by the ET, the ER, DSD and/or EPD.	At least once per month. Additional site inspections may be required as requested by the ET, the ER, DSD and/or EPD.	1 working day (submission of IEC Site Inspection Report)	2.10
Ad-hoc site inspections and audits	To conduct additional site inspections and audits to supplement the EM&A programme when necessary.	Additional site inspections and audits may be required as requested by the ET, the ER, DSD and/or EPD.	1 working day (submission of IEC Site Inspection Report)	2.10
Any site inspection initiated by the Director	To conduct additional site inspections and audits with the Director.	Upon requested by the Director.	1 working day or within the period agreed by the EPD (submission of IEC Site Inspection Report)	2.10
<i>Attend Meeting</i>				
Attend SSEMC meeting, liaison meetings and other meetings	To provide opinion and discuss any issues raised within the meeting.	Whenever a meeting is arranged if necessary.	N/A	N/A
Attend meeting with the Director	To provide opinion and discuss any issues raised within the meeting.			2.10
Offer objective and professional advice	Offer objective and professional advice	Upon requested by the Employer.	N/A	2.10
<i>Report to the DSD and the DEP</i>				
IEC Site Inspection Report / Checklist	To provide summary on the actions conducted by the IEC and provide observations and recommendations on the EM&A works performed by the ET.	At least once per month for joint site inspection and ad-hoc inspections where necessary.	1 working day or within the period agreed by EPD	2.10

Actions	Objectives of the Action	Timing /Frequency	Target Response Turnaround Time	EP Condition
<i>Handle Each and Every Change of Circumstances, Emergency Events Relating to Violation of Environmental Legislation</i>				
Inform EPD on each and every change and emergency events relating to violation of environmental legislation or non-compliance with the recommendations of the approved EIA Report, the Updated EM&A Manual, the ERR submitted under the Application for Variation of Environmental Permit (Application No.: VEP-618/2022), and the EP, which might affect the monitoring of control of adverse environmental impacts of the Project	To inform EPD on the changes of circumstances, emergency events relating to violation of environmental legislation.	Whenever a change of circumstances, emergency events related to violation of environmental legislation or non-compliance with the recommendations of the approved EIA Report, the Updated EM&A Manual, and the EP is received or observed.	One working day after notified by ET or when identified by IEC	2.10
Discussion with ET, ER and Contractor & Conduct ad hoc site inspection at the works site (if necessary)	To obtain more information related to the changes of the circumstances, emergency events relating to the violation of environmental legislation.	Whenever a change of circumstances, emergency events related to violation of environmental legislation is received or observed.	One working day after notified by ET, or when identified by IEC	2.10
<i>Proper Records Keeping and Report and Information Transfer Mechanism</i>				
Save a soft copy of files in a computer on site	To record all received and released documentations for the Project on site.	Whenever a document is received or released.	N/A	3.2
Retrieve relevant information and send to EPD via email	To provide information to the EPD upon request.	Whenever a request was received from EPD.	3 working days or within the period agreed by the EPD	N/A

5 REVIEW OF THE REPORTING MECHANISM

When considered appropriate by the IEC or the EPD, the reporting mechanism would be adjusted. The IEC will review and update the reporting mechanism in consultation with the EPD, to suit the changing project situation.

As such, the reporting mechanism detailed in this proposal will be reviewed regularly upon commencement of construction works. Should the mechanism be optimized, the IEC will propose the revision to the DSD and the EPD. This proposal will then be updated and delivered to the DSD and the EPD for acceptance.

APPENDIX A

IEC SITE INSPECTION CHECKLIST

Date:	_____	Inspected by	_____
Time:	_____	Client / ER:	_____
Weather:	Sunny / Fine / Cloudy / Rainy	Contractor:	_____
Temperature:	_____ °C	ET:	_____
Wind:	Strong / Breeze / Light / Calm	IEC:	_____

<u>A. Air Quality</u>	Yes	Follow-up	N/A	Item no.
A1) Are dusty materials, such as excavated materials, building debris and construction materials, and exposed earth surface properly covered to prevent dust emission?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A2) Are Exposed spoil areas watered at least twice a day?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A3) Are screenings, enclosures, water spraying or vacuum cleaning devices provided to dusty construction works for dust suppression?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A4) Are fumes or smoke emitting plants or construction activities shielded by a screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A5) Are wheel-washing facilities with high-pressure water jets provided at all site exits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A6) Is wheel-washing provided to all vehicles leaving the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A7) Are road sections near the site exit free from dusty materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A8) Are all main haul roads inside the site paved or sprayed with water to minimise dust emission during vehicle movement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A9) Are water spraying provided immediately prior to any loading or transfer of dusty materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A10) Are covers provided to all dump trucks carrying dusty materials when entering and leaving the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A11) Are the working areas for uprooting of trees, shrubs, or vegetation or the removal of boulders, poles, pillars sprayed with water to maintain the entire surface wet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A12) Is exposed earth properly treated within six months after the last construction activity on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A13) Are stock of more than 20 bags of cement or dry PFA covered or sheltered on top and 3 sides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A14) No stockpile of dusty materials extending beyond the pedestrian barriers, fencing or traffic cones?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A15) The vehicle speed within the worksite limited to 10 kph, except for properly formed and maintained access roads?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A16) Does the operation of plants on site free from dark smoke emission?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A17) Are de-bagging, batching and mixing processes of bagged cement carried out in sheltered areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A18) Are hoarding of at least 2.4m high provided along the site boundary adjoining areas accessible by the public?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
A19) Is open burning prevented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

<u>B. Construction Noise</u>	Yes	Follow-up	N/A	Item no.
B1) Are the PMEs operating on site well-maintained to minimise the generation of excessive noise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

B2) Are plants throttled down or turned off when not in use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B3) Are the plants that are known to emit noise strongly in one direction oriented to face away from NSRs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B4) Material stockpiles and container site offices be situated at strategic location serving to screen noise from construction activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B5) Are silencers, mufflers and enclosures provided to plants?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B6) Built-in noise minimisation features (e.g. acoustic shield) used for all powered mechanical equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B7) All fire doors and non-essential openings kept closed at all times to prevent a reduction in the acoustic performance of the enclosure? (i.e. power generator or air compressor require door kept closed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B8) Are the hoods, cover panels and inspection hatches of PMEs closed during operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B9) Temporary hoarding of 2.4m high installed at site boundaries section directly facing the NSR?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B10) Movable barrier installed to shelter the operation of concrete lorry mixer, concrete pump truck, dump truck/ lorry and hydraulic breaker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B11) Are valid noise emission label(s) affixed to all hand-held breakers operating on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B12) Are valid noise emission label(s) affixed to all air compressors operating on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B13) Are construction noise permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B14) Are construction noise permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
B15) Are valid construction noise permit(s) displayed at all vehicular exits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

C. Water Quality

	Yes	Follow-up	N/A	Item no.
C1) Is effluent discharge licence obtained for wastewater discharge from site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C2) Is effluent discharged according to the effluent discharge licence?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C3) Is wastewater discharge from site properly treated prior to discharge?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C4) Are perimeter channels provided to intercept storm runoff from outside the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C5) Are sand/silt removal facilities such as sand/silt traps and sediment basins provided to remove sand/silt particles from runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C6) Is surface runoff diverted to sedimentation facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C7) Is the drainage system properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C8) Are construction works carefully programmed to minimise soil excavation works during rainy seasons?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C9) Are exposed soil surface protected by paving as soon as possible to reduce the potential of soil erosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C10) Are temporary access roads protected by crushed gravel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C11) Are exposed slope surfaces properly protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C12) Is trench excavation avoided in the wet season as far as practicable, or if necessary, backfilled in short sections after excavation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C13) Are open stockpiles of construction materials on site covered by tarpaulin or similar fabric during rainstorms?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C14) Is runoff from wheel-washing facilities avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

C15) Is oil leakage or spillage prevented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C16) Are there any measures to prevent the release of oil and grease into the storm drainage system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C17) Are debris and rubbish generated on site collected, handled and disposed of properly to avoid them entering the streams?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C18) Are all fuel tanks and storage areas provided with locks and be sited on sealed areas, within bunds of capacity equal to 110% of the storage capacity of the largest tank?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C19) Are open storm water drains and culverts near the works area covered to block the entrance of large debris and refuse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C20) Are sufficient chemical toilets provided on site to handle sewage from construction work force?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C21) Are sewage disposal and toilet maintenance of the portable chemical toilets provided by the licensed contractors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C22) Are the oil interceptors / grease traps properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
C23) Is concrete washing water properly collected and treated prior to discharge?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

D. Chemicals and Waste Management

	Yes	Follow-up	N/A	Item no.
D1) The worksite free from general waste? (i.e. debris and rubbish accumulation avoided?)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D2) Is a trip-ticket system implemented to monitor the disposal of C&D and solid wastes at public filling facilities and landfills?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D3) Is a recording system implemented to record the amount of wastes generated, recycled and disposed of?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D4) Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D5) Are chemical waste separated from other waste and collected by a licensed chemical waste collector?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D6) Are trip tickets for chemical waste disposal available for inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D7) Is chemical waste reused and recycled on site as far as practicable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D8) Are all containers for chemical waste properly labelled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D9) Is chemical waste storage area used solely for storage of chemical waste and properly labelled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D10) Are incompatible chemical wastes stored in different areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D11) Is the chemical waste storage area enclosed on at least 3 sides and adequately ventilated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D12) Is an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or of 20% by volume of the chemical waste stored in that area, whichever is the greatest, provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D13) Are a routine cleaning and maintenance programme implemented for drainage systems, sump pits and oil interceptors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D14) Are sufficient general refuse disposal/collection points provided on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D15) Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D16) Are appropriate measures adopted to minimise windblown litter and dust during transportation of waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D17) Are individual collectors for aluminium cans, plastic bottles and packaging material and office paper provided to encourage waste segregation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

D18) Wood, steel and other metals separated for re-use and / or recycling to minimise the quantity of waste to be disposed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D19) Are C&D wastes sorted on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D20) Are C&D wastes disposed of properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D21) Are unused C&D materials or chemicals recycled or reused to reduce the quantity of waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D22) Are public fill and C&D waste reuse on site as far as practicable to avoid disposal off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D23) Are the construction materials stored properly to minimise the potential for damage or contamination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
D24) Is a dumping license obtained to deliver public fill to public filling areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

E. Mitigation of Landscape & Visual Impacts

	Yes	Follow-up	N/A	Item no.
E1) Construction light directed downward into the work sites/ areas to prevent glare to the surrounding receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
E2) Cleanliness and tidiness of the hoardings be maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
E3) Are hoarding or screening provided to site offices areas, construction yards and storage areas to screen the surrounding area from the works area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
E4) Is erection of decorative screen hoarding provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
E5) Are the retained and transplanted tree(s) properly protected and in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
E6) Are compensatory tree planting incorporated where trees are affected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

F. Others

	Yes	Follow-up	N/A	Item no.
F1) Are the environmental permit(s) posted at all vehicular site entrances/exits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

Non-Compliances/ Observations/ Reminders

Follow-up of Last Site Inspection

Client / ER

IEC

ET

Contractor

()

Date:

()

Date:

()

Date:

()

Date: